

The logo for the National Committee for Voting Integrity, featuring the text "National Committee for Voting Integrity" in white on a blue rectangular background.

Recommendations Election Day 2008

The [Electronic Privacy Information Center](#)'s voting project the [National Committee for Voting Integrity](#) prepared this document to address the use of electronic voting systems in the **November 4, 2008 General Election**. Because the end of **Day Light Savings Time** will be on November 2, 2008, Election Administrations should consider the issue of time and date accuracy on electronic voting systems intended for use on November 4, 2008.

Voters should be prepared for Election Day by arming themselves with accurate information on the voting process. Voters are relying more and more on Internet enabled communications to engage in political decision-making. EPIC's voting project published [E-Deceptive Campaign Practices Report: Internet Technology & Democracy 2.0](#) as the first assessment of online deceptive campaign practices. Deceptive practices tactics that target e-mail, instant message, and cell phone users can compress the timeline for launching successful disinformation and misinformation attacks from days to hours or minutes. A key component of the 2008 Presidential Election is the use of Internet based communications to engage voters with a history of marginal participation rates in past elections.¹ EPIC identified electronic deceptive campaign tactics as a high priority in 2008 and recommends that voters rely on the election information services provided by Election Protection by contacting them at 1-866-OUR-VOTE or <http://866ourvote.org>.² The incident of electronic deceptive campaign practices in 2008 include:

A series of bogus e-mails sent to Florida residents on the state's Voter Registration Verification Law, which erroneously informed voters that a no match against state databases would result in disqualification in voting;³

Automated calls to North Carolina female voters misinforming them regarding their voter registration status;⁴ and

¹ Pew Research Center for The People & The Press, Social Networking and Online Videos Take Off: Internet's Broader Role in Campaign 2008, available at

http://www.pewinternet.org/pdfs/Pew_MediaSources_jan08.pdf, January 11, 2008

² Computers Freedom and Privacy, Tutorial, E-Deceptive Campaign Practices 2.0, available at

http://www.cfp2008.org/wiki/index.php?title=E-Deceptive_Campaign_Practices:_Elections_2.0&redirect=no, May 20, 2008

³ Joy-Ann Reid, Bogus E-mails Raise Anxiety Over Voter ID Law, available at

http://www.sftimes.com/index2.php?option=com_content&task=view&id=1993&pop=1&page=0&Itemid=42

⁴ Page Gardner, Confusion Surrounding Robo Calls in North Carolina, April 30, 2008, available at http://www.huffingtonpost.com/page-gardner/confusion-surrounding-rob_b_99427.html

Rumors and e-mails to Prince George's County, Maryland voters that claim that voter registration rules bar participation of those with home foreclosures.⁵

The Electronic Privacy Information Center's Voting Project with the funding support of the Century Foundation is published [E-Deceptive Campaign Practices: Internet Technology & Democracy 2.0](#).⁶ The report reviews the potential for abuse of Internet technology in an election context, and makes recommendations on steps that could be taken by Election Protection, Election Administrators, and voters to protect the right of citizens to participate in free and fair elections in the United States. Appendix A of the report takes up consideration of malicious software in the form of viruses, worms, Trojan horses, or rootkits.⁷ The report looks at the effectiveness of spoofing, phishing or pharming, denial of service, rumor-mongering, or social engineering deceptive campaign threats.⁸

Electronic Voting Systems Recommendations

Election officials should be prepared well in advance to manage foreseeable failures. Particular focus should be placed on possible remedial steps that may be taken to minimize the loss of votes due to complications with implementation of statewide-centralized voter registration databases and/or electronic poll books, as well as the casting of ballots on touch-screen direct recording electronic (DRE) voting machines or paper optical scan voting systems. These recommendations also include information on how to make the use of optical scan voting systems as effective as possible.

In the long term, there must be far better security and reliability standards for electronic voting systems. We reiterate the Brennan Center's 2004 and 2006 security and reliability recommendations for these machines.

