



DRAFT – 3/13/2008

THIS IS A DRAFT FOR PUBLIC COMMENT.

**PLEASE SUBMIT WRITTEN COMMENTS BY 5 P.M. ON MARCH 18, 2008 TO STEPHANIE CEGIELSKI AT
STEPHANIE.CEGIELSKI@SOS.STATE.CO.US**

Conditions for Use – PREMIER - AMENDED 3/13/08

The Testing Board recommends the Secretary of State adopt the following conditions for use of the voting system. These conditions are required to be in place should the Secretary approve for certification any or all of the items indicated in the **COMPONENTS** section. **THE TESTING BOARD HAS MODIFIED THE CONDITIONS BASED ON INFORMATION PROVIDED THROUGH PUBLIC HEARING UNDER LEGISLATIVE UPDATES TO CONSIDER ADDITIONAL PROCEDURES. ANY DEVIATION FROM THE CONDITIONS PROVIDES SIGNIFICANT WEAKNESS IN THE SECURITY, AUDITABILITY, INTEGRITY AND AVAILABILITY OF THE VOTING SYSTEM.** ~~Being that many conditions address the security, auditability and availability of the system component, the testing board would firmly reject any option which removes, replaces or diminishes the conditional requirement and still allow the system to be used and recommended for certification. Any "Y" value in the **Recommendation** table would change to a "N" value with any change to the conditions.~~

Global Conditions (applies to all components):

- 1) Modem and other telecommunication devices may not be used on any subsystem component - system provider was unable to meet or provide prerequisite FIPS 140/180 certifications.
- 2) Provisional ballots must be processed separately from non-conditional ballots - system subcomponents are unable to functionally differentiate and correctly process to Colorado specific requirements.
- 3) Coordination of Escrow Setup - Upon Certification, voting system manufacturer must coordinate the Escrow of the TRUSTED BUILD software with SOS escrow, or third party escrow service as required by Rule 11 prior to use in Colorado.
- 4) Abstract Report generation - abstracts used for State reporting must come from GEMS Software, or other external solution, rather than from the specific device.
- 5) Trusted Build Verification
Counties shall ensure that hardware, software and firmware purchased for use of the system matches the specifications of VSTL/EAC and/or State Certified and trusted versions, not to the version presented in the vendor documentation.

- 6) Counties using the voting system shall testify through their security plan submission that the voting system is used only on a closed network.

Software Conditions (GEMS 1-18-24):

- 1) System/Database/Network Security Hardening.
- a) Because the voting system operates in a non-restricted system configuration containing open file system access to locate, copy, open and overwrite without detection, election vote content database files outside of election management system application by third-party tools, counties will be required to modify their physical environmental conditions. ~~If the system is approved for certification,~~ eCounties shall submit THEIR plans for approval to the Secretary of State's office TO BE INCLUDED IN THE COUNTY SECURITY PLAN on overcoming these conditions through county environmental and/or procedural changes where possible.
- b) In addition to physical environmental changes, counties shall create a second (or backup) copy of the GEMS database that is created immediately after the point of memory card downloads. The backup copy shall be stored on closed CD Media and documented as matching the master database. This process shall be observed by two election staff members. Chain of custody documents shall be generated for the media, and the media shall be sealed with at least two tamper evident seals and stored in a sealed or lockable transfer case that is stored in a limited access area. ~~AFTER the close of polls~~ ON ELECTION DAY, the designated election official shall load the sealed copy of the database onto the server and proceed with uploading memory cards after documenting the loading of the backup master database onto the system. After loading the sealed database copy, the county shall re-secure the database with seals (updating necessary logs) in the limited access location.
- c) Additionally, to overcome deficiencies in security and auditing of the system, the county will be required to perform increased Election Night and Post Election Audits for this system. All post-election audit data shall process a hand count of paper ballots which shall match the totals report from the specific device, as well as the totals for the GEMS database. Counties shall prepare for this event with one of two methods:

Option #1 – Prepare for the upload of memory cartridges as normal. Print necessary zero report. Upon uploading each individual memory card, print a summary report showing the change in totals from the upload of the memory card. Label the report to match the name/number of the memory card uploaded. Continue to upload memory cards and print totals reports to match. When auditing a specific device, use the difference between the report totals for the memory card selected for the audit and the totals from the immediately preceding memory card report to calculate vote totals generated by the GEMS software.

When memory cards are delivered to the county for upload, the machine generated report shall be delivered for inspection as well. ~~On election night~~ DURING THE POST-ELECTION AUDIT, when the summary report indicated above is created, the difference totals (delta report) are ~~immediately~~ compared to the totals from the report generated by the device at the polling place. If the reports match, the public AND CANVASS BOARD is ensured that the totals from the polling place match the totals from the county server. If the totals are different, the county is to report the situation (~~on election night~~) to the Secretary of State's OFFICE for audit, security and remedy procedures.

