

VIA FACSIMILE

October 29, 2008

Dear Chief Election Official:

Our research shows that Premier Election Solutions voting systems are deployed in your state. As you may know, Premier released a product advisory in August of this year pointing out a critical defect in the GEMS tabulating equipment 1.20.2 and earlier. This defect can deprive voters of their fundamental right to have their votes counted. According to the product advisory, the GEMS equipment contains a logic error which affects the compilation of votes from multiple polling locations. As memory cards containing votes are uploaded into the system, votes can be lost.

According to the advisory issued by Premier:

Premier Election Solutions has determined that a sharing violation may occur in the GEMS poster during simultaneous uploading of results from multiple memory cards resulting in the contents of the affected memory card(s) **not being posted** to GEMS. Note that in this situation, the AVServer console will indicate the affected upload of memory card(s) has been successful, ... when the upload has not, in fact, been successful.

We strongly urge you to advise election officials in your jurisdiction to conduct rigorous ballot reconciliation procedures that would mitigate this kind of issue, among others. We have attached a list of "best practices" which we have developed along with academics and election officials. Most importantly, we ask that you institute measures to ensure that every memory card has been fully uploaded: this means, at the very least, comparing the total number of memory cards with the number reported by the tally server when uploading is complete, and comparing total tapes from each machine to the totals reported by the tally server.

In its own product advisory notice, Premier recommended procedural critical safeguards which must be in place to stop the loss of votes while memory cards are being uploaded. Additionally, Premier recommended that basic election canvass procedures be used at all times.

We are grateful for your hard work during this very busy time. If you have any questions, please contact us.

Sincerely,

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Product Advisory Notice

Product Type/Version:
GEMS versions 1.20.2 and earlier

Advisory #: PAN2008-013
Revision: 1.0
Date: 08-19-2008

Distribution:

- √ Premier Election Solutions Associates
- √ All accounts
- √ All states

NOTE: The information contained in this document is for reference only. It is recommended that each jurisdiction consult with their state election authority in respect to applicable laws, regulations, procedures and other guidelines, which may impact how this information is used.

Summary: Occasional GEMS poster sharing violation can affect memory card uploads

Description:

This Product Advisory Notice updates PAN 2008-009, issued in May 2008, and reflects additional analysis of the above referenced condition. Premier Election Solutions has determined that a sharing violation may occur in the GEMS poster during the simultaneous uploading of results from multiple memory cards resulting in the contents of the affected memory card(s) not being posted to GEMS. Note that in this situation, the AVServer console will indicate the affected upload of the memory card(s) has been successful, (green arrow), when the upload has not, in fact, been successful. Exiting the AVServer console and restarting it will refresh the display and will accurately indicate whether any card has failed to be uploaded. Premier has now determined that this event can occur whether or not on-access antivirus software is enabled at the time of upload. Although enabled on-access antivirus software may generate this conflict, it is not the sole contributor to this event.

Recommended Action(s):

To ensure all memory cards have been successfully uploaded and posted, exit the AVServer, wait for all poster jobs to complete by checking the Poster console, then restart the AVServer and verify all memory cards are shown as uploaded. If any memory cards show as not uploaded, the operator should re-upload them again and repeat this procedure until all memory cards are successfully uploaded.

Furthermore, as Premier Elections Solutions recommends in the "GEMS Election Administrator Guide," basic election canvass procedures should be used at all times. This includes, as a minimum, the viewing and/or printing of the "AccuVote-OS Status" and "AccuVote-TS Status" reports to ensure all memory cards have been uploaded, verifying the "Cards Cast" shown on the "Election Summary Report" matches the expected value from the pollbooks, and checking the error logs for any anomalous conditions.

Product Advisory Notice

Technical Background:

The GEMS poster works by receiving concurrent uploads from the memory cards and then saving that data in temporary files for posting to the election database in a serialized manner, i.e. one at a time. This design is used to optimize the database access performance as well as the upload of data performance.

The issue identified is a logic error that allows the poster to attempt to post a file that is still being received when two or more files are received in sequence, and the first file takes longer to save than the second file. If a sharing violation occurs, the posting of the first file is the one affected. Note that files typically take very few milliseconds to save, whereas large files, with large numbers of votes, can take up to 100 milliseconds.

Ballot Accounting Checklist

These recommendations represent a minimum of what elections officials should do to account for all ballots and votes cast on Election Day. Election officials should establish similar procedures for early and absentee ballots.

At the polling place:

Account for all ballots, votes, and voters

Before the polls open:

- Count and record the total number and type (*e.g.*, regular, emergency, provisional) of blank ballots received by the polling place. If multiple styles of ballots are used, each style should be accounted for separately.
- Print a “zero tape” from each machine that shows that all counters are zeroed.
- Check all ballot boxes, including those for optical scanners, to make sure they are empty.

After the polls close:

- Count and record the total number of votes cast as shown on the summary tapes printed from voting machines at the close of polls, and retain these ballots and summary tapes (*e.g.*, voter-verified paper records, vote total tapes, and optical scan ballots).
- If using optical scanners, check auxiliary bins to make sure they contain no voted ballots.
- Count and record the total number of provisional ballots cast.
- Count and record the total number of spoiled ballots.
- Count and record the total number of unused ballots. If multiple styles of ballots are used, each style should be accounted for separately.
- If using touchscreens, count and record the total number of emergency paper ballots issued.
- If applicable, count and record the total number of hand-delivered absentee ballots.
- Count and record the total number of voters who signed in at the polling place. Account for voters who voted provisionally separately from voters who voted on a standard ballot.

- If possible, count and record the number of voters who signed in but left the polling place without voting.
- Post copies of paper records of vote totals logged on each machine at the polling place. If possible, include numbers of abstentions and overvotes in each race.

Reconcile vote and ballot totals and address discrepancies

- Compare the total number of votes cast to the total number of voters who signed in. Explain and address any discrepancies.
- For both regular and emergency paper ballots, compare the number of voted, spoiled, and unused paper ballots with the number of ballots sent to the polling place. Explain and address any discrepancies.
- Compare digital vote tallies from voting machines to vote total tapes. Notify county and state officials of any discrepancies. If using optical scanners, flag ballots that should be re-counted on the central tabulator.
- If your precinct has an “accumulator” that totals memory cards for each machine, compare the total tapes from each machine to the total tapes from this accumulator.
- Seal, sign, and return packages of used and unused ballots.
- Deliver official, sealed information packets containing all audit information (poll books, paper trails, paper ballots, vote total tapes, provisional ballots, emergency paper ballots, unused ballots, and memory cards) to the central count location.

At the county level:

Reconcile redundancies

- Review status reports from the electronic tally server to ensure that all memory cards have been read.
- Compare electronic tally server totals to vote total tapes generated from each voting machine.
- Account for additional ballots that may not be included in vote total tapes, such as provisional ballots, emergency paper ballots, absentee/mail-in ballots, or early voting ballots.
- Reconcile the total number of voters who signed in with the total number of votes recorded in the county.
- Re-check reconciliations performed at the polling places and investigate/resolve any discrepancies.

Make all results public

- Publish results of ballot, machine total, and memory card reconciliations.