



Commenting on the Draft Voluntary Voting System Guidelines

The Election Assistance Commission (EAC) has requested comments from groups and individuals on the draft Voluntary Voting Systems Guidelines (VVSG) by May 5, 2008. These guidelines are very important because they set the standards for future electronic voting systems. They are voluntary but many states require compliance with the VVSG under their state law. As a result, voting system manufacturers take these guidelines into account in the design of new equipment, and systems will be tested with these standards in mind once the final version takes effect.

The EAC will review all comments, make changes and then circulate a revised version for further comments. For more details on this process, see <http://www.eac.gov/vvsg/News/press/eac-seeks-public-comment-on-tgdc2019s-recommended-voluntary-voting-system-guidelines-online-comment-tool-now-available>

Below are several of the most important provisions in the draft. Links for making comments through the EAC website are provided within each topic, and if you wish to explore the VVSG further, more directions are provided at the end of this document. This document discusses five elements of the VVSG draft, but does not cover the range of important topics in the guidelines. See the directions at the end for topic areas on which further comment may be helpful. We urge you to make your own comments on the VVSG using the EAC on-line tool by the May 5 deadline. Please use the comments below as a starting point.

1. SOFTWARE INDEPENDENCE

Software independence (SI) is defined in the draft as the “quality of a voting system or voting device such that a previously undetected change or fault in software cannot cause an undetectable change or error in election outcome.” Software independence is the foundation of an auditable voting system. *Verified Voting strongly supports software independence, and we believe this is best accomplished through voter-marked paper ballots.* These can be marked by the voter directly or through the use of an accessible ballot-marking device.

The proposed guidelines do not explicitly require the IVVR to be paper ballots or paper records, but by requiring software independence and independent voter-verifiable records (IVVRs) which cannot be changed by software malfunction, the guidelines will offer strong incentive to jurisdictions to choose paper ballot systems, such as precinct-based optical scanners and accessible ballot markers. It is also important to note that the proposed federal guidelines will be voluntary; states can choose to require their voting equipment to meet these standards, but states are free to set their own standards entirely.

Example Comment: “All computer systems are subject to subtle errors. Moreover, computer systems can malfunction or be accidentally or deliberately corrupted at any stage of their design, manufacture, and use. The methods used to do this can be extremely difficult to foresee and detect. Therefore, it is critical to the integrity of elections that voting systems provide a means of recording and recovering voter intent that does not depend on the reliability of software. The best way to achieve this is voter-verified paper ballots.”



SI guideline language can be viewed at: <http://www.eac.gov/vvsg/part1/chapter02.php/> -“2.7A Software Independence.” The comment link is at the lower right. See also directions for making comments at the end of this document.

2. INDEPENDENT VOTER-VERIFIABLE RECORDS

The draft guidelines require “independent voter-verifiable records” that cannot be changed by software or other failure: “IVVR vote-capture devices SHALL create an IVVR that will remain unchanged for minimally 22 months unaffected by power failure, software failure, or other technology failure.”

The guidelines do not explicitly require voter-marked paper ballots or voter-verifiable paper records, so this language is of great importance. Without this specific requirement, the door can be opened to purely software-based verification of voting, which does not restore transparency to our elections. In our view, paper records or paper ballots are the only existing technology that would meet the requirement for an independent voter-verifiable record that cannot be altered by software failure.

Example Comment: *“It is of paramount importance to keep sections that clearly state that the IVVR cannot be changed by a software failure, and that election officials must be able to review the IVVR without using software or a programmable device.”*

IVVR guideline language can be viewed at: <http://www.eac.gov/vvsg/part1/chapter04.php> “4.4.1-A.5 IVVR vote-capture device, IVVR durability.” The comment link is at the lower right. See also directions for making comments at the end of this document.

3. ELECTION DATA IMPORT AND EXPORT FORMATS

Timely and efficient election auditing depends on, among other things, getting necessary data quickly and easily -- often from a variety of different local jurisdictions that use different types of voting equipment. But not having such data in a single, standard format is a significant barrier to election auditing. For more extensive analysis and comments, see <https://vvf.jot.com/PublicVVSGcomments> and <https://vvf.jot.com/EMLforVVSG>

Although the current draft 2007 VVSG "encourages" *adoption of a standard data exchange format* to facilitate interoperability between different hardware components and auditing, that is not sufficient. Voting systems should utilize a single, common XML-based data format for data import, export and exchange that is the same for all types and makes of equipment.

Example Comment: *“All voting systems should support input, output and exchange of data using a single, public, standard, self-describing format that is easy for humans to read but also easily readable by other computer software without transcription -- for example, the Election Markup Language (EML).”*

Data Export guideline language can be viewed at: <http://www.eac.gov/vvsg/part1/chapter06.php/> -“6-B Data export and exchange format.” The comment link is at the lower right. See also directions for making comments at the end of this document.

