



**V**ERITY™  
**support procedures**

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**VERITY™**  
**support procedures**



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# introduction

## about this guide

This guide is designed to accompany Verity Support Procedures training course, as well as function as a stand-alone guide to support procedures for elections officials, support personnel, and warehouse staff. This guide contains detailed information regarding the following:

- Verity voting equipment specifications
- Storage and transport of the voting devices
- Voting device testing and maintenance procedures
- Voting device troubleshooting procedures

Also included are step-by-step procedures for the following tasks:

- Conducting device functionality and acceptance testing
- Preparing voting equipment for an election
- Predefinition of voting devices
- General procedures for election support of voting equipment

Since the *Verity Support Procedures Guide* document covers all Verity Voting System products, not all of the procedures in this document may apply to all implementations.

## **objectives of the Verity Support Procedures training course**

Through the course associated with this document, trainees learn the procedures necessary to support a successful election with the Verity Voting System, with special attention to skills required to successfully support the use of the polling place equipment including the Verity Touch Writer with Access and Verity Scan.

# Verity system components

## Verity Key

- ▶ **Verity Key** is a small security device that is programmed for each election. Verity Key is inserted into a USB port.



Verity Key is part of Verity's two-factor authentication process. Two-factor authentication requires each user to both *have* something (a programmed Verity Key) and to *know* something (the passcode associated with the Verity Key).

Critical operations within the Verity Voting system require the Verity Key to be inserted and the passcode to be entered. Only when the Verity system authenticates the Verity Key and password will it allow the operation to continue.

## Verity vDrives

- ▶ In the Verity system, **vDrives** are used to transfer ballots from software to device for voting, and to transfer voted ballots to software for tabulation.



vDrives are inserted into a standard USB port; each Verity voting device has its own vDrive.

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**TIP:**

The particular quantities and types of voting equipment may vary depending on your jurisdiction.

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## Verity system components, *continued*

### Verity Touch Writer with Access

- ▶ Using **Verity Touch Writer**, voters mark digital ballots via a touch screen. After the voter has confirmed the selections, the voter prints the marked ballot on the attached printer. The voter then retrieves and casts the ballot.



Verity Touch Writer devices are compatible with **Verity Access**, which provides the voter with additional input options: buttons with scrolling wheel, headphones, and tactile button or sip-and-puff devices. The Verity Access can be docked within the Verity Touch Writer or held in hand.



## Verity system components, *continued*

### Verity Scan

- ▶ **Verity Scan** is a polling-place-based digital scanner for voted ballots. Scan can be used with hand-marked ballots or with those printed using the Touch Writer. Verity Scan allows the voter the opportunity to check and correct the ballot before casting. Verity Scan deposits scanned ballots into its ballot box for secure storage.



## important safeguards

**! DANGER:** Never place any device on an unstable card, table, etc. The product may fall, causing serious injury and serious damage to the product. When using carts and caddies, The product and cart/caddy must be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and caddy combination to overturn, causing serious injury. Use only with a booth, cart or stand approved for use with the device.

**! DANGER:** Never attempt to service a unit yourself. Only the battery door, scanner door, and thermal printer door should be opened by jurisdictional personnel. Equipment should only be serviced by qualified Hart personnel.

**! DANGER:** Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short out parts that could result in fire or electric shock.

### General safeguards

- ▶ Read and keep all instructions.
- ▶ Use only Hart approved peripheral attachments and cords.
- ▶ Keep all equipment away from water and moisture.

## Power sources

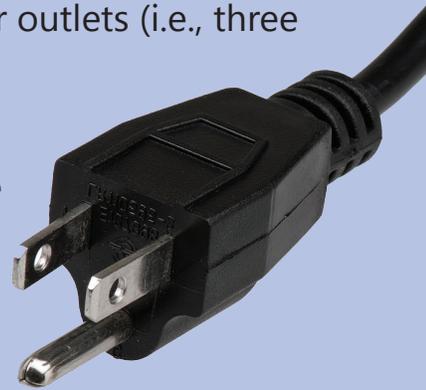
- ▶ Use only approved battery packs and 125V AC power with grounded, three-prong outlets. Do not overload AC power wall outlets or extension cords as this may cause a fire.
- ▶ Do not discharge, short circuit, or dispose of in water. Do not expose battery module to temperatures above 60C (140F). Do not mishandle or disassemble battery module. Failure to follow these instructions may present risk of explosion, fire, or high temperatures.
- ▶ Follow the AC power and battery best practices as listed on the following page.

## Cleaning

- ▶ Unplug the equipment from the wall outlet and any other equipment before cleaning.
  - Use only isopropyl alcohol (50% or higher) and lint-free wipes to clean Verity tablet display and Scanner path.
  - Never use detergent-based cleaners.
  - Never use aerosol cleaners.
  - Never spray cleaner directly on the unit.
  - Do not use compressed air to remove dust.
- ▶ Never spill or spray anything on or into the product. If liquid is spilled on the product, turn it off immediately, wipe away the liquid, and then return the unit to the local election officials for servicing.

## AC power and battery best practices

- ▶ Only use grounded AC power outlets (i.e., three prong outlets).
- ▶ Do not use three-prong to two-prong adapters, as these disable the ground path.
- ▶ Use power strips with lights that show that power is present.
- ▶ Ensure power switches on AC power strips are turned on.
- ▶ Test each socket beforehand; it is not uncommon to have a bad socket in a power strip or a wall outlet.
- ▶ Use Hart approved battery charging stations.
- ▶ Avoid allowing batteries to completely discharge. Charging a battery that has completely discharged may take longer, and repeatedly allowing the battery to discharge completely may reduce the overall battery life.





## 1

# specifications & storage

## equipment specifications

The specifications for each Verity device and accessory are listed below. These specifications can be used to estimate required warehouse storage capacity and accessibility.

### Verity Touch Writer



Item	Measurement
Height (closed) (in.)	7.7
Width (closed) (in.)	18.8
Depth (closed) (in.)	15.6
Weight (lbs.)	28.5
Weight w/ batteries (lbs.)	29.3
Display (in.)	12.1
Screen size (in.)	12.1

## equipment specifications, *continued*

### Verity Touch Writer booth (standard)

Item	Collapsed in Bag	Collapsed	Deployed
Height (in.)	22	39.7	33.6
Width (in.)	31.5	29	28.8
Depth (in.)	4	5.5	23.3
Weight (lbs.)	11.7	10.1	10.1

### Verity Touch Writer booth (accessible)

Item	Collapsed in Bag	Collapsed	Deployed
Height (in.)	19.5	37.9	30.2
Width (in.)	41.5	39.1	38.8
Depth (in.)	4	5.8	25.5
Weight (lbs.)	11	10.1	10.1

### Verity Touch Writer ballot printer & paper



Item	Measurement
Printer Model	OKI 8431d
Printer weight (lbs)	26
Printer dimensions (in.)	15.2 x 14.3 x 9.6
Paper sizes accepted	8.5" x 11" 8.5" x 14" 8.5" x 17"
Paper weight	28lb
Paper brightness	92

# specifications & storage

## equipment specifications, *continued*

### Verity Scan



Item	Measurement
Height (closed) (in.)	7.7
Width (closed) (in.)	18.8
Depth (closed) (in.)	15.6
Weight (lbs.)	28.3
Weight with batteries (lbs.)	29.1
Display (in.)	12.1
Screen size (in.)	12.1

### Verity Scan ballot box



Item	Collapsed in Bag	Collapsed	Deployed
Height (in.)	28.5	28.3	28.3
Width (in.)	26.5	26	26
Depth (in.)	5.5	5.2	23.3
Weight (lbs.)	26.9	25.6	25.6

### Thermal paper rolls



Item	Measurement
Width (in.)	2.25
Length (ft.)	80

# environmental standards & storage

## Device environmental standards

	Temperature	Humidity
Operation	41° F - 104° F	less than 85% average humidity
Storage	less than 150° F	less than 95% average humidity

## Best practices for device storage

- ▶ Store voting equipment on racks, off the floor.
- ▶ Cover racks to protect voting devices from water damage from above (e.g., leaking roofs).
- ▶ The use of drop cords that contain multiple outlets is highly recommended, as this allows several polling place sets to be maintained at one time while minimizing the number of cords pulled throughout the facility.
- ▶ Conveyor belts or hand trucks can be used to transport equipment from storage to workstations.

## environmental standards & storage, continued

### Power accessibility in storage facility

- ▶ Power requirements: 125 VAC, 60 Hz, 60 W.
- ▶ At least one workstation with AC power should be available for functionality testing of devices.
- ▶ Verity voting devices typically require 0.5 Amps from a 125 VAC power outlet to operate. A standard 15 Amp circuit will be adequate to run several Verity systems. Please consult an electrician or other qualified personnel to determine how many Verity systems can be plugged into a standard 15Amp circuit.

### Thermal paper storage

Item	Recommendation
Storage life (printed)	7 years
Storage life (blank)	2.5-3 years
Storage temperature	below 77° F

Thermal paper is very sensitive to moisture changes, and this fluctuation can cause print quality issues. Correct storage temperature and humidity are essential to ensuring proper paper handling and performance.

- Optimum paper storage is 68° to 76° F
- Optimum storage humidity is 35% to 55%. External air from open doors and excessive in-and-out traffic may defeat environmental control systems.

## **environmental standards & storage,** *continued*

- Do not store paper directly on the floor. Store paper on pallets, shelves, or in cabinets in an area protected from extremes in temperature and humidity.
- Open sealed reams of paper only when installing in devices.

Typical shelf life of unused thermal paper is a maximum of 2.5 to three years when stored under optimum conditions. Storing thermal paper in the device in a non-air-conditioned warehouse can cause poor printouts. If you plan on storing equipment in an environmentally uncontrolled warehouse, Hart recommends removing the thermal paper prior to long-term storage.

## **transportation of voting equipment**

- ▶ Verity Scan and Touch Writer need to be protected when transporting as well as storing. Moving parts, optics within the scanner, and tablet computers are sensitive to excessive dust, moisture, and vibration.
- ▶ Always use a Hart-approved shipping container, such as the original cardboard Verity device boxes, when transporting the devices between facilities (for example, to or from a polling place).
- ▶ Heavy-duty shipping containers are available for purchase from the Hart catalog.

## 2

# functionality and acceptance testing

## testing definitions

A **Functionality Test** tests the ability of the voting equipment to work as intended; Functionality tests should be completed at least once per year or before every election.

An **Acceptance Test** includes a functionality test as well as more in-depth testing using a test election. An Acceptance Test is done the first time the equipment is delivered from Hart.

## testing definitions, *continued*

A **Logic and Accuracy Test** (“LAT” or “L&A”) is a test of the ballot, election database, and tabulation software. Logic and Accuracy Tests are run for each election, according to rules set by the state. For discussion of and procedures related to Logic and Accuracy Testing, see the appendix in the *Verity Administrator’s Guide*.



## **functionality test procedures: Verity Touch Writer**

A functionality test for the Verity Touch Writer includes four steps:

- 1** Test the touch screen
- 2** Test the Verity Access controller
- 3** Test the thermal printer
- 4** Test the ballot printer

Tests for the touch screen, access controller, thermal printer, and ballot printer are available on the Touch Writer itself, under the **Device Tests** menu. Instructions for each of the steps in the Touch Writer functionality test begin on the following page.

In addition to the above tests, an optional check of the system battery may be performed. For instructions on checking the system battery, see [page 51](#).

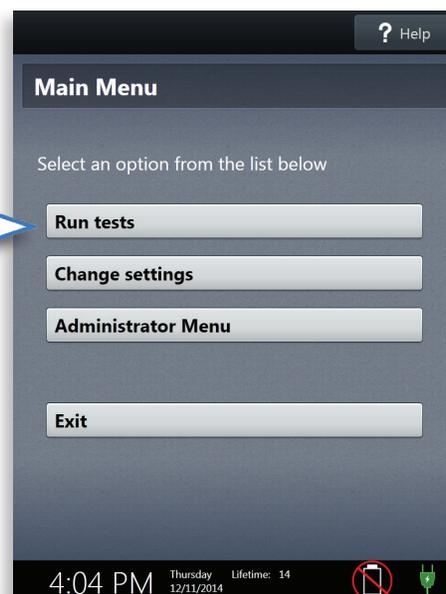
## functionality tests: Touch Writer, *continued*

### Testing the touch screen

**1** On the device startup screen, select the Menu button. ▶



**2** Select Run tests. ▶



# functionality & acceptance testing

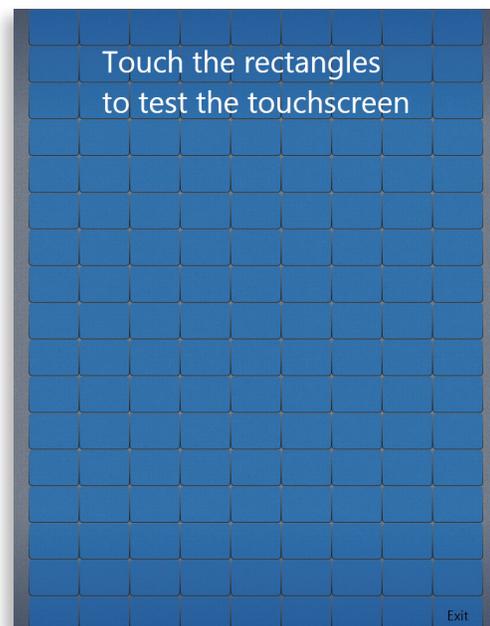
## functionality tests: Touch Writer, *continued*

**3** Select Test touch screen. ▶

**3**

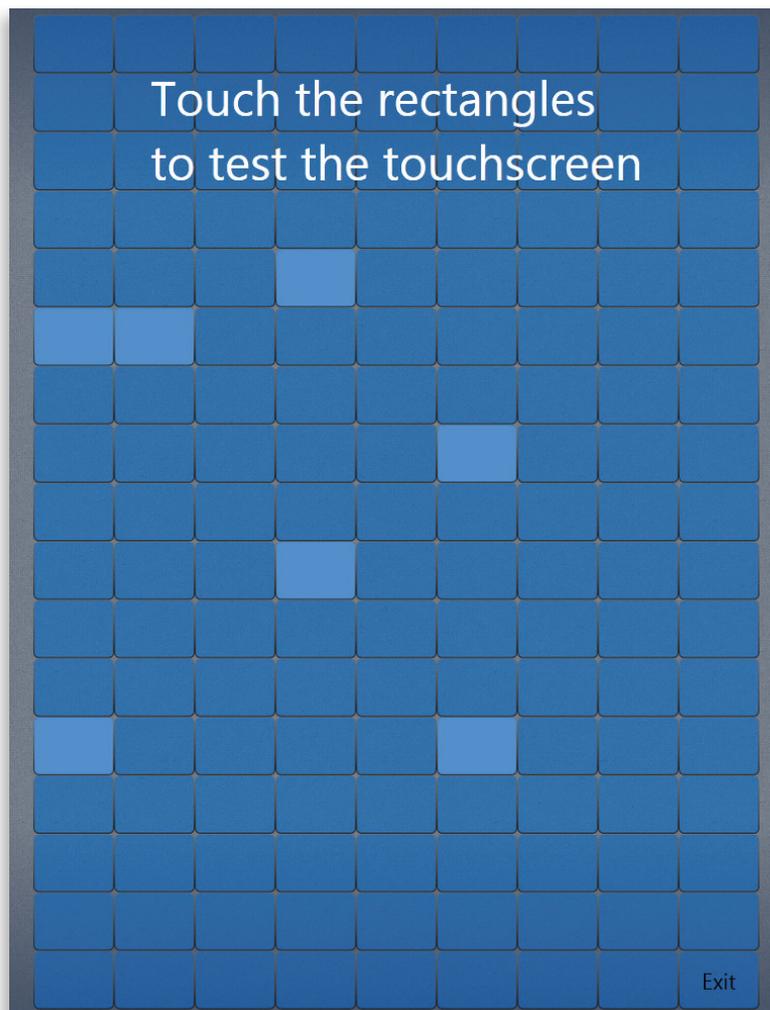


**4** Touch the blue rectangles to test the accuracy of the touch screen. ▶



## functionality tests: Touch Writer, *continued*

- 5** Each rectangle should illuminate when touched. Select the Exit button in the bottom right corner to exit the test. ▼



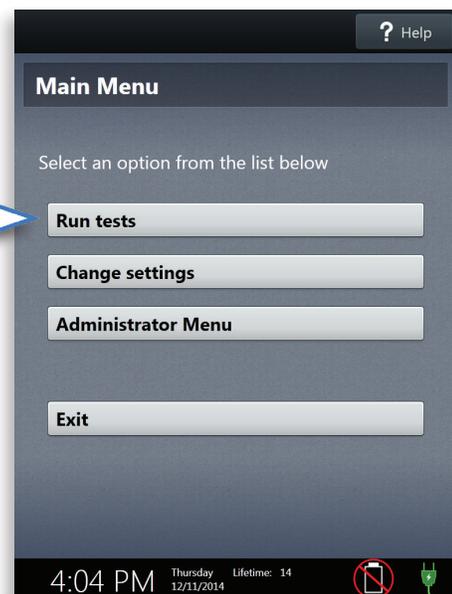
## functionality tests: Touch Writer, *continued*

### Testing the Verity Access controller

**1** On the device startup screen, select the Menu button. ▶



**2** Select Run tests. ▶



## functionality tests: Touch Writer, *continued*

**3** Select Test Access controller. ▶

**3**



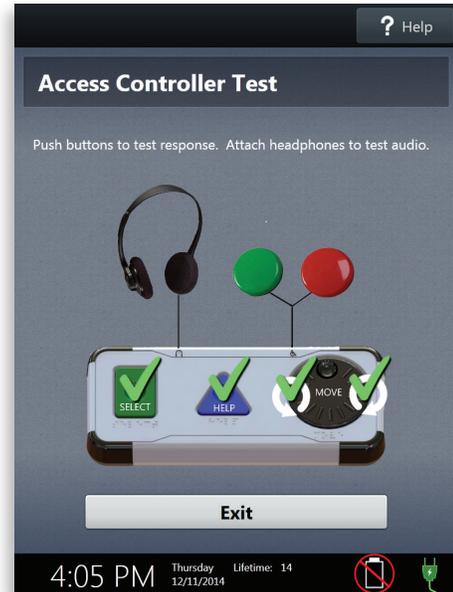
**4** On the Access controller, press each button once to test the response. To test the Move wheel, turn the wheel to the left and then to the right. ▶



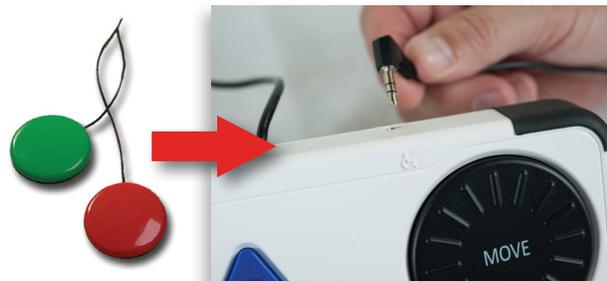
# functionality & acceptance testing

## functionality tests: Touch Writer, *continued*

**5** On the screen, testing success is indicated by a green check mark appearing over each button after you have tested it on the controller. ▶



**6** Connect headphones and tactile switches to the Access controller and repeat step 5 to test their function. Select **Exit** when done.



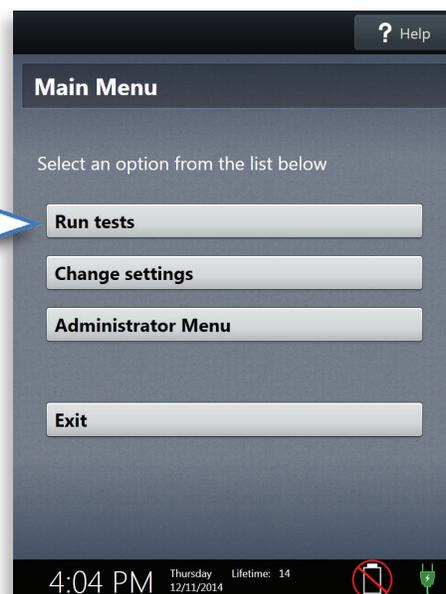
## functionality tests: Touch Writer, *continued*

### Testing the thermal printer

**1** Confirm that the thermal printer is loaded with paper. On the device startup screen, select the **Menu** button. ▶



**2** Select **Run tests**. ▶

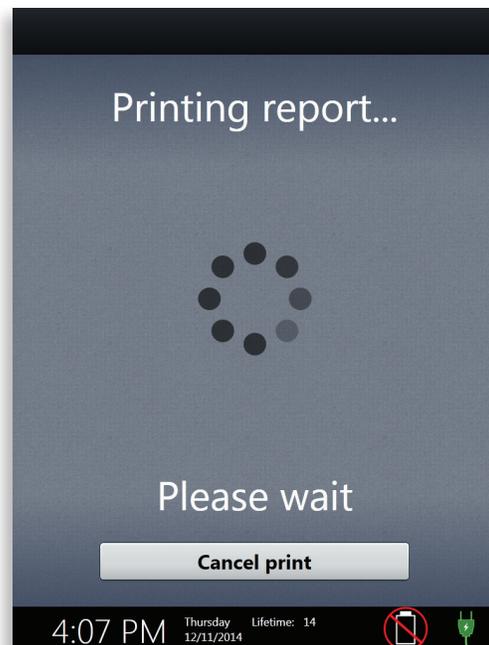


## functionality tests: Touch Writer, *continued*

- 3** Select Print thermal test page.



