

Certification of Voting Systems

Transitioning from VVSG 1.0 to VVSG 2.0

Introduction

The Help America Vote Act of 2002 (HAVA) lays out duties for the U.S. Election Assistance Commission (EAC) that include the following: 1) to carry out the testing, certification, decertification, and recertification of voting system hardware and software by accredited laboratories; and 2) to adopt voluntary voting system guidelines (VVSG). Further, HAVA specifies that the States may provide for the testing, certification, decertification, or recertification of its voting system hardware and software by the laboratories accredited by the commission under this section.

In its most recent study, the National Conference of State Legislatures (NCSL) determined that 47 states use this process by either requiring EAC certification; state certification by one of the EAC accredited laboratories; and/or conducting its own state certification testing the VVSG or portions thereof. Based on this information, the EAC Testing and Certification (T&C) Program adopted a policy to “support State certification programs.” This policy was approved by the commission via the EAC Voting System Testing and Certification Program Manual.

In order to fulfill those duties, the EAC has created and modified versions of the VVSG. This document provides an overview of that activity, as well as a history of the VVSG. It also examines the ongoing work to craft and finalize the VVSG 2.0, provides an overview of the implementation plan for the EAC to transition from VVSG 1.0 to VVSG 2.0, and gives guidance to states regarding how to best approach their implementation plan. Additionally, it provides a list of resources and assistance that the EAC can provide state certification bodies to support their certification programs.

History of VVSG

HAVA mandated that the EAC adopt the most recent Federal Election Commission (FEC) set of voting system standards as its first set of voluntary voting system guidelines. This version of the FEC standards was known as the 2002 Voting System Standards (VSS).

On December 13, 2005, the EAC unanimously adopted the 2005 VVSG, which significantly increased security requirements for voting systems and expanded access, including opportunities for individuals with disabilities to vote privately and independently. The guidelines updated and augmented the 2002 Voting System Standards, as required by HAVA, to address advancements in election practices and computer technologies.

After adopting the 2005 VVSG, EAC tasked the Technical Guidelines Development Committee (TGDC) with developing the next iteration of the VVSG. On March 31, 2015, the commissioners unanimously approved the VVSG 1.1, which clarified the guidelines to make them more

testable; enabled the National Institute of Standards and Technology (NIST) to create test suites for the proposed revisions; and improved portions of the guidelines without requiring massive programmatic changes. Further, on January 6, 2016, the Commission adopted an implementation plan whereby all new voting systems would be required to be tested against the VVSG 1.1 beginning on July 6, 2017; 18 months from the date of the vote.

Almost immediately following the adoption of VVSG 1.1, a public working group process was developed to help inform NIST and EAC on the development of the next iteration of voluntary voting system guidelines. At the September 2016 TGDC Meeting, the Committee, through the Project Charter, adopted the name VVSG 2.0 for the next iteration of guidelines. Also, the Project Charter laid out the proposed structure of the document, as well as a proposed timeline. At the February 2017 TGDC Meeting, the scope of the document was unanimously decided and a draft of the guidelines was presented. Currently, that draft of the VVSG 2.0 is being circulated and modified as necessary with an anticipated adoption date in the first half of 2018.

Implementation Plan

When migrating from one set of standards to another a well-defined and thought out implementation plan should be developed. Considerations for migration need to include the time it will take for manufacturers to develop to the new standards, as well as the procedural changes that need to be amended within the program to allow all stakeholders to be ready for full migration. This section provides the EAC's implementation plan for the Federal Certification process and considerations States that rely on the program should contemplate.

Federal Certification

In order to plan for the implementation of the new standards, the EAC has assessed what associated documentation will require modifications to facilitate the transition. The T&C Program determined that to facilitate the transition it needs to update the manuals that lay out the process and procedures of the program. Additionally, in order to provide efficient and consistent testing to VVSG 1.1, test assertions have been and continue to be developed. Further, in preparation of the future implementation of the VVSG 2.0, the T&C Program is prioritizing the development of the common data formats.

