



Logic and Accuracy (L&A) Testing



Agenda

- Pre-Election Testing Requirements
- Conducting the Public Logic and Accuracy Test
- Hash Validation
- Electronic Pollbook Testing



Texas Secretary of State
ELECTIONS DIVISION



Pre-Election Testing Requirements



Testing Requirements

- **Public Logic and Accuracy Test / First Tabulation Test**
 - Conducted after ballot programming and printing
 - Verify that the ballots are programmed and printed correctly
 - Verify that the system is correctly marking and correctly counting the ballots
 - Open to the public
 - Involves each type of equipment used in the election and each type of ballot used in the election



Public L&A Test and First Tabulation Test

Consists of three tests conducted together at the same time:

- Public L&A Test
- Tabulation Test for Polling Place Equipment (Precinct Scanners)
- Tabulation Test for CCS Equipment (Central Scanners + Central Accumulator)

All three tests are performed by the testing board:

- Consists of at least two people appointed by general custodian
 - At least one from each political party
- Presiding and alternate judge of CCS **not** required to be part of testing board
 - However, they can be appointed by the general custodian



Testing Requirements

- **Second Tabulation Test of Central Counting Station Equipment**
 - Conducted immediately before each time ballots are counted at CCS
 - Verifies that the system is still tabulating results correctly before the official tabulation begins
- **Third Tabulation Test of Central Counting Station Equipment**
 - Conducted immediately after each time ballots are counted at CCS
 - Verifies that the system is still tabulating results correctly after the official tabulation is completed



Second and Third Tabulation Tests

Timing

Central Scanners and Central Accumulators must be tested immediately before and immediately after **each time** that ballots are counted at the CCS

Responsibility

Presiding judge, tabulation supervisor, CCS manager, and programmer are responsible for performing these tests

Materials

The electronic media generated during the Public L&A Test/First Tabulation Test is used to perform these tests at the CCS



Testing Requirements

- **Logic and Accuracy Test of Electronic Pollbooks**
 - Conducted before early voting begins in an election
 - Can be conducted at the same time as the voting system Public L&A Test, but it is not required
 - Designed to verify that the electronic pollbooks are programmed correctly and functioning properly



Electronic Pollbook L&A Testing

Electronic Pollbook Testing Requirements:

	Voter database is loaded correctly
	Peripheral devices function as expected
	Ballot styles correctly assigned to voters
	Ballots issued by peripheral devices correctly read by voting system



Conducting the Public Logic and Accuracy Test



Public L&A Test and First Tabulation Test

- Must be conducted no later than the 48th day before election day
- If it is not possible to meet this deadline, must perform test as soon as practicable
 - Must also provide notice to SOS within 24 hours of the determination that the deadline will not be met
- Must provide notice 48 hours before the test on the county/entity's website
 - Newspaper notice is **no longer** required



Public L&A Testing Requirements

Existing Requirements:	
✓	Zero public counter
✓	Include testing board in vote casting
✓	Verify each contest position, precinct, and ballot style can be voted and is accurately counted
✓	Include overvotes, undervotes, write-ins, and provisionals
✓	Test all disability features using a two-person team
✓	Compare expected vs. actual results
✓	Hash validate representative sample of equipment



Public L&A Testing Requirements

New Requirements: Codifying Existing Best Practices for Voting System Testing

	Test all equipment types (e.g., BMDs, Scanners, DREs)
	Include all ballot types (e.g., mail, BMD ballots)
TEST	Clearly mark test ballots



Public L&A Testing Requirements

- If the test is unsuccessful:

Identify Cause

Prepare and Publish Explanation

Retain Testing Materials

Conduct a New Public Test



Availability of Test Materials

Sealed container for test materials may only be unsealed for these specific reasons:

- To perform another voting system test (e.g., Second and Third Tabulation Tests)
- For a criminal investigation
- For an election contest
- For another official proceeding under the Election Code
- **To respond to a public information request (NEW LAW)**

Test materials are now available for public inspection beginning on the first day after the final canvass of the election