- 4** Wait while the test page prints on the on-board thermal printer. If the test page does not print, check that the thermal paper roll is properly installed. Restart the device and repeat the test. ▶



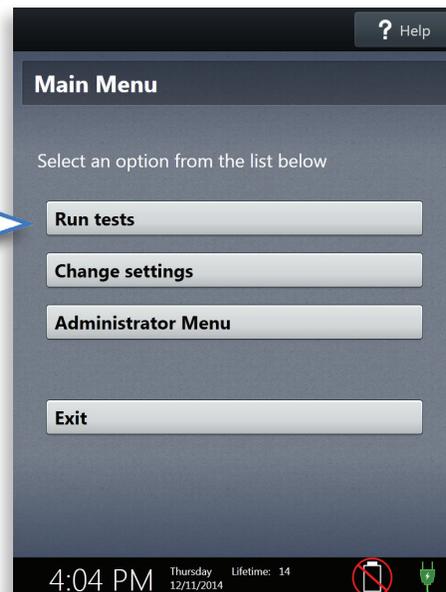
## functionality tests: Touch Writer, *continued*

### Testing the ballot printer

**1** Confirm that the ballot printer is connected to the Touch Writer and loaded with ballot paper. On the device startup screen, select the **Menu** button. ▶



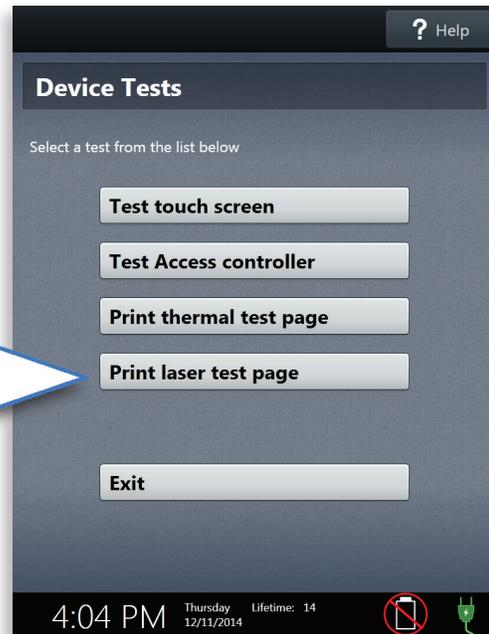
**2** Select **Run tests**. ▶



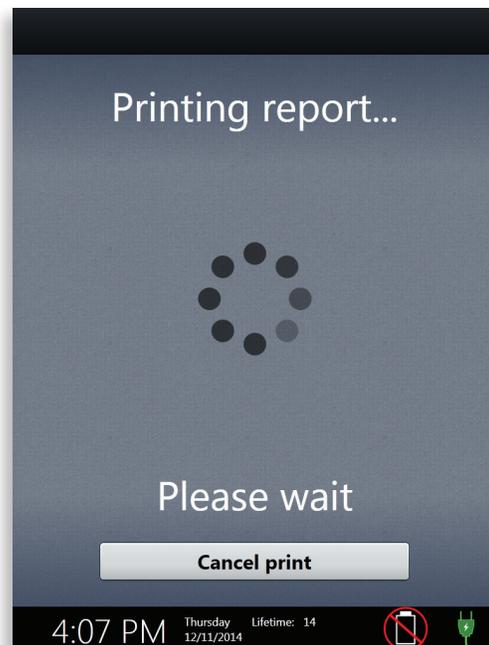
# functionality & acceptance testing

## functionality tests: Touch Writer, *continued*

- 3** Select Print laser test page. ▶



- 4** Wait while the test page prints. If the test page does not print, printer paper is properly installed, the printer cable and power cables are connected, and the printer is turned on. Restart the device and repeat the test. ▶



## functionality test procedures: Verity Scan

A functionality test for the Verity Scan includes three steps:

- 1** Test the touch screen
- 2** Test the scanner
- 3** Test the thermal printer

Tests for the touch screen, scanner, and thermal printer are available on the Verity Scan itself, under the **Device Tests** menu. Instructions for each of the steps in the Scan functionality test begin on the following page.

In addition to the above tests, an optional check of the system battery may be performed. For instructions on checking the system battery, see [page 51](#).

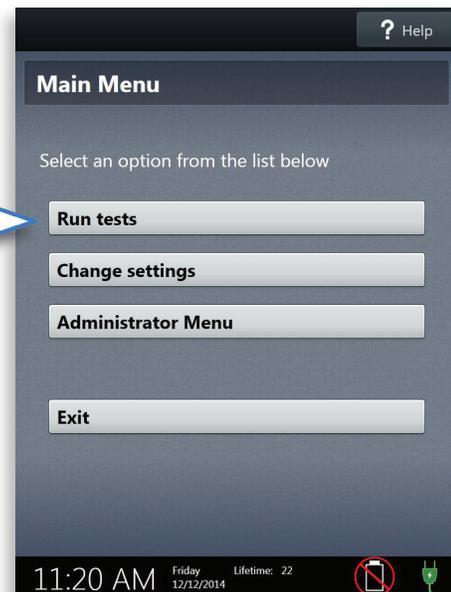
## functionality tests: Scan, *continued*

### Testing the touch screen

**1** On the device startup screen, select the Menu button. ▶



**2** Select Run tests. ▶

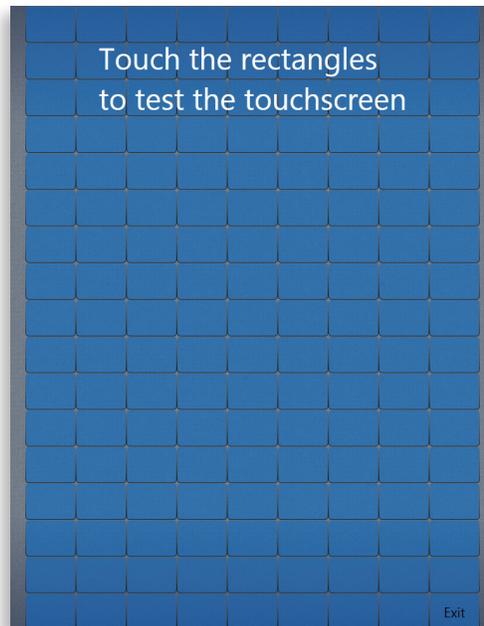


## functionality tests: Scan, *continued*

**3** Select Test touch screen. ▶



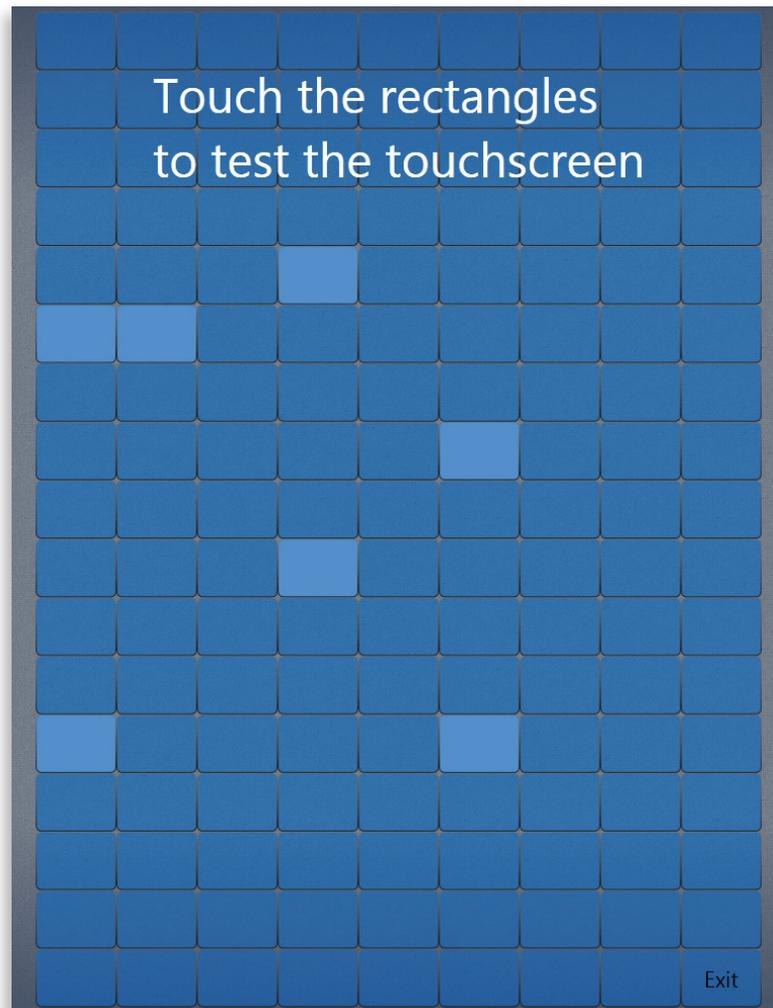
**4** Touch the blue rectangles to test the accuracy of the touch screen. ▶



## functionality & acceptance testing

### functionality tests: Touch Writer, *continued*

- 5** Each rectangle should illuminate when touched. Select the Exit button in the bottom right corner to exit the test. ▼



## functionality tests: Scan, *continued*

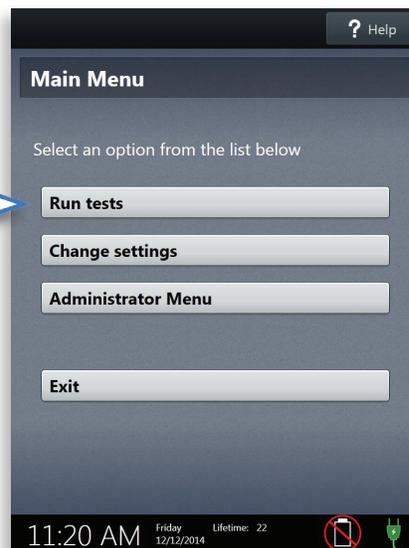
### Testing the scanner\*

\* *Note: To test the scanner, you will need a bitonal test sheet.*

**1** On the device startup screen, select the **Menu** button. ▶



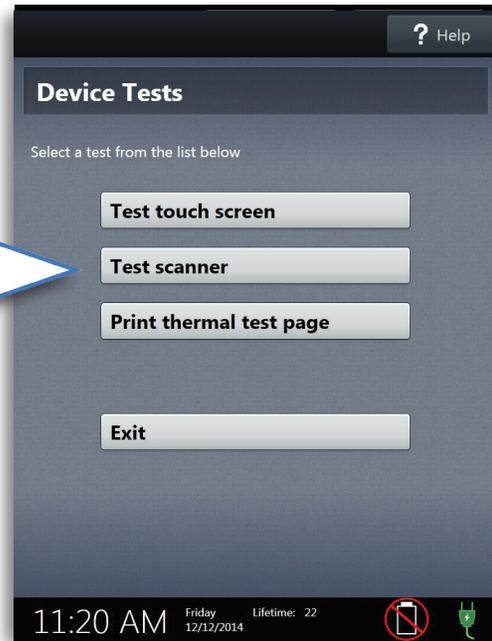
**2** Select **Run tests**. ▶



# functionality & acceptance testing

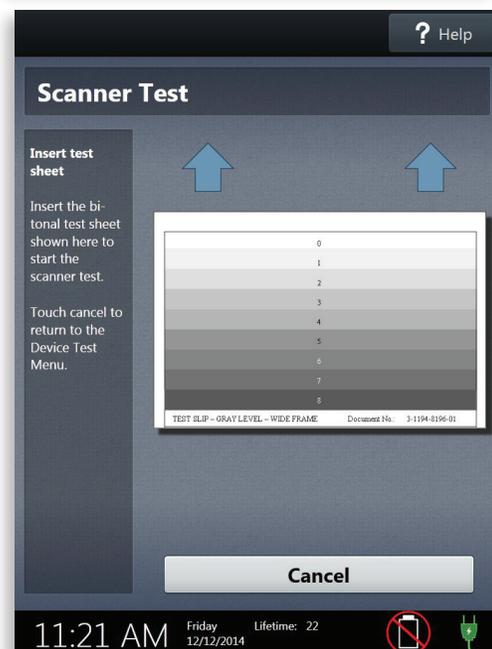
## functionality tests: Scan, *continued*

**3** Select Test scanner.



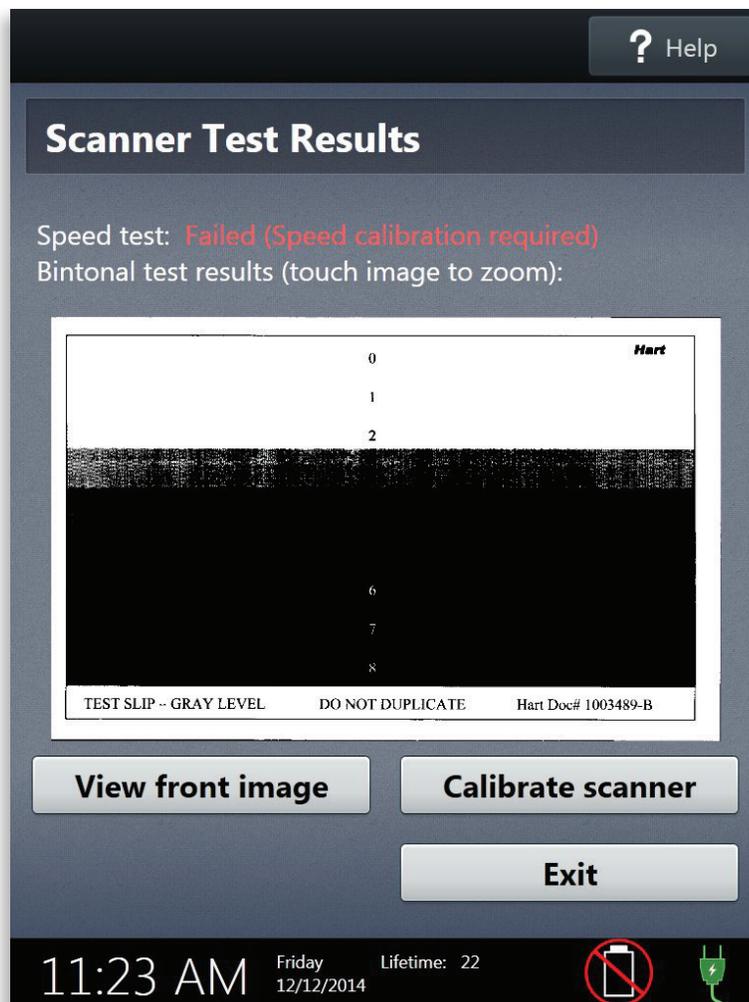
**4** When the Scanner Test screen displays, insert the bitonal sheet into the scanner as shown. The device will perform a speed test. ▶

**! IMPORTANT:** Use only Hart-provided bitonal test sheets. Do not use photocopies.



## functionality tests: Scan, *continued*

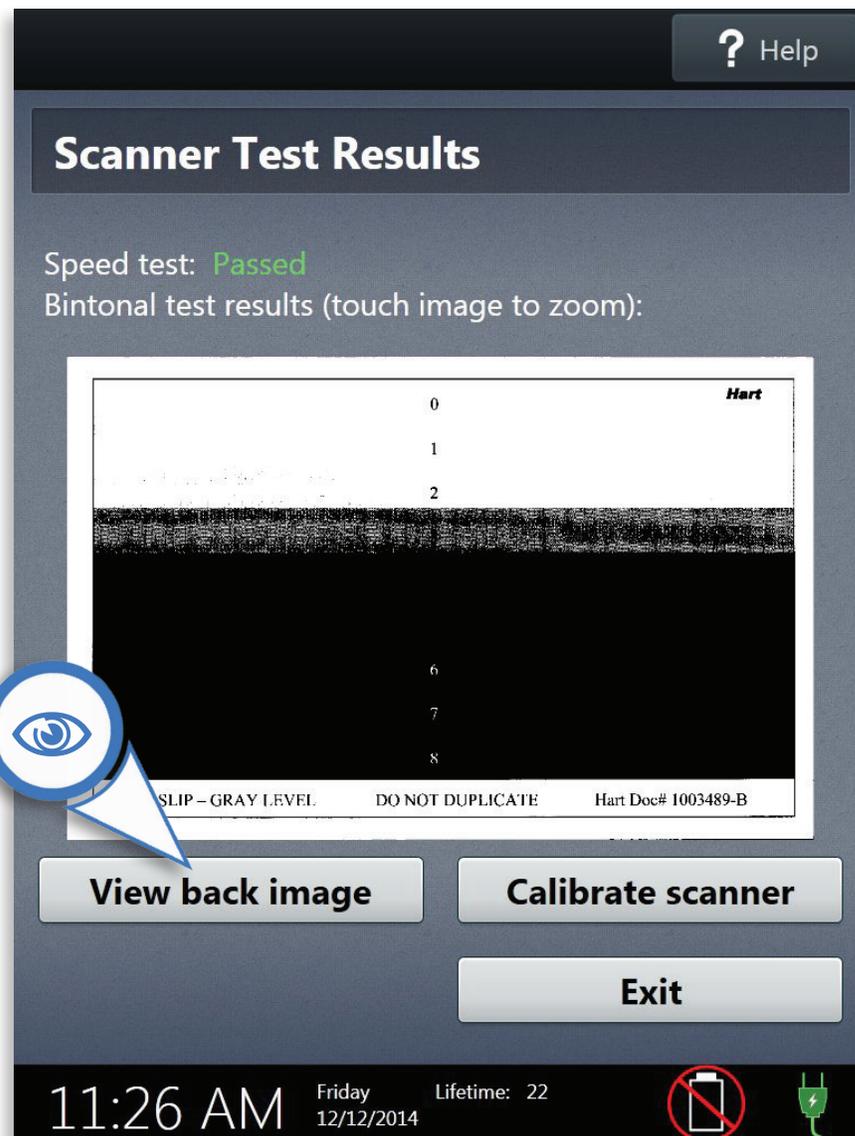
**5** If you receive confirmation that the speed test has **Passed**, continue to step 7. If the device displays **Speed test: Failed**, perform calibration on the scanner ([page 80](#)), and then repeat the scanner functionality test. ▼



# functionality & acceptance testing

## functionality tests: Scan, *continued*

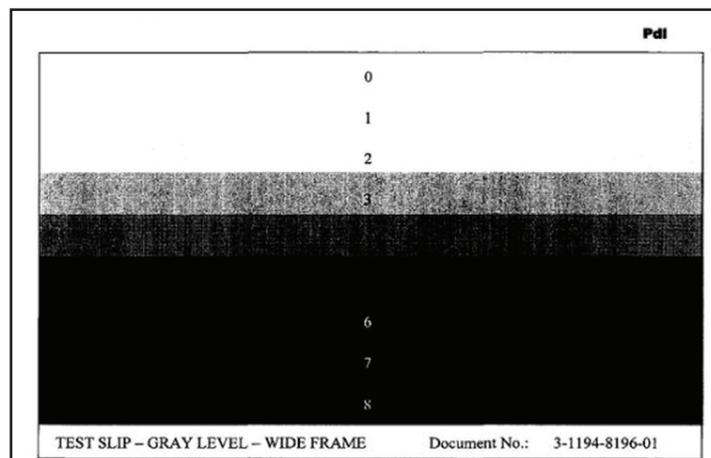
- 6** If the speed test passes, check the image on the screen. Select **View back image** to see the other side of the test sheet (check both sides). ▼



## functionality tests: Scan, *continued*

- ▶ Zone 0 (uppermost zone) should be completely white.
- ▶ Zones 5-8 (lowest four zones) should be completely black.
- ▶ Bands across should be relatively even in darkness.
- ▶ Image should be free of dark vertical lines or white/blank vertical spaces that pass through all zones.

### an example of a good scan image

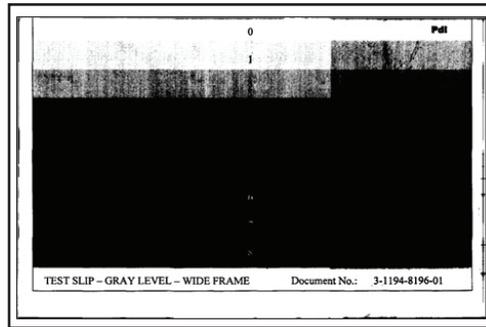


If the speed test fails, or if any of the four items above are not the case, perform calibration on the scanner ([page 80](#)), and then repeat the scanner functionality test. If the scanner repeatedly fails the speed and/or contrast test even after calibration, send the device to Hart for repair (see instructions for creating an Return Materials Authorization on [page 95](#)).