The EAC has adopted two manuals that layout the policy and procedures for the T&C Program, the T&C Program Manual and the Voting System Test Lab Manual. Both manuals were updated in 2015 and expire in 2018. Since the manuals provide for both policy and procedures governing the testing and certification process, the specificity makes it difficult to allow for testing to both the VVSG 1.0 and VVSG 1.1. Further, it is unknown how these manuals would apply to VVSG 2.0. Therefore, during the review of the implantation planning, it was determined that the manuals should be agile enough to withstand the testing process for any set of standards. This realization led to the development of the next iteration of each of the respective manuals, version 3.0, to solely focus on the policy. By focusing on the policies

governing the T&C Program, the agency then can adapt its internal T&C Program procedures to the respective standards.

Beginning with the VVSG 1.0, a set of test assertions (a.k.a. test suites) were developed to provide efficiency and consistency for testing against the requirements. These test assertions are a priority for the implementation of VVSG 1.1, as well. It is the intent of the EAC to require its labs to utilize all test assertions that have been formally adopted and to incorporate any new test assertions within a set timeframe after their adoption. Not only does this provide efficiency and consistency for the test labs, but it also allows for the manufacturers to pre-test the systems during their internal quality assurance testing to the exact same test assertions that the lab will use. The development of publicly available test assertions is important enough that the Project Charter for VVSG 2.0 specifies that they be included in the new structure of the document.

Many have noted that the most important work being conducted on voting systems is the development of common data formats. The common data format work provides a mechanism for election technologies to interoperate reliably and consistently. Even though the common data format will not be applicable to the current transition from VVSG 1.0 to VVSG 1.1, it is paramount for the transition to VVSG 2.0. Therefore, everyone directly involved in elections or who use the data that is exported from election technologies should become familiarized with and provide input to the common data format work.

The new structure of VVSG 2.0 and the approach towards the manuals provides a natural path for transitioning from VVSG 1.1 to VVSG 2.0. Additionally, the public working group process, development of test assertions and creation of common data formats will help to facilitate a smooth transition to VVSG 2.0. The EAC also recognizes that before it can complete this transition, all products and approaches must be fully vetted and available to those involved in election administration and election vendors, who will need to develop voting systems to the new VVSG 2.0 standards. As previously mentioned, based on feedback from the VSTLs and manufacturers, the EAC provided an 18 month timeframe for that development to VVSG 1.1. The commission is still working to determine the timeframe for transitioning to VVSG 2.0. That timeline will take into account time for the manufacturers to develop compliant systems, the VSTLs to develop test methodologies and the EAC's work to create the testing process. The goal is ensure that the transition timeline is ultimately quicker and easier for all stakeholders.

State Certification

As previously mentioned, 47 states rely on the EAC T&C Program or portions thereof for their state certification process. As the EAC transitions between standards, the states that rely on the process should create an implementation plan as well. During discussions with many states that utilize the T&C Program, three overarching questions continuously are addressed: 1) How does state statute refer to the federal certification process; 2) Are there terms in state law that may create conflict with the definitions utilized by the federal standards; and 3) Does the state certification process need to be amended to work in conjunction with or to incorporate the federal certification process?

Working with jurisdictions that have started their implementation plan, the EAC has found wide disparities in the state statute language related to the commission's T&C Program. Many states have generic enough statutes that the transition to new standards will not create conflict. While federal standards take into account state statutes, there remain conflicts. For example, states are not as generic and specifically refer to a specific version of or the latest version of the standard. Both of these non-generic scenarios may create issues for state certification bodies.

