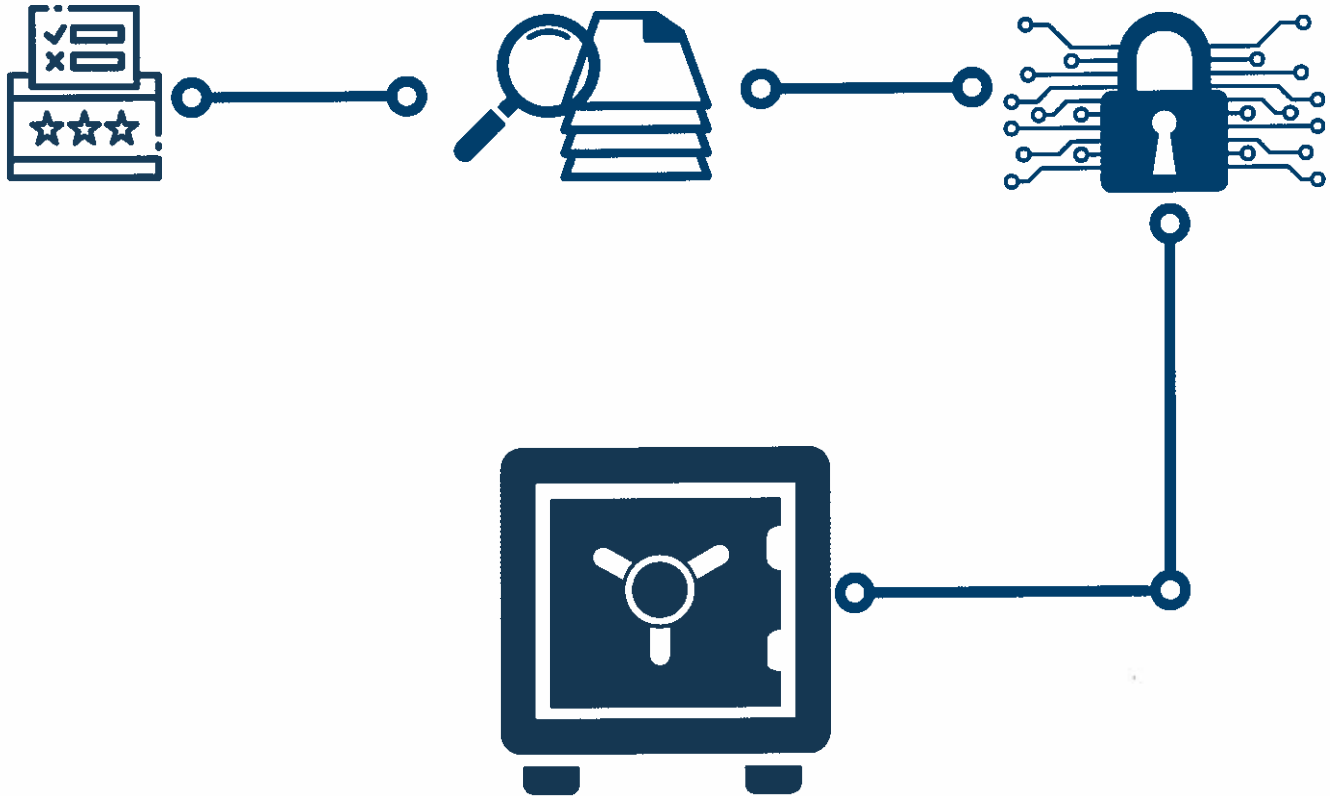




Best Practices: Chain of Custody



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Contents

Introduction.....	2
Purpose.....	2
Policy Statement.....	3
Scope.....	3
Roles and Responsibilities.....	4
Definitions and Acronyms.....	5
Chain of Custody for In-person and Mailed (Absentee) Voting.....	7
In-person Polling Places and Voting Locations.....	7
In-person Polling Places and Voting Locations Chain of Custody Worksheets	8
Mailed (Absentee) and Over-the-Counter Ballots.....	11
Mailed (Absentee) and Over-the-Counter Ballots Chain of Custody Worksheet.....	12
Chain of Custody for Voting Systems, Tabulation, and Audits	13
Voting Systems.....	13
Voting Systems Worksheet	14
Ballot Tabulation & Tabulation Audits	14
Third Party Post-Election Audits and Electronic Discovery Services.....	15
Ballot Tabulation & Tabulation Audit Worksheet.....	18
Third Party Post-Election Audits, Electronic Discovery, and Recounts Worksheet	18
Cybersecurity Considerations.....	20
Chain of Custody Document Examples.....	21
Example 1 – Precinct Election Equipment and Ballot Certification Chain of Custody Form	21
Example 2 – Electronic Pollbook Chain of Custody Form.....	22
Example 3 – Tabulator Closing Chain of Custody Form.....	23
Example 4 – Early Voting, Ballot Marking Device Chain of Custody Form	24
Chain of Custody Infographics	25

Introduction

Chain of custody is essential to a transparent and trustworthy election. Every election office should have written chain of custody procedures available for public inspection prior to every election. Once a chain of custody process is initiated, it must be followed with every step documented. Upon completion, the process should be reviewed and updated based on any lessons learned. This report outlines items election officials should consider when developing or revising their chain of custody procedures for physical election materials, voting systems, and the use of third-party auditors for conducting audits and electronic discovery.

Purpose

Chain of Custody refers to the processes, or paper trail, that documents the transfer of materials from one person (or place) to the next. Every state and local jurisdiction has its own controls for ensuring the chain of custody of election materials is properly maintained. These controls may include locks, seals, audit logs, witness signatures, or other security measures. This document is intended to provide best practices, checklists, and sample forms for maintaining a proper chain of custody related to the successful operation of an election but is not meant to be comprehensive of every election process. Jurisdictions are reminded to implement these voluntary best practices only after reviewing federal, state, and local laws and regulations.