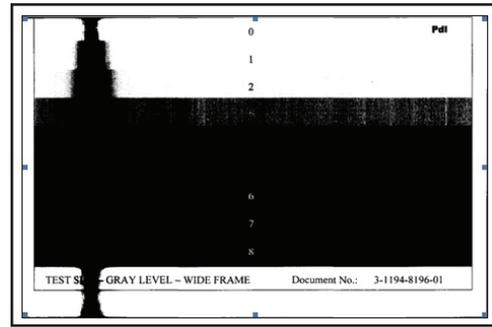
# functionality & acceptance testing

## functionality tests: Scan, *continued*

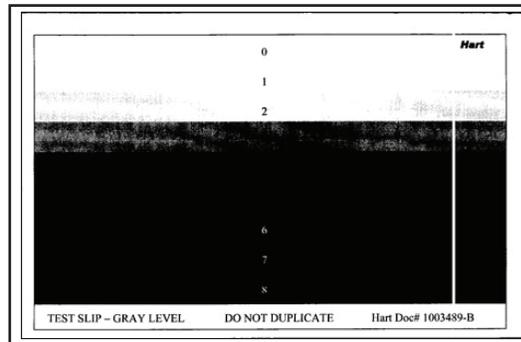
### some examples of bad scan images



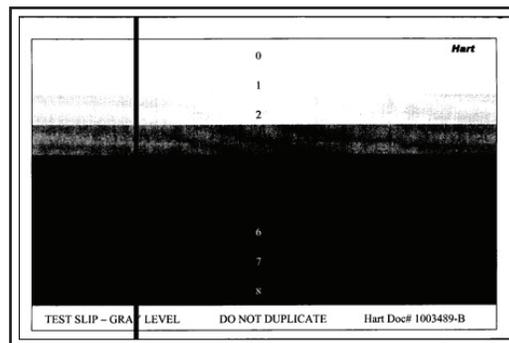
bad scanner read head



bad red LED sector



bad pixel (always off)



bad pixel (always on)

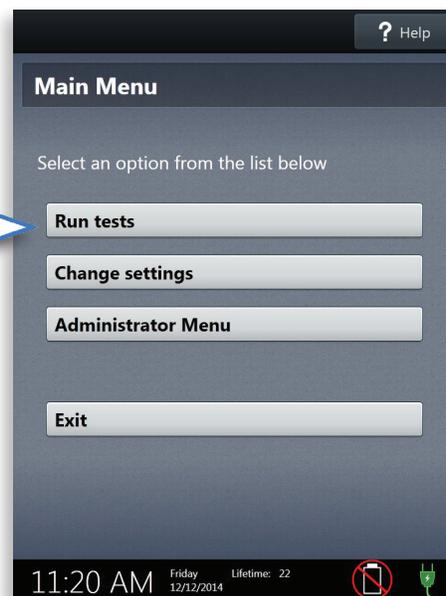
## functionality tests: Scan, *continued*

### Testing the thermal printer

**1** Confirm that the thermal printer is loaded with paper. On the device startup screen, select the **Menu** button. ▶

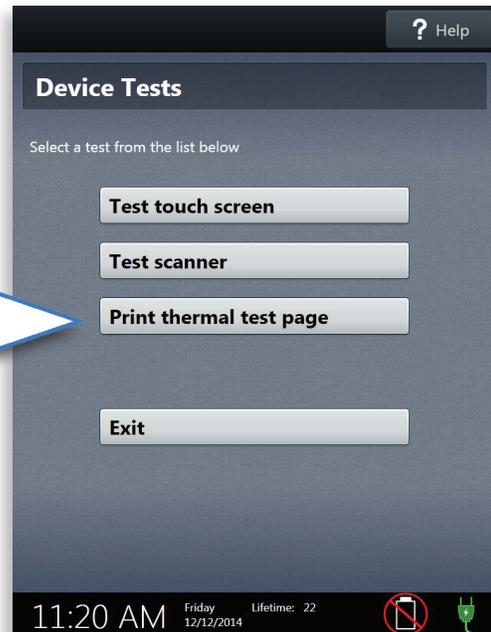


**2** Select **Run tests**. ▶

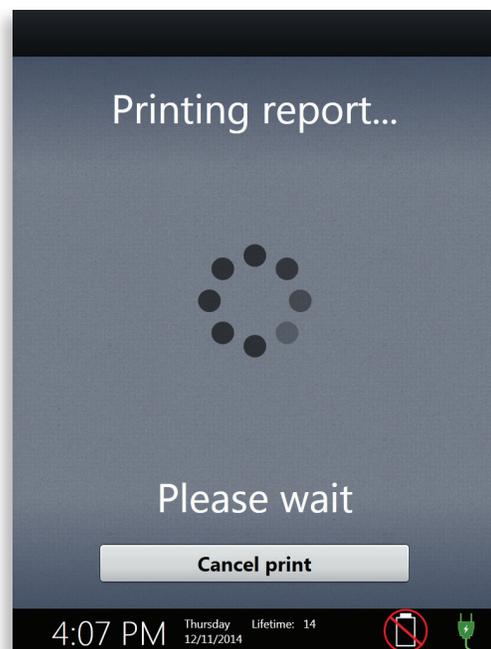


## functionality tests: Scan, *continued*

- 3** Select Print thermal test page.



- 4** Wait while the test page prints. If the test page does not print, check that the thermal paper roll is properly installed. Restart the device and repeat the test.



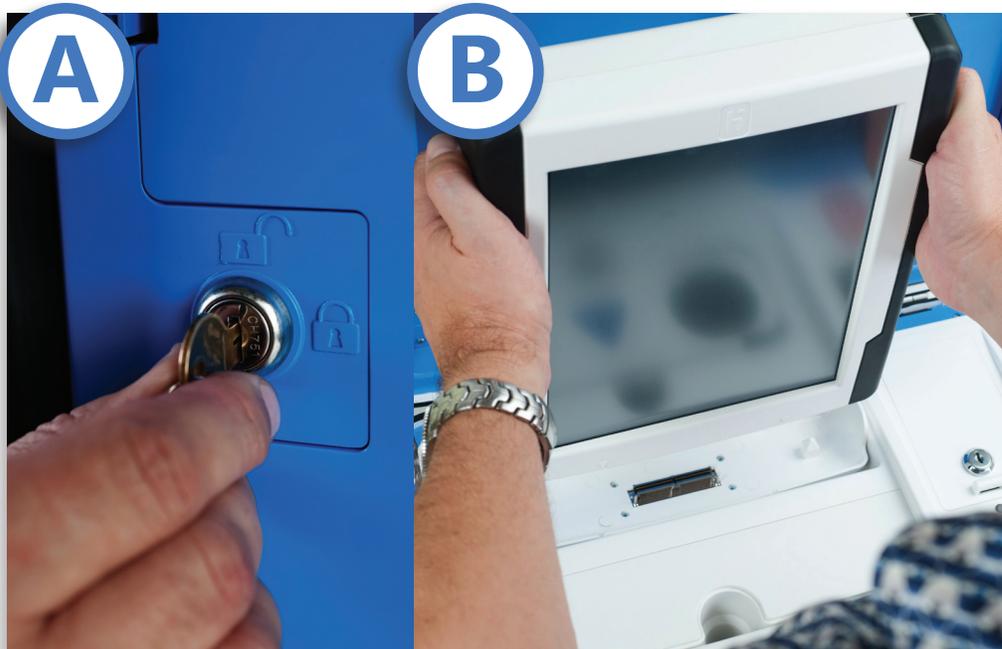
## checking the system battery

Performing a battery check may be included in basic functionality tests. The steps for checking the device system batteries are below:

- 1** Press the power button on the back of the device to turn it off. ▶



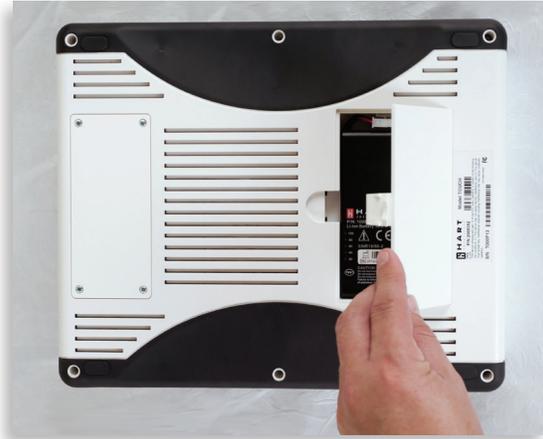
- 2** Unlock (A) and remove the device tablet from its cradle (B). ▼



## functionality & acceptance testing

### checking the system battery, *continued*

**3** On the back of the tablet, open the battery door. ▶



**4** Press the button on the front left of the battery to test the battery charge. For battery replacement & charging procedures, see [page 85](#).



**! IMPORTANT:** Ensure battery is connected correctly. The tab on the connector coming from the battery must snap over the tab on the wire coming from the tablet. Failure to properly connect the battery can result in fire and damage to the device



## **acceptance testing overview**

An acceptance test should be performed whenever new or refurbished equipment is received for the first time. An acceptance test includes tests of basic physical condition of the equipment, as well as functionality tests and procedures designed to verify that all equipment meets the requirements necessary to function within an election environment.

To perform a system-wide Acceptance test, you will need:

- Thermal printer paper (1 per device)
- Scanner bitonal test sheet(s)
- Scanner speed calibration sheets and blank white paper (if performing calibration)
- Device/equipment keys
- Verity Key, vDrive(s), and ballots created using a test election
- Logs, forms, and asset labels (if performing inventory)
- Acceptance test checklists (at least 1 for each type of device or equipment)
- Power supply (power strips, extension cords, etc.)

## acceptance test: suggested workflow

Below is the Hart recommended procedure for conducting an acceptance test for an implementation including Touch Writers, Scans, booths, ballot boxes, and storage caddies. The acceptance testing workflow for your jurisdiction may differ depending on your implementation, the quantity of equipment, available storage and warehouse space, and the number of staff members available.

Hart also suggests that election officials prepare an acceptance test layout plan in advance; a sample acceptance test layout is on [page 60](#).

**1** Set up marked areas in warehouse for:

- Box unloading
- Box unpacking/staging
- Touch Writer assembly and testing
- Scan testing assembly and testing
- Storage caddy assembly/testing (if applicable)

## acceptance test: suggested workflow, *continued*

**2** Set up teams to handle each part of the process (*a minimum of two people per team is recommended*).

- Unloading Trucks
- Unpacking equipment
- Setting up/moving equipment
- Testing/inspection of equipment
- Performing inventory/affixing asset labels
- Disassembly and preparing for storage

**3** Unload trucks, place boxes in appropriate area of warehouse floor.

**4** Unpack equipment and move to staging area, separating by equipment type. If desired, save packing boxes for future use, or recycle.

- Voting booths
- Ballot printers
- Touch Writers and Touch Writer tablets
- Verity Access interfaces
- Headphones and tactile input switches
- Ballot boxes
- Scans
- Storage caddies

## **acceptance test: suggested workflow,** *continued*

- 5** Move booths to Touch Writer test area.
- 6** Set up, inspect, and test booths using the booth acceptance test checklist.
  - Set up booths.
  - Perform acceptance test on booths.
  - Affix asset labels to booths; record asset numbers.
- 7** Move ballot printers to Touch writer test area.
  - Place printers on tables next to booths.
  - Install printer cables and toner.
- 8** Move Touch Writers, Access interfaces, Tablets, and headphones to appropriate test area.

## acceptance test: suggested workflow, *continued*

**9** Set up, inspect, and test Touch Writers using the Touch Writer acceptance test checklist.

- Set up Touch Writers on booths.
- Open Touch Writers and install tablets, Access interfaces, and headphones.
- Connect ballot printers to Touch Writers.
- Perform acceptance test on Touch Writers (with ballot printers).
- Take Touch Writer reports and printed ballots to Scan test area.
- Affix asset labels to tablets, Touch Writers, and ballot printers; record asset numbers.
- Disassemble Touch Writers and prepare booths, ballot printers, and Touch Writers for storage.

**10** Move ballot boxes to Scan test area.

**11** Set up, inspect, and test ballot boxes using the ballot box acceptance test checklist.

- Set up ballot boxes.
- Perform acceptance test on ballot boxes.

## acceptance test: suggested workflow, *continued*

**12** Move Scan units to Scan test area.

**13** Set up, inspect, and test Scans using the Scan acceptance test checklist.

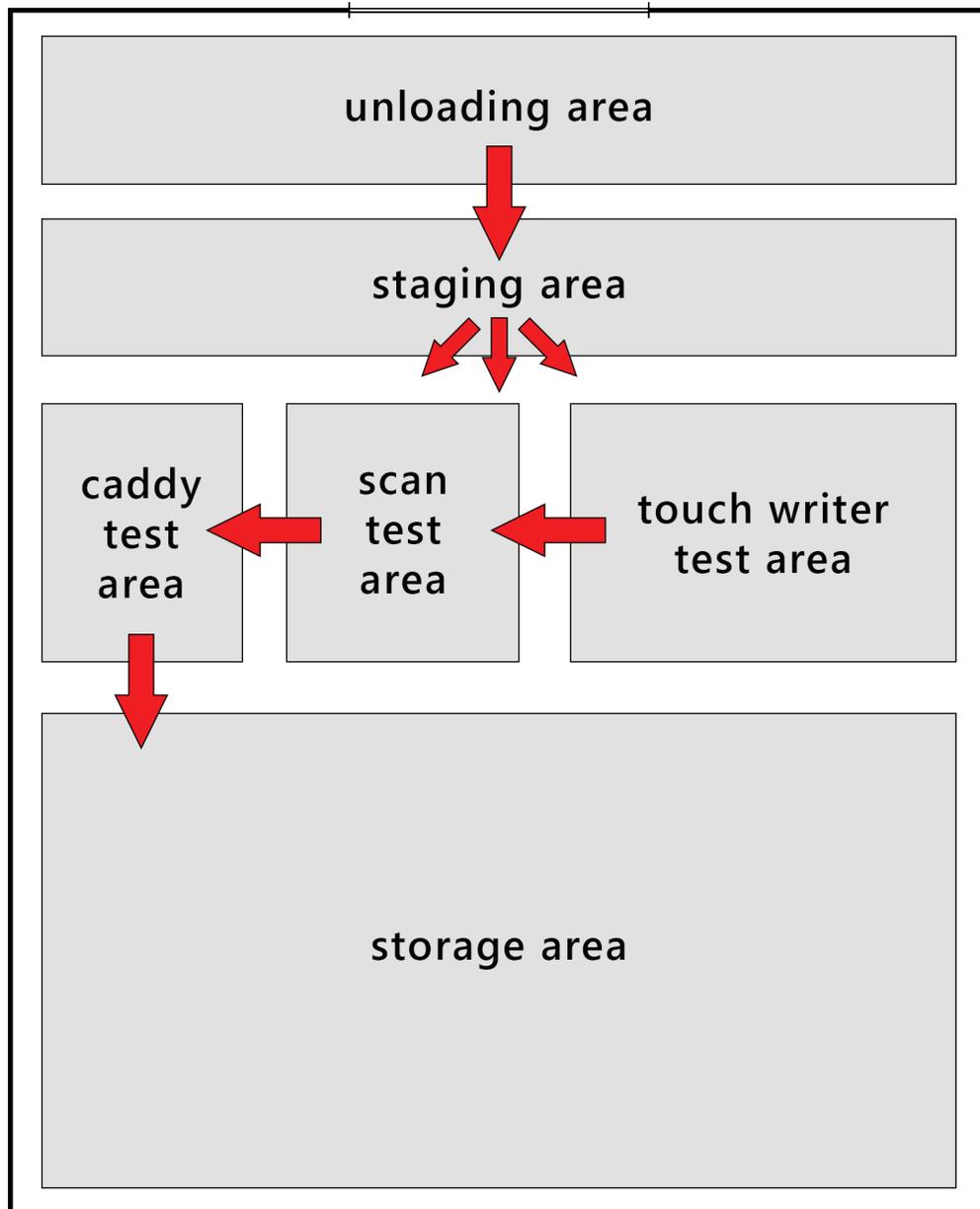
- Set up Scans on ballot boxes.
- Open Scans and install tablets.
- Perform acceptance test on Scans (with ballot boxes).
- Affix asset labels to tablets, Scans, and ballot boxes; record asset numbers.
- Disassemble ballot boxes and Scans and prepare for storage.

**14** Move storage caddies to caddy test area (if applicable).

**15** Set up, inspect, and test storage caddies using the caddy acceptance test checklist.

- Assemble caddies.
- Perform acceptance test on caddies.
- Rack voting equipment on caddies and move to storage area.

## sample acceptance test layout plan



## acceptance test checklists

When performing an acceptance test, you may be performing several tasks, including:

- ▶ Performing acceptance tests based on the acceptance test checklist for that equipment type.
- ▶ Predefining and voting the equipment using a test election (for predefinition instructions, see [page 111](#)).
- ▶ Setting device clocks, if necessary ([page 92](#)).
- ▶ Verifying device firmware versions ([page 67](#))
- ▶ Performing inventory of devices and accessories and recording device serial numbers, and affixing and recording asset labels.

Each type of Verity equipment has a dedicated acceptance test checklist (these forms are included in the *Verity Logs and Labels Pack*, available from Hart). Sample lists of requirements for each type of equipment are given on the following pages.

**Note:** *your jurisdiction may have other requirements in addition to or in place of the items listed in the following checklists.*

## acceptance test checklists

### Verity Touch Writer

- No visible shipping damage to unit, 3 sets of keys, headphones, custom printer cable provided
- Power brick and cord are present, 3 locks function
- System battery is connected to tablet
- Tablet docks into cradle; green docking LED on
- Touch Writer unit boots properly
- Thermal printer functions – printed serial # matches case/tablet #
- Verify firmware version correct
- Able to open election and print ballot
- Screen display is clear, touch screen functions
- Access module functional (tactile switch/headphone)
- Pollworker button functions
- Ballot printer functions
- Ballot and Lifetime counters increment correctly
- Operates on battery power and recovers when AC power reapplied

## acceptance test checklists, *continued*

### Verity Scan

- No visible shipping damage to unit, 3 sets of keys provided
- AC power brick and cord are present, 3 locks function
- System battery is connected to tablet
- Tablet docks into cradle – green docking LED is on
- Scan unit boots properly
- Thermal printer functions – printed serial # matches case/tablet #
- Verify firmware version correct
- Operates on battery power then recovers when AC power reapplied
- Scanner feed direction indicator lights work properly
- Pollworker button functions
- Scanner functional/calibrated
- Able to open election, scan, and cast ballot
- Screen display is clear, touch screen works properly
- Ballot, Sheet, and Lifetime counters increment correctly

## acceptance test checklists, *continued*

### Verity storage caddy

- No shipping damage
- Caddy is square
- Caddy door rotates freely around its hinge\*
  - Door latch handle not loose
  - Door latch holds door firmly in place
- Separators are straight and not loose
- All caster wheels spin freely and brakes lock\*

### Verity Touch Writer booth

- No shipping damage
- 2 privacy screens included
- Hart carrying bag included
- Leg sections connect/disconnect easily
- Plastic top folds over and snaps in place
- Assembled booth is level
- Touch Writer fits atop booth in locked position
- Privacy screens snap into place correctly
- Privacy screens can be removed
- Touch Writer unlocks/removed from booth
- Booth fits into carrying bag provided
- Printer table present/undamaged

## acceptance test checklists, *continued*

### Verity Scan ballot box

- No shipping damage
- Two sets of keys are included
- Hart carrying bag included
- Unfolds and assembles properly
- Front access door opens, closes, locks, unlocks
- Emergency ballot slot opens, closes
- Emergency ballot bag present/attached
- Primary ballot drop slot is unobstructed
- Scan fits atop ballot box in locked position
- Ballot feeds through Scan and into ballot box
- Scan unlocks/removed from ballot box
- Ballot box collapses properly

## acceptance test checklists, *continued*

### Verify computer workstations

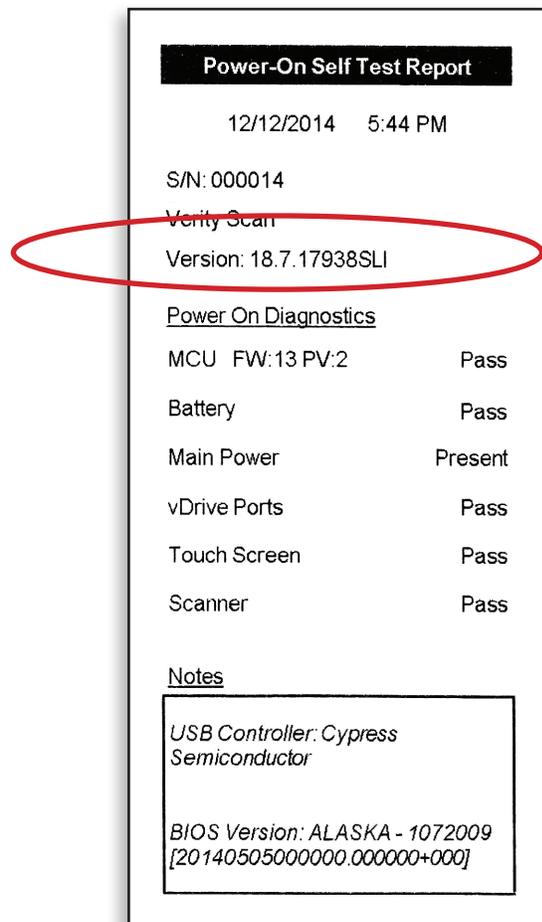
In most cases a Hart representative will work closely with election officials and staff to set up the necessary Verity software workstations for your implementation. Ideally, acceptance tests of the workstations should be performed in the location where the workstations will be installed. At minimum, an acceptance test for a computer workstation should include the following checks:

- No shipping damage
- Serial Number correct per hardware list
- Hart application(s) open(s)
- Hart application version is correct
- Mouse and keyboard function correctly
- Speakers function correctly\*
- Laser printer prints test page\*
- Scanner scans test page\*
- Line printer prints\*

*\*if applicable*

## verifying software version

A **Power On Self Test Report** will print from the device thermal printer each time a device is powered on. Look at this report to verify the software version currently installed on the device.



## performing inventory

- ▶ Affix asset labels to the equipment as needed.
- ▶ Record serial numbers/asset numbers for all pieces of equipment.

**!IMPORTANT:** When performing an acceptance test on Touch Writer or Scan voting devices, confirm that the serial number of the tablet matches the serial number of the base for each device.

## Recommended steps before storing tested equipment:

- ▶ Confirm that each voting device has a power cord/power brick.
- ▶ Confirm that the thermal printer for each voting device has paper.
- ▶ For Touch Writer with Access: confirm that each Touch Writer has a pair of headphones and a set of Tactile switches (if storing these within the device).
- ▶ For ballot boxes: confirm that each unit has two sets of keys. Log and limit access to keys.





**3**

## **preventative maintenance**

Preventative maintenance ensures that the voting devices will continue to function properly for many years. For Verity devices, preventative maintenance consists of:

- ▶ Cleaning tablet touch screen displays.
- ▶ Cleaning Verity Scan scanners.
- ▶ Calibrating touch screens.
- ▶ Calibrating Verity Scan scanners.
- ▶ Charging/Replacing system batteries.
- ▶ Replacing internal tablet CMOS batteries.
- ▶ Setting device clocks, if needed.

## preventative maintenance cycles

Recommended preventative maintenance cycles for Verity voting devices are listed in the tables below:

### Verity Touch Writer with Access

Maintenance Action	Frequency	Performed by
Clean display	As needed	Elections staff
Calibrate touch screen	Annually	Elections staff
Replace system battery	Every four years	Elections staff
Replace tablet CMOS battery	Every three years	Hart or Elections staff

### Verity Scan

Maintenance Action	Frequency	Performed by
Clean display	As needed	Elections staff
Clean scanner path	Inspect/clean after every 500 sheets	Elections staff
Calibrate touch screen	Annually	Elections staff
Calibrate scanner	Annually	Elections staff
Replace system battery	Every four years	Elections staff
Replace tablet CMOS battery	Every three years	Hart or Elections staff

## maintenance procedures

### cleaning tablet touch screen displays

#### materials needed:

- Verity device(s)
- lint-free isopropyl alcohol wipes

**1** Press the red power button on the back of the device to turn it off. ▶



**2** Unplug the AC power cord from the back of the device. ▶



**3** Clean the tablet display only with lint-free isopropyl alcohol wipes. ▶

- ▶ Do not reuse the wipes after use.
- ▶ Do not pour or spray liquids on the display, as this can cause liquids to come into contact with internal circuitry.



