

VVSG & The Innovation Class

US Election Assistance Commission
Technical Guidelines Development Committee

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The TGDC and members of NIST deserve to be commended for their extensive work that will no doubt lead to the most accurate, secure and reliable voting systems to date.

In the spirit of continuing this great work, it is of paramount importance that NIST, the TGDC, and the EAC continue to understand the importance of innovation in the field of election administration. The goal of the Voluntary Voting Systems Guidelines (VVSG) should be to improve voting systems while understanding that current requirements might eventually prove inadequate, constraining, or irrelevant to a specific new technology. Without express direction or guidance relating to innovation, the next iteration of the VVSG has the potential to severely impede the development of new, improved election technology. Moreover, it is imperative for these organizations to understand that any new technologies that are developed will be used, regardless of whether there is a path for certification, as the evolution of innovative technology has shown. The possibility of pending federal legislation making federal voting system guidelines required rather than voluntary further increases the importance of protecting innovation.¹ Already approximately 40 states have required that voting systems used in their jurisdictions have a national certification.²

At the December 2006 TGDC plenary meeting, resolution #03-06, “The Innovation Class in VVSG 2007,”³ was introduced by Dr. Rivest and passed by the full TGDC. The resolution stated:

To spur development of new and innovative secure voting systems, the Technical Guidelines Development Committee (TGDC) directs the Security and Transparency Subcommittee (STS) to include in the next iteration VVSG a new class of voting systems, referred to here as the “Innovation Class.” The TGDC directs STS to investigate high-level, guiding requirements for systems in this class for the purpose of providing system implementers with a path towards achieving certification to the next iteration of the VVSG. STS should also investigate approaches for reviewing, testing, and certifying systems in this class. These approaches could include convening a review board to review submissions and performing expanded open-ended vulnerability testing on systems submitted for certification.

¹ U.S. House. 110th Congress, 1st Session. *H.R. 2360 Voting Enhancement and Security Act of 2007*. ONLINE. Available: <http://thomas.loc.gov/cgi-bin/query/z?c110:H.R.2360:>

² (US Election Assistance Commission) *EAC’s Testing and Certification Program for Voting Systems* [http://www.eac.gov/docs/Revised%20Certification%20QA%20v2%20\(%20BH%20rev%20\)%202%20\(%20GH%20edits%20\).pdf](http://www.eac.gov/docs/Revised%20Certification%20QA%20v2%20(%20BH%20rev%20)%202%20(%20GH%20edits%20).pdf) .

³ *Resolutions adopted by the TGDC.*

Further, the Security and Transparency subcommittee recommended that “development of new, secure, possibly paperless approaches could result in systems that are more usable, accessible, and easier to audit”⁴ and that “[innovative] approaches could promise greater usability, accessibility, and greater confidence and accuracy in future elections.”⁵

At the March 2007 TGDC plenary meeting, an ambitious white paper was presented.⁶ This white paper outlined “high-level, guiding requirements” and an approach for “reviewing, testing, and certifying” Innovation Class systems. The white paper describes a logical, fair, reasoned and transparent process that would allow “a path towards achieving certification.” The paper astutely points out “[c]onstraints on voting systems [...] are justifiable only to the extent they promote ultimate goals.”

At the May 2007 TGDC plenary meeting, a draft version of the next iteration of the VVSG was published.⁷ This was the first version of the VVSG to contain information regarding the Innovation Class.⁸ The applicable guidelines in this draft document are brief and do not seem to follow the stated goals of resolution #03-06, as adopted by the TGDC.

As written, the goal of resolution #03-06, “spur[ring] development of new and innovative secure voting systems,” is not fulfilled by the current draft of the next iteration of the VVSG. Contrary to the resolution’s goal, the draft document states that Innovation Class submissions “must follow the same procedures that any submitter of a voting system must follow...” and are expected “to follow all rules of class hierarchy and requirement inheritance.” The resolution further requires the inclusion “in the next iteration VVSG a new class of voting systems.” Rather than defining a new class, the draft document requests “the creation of a new device class for each distinct innovative device.” Additionally, the draft document omits any mention of the resolution’s “high-level, guiding requirements,” “path towards achieving certification,” or “approaches for reviewing, testing, and certifying systems.”

The Innovation Class section of the current draft of the next iteration of the VVSG is not precise, directly testable, or clear.

Section 2.8-A required “justifications” of “New device classes to be created and where they fit into the device class hierarchy” and “Suggested requirements and test methods for new classes.” To whom should these be justified and under what standards will they be considered “justifiable?”

⁴ Wack, John (NIST) *Auditing Approaches for VVSG 2007*, December 4 2006 <http://vote.nist.gov/STS-Auditing-Recommendations-Wack.pdf> .

⁵ Rivest, Ronald L. (TGDC) *Software Independence and Encouraging Innovation in VVSG 2007*, December 4, 2006 <http://vote.nist.gov/STS-SI-Rivest.pdf> .

⁶ (Security & Transparency Subcommittee) Voting systems innovations class (Draft), NIST March 10, 2007 <http://vote.nist.gov/meeting-03222007/InnovationClass7.pdf> .

⁷ (TGDC) *Draft VVSG Recommendations to the EAC*. May 2007 <http://vote.nist.gov/meeting-05212007/VVSG-Draft-05242007.pdf> .

⁸ (TGDC) *Draft VVSG Recommendations to the EAC*. Volume 3 Section 2.8.

Section 2.8-B requires the identification of “all requirements that apply to the new class.” While this requirement is directly testable, how would it be tested for accuracy in defining which requirements “apply” and which do not?

Section 2.8-C offers:

*“Each distinct innovative class submission **SHALL** include documentation that provides an explanation as to why the voting system and its accompanying devices are innovative and how they differ from voting technology that implement other voting device classes in the VVSG.”*

The “Discussion” text for this requirement states the purpose of “evaluating whether the creation of a new class is justified.” How will justification be tested?

The draft document further stifles innovation with sections 2.6.2 and 2.7-A, which state “subclasses are not allowed to relax or remove requirements inherited from a superclass” and “Extensions **SHALL** not contradict or relax requirements of these Guidelines.” While “relax” is not clearly defined, these guidelines seem to fall under the category of “requirements that might eventually prove inadequate, constraining, or irrelevant to a specific new technology”

Without any new clear and testable guidelines, it appears that the current Innovation Class requirements could allow a submitter to declare any “new device classes” as fitting under “Voting device” (assuming above that level is not possible) in the class hierarchy (§2.8-A.1), any “suggested requirements and test methods,” regardless of value (§2.8-A.2), and subjective “Justifications for items 1 and 2” (§2.8-A.3). Further, a submitter could identify only meaningless “requirements that apply to the new class” (§2.8-B) or no requirements at all and present a subjective “explanation as to why the voting system and its accompanying devices are innovative.” (§2.8-C)

To truly “spur development of new and innovative secure voting systems,” as well as to continue the relevance of the VVSG, it is important that NIST, the TGDC, and the EAC provide a reasonable path to certification for innovative technology.