



Election Security Factsheet

As the 2018 midterms approach, our elections are still not secure. We've seen that voting machines can be error prone, and security experts have shown how easily they can be hacked even when not connected to the internet directly. Even paper ballot scanning machines that count votes on paper ballots can produce erroneous results if not subject to post election audit checks.

According to a Center for American Progress' recent *Election Security in all 50 States* report, 17 states received a D or F grade for election security. Not a single state received an A grade - even those with paper ballots and good auditing practices. This highlights the amount of work we need to do across the country in order to secure and protect our elections.

Voting systems

- States either use paper ballots and scanners, Direct Record Electronic (DRE) voting machines, or a combination of both. Direct Recording Electronic machines can appear as a touch screen, dial or push button machine.
 - The main issue with this system is voters have to trust the software in the machines to record the vote correctly, which may not always be the case.
- Security of voting machines and systems differs on a county by county basis.
- 29 states use DRE machines in some capacity - either statewide or in some counties. Even DRE machines with a voter-verified paper "audit trail" (VVPAT) trail are more vulnerable to error and hacks than paper ballot scanner systems. This is because the receipts or reels printed by DRE machines with "paper trails" are often difficult to actually use for an audit or recount, and voters often don't have time to verify their votes were recorded correctly.
- 13 states have no "paper trail" in some or all counties - they are Arkansas, Delaware, Florida, Texas, Georgia, Kansas, Kentucky, Indiana, Mississippi, Pennsylvania, New Jersey, South Carolina and Tennessee.
- Five states have no paper ballots at all - they are Delaware, Georgia, Nevada, New Jersey and South Carolina. Of these states, only Nevada has machines that print a "paper trail".
- Other states not mentioned above, that still use DRE machines are Alaska, Arizona, California, Hawaii, Idaho, Illinois, Missouri, North Carolina Ohio, Utah, West Virginia Wisconsin and Wyoming*

State of our voting equipment

- 42 states are using voting machines that are more than a decade old. Most equipment only has a predicted lifespan of 10 years. This often leads to out of date software, and makes maintaining machines and replacing parts difficult and expensive.
- Even when states use paper ballots, outdated optical scanners can pose a risk to the security of our elections.
- Risks associated with outdated voting machines include system crashes, vote flipping and hacking.

Elections, risks and outcomes

- 20 percent of voters in 2016 cast votes using a voting machine without a “paper trail”.
- In the 14 states that use machines that do not use paper ballots or records, it is impossible to conduct robust post-election audits. Audits confirm election outcomes and detect malicious activity.
- Paperless touch screens should be replaced with paper ballots and optical scanners as a matter of urgency. All DRE (touch screen/dial/push button) machines should ultimately be replaced, even those that produce a paper trail, with the exception of machines necessary to help voters with disabilities vote without another person assisting.

Protecting our election infrastructure

- Cybersecurity standards are needed to protect our election infrastructure. Very few states have standards specifically designed to protect our elections.
- Election officials are hard-working, but receive insufficient cybersecurity training. In Pennsylvania, only eight out of 42 officials received training relevant to cybersecurity.**

Post Election Audits

- Only three states - Colorado, Rhode Island and New Mexico have audit practices considered robust enough to detect a high percentage of errors and attacks. Only Colorado and Rhode Island currently have risk-limiting audits in place.***
- Risk-limiting audit is a method that involves hand counting ballots until there is strong evidence that the result is correct. If the margin of victory is large, and the audit is showing a low number of errors, then few ballots will need to be counted. If the result is closer, with more errors, ballots will continue to be audited until the result can be reliably determined.
- It is not sufficient to simply have paper ballots or a paper trail when there is no law in place to utilize it.

Note: New Jersey has a strong law but no paper ballots to audit.

Source: Center for American Progress. [9 Solutions to Secure America's Elections.](#)

*Verified Voting [The Verifier - Polling Place Equipment - November 2018](#)

**NBC News. [Many County Election Officials Still Lack Cybersecurity Training.](#)

***CivSource. [Rhode Island to Implement Post-Election Audits.](#)