

State of Wisconsin \ Government Accountability Board

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DATE: April 23, 2014

TO: Members, Senate Committee on Elections and Urban Affairs
Members, Assembly Committee on Campaigns and Elections

FROM: Kevin J. Kennedy, Director and General Counsel

SUBJECT: Online Voter Registration Security

Background

On September 25, 2012, three computer scientists sent a letter to the State of Maryland with recommendations to improve the security of Maryland's online voter registration system. These scientists also raised similar concerns with the State of Washington. As Wisconsin considers implementing online voter registration, Government Accountability Board (G.A.B.) staff reviewed the scientists' recommendations to determine if they are applicable in Wisconsin. For more details on the scientists' specific concerns and recommendations, please see the letter to the Maryland State Board of Elections dated September 25, 2012, enclosed with this memorandum.

Concerns with Maryland System

The letter describes specific vulnerabilities with the Maryland online voter registration system, which the authors believe left the system open to large-scale, automated fraud. Voters' dates of birth are unprotected in Maryland, and Maryland uses a commonly known formula to create driver license numbers. The authors were concerned that a person simply needed to purchase a Maryland voter list and know the driver license formula in order to systematically update voters' registrations using the online registration tool. The same "attackers" could then request absentee ballots on behalf of the "fake" voters and affect the outcome of the election.

In Wisconsin, state statutes protect the confidentiality of voters' dates of birth, and while part of driver license number in Wisconsin is calculated using a formula, the Wisconsin Department of Transportation (DOT) systematically assigns the remainder of the number, which an outside individual could not calculate. The online voter registration bill recently passed by the Wisconsin State Assembly (2013 WI Assembly Bill 225) required that the address entered by the voter be instantly verified with the address on file with the DOT. G.A.B. staff recommends that voters also be required to provide the last four digits of their social security number when registering to vote online. Cumulatively, the matching of the voter's full name, date of birth, address, state-issued driver license, or ID card number, and last four digits of the social security number would significantly limit the risk or impact of massive voter registration fraud via the online system. Voters could also be required to enter the issuance date of their driver license or Department of Transportation identification card as part of the online registration process. This date is only accessible on the physical license.

Computer Scientists' Recommendations

The authors made several specific recommendations to safeguard Maryland's online voter registration system. G.A.B. staff reviewed those recommendations and provides the following comments regarding how each recommendation could affect online voter registration in Wisconsin.

1. **Require that voters submit an additional piece of personal information** with each new or changed registration to authenticate the transaction. As stated above, G.A.B. staff recommends having voters provide the last four digits of their social security number (in addition to the name, date of birth, and driver license required in recent drafts of proposed online voter registration bills) as an additional verification step to help ensure the voter is registering him or herself. The online voter registration bill recently passed by the Wisconsin State Assembly also requires that the G.A.B. instantly match the address entered by the voter with the address on file with DOT which provides an additional layer of security that the online system in Maryland does not have. This matching process would likely result in a significant reduction in attempted individual or systemic fraudulent registrations. Voters could also be required to enter the issuance date of their driver license or Department of Transportation identification card as part of the online registration process. This date is only accessible on the physical license.
2. **Require the user to solve a CAPTCHA before each transaction**, in order to make automated attacks more difficult. CAPTCHA displays a series of letters or numbers that are unreadable by automated computer programs and determine that the person interacting with the website is in fact a human being. The MyVote Wisconsin website developed by G.A.B. already uses CAPTCHA codes for transactions such as UOCAVA voters requesting absentee ballots, or voters filling out a voter registration form using the Click and Mail function. G.A.B. staff recommends using CAPTCHA codes for online voter registration transactions as well.
3. **Record a complete transaction log** for each attempted or completed online voter registration submission, including IP addresses, timestamps and browser user agent strings, and a log of what specific data was changed. The MyVote Wisconsin website already captures IP addresses and time stamps for UOCAVA voters who download a ballot, and SVRS logs what data the UOCAVA voter changed. G.A.B. staff would recommend extending these practices to all online registration transactions.
4. **Analyze transaction log data frequently** for suspicious patterns of activity. Compare results with historical data and with other states. The authors recommended reviewing the number of successful new registrations, unsuccessful attempts and the reasons for rejection, number of requests to update existing registrations and the type of update, and unsuccessful requests to update existing registrations and the type of update attempted. G.A.B. staff could perform this type of analysis with sufficient resources. Comparing results with other states is a possibility if they are collecting similar data.
5. **Regularly run exception reports** that alert election officials about suspicious activity. The authors recommend several specific types of exception reports. G.A.B. staff could build the

exception reporting into the online voter registration portal if the legislation ensures that there is sufficient funding and time available to develop such reporting.