We advise that Election Administrators who use statewide-centralized voter registration databases to implement the recommendations of the Association for Computing Machinery's US Public Policy Committee's Study Of Accuracy, Privacy, Usability, Security, and Reliability Issues,⁹ as well as the Brennan Center's 2006 recommendations on the Database Matching and Verification Processes for Voter Registration. Further, election administrators who rely on automated central tabulating processes for optical scan ballot systems should immediately evaluate those systems for accuracy, reliability,

⁵ Associate Press, Foreclosure is no Bar to Voting Gansler says, available at <http://www.baltimoresun.com/news/local/bal-md.briefs261sep26.0,1678664.story>

⁶ EPIC, E-Deceptive Campaign Practices Report: Internet Technology & Democracy 2.0, available at http://votingintegrity.org/pdf/edeceptive_report.pdf

⁷ EPIC, E-Deceptive Campaign Practices Report: Internet Technology & Democracy, Appendix A, October 20, 2008

⁸ EPIC, E-Deceptive Campaign Practices Report: Internet Technology & Democracy, Appendix B, October 20, 2008

⁹ US Association for Computing Machinery's Public Policy Committee, Paper, Statewide Databases of Registered Voters: Study Of Accuracy, Privacy, Usability, Security, and Reliability Issues available at <http://usacm.acm.org/usacm/VRD/>

and security.

GENERAL PRE-ELECTION DAY RECOMMENDATIONS TO ALL ELECTION OFFICIALS, REGARDLESS OF VOTING SYSTEM USED

Physical Security of Voting Systems

- 1) Access to the storage areas for machines and systems should be controlled by sign-in and sign-out.
- 2) Some form of tamper-evident seals should be placed on all machines.
- 3) County should conduct periodic but random inventories of voting machines to ensure that none have been removed.
- 4) Poll-workers should not be permitted to take voting machines home prior to election.
- 5) Counties should arrange for all voting equipment intended to use in public elections to be delivered by county employees or those under oath to perform the task in accordance to state and local law.
- 6) If voting machines have wireless components, they should be disabled prior to being delivered to the polling place.

Training

- 1) Provide, at a minimum, 3 hours of instruction to poll-workers on election rules, rights of voters, and use of the provisional and emergency ballots.
- 2) Provide an additional hour of instruction on the use of the voting machines, which should include rehearsing set up, operation, shut down, and protocols for addressing problems if detected.
- 3) Machines can fail, so be prepared by developing and communicating steps before Election Day to address electronic poll book failure or problems with the voting machines themselves. In the case of DREs this should include having adequate emergency paper ballots.
- 4) Recruit or require election technical support in advance of the election from undergraduate, and graduate computer science programs as well as local/state government employees. These election workers will need at a minimum 20 hours of instruction and should have a general working knowledge of personal computing systems. This recommendation is particularly important for jurisdictions using DRE systems.

GENERAL ELECTION DAY RECOMMENDATIONS TO ALL ELECTION OFFICIALS, REGARDLESS OF VOTING SYSTEM USED*Prior to Opening Polls*

- 1) Ballot boxes should be examined (to ensure they are empty) and locked by poll-workers immediately before the polls are opened.
- 2) Every voting machine and vote tabulation system should be checked to see that it is still configured with the correct time (**Day Light Savings Time occurs on November 2, 2008**), and the correct election, including the correct precinct, ballot style, and other applicable details.
- 3) The ballot tabulation system should be checked to ensure that the counter is at zero.
- 4) Promote transparency by allowing observers, both partisan and members of the public, to observe procedures for opening the polls.