## maintenance procedures, *continued*

### cleaning the Verity Scan scanner

#### materials needed:

- Verity Scan device(s)
- lint-free isopropyl alcohol wipes

**1** Press the red power button on the back of the Verity Scan to turn it off.



**2** Unplug the AC power cord from the back of the Verity Scan.



**3** Gently lift the scanner door and clean the upper and lower glass plates with a lint-free isopropyl alcohol wipe.



- ▶ Do not reuse the wipes after use.
- ▶ Do not pour or spray liquids on the scanner.
- ▶ Do not use compressed air to remove dust.

## **maintenance procedures**, *continued*

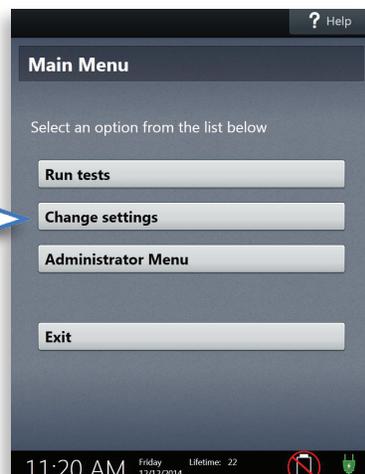
### **calibrating touch screens** (*Touch Writer and Scan*)

Access to touch screen calibration is located on the device itself, in the Device Settings menu. No additional supplies are needed.

- 1** On the device startup screen, select the **Menu** button. ▶

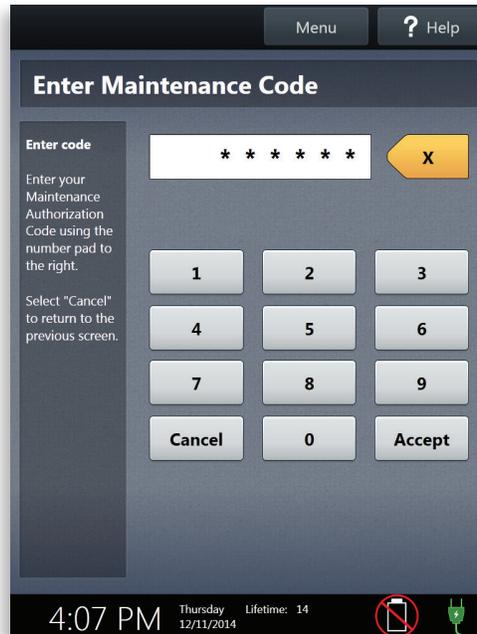


- 2** Select **Change settings**. ▶



## maintenance procedures, *continued*

**3** Enter the Maintenance Code, and then select **Accept**. ▶



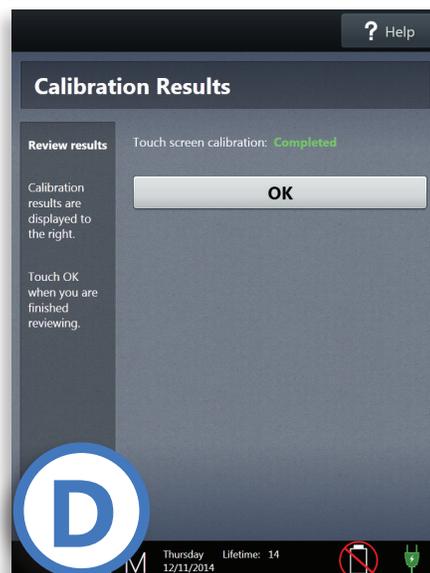
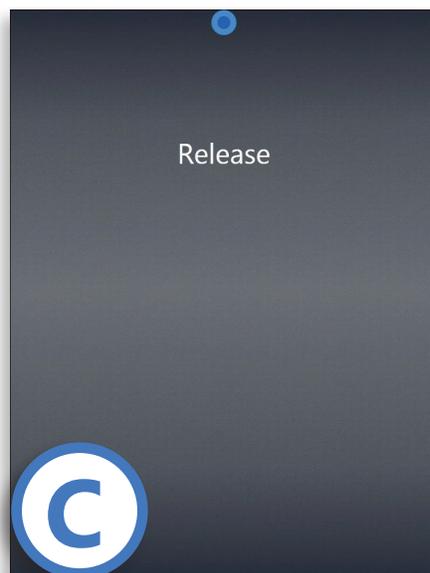
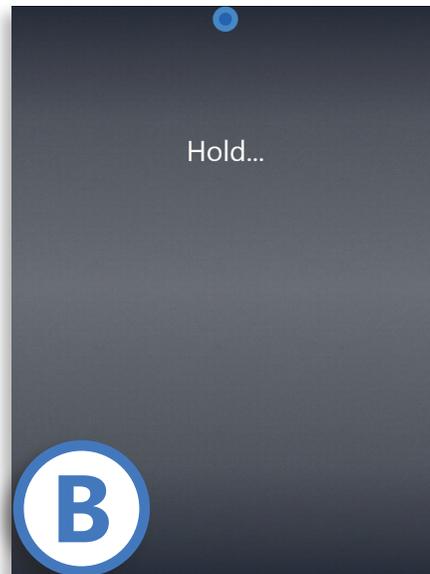
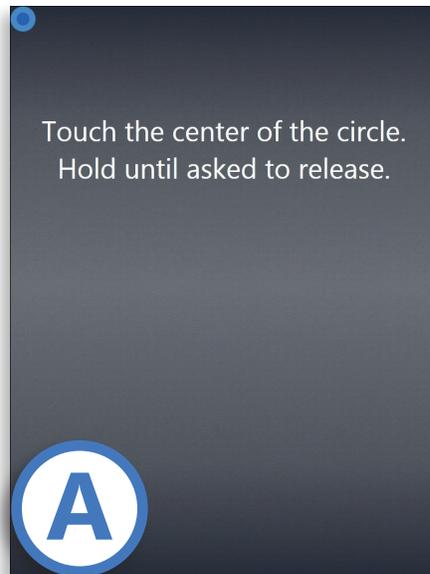
**4** Select Touchscreen calibration. ▶



# preventative maintenance

## maintenance procedures, *continued*

- 4** Follow the instructions on the screen to calibrate the touch screen. Select **OK** when complete. ▼



## maintenance procedures, *continued*

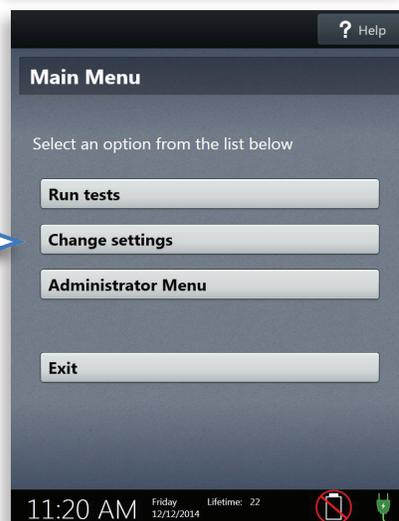
### setting alert volume (*Scan only*)

Access to setting the alert volume for Scan is located on the Verity Scan itself, in the Device Settings menu.

**1** On the device startup screen, select the **Menu** button. ▶

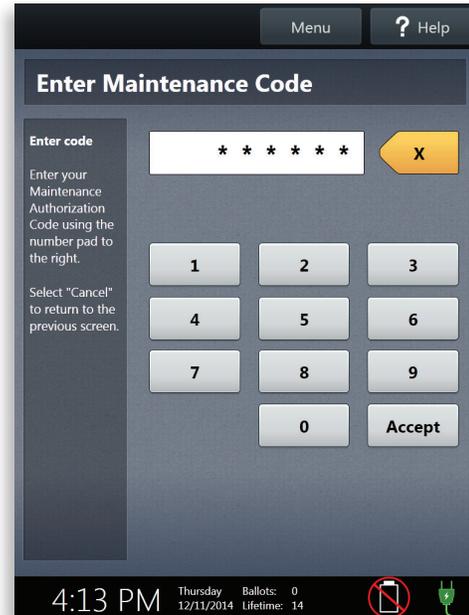


**2** Select **Change settings**. ▶

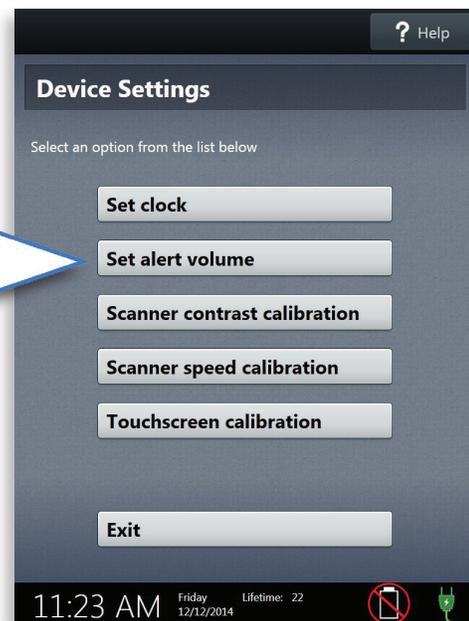


## maintenance procedures, *continued*

**3** Enter the Maintenance Code, and then select **Accept**. ▶



**4** Select **Set alert volume**. ▶



## maintenance procedures, *continued*

- 5** Set the alert volume. Select **Exit** when done.

**Alert Volume**

Set volume for audible alerts

Audible alerts indicate when an improperly marked ballot is scanned

Level 3

Level 2

Level 1

OFF

**Exit**

11:23 AM Friday 12/12/2014 Lifetime: 22

## **maintenance procedures, *continued***

### **calibrating scanners** (*Scan only*)

Access to scanner speed and contrast calibration is located on the Verity Scan itself, in the Device Settings menu.

#### **materials needed:**

- Verity Scan device(s)
- speed calibration sheet(s)
- blank 8.5x11 paper, 92 brightness (for contrast calibration)
- scanner bitonal test sheet(s)

**! IMPORTANT** If the scanner repeatedly fails the speed and/or contrast test even after calibration, send the device to Hart for repair (see instructions for creating an Return Materials Authorization on [page 95](#)).

**1** Follow the procedures for testing the scanner found on [page 43](#).

**2** If calibration is required: On the device startup screen, select the **Menu** button. ▶

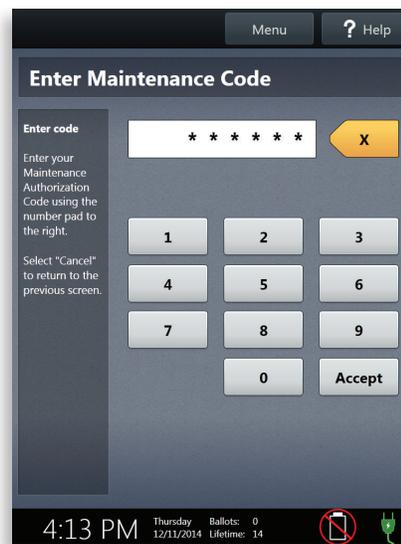


## maintenance procedures, *continued*

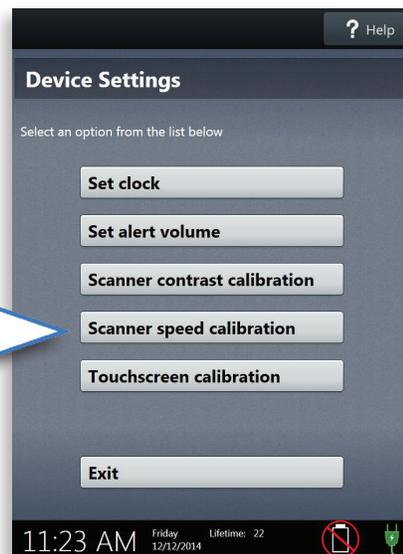
**3** Select **Change settings**. ▼



**4** Enter the Maintenance Code, and then select **Accept**. ▼



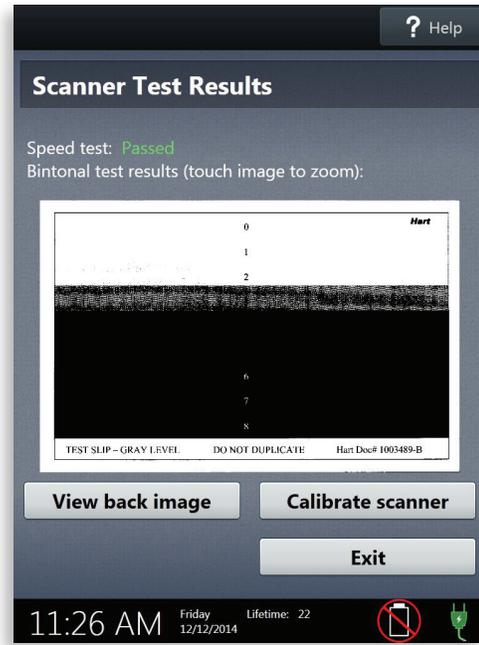
**5** In the Device Settings menu, select **Scanner speed calibration**. ▶



# preventative maintenance

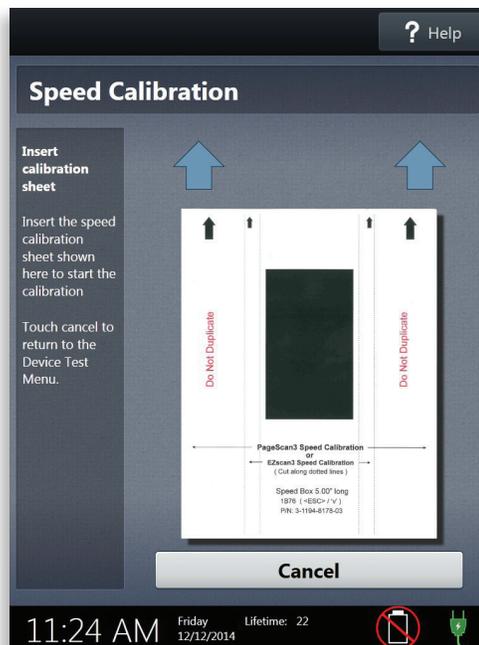
## maintenance procedures, *continued*

**Note:** you can also access scanner calibration by selecting **Calibrate scanner** on the **Scanner Test Results** screen. ►



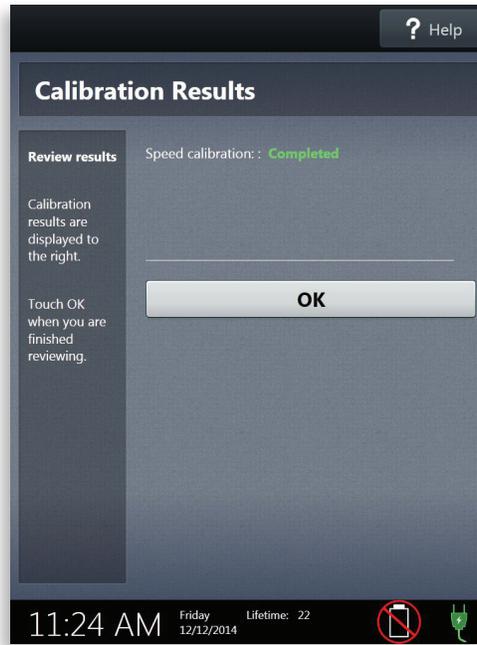
**6** Insert the speed calibration test sheet into the scanner as shown and follow the on-screen instructions. ►

**! IMPORTANT:** Use only Hart-provided speed calibration sheets. Do not use photocopies, as calibration can be negatively affected.

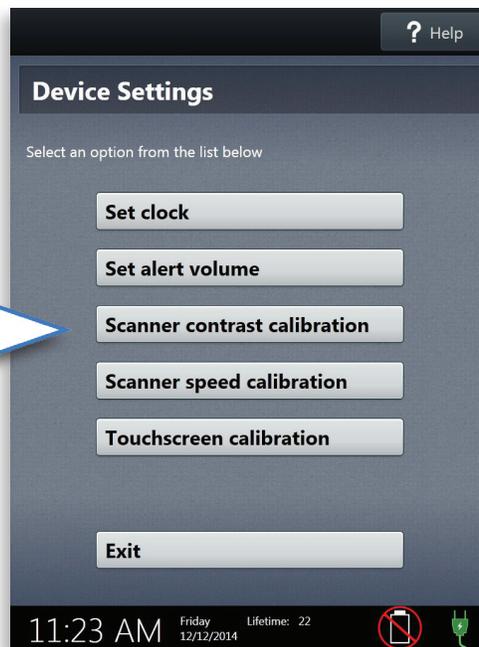


## maintenance procedures, *continued*

**7** Select OK.



**8** In the Device Settings menu, select **Scanner contrast calibration**. ▶



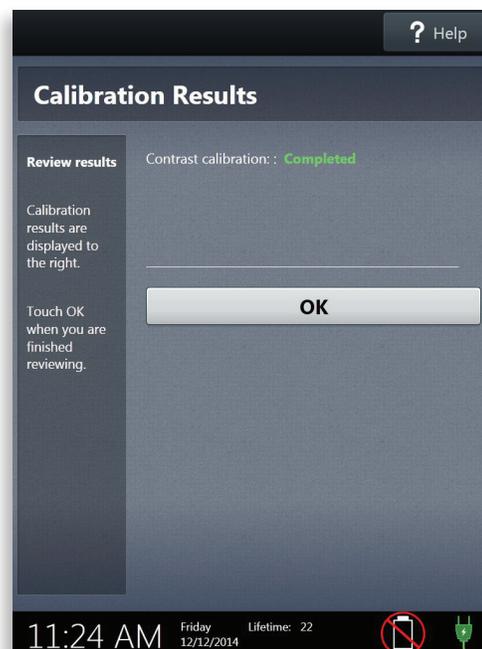
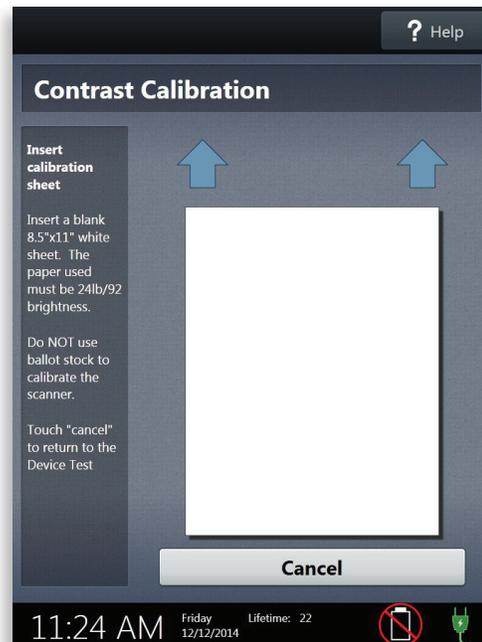
## maintenance procedures, *continued*

**9** Insert a blank sheet of white paper into the scanner as shown and follow the on-screen instructions. ▶

- ▶ Use a clean 8.5x11 sheet of paper.
- ▶ Use paper with a brightness of 92.

**10** Select OK. ▶

**11** Retest the scanner, following the instructions on [page 43](#).



## maintenance procedures, *continued*

### replacing the system battery

#### materials needed:

- Verity device(s)
- freshly charged system battery(s)
- battery charger(s) for old, discharged system batteries

**1** Press the red power button on the back of the device to turn it off. ▶



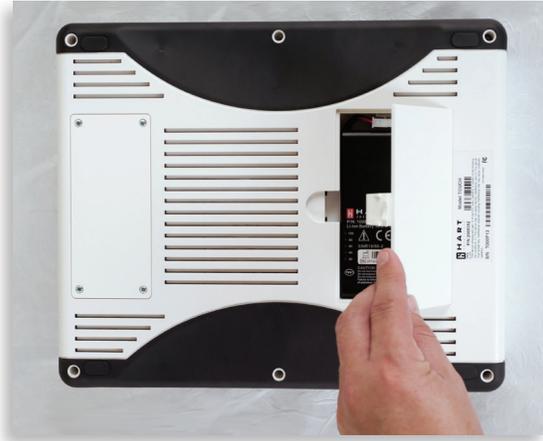
**2** Unlock (A) and remove the device tablet from its cradle (B). ▼



## preventative maintenance

### maintenance procedures, *continued*

**3** On the back of the tablet, open the battery door. ▶



**4** Disconnect and remove the old battery. ▶



## maintenance procedures, *continued*

- 5 Press the button on the front left of the *new* battery to test the battery charge. ▼



- 6 Connect the new battery to the device, situate the battery in the device and close the battery door. ▲



## **maintenance procedures, *continued***

**! IMPORTANT:** Be sure to connect the battery correctly. The tab on the connector coming from the battery must snap over the tab on the wire coming from the tablet. Failure to properly connect the battery can result in fire and damage to the device.



## charging system batteries

- ▶ The battery is fully rechargeable (up to 500+ cycles) and includes an integrated tester.
- ▶ A fully charged battery will provide approximately 2 hours of backup power when installed in a device.
- ▶ A fully charged battery loses less than 10% of its charge over 90 days while connected to a device that is powered off, and 1% per day while the device is powered on and running on AC power.
- ▶ After an election, batteries should be removed from devices and stored, but not recharged until the next election cycle, or once per year, whichever comes first.
- ▶ Hart recommends that batteries be recharged and installed no more than 90 days before an election.
- ▶ Hart provides two options for charging system batteries, a single battery charger and a six-pack charger.



## **maintenance procedures, *continued***

### **replacing tablet CMOS batteries**

The tablet CMOS battery, located within the device tablet, maintains system clock function while the Verity voting device is powered off. Hart recommends replacement of the tablet CMOS battery every 3 years.