During the post election audit process, the totals of the paper record for the specific device are to be hand counted and verified against the electronic record for the device. The canvass board shall

report the verification of three totals to match – the paper record of the device, the totals of the electronic vote on the device, and the totals in the central count server; OR

Option #2 – Prepare for the upload of memory cartridges by creating one master default database (containing all memory cards/cartridges). Create individual databases to contain values (upload data) for each separate memory card (or in some instances by batch of ballots – see condition #4b under Central Count devices. Upload memory card/cartridges into master database, and into the specific database created for that memory card (two separate uploads). This process ~~must happen on Election Night~~ **CAN TAKE PLACE ANY TIME AFTER THE CLOSE OF POLLS INCLUDING THROUGH THE CANVASS PERIOD,** and with observation by at least two people. Election summary reports shall be printed from each individual database and manually added together. The totals from the individual databases must match the master database before proceeding. Upon verification that the master and individual databases match, the county can then use the individual reports to conduct a hand count of the paper ballot (or paper record) generated by the device to show that the GEMS totals match. The verification of the separate upload databases verify that the database totals match the field totals on each memory card device, as was designed after the point of Logic and Accuracy testing took place.

2) Ballot-On-Demand Restriction.

No provision for ballot reconciliation. This will require counties to have an extra supply of preprinted ballots on hand. ~~;~~ **ALTERNATIVELY THE COUNTY MAY USE THE SYSTEM FOR BALLOT ON DEMAND PRINTING PROVIDED THAT DETAILED LOGS ARE MAINTAINED INDICATING THE NUMBER OF BALLOTS PRINTED, USED AND NOT USED BY THE IN-HOUSE PRINTING FUNCTION.**

3) Audit Trail Information:

a) Counties will be required to produce certain reports identified in C.R.S. 1-7-509 using an external process which will include at a minimum exporting result from the GEMS software for processing by other methods.

b) Operators of the system shall also be required to maintain logs indicating use of the report printing functions of the software, and detailed information to changes of the system including hardware changes which shall include: insert removable media, remove removable media, modify system hardware drivers, modify system physical hardware, and any other system property changes made by either judges or other trusted staff. Logs shall be maintained physically in a file outside or separate from the database, which is NOT accessible for review and/or modification by user/operator accounts on the system, but that is readily accessible to election officials or other interested party.

SUCH LOGS MAY BE ACHIEVABLE BY A MANNER BEST SUITABLE TO EACH COUNTY. SOLUTIONS MAY INCLUDE THE USE OF KEY STROKE RECORDING SOFTWARE, WINDOWS EVENT LOG RECORDINGS, DETAILED VIDEO CAMERA RECORDINGS, MANUALLY WRITTEN RECORDS OR ANY COMBINATION TO ACHIEVE THE NECESSARY AUDIT DATA. COUNTIES SHALL REPORT TO THE SECRETARY OF STATE'S OFFICE THROUGH THEIR SECURITY PLANS THE METHOD OF ACHIEVING THIS CONDITION.

4) Performance Deficiencies.

Due to failures in performance, counties shall allow extra time for downloads and uploads of memory card devices. This may impact programming, testing and use of the system on election night. Counties shall ensure trusted staff is properly trained on this issue and accommodating the allowable time required

for programming memory devices.

5) Provisional Ballots.

The software is not capable of processing provisional ballots internally to accept federal and state only questions. A procedure outside of the voting system will be required. Additionally, the abstracts and reports created by the software do not meet the requirements of rule 41.6.3(g) and users of the system will be required to generate an abstract outside of the voting system.

Precinct Count Scanner Conditions (1.96.6):

1) Intrusion Seals for Protection of Trusted Build Firmware.

Due to limitations by device to verify Trusted Build once installed, counties will be required to maintain constant seals on voting device memory slot, back panel, and other entry points as indicated by the Secretary of State.

~~2) External Battery backup (UPS) devices required.~~

~~Insufficient internal power reserves to sustain minimum 3 hour continuous operation. Counties shall purchase and use an external power supply that meets or exceeds the vendors' recommendation for the component.~~

32) Device Security Accessibility.

- a) Device level administrative functions requiring access involving the use of keys, memory cards, Ender cards (closing polls) and passwords must be restricted to ~~single~~ **NO MORE THAN TWO (2)** person entry with detailed logs.
- b) Due to exposure of passwords, the vendor and the county shall ensure that operators are adequately trained to protect the visibility of the password during use.

43) Ballot/Race Conditions Simulation.

Additional County testing shall be required to accommodate ballots with conditions from each election. This shall include ordering a complete set of at least ~~5-4~~ ballots of each style that contain the prescribed design for that election. County officials shall mark each possible position for each race on the ballots. All ballots shall be tested internally prior to the public logic and accuracy test. The goal of the pretest is to ensure that all available positions are counting when marked correctly.