While the chain of custody process varies by jurisdiction, here are few key questions to keep in mind when developing your chain of custody materials:

- Where is the item that is going to be transferred?
- Are adequate safeguards in place?
- Who currently has access to this item?
- What makes this item unique (description, serial number, physical condition, etc....)?
- When and where is this item being transferred (time, date, location)?
- Where is this item being transferred to?
- Who is transferring this item?
- What is the condition of the item to be delivered?
- Who witnessed this transfer?
- When and where did the item arrive?
- What is the condition of the item upon receipt?

The chain of custody of ballots, voting equipment, and associated data is essential to ensure the election system remains trustworthy. Documentation of the chain of custody also provides evidence that all voting procedures were followed. It is a best practice for chain of custody procedures to be clearly defined in advance of every election, well documented and followed consistently throughout the entire election lifecycle or process.

The key to an effective chain of custody is to have a set of procedures which are followed in practice. The procedures should be in writing with all steps documented. Chain of custody should be thought about as a wholistic process that takes all required pieces (e.g., data collection, transparency, processing, review, etc.) into account.



Best Practices: Chain of Custody

The chain of custody of ballots, voting equipment, and associated data is essential to ensure the election system remains trustworthy. Documentation of the chain of custody also provides evidence that all voting procedures were followed. It is a best practice for chain of custody procedures to be clearly defined in advance of every election, well documented and followed consistently throughout the entire election lifecycle or process.

Policy Statement

The recommendations contained in this document are intended for election officials who are responsible for ensuring the trustworthiness of local, state, and federal elections. The physical evidence of an election, including voted ballots and/or a voter verifiable paper audit trail, and voting equipment are the core elements of any election. Chain of custody documents provide evidence that can be used to authenticate election results, corroborate post-election tabulation audits, and demonstrate that election outcomes can be trusted. The recommendations and materials presented provide examples of how the chain of custody can be maintained before, during, and after an election.

Voting equipment may be in the possession of many individuals throughout the voting process, making the chain of custody a critical aspect of ensuring election integrity. Since materials must be transferred multiple times (i.e., to polling places/voting locations, to voters, or to elections offices), most election materials require at least two witnesses when being transferred, and often these witnesses must declare themselves as members of opposing political parties.

Scope

The administrative practices and procedures of how elections are conducted are defined by federal, state, and local statutes, administrative rules and regulations, formal agreements and practices defined by election officials. Elections also rely on multiple different agencies (e.g., United States Post Office, Cybersecurity and Infrastructure Security Agency), inter-governmental departments (e.g., centralized mail rooms, public works departments, centralized technology departments), private shipping companies, facility managers, third party contractors, voting system vendors and voters. With these operating procedures and stakeholders in mind, the scope of this document is to provide election officials and policy makers with recommendations on the areas that should be considered when developing or updating their chain of custody documents and policies for elections.

Roles and Responsibilities

Elections are administered by a mix of full-time and part-time staff, temporary staff who have undergone minimal training, elected and appointed officials and unpaid volunteers. Below are examples of different administrative responsibilities when handling election materials, although the roles and responsibilities for a specific task vary greatly by jurisdiction:

- **Elections Office Staff**
 - Responsible for maintaining voter registration rolls and poll lists.
 - Responsible for ballot design, printing, and distribution.
 - Responsible for mailed (absentee) balloting materials, including ballot requests, signature matching, return envelopes, and other documentation.
 - Responsible for hiring and training poll workers and temporary staff.
 - Responsible for storing, maintaining, and distributing voting equipment.
 - Responsible for media creation, equipment setup, and pre-election testing for all pieces of the voting system.
 - Responsible for auditing voting equipment and systems.
 - Responsible for hiring and training poll workers and temporary staff who will be operating voting equipment.
- **Poll Workers**
 - Responsible for transporting materials to and from polling places or voting locations.
 - Responsible for documenting who voted during an election and which ballots were issued.
 - Responsible for verifying chain of custody documentation.
 - Responsible for setting up voting equipment at polling locations or voting locations.
 - Responsible for verifying seal and serial numbers of all equipment used in the polling location or voting location.
 - Responsible for qualifying and assisting voters to use voting equipment.
 - Responsible for returning voting equipment to the elections office after each election.
- **Election Equipment Vendors**
 - Responsible for initial development and ensuring that all voting equipment has been properly certified at the state and federal levels.
 - Responsible for training election officials on how to use voting equipment.
 - Responsible for providing software upgrades, hardware maintenance, and other critical aspects of the voting system.
- **Additional Staff**
 - Responsible for delivering voting materials and voting machines to polling places or voting locations.
 - Responsible for servicing voting equipment during an election.
 - Responsible for delivering mailed ballots to and from voters.
 - Responsible for printing and shipping election forms, ballots, and other printed materials.



Definitions and Acronyms

Adjudication - Process of resolving cast ballots to reflect voter intent. Common reasons that ballots require adjudication include write-ins, overvotes, marginal machine-readable mark, having no contest selections marked on the entire ballot, or the ballot being unreadable by a scanner.

Ballot - The official presentation of all the contests to be decided in a particular election. Either in paper or electronic format, the mechanism for voters to show their voter preferences.

Ballot Box - A sealed container that holds ballots cast by voters.

Ballot Marking Device - Device that permits contest options to be reviewed on an electronic interface, produces a human readable paper ballot, and does not make any other lasting record of the voter's selections.

Ballot Scanner - Device used to read the voter selection data from a paper ballot or ballot card.

Direct Recording Electronic (DRE) - Vote capture device that allows electronic presentation of a ballot, electronic selection of valid contest options, and electronic storage of contest selections as individuals vote.

E-pollbook - Device that partially automates the process of checking in voters, assigning them the correct ballot style, and marking voters who have been issued a ballot. May be used in place of a traditional paper poll book.

Election materials - Items needed to assist voters and conduct an election.

In-person Voting - Voting before or on Election Day where the voter completes the ballot in person at a designated polling site, elections office, or vote center that is overseen by election officials or poll workers.

