

On the issue of source code escrow and/or disclosure

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Source code disclosure and escrow is becoming critical in part due to the proposed HR 811 bill by Congressman Holt. Unlike VVPB that is self-evident, this is one of the murkiest aspects in the pursuit of improvement in the integrity of our nation's voting systems. AVANTE does not think it has an ingenious idea to offer beyond what has been superbly discoursed in several Internet blogs¹ and websites². We offer our comments below from the perspectives of a manufacturer that may offer slightly different insights.

AVANTE agrees with the approach taken in the EAC 2005 VVSG in terms of reviewing and escrowing of source codes. The following is a summary of the key points:

- Voting system manufacturers must submit all of the source codes that they developed to authorized independent testing agencies for source code review and certification.
- Final certified source codes are compiled to produce the "witness build" that serves as the "gold" standard of the voting system.
- All source codes and execution codes that are certified are escrowed in NIST (almost all vendors comply with this voluntary requirement).
- All source codes and execution codes incorporate "hash" codes to ensure authenticity that can be independently verified.
- Most States require additional escrowing of the source codes and execution codes for the voting systems that may or may not have variations that are certified by the States.
- The EAC 2005 VVSG specifically exempt reviewing or certifying commercial-off-the-shelf (COTS) third party source codes such as operating systems, database, firmware embedded in ancillary devices.
- Most States require the submission of at least a set of certified hardware and software used in their States as hard evidence and reference.

AVANTE believes the current approach used by EAC with the assistance of NIST on source code is wise and practical. Maybe the following aspects can be made more specific.

- Require that COTS software and firmware be defined as those that have established commercial applications besides the voting system.
- Require that no modifications on such firmware and software can be made to meet the specific needs of the voting systems incorporating them.
- If any modifications of such firmware and software is done to meet the voting system applications, such firmware and software should be certified and source code placed into escrow in NIST, and other State agencies that requiring escrowing of the specific source codes.
- Incorporate election codes (Federal or State or EAC requirements) that all source code in the escrow can be reviewed by court appointed experts. Expert opinions can be rendered on any aspects of the source codes as long as the actual source codes are not disclosed.

AVANTE agrees with the team of computer and election experts associated with "ACCURATE" in their position on restrictive and controlled disclosure³ of the source codes developed by the voting system manufacturers. Our rationale has been stated earlier⁴. The following outline some additional clarifications:

¹ <http://avi-rubin.blogspot.com/2007/02/hr-811-new-holt-bill.html>; http://www.votetrustusa.org/index.php?option=com_content&task=view&id=2276&Itemid=26;

² <http://www.bbvforums.org/forums/messages/46591/46677.html?1171306118>

³ <http://accurate-voting.org/wp-content/uploads/2007/02/AR.2007.pdf>

⁴ <http://www.vote-trakker.com/IS%20OPEN%20SOURCE%20OR%20SOFTWARE%20ELECTRONIC%20VERIFICATION%20A%20SOLUTION%20FOR%20SECURED%20E-VOTING.pdf>

- Very light penalties are ever imposed on the offenders that changed the source codes for elections without prior State approval. The legal precedence provides very little deterrent to those that are willing to commit such offenses. With the availability of source codes without any chain-of-custody control, it just make it that much easier and more tempting. Tracing to a responsible party is made that much more difficult.
- Voting systems are managed independently by more than 100,000 independent jurisdictions each with different State election codes and traditions. They also use different approaches for election security protections. It is unwise to have total open source to the public.
- Currently, experts appointed by the State (in some but not all States) can review and examine the source codes used in the voting systems.
- AVANTE agrees that source codes should be available for qualified independent public reviews.
- AVANTE appreciates the desire of the voting integrity community to have a more transparent voting process. We propose that such a review process be opened up more, to allow qualified public expert to review the source codes with the following conditions:
 - The experts must be US citizens so they are subject to US jurisdiction.
 - Preferably, these experts are endorsed by publicly registered citizen groups (e.g. 501C, etc.), Universities, and other public institutions as stipulated by a court of proper jurisdiction.
 - Review and examination must be done in an environment that is controlled by the Court with video monitoring as to prevent any form of copying.
 - All such experts must sign an agreement of non-disclosure of the actual source codes but are allowed to make comments to the manufacturers. Such comments must not be made available to the public unless sanctioned and allowed by the Court of proper jurisdiction.
 - All such experts having the desire to perform such source code review services on behalf of the public, must sign an agreement that they will be barred from working on products or consulting for any voting systems manufacturers, including that of not-for-profit institutions, for the next 10 years.

AVANTE believes there is an implicit public responsibility of all voting system manufacturers in such a public endeavor as election and the nation's democracy. Such implicit public responsibility should include proper and adequate transparency. However, the public's right-to-know must not damage the business interests of the entities that provide such commercial systems and services.

AVANTE offers the above ideas for discussion and modification and hopes some of its merits be adopted to satisfy the interests of all concerned.