On Election Day, After Polls Are Opened

- 1) Ensure that all poll-workers at all polling places have a list of key phone numbers to contact in the event of emergencies during the election that might affect the ability of voters to cast votes. Make sure that sufficient personnel are available to answer calls and that the capacity of the system can manage peak call periods which may occur on Election Day.
- 2) Promote transparency in the election by allowing poll observers in each polling location.
- 3) Allow voters to bring their own sample ballots to the voting station.
- 4) Provide sufficient privacy space for voting stations.
- 5) Poll-workers should know that voters with language, visual impairments, or literacy difficulty have a right to choose who assists them in voting if they feel they need that assistance.

Machine Security and Reliability

- 1) If machines breakdown in a polling place, poll-workers should be prepared.
- 2) In the case of DREs this should mean providing paper ballots to replace the capacity of the faulty machine, rather than overloading the capacity of remaining functional machines in the polling place.

- 3) In the case of optical scan machines, this means informing voters that there is a secure ballot box where they can place their ballots, and that those ballots will be scanned once the optical scan machine is fixed.
- 4) Poll-workers should control and document all vendor and third party access to voting technology during any closure period prior to and including Election Day.
- 5) No changes to software, firmware, or hardware should be allowed once an election begins.
- 6) Have at least one poll worker at each polling location trained to check the calibration of the voting machines to resolve selections of voters that do not represent their intent.

Possible Problems with New Voter Registration Systems

- 1) Many states are implementing statewide-centralized voter registration systems, which might increase demand for provisional ballots. Polling stations should be prepared to provide provisional ballots to as many as one-third of the poll location's registered voter population.
- 2) Before providing provisional ballots to voters who are not listed on the registration rolls, poll-workers should attempt to determine whether the voter has arrived at the wrong polling place or precinct. Poll-workers should understand their states' rules about whether provisional ballots will be counted if the voter is at the wrong polling place and provide affected voters with this information.

At and After Close of Polls

- 1) A copy of totals for each machine should be posted at each polling place on election night and taken home by poll-workers to check against what is posted publicly at election headquarters, on the web, in the papers, or elsewhere. This will act as a check against possible corrupt or flawed software in the tally server, which could otherwise result in an incorrect tally of voting machine totals.
- 2) All audit information (i.e., Event Logs, VVPT records, paper ballots, machine printouts of totals) that is not electronically transmitted as part of the unofficial upload to the central election office, should be delivered in official, sealed and hand-delivered information packets or boxes. All seals should be numbered and tamper evident.
- 3) Each polling place should send its information packets or boxes to the county separately, rather than having one truck or person pick up this data from multiple polling locations.

- 4) Once the sealed information packets or boxes have reached the county election center, they should be logged. Numbers on the seals should be checked to ensure that they have not been replaced. Any broken or replaced seals should be logged. In tact seals should be left in tact.

Tallying Vote Totals

- 1) Limit the number of employees who are allowed access to election-related work and storage.
- 2) Promote transparency by allowing poll observers to watch the monitoring of the tabulating process.
- 3) Employees with access to central election management system or central tabulator must have their own unique user name and password. Under no circumstances should employees share or allow third party access to their user name or password.
- 4) The county, township, parish, or local election administration officer should maintain a log of each person who enters the ballot storage room, including the person's name, signature, and date and time of entry.
- 5) Employ continuous video monitoring of areas in which election software is used, and the storage area for all voting equipment.

RECOGNIZING PROBLEMS WITH DRE VOTING SYSTEMS PRIOR TO USE

The following provides a list of some problems that, if detected, would indicate that the machines currently in use should be removed immediately from the voting process. If problems are detected when a machine is in the process of being prepared for use, that machine should be powered down and not used in the voting process until officials are certain, beyond doubt, that the problem has been resolved. Instead, the poll-workers should be trained to provide emergency paper ballots to replace the capacity of the faulty machine, rather than overloading the capacity of remaining functional machines in the polling place.

- 1) An electronic poll book or electronic voting machine is not powering up. Do not make multiple attempts to start a machine.
- 1) The machine powers up but presents a display screen that is different than the usual or standard one.
- 2) The machine display flashes or is otherwise inconsistent.