Mailed Ballot (Absentee) - A ballot cast by a voter other than in-person at a polling place on election day. Mailed ballots (absentee) are typically mailed to voters but can be issued over the counter from an election's office. Depending on the laws or the jurisdiction, mailed ballots (absentee) can be returned by mail, in a drop box or in-person.

Memory Cartridge (smart card or removable drive) - An electronic data storage device used for storing digital vote totaling information, typically using flash memory.

Overvote - Voting for more than the maximum number of selections allowed in a contest.

Polling Place or Voting Location - Facility to which voters cast in-person ballots.

Post-Election Tabulation Audit - A post-election audit that involves hand-counting a sample of votes on paper records, then comparing those counts to the corresponding vote totals originally reported as a check on the accuracy of election results, and to detect discrepancies using accurate hand-counts of the paper records as the benchmark.

Provisional Ballot - Ballot provided to individuals who claim they are registered and eligible to vote but whose eligibility or registration status cannot be confirmed when they present themselves to vote. Once voted, such ballots must be kept separate from other ballots and are not included in the tabulation until after the voter's eligibility is confirmed. In some jurisdictions this is called an affidavit ballot.

Roster - An official register of electors entitled to vote at an election, used to verify and check in voters prior to issuing them a ballot. Alternatively referred to as a Poll List or List of Voters.

Security Seal - A security mechanism using strategically placed serialized or tamperproof evident materials that alert officials if a device used in the elections process has potentially been altered or accessed without authorization.

Spoiled Ballot - Ballot that has been voted but will not be cast.

Voter Verified Paper Audit Trail (VVPAT) - Paper document containing evidence of a voter's contest selections as cast on a DRE voting device. Voters are able to review the printout prior to casting their ballots.

Voting Booth - An enclosed area in which a person stands for privacy while casting a ballot.

Voting Equipment - All devices, including the voting machine, used to display the ballot, accept voter selections, record voter selections, and tabulate the votes.

Voting System - The total combination of mechanical, electromechanical or electronic equipment (including the software, firmware, and documentation required to program, control, and support the equipment) that is used to define ballots; to cast and count votes; to report or display election results; and to maintain and produce any audit trail information; and the practices and associated documentation used to identify system components and versions of such components; to test the system during its development and maintenance; to maintain records of system errors and defects; to determine specific system changes to be made to a system after the initial qualification of the system; and to make available any materials to the voter (such as notices, instructions, forms or paper ballots).

Write-in - A vote for a candidate that was not listed on the ballot. In some jurisdictions, voters may do this by using a marking device to physically write their choice on the ballot or they may use a keypad, touch screen, or other electronic means to enter the name.

Chain of Custody for In-person and Mailed (Absentee) Voting

In-person Polling Places and Voting Locations

There are multiple materials needed to administer in-person voting, including:

- Ballot scanners/Ballot boxes
- E-pollbooks/Paper Rosters
- Paper ballots/Blank ballot stock/VVPAT
- Ballot marking pens and devices
- Voting machines and printers
- Voting booths
- Signs and voting instructions

Election officials each have their own practices for providing election materials for in-person polling places or voting locations. Some larger items, such as voting equipment, large signs, and voting booths, may be delivered to polling places or voting locations prior to Election Day. Some items may need to be brought to/from the polling place or voting location by poll workers. For each item, chain of custody documentation can provide a record that all election procedures were followed, and that security was maintained.

Following each jurisdiction's written procedures, election officials, or poll workers who are responsible for an election process, should document each time that an item changes custody or a procedure has been followed. Signatures help create an auditable record whenever the equipment, supplies and ballots change hands or location. By signing the chain of custody forms the signers are certifying when they took custody of the voting equipment, supplies, and ballots and delivered them to a particular location.

Seals and other security measures give the people receiving custody of the election materials confidence that the voting equipment, supplies, and ballots were not tampered with, as can best be determined by a visual inspection. It is a best practice to have at least two signatures appended to each document providing evidence that an item changed hands, or an election process was followed.



Best Practices: Witness Signatures

Signatures help create an auditable record whenever the equipment, supplies and ballots change hands or location. By having witnesses sign the chain of custody forms, the signers are certifying when they took custody of the voting equipment, supplies, and ballots and delivered them to a particular location.

Seals and other security measures give the people receiving custody of the election materials confidence that the voting equipment, supplies, and ballots were not tampered with, as can best be determined by a visual inspection. It is a best practice to have at least two signatures appended to each document providing evidence that an item changed hands, or an election process was followed.

The chain of custody documents for in-person voting should include at least the following:

- The name and date of the election
- The name or description of the polling place or voting location, if applicable
- A detailed description of the item or process (e.g., seal numbers verified, number of ballots picked up and delivered to elections office, etc...)
- The date and time chain of custody was transferred, or a process occurred
- Name and signatures of the witnesses who are attesting to the event

Jurisdictions using DREs with VVPATs must ensure the chain of custody of the printed rolls, which is the official paper record of all votes cast on the voting machine, as these are comparable to a voter's hand marked paper ballot when it comes time to conduct an audit or recount. When removed from the VVPAT printer, the roll should be sealed in its container and labeled with the voting location and the DRE number. Additionally, when more than one container is used for a particular DRE, they should be labeled with consecutive numbers and indicate the total number used (i.e. 1 of 3, 2 of 3, etc.).

NOTE: There are technical and procedural concerns while securing the chain of custody for voters with disabilities while also preserving privacy. The best practice is to deploy technology that is universally accessible to ensure a voter's privacy and independence. When a technical solution is unavailable, procedural safeguards should be utilized to mitigate the risk of loss of privacy and independence. Starting with the check-in process, accessible e-pollbooks can allow a voter to sign in electronically and verify their information independently. After check-in, the voter should have access to voting equipment that allows them to mark, cast, and verify their ballot privately and independently. If the equipment does not have features that allow a voter to both mark and cast their ballot independently, procedures must be used to ensure privacy. These procedures should include notifying a voter that their ballot will have to be placed into a privacy sleeve and transferred from the voting machine to a ballot scanner.

