



**Comment to Colorado Department of State  
Regarding Appendix B, System Requirements Table, October 1 2013  
Submitted 21 August 2013**

Thank you for the opportunity to comment on the System Requirements Table portion of Colorado's upcoming RFP for a Uniform Voting System. We've placed our comments in the "Comment" column of the DRAFT for Public Comment, at the following items:

B-4 & B-6

C-1 & C-14

D-8, D-11, D-33 & D-35

G-8, G-10, G-22 & G-23

These comments follow themes set forth in our previous comments on this process. We continue to applaud Colorado for its careful process toward a better voting system, made uniform statewide. We look forward to participating in the ongoing process.

Please don't hesitate with any questions.

Best regards,

A handwritten signature in blue ink, appearing to read "Dan McCrea", with a long, sweeping underline.

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# State of Colorado

## Department of State



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### Uniform Voting System Request for Proposal RFP # CDOS-UVS-2013-01

**DRAFT for Public Comment**

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Appendix B

System Requirements Table

October 1, 2013

## INSTRUCTIONS FOR COMPLETING SYSTEM REQUIREMENTS TABLES

The Vendor must assign a Response Code to each listed requirement. Use only the values of 1, 2, 3, 4, or 5 as a Response Code. The Response Code values and meanings follow:

- 1 – The proposed solution **provides full functionality for the requirement**. Some configuration may be necessary. This functionality is considered part of the base solution cost.
- 2 – The proposed solution **provides partial functionality for the requirement**. Customization and additional costs are required to meet full functionality and **customization is being proposed**. In such cases, the Vendor shall provide a description, in the Vendor Response column, of the partial functionality provided. If customization would cause a certification issue, please explain in the Vendor Response column. Customization Costs to provide complete functionality shall be included in the Cost Proposal in the Customization Cost category.
- 3 – The proposed solution **does not provide any functionality required for the requirement**. Customization and additional costs are required to meet full functionality and are **customization is being proposed**. If customization would cause a certification issue, please explain in the Vendor Response column. Customization Costs to provide complete functionality shall be included in the Cost Proposal in the Customization Cost category.
- 4 – The specific requirement is **not met and the vendor does not propose a customization or service to meet it**. In such cases, the Vendor shall provide in the Vendor Response column an explanation of the reason(s) for not proposing customization to meet the requirement, including any potential workaround options.
- 5 – The Vendor is **not proposing a solution for requirements within the Requirement Category**, but is proposing solutions to requirements in other Appendix B table categories. For example, a vendor may be proposing a solution that addresses Electronic Voting Equipment only. In this example, the vendor would mark each Electronic Voting Equipment requirement with the appropriate Response Code and mark all the requirements in other categories with a Response Code of “5”.

CDOS may include a **Note** at the end of a requirement statement requesting information from vendors. Vendors should address the Note by providing answers or information in the Vendor Response column. If the answer or information is lengthy and is provided in another area of the vendor’s RFP response, a specific reference to that area may be provided in the Vendor Response column. If multiple notes are listed in a requirement, please identify the note number associated with each vendor response.

System Requirements Tables for the following categories of requirements are contained in this Appendix B. Each category is stored in its own MS Word table. Each category is further divided into sub-categories. The major categories and category definitions are:

- **A – Election Management System (EMS)** – this category addresses the software needed to programmatically create an election, design ballots, program voting system configurations, view stored cast votes and ballot images for adjudication, and provide for system reports.
- **B – Polling Location Ballot Scanner and Tabulation Equipment** – this category covers hardware and software used at a polling location to scan and tabulate ballots.
- **C – Central Ballot Scanner and Tabulation Equipment** – this category includes hardware and software used at a central location to scan and tabulate ballots. This equipment is typically used for processing mail/absentee ballots in volume.
- **D – Electronic Voting Equipment** – this category includes hardware and software that allows a voter to enter their vote by interfacing with an electronic device (e.g. touchscreen, touch controls, audible speech, sip and puff, paddles) rather than manually marking a ballot. By statute, the electronic voting equipment must generate a verifiable paper trail in the form of a printout or an actual machine marked ballot. The electronic voting equipment may or may not tabulate the votes. If the equipment is the type that marks a ballot, it is possible that the ballot will be scanned and tabulated by another piece of equipment.
- **E – Ballot Envelope Scanning and Signature Verification** – this category includes hardware and software to scan ballot envelopes, capture an image of the envelope (including voter signature), and affix certain information to the envelope (e.g. date, time, county identifier). The signature verification function is typically software driven on a designated computer, whereby an authorized user can view the signature captured by the envelope scanner or physically view the actual envelope and compare the signature with the signature maintained in the voter registration system.
- **F – Vendor Training and Support** – this category addresses training and support requirements of the voting system vendor.
- **G – Certification, Auditing, Testing, Security and Documentation** – this category identifies requirements related to voting system certification, auditing of election results, testing of hardware/software, and system documentation.

The Requirements tables are set up to not allow rows to break across pages. If a vendor response is long enough to cause a table row to be longer than one page can handle, please change the row property for that particular row to allow it to break across pages.

Sub-Category	Req. ID	UVS Requirement (The System will ...)	Comment
Election Creation	A-1	Allow county and state election officials the ability to generate and maintain an administrative database containing the definitions and descriptions of political subdivisions and offices within their jurisdiction.	
Election Creation	A-2	Provide for the definition of political and administrative subdivisions where the list of candidates or contests may vary within the voting location and for the activation or exclusion of any portion of the ballot upon which the entitlement of a voter to vote may vary by reason of place of residence or other such administrative or geographical criteria.	
Election Creation	A-3	Provide software capability for the creation of newly defined elections.	
Election Creation	A-4	Provide software capability for the retention of previously defined election setups.	
Election Creation	A-5	Provide software capability to copy, edit and delete previously defined elections.	
Election Creation	A-6	Generate all required master and distributed copies of the voting program in conformance with the definition of the ballot for each voting location and voting device, including devices required to facilitate mail-in voting and voters with disabilities.	
Election Creation	A-7	Provide for all distributed copies of the voting program, resident or installed, in each voting device to include all software modules required to monitor system status and generate machine-level audit reports, to accommodate device control functions performed by voting location officials and maintenance personnel, and to accept and accumulate votes.	