#### **materials needed:**

- Verity device(s)
- replacement tablet CMOS battery(ies)
- small Phillips screwdriver

- 1** Press red power button on back of the device to turn it off; unlock and remove device tablet.
- 2** Turn tablet over; remove the 4 screws that fasten the CMOS battery compartment door. ▼



## maintenance procedures, *continued*

**3** Using your fingernail, release the small clip holding the CMOS battery in place. ▶



**4** Lift and remove the old CMOS battery. Discard the CMOS battery safely. ▶



**IMPORTANT:** To prevent the risk of fire, properly dispose of the batteries by collecting them back in the plastic trays they came in. Once all trays are filled, tape them together to secure the batteries. Dispose of the trays in an outdoor garbage receptacle.

**5** Insert new CMOS battery and press down so that the retaining clip engages.

**6** Replace the battery door and tighten all four screws and return the tablet to the device.

## setting device clocks

Device clocks may need to be reset, given the following circumstances:

- The first time a device is received from Hart.
- To account for a change to or from Daylight Savings Time.
- When a device is received back from Hart following repair.

**1** On the device startup screen, select the **Menu** button. ▼

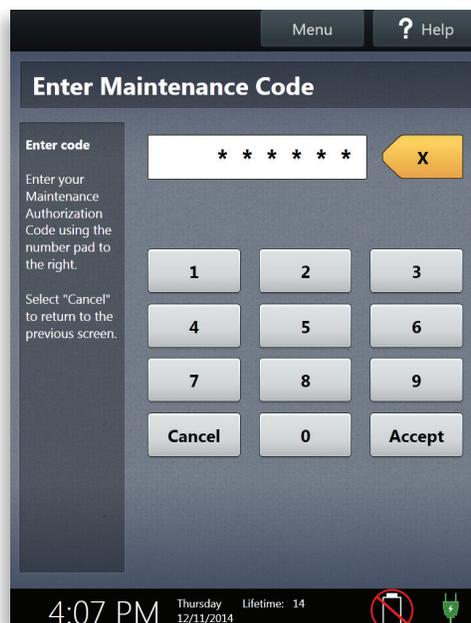


## setting device clocks, *continued*

**2** Select Change settings. ▶



**3** Enter the Maintenance code, and then select **Accept**. ▶



## setting device clocks, *continued*

**4** Select Set clock. ▶



**5** Adjust the time as needed. Select **Exit** when done. ▶



## Return Materials Authorization (RMA) steps

- 1** Contact Hart Support (1.866.275.4278)
- 2** If problem cannot be resolved over the phone, and the equipment is determined to require repair by Hart, Hart Support will issue an Equipment Chain of Custody (ECC) form to the customer.
- 3** Upon receipt of the customer completed ECC form, Hart Support will create a Return Materials Authorization (RMA) ticket, issue the ticket number to the customer, and email the shipping instructions and final ECC to the customer.
- 4** The customer ships the equipment to the repair depot.
- 5** When repairs are finished, the equipment is shipped back to the customer. Hart Support will notify the customer of the shipment.
- 6** Upon receipt of the returned equipment, the customer will have 7 days to perform a acceptance/functionality test on the equipment.

## 4

## election preparation

For election support personnel, preparing for the election may include the following general tasks:

- ▶ Identifying equipment and supplies needs.
- ▶ Performing inventory.
- ▶ Performing functionality tests.
- ▶ Organizing/staging equipment.
- ▶ Installing and logging vDrives and seals on the voting devices
- ▶ Predefining voting devices.
- ▶ Arranging transport of the equipment and supplies to the polling places.

## election preparation checklist

Below is a detailed checklist of the steps necessary to prepare and distribute voting equipment and supplies to the polling places. Where applicable, the pages within this guide that describe these steps are given in parentheses.

- 1** Perform preventative maintenance on voting devices as needed. (page 70)
- 2** Test and charge all battery packs and label with test date and battery level. Install and connect the battery packs. (page 51)
- 3** Perform functionality testing. (page 26)
- 4** Check each voting device for the following, and replace if necessary:
  - Full thermal paper roll
  - Power cord and brick
  - Headphones (Touch Writer)
  - Tactile switches (Touch Writer)
- 5** Verify software versions. (page 67)

**election preparation checklist**, *continued*

- 6** Prepare printers, including power cords and Verity USB cables, for each Touch Writer. ([page 100](#))
- 7** Prepare uninterruptible power supply (UPS) devices, if applicable. ([page 101](#))
- 8** Identify Polling Place equipment needs and plan polling place layouts. ([page 102](#))
- 9** Prepare polling place paperwork and organize into packets for each polling place. ([page 103](#))
- 10** Prepare Device/vDrive Tracking Log. Install vDrives in Scans and Touch Writers. Write serial, vDrive, and seal numbers and polling place data in the log. ([page 105](#))
- 11** Predefine Verity Scan and Touch Writer devices with polling place information. Install vDrive seals on the Verity voting devices. ([page 111](#))

## **election preparation checklist, *continued***

- 12** Distribute the following to the deployment area, organized and labeled by polling place:
  - Scan and Touch Writer devices
  - Touch Writer ballot printers
  - Ballot paper stock
  - Extra thermal printer paper rolls
  - Polling place paperwork
  - Additional polling place supplies (tables, chairs, extension cords, power strips, etc.) as necessary
  
- 13** Distribute the following spare equipment to the emergency use deployment area and keep under lock and key:
  - Spare Scan and Touch Writer devices (without predefined polling places)
  - Spare battery packs
  - Spare headphones
  - Spare tactile input switches
  - Spare thermal printer paper rolls
  - Spare ballot stock

## about ballot printers

Ballot printers used with the Touch Writer do not typically require configuration, since the page size data is contained within the vDrive associated with each Touch Writer. The Verity system and its ballot printers are compatible with the following ballot page sizes:

- 8.5" x 11" (Letter)
- 8.5" x 14" (Legal)
- 8.5" x 17"\*

Each ballot printer setup must have the following:

- Ballot printer
- Verity USB cable
- Power cord

Be sure that all three items are included with each printer setup when staging materials for transport to the polling places.

*\*If using 8.5" x 17" ballot paper, your printer may require configuration. On the OKI printer, ballot paper using this format needs to be fed from the manual feed tray.*



## uninterruptible power supply (UPS) devices

Uninterruptible power supply (also known as UPS) devices may be used to provide uninterrupted power to ballot printers in the event of a temporary loss of power at the polling place. Follow the manufacturers guidelines included with the device for periodic testing of UPS devices.



## identifying equipment needs

To determine equipment needs for each polling place, you should create a spreadsheet that shows registered voters by precinct, as well as which precincts are assigned to each polling place. Rules regarding the allocation of equipment in relation to voter registration data may vary by jurisdiction.

Use this spreadsheet to assist you when organizing and staging equipment and supplies prior to the election. For example, if you determine that you will need one Verity Scan and two Verity Touch Writers in Polling Place #1, load these devices and other supplies for that polling place together on a pallet or other type of transfer container designated for Polling Place #1. Continue this process until all polling places are completed. You might identify polling place locations within the storage facility by painting the numbers on the floor or otherwise labeling the area to insure an organized deployment area.

It may also be useful to work with other staff members to create a survey for each polling location far in advance of the election. Ascertain basic information such as availability of AC power, tables, and chairs, phone access during voting hours, etc. Use this information to create checklists for each polling place.

# polling place paperwork

## types of paperwork

Polling place paperwork will vary by jurisdiction and implementation, but may include some or all of the following:

- ▶ Voter instructional flyers and posters
- ▶ Copies of the *Verity Polling Place Operations Guide* and/or *Verity Poll Worker's Field Guide*
- ▶ Logs, forms, and envelopes

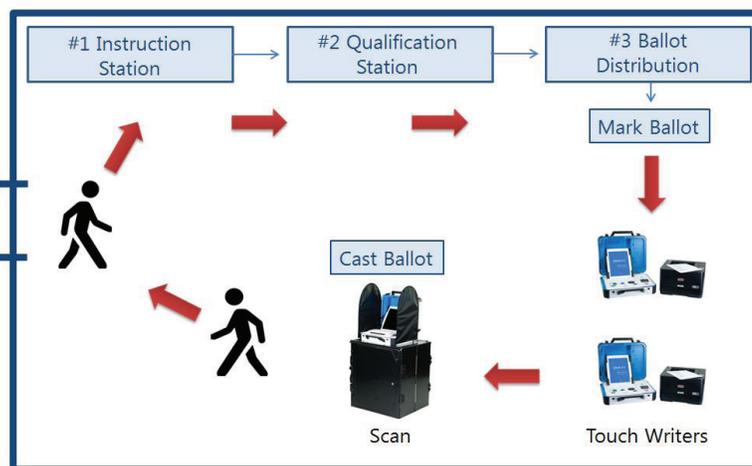
**Note:** *logs, forms, and labels are included in the Verity Logs and Labels Pack, available from Hart.*

- Reconciliation logs
  - Daily reports envelope
  - Emergency ballot envelope
  - Transfer logs and envelopes
  - Spoiled ballot log and envelope
  - Canceled booth log
  - Provisional ballot paperwork and envelopes
- ▶ Polling place layout plans
  - ▶ Voter qualification materials

## polling place paperwork, *continued*

### polling place layout plans

Hart suggests election officials or staff create a polling place layout plan for each polling place, once they have a clear idea of the quantity and type of equipment needed. Important things to consider when planning polling place layout include an efficient flow of voter traffic, the ability of poll workers to monitor the equipment, and maintaining voter privacy.



### a note on previous election data

On Verity devices, there is no need to remove old election data prior to inserting a new vDrive and predefining the device. The voting device will automatically delete the oldest set of election data if and when additional hard drive space is needed.

# installing vDrives

## the vDrive tracking log

The vDrive tracking log is a master list kept in the central election office. You will use the tracking log to record data relating to the installation of vDrives in each voting device, including:

- Election name
- Polling Place ID and Name
- vDrive ID
- Device serial number
- vDrive seal number

## the Ballot and Seal Certificate *(or equivalent)*

A Ballot and Seal Certificate (or equivalent) is done separately for each voting device, and contains the following information:

- (1) Polling Place ID and Name
- (2) Device serial number
- (3) Seal number and installer's initials
- (4) Number of ballots voted (Scan) or number of access codes issued (Touch Writer), and signature of the presiding election official

A seal certificate must travel with each voting device to ensure proper chain of custody during the election. The first three items above are filled out prior to deployment to the polling place. Item 4 is filled out by the presiding official(s) at the polling place.

**TIP:**

The ballot and seal certificate may have a different name in your jurisdiction, or include additional information.

## installing vDrives, *continued*

### installing vDrives

#### materials needed:

- Verity devices
- vDrives from Build with the current election
- vDrive Tracking Log
- Ballot and Seal Certificates

**1** The election name, polling place name and vDrive ID should be recorded on the vDrive tracking log when the vDrives are created in Build. Reference this information when installing vDrives.

**2** Record the polling place ID and name on the Ballot and Seal Certificate.

**3** Open the device case and lock the lid brace in place. ▶



## installing vDrives, *continued*

- 4** Unlock (A) and unlatch (B) the tablet from its storage location. ▼



- 5** Seat the tablet in its cradle and tilt back. ▼



**installing vDrives, *continued***

- 6** Lock the tablet in place. ▶



- 7** Connect the device to AC power and press the red power button on the back of the device. ▶



## installing vDrives, *continued*

**8** Please wait while Verity starts.

**9** After startup, the device should display the startup screen with the message **No vDrive Found**. ▶



**10** Unlock and open the vDrive compartment. Note that the key used to open the vDrive compartment is not the same as the key used to lock the tablet in place. ▶



**installing vDrives, *continued***

**11** Insert the vDrive into one of the two USB inputs shown. Ensure the vDrive is fully inserted. If you are going to predefine the device, do not close or lock the vDrive compartment yet. ▼



**12** Predefine the device (see the following section).

## predefining Verity voting devices

The following section describes the recommended procedure for defining the polling place on each Scan and Touch Writer device. This procedure is commonly referred to as “predefinition”.

Each polling place is associated with one or more precincts (or precinct splits). Each precinct or precinct split is in turn associated with a particular ballot style. Predefining the Polling Place before deployment to the polling places has several important advantages:

- ▶ It ensures that each polling place has the correct ballot styles.
- ▶ It reduces the number of steps that poll workers must complete in order to open polls.
- ▶ It creates a paper trail (reports printed at the warehouse) to verify that the Scan or Touch Writer remained in a standby condition between the time it left the warehouse and the time that polls opened.
- ▶ It eliminates the need for poll workers to have a programmed Verity Key; as a result, fewer Verity Keys need to be created and tracked.

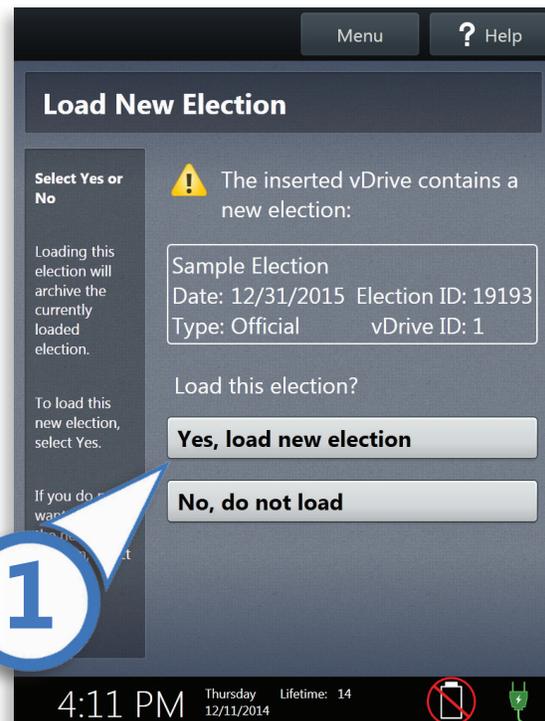
## predefining Verity Voting devices, *continued*

### Predefining Verity Scan or Touch Writer

#### materials needed:

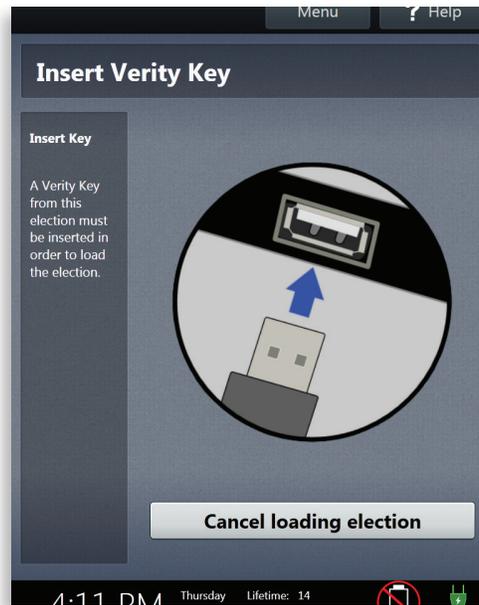
- Verity devices with vDrives installed, but not sealed
- Verity Key from Build for the current election
- vDrive Tracking Log
- Ballot and Seal Certificates

**1** Once vDrive is installed (see preceding section: **installing vDrives**), the Load New Election screen displays. Confirm the election name, date, and vDrive ID, referencing the vDrive Tracking Log. Select **Yes, load new election**.

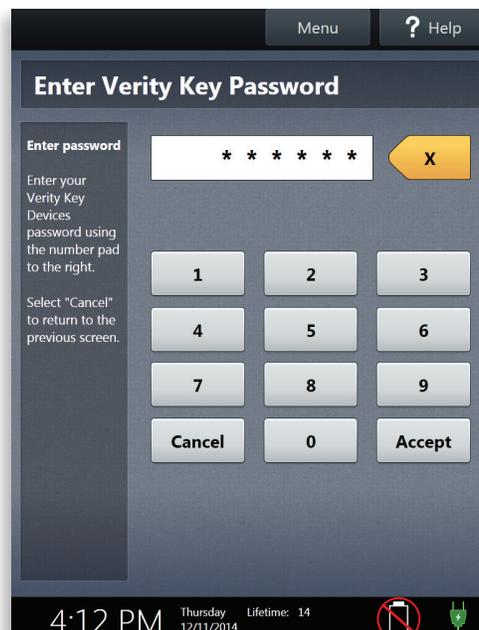


## predefining Verity Voting devices, *continued*

**2** The insert Verity Key displays. Insert the Verity Key for this election into the available USB port in the vDrive compartment. ►

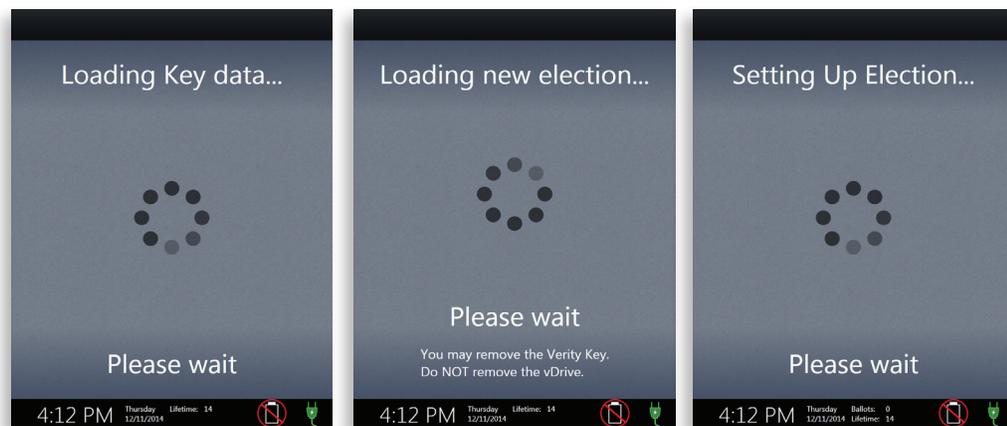


**3** Enter the Verity Key password, then select **Accept**. ►

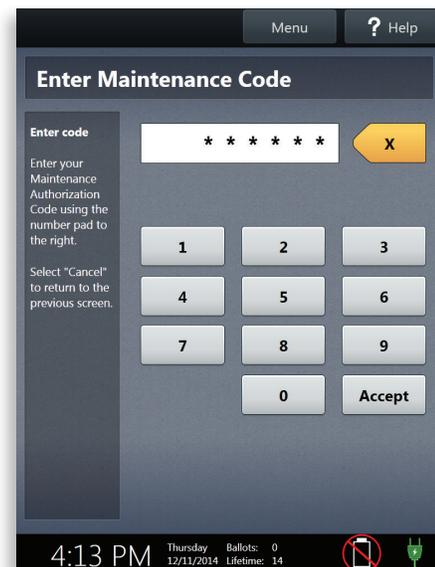


**predefining Verity Voting devices, *continued***

**4** Wait while the screen displays **Loading Key data...**, then **Loading new election...**, then **Setting Up Election...**. Do not remove the Verity Key until after you see the message "You may remove the Verity Key" at the bottom of the screen. ▼

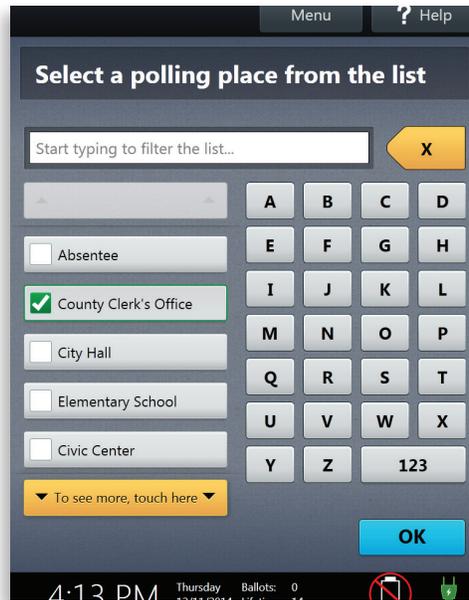


**5** Enter the Maintenance Code, and then select **Accept**. ▶

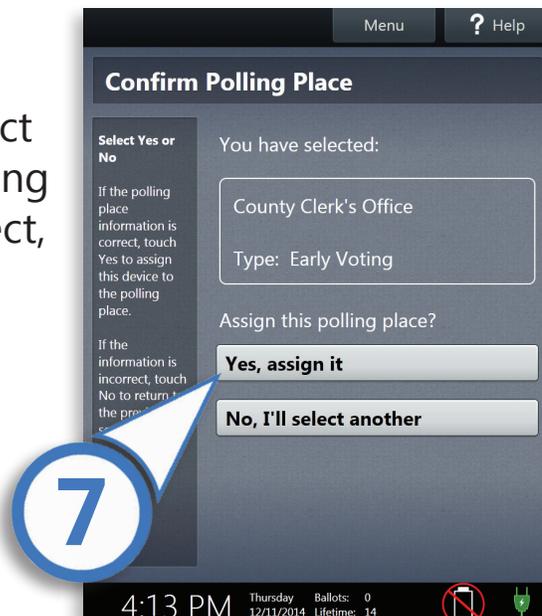


## predefining Verity Voting devices, *continued*

**6** The Select Polling Place screen displays. Choose the correct polling place from the list, and then select **OK**. You can use the touch screen keypad to search for a polling place. ▶



**7** Confirm the polling place name displayed, and then select **Yes, assign it**. If the polling place shown is not correct, select **No, I'll select another** to return to the previous screen. ▶



## predefining Verity Voting devices, *continued*

**8** Remove the Verity Key (if you have not done so already). The device is now ready to be powered down and deployed to the polling place. (Optional) If your jurisdiction requires it, you can now print a zero report.



**Note:** *If a zero report is printed, you can either leave it attached to the device, or detach it and keep it at the warehouse, according to local preference. Keeping the report at the warehouse gives you a paper record that the machine had no cast votes when programmed. Leaving the report attached to the device shows that it remained zeroed from the time it left the warehouse until the poll worker took possession of the device.*

## predefining Verity Voting devices, *continued*

**9** Close and lock the vDrive compartment.

**10** Affix the vDrive seal. Record the device serial number, vDrive seal number and installer's initials on the vDrive Tracking Log and the Ballot and Seal Certificate. ►



**11** Press the red power button to power off the device and unplug it. Return the power cord and brick to the storage compartment.