In-person Polling Places and Voting Locations Chain of Custody Worksheets

The following worksheets can be used to help determine if all the election supplies needed to administer in-person voting have a documented chain of custody.

Paper Ballots	
Chain of Custody Item	Documented?
Before Polls Open	
✓ The correct number of ballots have been delivered to the polling location.	☐
✓ The correct ballot container has been delivered to the polling location.	☐
✓ All ballot containers and materials have been properly sealed.	☐
After Polls Close	
✓ The total number of voted paper ballots has been reconciled against the total number of voters.	☐
✓ All spoiled ballots have been accounted for.	☐
✓ All provisional ballots have been accounted for.	☐
✓ Any unused ballots have been accounted for.	☐
Returning Materials to the Elections Office	
✓ All ballots have been properly sealed in the correct ballot container(s).	☐
✓ All chain of custody documentation has been verified and signed.	☐

Precinct Ballot Scanners	
Chain of Custody Item	Documented?
Before Polls Open	
✓ The total number of scanners delivered to the polling location has been verified.	☐
✓ All seal and serial numbers have been verified.	☐
✓ Voting equipment peripheral materials (extension cords, surge protectors, batteries, etc.) accounted for.	☐
✓ The equipment shows the correct date and time, and all open-polls reports have been printed.	☐
After Polls Close	
✓ The polls have been closed on all scanners.	☐
✓ All reports have been properly printed and signed, if applicable.	☐
✓ All results reports posted, if applicable.	☐
Returning Materials to the Elections Office	
✓ Scanners secured and properly delivered to the elections office.	☐

Ballot Marking Devices (BMDs)	
Chain of Custody Item	Documented?
Before Polls Open	
✓ The total number of BMDs delivered to the polling location has been verified.	☐
✓ All BMD seal and serial numbers have been verified.	☐
✓ Blank ballot stock is present, and all sheets have been accounted for.	☐
✓ Voter cards (to access a ballot on the device) have been accounted for.	☐
✓ Voter card activation devices are present and accounted for.	☐
✓ Ballot printers are present and accounted for.	☐
✓ Voting equipment peripheral materials (extension cords, surge protectors, batteries, etc.) accounted for.	☐
✓ The equipment shows the correct date and time, and all reports have been printed, if applicable.	☐
✓ All polls have been opened on all BMDs.	☐
After Polls Close	
✓ The polls have been closed on all BMDs.	☐
✓ All reports have been properly printed and signed, if applicable.	☐
Returning Materials to the Elections Office	
✓ BMDs secured and properly delivered to the elections office.	☐

Direct Recording Electronic (DRE) Voting Machines	
Chain of Custody Item	Documented?
Before Polls Open	
✓ The total number of DREs delivered to the polling location has been verified.	☐
✓ All DRE seal and serial numbers have been verified.	☐
✓ Voter cards (to access a ballot on the device) have been accounted for.	☐
✓ Voter card activation devices are present and accounted for.	☐
✓ Voter Verified Paper Audit Trail (VVPAT) printers are present and accounted for.	☐
✓ The equipment shows the correct date and time, and all open-polls reports have been printed.	☐
✓ All polls have been opened on all DREs.	☐
After Polls Close	
✓ The polls have been closed on all DREs.	☐
✓ All reports have been properly printed and signed, if applicable.	☐
✓ Memory cards have been properly secured and verified.	☐
✓ All results reports have been posted, if applicable.	☐
Returning Materials to the Elections Office	
✓ DREs secured and properly delivered to the elections office.	☐

Paper Voter Rosters and/or Electronic Poll Books (EPBs)	
Chain of Custody Item	Documented?
Before Polls Open	
✓ Voter rosters and/or EPBs present and verified.	☐
✓ Seals or security mechanisms verified.	☐
✓ All required certifications and/or oaths have been completed and signed.	☐
After Polls Close	
✓ The number of voters has been reconciled against the total number of ballots cast.	☐
✓ All required certifications and/or oaths have been completed and signed.	☐
Returning Materials to the Elections Office	
✓ All materials have been secured and properly delivered to the elections office.	☐

Ballot Boxes, Voting Booths, Signs, and Other Supplies	
Chain of Custody Item	Documented?
Before Polls Open	
✓ All ballot boxes, voting booths, signs, and other supplies are accounted for.	☐
✓ All materials are properly set up, and required signage displayed.	☐
Returning Materials to the Elections Office	
✓ All materials have been secured and properly delivered to the elections office.	☐

Mailed (Absentee) and Over-the-Counter Ballots

There are points in the life cycle of a mailed ballot that are important to document in a chain of custody, including:

- When ballots are received from a ballot printer
- When voters request a mailed ballot, applicable
- When a mailed ballot is transmitted to a voter
- When a mailed ballot is collected from a voter, drop box or post office
- When a mailed ballot has a defect, such as a missing signature, that could be corrected
- When a mailed ballot is counted
- When a mailed ballot is stored in the custody of an election official

Mailed ballot accounting is an important element of a well-run election. Reconciling the number of ballots mailed with the number of requests received and keeping a daily accounting of the number of ballots received in person, from a drop box or in the mail, provides a record of the number of ballots in the possession of an election official at a given point in time.

It is a best practice to have a log with space for multiple entries to record when seals are broken and replaced on sealed storage containers of mail ballots, with the date, time, detailed reason why it was accessed and signed by no less than two people to provide evidence each time mail ballot containers are accessed.

The chain of custody documents for mailed ballots should include at least the following:

- The name and date of the election
- Who was involved in the decision or completed a process
- Documentation of the number of ballots collected, delivered, or counted
- The date and time a process occurred
- Name and signatures of witnesses who are attesting to the event



Best Practices: Mailed Ballots

Mailed ballot accounting is an important element of a well-run election. Reconciling the number of ballots mailed with the number of requests received and keeping a daily accounting of the number of ballots received in person, from a drop box or in the mail, provides a record of the number of ballots in the possession of an election official at a given point in time.