6. **Perform ongoing security testing** throughout the active voter registration period, contracting with qualified cybersecurity experts. The authors recommend several specific tests. G.A.B. staff has worked with security experts at the Wisconsin Department of Administration, Division of Enterprise Technology (DET) to assess the security of other G.A.B. systems in the past. Staff could work with DET or other security experts to perform security testing for the online registration system with sufficient resources.
7. **Have a disaster recovery plan** that allows reverting transactions back to the status that existed before an attack if staff detects suspicious patterns. The authors recommended several specific steps that such a plan should include. The ability to roll back the database to a specific date and time is a service already provided by the State Data Center operated by DET. The ability to undo changes for a specific transaction type would be more complicated and may require custom coding. This recommendation would require further analysis before G.A.B. staff could provide detailed guidance.
8. **Set the election schedule to allow ample time** between the closing of online registration and the beginning of voting, particularly to allow time for the state to mail out confirmations and for voters to report problems. Recently drafted online registration bills (including the version recently passed by the Assembly) have closed online registration at the same time as the close of early and mail-in registration, 20 days prior to the election. G.A.B. staff recommends keeping the deadline for online registration consistent with early and mail-in registration to minimize voter and clerk confusion. The Legislature can determine if 20 days is sufficient time to mail out confirmations and allow voters to report problems. Wisconsin also allows Election Day Registration, so voters could correct any online registration problems at the polling place on Election Day.
9. **Mail confirmation of registration or changes to the voter.** The authors specifically recommend mailing address change notifications to both the old and the new addresses of the elector. They also recommend considering changes initiated online as unofficial until election officials approve them and confirm the changes via a US Mail notification. Given the part-time nature of many Wisconsin election clerks, requiring the local election office to approve an online voter registration transaction prior to making it official may not be practical. The instant verification with DOT provides a confidence level that the transaction is legitimate. Recently drafted online registration bills (including the version recently passed by the Assembly) made online transactions immediately official provided the real-time verification with DOT was successful. The online registration bill recently passed by the Assembly also requires the real-time verification with DOT to compare addresses to ensure the address provided by the voter matches DOT records. Sending US Mail notifications to both new and old addresses is costly, and at least one of the postcards would return as undeliverable, adding additional cost. This may not be cost-justified given that the online registration system would compare the address with DOT before approving the online registration transaction. Many smaller towns in Wisconsin do not have postal mail delivery to their homes, which further reduces the effectiveness of using US Mail to verify a residential address.

10. **Require voters who register online to show their WI driver license** the first time they vote in the state. G.A.B. staff suggests delaying consideration of this recommendation until the outcome of the current Photo ID law litigation is determined. However, even without a photo ID requirement, under the Assembly online voter registration bill, voters registering online would need to provide multiple data elements that match DOT records in order to register, including the address, which fulfills current statutory proof of residence requirements.
11. **Compare signatures on absentee ballot requests** that involve online registration changes to the signatures on file at the DOT. Given the detailed level of data validation required under the Assembly-approved online registration bill, G.A.B. staff does not believe that this requirement is necessary for all absentee ballot requests for online registrants. However, under the Assembly online voter registration bill, DOT must make DOT signatures available to G.A.B staff for review so clerks could compare signatures on applications that the clerk considers questionable.
12. **Maintain procedures for identifying, recording, and resolving problems at the polling place.** The authors further recommended various provisional ballot and vote counting procedures for voters who encounter a problem at their polling site based on an online registration transaction. In Wisconsin, voters could correct any online registration problems at the polling place using Election Day Registration. This is a more efficient and effective remedy than those suggested by the authors. Therefore, G.A.B. staff does not recommend implementing this procedure.

Conclusion

Based on current law in Wisconsin, as well as the provisions included in the Assembly-approved online registration bill, many of the concerns voiced by the computer scientists would not apply in Wisconsin. However, the G.A.B. could implement many of the technical recommendations with sufficient resources in order to provide added layers of security and accountability.

Enclosure (1)

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