

Utah Legislative Request –TO REQUIRE VOTING SYSTEMS THAT PRESERVE BALLOT PRIVACY, PROVIDE VOTER-VERIFIABLE PAPER BALLOT RECORDS FOR VOTERS WITH DISABILITIES, PROVIDE RELIABLE ACCESS TO VOTERS, PROVIDE ACCOUNTABILITY; AND PROVIDE INCENTIVES FOR USING ECONOMICAL, TRANSPARENT VOTING SYSTEMS

To Increase Ballot Secrecy, Public Verifiability of Election Outcome Accuracy, Accountability, and Ensure Reliable Public Access to Voting

1. REQUIRE VOTING SYSTEMS TO PRESERVE BALLOT PRIVACY

Voting systems shall:

- a. not use ballots (paper or electronic) that are time-stamped or marked after an election in any manner which makes it possible to reconstruct a link between the ballot and the voter,
- b. not require storing ballots after an election in the same sequential order in which voters cast votes on a voting machine or require storing ballots in any manner which makes it possible for anyone to reconstruct a link between the ballot and the voter,
- c. not store paper ballot records for voters with disabilities separate from paper ballot records for able-bodied voters in any manner which makes it possible to determine which group of ballots was cast by voters with disabilities,
- d. use individual voter-verifiable paper ballot records that protect ballot privacy and are legible, convenient, and durable enough for manual audits and recounts for the 22 month preservation period,
- e. be designed so that voters with disabilities, including voters in wheel chairs and blind voters, can cast their own ballots and verify the accuracy of their own ballots with privacy,
- f. be set up in the polling booths so that by-standers or passers-by may not view voters' ballots as voters are casting their ballots.

2. REQUIRE ELECTION PROCEDURES TO PRESERVE BALLOT PRIVACY

Absentee and Provisional Paper Ballot - Privacy Procedures:

Election officials shall provide privacy envelopes for any mail-in and provisional ballots and instruct voters to insert the ballot into the privacy envelope and then into the postal/registration envelope. Two separate teams shall handle voted mail-in and provisional ballots received at the county offices. The first team shall verify the legality of the voter and remove the privacy envelope with its mail-in or provisional ballot inside of it, out of the postal/registration envelope. The second team of people shall, in another location or time, remove the mail-in or provisional ballots from the privacy envelopes and count them or process them for counting.

Polling Place Paper Ballot - Privacy Procedures:

Procedures used at polling places for handling paper ballots shall require that no humanly-readable identifiers are printed on the ballot at the time the ballot is deposited into the ballot box, and that either

the voter shall deposit the ballot into the ballot box or if poll worker deposit the ballots into the ballot box, then privacy envelopes shall be provided to voters to shield the ballot and the ballot and privacy envelope shall be deposited together into the ballot box.

3. REQUIRE PRE-PRINTED PAPER BALLOTS, PAPER POLLBOOK & PAPER VOTER SIGN-IN SYSTEMS

Election Officials shall provide pre-printed paper ballots in sufficient numbers to accommodate all voters shall be provided at all polling locations in case of electronic failure. Paper pollbook and voter sign-in systems shall be available in case of electronic failure of electronic pollbook systems. Electronic pollbook systems shall under no circumstances be connected to the voting systems directly.

Justification: To avoid disruption of any election and prevent voter disenfranchisement in case of electronic failures. Without paper ballots available, elections are susceptible to Denial of Service (DOS) attacks, power outages, touch-screen calibration & delay errors, ballot definition errors, long lines, hacking, and other electronic failures and errors which can cause voter disenfranchisement and errors in recording and counting votes. However, having paper ballots available is useless if voters are prevented from signing in to vote by electronic poll book failures or power outages. Voters have been disenfranchised in MD and CO because of electronic poll books. At the very least require official paper registers and paper poll books to be available in case of electronic failure of electronic poll books and require electronic poll books to use open source software. Anything that allows sole control over both pollbook and voting systems has potential for one notifying the other directly via network - is creating a giant opportunity for digital ballot stuffing.

4. REQUIRE BALLOT PRIVACY & NON-VISUAL AND ENHANCED-VISUAL PAPER BALLOT VERIFICATION FOR VOTERS WITH DISABILITIES

The voting system shall not require voters with mobility disabilities to handle the ballot and shall provide the option to voters with disabilities to automatically place the voted ballot into a ballot box or into a privacy envelope. The voting system shall provide non-visual and enhanced-visual paper ballot verification methods for voters with sight disabilities.

[Note: Ballot Marking Devices (BMDs) are available which allow blind and sight-challenged voters to be able to verify the marks on their paper ballots, and which will automatically put the paper ballot for a voter with a mobility disability into a privacy envelope upon request and does not require voters to manually handle the ballots. These systems are more economical than DREs, do not violate ballot privacy for voters with disabilities by segregating their ballot records like DREs do, and provide paper ballot verification for blind voters, which DREs do not.]