Sub-Category	Req. ID	UVS Requirement (The System will ...)	Comment
Election Creation	A-8	<p>Provide for a unified, integrated centralized database that allows global edits.</p> <p><b>Note:</b> Please describe how the system minimizes the need to update a particular data element in multiple locations for a change made to that data element anywhere within the database. For instance, removing a candidate that appears in multiple ballot styles or changing a voting location designation that appears in multiple places in the database.</p>	
Election Creation	A-9	<p>Provide a test mode which supports testing to validate the correctness of election programming for each voting device and ballot style and ensure that the ballot display corresponds with the installed election program.</p>	
Election Creation	A-10	<p>Be able to receive data electronically from the Secretary of State and counties via electronic storage media or data transfer in an agreed upon format that contains, at a minimum, the following data:</p> <ul style="list-style-type: none"> <li>a. Full candidate name</li> <li>b. Candidate sequence, title and text of ballot questions, and voting language options</li> <li>c. Office name</li> <li>d. Contest name</li> <li>e. Number to vote for each office</li> <li>f. Party affiliation</li> <li>g. Number of eligible registered voters at the precinct</li> <li>h. Number of active registered voters at the precinct</li> </ul>	

Sub-Category	Req. ID	UVS Requirement (The System will ...)	Comment
Election Creation	A-11	Be capable of returning data electronically to the Secretary of State and counties via electronic storage media or other data transfer in an agreed upon format that contains, at a minimum, the following information: <ul style="list-style-type: none"> <li>a. Full candidate name</li> <li>b. Office name</li> <li>c. Contest name</li> <li>d. Number of votes for candidates and ballot questions</li> <li>e. Number of votes against ballot questions</li> <li>f. Number of people voting summary and by party affiliation (if applicable)</li> <li>g. Number of registered voters at the precinct level (by party affiliation if applicable)</li> </ul>	
Election Creation	A-12	Allow the EMS authorized user the ability to create custom voter instructions that may include images.	
Election Creation	A-13	Provide the flexibility to have an election created by a vendor, county, state or other third party and import or export as necessary.	
Election Creation	A-14	Accommodate multiple languages (English and Spanish required). <b>Note:</b> Please explain the capabilities of your system to handle multiple languages.	
Election Creation	A-15	Allow for a mock election setup and support for public use prior to the initiation of a live election.	
Election Creation	A-16	Allow for precinct numbers containing at least 10 digits/characters.	
Ballot Creation	A-17	Provide for standard ballot layouts.	
Ballot Creation	A-18	Provide an authorized user ability to customize the standard ballot layouts.	
Ballot Creation	A-19	Provide an authorized user ability to create new ballot layouts.	

Sub-Category	Req. ID	UVS Requirement (The System will ...)	Comment
Ballot Creation	A-20	<p>Allow for creation of a multi-page ballot.</p> <p><b>Note:</b> Please explain how your system handles the creation of multi-page ballots.</p>	
Ballot Creation	A-21	<p>Have the capability to reprogram a ballot for an electronic voting device or optical paper ballot scanner.</p> <p><b>Note:</b> Please explain the process and procedure, with time frames, required to re-program a ballot on the electronic voting device in the event that there is a change to a name or contest on the ballot in the final few weeks before an election.</p>	
Ballot Creation	A-22	<p>For each election, generate and maintain a contest and candidate database and provide for the production or definition of properly formatted ballots and electronic images. This database will be used by the system to format ballots or edit formatted ballots within the applicable jurisdiction.</p>	
Ballot Creation	A-23	<p>Provide software capability for the creation of newly defined ballot layouts. The system will be designed so as to facilitate error-free definition of ballot layouts for electronic voting equipment and optical paper ballot scanning equipment.</p>	
Ballot Creation	A-24	<p>Provide for the retention of previously defined ballot layouts.</p>	
Ballot Creation	A-25	<p>Provide for the modification of previously defined ballot layouts.</p>	

Sub-Category	Req. ID	UVS Requirement (The System will ...)	Comment
Ballot Creation	A-26	<p>Provide a mechanism for the definition of the ballot, including the definition of the number of allowable choices for each office, contest, measure, and for special voting options such as write-in candidates.</p> <p><b>Note:</b> Please state your solution's maximum number of potentially active voting positions (arranged to identify party affiliations if a primary election), offices and their associated labels and instructions, candidate names and their associated labels and polling instructions, and issues or measures and their associated text and instructions.</p>	
Ballot Creation	A-27	<p>Provide for all voting options and specifications as provided for in the Colorado Revised Statutes, including the requirements for a recall election (C.R.S. § 1-12-18) and instant runoff voting (IRV) (C.R.S. § 1-7-1003).</p> <p><b>Note:</b> Ranked Voting Methods, including IRV, are currently features used in local jurisdiction elections and not at the State or County level. However; since counties often conduct elections for local jurisdictions, please explain the capabilities of your system to create and process a ballot that contains one or more contests requiring a ranked voting and tabulation process.</p>	
Ballot Creation	A-28	Generate sample ballots for each ballot style.	
Ballot Creation	A-29	Generate a consolidated sample ballot containing all races, issues and questions.	

Sub-Category	Req. ID	UVS Requirement (The System will ...)	Comment
Ballot Creation	A-30	<p>Produce ballot content output for paper ballot printing, with the following capabilities:</p> <ul style="list-style-type: none"> <li>a. Accommodate non-proprietary print-ready format (e.g. PDF).</li> <li>b. Accommodate multiple stub sizes within same election.</li> <li>c. Accommodate multiple stubs on a ballot.</li> <li>d. Accommodate variable paper ballot stub sizes up to three (3) inches.</li> <li>e. Customize paper ballots with sequential numbering and static fields on ballot stubs.</li> <li>f. Handle multiple font features.</li> <li>g. Handle special character sets associated only with non-English languages.</li> </ul> <p><b>Note 1:</b> Please provide your ballot size capabilities and layout options.</p> <p><b>Note 2:</b> Please provide information about your system's font capabilities (e.g. typefaces, sizes, kerning and leading, bolding, underscoring, and italics).</p>	
Ballot Processing	A-31	<p>Output ballot content to secure electronic media for use in voting equipment.</p>	
Ballot Processing	A-32	<p>Output ballot content to accommodate accessible voting, including adjustable audio and visual output.</p> <p><b>Note:</b> Please detail capacity limits of data fields for accessible voting (e.g. font sizes, display options).</p>	
Ballot Processing	A-33	<p>Allow authorized users to electronically adjudicate ballots to reflect voter intent, while retaining the originally marked ballot image.</p> <p><b>Note:</b> Please explain the process and time efficiency of ballot adjudication using your system.</p>	

Sub-Category	Req. ID	UVS Requirement (The System will ...)	Comment
Vote Results Reporting	A-34	Report vote tally results by individual upload. <b>Note:</b> For the purposes of this RFP, the Vote Results Reporting requirements are shown as part of the EMS. Some vendors may have a reporting module that is considered separate from their EMS and, if so, can explain that in their response to this requirement.	
Vote Results Reporting	A-35	Report vote tally results by contest jurisdiction-wide.	
Vote Results Reporting	A-36	Report vote tally results by contest by precinct.	
Vote Results Reporting	A-37	Report the total votes for each candidate for each contest, as well as by candidate by precinct.	
Vote Results Reporting	A-38	Report vote tally results by voting location.	
Vote Results Reporting	A-39	Report vote tally results by ballot source (e.g. Early Vote, Election Day, Mail, and Provisional).	
Vote Results Reporting	A-40	Report votes by ballot style.	
Vote Results Reporting	A-41	Report votes by ballot batch.	
Vote Results Reporting	A-42	Report votes by ballot style within precinct.	
Vote Results Reporting	A-43	Report undervotes and overvotes in each contest, with the option to exclude.	
Vote Results Reporting	A-44	Provide capability to report ranked voting results.	
Vote Results Reporting	A-45	Report a summary of results in addition to the detailed Statement of Votes Cast reports.	
Vote Results Reporting	A-46	Report certified write-in candidate results in each contest with the ability to exclude.	