- 3) Candidate names or ballot options are missing from the DRE display screen.
- 4) Incorrect date and time information is displayed.
- 5) Ballot DRE electronic voting screen selections do not match the ones chosen.
- 6) Any messages are displayed on voting screen other than those presented as part of a normal voting process: (i.e., restart request, reboot request, error messages, etc.)
- 7) If the electronic ballot design displayed is different or appears unusual when compared among machines at a poll location.
- 8) In the case of DRE Systems with voter verified paper trails, the selections made on the DRE screen are not showing up on the paper trail, or are different on the screen and paper trail, or the paper trail is jamming repeatedly.

ADVICE FOR POLL JUDGES OR ELECTION SUPERVISORS IN JURISDICTIONS THAT USE DREs

Protecting Voter Rights

- 1) Refuse no one who may be a legitimate voter the right to vote. Do not require voters to return to the polls to vote when equipment malfunctions.
- 2) In the event that a voter is not on your registration list, attempt to determine the voters' correct poll location. Know your jurisdiction's rules for when to use and provide paper ballots. Inform all voters using provisional ballots under what circumstances their votes will and will not be counted.
- 3) Voters with language, visual impairments, or literacy difficulty have a right to choose who assists them in voting if they feel they need that assistance.
- 4) Provide sufficient privacy space for voting stations.
- 5) Make certain that there are signs (prominently posted) informing voters to notify polling place officials immediately if the confirmation or other screens do not reflect their intended choices.
- 6) If your DRE machines have Voter Verified Paper Trails, make certain that there are signs (prominently posted) informing voters to check the paper trails before confirming their intended choices, and to notify polling place officials immediately if the paper trail does not reflect their intended choices, is illegible, or has jammed in the printer.

Protecting Against Machine Failure

- 1) Be prepared. Know what to do if an electronic poll book or DRE voting machine malfunctions or breaks down. Report all voting technology problems. Have a paper poll book registration and/or ballot option.
- 2) At your poll location, write down the electronic poll book's serial number (if applicable) and voting machine's serial number, (if applicable) the plastic seal number securing the voting machine case (if applicable), machine make, and model, as well as the date, time and poll location at the beginning of the day. You should document any information about the software that is visible when you start or calibrate the machine, and its working condition, and document any changes in this status.
- 3) Know how to check the calibration of a DRE voting machine and to recalibrate the machine if necessary.
- 4) Have a camera with you on Election Day, to document any irregularities you may detect with the voting machines-do not photograph voters.

Supervising Poll Observers and Poll-workers

- 1) Make sure that poll observers and workers are present with you to verify that each voting machine's physical tamper detection measures have not been disturbed. Immediately report any problems.
- 2) Know who is working at your polling location.
- 3) Make sure you and all poll-workers receive at the minimum 3 hours of training prior to Election Day.
- 4) At the end of the day record the number of poll book registrations, used ballots, unused ballots, and spoiled ballots and functioning status of equipment including make, model, and serial number you are returning.

ADVICE FOR VOTERS USING DRE MACHINES

- 1) Many states are implementing federally required statewide-centralized voter registration databases for the first time. You should be aware that this could affect your right to vote. You should register to vote in a timely fashion, or make sure your registration continues to be valid even if you have voted in a recent election. Voting locations can also change between elections so confirm your voting location. If you have any doubts contact your local election office or 1-866-OUR-VOTE.
- 2) Volunteer to work at a polling location and then you can vote absentee to make your day easier. Many states offer no excuse absentee voting -- check to see if yours is one of them. Otherwise, make every effort to vote in your precinct

location on Election Day.