4. SUPPORT FOR HAND AUDITS

To achieve trustworthy elections, it is necessary to do random hand audits of vote tallies. Voting systems must allow data to be interpreted and analyzed quickly. Unfortunately, Some current election management systems (EMS) do not break down results by individual machines within each precinct, and some automatically mix PCOS results and DRE+VVPAT results from each precinct. This makes it difficult, if not impossible, to conduct cost-efficient audits. In order to be able to aggregate and audit vote totals for different contests, data stored by an Election Management System should be kept at the lowest level of ballot and device granularity appropriate for manual tally audits (i.e., don't mix results from different machines), and the EMS must be able to output this information in a single, standard, well-specified format that can be easily read by people as well as easily processed by computer software.

Example Comment: "Currently, many states have heterogeneous voting systems with components from several vendors and with a variety of vote capture devices. Even within a given precinct, there are often several different types of vote capture devices; there might be precinct-based optical-scan machines and DRE voting machines at the polling place, and central-count optical-scan machines for absentee and provisional ballots. To conduct effective post-election audits, Election Management Systems must keep vote data by individual machine within each precinct, and be able to export such detailed data from all voting devices in a format that is both easy to read and easy to use in calculations, without transcription, and with each data field clearly identified and explained in a form that can be easily used for further analysis and display-- for example, using the Election Markup Language (EML)."

Language for supporting hand auditing is found at <http://www.eac.gov/vvsg/part1/chapter04.php/4.2.2-A.1> IVVR, information to support hand auditing.

5. PROVIDING FOR EFFICIENT "BATCH" AUDITING OF ABSENTEE AND CENTRALLY COUNTED BALLOTS

To achieve trustworthy elections, it is necessary to do random hand audits of vote tallies. Many jurisdictions have very high volumes of absentee ballots (30% or more of the overall turnout in an election), and do not sort these ballots according to precinct. Some jurisdictions may count all ballots centrally and not sort them physically by precinct. This means that in such jurisdictions a random audit might either require a hand count of *all* the absentee or centrally counted ballots, which may be highly impractical. Interim subtotals allow batches of ballots to be chosen from among a large body of centrally counted ballots, making audits of vote tallies feasible – but we need to make sure that all voting systems used for central counting allow batch subtotals.

Example Comment: *Centrally based optical scan systems must provide the information to support batch counting in support of audits. In particular, central count optical-scan machines should be able to **subtotal and store results for batches** of ballots This feature is especially important for many states where absentee ballots and provisional ballots make up such a large fraction of the total.*



The cost of an audit depends on several factors, including the number of samples needed. The number of samples needed (and thereby the cost) can be reduced by having smaller audit units. With centrally based optical-scan systems for absentee ballots, it is more cost effective to group the ballots into batches and then consider each batch as a separate audit unit than to consider all the ballots together in one audit unit. Although batching centrally counted ballots can drastically reduce audit costs, some current systems do not support such batching or make it difficult to keep track of batch sub-totals.

If you choose to comment on batch auditing, such a comment would be best suited for the section on language for supporting hand auditing, as in #4 above, which can be found at <http://www.eac.gov/vvsg/part1/chapter04.php>/ 4.2.2-A.1 IVVR, information to support hand auditing.

How to Submit Further Comments on the Draft Proposed 2007 VVSG

(Note: if you are commenting *only* on the guideline topics discussed in this document, you can follow the links provided with the example comments above. If you wish to comment on additional sections, see below.)

The EAC requests all groups and individuals who wish to comment on the 2007 VVSG to do so via a web interface, which is explained and can be accessed at <http://www.eac.gov/vvsg>. This interface puts all comments into a database and makes it easy for the EAC, its staff, and anyone else to search for comments by section, by types of commenters, etc. The draft guidelines are defined as the “2007” guidelines, though they have not yet been enacted.

Once you are on the VVSG page, you will need to choose a link to one of the parts listed in the set of bullets below. Then you will choose a chapter (the guidelines discussed specifically in this document are all found in Part 1, Chapter 4, or Part 1, Chapter 6). Once in a chapter, scroll down to the specific section on which you wish to comment. The main parts of the VVSG are as follows:

[Introduction](#)

[Part 1: Equipment Requirements](#)

[Part 2: Documentation Requirements](#)

[Part 3: Testing Requirements](#)

[References](#)

[Glossary](#)

[View Comments \[this section lets anyone search comments that have already been made\]](#)

The topics we have discussed here are only some of the most important aspects of the voting systems guidelines. We encourage you to review Part 1, Chapter 3 (Usability, Accessibility, and Privacy Requirements) Part 1, Chapter 4 (Security and Audit Architecture). Those with technical background may wish to look at Part 3, Chapter 5 (Test Methods).

How to comment:

Comment buttons appear at the end of each section to which they pertain. In order to make a comment on a particular section, click the Comment -> button.



This will bring up a new window in which you can cut and paste or type your comment. For each comment, you also are required to enter your name and type of Organization/Affiliation.