**12** Unlock and restore the table to its storage location, and then lock and latch the tablet in place.

**13** Place the Ballot and Seal Certificate in the case and close the device case. Lock the case and affix the device seal to the handle, if your jurisdiction requires it. Keep the vDrive Tracking Log on file in the elections office.



## printing configuration readiness reports

After printing a device Zero report, but before powering down the device, you have the option to print a Configuration Readiness report. The Configuration Readiness report includes a QR code that can be scanned directly into an Microsoft Excel spreadsheet to easily record Polling Place assignment, device serial number, and vDrive ID for each device.



VOTING MACHINE SURVEY  
BALLOT  
Election Date: 1/23/2014

Sample County  
Sample Polling Place  
Early Voting

Verity Scan  
S/N: 345642  
Firmware Version: 01.01.45

Ballot Counter: 0  
Lifetime Counter: 5034

**Configuration Readiness Report**

02/07/2014 1:44 PM

vDrive ID: 1



Sample Polling Place

Tamper Evident Seal# \_\_\_\_\_  
Tamper Evident Seal# \_\_\_\_\_  
Tamper Evident Seal# \_\_\_\_\_

Prepared By: \_\_\_\_\_

## checklist: recommended practices for predefining Verity voting devices

- Set up and power on Verity voting devices.
- Record the polling place ID and name on the Ballot and Seal Certificate for each device.
- Install vDrives, using the vDrive Tracking Log from Verity Build as a reference.
- Confirm the election name and vDrive ID on the screen. Select Yes, load new election and insert the Verity Key.
- Follow procedures to predefine the polling place on the device using the Verity Key.
- Remove the Verity Key.
- Print a Zero Report, if required.
- Close the vDrive compartment and affix the vDrive seal.
- Record the device serial number, vDrive seal number and installer's initials on both the vDrive Tracking Log and the Ballot and Seal Certificate.
- Prepare the device for transport, placing the Ballot and Seal Certificate inside the device case before closing.

**5****election support  
procedures****field technician procedures****responsibilities and guidelines**

- Technicians are responsible for troubleshooting assistance on equipment at the polling places, as well as subsequent documentation and record-keeping.
- Troubleshooting should occur in a timely manner.
- As little time as possible should be spent at each polling place in order to reduce possible distractions to voters.
- Technicians should only communicate with election workers or their designates, NOT with voters.

## field technician procedures, *continued*

- Technicians should not leave a personal cell phone number or the Hart Support number with poll workers.
- Technicians should speak to poll workers calmly and respectfully.
- Technicians should refer media to the elections office.

## recommended training & equipment

The following includes items the technician should have with them when they are traveling to polling places. Technicians should carry ID/credentials when on a call.

- **Training**
  - Verity Polling Place Operations training course
  - Verity Support Procedures training course
- **Documentation**
  - *Verity Polling Place Operations Guide* and/or *Verity Poll Worker's Field Guide*
  - *Verity Support Procedures Guide* or *Verity Troubleshooting Field Guide*
  - Logs, out of service tags, and chain of custody forms
- **Supplies**
  - Flashlight
  - Set of device/equipment keys
  - Lint-free isopropyl alcohol wipes
  - Scanner test and calibration sheets
  - Spare headphones, tactile switches, and power cords/bricks
  - Laser printer supplies, such as toner

## help desk procedures

### responsibilities and guidelines

- When taking calls, be sure to get a name and call back number *first*, in case you are disconnected.
- Log all calls on a separate Help Desk Call Log. Fill in the log completely as you provide assistance. Be sure to get a call back number in case you are disconnected.
- Use the *Verity Polling Place Operations Guide* or *Verity Poll Worker's Field Guide* as your first resources. These are the documents the poll worker is most likely to have on hand.
- Use the *Verity Support Procedures Guide* as a second reference.
- If dispatching a technician, record the name of the technician in the Log.
- If necessary, make a follow up call to ensure problem has been resolved.

### recommended training & equipment

- **Training**
  - Verity Polling Place Operations training course
  - Verity Support Procedures training course
- **Documentation**
  - *Verity Polling Place Operations Guide*
  - *Verity Support Procedures Guide*
  - Help Desk Call logs
- **Supplies**
  - One Polling Place voting setup in Test Mode

## Field Technician and Help Desk logs

- ▶ Log all calls on a separate Help Desk Call Log. Fill in the log completely as you provide assistance. Be sure to get a name, location, and call back number in case you are disconnected.
- ▶ Log the problem and any resolution steps taken over the phone.
- ▶ If dispatching a technician, record the name of the technician in the Log.
- ▶ If necessary, log any follow up calls made to ensure problem was resolved.
- ▶ Log what was done on any technician visits, including any equipment exchanged.

## **recommended election night and count procedures**

The following are the recommended best practices for processing vDrives on election night; the recommendations presented here are superseded by State election law, rule, and code.

### **materials needed**

- Reconciliation logs from the polling places.
- Ballot and Seal Certificate for each device.
- Extra thermal paper rolls.
- vDrive transfer envelopes.

### **vDrive processing**

**1** Receive sealed devices, Reconciliation logs, Spoiled Ballot logs, and the appropriate envelopes from Early Voting sites no earlier than the close of Early Voting and from Election Day sites no earlier than the close of polls.

**2** Check the reconciliation log and verify that the Ballots Cast on the Scan matches the expected count and total number voters checked in (signatures).

## recommended election night & count procedures, *continued*

**Note:** *If the Ballots Cast on the Scan report and the total number of voters checked in do not match, reconcile using the daily device reports and polling place paperwork.*

- 3** Record the total number of Ballots Cast on the Verity Scan on the Ballot & Seal Certificate.
- 4** Record the total number of Access Codes Issued, Canceled, Voted, and Expired on the Ballot & Seal Certificate.
- 5** Verify seal numbers and device serial numbers from the Ballot & Seal Certificate. Collect signatures. File the Ballot & Seal Certificate according to local procedures.
- 6** Fill out the vDrive transfer envelope, recording the ballots cast (Scan) or access codes voted (Touch Writer).
- 7** Break device seal and remove vDrive from device. Place vDrive and broken device seal in the transfer envelope.
- 8** Deliver vDrives to Counting Station.
- 9** Store Verity Scan and Touch Writer devices securely.

**recommended election night & count  
procedures, *continued*****election night count procedures**

The recommended procedures presented here are superseded by State election law, rule, and code. Complete instructions for reading vDrives, tabulation, and reporting in Verity Count are found in the *Verity Administrator's Guide*.

- 1** Print Count zero report.
- 2** Open vDrive transfer envelope. Verify device seal number.
- 3** Read Early Voting in-person (and Absentee/by-mail, if applicable) vDrives into Count. Return vDrives to envelopes after they are read, and mark vDrives and envelopes as counted.
- 4** Read and process Election Day vDrives in Count. Return vDrives to envelopes after they are read, and mark vDrives and envelopes as counted.
- 5** Process Write-In votes in Count, if applicable.
- 6** Print cumulative results reports to be certified and signed by Count Station Official.

## **recommended election night & count procedures, *continued***

**7** Print and prepare Count application reports. Verify reports.

**8** Read and process late by-mail vDrives in Count, if applicable, process provisional ballots, and print final official Canvass reports at the appropriate date and time.

## post-election checklist

- Tag, inventory, and log problems for devices from election that are in need of maintenance or replacement.
- Remove vDrives from spare Scans and Touch Writers (if installed). (These vDrives may have been removed and processed as a security measure.)
- Perform inventory and store vDrives from spare Scans and Touch Writers (if installed and available).
- Disconnect, and remove device battery packs for storage. Do not charge until the next election cycle.
- Remove, inventory, and warehouse headphones and tactile input switches from Touch Writer, if desired.
- Clean Scan and Touch Writer screens. Clean Scan scanner path. (Follow procedures on [page 154](#))
- Perform inventory for Scan and Touch Writer devices, ballot printers (including cords), booths, and ballot boxes, and prepare for storage.
- Ship damaged Scan and/or Touch Writers for maintenance (following RMA procedures on [page 95](#)).
- Test device functionality before next election cycle.





# troubleshooting guide

## how this guide works

This troubleshooting guide is organized into two sections:

- ▶ **Issue directory:** a list of potential issues, with a summary of the procedures to resolve each issue, in the order they should be attempted.
- ▶ **Procedure reference:** provides detailed instructions for resolution procedures.

## how this guide works, *continued*

The procedure for using this guide is outlined below:

- 1** Look up the problem you are having in the **issue directory**.
- 2** Follow the resolution steps in order; **check for success after each step**.
- 3** Some resolution steps will indicate a page number; If you need further details on these procedures, look up the indicated page number in the **procedure reference** or elsewhere in this guide.

**a systematic approach  
to troubleshooting**

- Remain calm
- Identify the issue or symptoms as reported
- Gather further information
- Think broadly
- Do not jump to conclusions
- Ask questions
- Establish a theory to explain the source of the problem
- Research resolution steps based on your theory
- Use available documentation to identify the resolution steps
- Attempt resolution
- Check for success
- Repeat

## troubleshooting issue directory

*try each step in order, until the problem is resolved*

Issue	Resolution Steps (check for success after each step)
Access code does not work (Verity Touch Writer)	<ol style="list-style-type: none"> <li><b>1</b> Confirm access code was entered correctly</li> <li><b>2</b> Disable the access code (and confirm access code was not used) (<a href="#">p 153</a>)</li> <li><b>3</b> Issue a new access code, if applicable</li> </ol>
Access code printed but not used (Verity Touch Writer)	<ol style="list-style-type: none"> <li><b>1</b> Disable the access code (if desired) (<a href="#">p 153</a>)</li> </ol>
Access controller does not work	<ol style="list-style-type: none"> <li><b>1</b> Verify device settings (<a href="#">p 150</a>)</li> <li><b>2</b> Restart device (<a href="#">p 148</a>)</li> <li><b>3</b> Contact election office and replace device*</li> </ol>
Ballot incorrect (wrong ballot issued)	see <b>Spoiling Ballots (Verity Touch Writer)</b>

troubleshooting issue directory, *continued****try each step in order, until the problem is resolved***

Issue	Resolution Steps (check for success after each step)
<p>Ballot printer does not work (Verity Touch Writer)</p> <p><b>IMPORTANT:</b> When setting up Verity Touch Writer, the ballot printer must be powered on and connected <b>BEFORE</b> powering on Verity Touch Writer (otherwise, connectivity problems may result). However, when troubleshooting a printer problem, you should not restart Verity Touch Writer until you have exhausted all other options.</p>	<p><b>1</b> If you are using the Manual Paper Tray, make sure the blue tray release button is engaged (<a href="#">p 159</a>)</p> <p><b>2</b> If the Verity Touch Writer reports a problem with the printer while printing a ballot, <b>do not restart the Touch Writer</b>. Follow any instructions <i>on the printer</i> to resolve the issue.</p> <p><b>INPUT JAM:</b> Pull out the paper tray and check for/remove jammed paper. Replace the tray.</p> <p><b>FEED JAM/EXIT JAM:</b> On the top of the printer, push the round black button on the lower left to open the top cover. Check for and remove any jammed paper. Close the top cover.</p> <p><b>FEED JAM/EXIT JAM:</b> Open rear cover on the back of the printer and check for/remove jammed paper. Close rear cover.</p> <p><b>3</b> If resolving the issue on the printer does not clear the error message on the Verity Touch Writer, restart the <i>printer</i> using the power switch on the bottom right side of the printer.</p> <p><b>4</b> If the error is cleared but still no ballot is printed, select <b>Reprint Ballot</b> on the Verity Touch Writer screen (if available).</p> <p><b>5</b> Verify printer cable is plugged in to printer and Touch Writer; verify printer has AC power.</p> <p><i>continued on next page</i></p>

## troubleshooting issue directory, *continued*

***try each step in order, until the problem is resolved***

Issue	Resolution Steps (check for success after each step)
Ballot printer does not work (Verity Touch Writer), <i>continued</i>	<p><b>6</b> If you are still unable to produce a printed ballot, spoil the Verity Touch Writer ballot (if possible) (<b>p 151</b>), restart the <i>Touch Writer</i> (<b>p 148</b>), and issue a new ballot to the voter. Document the process using the spoiled ballot log.</p> <p>If you are still unable to print ballots, contact your Elections Office.</p>
Ballot stuck in scanner (ballot has not been cast)	<p><b>1</b> Check/note device message(s), if any; confirm ballot has <i>not</i> been cast.</p> <p><b>2</b> Open scanner cover; remove and flatten ballot; close scanner cover and re-feed ballot.</p> <p><b>3</b> Restart device (<b>p 148</b>)</p> <p><b>4</b> If scanner jams repeatedly, contact election office; use emergency ballot slot and/or replace device*</p>
Ballot will not scan	<p><b>1</b> Check/note device message(s), if any.</p> <p><b>2</b> Confirm ballot has not been cast.</p> <p><b>3</b> Remove, flatten, and re-feed ballot.</p> <p><b>4</b> Clean scanner (<b>p 154</b>)</p> <p><b>5</b> Contact election office; use emergency ballot slot and/or replace device*</p>

## troubleshooting issue directory, *continued*

***try each step in order, until the problem is resolved***

Issue	Resolution Steps (check for success after each step)
Battery not present/no battery power	<ol style="list-style-type: none"> <li><b>1</b> Check battery (p 145)</li> <li><b>2</b> Restart device (p 148)</li> <li><b>3</b> Replace battery</li> <li><b>4</b> If no AC power, contact election office and replace device*</li> </ol>
Closed polls too soon (Election Day)	<ol style="list-style-type: none"> <li><b>1</b> Verify polls are closed</li> <li><b>2</b> Contact election office and replace device*</li> </ol>
Device has incorrect polling place/precinct	<ol style="list-style-type: none"> <li><b>1</b> Verify polling place from any device report</li> <li><b>2</b> Contact election office and replace device*</li> </ol>
Device is hot or smells hot	see <b>Battery not present/no battery power</b>
Device screen is dark	see <b>Device will not turn on</b>
Device turns off/loses power (was on previously)	<ol style="list-style-type: none"> <li><b>1</b> Check power supply (p 142)</li> <li><b>2</b> Check battery (p 145)</li> <li><b>3</b> Restart device (p 148)</li> <li><b>4</b> Contact Election Office and replace device*</li> </ol>

## troubleshooting issue directory, *continued*

***try each step in order, until the problem is resolved***

Issue	Resolution Steps (check for success after each step)
Device will not turn on	<ol style="list-style-type: none"> <li><b>1</b> Check tablet connection/docking (p 144)</li> <li><b>2</b> Check power supply (p 142)</li> <li><b>3</b> Check battery (p 145)</li> <li><b>4</b> If power on report is available, verify firmware version (p 147)</li> <li><b>5</b> Restart device (p 148)</li> <li><b>6</b> Contact election office and replace device*</li> </ol>
Forgot to print reports before closing/suspending polls and powering off	see <b>Printing reports after powering down</b>
Headphones do not work/no sound	<ol style="list-style-type: none"> <li><b>1</b> Check headphones (p 149)</li> <li><b>2</b> Verify device settings (p 150)</li> <li><b>3</b> Restart device (p 148)</li> <li><b>4</b> Contact election office and replace device*</li> </ol>
Language chosen incorrectly	see <b>Wrong language selected - Verity Touch Writer (ballot not yet cast)</b>
No AC power (AC power indicator on device screen is red/crossed out)	<ol style="list-style-type: none"> <li><b>1</b> Check power supply (p 142)</li> <li><b>2</b> Restart device (p 148)</li> <li><b>3</b> Contact election office and replace device*</li> </ol>

## troubleshooting issue directory, *continued*

***try each step in order, until the problem is resolved***

Issue	Resolution Steps (check for success after each step)
No battery power (Battery power indicator on device screen is red/ crossed out)	see <b>Battery not present/no battery power</b>
No thermal printer paper/replacing thermal printer paper	<b>1</b> Load thermal printer paper ( <b>p 156</b> )
No vDrive Found	<b>1</b> Contact election office and replace device*
Overheating device	see <b>Battery not present/no battery power</b>
Password does not work	<b>1</b> Confirm correct password and re-enter <b>2</b> Call Election Office <b>3</b> Retry with correct password
Polling place (incorrect on device)	see <b>Device has incorrect polling place/pre- cinct</b>
Power loss	see: <ul style="list-style-type: none"> <li>• Device turns off/loses power (was on previously)</li> <li>• Device will not turn on</li> <li>• No AC power</li> </ul>
Precinct (incorrect on ballot)	see <b>Spoiling ballots (Verity Touch Writer) (ballot not yet cast)</b>
Precincts (incorrect on device)	see <b>Device has incorrect polling place/pre- cinct</b>
Printer not working (Verity Touch Writer ballot printer)	see: <b>Ballot printer does not work (Verity Touch Writer)</b>

## troubleshooting issue directory, *continued*

***try each step in order, until the problem is resolved***

Issue	Resolution Steps (check for success after each step)
Printer not working (device thermal printer)	see: <b>Thermal printer does not work</b>
Printing reports after powering down	<b>1</b> Press red power button on back of device to turn it back on and print reports needed
Scanner problems	see: <ul style="list-style-type: none"> <li>• <b>Ballot stuck in scanner (ballot has been cast)</b></li> <li>• <b>Ballot stuck in scanner (ballot has not been cast)</b></li> <li>• <b>Ballot will not scan</b></li> </ul>
Spoiling ballots (Verity Touch Writer) (ballot not yet printed)	<b>1</b> Spoil ballot ( <b>p 151</b> ) <b>2</b> Issue new access code, if applicable
Suspended polls too soon (Early Voting)	<b>1</b> If dictated by local procedures, restart device ( <b>p 148</b> ) and reopen polls.
"System Test Fail" message	<b>1</b> Restart device (in rare instances this may need to be done more than once) ( <b>p 148</b> ) <b>2</b> Contact Election Office and replace device*
Thermal printer does not work	<b>1</b> Check/make note of any device message(s) <b>2</b> Load/reload thermal paper ( <b>p 156</b> ) <b>3</b> Restart device ( <b>p 148</b> ) <b>4</b> Contact election office and replace device*  <b>Note:</b> <i>if printer is printing a long string of numbers, see Thermal printer has entered diagnostic mode.</i>

## troubleshooting issue directory, *continued*

***try each step in order, until the problem is resolved***

Issue	Resolution Steps (check for success after each step)
Thermal printer has entered diagnostics mode	<p>If the user inadvertently holds down the printer feed button while powering up, the printer will enter diagnostics mode and the printer diagnostic report will print (see <a href="#">p 158</a> for an example of this report). Once the printer is in diagnostics mode, it cannot be used normally. If printing is attempted while in diagnostics mode, a long string of numbers will print.</p> <p><b>1</b> To reset the printer to normal operations mode, restart the device (<a href="#">p 148</a>).</p>
vDrive error message (Invalid vDrive, corrupt vDrive)	<p><b>1</b> Contact election office and replace device*</p>
vDrive lost/missing	<p><b>1</b> Contact election office and replace device* <i>see also appendix C: creating a recovery vDrive for voting devices (<a href="#">page 168</a>).</i></p>
Wrong ballot/ballot style/precinct chosen - Verity Touch Writer (ballot not yet printed)	<p><i>see Spoiling Ballots (Verity Touch Writer)</i></p>
Wrong language selected - Verity Touch Writer (ballot not yet printed)	<p><b>1</b> Select the language button in the top left of the Touch Writer screen.</p> <p><b>2</b> Choose the correct language.</p>

## \*when replacing devices...

- ▶ Spare devices should be predefined for the correct polling place before they are deployed.
- ▶ Record replaced device serial number on an Out of Service Equipment tag and affix tag. Log a full description of the problem on the Equipment Chain of Custody form, if sending for repair.
- ▶ Follow local procedures governing the transfer of any Cast Vote Records held on replaced devices to the central counting station.
- ▶ If an piece of equipment is deemed to require service, and you believe it must be sent to Hart for repair, see instructions for creating an Return Materials Authorization on [page 95](#).

## troubleshooting procedure reference

### Checking power supply

**1** Confirm the AC power cord is plugged in to the back of the device. ▶



**2** Confirm the power cord and power brick are plugged in securely. ▶



**3** If you are using a power strip or UPC, confirm the plug coming from the power brick is plugged into the strip, and make sure the power strip is turned on.

## procedure reference, *continued*

**4** Confirm the power cord/power strip/extension cord is plugged into a working, 3-prong wall outlet.



**5** After checking connections, press the red power button on the back of the device to turn on the device. ▼



## procedure reference, *continued*

### Checking tablet connections/docking

**1** Check to see if the tablet docking light is green, indicating the tablet is seated. ▶



**2** Check that the tablet is firmly seated in its cradle, and the metal lid brace is fully extended and locked. ▶



**3** Check that the tablet lock is engaged (locked). ▶

- ▶ If you have reconnected the tablet, restart the device ([page 148](#)).



## procedure reference, *continued*

### Checking the system battery

**1** Make certain all voters using the device have finished voting. If restarting Scan, make sure voters have access to the emergency ballot slot.

**2** Press the *red* power button on the back of the device to turn off the device.

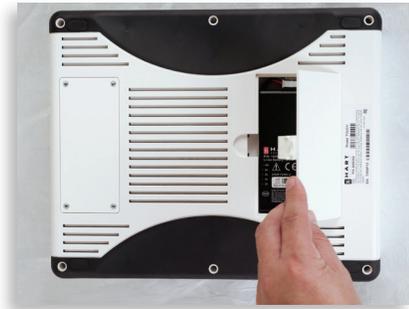


**3** Unlock the device tablet (A) and remove it from its cradle (B). ▼



## procedure reference, *continued*

**4** Open the battery door on the back of the tablet and check that the battery is present. ▶



**5** Check that the battery is connected properly. The tab on the connector coming from the battery must snap over the tab on the wire coming from the tablet. ▶



**6** Check the battery charge by pressing on the test button on the bottom left of the front of the battery. ▶



## procedure reference, *continued*

### Checking software version

**1** Check with the central election office for the correct software version.

**2** On the Power-On Self Test Report, check that the firmware version matches the correct version for your jurisdiction.