- 3) If your name does not appear on the list of registered voters for your polling location, and your home address is served by the poll location, you have a right on November 7, 2006 to use a provisional ballot. And you have the right to find out after Election Day whether that ballot was counted.
- 4) Bring a sample ballot marked as you intend to vote to the polling location to compare with items listed on the DRE viewing screen. If the DRE screen does not list all candidates' names, offices, or options on the ballot, immediately report this to the poll-workers at your voting location. Then ask to vote on a Paper Ballot.
- 5) After each selection on the DRE, look to be sure that the choices displayed are your votes. If the wrong choice appears, STOP immediately notify a poll worker and vote using a paper ballot.
- 6) Many paperless DRE voting systems require a final verification by the voter (LOOK for a screen selection or button) to confirm ballot choices as a final step in voting. Failing to do this will result in no votes being registered for your ballot.
- 7) If your DRE machine has a voter verified paper trail, before confirming your choices, carefully review the paper trail. If the wrong choice appears on the paper trail, or any or all of your choices do not appear on the paper trail, **STOP**, and immediately notify a poll-worker.
- 8) Report any problems you having voting on Election Day to 1-866-OUR-VOTE.

PREVENTING PROBLEMS WITH PRECINCT AND CENTRAL TABULATION OPTICAL SCAN SYSTEMS PRIOR TO USE

Normal procedures call for the use of a central tabulation facility only for absentee ballots, while ballots cast at polling places are normally scanned at the polling place.

The following is a partial list of steps jurisdictions should take before using optical scan machines. This list is not meant to be complete, but rather to supplement procedures already in place in such jurisdictions:

- 1) Election Administration should test all ballot marking devices to be sure that they meet specifications of the precinct tabulating facility and central tabulating technology. (Do not rely on the vendor). These should be tested again at the polling place.
- 1) The ballot reader should have its setting to detect over-votes turned on at the central county facility prior to being sent to polling locations. This should be tested again at the polling place.

- 2) Prior to delivery and at the polling place, optical scan ballot readers should be tested and/or calibrated to ignore erasures made by a new gum eraser of a thoroughly blackened pencil mark.
- 3) Prepare contingency plans should unforeseen problems occur on Election Day, i.e. items missing from ballots, electronic poll book malfunction, or ballot scanning device failures.
- 4) Have procedures in place to deal with precinct scanner failures, which should include instructions to poll-workers on how to use the emergency ballot box compartments to hold ballots in the event of a scanner failure.
- 5) Document chain of custody for optical scan ballots, ballot markers, Precinct-count ballot readers, and automated central tabulating mechanism.
- 6) At the polling place, ensure there is enough private space for voters between each voting station.
- 7) Ensure precinct ballot scanner and central tabulator technology have been calibrated to read all reasonable marks, which should include a dark stroke crossing the voting target on its long dimension.
- 8) Do not allow poll-workers or election workers to use writing implements into the polling place that would allow them to identify, vote, or alter ballots.
- 9) Carefully constrain and document all vendor access to voting technology at all times, including on and after Election Day.

Recommendations Specifically for the Central Tabulator

- 1) Have procedures in place at the central tabulator facility to sort out ballots that register over-votes or no votes to check for discernable ballot markings by hand counting them.
- 1) Carefully constrain and document all vendor access to central counting technology during any closure period prior to and including Election Day and post election period that contest or legal challenges may be filed by interested parties.
- 2) Allow no uncertified changes to software or firmware installed on central ballot tabulation system.

ADVICE FOR POLL JUDGES OR ELECTION SUPERVISORS IN JURISDICTIONS THAT USE OPTICAL SCAN SYSTEMS

Protecting Voter Rights

- 1) Refuse no one who may be a legitimate voter the right to vote. Do not require voters to return to the polls to vote when equipment malfunctions.
- 2) In the event that a voter is not on your registration list, attempt to determine the voters' correct poll location. Know your jurisdiction's rules for when to use and provide paper ballots. Inform all voters using provisional ballots under what circumstances their votes will and will not be counted.
- 3) Voters with language, visual impairments, or literacy difficulty have a right to choose who assists them in voting if they feel they need that assistance.
- 4) Provide sufficient privacy space for voting stations.