Sub-Category	Req. ID	UVS Requirement (The System will ...)	Comment
Vote Results Reporting	A-47	Import election night voter registration counts for Active and Total voters and report percent turnout relevant to vote tally for both Active and Total registrations.	
Vote Results Reporting	A-48	Export each report in PDF, XLS, TXT, EML and CSV formats.	
Vote Results Reporting	A-49	Provide for Zero reports to be printed prior to first upload.	
Vote Results Reporting	A-50	Allow reports to be run at any time before, during or after the upload process.	
Vote Results Reporting	A-51	Provide customization of report headers (e.g. "Unofficial" or "Final Unofficial"), contest labels and print layout. <b>Note:</b> Please explain any character limitations imposed by your system on labeling, reporting or exporting.	
Vote Results Reporting	A-52	Include creation date and time on all reports.	
Vote Results Reporting	A-53	When the total number of votes cast and counted in any precinct by early voters and mail-in ballot is less than the current threshold of ten, the returns for all such precincts in the political subdivision shall be reported together to maintain privacy, per §1-8-308(b), C.R.S. This is also applicable to property owner ballots. <b>Note:</b> Please explain how your system will accommodate this requirement for all reports to maintain voter privacy.	
Vote Results Reporting	A-54	Allow the minimum threshold number of votes to be changed if the legal requirement changes. This requirement is referring to C.R.S. § 1-8-308(b).	
Vote Results Reporting	A-55	Be able to include or exclude property owner ballot results.	

Sub-Category	Req. ID	UVS Requirement (The System will ...)	Comment
Vote Results Reporting	A-56	Provide an option to suppress a race or candidate from all reports, when withdrawn from ballot.	
Vote Results Reporting	A-57	Provide an easily-readable method to identify the candidate/measure with the most votes in each contest. If more than one winner is possible, identify all winners. <b>Note:</b> System should have this feature as an option, so not used on partial results reports.	
Vote Results Reporting	A-58	Have the capability to report political party designation for each candidate for partisan elections.	
Import/Export	A-59	Import/export ballot information and voter registration information from/to the Colorado's centralized statewide database (SCORE).	
Import/Export	A-60	Display detailed upload status for each portable vote storage media unit (e.g. memory card) by polling location and counting center. For example, we should be able to visually confirm an exact match between the physical portable vote storage media unit being uploaded and the unit identified by the EMS. (e.g. If an authorized user is uploading "Polling Location A, Memory Card 01", onscreen the user should be able to visually confirm that the system is uploading "Polling Location A, Memory Card 01."	
Import/Export	A-61	Prevent the upload of wrong or duplicate portable vote storage media units. <b>Note:</b> Please explain your system's safeguards against errant or multiple uploads from portable vote storage media units.	
Import/Export	A-62	Produce and print a list, at any time in the process, showing which portable vote storage media units have and have not been uploaded.	

Sub-Category	Req. ID	UVS Requirement (The System will ...)	Comment
Import/Export	A-63	Save a report to a local or portable drive for transfer to a networked computer.	
Import/Export	A-64	Display error messages and instructions to recover during importing and exporting operations.	
Data Storage and Processing	A-65	Will maintain election data in a secure environment. <b>Note:</b> Please describe how EMS data is stored and secured from unauthorized access and/or manipulation.	
Data Storage and Processing	A-66	Will provide CDOS the capability to centrally create and distribute election setup data to counties.	
Data Storage and Processing	A-67	Provide a means to upload or transmit vote count results to the EMS from vote collection/tabulation equipment.	
Data Storage and Processing	A-68	Provide statistics of batches (e.g. number of ballots in each batch, number of batches saved, number of batches deleted, number of batches saved). <b>Note:</b> Does your system have a batch size and/or number of batches limitation and, if so, what is it?	
Data Storage and Processing	A-69	Have the ability to delete saved ballot batches from the system. <b>Note:</b> Please explain how your system manages batch accountability identification.	
Data Storage and Processing	A-70	Have data backup capabilities. <b>Note:</b> Please explain any system data backup capabilities and protocols within your system.	
Data Storage and Processing	A-71	Have redundancy capabilities. <b>Note:</b> Please explain any general and real time redundancy features.	