Power-On Self Test Report	
12/12/2014 5:44 PM	
S/N: 000014	
Verity Scan	
Version: 18.7.17938SLI	
<u>Power On Diagnostics</u>	
MCU FW:13 PV:2	Pass
Battery	Pass
Main Power	Present
vDrive Ports	Pass
Touch Screen	Pass
Scanner	Pass
<u>Notes</u>	
USB Controller: Cypress Semiconductor	
BIOS Version: ALASKA - 1072009 [20140505000000.000000+000]	

## procedure reference, *continued*

### Restarting a device

**1** Make certain all voters using the device have finished voting. If restarting Scan, make sure voters have access to the emergency ballot slot.

**2** Press the red power button on the back of the device until the device shuts down. ▶



**3** Wait 15-30 seconds.

**4** Press the red power button on the back of the device to turn the device on. ▶



**5** Follow the prompts on the device screen.

## procedure reference, *continued*

### Checking headphones

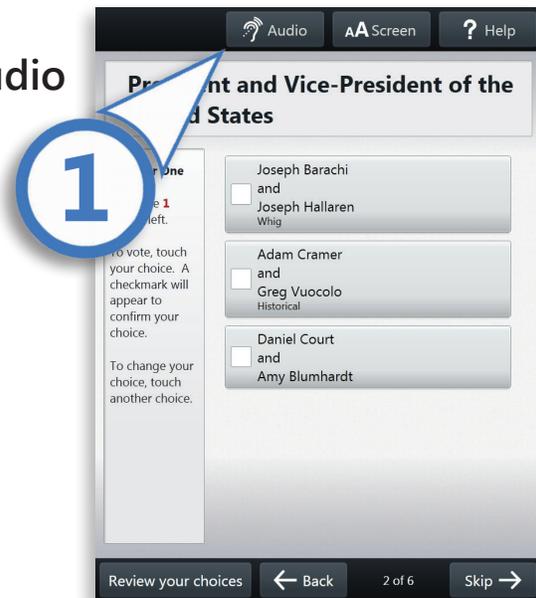
- 1 Check that the headphones are connected to the proper (left) port on the Verity Access, and that the connection is secure. ▼



## procedure reference, *continued*

### Verifying device audio settings

**1** On the Verity Touch Writer, select the **Audio** button. ▶



**2** Verify the device audio settings. Select **Volume** to check the volume settings. ▶



## procedure reference, *continued*

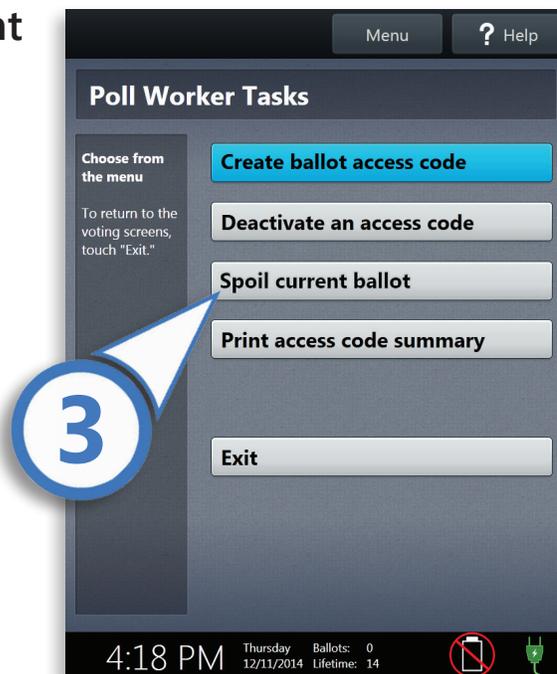
### Spoiling a Ballot (Verity Touch Writer) *(if ballot has not yet been printed)*

- 1 Press the blue poll worker button on the back of the Verity Touch Writer. ▶



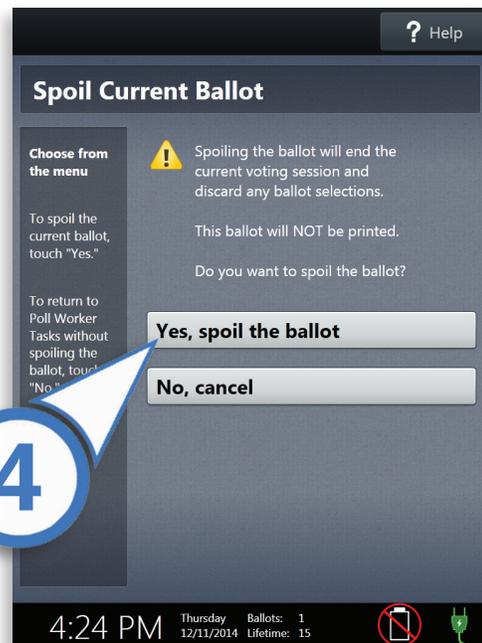
- 2 Enter the Poll Worker Code.

- 3 Select **Spoil current ballot**. ▶



## procedure reference, *continued*

- 4** Select Yes, spoil the ballot. ▼



- 5** Select OK. Follow local procedure for filling out and filing spoiled ballot paperwork.



## procedure reference, *continued*

### Disabling an access code

- 1** Push the *blue* poll worker button at the back of the Verity Touch Writer.
- 2** Enter the Poll Worker Code.
- 3** Select Deactivate an access code. ▶



- 4** Check Access Code status and follow local procedure to determine if a new code should be issued:

- **Assigned and Open:** access code can be deactivated and a new access code may be issued following local procedures.
- **Expired:** access code can no longer be used, but a new access code may be issued following local procedures.
- **Assigned and Cast:** access code was used to cast a ballot; a new access code should not be issued.

## procedure reference, *continued*

### Cleaning the Verity Scan scanner

**1** Make certain all voters using the device have finished voting. Make sure voters have access to the emergency ballot slot.

**2** Press the *red* power button on the back of the Verity Scan to turn it off.



**3** Unplug the AC power cord from the back of the Verity Scan. ▶



**4** Gently lift the scanner door and clean the upper and lower glass plates with a lint-free isopropyl alcohol wipe. Do not reuse the wipes after use; do not pour or spray liquids directly on the scanner and do not use compressed air to remove dust. ▶



## procedure reference, *continued*

### Verifying the polling place

**1** Refer to the Open Polls Report to confirm polling place name and voting type, or refer to any report header to confirm the Polling Place name.

VOTING MACHINE SURVEY BALLOT	
Election Date: 1/23/2014	
Sample County	
Sample Polling Place	
Early Voting	
Verity Scan	
S/N: 345642	
Version: 01.01.45	
Ballot Counter:	0
Lifetime Counter:	5034
<b>Open Polls Report</b>	
02/07/2014 1:46 PM	
Polls are Open.	
Ready to accept ballots	
Official Signatures	
_____	
_____	
_____	

## procedure reference, *continued*

### Loading thermal printer paper

**1** The thermal printer is located on the right-hand side of the voting device. ▶



**2** To open the paper compartment: While standing in front of the device, pull the lever on the top of the printer cover towards you. ▶



## procedure reference, *continued*

**3** To replace paper: Place the new paper roll into the printer as shown. Paper must roll out from the bottom. ▼



**4** Close the printer cover. The paper must extend out from underneath the front edge of the cover. The white button can be used to advance the paper. ►





## procedure reference, *continued*

### Using the Manual Paper Tray on the Ballot Printer (Touch Writer)

- 1** Open the front manual feed door; flip up and extend the tray as shown.



- 2** Load 8.5"x17" or 19" ballot paper as shown.



- 3** Press the blue release button (located to the right of the paper) to raise the paper to meet the rollers. ▶





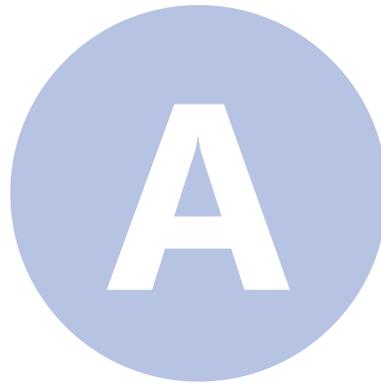
# Hart Support

Note: the following contact information is for use by election officials and staff only; poll workers should not be encouraged to call the Hart CSC Help Desk.

## **Hart Customer Support Center (Help Desk)**

**1.866.275.4278**

**[hartsupport@hartic.com](mailto:hartsupport@hartic.com)**



## **appendix A: device reports**

Verity Scan and Touch Writer device reports are printed on each device's thermal printer. Some reports are automatically printed at the appropriate time; others are printed only upon request of the user. On the following page is a list containing each device report, including:

- Report name.
- Report contents or description.
- When the report is printed.
- All reports include the data and time the report was printed.

## list of Verity device reports

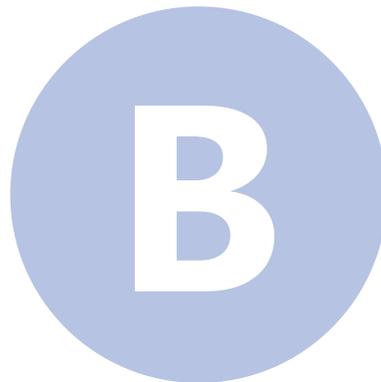
Report name	Report contents/description	When it is printed
Power-up Self Test	<ul style="list-style-type: none"> <li>• Firmware version</li> <li>• Device status</li> <li>• Power/battery status</li> </ul>	Automatically, when device is turned on.
Zero Report (Touch Writer)	<ul style="list-style-type: none"> <li>• Election Name and Date</li> <li>• Jurisdiction and polling place</li> <li>• Election Mode (i.e. Early Voting or Election Day)</li> <li>• Ballot count</li> <li>• Lifetime count</li> <li>• Number of precincts/splits</li> <li>• Access code summary</li> </ul>	Before polls are opened, upon request.
Zero Report (Scan)	<ul style="list-style-type: none"> <li>• Election Name and Date</li> <li>• Jurisdiction and polling place</li> <li>• Election Mode (i.e. Early Voting or Election Day)</li> <li>• Ballot count</li> <li>• Lifetime count</li> <li>• Number of precincts/splits</li> <li>• Tally summary by contest*</li> </ul>	Before polls are opened, upon request.
Open Polls	<ul style="list-style-type: none"> <li>• Election Name and Date</li> <li>• Jurisdiction and polling place</li> <li>• Election Mode (i.e. Early Voting or Election Day)</li> <li>• Ballot count</li> <li>• Lifetime count</li> </ul>	Automatically, when polls are re-opened (Early Voting) or opened (Election day).
Suspend Polls (Touch Writer)	<ul style="list-style-type: none"> <li>• Total Ballots printed</li> <li>• Precincts voted (summary)</li> </ul>	Automatically, when polls are suspended during early voting.
Close Polls (Touch Writer)	<ul style="list-style-type: none"> <li>• Election Name and Date</li> <li>• Jurisdiction and polling place</li> <li>• Election Mode (i.e. Early Voting or Election Day)</li> <li>• Ballot count</li> <li>• Lifetime count</li> <li>• Total Ballots printed</li> <li>• Precincts voted (summary)</li> </ul>	Automatically, when polls are closed on election day.

## appendix A: device reports

Report name	Report contents/description	When it is printed
Suspend Polls (Scan)	<ul style="list-style-type: none"> <li>• Election Name and Date</li> <li>• Jurisdiction and polling place</li> <li>• Election Mode (i.e. Early Voting or Election Day)</li> <li>• Ballot count</li> <li>• Lifetime count</li> <li>• Tally (summary by contest)*</li> </ul>	Automatically, when polls are suspended during early voting.
Close Polls (Scan)	<ul style="list-style-type: none"> <li>• Election Name and Date</li> <li>• Jurisdiction and polling place</li> <li>• Election Mode (i.e. Early Voting or Election Day)</li> <li>• Ballot count</li> <li>• Lifetime count</li> <li>• Tally (summary by contest)*</li> </ul>	Automatically, when polls are closed on election day.
Precincts Enabled	<ul style="list-style-type: none"> <li>• Election Name and Date</li> <li>• Jurisdiction and polling place</li> <li>• Election Mode (i.e. Early Voting or Election Day)</li> <li>• Ballot count</li> <li>• Lifetime count</li> <li>• Number of precincts/splits</li> <li>• List of precincts</li> </ul>	Available on the Ready to Open Polls screen.
Configuration Readiness	<ul style="list-style-type: none"> <li>• Firmware version</li> <li>• Ballot count</li> <li>• Lifetime count</li> <li>• vDrive ID</li> </ul>	Available on the Ready to Open Polls screen.
Access Code Summary	<ul style="list-style-type: none"> <li>• Total access codes issued since polls were opened</li> <li>• Access codes cast/used</li> <li>• Access codes expired</li> <li>• Access codes deactivated</li> <li>• Access codes spoiled</li> <li>• Access codes open</li> <li>• Access codes in use</li> </ul>	Available at any time while polls are open on the Touch Writer, by pressing the Poll Worker button on the back of the device.
Tally*	<ul style="list-style-type: none"> <li>• Total number of precincts/splits associated with the device</li> <li>• Vote totals for each contest choice/candidate, grouped by contest, for the device</li> <li>• Total ballots cast on the device.</li> </ul>	After polls are closed on Election Day on Scan, upon request.

Report name	Report contents/description	When it is printed
Ballot Count	<ul style="list-style-type: none"> <li>• Number of precincts/splits associated with the polling place</li> <li>• Number of precincts/splits with cast ballots</li> <li>• Total number of cast ballots</li> <li>• Total ballots cast for each precinct for the election</li> <li>• Total ballots cast for each precinct for that day</li> </ul>	After polls are closed on Election Day on Scan, upon request.
Write-in Report	<ul style="list-style-type: none"> <li>• Ordered by precinct, and then contest</li> <li>• Each unique write-in entered</li> <li>• Votes received for each unique write-in</li> </ul>	After polls are closed on Election Day on Scan, upon request.

\*Note: The type of Tally report available (summary or by precinct) is determined according to settings chosen by the election officials. The Tally report may not be included for some jurisdictions, depending on local election procedures.



# appendix B: security recommendations

## election security recommendations

Verity provides state of the art voting system security. In addition to the security provided by the system, we also recommend jurisdictions follow standard election security procedures. Some of these standard security procedures include:

- ▶ Restrict access to voting equipment behind locked doors when not in use.

- ▶ Ensure chain of custody when delivering, receiving or transporting any voting equipment or ballots.
- ▶ For authentication purposes, check for documentation containing serial numbers, seal numbers and identification for anyone tasked with delivery or transport.
- ▶ Do not leave voting equipment unattended when polling place is open.
- ▶ Do not issue Access Codes or paper ballots until voter has been properly qualified and there is an available voting booth.
- ▶ Do not remove or tamper with seals except under controlled circumstances when counting ballots. Verify proper paperwork when removing seals (i.e. the Ballot & Seal Certificate).
- ▶ Report any suspicious activity to the local election officer.



## **password security**

- ▶ Passwords should be contain least 6 characters
- ▶ Passwords should contain both numbers and letters
- ▶ Passwords should contain both uppercase and lowercase letters



## appendix C: creating a recovery vDrive for voting devices

In the event that a device vDrive is lost or damaged during an election event, a recovery vDrive can be created by accessing the Administrator menu on the device itself. To access the Administrator menu, you will need to know the Administrator password for devices set up in Build (see the *Administrator's Guide*). For instructions on creating a recovery vDrive for the Central application, see the *Administrator's Guide*.

### **materials needed**

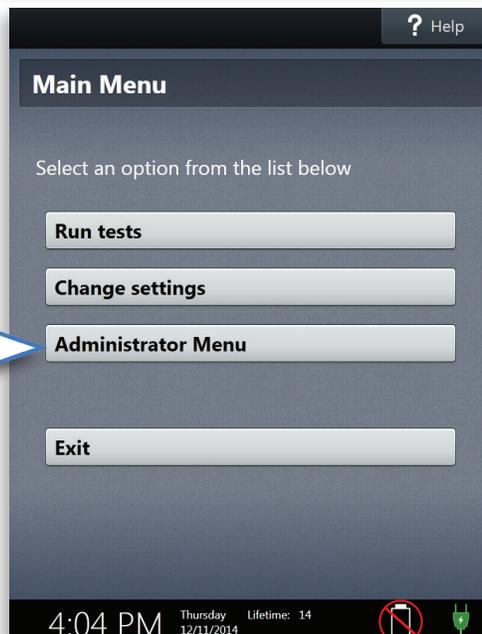
- Voting device containing the data that needs to be recovered
- vDrive not previously used in a device for the election

## creating a recovery vDrive

**1** On the device startup screen, select the **Menu** button.



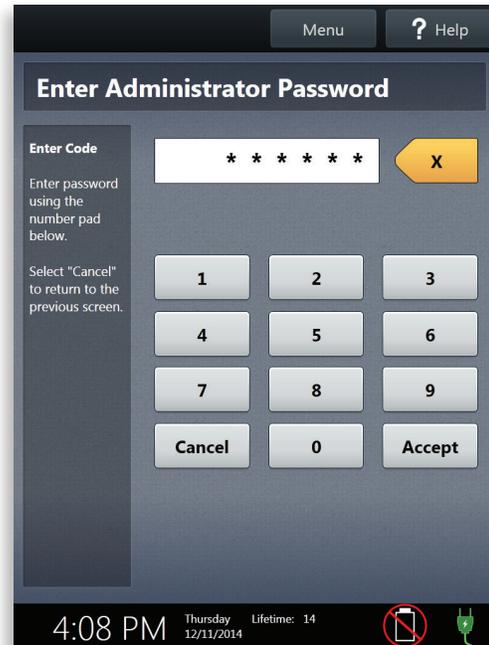
**2** Select **Administrator Menu**.



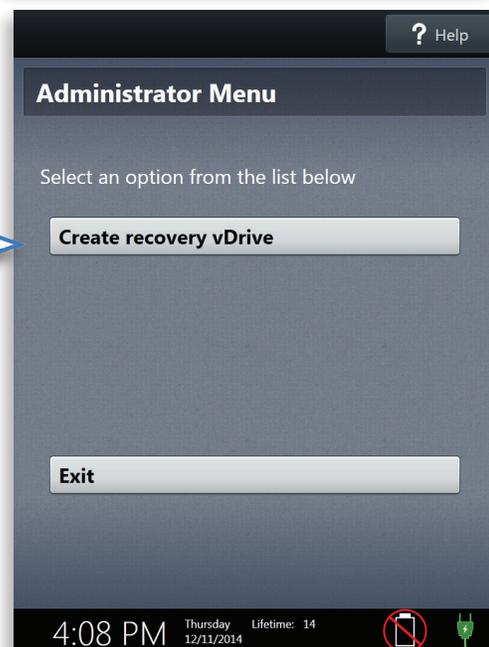
## appendix C: creating a recovery vDrive

### creating a recovery vDrive, *continued*

**3** Enter the Administrator devices passcode and select **Accept**.



**4** Select **Create recovery vDrive**.

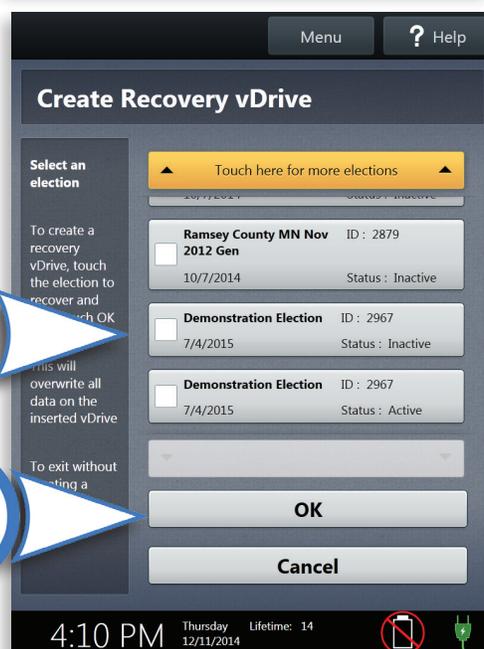
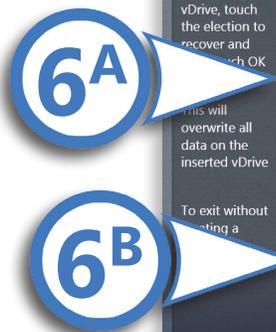


## creating a recovery vDrive, *continued*

**5** Insert a vDrive that has not been previously used for the election.



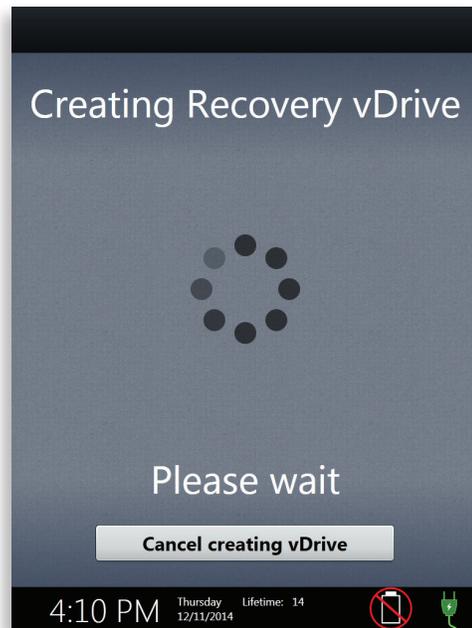
**6** Select the election data you wish to recover (**A**), and then select **OK** (**B**).