The following examples dig a bit deeper into these conflicts. If a state statute says that voting systems are required to be EAC certified to the VVSG 1.0, the state may not be able to utilize a new voting system that is tested against and certified to the VVSG 1.1. This makes a state reliant upon modifications to voting systems that were certified to the earlier version of standards because all new systems will be required to be tested to the newer standard. Further, if a state requires voting systems to be certified to the latest version of the standards, there may be a timeframe in which there will not be any systems that meet those standards. To date, the EAC does not have any applications to the VVSG 1.1 and therefore, at the earliest, it would be a few months before a new voting system could meet such statute. Additionally, if a state does not rely upon EAC certification but utilizes an accredited lab, that state will need to clearly define which set of standards the lab should use to test its systems.

In other instances state law terminology is in direct conflict with the standards used to test against those laws. There have been circumstances when states inform the EAC that a federally certified system does not meet specific state statutes and yet the state requires federal certification. Over the years, states have proactively addressed many of these issues, but as we transition to new set of standards there are new definitions and methods for testing that should be taken into account. Addressing potential conflicts should be a first step in state implementation plans. This will prevent the purchase of a system that is later determined to noncompliant with state statutes. In addition, if the EAC is made aware of these differences, there are ways to have the systems tested for state specific laws and reported as an appendix to the EAC test report. As an appendix, it is not part of the EAC certified configuration, but the report can be provided to the state certification body to prove that the system was tested to meet state specific requirements.

In light of these challenges, state certification processes may need to be amended. That could be as minimal as providing clarification to the accredited lab regarding which standard to test against or as large as making legislative amendments. When there is a difference in state law and the VVSG, the EAC is willing to work with the states to come up with a solution. Many states have modified test specifications to include state requirements that are not routinely tested by the EAC and/or that may conflict with the standards. Some states even allow for an EAC certified system to be modified to state specific requirements. While those systems lose their EAC certification status, many state certification bodies allow such modifications within their process. While the EAC does not assist in the formulation of state statutes, if there is an unintended conflict between state statutes and the VVSG, the EAC can work with the state to provide clarity about how a requirement is interpreted and tested.

Resources and Assistance

In addition to the VVSG, manuals, test assertions and other guidance the EAC provides, there are some additional EAC resources available to assist states planning to transition. The EAC's website – www.eac.gov – contains a wealth of information regarding its Testing and Certification Program, Voluntary Voting System Guidelines, and Voting System Testing Laboratory Program. That site will also house new information and resources as the programs continue through this transition. Among the new resources the commission will provide is a list of updated definitions specific to VVSG 1.1 and a visual mapping of the differences between VVSG 1.0 and VVSG 1.1. In addition, when the new manuals will come out in 2018, the EAC intends to have information and learning materials available to help states navigate the updated documents.

The State Requirements Mapping Project is another EAC initiative underway. This project is a priority for the commission, so the EAC is dedicating additional resources to expedite its completion. Based on feedback from stakeholders, we are using a two-phase approach. The first phase will be to develop a data set of the laws that pertain to voting systems. The second phase will be to map those laws to VVSG 1.0 and VVSG 1.1. States that have already undertaken such research should share their results with the EAC to ensure the completion of this new resource as quickly as possible.

Conclusion

Implementation of the VVSG 2.0 may seem like a distant development, but it's actually right around the corner and work is already underway to bring these guidelines across the finish line. The intended adoption date is less than a year away. Some states are already asking how to incorporate information from the Public Working Groups into their processes or request for proposals for voting systems and other technologies. With that in mind, we encourage you to get involved in the Public Working Group process and to become familiar with the VVSG 2.0 structure and scope. It will make the transition easier when the time comes and give you a chance to shape the future of election technology.

Transition is never easy, but having a well-defined implementation plan makes it less difficult. Using lessons learned from the transition from the 2002 VSS to the VVSG 2005 and its years of interaction with states that rely upon federal certification process, the EAC knows the importance of support states impacted by the upcoming transition to VVSG 2.0. As we consider the implementation plan for the EAC's Testing and Certification Program, we are keeping state needs in mind and hoping to work with state and local election officials to make this switch as seamless and smooth as possible. If there are any additional resources that can make the transition less difficult, please let the EAC know. We welcome your feedback and are happy to be of assistance.