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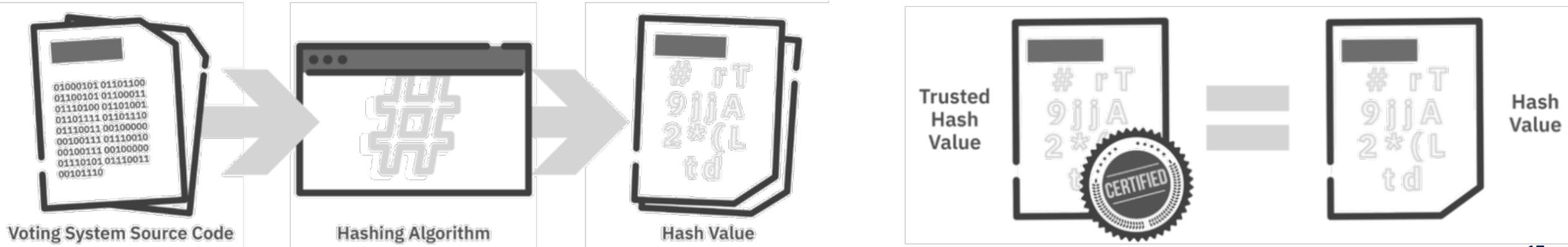


Hash Validation



Hash Validation

- *Hash* – A string of characters that represent a package of files.
- During certification, a hash is generated during federal testing.
 - Every type of device has its own unique hash in every system.
- During pre-election testing, a hash is generated the same way by the county.
 - The trusted hash is compared to the county's hash.
 - If they match, then the files in the system match the certified version.





Hash Validation Requirements

- Must be conducted as part of the public L&A test
- Must test a "representative sample" of each type of voting system equipment used in the election
- A representative sample is defined as:
 - Ten (10) of each type of voting device **OR** 5% of each type of voting device (whichever number is smaller)



Hash Validation

- Every voting system has a slightly different process for how hashes are generated from the EMS workstations and the voting devices and for how the generated hashes are compared to the trusted hashes
- Consult your vendor for specific procedures on how to conduct the hash validation process for your system
- Please contact our office at ElectionSecurity@sos.texas.gov to obtain the trusted hashes for your voting system
 - Email should include:
 - Your entity's name
 - The voting system you use, including the version number
 - e.g. ES&S EVS 6.1.1.0 / Hart Verity 2.7



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Electronic Pollbook Testing



Senate Bill 2166

- Requires Logic and Accuracy Testing for electronic pollbook systems
- Test must be performed not later than 48 hours before early voting begins
- Notice must be posted on county/entity's website 48 hours before test
- Not explicitly required to be a public test, though general custodian may choose to allow the public to be present



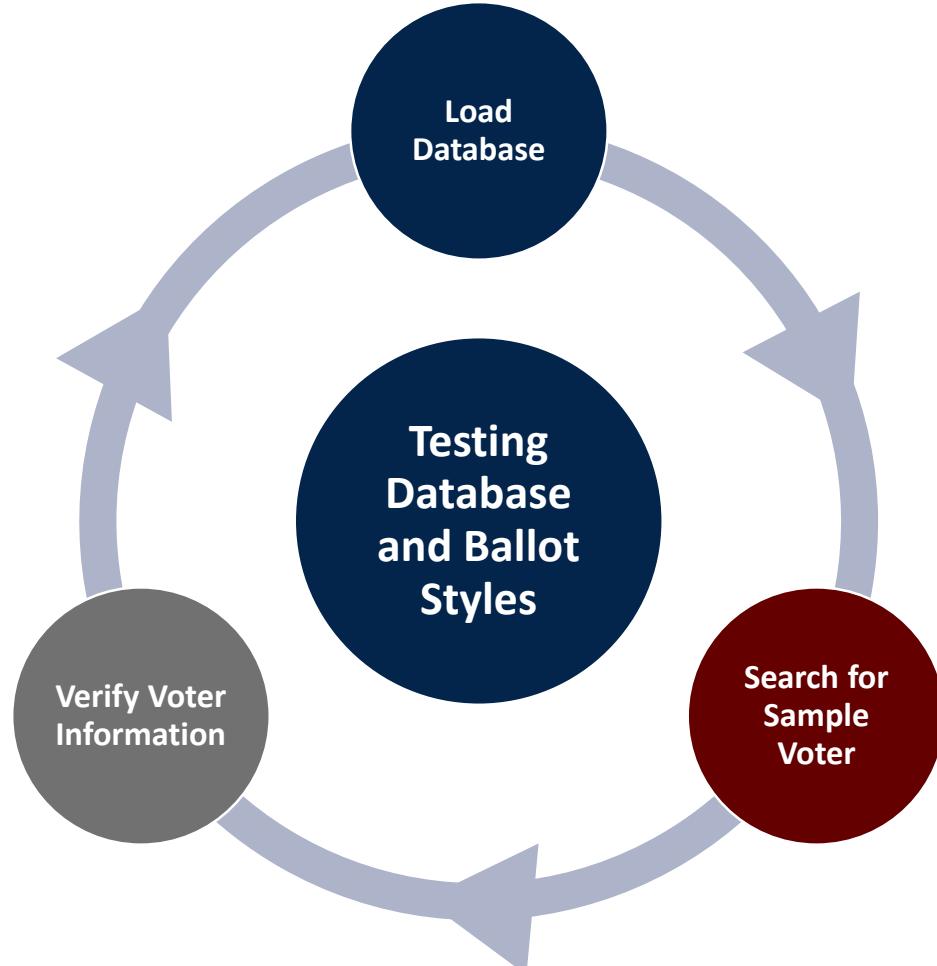
Electronic Pollbook L&A Testing

Electronic Pollbook Testing Requirements:

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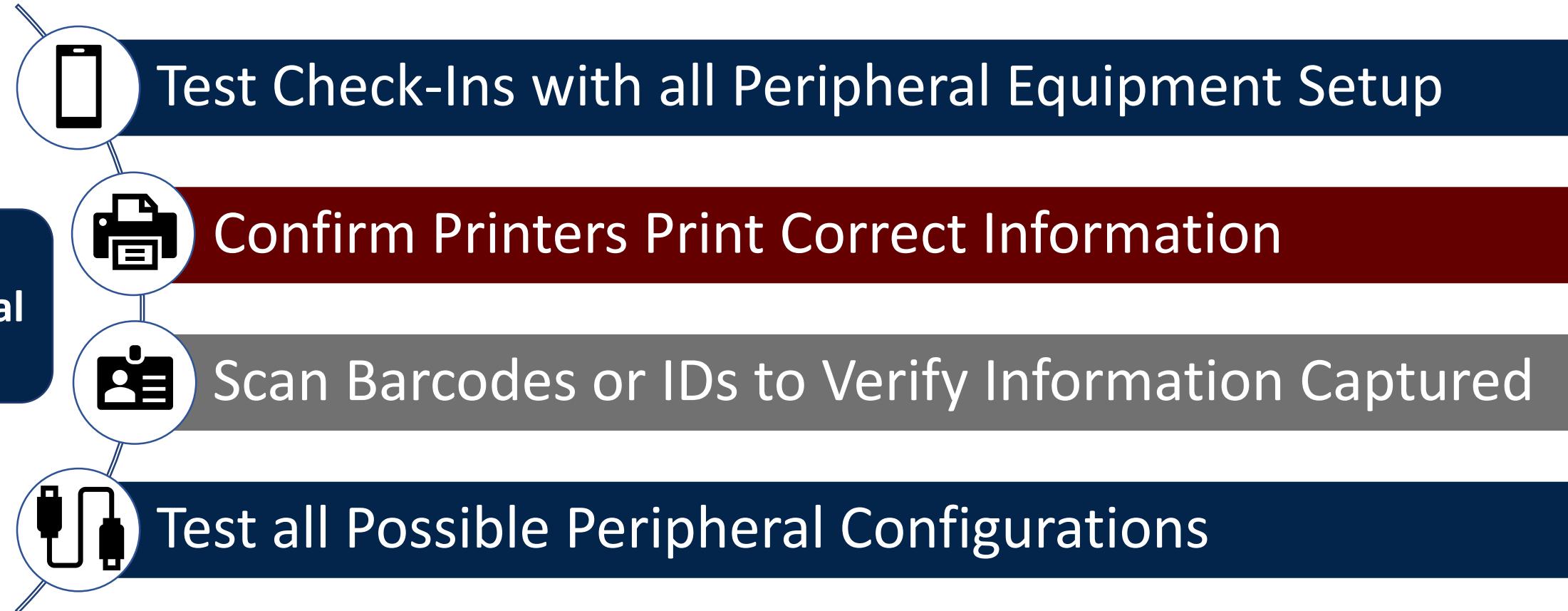
Electronic Pollbook L&A Testing



! Identify Random Sampling of Voters



Electronic Pollbook L&A Testing





Electronic Pollbook L&A Test Requirements

Testing with the Voting System

Generate

- Perform Test Check-Ins and Generate Test Ballots from System and/or Peripheral Devices

Verify

- Verify Test Voter Information is Correct on Test Ballot

Activate

- Use Test Ballots With the Voting System Devices (e.g., BMDs, Scanners)

Verify

- Verify Voting System Identifies Correct Ballot Style and Correctly Marks and Tabulates Test Ballots



Tip: Run EPB and Voting System L&A Together Using Same Test Deck



Available Support



WEBINARS



TRAINING



RESOURCES

elections@sos.texas.gov

800-252-VOTE • 512-463-5650

sos.texas.gov