It is a best practice to have a log with space for multiple entries to record when seals are broken and replaced on sealed storage containers of mail ballots, with the date, time, detailed reason why it was accessed and signed by no less than two people to provide evidence each time mail ballot containers are accessed.

Mailed (Absentee) and Over-the-Counter Ballots Chain of Custody Worksheet

Use this worksheet to determine mailed (absentee) and over-the counter ballots have a documented chain of custody.

Mailed (Absentee) and Over-the-Counter Ballots	
Chain of Custody Item	Documented?
Issuing Ballots	
✓ Total number of pre-printed (and not-yet-voted) ballots verified.	☐
✓ Ballot containers present and secure.	☐
✓ All physical security controls are in place.	☐
✓ Voters are properly registered to vote and/or their applications have been received before issuing ballots, if applicable.	☐
✓ Voters with issued ballots have been documented to prevent a second ballot from being issued prior to following proper procedures.	☐
✓ Proper ballot style is issued, and all other required instructions are included.	☐
✓ Issued ballots have been properly accounted for.	☐
Returned Ballots	
✓ Drop box collection dates and times have been documented.	☐
✓ Mailed ballot collection dates and times have been documented.	☐
✓ Ballots received in-person and/or at a polling location have been documented.	☐
✓ Delivery of collected ballots has been documented.	☐
✓ Sealed ballot envelopes have been checked and signatures verified, if required.	☐
✓ Voting credit has been properly assigned to voters.	☐
✓ Spoiled, defective or ballots with missing required elements have been accounted for, and voters have been followed up with if needed.	☐
✓ Ballots have been sorted and are in the proper secured storage container.	☐
✓ Sealed ballot envelopes have been secured for transporting to counting facility.	☐
✓ Returned ballots have been properly accounted for, prior to separating them from their envelopes.	☐
✓ All mailed ballot envelopes are properly sorted, labeled, and stored, if applicable.	☐
✓ All physical security controls have been documented.	☐
Storing Ballots	
✓ All ballots have been accounted for and are in the proper secured storage container.	☐
✓ All ballot containers have been properly labeled, sealed, and secured.	☐
✓ All physical security controls are in place for storage location.	☐

Chain of Custody for Voting Systems, Tabulation, and Audits

Voting Systems

Each election jurisdiction is responsible for purchasing, maintaining, and using their own voting and tabulation equipment. Most jurisdictions rely on some form of paper ballot, but the method used by election officials to tabulate ballots ranges from a hand count of paper ballots to the use of fully electronic systems that record a vote directly on the device. Electronic systems often involve a small number of voting equipment vendors, and the standards for storage and maintenance of these systems varies greatly by state and local jurisdiction.

Some key questions to keep in mind when maintaining a chain of custody for electronic voting system equipment include:

- Who has access to the hardware and software that is used for ballot creation and results tabulation?
- Who is authorized to make changes to elections databases?
- How often are databases backed-up?
- Are there audit logs that maintain records of when databases were accessed, and are there written procedures to monitor them?
- Who is authorized to load media, transfer equipment, and operate equipment?
- Who is authorized to break a seal on a piece of voting equipment?
- When is breaking a seal and/or altering media authorized?
- Who has access to storage facilities?
- Who monitors storage facilities?
- What security features are in place for physical locations where equipment is used or stored?
- When and where is the voting equipment being transferred (time, date, location)?
- Where is this item being transferred to?
- Who is transferring this item?
- Who witnessed the transfer?
- When and where did the item arrive?
- What is the condition of the item?



Best Practices: Adjudication

Adjudication is a process of resolving cast ballots to reflect voter intent. Common reasons that ballots require adjudication include write-ins, overvotes, marginal machine-readable mark, having no contest selections marked on the entire ballot, or the ballot being unreadable by a scanner.

It is a best practice to document who is making adjudication decisions and have written procedures for how those determinations will be made and how those decisions will be verified in a post-election audit, prior to the election. Clearly written procedures, made in advance, help to ensure consistency in application of election procedures.



Voting Systems Worksheet

Use this worksheet to determine if ballots have a documented chain of custody to ensure that voting systems are secured.

Voting Systems	
Chain of Custody Item	Documented?
✓ Any seals or security mechanisms have been verified.	☐
✓ Any applicable reports have been printed (example: zero reports, or confirmation that ballots are correctly tabulated).	☐
✓ All removable media, voter cards, or other digital records have been accounted for and secured.	☐
✓ All voting system data has been properly backed up to an external device or hard drive.	☐
✓ Each user has a unique username and password.	☐
✓ All systems are secured, and all users are logged out of the system when not under direct supervision from an authorized election official.	☐
✓ All physical security controls are in place.	☐

Ballot Tabulation & Tabulation Audits

Chain of custody documentation should occur at multiple points during the ballot tabulation process. A chain of custody document log can follow a batch of ballots or container throughout the ballot counting route to document important steps in the process, including:

- When ballots are received and prepared for tabulation
- When defective or torn ballots need to be remade to be read by a tabulator
- When ballots are being adjudicated—which is a process of determining how a voter intended to cast their ballot, when a scanner is unable determine how a vote should be tabulated— or in the case of a write-in vote
- After ballots have been tabulated and are ready for storage
- During a post-election tabulation audit
- When ballots are stored after the election has been certified, and during the 22 months they are required to be retained under Federal law

On a physical level, the simple act of restricting the number of hands that touch the materials is the first step in avoiding handling errors and mistakes. On the technology side, the software used to handle the data should have appropriate reporting and audit capabilities. Automation with robust reporting capabilities is the best way to build a solid chain of custody for election items that rely on technology, such as voter registration databases, tabulation equipment and voting machines. The entire election from data management to post-election tabulation audits should be automated as much as is practical and the human role reduced.

Confidence in the trustworthiness of election results starts with the permanent election office staff. Election officials must use due diligence in ensuring chain of custody forms are completed. Inviting the

public to observe the process, either in person or with a video feed, can further ensure protection from accusations of wrongdoing. Transparency and openness are critical for public confidence.