5. REQUIRE SUFFICIENT DISCLOSURE OF VOTING SYSTEM SOFTWARE TO DETERMINE WHAT INSTRUCTIONS WERE EXECUTED DURING ELECTIONS.

Any new voting systems purchased after this bill passes shall provide sufficient disclosure to ascertain if the disclosed software ran voting systems during elections and to determine what instructions were executed during elections on the voting system. *[Note: Disclosure is necessary for verifying that the certified software was actually used during elections. Open source or fully publicly disclosed software, plus strict change control, and cyclic redundancy check (CRC) checks of software components are essential to verify the software code that was present and used for the election.]*

6. **PROVIDE INCENTIVE FOR ECONOMICAL, TRANSPARENT, UTAH-OWNED, ACCOUNTABLE VOTING SYSTEMS**

For voting systems purchased after this bill is signed into law, only the hardware and commonly used firmware shall be commercial off-the-shelf software (COTS). The only trade secret COTS software which shall be permitted on any new voting systems purchased after this bill is signed into law shall allow for reverse engineering for voting system evaluation and testing as well as publication of evaluation and tests, including but not limited to usability, performance, errors and bugs; and be firmware used to run hardware; and disclose any information which is necessary to meet the above requirements. All other software on voting systems, including all operating system software; and all software for the purpose of casting, counting, reporting, or tallying votes or vote counts; and all customized software on voting systems must be fully publicly disclosed. Plus only fully publicly disclosed compilers or program-handling code shall be used to convert source code into machine executable instructions for all software using on voting systems. Software records should conform to an open public standard. *[NIST added this to the latest voluntary voting system guidelines (VVSG).]*

Utah's Chief Election Official Shall, for all publicly owned (open source or publicly disclosed) voting systems have a choice of whether to:

- a) waive the requirement for federal certification for open source or publicly disclosed voting systems; *[Note: Federally certified software is "set in stone" and may not be updated and remain federally certified. I.e. Security updates and bug fixes made not be made without going through the certification process again, and thus federal certification decreases the security and reliability of voting systems.]* or
- b) fund 50% of the costs for federal testing and certification of open source voting systems **Funding:** Approximately \$75,000 per voting system for certification of publicly disclosed paper ballot optical scanners, and publicly disclosed ballot marking and ballot verification devices for voters with disabilities and foreign language needs.

Justification: Federal certification of voting systems is expensive and interferes with voting system security in that federal certification prevents routine security updates and bug fixes, and federal testing cannot test ballot definitions - the instructions which operate voting systems during elections. Federal testing is incapable of detecting malicious programming or even of detecting all bugs. The development of fully disclosed voting systems, owned by the public, and operated and maintained by Utahns, would benefit Utah by keeping more of the money spent on voting systems within the local Utah economy. Software disclosure is necessary to assess the integrity and efficacy of such software and for the purpose of administering or enforcing election laws, or for review, analysis, and reporting and for use in litigation. Consult with experts on the details of developing requirements for such disclosure. See <http://electionarchive.org/ucvInfo/US/ExpertsList.pdf> and <http://electionmathematics.org/em-voting-systems/EIGroupsOpposePublicSoftware.pdf>

FUND THE REPLACEMENT OF UTAH'S CURRENT VOTING SYSTEM WHICH DOES NOT MEET THESE REQUIREMENTS.

Twenty-five (25) Million Dollars to enable Counties to meet costs to replace voting systems which do not provide durable, individual paper ballots that protect voter anonymity. Estimating that there are approximately 2500 precincts and fewer than that many polling places requiring at least one ballot marking device (BMD)^{viii} per polling place to provide accessible voting for voters with disabilities or alternative language requirements = 2500 BMDs X \$5,000/machine = \$12.5 Million. The 2,500 precincts, would require one precinct based optical scanners (PCOS) per polling place = 2500 precincts X \$5,000/machine = \$12.5 Million. This would make the total fiscal note approximately \$25 Million to replace *paper-roll* DRE voting machines.

Justification: *Funding* is needed to eliminate voting systems using voter verifiable paper rolls which are not durable, are prone to printer jams and snafus, are susceptible to manipulation during elections, and do not protect ballot secrecy. It would cost roughly \$x Million to replace all paperless and paper-roll DRE voting machines with one precinct-based optical-scanner and one ballot marking device for voters with disabilities, for each precinct; and to purchase. Within approximately four years, the savings in ongoing administrative costs will pay for the initial funding costs and save Utah taxpayer funds.

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Acknowledgment: Many of these suggestions are based on the review and comments over many years from dozens of election integrity advocates, election officials, and computer and statistical experts.