54) Audit Trail Information:

- a) Judges shall be required to include device serial number on all reports regarding use of the device. Additionally, the county shall include the device serial number on applicable reports from the device.
- b) Operators of the system shall also be required to maintain logs indicating use of the administrator functions of the device by either judges or other trusted staff.
- c) Counties will be required to produce certain reports identified in C.R.S. 1-7-509 using an external process which will include at a minimum exporting result from the GEMS software for processing by other methods.
- d) Counties will be required to perform additional post election audit functions for the device to accommodate for security deficiencies. In an effort to increase confidence in the recording of votes by the device, the post-election audit shall include the verification of the hand count of paper ballots to match the totals generated from the GEMS software as indicated in Software condition #1c.

Central Count Scanner Conditions (2.0.12):

1) Intrusion Seals for Protection of Trusted Build Firmware.

Due to limitations by device to verify Trusted Build once installed, counties will be required to maintain constant seals on voting device memory slot, back panel, and other entry points as indicated by the Secretary of State.

2) Ballot Processing.

a) Counties will be required to pre-process all folded ballots that are counted by the voting device. Specifically, operators will presort ballots to detect for appearances of holes punched in the ballot. Ballots with holes in them shall be duplicated onto new ballots by a duplication board as required. Operators of the system shall be adequately trained in the processing and understanding of error messages produced by the device which sometimes represent the correct problem and many times do not.

b) In the event of a recount, the county will have the voting system technician on-site to recalibrate the scanning devices to the sensitivity settings required for testing the device as required by Secretary of State Rule 27.4.2(d): **ALTERNATIVELY, THE COUNTIES SHALL PERFORM NECESSARY TESTING TO DOCUMENT AND DEMONSTRATE THAT THE AUTO-CALIBRATION FEATURE OF THE DEVICE IS FUNCTIONING PRIOR TO THE COUNTING OF BALLOTS FOR THE RECOUNT.**

3) External ~~Battery backup~~ POWER SUPPLY (UPS) devices ~~r~~Required.

Insufficient internal power reserves to sustain minimum 3 hour continuous operation. Counties shall purchase and use an external power supply that meets or exceeds the vendors' recommendation for the component: **ACCEPTABLE POWER SUPPLY SOURCES INCLUDE GENERATORS AND OTHER FACILITY BASED SOLUTIONS.**

4) Audit Trail Information:

a) Judges shall be required to include device serial number on all reports regarding use of the device. Additionally, the county shall include the device serial number on applicable reports from the device.

b) Counties will be required to perform additional post election audit functions for the device to accommodate for security deficiencies. In an effort to increase confidence in the recording of votes by the device, the post-election audit shall include a hand count of at least the following amounts of ballots **COUNTED ON THE DEVICE FOR THE SPECIFIC RACES SELECTED IN THE POST ELECTION AUDIT:**

<u>TOTAL # OF BALLOTS COUNTED ON DEVICE:</u>	<u>TOTAL # OF BALLOTS TO AUDIT:</u>	<u># OF ERRORS REQUIRING ESCALATION:</u>
<u>150,000 TO 500,000</u>	<u>1,250</u>	<u>6</u>
<u>35,001 TO 150,000</u>	<u>800</u>	<u>4</u>
<u>10,001 TO 35,000</u>	<u>500</u>	<u>3</u>
<u>3,201 TO 10,000</u>	<u>315</u>	<u>2</u>
<u>1,201 TO 3,200</u>	<u>200</u>	<u>2</u>
<u>501 TO 1,200</u>	<u>125</u>	<u>2</u>
<u>281 TO 500</u>	<u>80</u>	<u>1</u>
<u>151 TO 280</u>	<u>50</u>	<u>1</u>

<u>91 TO 150</u>	<u>32</u>	<u>1</u>
<u>51 TO 90</u>	<u>20</u>	<u>1</u>
<u>26 TO 50</u>	<u>13</u>	<u>1</u>
<u>16 TO 25</u>	<u>8</u>	<u>1</u>
<u>9 TO 15</u>	<u>5</u>	<u>1</u>
<u>1 TO 8</u>	<u>3 OR 100% IF LESS THAN 3</u>	<u>1</u>

ERRORS DETECTED DURING THE MANUAL AUDIT PROCESS SHALL BE RESOLVED ACCORDING TO C.R.S. 1-7-514, AND SECRETARY OF STATE RULE 11. ERRORS DISCOVERED EXCEEDING THE ERROR RATE IDENTIFIED IN THE TABLE ABOVE SHALL REQUIRE ESCALATION MEASURES INCLUDING INCREASED AUDITS AS PRESCRIBED BY THE SECRETARY OF STATE'S OFFICE. COUNTY OFFICIALS SHALL CONTACT THE SECRETARY OF STATE'S OFFICE AS SOON AS POSSIBLE IF AN AUDIT DETECTS ERRORS ABOVE THE ESCALATION THRESHOLD.