A post-election tabulation audit involves hand-counting a sample of votes on paper records, then comparing those counts to the corresponding vote totals originally reported as a check on the accuracy of election results. Strong chain of custody documentation and procedures can provide confidence the election results are trustworthy, and contain all valid votes cast in an election.

Some ballots cast by voters require an election official to adjudicate, or make an official determination, how a vote should be counted when a scanner is unable to determine how a vote should be tabulated. Common reasons that ballots require adjudication include write-ins, overvotes, marginal machine-readable mark, having no contest selections marked on the entire ballot, or the ballot being unreadable by a scanner. It is a best practice to document who is making adjudication decisions and to publish written procedures for how determinations will be made and how decisions will be verified in a post-election audit, prior to the election. Clearly written procedures, made in advance, help to ensure consistency.

The chain of custody documents for voting systems, ballot tabulation and post-election tabulation audits should include at least the following:

- The name and date of the election
- The precinct/batch number and container number
- The seal and serial number of any equipment being used
- Who was involved in the decision or completed a process
- Documentation of ballot accounting
- The date and time a process occurred
- Name and signatures of employees or volunteers who are attesting to the event

Third Party Post-Election Audits and Electronic Discovery Services

When election systems are being audited or examined by third parties, clear procedures for ensuring the chain of custody is not broken are critical to avoid risks related to the confidentiality, integrity, and availability of the voting system. Here are some key considerations when contracting with a third party for auditing or electronic discovery services:

- **Ask for credentials.** The collection team must be validated to ensure that the collection process is done according to authorized protocols so that all data collected is properly preserved and that no harm is done to the election system or its data. Digital forensics require specialized skillsets, and the audit team should possess certifications or applicable work experience in this specialty. Industry standard certifications are offered by organizations such as the International Association of Computer Investigative Specialists (IACIS) or the Sans Institute.
- **Ensure there are adequate teams or subsets of teams for each part of the process.** The organization of an investigator's teams plays an important role in maintaining the integrity of the process. For example, a three-team setup is common where the first team is composed of

credentialed investigators. It is their job to collect the digital and physical artifacts and document that process utilizing standard procedures. The second team oversees the logging, inventorying, and safeguarding of collection artifacts. The third team oversees copying the original data, fingerprinting it (via hashing) and analyzing the data. While these teams may overlap, it is a best practice to keep the second team small and differentiated from the other two teams. This is important because the task is very different and calls for a different skill set.

- **Logging and Inventorying is critical.** When the artifact (computer or media) is physically collected, document the collection by having the collector sign a form indicating:
 - a. the date
 - b. time
 - c. name of the person(s) from whom the artifact was collected
 - d. a description of the item(s) collected, including unique identifiers (manufacturer name and serial number, if possible, and at least the manufacturer name and model number when the serial number is not apparent) as well as the item's condition (intact seals, damage, signs of tampering).
 - i. **Note:** If the artifact is shipped to an electronic discovery provider, it should only be shipped via a bonded point-to-point carrier. A copy of the form should be provided as a receipt to the person/company from whom the evidence was collected.
 - ii. **Additionally:** If a trained forensic investigator collects the artifact, he or she should complete a lengthier form which also includes the address of the premises and lists the names and versions of any hardware or software tools used to make the collection. This form should also provide space for notes to capture the kinds of details that would help the investigator recall the events surrounding the collection should he or she ever need to testify.
- **Temporary transfer of custody.** As soon after the collection as is practical, an electronic discovery provider needs to take physical custody of the artifacts approved by the election office. Following its written procedures, the employee, or employees responsible for logging the artifact collection should be given custody immediately. It is a best practice to have the provider create a database to capture the log information. This database log should be available to the election office and other interested parties through a secure log-in via the Web. The information available through the database should include at least the following for each item logged:
 - Electronic discovery identification and inventory number (we strongly recommend using a barcode labeling system)
 - Date/Time received
 - Matter name
 - Election Office name
 - Election identification (Title, date, location)
 - Name of person/company/shipper delivering the artifact
 - Description of system(s) (including manufacturer name, model number and unique identifier/serial number, whenever possible)
 - Digital hash of each piece of media, where possible (electronic fingerprint)
 - Name of person receiving the artifact (Logged by)

- Method of verification
- **Copying, Fingerprinting and Analyzing Original Data.** As soon as practical after logging, inventorying, and safeguarding the data, the original artifact(s) should be forensically copied using a tool that does not change the data in any way. Note that many forms of duplication do change the data. Even booting a computer or hard drive with its usual operating system will change the data.
 - a. It is important to only use software and hardware tools that are certified for non-intrusive duplication. It is also important that these tools only be operated by persons who have been trained to operate them.
 - b. As soon as possible after collection, the artifact(s) should be handed off to a subset of the electronic discovery provider's team who are charged with logging and safeguarding the artifact(s).
 - c. As soon as possible after collection, using a non-destructive hashing tool, a hash should be obtained from the media. This hash is a unique electronic fingerprint that allows others to verify that the original evidence was not altered from that point forward and that duplicates of the media are truly identical. The hash of the original media should be compared to the hash of the duplicate media. This step is documented by most media copying hardware. The receipt document generated either manually or by the hardware should be kept with the original evidence, and a copy should be kept with the duplicate media.

NOTE: The electronic discovery process is subject to less criticism if the original evidence is preserved allowing it to be put back into production. If the original evidence is not preserved and properly duplicated, it is not advisable it be placed back in production.

- **Return of the original system.** The system owner should request an immediate return of the evidence and this transaction should be documented in writing with a cover letter and shipped using a highly reliable carrier. The tracking number should be contained in the cover letter and the return process should be detailed in the logging database utilized by the electronic discovery provider.

NOTE: Procedures and expectations for the person/company collecting evidence should be laid out in a procedure document and in an established contract agreement to avoid a break in the chain of custody.