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM B – POLLING LOCATION BALLOT SCANNING AND TABULATION EQUIPMENT				
Requirement Sub-Category	Req. ID	UVS Requirement (The System will ...)	Response Code	Vendor Response
Scanning	B-1	Notify voter and an authorized user of errors before accepting ballot.		
Scanning	B-2	Retain an electronic image of each voted paper ballot in a non-proprietary format. <b>Note:</b> Please describe the format(s) you offer for ballot images.		
Scanning	B-3	Capture votes from paper ballots.		
Scanning	B-4	Accept overvoted ballots upon review.		Append: "...upon review, in such a way as to allow the voter to review each case of an overvote, one case at a time, and to provide clearly understandable options to further review, or cast without further review, the ballot."
Scanning	B-5	Accept undervoted ballots.		
Scanning	B-6	Handle multi-page ballots, including when the pages become separated from each other (votes will count regardless of the sequence pages are scanned or if some pages are not scanned). <b>Note:</b> Please explain how your system accounts for multi-page ballots.		Insert language: "Handle, and reliably account for, multi-page ballots..."  [Note to DoS: Accurate ballot accounting is fundamental to election integrity and reliable ballot accounting has proven a significant challenge with multi-page ballots. We urge Colorado to press vendors to a high standard on this issue, notwithstanding its challenges, because of how important it is to election integrity.]
Scanning	B-7	Display publicly the number of ballots processed.		
Scanning	B-8	Display a Use counter showing the count of all ballots processed on the equipment, which is not reset after an election.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM B – POLLING LOCATION BALLOT SCANNING AND TABULATION EQUIPMENT				
Requirement Sub-Category	Req. ID	UVS Requirement (The System will ...)	Response Code	Vendor Response
Tabulation	B-9	Have the ability to write cast vote records to a secured media device during operation that the EMS can disallow from being tabulated prior to the close of polls on Election Day. <b>Note:</b> Please describe the security your equipment provides for ensuring media is not removed until procedurally authorized.		
Tabulation	B-10	Provide a secure means to upload or transmit vote count results to the EMS.		
Transportability	B-11	Be easily transported by one person. <b>Note:</b> Describe the transportability characteristics of your equipment (e.g. weight, width, height, wheels).		
Supplies	B-12	Provide dust-and-moisture-proof covers for transportation and storage purposes. <b>Note:</b> Please describe your equipment covers.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM C – CENTRAL BALLOT SCANNING AND TABULATION EQUIPMENT				
Requirement Sub-Category	Req. ID	UVS Requirement (The System will ...)	Response Code	Vendor Response
Scanning	C-1	Scan paper ballots into identifiable and locatable batches.		Append: "...locatable batches, including single-ballot batches."  [Note to DoS: This in order to significantly increase the efficiency, and therefore lower the time and cost, of Risk-Limiting Audits.]
Scanning	C-2	Retain an electronic image of each voted paper ballot in a non-proprietary format. <b>Note:</b> Please describe the format(s) you offer for ballot images.		
Scanning	C-3	Verify ballot quantities by batch prior to saving to the system.		
Scanning	C-4	Verify ballot quantities by batch after saving to the system.		
Scanning	C-5	Rerun a batch of ballots, if necessary, without impacting results to date.		
Scanning	C-6	Have the ability to logically delete (not physically) saved ballot batches from the system. <b>Note:</b> Please explain how your system manages batch accountability identification.		
Scanning	C-7	Identify and segregate ballots with overvotes for manual or electronic image review.		
Scanning	C-8	Identify and segregate ballots with write-ins for manual or electronic image review.		
Scanning	C-9	Identify and segregate ballots that cannot be read for manual or electronic image review.		
Scanning	C-10	Identify and segregate ballots that are read as blank for manual or electronic review.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM C – CENTRAL BALLOT SCANNING AND TABULATION EQUIPMENT				
Requirement Sub-Category	Req. ID	UVS Requirement (The System will ...)	Response Code	Vendor Response
Scanning	C-11	Provide information to an authorized user as to why a ballot was segregated.		
Scanning	C-12	Identify a batch of ballots with a unique number and indicate count is zero upon beginning a scan and giving a total number of ballot pages processed at the close of the batch scan.		
Scanning	C-13	Handle scanning of both front and back page of a ballot when data is contained on back of ballot page.		
Scanning	C-14	Handle multi-page ballots, including when the pages become separated from each other (votes will count regardless of the sequence pages are scanned or if some pages are not scanned). <b>Note:</b> Please explain how your system accounts for multi-page ballots when pages are out of order or when all ballot pages are not returned.		<p>“Handle, and reliably account for, multi-page ballots...”</p> <p>[Note to DoS: Accurate ballot accounting is fundamental to election integrity and reliable ballot accounting has proven a significant challenge with multi-page ballots. We urge Colorado to press vendors to a high standard on this issue, notwithstanding its challenges, because of how important it is to election integrity.]</p>
Scanning	C-15	Display publicly the number of ballots processed.		
Scanning	C-16	Display a Use counter showing the count of all ballots processed on the equipment, which is not reset after an election.		
Tabulation	C-17	Capture votes from paper ballots.		
Tabulation	C-18	Accept overvoted ballots upon review.		
Tabulation	C-19	Accept undervoted ballots with or without review.		
Tabulation	C-20	Allow the option to disable or enable review of undervoted ballots.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM C – CENTRAL BALLOT SCANNING AND TABULATION EQUIPMENT				
Requirement Sub-Category	Req. ID	UVS Requirement (The System will ...)	Response Code	Vendor Response
Tabulation	C-21	Have the ability to write cast vote records to a secured media device during operation. <b>Note:</b> Please describe the security your equipment provides for ensuring media is not removed until procedurally authorized.		
Tabulation	C-22	Provide a secure means to upload or transmit vote count results to the EMS.		
Error Handling	C-23	Identify and reject ballots that are from another election.		
Error Handling	C-24	Continue high-speed ballot processing while electronically or physically segregating and sorting ballots to user identified categories that need additional attention. <b>Note 1:</b> Please describe how your system handles these situations: <ul style="list-style-type: none"> <li>a. Ballots are unreadable by the scanner.</li> <li>b. Notifying an authorized user whether a ballot has been scanned successfully or not.</li> <li>c. Notifying an authorized user that a ballot has been previously scanned.</li> <li>d. Identifies where a voter marked the box for a write-in and where the voter did not mark the box, but did enter a write-in candidate on the line.</li> </ul> <b>Note 2:</b> Please describe the processing speed of you high-speed ballot scanner.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM D – ELECTRONIC VOTING EQUIPMENT				
Requirement Sub-Category	Req. ID	UVS Requirement (The System will ...)	Response Code	Vendor Response
Ballot	D-1	Display choices for the contests, candidates and measures of the election for each ballot style.		
Ballot	D-2	When activated for the voter, display prominent ballot identifiers, including precinct, party, and similar identifiers, in order to give the voter the opportunity to verify that they will be voting on the correct ballot.		
Ballot	D-3	Tabulate each voter’s candidate and measure selections as the ballot is cast. <b>Note:</b> This requirement is not applicable to certain ballot marking devices that depend on the produced paper ballot being processed and tabulated elsewhere.		
Ballot	D-4	Have a public counter that displays the number of ballots cast or marked, depending on the functionality of the electronic voting equipment.		
Ballot	D-5	Make clear to the voter how to cast a ballot or print a marked ballot, such that the voter has minimal risk of doing so accidentally, but when the voter intends to cast the ballot or complete the ballot marking session, the action can be easily performed. <b>Note 1:</b> Please describe how voters, including voters with disabilities, will be able to review their write-in input to the ballot interface, edit that input, and confirm that the edits meet their intent. <b>Note 2:</b> Please describe how your electronic voting units provide a method by which voters with disabilities can choose the language of the ballot visually and through audio devices.		
Ballot	D-6	Allow voters, including voters with disabilities, to be able to review their write-in input to the ballot interface, edit that input, and confirm that the edits meet their intent.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM D – ELECTRONIC VOTING EQUIPMENT				
Requirement Sub-Category	Req. ID	UVS Requirement (The System will ...)	Response Code	Vendor Response
Ballot	D-7	Provide a method by which voters with disabilities can choose the language of the ballot visually and through audio devices.		
Accessibility	D-8	Provide electronic voting equipment designed to allow for installation in a voting location accommodating access by voters with disabilities in compliance with the Americans with Disabilities Act (ADA), HAVA and all applicable federal and state laws that address accessibility to voting for persons with disabilities.  <b>Note:</b> Please describe how your system’s features comply with HAVA, ADA and other Federal and State laws that require accessibility for voters with a variety of disabilities, including visual or cognitive impairments. Identify the EAC standards your system meets.		Append: “Ensure that any Ballot Marking Device (BMD) is entirely separate from a tabulation device. If providing a BMD within a common chassis with a tabulating device, such as an optical scanner, ensure and demonstrate that the BMD operates entirely separate from the tabulation device.  [Note to DoS: The point here is that a BMD within a PCOS can be tantamount to a DRE if not required to be separate and non-tabulating.]
Accessibility	D-9	Display, or accommodate, a ballot as defined in accordance with C.R.S. § 1-5-704. The size of a ballot position and the font size of candidate information must be in accordance with Colorado Election Rule 45.  <b>Note:</b> Please stipulate the maximum available positions on the voting device, based on such size of a ballot position and the font size of candidate information, to be used for an election.		
Accessibility	D-10	Include a privacy enclosure or voting booth that contains the electronic voting device(s) designated for voters with disabilities and comply with the Americans with Disabilities Act Accessibility Guidelines (ADAAG) providing sufficient dimensions to allow access to voters who use wheelchairs.  <b>Note:</b> Please explain how your voting device complies with all forward and side reach requirements of the ADA and ADAAG.		
Accessibility	D-11	Include electronic voting units adaptable for voters with disabilities either through		See Comment at D-8

**SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM  
D – ELECTRONIC VOTING EQUIPMENT**

Requirement Sub-Category	Req. ID	UVS Requirement (The System will ...)	Response Code	Vendor Response
		<p>adjustability of the device or the voting booth or inclusion of an auxiliary device. The auxiliary device should also be lightweight and removable making it portable for use on a voter's lap or provide an alternative solution.</p> <p><b>Note 1:</b> Please describe your accessible alternative input devices. List such devices and explain the operation of each device and how it accommodates voters with disabilities.</p> <p><b>Note 2:</b> Please explain how your proposed system accommodates voters with visual disabilities. Include with the description how portions of the displayed ballot may be intensified and/or enhanced, in contrast and font size and then restored to initial size.</p> <p><b>Note 3:</b> Please explain how your electronic voting device can be repositioned to accommodate a variety of voters with disabilities. Include any information about the ability of the voter to independently adjust the device.</p> <p><b>Note 4:</b> Is the voting screen glare-free regardless of positioning?</p> <p><b>Note 5:</b> Please explain any magnifying capacity of the electronic voting device.</p> <p><b>Note 6:</b> If your electronic voting unit uses an activation card, please explain how it may be used easily and independently by voters with disabilities including voters who use wheelchairs and people with visual disabilities.</p> <p><b>Note 7:</b> Please explain how your electronic voting unit adequately provides secrecy for a voter who uses a wheelchair.</p> <p><b>Note 8:</b> Please explain how a voter that cannot read your VVPAT printout can verify the accuracy of their cast votes.</p> <p><b>Note 9:</b> Please describe additional features of your system that are designed to accommodate voters with disabilities.</p>		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM D – ELECTRONIC VOTING EQUIPMENT				
Requirement Sub-Category	Req. ID	UVS Requirement (The System will ...)	Response Code	Vendor Response
Accessibility	D-12	Allow for importing of audio ballot content from an outside source (e.g. candidates or pre-recorded text). <b>Note:</b> Please explain the process and procedure, with time frames, required to re-program the audio read-back on the voting device in the event that there is a change to a name or contest on the ballot in the final few weeks before an election.		
Accessibility	D-13	Allow for voter to change volume and/or speed of audio playback.		
Accessibility	D-14	Provide for audio instructions for the ballot and a mechanism for voters with visual impairments to cast a ballot or print a marked ballot, either on the voting unit itself or on a separate device designed for this purpose. The process shall imitate the process used by sighted voters with the exception of the audio interface.		
Accessibility	D-15	Support an enlarged ballot for voters with visual impairments. Following the casting of a vote or the printing of a marked ballot, the machine must reset to its initial state to accommodate the next voter. <b>Note:</b> If you are proposing a ballot marking device, does it allow for larger print on the printed ballot?		
Accessibility	D-16	Accommodate voters regardless of their ability to read. <b>Note:</b> Please explain how such individuals would be instructed to utilize the audio interface.		
Accessibility	D-17	Allow for connection of personal auxiliary devices, such as sip/puff or jelly switch devices. <b>Note:</b> Please describe such capabilities provided by your system.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM D – ELECTRONIC VOTING EQUIPMENT				
Requirement Sub-Category	Req. ID	UVS Requirement (The System will ...)	Response Code	Vendor Response
Ease of Use	D-18	Be designed so that actions performed by the voter, such as making a vote selection or changing a vote, are easily understood so that errors are prevented to the maximum extent possible, and so that recovery from an erroneous action is facilitated by the features of the system prior to casting the ballot or printing a marked ballot.  <b>Note:</b> Please explain how your proposed system facilitates voter actions prior to casting a ballot or printing a marked ballot.		
Ease of Use	D-19	Accommodate font sizes that are adjustable for ease of sight.		
Ease of Use	D-20	Show the voter a summary screen at the end of the ballot indicating the choices made and/or skipped.		
Ease of Use	D-21	Allow the voter the ability to change a selection until the voter is satisfied with the choice at anytime prior to the final casting of a ballot or printing a marked ballot.  <b>Note:</b> Please explain here how your proposed voting system allows the voter to review and/or modify his/her selections before final casting of the vote or printing of the marked ballot..		
Ease of Use	D-22	Provide a method for the voter to confirm their choices before casting the ballot or printing a marked ballot, signifying to the voter that casting or printing the ballot is irrevocable and directing the voter to confirm their intention to cast or print the ballot, and shall further signify to the voter that the ballot has been cast or printed after the voting session is complete..		
Ease of Use	D-23	Provide a means to demonstrate the operation of the electronic voting device to the voters.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM D – ELECTRONIC VOTING EQUIPMENT				
Requirement Sub-Category	Req. ID	UVS Requirement (The System will ...)	Response Code	Vendor Response
Ease of Use	D-24	Not permit a voter to over-vote a contest and will enable the voter to correct their selections. <b>Note:</b> Please explain how your proposed system shall not allow a voter to over-vote a contest and enable the voter to correct his or her selections.		
Ease of Use	D-25	Warn voters that they have under-voted a contest and permit them to correct or accept the under-vote. <b>Note:</b> Please explain here how your proposed system shall warn voters that they have under-voted a contest and permit them to correct or accept the under-vote.		
Ease of Use	D-26	Provide a means of recording the votes cast for write-in candidates for any contest that allows write-in candidates. This capability shall allow the entry of as many names of candidates as the voter is entitled to select for each contest in compliance with Colorado's Election Law. <b>Note:</b> Please explain how your proposed system allows for write-in votes for any authorized contest.		
Ease of Use	D-27	Allow county personnel to modify the voter instructions for an electronic or audio voting session.		
Ease of Use	D-28	Provide a screen response that would allow a voter to request the list of certified write-ins.		
Ease of Use	D-29	Provide an ability to reset screen calibration. <b>Note:</b> Please explain if your electronic voting equipment produces any warnings when calibration needs to be reset.		
Uninterrupted Operation	D-30	Provide, in case of power interruption, a means for voting operations to continue. This feature shall consist of either an uninterruptible power supply (UPS) or other means to keep electronic voting equipment active.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM D – ELECTRONIC VOTING EQUIPMENT				
Requirement Sub-Category	Req. ID	UVS Requirement (The System will ...)	Response Code	Vendor Response
Uninterrupted Operation	D-31	<p>Provide for continuous uninterrupted operation for a minimum of two hours in case of power failure.</p> <p><b>Note 1:</b> Please specify how long your system will operate without an external power source and under what conditions. If the device does not have a battery backup, what size of UPS will be required to maintain operation for two hours?</p> <p><b>Note 2:</b> Please specify how your system will provide notice of power loss or low-battery state, so that poll workers or election officials can take appropriate steps.</p>		
Uninterrupted Operation	D-32	<p>In the event of the failure of an electronic voting unit, retain a record of all votes cast prior to the failure.</p> <p><b>Note:</b> Please explain how your system retains and reports votes cast in the event of a loss of power.</p>		
Voter Verifiable Paper Trail	D-33	<p>Include, with each voting device, the functionality of a Voter-Verified Paper Audit Trail (VVPAT) that meets all Federal and State Certification requirements. The VVPAT can be in the form of a printed record produced by the voting device or an alternate solution if the voting device is not a Direct Recording Electronic voting system, such as an electronically marked ballot.</p> <p><b>Note 1:</b> Please explain how your proposed voting device complies with this requirement.</p> <p><b>Note 2:</b> Explain if your proposed system has an alternate means of counting a non-ballot type of VVPAT for audit purposes. The alternative means can include but is not limited to the availability of bar codes and readers for the VVPAT.</p>		<a href="#">See Comment at D-8</a>