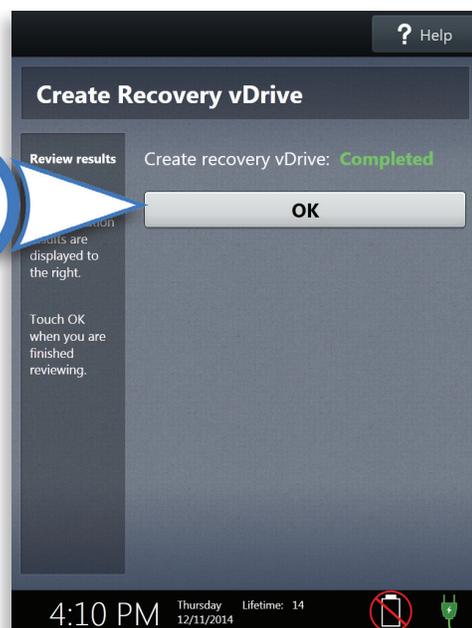
## appendix C: creating a recovery vDrive

### creating a recovery vDrive, *continued*

- 7** Wait while the data is written to the vDrive.

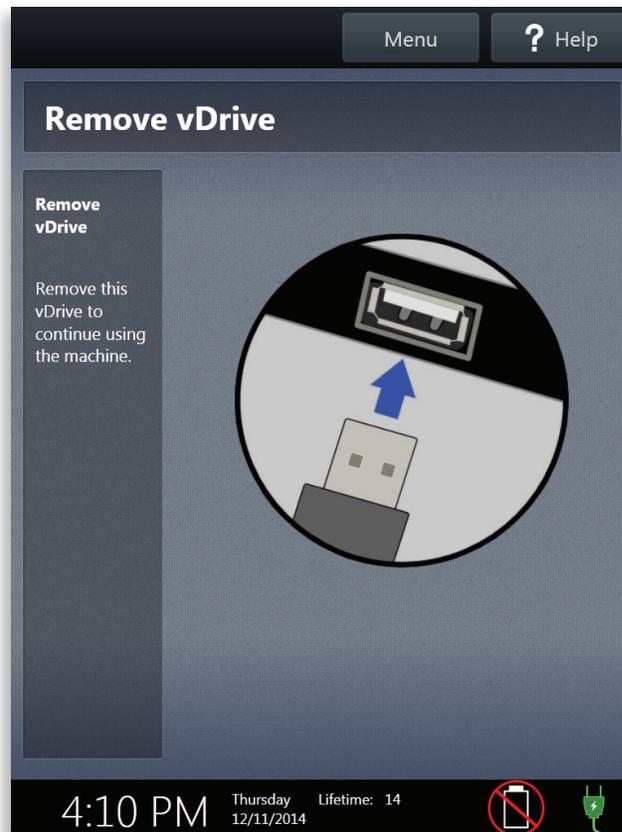


- 8** Select OK.



## creating a recovery vDrive, *continued*

- 9 Remove the vDrive. If needed, the vDrive can now be read into Count and tabulated.



# glossary

## abandoned ballot

A ballot that the voter did not cast into the ballot box before leaving the polling place. Local election rules dictate dispensation of an abandoned ballot. In some jurisdictions, abandoned ballots must be spoiled (see also spoiled ballot).

## absentee ballot

Ballot cast by a voter unable to vote in person at his or her polling place on election day.

## absentee voting

A voting method by which people can cast their ballots without going to the polling place on election day. In some jurisdictions, early voting is referred to as 'absentee-in-person' or 'absentee walk-in' and by-mail voting is sometimes referred to as 'absentee-by-mail.'

## acceptance testing

Examination of voting equipment and testing of basic functionality upon delivery including validation that the delivered system is, in fact, the certified system purchased.

### access code

The five-digit number given to each voter that indicates to the Verity system which precinct and ballot style to display to the voter on the Touch Writer. The access code is printed by the poll worker from the Touch Writer that the voter will use. The access code is only valid for a limited time and does not link to any voter information.

### access code summary report

A report that is printed on the Touch Writer. It lists the number of access codes issued, voted, expired, and canceled.

### Americans with Disabilities Act (ADA)

A 1990 federal act that established comprehensive standards for the treatment of persons with disabilities in employment, public accommodations, and other programs, including those operated by state and local governments.

### audio ballot

A ballot in which a set of contests is presented to the voter in spoken, rather than written, form.

### audio-tactile interface (ATI)

Voter interface designed to not require visual reading of a ballot. Audio is used to convey information to the voter and sensitive tactile controls allow the voter to communicate ballot selections to the voting system.

### audit log

A report containing recorded information that allows elections officials to view the steps that occurred on the equipment and/or software included in an election in order to verify or reconstruct the user actions taken without compromising ballot or voter privacy.

### ballot

The official presentation of all of the contests to be decided in a particular election.

**ballot box**

A secure receptacle for the Verity Scan that collects scanned paper ballots and that also has an emergency compartment for temporary storage of unscanned voted ballots in case the Scan is disabled.

**ballot box security seal**

The seal attached to the ballot box door to secure the paper ballots. *See also* **security seal**.

**ballot count**

A number, shown on the Verity configuration reports and Polls Open screens that indicates how many ballots have been processed on that device for the current election. The ballot count of a device is reset to zero when a new election is loaded by election staff before an election.

**ballot image**

For a paper ballot, the electronic digital picture of the ballot. For an electronic ballot, the Cast Vote Record of the electronic ballot.

**ballot instructions**

(1) Instructional text that appears at the top of the ballot. There are two separate types of Ballot Instruction text: (1) Electronic and (2) paper ballot. There is also separate audio instruction associated with the Touch Writer ballot instruction. (2) Information provided to the voter during the voting session that describes the procedure for voting a ballot. Such material may (but need not) appear directly on the ballot.

**ballot marking device (BMD)**

An electronic machine at which a voter can make selections and then print a marked ballot, which the voter takes to a scanning device to be cast. No vote records are stored on the ballot marking device itself.

**ballot number**

In Verity, a number that can be placed on the ballot but which is not digitally processed in the system and is not part of the Cast Vote Record.

### ballot position

The order on the ballot in which a candidate's name appears. For example, candidate B may have the 2nd position on the ballot, meaning that there is one candidate's name ahead of candidate B for that contest.

### ballot stub

A perforated, removable portion of a ballot used in some jurisdictions. The ballot stub does not contain voteable contests.

### ballot style

A ballot style is a grouping of certain precincts with an identical contest configuration. Every precinct's (or split precinct's) ballot is linked to one ballot style and there may be several precincts with the same ballot style. In Verity, the ballot style information is carried on the vDrive.

### ballot text

Informational text embedded in the ballot that does not have the properties of a contest and cannot be voted. Ballot text is often used to identify a section of the ballot.

### bar code

A printed horizontal strip of vertical bars of varying widths, groups of which represent decimal digits. In the Verity voting system, bar codes are required in order for paper ballots to be correctly scanned.

### BMD

See **ballot marking device (BMD)**.

### by-mail

When voters receive ballots through the mail system, and then return voted ballots to the scanning and tabulation center via the mail system (or via drop boxes).

**candidate**

Person contending in a contest for office. A candidate may be explicitly presented as one of the choices on the ballot or may be a write-in candidate.

**canvass**

Compilation of election returns and validation of the outcome that forms the basis of the official results by a political subdivision.

**cast ballot**

Ballot that has been deposited by the voter in the ballot box or electronically submitted for tabulation.

**Cast Vote Record (CVR)**

An anonymous record of the contest options that a voter selected on his/her cast ballot (otherwise known as the voter's choice set). In the Verity voting system, Cast Vote Records are stored in electronic format. One Cast Vote Record is equivalent to one ballot, and is the permanent record of all votes produced by a single voter whether in electronic, paper or other form. Also referred to as ballot image when used to refer to electronic ballots.

**central count**

When the ballots are scanned and then tabulated at a central facility, and not at the polling place(s) where in-person voting took place.

**certification**

Procedure by which a third party gives written assurance that a product, process or service conforms to specified requirements. See also state certification and national certification.

**certification testing**

Testing performed under either national or state certification processes to verify voting system conformance to requirements.

### challenged ballot

Terminology and rules for challenged ballots vary by state. In general, a challenged ballot results when a voter's right to cast a ballot in a certain jurisdiction is challenged for various procedural reasons. If the challenge stands, the voter may, in most cases, vote provisionally.

### close polls report

Report printed by the Verity voting device when the polls are closed. This report includes a time stamp indicating the date and time printed.

### closed primary

Primary election in which a voter receives a ballot listing only those candidates running for office in the political party with which the voters is affiliated. In some states, non-partisan contests and ballot issues may be included. In some cases, political parties may allow unaffiliated voters to vote in their party's primary.

### CMOS battery

Coin battery within a Verity device tablet that maintains the system clock functions while the device is turned off.

### component

Element within a larger system; a component can be hardware or software. For hardware, it is a physical part of a subsystem that can be used to compose larger systems (e.g., circuit boards, internal modems, processors, computer memory). For software, it is a module of executable code, that can be moved around as a whole that performs a well-defined function and interacts with other applications.

### contest

A choice to be made on the ballot; a race. Contest types include offices, issues, referendums, measures, and propositions.

### count

Process of totaling votes. Also the name of Verity's tabulation software application. See **tabulation**.

**credentials**

Authentication information that enables access to operations in the system or associated databases. Credentials typically include user IDs and passwords.

**cryptography**

Discipline that embodies the principles, means, and methods for the transformation of data in order to hide their semantic content, prevent their unauthorized use, prevent their undetected modification and establish their authenticity.

**CVR**

See **Cast Vote Record (CVR)**.

**damaged ballot**

A paper ballot that has been torn or otherwise damaged to the extent that it cannot be read using an optical or digital scanning device.

**digital scan**

A process where ballots are scanned and the electronic, or digital, images of the ballot are captured in whole (as opposed to optical scan, where the image is not captured but light reflected off of or absorbed by marked surfaces is used to collect vote data).

**direct record electronic (DRE)**

The term for an electronic machine at which a voter can view, vote, and cast a ballot.

**district**

A selection of precincts and/or split precincts that determine a voting group.

**DRE**

See **direct record electronic (DRE)**.

### duplex

Two-sided. In Verity ballots are printed and scanned on both sides of the ballot sheet. The Verity Scan scans both sides of the ballot sheet.

### early voting

A term for votes cast in-person prior to election day. Nomenclature for early voting varies from state to state in the U.S. (absentee in-person, absentee walk-in, etc.).

### election

A formal process of selecting a person for public office or of accepting or rejecting a political proposition by voting.

### Election Assistance Commission (EAC)

Federal agency created by HAVA and chartered with, among other things, overseeing the testing and certification of voting systems.

### election database

In Verity Layout and Build, a data file or set of files that contain information about political subdivisions and boundaries, all contests and questions to be included in an election, and the candidates for each contest.

### election day

A specific day, set by federal or state statute, when voting takes place and results tabulation and reporting begins.

### election ID

An identification code assigned to an election by Verity Layout and Build that is unique for every election. The election ID is used internally by the software applications.

### emergency ballot slot/emergency ballot bag

A special receptacle in the Verity ballot box, with its own unique access door, that can be used to securely store unscanned ballots.

**encryption**

Process of obscuring information by changing plain text into cipher text for the purpose of security or privacy. *See also* **cryptography**.

**firmware**

Computer programs (software) stored in read-only memory (ROM) devices embedded in the system. A Verity device's firmware version is displayed on the Power On Self Test report.

**functionality test**

Testing of hardware functionality (e.g., testing to see that a Touch Writer button responds correctly when pressed). Functionality tests are built into the Verity voting devices.

**general election**

Election in which voters, regardless of party affiliation, are permitted to select candidates to fill public office and vote on ballot issues. In the U.S., federal general elections are held on the first Tuesday after the first Monday in November, in every even-numbered year.

**hash testing**

A test run to check that installed software has not been altered since its initial installation. The installed software is compared against a 'trusted build' of the software that has been certified by a regulatory agency.

**Help America Vote Act (HAVA)**

Signed into law October, 2002, HAVA intends to assist states in the administration of federal elections and establishes 'minimum standards for states and units of local governments with the responsibility for the administration of federal elections.' Most importantly, HAVA mandates that each polling place in the United States have a federally approved handicap accessible voting system.

**help button**

Button on the Verity Access; when pressed, the Verity Touch Writer screen will display contextual help text.

**invalid vote**

An instance where a voter in an open primary has voted for a candidate for an opposing party after first declaring affiliation with another party.

**lifetime count**

A number, shown on the Verity device touch screens, that indicates how many ballots (Cast Vote Records) have been voted on the device over its lifetime. The lifetime count cannot be reset.

**logic and accuracy test (LAT or L&A)**

In the context of an election, a test to check the accuracy of the voting system tabulation. An LAT is accomplished by submitting test ballots for which the results are already known (i.e., a 'test deck') through the ballot counting system and comparing the results with the expected results. If an error occurs (i.e., the actual test deck count does not match the expected count), then the problem is investigated and corrected, and the test is repeated.

**move wheel**

The rotary wheel on the Verity Access that allows a voter to navigate the ballot and highlight choices by turning the wheel.

**multi-seat contest**

Contest in which multiple candidates can run, up to a specified number of seats. Voters may vote for no more than the specified number of candidates.

**non-partisan office**

An elected office for which candidates run independent of political party affiliation.

**nonvolatile memory**

Memory in which information can be stored indefinitely with no power applied. ROM is an example of nonvolatile memory.

**open polls report**

Report printed by the Verity voting device when the polls are opened. This report includes a time stamp indicating the date and time printed.

**open primary**

Primary election in which any voter can participate, regardless of their political affiliation. In the U.S., states that have open primaries do not require voters to register by party. Some states require voters to publicly declare their choice of party ballot at the polling place, after which the poll worker provides or activates the appropriate ballot. Other states allow the voters to make their choice of party ballot within the privacy of the voting booth.

**option**

A choice on a ballot.

**option box**

The target area where a voter marks in order to make a selection on a ballot.

**paper-based voting system**

Voting system that records votes, counts votes, and tabulates the vote count, using one or more ballot cards or paper ballots. In some regions, the term paper ballot is equivalent to hand counted ballot.

**poll worker button**

A button located on the back panel of the Verity device used to access poll worker and administrator functions.

**polling location**

Physical address of a polling place.

**polling place**

The area within the polling location where voters cast ballots. Sometimes, a single polling place supports several precincts.

### power on self test report

A report printed from the Verity voting device any time the device is powered on. This report shows a time stamp, firmware version, and diagnostic test result. A self-diagnostic test is run on the system, and the result is indicated as either a pass or fail on the report.

### precinct

Election administration division corresponding to a contiguous geographic area that is the basis for determining which contests and issues the voters legally residing in that area are eligible to vote on. In traditional election nomenclature, precinct was once equivalent to polling place. This is not necessarily the case any longer.

### primary election

Election held to determine which candidate will represent a political party for a given office in the general election.

### provisional ballot

A ballot provided to individuals who claim they are eligible to vote but whose eligibility cannot be confirmed when they present themselves to vote. Once voted, such ballots cannot be included in the tabulation until after the voter's eligibility is confirmed.

### race

A choice to be made on the ballot; a contest. Race types include offices, issues, referendums, measures, and propositions.

### ranked choice voting

Practice that allows voters to rank candidates in a contest in order of choice 1, 2, 3, and so on. A candidate receiving a majority of the first choice votes wins that election. If no candidate receives a majority, the last place candidate is deleted, and all ballots are counted again, with each ballot cast for the deleted candidate applied to the next choice candidate listed on the ballot. The process of eliminating the last place candidate and recounting the ballots continues until one candidate receives a majority of the vote. Also known as instant runoff voting, preferences or preferential voting, or ranked order voting.

**recount**

Re-tabulation of the votes cast in an election.

**replacement ballot**

A ballot that is designated by the election authority to be a replacement for a damaged ballot.

**runoff election**

Election to select a winner following a primary or a general election, in which no candidate in the contest received the required minimum percentage of the votes cast. The two candidates receiving the most votes for the contest in question proceed to the runoff election.

**sample ballot**

A ballot printed as a sample of the real election ballot. Sample ballots contain a special barcode which prevents them from being counted by the Verity system.

**security controls**

Management, operational, and technical controls (such as safeguards or countermeasures) prescribed for an information system to protect the confidentiality, integrity, and availability of the system and its information.

**security seal**

Tamper-evident seals put in place by the jurisdiction on voting devices and ballot boxes to restrict access to voted ballots and compartments containing voted ballots.

**select button**

Button on the Verity Access; a voter presses this button to select an option or ballot choice highlighted by the move wheel.

**sheet**

In reference to paper ballots, one piece of paper printed on both sides, i.e., duplex.

### sheet count

On the Verity Scan device, a number, shown on the touch screen, that indicates how many physical ballot sheets have been scanned on that device for the current election. The sheet count of a device is reset to zero when a new election is loaded by election staff before an election.

### sip-and-puff

A voter's personal input device that connects to the Verity Access using the disabled access jack. This enables disabled voters with extremely limited mobility to vote with a mouth-controlled device.

### split precinct

When a precinct is divided to accommodate non-standard division of boundaries within it (i.e. when sub-jurisdiction districts affect the ballot styles within a parent jurisdiction precinct).

### spoiled ballot

A ballot that has been rendered invalid, either by a voter who is still present at the polling place (making it necessary to give the voter a new ballot) or by virtue of being abandoned by the voter. *See also* **abandoned ballot**.

### straight party voting

A voting method that presents a contest at the top of the ballot that allows selection of a single political party in order to automatically select candidates of that party in contests that allow straight party voting.

### stub number

A number that can be placed on the ballot stub. In Verity, the stub number is not tied to the ballot number.

### suspend polls report

A report that automatically prints when suspending polls during early voting.

**system audit log**

Captures system-specific information, such as operating system login or logout and operating system alerts, faults, and failures (that is, running on battery).

**system battery**

Rechargeable battery pack used in Verity voting devices.

**tabulation**

Process of totaling votes. *See also* **count**.

**tactile switches**

Also called 'dual mode switches,' or 'jelly switches,' these red and green 'paddles' enable voters with disabilities to vote without using the touch screen, move wheel or select button on the Touch Writer. Voters without fine motor control may use these. The red tactile switch allows voters to navigate through the ballot, similar to turning the move wheel in a clockwise direction. The green switch is similar to pressing the select button.

**tally report**

An report that may be printed from a Verity voting device after polls are suspended closed. It includes the date, time, precinct, a tally of votes for each contest, and an access code or ballot summary. Use of this report may vary by jurisdiction.

**thermal printer**

Roll-feed printer built in to each Verity voting device used to print reports and (on the Touch Writer) access codes. This printer uses heat to print on the paper, and thus does not use ink or toner.

**touch screen voting machine**

A voting machine that utilizes a computer screen to display the ballot and allows the voter to indicate his or her selections by touching designated locations on the screen.

### **undervote**

An instance where the number of choices selected by a voter in a contest is less than the maximum number allowed for that contest, or when no selection is made for a single choice contest.

### **uninterruptible power supply (UPS)**

A device that maintains AC power for a connected device during a power outage.

### **unique identifier**

A number placed on the sheets of a ballot that uniquely identifies the ballot in order to prevent scanning of duplicate paper ballots. Within the Verity system, unique identifiers are optional and cannot be tied to an individual voter (as there is no individual voter data in the Verity system). Unique identifiers contain no serial (i.e. sequential) data.

### **universal serial bus (USB)**

An external peripheral interface standard for communication between a computer and other devices. In the Verity voting system, the vDrive and Verity Key connect to a USB port.

### **Verity Access**

Verity's audio-tactile interface device.

### **Verity Build**

Verity ballot production software. Build allows you to review and proof ballots, print ballots, and generate vDrives and Verity Keys for running the election.

### **Verity Central**

Verity vote resolution software. Central processes high volumes of paper ballot scanning to compile and send to Verity Count for tabulation and results.

**Verity Count**

Verity vote tabulation software. Count receives, reads, aggregates, and reports on election results. The system analyzes results, providing deeper details based on specified options such as the types of votes and elections.

**Verity Key**

Verity election cryptographic module. Provides secure authentication of critical actions within the Verity voting system.

**Verity Layout**

The Verity Election Office application used to manage data such as ballot content, ballot formats, and ballot style previews.

**Verity Scan**

Verity polling place scanning device. These devices scan physical printed and marked ballots for collecting and tabulating votes.

**Verity Touch Writer**

Verity polling place ballot marking device, with print capabilities for paper ballots.

**Verity vDrive**

In the Verity system, the electronic media used for transferring of election definitions and data, CVRs, and device audit logs between the Verity software workstations and voting devices.

**Voluntary Voting System Guidelines (VVSG)**

Standards created by the National Institute of Science and Technology and used by the EAC to test and certify voting systems.

**vote center**

Sometimes called super precincts or county-wide polling places. A polling place where all or a large set of election precincts and ballot styles are available for voters from a large area to come in-person to vote on election day.

**vote for n of m**

A ballot choice in which voters are allowed to vote for a specified number ('n') of candidates in a multi-seat contest where 'm' is the number of valid choices.

**voted ballot**

A ballot that has been cast.

**voting position**

Specific response field on a ballot where the voter indicates the selection of a candidate or ballot proposition response.

**voting system**

The total combination of mechanical, electromechanical or electronic equipment (including the software, firmware, and documentation required to program, control, and support the equipment) that is used to define ballots, cast and count votes, report or display election results; and to maintain and produce any audit trail information; and the practices and associated documentation used to identify system applications and versions of such applications; to test the system during its development and maintenance; to maintain records of system errors and defects; to determine specific system changes to be made to a system after the initial qualification of the system; and to make available any materials to the voter (such as notices, instructions, forms or paper ballots).

**voting system software**

All the executable code and associated configuration files needed for the proper operation of the voting system. This includes third party software such as operating systems, drivers, and database management tools. See also dynamic voting system software, semi-static voting system software, and static voting system software.

**write-in**

A name of a candidate entered by the voter in order to vote for a candidate that is not listed in that contest.

**write-in, certified**

A candidate that has been certified by the election authority as being a valid write-in candidate for the election.

**zero report**

A voting device report that must be printed before polls are opened on the first day of early voting and on election day. A zero report must also be printed from the tabulation workstation prior to counting ballots on election day. This report lists the time, the number of precincts at the polling place, the contests and candidates on the ballot, and verifies that the current number of votes for each candidate or option is zero.



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