For more information on the importance of hash validation, see [“What is hash validation and why should election officials care?”](#)



Ballot Tabulation & Tabulation Audit Worksheet

Use these worksheets to determine if ballots have a documented chain of custody throughout the tabulation and tabulation audit process.

Tabulated Ballots	
Chain of Custody Item	Documented?
✓ Ballot container(s) properly sealed and secured.	☐
✓ Total number of tabulated ballots has been verified.	☐
✓ Spoiled, damaged, duplicated, and/or adjudicated ballots have been accounted for and verified.	☐
✓ Ballot batch numbers, container labels, or any other identifying information have been properly documented.	☐
✓ All write-in votes have been tallied.	☐
✓ Number of voted ballots reconciled with number of voters with voting credit.	☐
✓ All memory cards or devices with voted ballots have been accounted for.	☐
✓ All ballots properly secured and prepared for proper retention period.	☐

Post-Election Tabulation Audits	
Chain of Custody Item	Documented?
✓ Seal numbers or other security mechanisms have been verified.	☐
✓ Documentation of the total number of ballots to be audited has been verified.	☐
✓ All selected ballots have been properly retrieved by authorized personnel.	☐
✓ Audit conducted using only red (not blue or black) pens.	☐
✓ All ballot tabulation documentation has been verified.	☐
✓ Any discrepancies (total number of ballots, hand count total, etc.) have been documented.	☐
✓ All ballots have been properly accounted for and returned to a secured ballot container.	☐
✓ The ballot container has been secured and witnessed by authorized personnel.	☐

Third Party Post-Election Audits, Electronic Discovery, and Recounts Worksheet

Use this worksheet to ensure that contracts with third parties have been reviewed, and that all requirements of the process have been accounted for, including strict documentation of the chain of custody process.

Contracts for Third Party Audits	
Chain of Custody Item	Documented?
✓ Contract contains a Statement of Work which includes the mission, deliverables, success criteria, scope, and tasks required to meet the objectives.	☐
✓ Third party has provided a process plan that includes the methodology to be used during the audit.	☐
✓ The contract includes a framework that ensures all materials are handled securely, transparently, and consistently.	☐

✓ The contract includes a clear oversight and a quality monitoring plan and ensures the vendor provides regular check-ins, reports, logs, and visibility.	☐
✓ The contract and plan adhere to all requisite local, state, and federal laws.	☐
✓ The contract includes a detailed list of all hardware and software that will be used to collect or inspect data.	☐
✓ The contract contains a timeline which details all milestones, and the expected completion dates for each task.	☐
✓ The contract and plan ensure the security of all materials, including cybersecurity and physical security.	☐
✓ The plan includes details describing how the process will meet requirements for conducting a fair, impartial, and transparent review of all materials.	☐
✓ The third party has submitted references, and all references have been verified.	☐

Third Party Audits	
Chain of Custody Item	Documented?
Third Party Staff	
✓ All credentials have been verified.	☐
✓ Investigative teams and staff have been verified and credentialed.	☐
✓ All contracts and agreements have been reviewed and signed.	☐
Logging Materials	
✓ Each item reviewed contains a label with the date and time the item was reviewed.	☐
✓ All items reviewed by properly credentialed auditors.	☐
✓ Each item contains a description, and documentation of the item's condition.	☐
Transfer Information	
✓ Item identification/inventory number verified.	☐
✓ Date received listed.	☐
✓ Item description documented.	☐
✓ Election date and identifying information documented.	☐
✓ Name of person delivering artifact(s) properly listed.	☐
✓ Name of person receiving the artifact(s) properly listed.	☐
Copying, fingerprinting, and analyzing original data	
✓ Any copied data was properly handled, and original data was not harmed.	☐
✓ All software and hardware used to collect data has been approved for use.	☐
✓ Changes or discrepancies (if any) have been thoroughly documented.	☐
✓ Hash codes have been properly verified.	☐



Cybersecurity Considerations

Additional technology controls should be considered in establishing a strong chain of custody and should be handled with the same care as physical chain of custody measures. In addition to items listed in the above checklists such as backing up election databases and verifying software hash values, the following should also be considered best practices regarding voting equipment:

- **Do not use shared user credentials for voting equipment.** User credentials should be unique to each person and logged in the voting systems. This can be important evidence of who made what changes and when.
 - For systems such as adjudication systems that have teams adjudicating each ballot on a single computer, each team should have a set of unique credentials and you should create a list of which people were assigned to which set of credentials.
- **Before disposing of any equipment, make sure the hard drive has been wiped of any data or software.** This can be accomplished using free software that overwrites hard drive contents numerous times to ensure complete data destruction.
- **When you believe the chain of custody may have been broken, it is a best practice to assess the situation completely, gather the facts, and contact your attorneys, EAC labs, and your system manufacturer.** A risk assessment should be performed to determine the extent of the potential harm based on your findings and final determination regarding how to proceed. After obtaining legal advice that it is safe to do so, wipe the device and reinstall the software and firmware from a trusted source. Examples of potential breaks in chain of custody include transferring the equipment to a vendor for maintenance or repair, to a laboratory for testing, or any other circumstance under which chain of custody cannot be verified.
- **Do not insert rewritable media that has been connected to a public network into a voting system.** For example, when transferring results from an Election Management System to a computer connected to the internet, you should only use write-once media such as a properly formatted CD-ROM or single use USB drives. Alternatively, you may employ an intermediary solution that ensures a device is clean before inserting it back into the voting system.

Chain of Custody Document Examples

Example 1 – Precinct Election Equipment and Ballot Certification Chain of Custody Form

Municipality:	Ward/Precinct:	Election Name:	Election Date:
---------------	----------------	----------------	----------------

1. Election Official Equipment and Ballot Certification:

Ballot Counter Seal #1 _____ Ballot Counter Seal #2 _____

Ballot Box Seal Number: _____

Total number of ballots delivered by elections office: _____

✓ _____
Election Official Signature Date/ Time

✓ _____
Receiving Election Judge Signature Date/Time

2. Opening Election Judge Equipment and Ballot Verification (to be completed prior to opening the polls)

Ballot Counter Seal #1 _____ Ballot Counter Seal #2 _____

Ballot Box Seal Number: _____

Total number of ballots delivered by elections office: _____

Seals are present and the seal numbers verified?

