

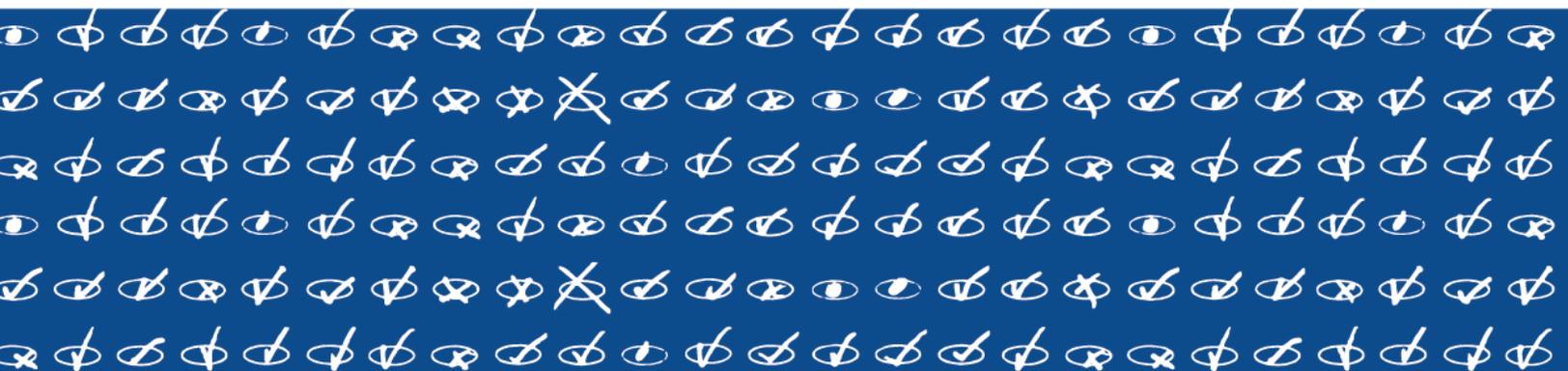
SECURING AMERICA'S VOTING SYSTEMS WITH POST ELECTION AUDITS



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MOVING TO AUDITABLE PAPER BALLOTS

The nation is increasingly moving to auditable and human verifiable paper ballots. Florida, New York, Maryland and Vermont have adopted audit technology made possible by ballot images. In some cases, legislation that previously required a manual process was rewritten to allow new technology that quickly and accurately verifies the results of every contest and candidate, across every precinct, regardless of the voting system in use.

WHAT IS A HUMAN-VERIFIABLE BALLOT?

A human-verifiable paper ballot is one that allows the voter to view and verify that all marks that were made as intended. A human can verify marks made on a paper ballot but is not always able to verify a barcode.

WHAT IS A POST-ELECTION AUDIT?

A post-election audit is an independent tabulation and comparison of an election's results that is performed after the election has concluded in order to verify the accuracy of the election.

WHY SHOULD YOU PERFORM A POST-ELECTION AUDIT?

Audits are primarily used to instill confidence in the electoral process. With the increase of election security awareness and security concerns in recent years, post-election audits are becoming a fundamental part of the election process.

WHAT TYPE OF AUDIT SHOULD YOU PERFORM?

There are several types of post-election audits that can be performed by a jurisdiction. The type of audit is typically determined by election officials within the state or jurisdiction. Some of the most common types of audits are listed below.

- (1) **Independent third-party audits** are performed independently from the primary tabulation system and can provide a more detailed analysis of the election. Independent third-party audits are often referred to as the gold standard of audits. These audits can be conducted by importing previously captured images or rescanning the physical ballots post-election. Most jurisdictions choose to perform a 100% analysis or review of every ballot cast during the election.

By providing a 100% independent audit of their election, this allows jurisdictions to perform a true side-by-side comparison of results against the primary tabulation system.

- (2) **A risk-limiting audit (RLA)** is a post-election audit that provides statistical evidence that the election outcome is correct. The statistical calculation is based on the acceptable risk limit that has been determined by the jurisdiction, the margin of victory in the selected race and the number of votes cast. After the number of ballots has been determined, those ballots are randomly selected and manually tabulated. Additional ballots are selected if the initial sample size failed to produce enough evidence of the clear winner. The workload and

staff needed to perform an RLA can be unpredictable. While RLAs typically require fewer ballots to be audited than other types of audits, the amount of ballot that require a manual review could change depending on the margin of the selected contest. If the selected contest has a wide margin, the sample can be small, and the audit can be performed quickly and inexpensively. If the selected contest is close, the sample of ballots will need to be larger which could result in more hours, more cost and a greater chance of human error.

There are now several tools that can assist with an RLA. With inventory and ballot tracking, ballots can be easily retrieved later during the RLA process. Optionally, while scanned by the independent central count scanner, ballots can also be imprinted with a box ID and position number so that a specific ballot can be identified if the ballot ordering is compromised. Once the number of ballots to be audited has been determined, technology can randomly select any number of ballots to be audited. Additionally, a random seed number can be used so those same random ballots can be retrieved. A cast vote record report can be used to compare results to the physical ballots if required.

- (3) **Fixed-percentage audit** is a more traditional type of audit and has been used in several jurisdictions throughout the country. Fixed-percentage audits will typically have a predetermined percentage of 3 – 5% of precincts and/or contests that will require manual hand tabulation regardless of the outcome. The results from the manual tabulation are then compared to the printed results from the precinct tabulation equipment. Although fixed-percentage audits have been widely used, the time that it takes to conduct the audit could be long and unpredictable.

With software-driven solutions, fixed percentage audits can be performed independently, accurately, efficiently, and without the risk of human error often prevalent in a manual hand count. Jurisdictions will find that they can better determine the amount of staff needed for the audit. Modern audit technology that provides visual representation of voter marks helps convey confidence in the results to the public by showing how ballots were tallied rather than relying on human interpretation.

ABOUT THE AUTHOR

Jay Bollenbacher is the Audit Program Manager at the Clear Ballot. With 15 years of elections experience in both the public and private sectors, he leads Clear Ballot's expansion of audit offerings to increase the confidence election officials have in their results.

Clear Ballot conducts statewide post-election audits in Maryland and Vermont as well as in counties across Florida and New York. The ClearVote voting system is federally certified and is used in Oregon, Washington, Colorado, Wisconsin, Ohio and Pennsylvania.