~~Considering the closest race in the election, if the difference between the top two candidates for the race is:~~

~~10% or greater, then hand count 60 ballots for every 10,000 cast;
9.00% – 9.99%, then hand count 65 ballots for every 10,000 cast;
8.00% – 8.99%, then hand count 70 ballots for every 10,000 cast;
7.00% – 7.99%, then hand count 80 ballots for every 10,000 cast;
6.00% – 6.99%, then hand count 95 ballots for every 10,000 cast;
5.00% – 5.99%, then hand count 115 ballots for every 10,000 cast;
4.00% – 4.99%, then hand count 140 ballots for every 10,000 cast;
3.00% – 3.99%, then hand count 185 ballots for every 10,000 cast;
2.00% – 2.99%, then hand count 275 ballots for every 10,000 cast;
1.00% – 1.99%, then hand count 550 ballots for every 10,000 cast;
0.01% – 0.99%, then hand count 1200 ballots for every 10,000 cast.
FB1) 2) 3)~~

The verification of the hand count of paper ballots shall match the totals generated from the GEMS software as indicated in Software condition #1c. Counties shall load only the master database from the secured storage location for processing the post election audit ballots as indicated in Software Condition #1b. Counties shall prepare database and batches of ballots prior to scanning into system (for election results) to accurately generate reports in batch sizes as necessary for the audit. ~~If the county or system is not capable of accommodating the requirement of batch size after the outcome of the election is revealed, the highest percentage of ballots shall be used for the audit process.~~

5) Ballot/Race Conditions Simulation.

Additional County testing shall be required to accommodate ballots with conditions listed. This shall include ordering a complete set of at least 5-4 ballots of each style that contain the prescribed design for that election. County officials shall mark each possible position for each race on the ballots. All ballots shall be tested internally prior to the public logic and accuracy test. The goal of the pretest is to ensure that all available positions are counting when marked correctly.

6) Network Access/Availability.

The voting system must be used with no network connectivity between devices/units and software. Only a closed LAN connection may be used with necessary hardware for port replication and local IP address assignments as tested.

DRE Conditions (TSx 4.6.4 – C and D models):

~~1) External Battery backup (UPS) devices required.~~

~~Insufficient internal power reserves to sustain minimum 3 hour continuous operation. Counties shall purchase and use an external power supply that meets or exceeds the vendors' recommendation for the component.60~~

21) V-VPAT Paper Record Shall be Handled per Rule 11.6.

- a) Prescribed paper record is of the thermal type and requires special storage conditions to avoid legibility degradation. Counties shall follow the requirements for handling according to Secretary of State Rule 11 and 43.
- b) Election judges are required to perform the "Printer Test" in between paper changes and verify with one additional judge that the paper has been loaded correctly and is printing according to design which ensures that all machines will have paper records for each vote cast.

32) Accessible Distances.

Operators of the system shall be required to provide an accessible solution by operating the device on a separate table. The manufacturer's stand does not meet accessible reaches as outlined in C.R.S. 1-5-704. Counties shall be educated on these measurements and ensuring that the table top solution complies with the requirements. THIS CONDITION COULD ALSO BE ACHIEVED WITH THE USE OF A REACH STICK THAT IS AT LEAST 4' IN LENGTH. SHOULD THE COUNTIES USE THE DRE IN THE STAND WITH A REACH STICK, THE COUNTY SHALL ENSURE THAT A SIDE APPROACH BY A WHEELCHAIR IS POSSIBLE DUE TO THE DEFICIENCIES IN THE KNEE CLEARANCE (DEPTH AND WIDTH) OF THE STAND.

43) Accessible Operation.

Due to the inability for the voter to pause and resume the audio text, election judges shall provide instructions specific to this fact to the voters and operations for repeating the text if text was missed, which shall include details on navigating forward and backwards through the system prompts.

54) Additional Privacy Screen Required.

Required privacy conditions can not be met with attached device privacy panels without also installing accessory screen made by manufacturer-; ALTERNATIVELY THIS CONDITION COULD BE ACHIEVED WITH THE USE OF A COMPUTER MONITOR POLARIZED PRIVACY SCREEN. Counties shall deploy touch screen units in such a manner that voters and judges cannot easily walk behind other voters while processing their vote.

VC Programmer Conditions:

Version 4.6.1 – NONE

Voter Card Encoder Conditions:

Version 1.3.2 – NONE

Key Card Tool Conditions:

Version 4.6.1 – NONE