Electronic Optical Scan Ballot Marking Systems

- 1) Make certain that there are signs (prominently posted) informing voters to notify polling place officials immediately if the confirmation or other screens do not reflect their intended choices.
- 2) Make certain that there are signs (prominently posted) informing voters to check the final ballot choices displayed on the electronic voting system's screen prior to confirming the ballot and to immediately notify poll place officials of errors.

Protecting Against Machine Failure

- 1) Be prepared. Know the procedures in place to deal with precinct scanner failures, which should include instructions to poll-workers on how to use the emergency ballot box compartments to hold ballots in the event of a scanner failure.
- 2) At your poll location, document the number of unmarked ballots, ballot markers, and precinct tabulating machines, including the serial number, make and model information provided to your polling location. You should document any information about the software that is visible when you start or calibrate the machine, and its working condition, and document any changes in this status.

Electronic Optical Scan Ballot Marking Systems

- 1) At your poll location, document electronic poll book's serial number, electronic optical scan ballot marking system's serial number, plastic seal number securing the voting case, machine make, and model, as well as the date, time, and poll location at the beginning of the day. You should document any information about the software that is visible when you start or calibrate the machine, and its working condition, and document any changes in this status.
- 2) Know how to check the calibration of the optical scanner and to recalibrate the

machine if necessary.

- 3) Have a camera with you on Election Day, to document any irregularities you may detect with the voting machines-do not photograph voters.

Supervising Poll Observers and Poll-workers

- 1) Make sure that poll observers and workers are present with you to verify that each voting machine's physical tamper detection measures have not been disturbed. Immediately report any problems.
- 2) Know who is working at your polling location.
- 3) Make sure you and all poll-workers receive at the minimum 3 hours of training prior to Election Day.
- 4) At the end of the day record the number of poll book registrations, used ballots, unused ballots, and spoiled ballots and functioning status of equipment including make, model, and serial number you are returning.

ADVICE FOR VOTERS USING OPTICAL SCAN MACHINES

- 1) Many states are implementing federally required statewide-centralized voter registration databases for the first time. You should be aware that this could affect your right to vote. You should register to vote in a timely fashion, or make sure your registration continues to be valid even if you have voted in a recent election. Voting locations can also change between elections so confirm your voting location. If you have any doubts contact your local election office or 1-866-OUR-VOTE.
- 2) Volunteer to work at a polling location and then you can vote absentee to make your day easier. Many states offer no excuse absentee voting -- check to see if yours is one of them. Otherwise, make every effort to vote in your precinct location on Election Day.
- 3) If your name does not appear on the list of registered voters for your polling location, and your home address is served by the poll location, you have a right on November 7, 2006 to use a provisional ballot. And you have the right to find out after Election Day whether that ballot was counted.
- 4) Bring a sample ballot marked as you intend to vote to the polling location to compare with items listed on the optical scan ballot. If the DRE screen does not list all candidates' names, offices, or options on the ballot, immediately report this to the poll-workers at your voting location. Then ask for a correct ballot and report the problem to 1-866-OUR-VOTE.

- 5) Only use the ballot marker provided by the poll-workers or if one is not provided ask an Election Day poll-worker what you should use to correctly mark your ballot.
- 6) Know how you must mark your ballot so that it will be counted in the Election.

Electronic Optical Scan Ballot Marking Systems

- 1) After each selection on the DRE, look to be sure that the choices displayed are your votes. If the wrong choice appears, STOP immediately notify a poll-worker and vote using a paper ballot.
- 2) Many Optical Scan ballot marking voting systems require a final verification by the voter (LOOK for a screen selection or button) to confirm ballot choices as a final step in voting. Failing to do this will result in no votes being registered for your ballot.
- 3) Report any problems you having voting on Election Day to 1-866-OUR-VOTE.

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