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM D – ELECTRONIC VOTING EQUIPMENT				
Requirement Sub-Category	Req. ID	UVS Requirement (The System will ...)	Response Code	Vendor Response
Voter Verifiable Paper Trail	D-34	Provide a means for voters with disabilities (visually impaired or unable to read) to review the VVPAT. <b>Note:</b> The review of the VVPAT by voters that cannot see or read the VVPAT requires a feature that enables read-back from the physical VVPAT.		
Voter Verifiable Paper Trail	D-35	Have the capability, if proposing a DRE type machine, for the print on the VVPAT to be large enough and dark enough for voters to verify and for poll workers to read easily in recount. <b>Note:</b> Please explain the type of paper used to record the VVPAT and the characteristics of the paper impression to ensure ease of reading and fade resistance. For instance; 18 point font, bold and double spaced would be preferred.		Replace “DRE type machine” with “touchscreen interface”
Transportability	D-36	Be easily transported. <b>Note:</b> Describe the transportability characteristics of your electronic voting equipment (e.g. weight, width, height, wheels).		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM E – BALLOT ENVELOPE SCANNING AND SIGNATURE VERIFICATION				
Requirement Sub-Category	Req. ID	UVS Requirement (The System will ...)	Response Code	Vendor Response
Mail Ballot Envelope Processing	E-1	<p>Provide hardware with the capability to scan mail ballot envelopes and perform the following functions:</p> <ul style="list-style-type: none"> <li>a. Scan and capture voter ID barcode</li> <li>b. Scan and capture envelope and signature images</li> <li>c. Log envelope as received</li> <li>d. Endorse (customizable) &amp; date/time stamp envelope</li> <li>e. Separate envelopes that may need manual intervention</li> </ul> <p><b>Note:</b> Please provide information about your ballot envelope sorting equipment, including what versions are available for counties with various volumes of envelopes. Can your equipment perform all these above functions in a single pass? If not, please explain the number of passes required and the actions taken on each pass.</p>		
Mail Ballot Envelope Processing	E-2	Be capable of generating an output file, with voter ID and voter’s envelope signature, to be matched with SCORE voter registration data and used in the Automated Signature Verification process.		
Mail Ballot Envelope Processing	E-3	Be capable of updating the mail ballot envelope output file with status values (e.g. received, accepted, rejected) so that the SCORE system can use the output file to update voter registration records.		
Mail Ballot Envelope Processing	E-4	Allow disposition codes to be updated (e.g. from “challenged” to “good”).		
Mail Ballot Envelope Processing	E-5	Be configurable for ballot envelope size and design.		
Mail Ballot Envelope Processing	E-6	Be configurable for thickness detection.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM E – BALLOT ENVELOPE SCANNING AND SIGNATURE VERIFICATION				
Requirement Sub-Category	Req. ID	UVS Requirement (The System will ...)	Response Code	Vendor Response
Mail Ballot Envelope Processing	E-7	Automatically separate envelopes with voter affidavit required, or voter ID required into a separate stack or identify them electronically for easy separation.		
Mail Ballot Envelope Processing	E-8	Have an option for sort/pass to various methods with the ability to customize sorting definition (e.g. style, precinct, district, unaccepted ballots, signature discrepancy and no signature).		
Mail Ballot Envelope Processing	E-9	Provide a high-volume solution of at least 300 envelopes per minute for counties with a large voter population. <b>Note 1:</b> Please specify the throughput capacity on your high-volume envelope processor. <b>Note 2:</b> County size by registered voter population is as follows: Large = GE 80,000 voters Medium = 10,000 – 79,999 voters Small = LT 10,000 voters		
Mail Ballot Envelope Processing	E-10	Provide a low-volume solution for counties with a small or medium voter population. <b>Note:</b> Please specify the throughput capacity on your low-volume envelope processor.		
Mail Ballot Envelope Processing	E-11	Provide configurable reports for tray id, tray count and pieces status.		
Automated Signature Verification	E-12	Provide tested/proven Automated Signature Verification (ASV) software, which can automatically compare a voter’s ballot envelope signature with the SCORE voter registration signature based on a customer selected confidence determination.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM E – BALLOT ENVELOPE SCANNING AND SIGNATURE VERIFICATION				
Requirement Sub-Category	Req. ID	UVS Requirement (The System will ...)	Response Code	Vendor Response
Automated Signature Verification	E-13	Be configurable to meet or exceed a state established acceptance threshold for signature acceptance. <b>Note:</b> The State has not established a threshold requirement yet, but a CDOS Elections group is formed to determine threshold settings and will utilize the capabilities of the proposed ASV solutions to help determine an acceptable threshold.		
Automated Signature Verification	E-14	Provide user activity log records that include full description of all human intervention during the ASV process.		
Automated Signature Verification	E-15	Provide an audit function to verify the accuracy of machine accepted signatures.		
Automated Signature Verification	E-16	Extract returned ballot envelopes for manual review when the signature does not meet the acceptance threshold level, is unreadable, or is missing.		
Automated Signature Verification	E-17	Create a record when the signature does not meet the acceptance threshold level. This record will be used to generate a letter when the signature cannot be manually verified. <b>Note:</b> Please explain your process for creating and using these records.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM F – VENDOR TRAINING & SUPPORT				
Requirement Sub-Category	Req. ID	UVS Requirement (The System will ...)	Response Code	Vendor Response
Hardware & Software Support	F-1	Include availability of vendor support personnel to assist in hardware and software installation and setup onsite.		
Hardware & Software Support	F-2	Include availability of vendor support personnel to assist in hardware and software installation and setup from a remote help desk.		
Training	F-3	Include availability of vendor supported onsite training personnel to train CDOS and County users.		
Training	F-4	Include availability of self-study user training via the Internet or electronic media.		
Voting Period Support	F-5	Provide technical support for all system components beginning 60 days prior to an election and continuing until 30 days after an election for each UVS county for a minimum of two (2) years after implementation.		
Hardware Parts and Supplies	F-6	Include hardware solutions for the UVS that are supported by a supply chain contingency plan. <b>Note:</b> Please provide an explanation of your supply chain contingency planning. The intent of this requirement is to assess the risk to Colorado of one or more of your suppliers not being able to provide needed components. Identify the depth of your supply chain (e.g. one, two or more suppliers deep).		
Hardware Parts and Supplies	F-7	Make equipment parts and supplies available through December 31, 2020.		
Hardware Parts and Supplies	F-8	Not require royalty fees, user fees, or other charges or limitations on the printing of ballots designed or printed on vendor devices.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM G – CERTIFICATION, AUDITING, TESTING, SECURITY AND DOCUMENTATION				
Requirement Sub-Category	Req. ID	UVS Requirement (The System will ...)	Response Code	Vendor Response
Certification	G-1	<p>Be certified by the EAC or another state.</p> <p><b>Note:</b> If not certified, please explain.</p> <p><b>Note:</b> See §1-5-601.5 C.R.S. for Colorado voting system certification compliance with federal regulations. RFP §5.3.11 has a question on certification status of vendor offerings.</p>		
Auditing	G-2	<p>Store sufficient data in a system audit log file to allow the auditing of all operations related to election setup, ballot creation, ballot tabulation, results consolidation and report generation. The audit log file shall contain:</p> <ol style="list-style-type: none"> <li>a. An identification of the program and version being run.</li> <li>b. An identification of the election file being used.</li> <li>c. A record of all options entered by the operator, including operator ID.</li> <li>d. A record of all actions performed by a subsystem of the system.</li> <li>e. A record of all tabulation and consolidation input.</li> <li>f. Audit log records that are created and maintained in the sequence in which operations were performed, with date/time stamps.</li> </ol> <p><b>Note 1:</b> Please explain what audit trail techniques and audit reports are incorporated in your proposed system.</p> <p><b>Note 2:</b> Please provide a list of all audit log files, the file location within the voting system, and the procedures to navigate to and retrieve them from the voting system.</p> <p><b>Note 3:</b> Please describe steps needed to protect the audit logs from possible unintentional or intentional erasure or alteration.</p>		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM G – CERTIFICATION, AUDITING, TESTING, SECURITY AND DOCUMENTATION				
Requirement Sub-Category	Req. ID	UVS Requirement (The System will ...)	Response Code	Vendor Response
Auditing	G-3	Accommodate random audits on electronic voting and tabulation devices.		
Auditing	G-4	Accommodate random audits on paper vote capture and tabulation devices.		
Auditing	G-5	Log all activity on voting equipment including: when turned on/off, by whom, any errors, power fail, power restore, when an error occurred and when an error is resolved.		
Auditing	G-6	Run real-time reports, when needed.		
Auditing	G-7	Run post-election diagnostics on all auditable equipment. <b>Note:</b> Please explain your system's post-election diagnostic capabilities.		
Auditing	G-8	Provide audits for recounts.		Suggested alternative language: "Provide for Risk-Limiting Audits, as outlined at G-10 below, for recounts."
Auditing	G-9	Have a permanent paper record of each vote for audit purposes.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM G – CERTIFICATION, AUDITING, TESTING, SECURITY AND DOCUMENTATION				
Requirement Sub-Category	Req. ID	UVS Requirement (The System will ...)	Response Code	Vendor Response
Auditing	G-10	Support a Risk Limiting Audit on both electronic tabulation and paper ballot tabulation devices. <b>Note 1:</b> Please describe how your proposed system supports the execution of a Risk Limiting Audit. <b>Note 2:</b> §1-7-515 C.R.S. stated that Colorado must begin risk-limiting audits in 2014, but was revised in the 2013 session to extend the start of the requirement to 2017.		<p>“Risk-Limiting Audit” should be defined. One suggestion is “as supported by the American Statistical Association.”</p> <p>A more specific suggestion is, “as set forth in the White Paper, ‘Bretschneider, J., S. Flaherty, S. Goodman, M. Halvorson, R. Johnston, M. Lindeman, R.L. Rivest, P. Smith, and P.B. Stark, 2012. <u><a href="http://statistics.berkeley.edu/~stark/Preprints/RLAwhitepaper12.pdf">Risk-Limiting Post-Election Audits: Why and How.</a></u>’ <u><a href="http://statistics.berkeley.edu/~stark/Preprints/RLAwhitepaper12.pdf">http://statistics.berkeley.edu/~stark/Preprints/RLAwhitepaper12.pdf</a></u> (Supported by the American Statistical Association: <u><a href="http://www.amstat.org/policy/pdfs/StarkEtAlLetterOfSupport.pdf">http://www.amstat.org/policy/pdfs/StarkEtAlLetterOfSupport.pdf</a></u>)</p>
Auditing	G-11	Incorporate a real-time clock as part of the system hardware and all audit log record entries shall include a date/time stamp.		
Auditing	G-12	Use a real-time clock that will continue to run during a power loss.		
Auditing	G-13	Print audit reports on the standard system hardcopy output device if the following conditions are met: <ul style="list-style-type: none"> <li>a. The generation of an audit trail report does not interfere with the production of other output reports.</li> <li>b. The entries can be identified so as to facilitate their recognition, segregation and retention.</li> <li>c. The physical security of the audit record entries can be ensured.</li> </ul>		

