

LOGIC & ACCURACY TESTING

Introduction:

The general custodian of election records is required to conduct both Logic and Accuracy Tests and a Test of Tabulation Equipment (Sec. 129.023 (c-1) TEC), known as Hash Testing to ascertain the election and voting equipment function as expected and accurately count votes as marked. Hash testing is a common method used to verify the integrity of installed software. This test compares the hash value for software installed workstations and devices with the hash value of the original source data to confirm the software has not been altered or corrupted.

The first Logic and Accuracy test must be completed no later than 48 hours before voting begins (Sec.129.023 TEC). The tabulations supervisor and counting station manager of the Central Count Station prepare and test the central accumulator as required by Chapter 127, Subchapter D. This test shall be conducted as part of the first Logic and Accuracy Test before it is used to count ballots voted in the election. The first test is open to the public (Sec. 127.096 (b) TEC) and is published in the local newspaper as required by the Texas Election Code.

The second test is conducted immediately before the tabulation of ballots begins using the Central Count workstation by reading the media from test one. Results must be printed and compared to Test 1 to validate.

The third test is conducted immediately after the tabulation of ballots with the Central Count workstations by reading the media from test one. Results must be printed and compared to Test 1 to validate.

Objectives: Seek to prove the system and its components are accurate and perform as intended by comparing the voting system reports of the scanner results to known, expected results.

The three main objectives of Logic and Accuracy testing are:

1. Verify that election specific data and ballots include every contest.
2. Ensure all components of the voting system are functional; and
3. Verify the voting system can interpret voter markings and record and report voter totals accurately.

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Components to be Tested:

- Central Count Station - a component that runs the election management software, aggregates voter totals, and generates election reports
- Precinct Ballot Scanner – a component that scans in-person ballots at the time the ballot is cast
- Early Voting Ballot Board Scanner – a component used by the Early Voting Ballot Board for absentee mail ballots that scans the ballot
- Direct-recording equipment (DRE) – Voting Devices with a voter verified paper audit trail that record a voter’s choice directly on the ballot paper for review prior to being placed in the Scanner for counting
- Auxiliary systems – e-pollbooks to verify they are in line with the voting system

Preparation:

The goals of the Logic and Accuracy testing are to ensure that the voting system has been duly configured to accurately report the votes as cast for every contest and candidate, and to ensure that each component of the voting system is functional.

1. Select dates of in-house pretest and Public & Accuracy Test.
2. Publish the Notice of Testing for the Public Test in the newspaper and website.
3. Send media to Hart for programming to include test media.
4. Create a test deck that tests every contest and candidate, every precinct or ballot style, overvotes, undervotes and write-ins.
5. Prepare a hand counted expected election results.
6. Select and document a representative sample of all equipment to be used in the test.
7. Set up the election in Central Count Station.
8. Create Logic & Accuracy Test tasks labeled LAT 1, LAT 2, and LAT 3.
9. Program the representative equipment for Test1.
10. Determinate the number of testers needed and develop teams.

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Logic & Accuracy Test 1:

1. Perform the Hash testing and compare results with trusted hashes obtained from the Secretary of State's office. Document results and all proceedings. Secure the records and materials for retention along with the Logic and Accuracy Test results.
2. Power on and sign in to the Controller and Scan units using the security codes provided.
3. Confirm the counter indicates zero ballots have been processed before beginning the testing.
4. Print Zero Report on each of these units for documentation.
5. Using the test script, cast each ballot as marked on the DRE. Once voting is completed, the printed ballot is processed through the ballot scanner.
6. Access and listen to all audio recordings by using a blank ballot to confirm audio is correct in all languages programmed.
7. Upon completion of voting all ballots in the test script, suspend the polls, and print tally tapes for comparison.
8. Compare the results on the tally tapes to the hand counted results.
9. Using the Central Count Station, run a Zero Report, prior to beginning to read or tabulate the media used in the testing equipment.
10. Read media into Central Count; adjudicate write-ins, tabulate all media used in the testing.
11. Print the report and compare the results to hand count and the tally tapes from test equipment to verify the results.
12. If results do not match, investigate any discrepancies and document the cause, or correct errors. This may require a new test to be performed if the error cannot be located.
13. Document all results. Have all team members sign and certify results.
14. Upon completion of a successful test, the Count Station Manager shall place the media used in tests, reports, and all other materials used in a sealed container for retention of at least 22 months.

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Logic & Accuracy Test 2:

1. Open the election in Count.
2. Print Zero Report prior to reading or tabulating the media used in the testing equipment.
3. Read media into Central Count; adjudicate write-ins, tabulate all media used in the testing.
4. Print the report, labeled as LAT 2, and compare it to LAT 1 reports. Reconcile if necessary.
5. The Presiding Judge of the Central Count Station shall review and sign all reports created for the Logic & Accuracy proceedings.

Logic & Accuracy Test 3:

1. Immediately after the Election night tabulation the third Logic & Accuracy test will be conducted. Open the election in Count, print a Zero Report to show no votes are currently in the system prior to reading or tabulating the media used in the testing equipment.
2. Read media into Central Count; adjudicate write-ins, tabulate all media used in the testing.
3. Print the report, labeled as LAT 3 and compare it to LAT 1 & LAT 2. Reconcile if necessary.
4. The Presiding Judge of the Central Count Station shall review and sign all reports created for the Logic & Accuracy proceedings.