<b>SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM G – CERTIFICATION, AUDITING, TESTING, SECURITY AND DOCUMENTATION</b>				
<b>Requirement Sub-Category</b>	<b>Req. ID</b>	<b>UVS Requirement (The System will ...)</b>	<b>Response Code</b>	<b>Vendor Response</b>
Auditing	G-14	Create audit records during the election definition and ballot preparation phases showing completion of the baseline ballot layouts and any modifications to them, a description of the modifications and a date/time stamp.		
Auditing	G-15	Create audit records during the pre-election phase that include electronic and manual data entered and maintained by election personnel, election definitions, instances of all final ballot layouts and the ballot preparation edit event log.		
Auditing	G-16	Create audit records prior to the initiation of ballot counting to verify hardware and software status. These particular audit records shall include the identification of the software release, the identification of the election to be processed and the results of hardware and software diagnostic tests.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM G – CERTIFICATION, AUDITING, TESTING, SECURITY AND DOCUMENTATION				
Requirement Sub-Category	Req. ID	UVS Requirement (The System will ...)	Response Code	Vendor Response
Auditing	G-17	<p>Create in-process audit records containing data documenting system operation during diagnostic routines and any machine generated error and exception messages. Examples of these audit records include:</p> <ul style="list-style-type: none"> <li>a. System startup diagnostic and status messages.</li> <li>b. Checks that pre-count reports show zeroes.</li> <li>c. The source and disposition of system interrupts resulting in entry into exception handling routines.</li> <li>d. All messages generated by exception handlers.</li> <li>e. The identification code and number of occurrences for each hardware and software error or failure.</li> <li>f. All operator actions.</li> <li>g. Notification of system login or access errors, file access errors and physical violations of security.</li> <li>h. Other exception events such as power failures, failure of critical hardware components, data transmission errors, and other types of operating anomalies.</li> </ul>		
Auditing	G-18	<p>Provide an in-process audit report, for use post-election, consisting of data containing a record of votes cast by each voter as each initiates voting and casts a ballot.</p>		
Auditing	G-19	<p>Print reports necessary to perform a manual count as required by Colorado election law and rules.</p> <p><b>Note 1:</b> Please explain how your proposed system can create the reports necessary to perform a manual count.</p> <p><b>Note 2:</b> Please explain how, in the case of a recount, the election can be reconstructed ballot by ballot, while still maintaining voter anonymity.</p>		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM G – CERTIFICATION, AUDITING, TESTING, SECURITY AND DOCUMENTATION				
Requirement Sub-Category	Req. ID	UVS Requirement (The System will ...)	Response Code	Vendor Response
Auditing	G-20	Contain unique, embedded, internal, and traceable serial numbers in system hardware.		
Auditing	G-21	Record audit log entries onto durable non-volatile storage.		
Auditing	G-22	Export audit logs in formats suitable for use by elections officials and the public.		Suggest the formats mentioned in A-48 are specifically mentioned here, thus: Append to the sentence, “including PDF, XLS, TXT, EML and CSV formats.”
Testing	G-23	Be configurable so as to be capable of performing the following tests on all system hardware/software, in compliance with current Colorado statutes and rules: <ul style="list-style-type: none"> <li>a. Hardware test</li> <li>b. Logic and Accuracy Test</li> <li>c. Post-Election Audit</li> <li>d. Pre-Recount Logic and Accuracy Test</li> </ul>		Append to c.: “as defined at G-10 above.”
Testing	G-24	Allow authorized user creation of scripted simulation Logic and Accuracy tests with various patterns (e.g. 1,2,3 or 1,1,1 or 1,2,3,4,5...). <b>Note:</b> Please explain how your system allows for scripted simulation for creating test ballots and electronic voting equipment test input.		
Testing	G-25	Have the capability to test ballot layouts to verify the allowable number of votes for a contest or question and the combinations of voting patterns permitted or required by the using jurisdiction.		
Testing	G-26	Provide capability to permit diagnostic testing of all the major components within each electronic vote capture device.		
Testing	G-27	Ensure non-contamination of voting data through tests of all data paths and memory locations to be used in actual vote recording.		

SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM G – CERTIFICATION, AUDITING, TESTING, SECURITY AND DOCUMENTATION				
Requirement Sub-Category	Req. ID	UVS Requirement (The System will ...)	Response Code	Vendor Response
Testing	G-28	Provide evidence in an audit record that test data has been expunged.		
Testing	G-29	Allow the ability to load and test audio ballots in electronic vote capture equipment.		
Testing	G-30	Provide the ability to print all necessary reports for proofing the results of logic and accuracy testing.		
Security	G-31	Provide an environment whereby all databases and data are maintained with provisions for operational security, access control and auditability. <b>Note 1:</b> Please describe the authentication protocols for access to the EMS database and your system's processes for providing operational security and auditability. <b>Note 2:</b> System security must not obstruct access to event and audit logs.		
Security	G-32	Require dual authentication for access to the EMS and all tabulation equipment.		
Security	G-33	Allow tamper resistant seals to be placed on all equipment openings and data access points. <b>Note:</b> Please describe the security offered by your proposed system relating to tamper resistant seal placements.		
Security	G-34	Allow all access points to equipment to be visible and subject to oversight of seals.		
Security	G-35	Report unauthorized modifications to audit data or audit logs. <b>Note:</b> Please explain your system's capabilities to restrict user authorizations and access rights for creating, reading, modifying, and deleting audit data or logs.		

<b>SYSTEM REQUIREMENTS TABLE for the COLORADO UNIFORM VOTING SYSTEM G – CERTIFICATION, AUDITING, TESTING, SECURITY AND DOCUMENTATION</b>				
<b>Requirement Sub-Category</b>	<b>Req. ID</b>	<b>UVS Requirement (The System will ...)</b>	<b>Response Code</b>	<b>Vendor Response</b>
Security	G-36	Allow for installation and auditing of the “trusted build” per Colorado Election Rule 45.		
Documentation	G-37	Include a clear set of documented instructions for election judges to set up voting equipment. These instructions should be modifiable by county personnel.		
Documentation	G-38	Include documented instructions for troubleshooting voting equipment issues that may arise.		
Documentation	G-39	Include a complete set of User and Technical documentation.		
Documentation	G-40	Include current certification documentation and VSTL and/or state test reports.		