☐ Yes

☐ No (record discrepancy on Incident Log and contact the elections office)

Number of ballots delivered verified?

☐ Yes

☐ No (record discrepancy on Incident Log and contact the elections office)

Opening Election Judge Signatures:

✓ _____ ✓ _____

✓ _____ ✓ _____

3. Closing the Polls Equipment Verification (to be completed after the poll close)

Ballot Counter Seal #1 _____ Ballot Counter Seal #2 _____

Seals are present and the seal numbers verified?

☐ Yes

☐ No (record discrepancy on Incident Log and contact the elections office)

Closing Election Judge Signatures:

✓ _____ ✓ _____

✓ _____ ✓ _____

Example 2 – Electronic Pollbook Chain of Custody Form

County/City:	District/Ward/Precinct:	Election Name & Date:
--------------	-------------------------	-----------------------

Instructions to Election Judges**Before opening the polls:**

- ☐ Print and sign the opening *Ballot Counts Report* and *Voter Counts Report* from each pollbook and attach them to this form.
- ☐ Complete the opening checklist

During the voting day:

- ☐ Verify and record information if you must remove the inner seal during the day

After closing the polls:

- ☐ Print and sign the *Ballot Counts Report* and *Voter Counts Report* from each pollbooks and attach them to this form
- ☐ Complete the opening checklist
- ☐ Ensure that Chief Judges sign the form after the polls close

	Opening						During		Closing		
Pollbook ID	Outer Seal # (on outside of the case)		State Asset Tag# (on back of pollbook)		Inner Seal # (on top lid of pollbook)		Election Judges initial to verify		If Inner Seal was removed during the day, record the reason here.	New Inner Seal #	New Outer Seal # (applied at closing)
	Verify	✓	Verify	✓	Verify	✓	REP	DEM	Record	Record	Record
1											
2											
3											
4											
5											

We certify that the information in this checklist is true and correct:

_____/_____/____ p.m.
Democratic Chief Judge (Date & Time)

_____/_____/____ p.m.
Republican Chief Judge (Date & Time)

Example 3 – Tabulator Closing Chain of Custody Form

County/City:	District/Ward/Precinct:	Election Name & Date:
--------------	-------------------------	-----------------------

Important! Do not discard any seals. All seals must be returned to the elections office with the rest of the materials.

- ☐ Record all seal numbers
- ☐ Sign completed checklist
- ☐ Return this completed report to the elections office in the Red Security Bag

	A	B	C	D	E	F
Tabulator #	Removed Emergency Ballot Compartment Security Seal #	Removed Main Ballot Box Seal #	Public Count #	Protected Count #	Removed Rear Access Door Tamper Tape #	Removed Front Access Door Tamper Tape #
	Record	Record	Record	Record	Record	Record
1						
2						

	G		H		I	J	K	L
Tabulator #	Front Memory Stick Serial #		Rear Memory Stick Serial #		New Tabulator Unit Lid Seal #	Security Seal # on Front of Ballot Transfer Bin	Tamper Tape # on Rear Ballot Transfer Bin	Number of VACs
	Verify	✓	Verify	✓	Record	Record	Record	Record
1								
2								

We certify that the information in this checklist is true and correct:

_____/_____/____ p.m.
✓ Assisting Judge (Date & Time)

_____/_____/____ p.m.
✓ Assisting Judge (Date & Time)

_____/_____/____ p.m.
✓ Democratic Chief Judge (Date & Time)

_____/_____/____ p.m.
✓ Republican Chief Judge (Date & Time)

Example 4 – Early Voting, Ballot Marking Device Chain of Custody Form

Election Date:	
Polling Place/Voting Location:	

Receiving election equipment certification:

BMD #	Seal on Upper Door		Seal on Lower Door	
	Verify	✓	Verify	✓
1				
2				
3				
4				
5				

✓ _____
 Election Official Signature Date

✓ _____
 Receiving Election Judge Signature Date

Use this log to record seal numbers placed on each ballot marking device storage unit each night.

Date	9/04/2021		9/05/2021		9/06/2021		9/07/2021		9/08/2021	
	Seal #	✓	Seal#	✓	Seal#	✓	Seal#	✓	Seal#	✓
BMD 1										
BMD 2										
BMD 3										
BMD 4										
BMD 5										
At least two Clerks must initial to verify										

Use this log to record seal numbers from the evening storage unit, prior to opening the polls each day. If the seal numbers do not match from the above checklist, contact the elections office.

Date	9/05/2021		9/06/2021		9/07/2021		9/08/2021		9/09/2021	
	Seal #	✓	Seal#	✓	Seal#	✓	Seal#	✓	Seal#	✓
BMD 1										
BMD 2										
BMD 3										
BMD 4										
BMD 5										
At least two Clerks must initial to verify										

To be completed prior to releasing the voting equipment back to the elections office

We certify that the above is true and correct.	
✓ _____ Early Voting Clerk Signature Date	✓ _____ Deputy Clerk Signature Date
✓ _____ Poll Watcher Signature Date	✓ _____ Poll Watcher Signature Date

Chain of Custody Infographics

The following pages provide examples of one-page documents that can be used to explain how chain of custody practices are maintained for different types of ballots and voting types. These documents provide an overview of chain of custody procedures for paper ballots, Ballot Marking Devices (BMDs), and Direct Recording Electronic voting machines with a Voter Verifiable Paper Trail (DREs with VVPAT).





Best Practices: Chain of Custody for Paper Ballots



What is Chain of Custody?

Chain of Custody refers to the paper trail that documents the transfer of materials from one person (or place) to another.

Chain of custody documentation can also provide evidence that all proper procedures were followed. For election materials, the chain of custody of ballots and voting equipment is essential to ensure the election system remains trustworthy.

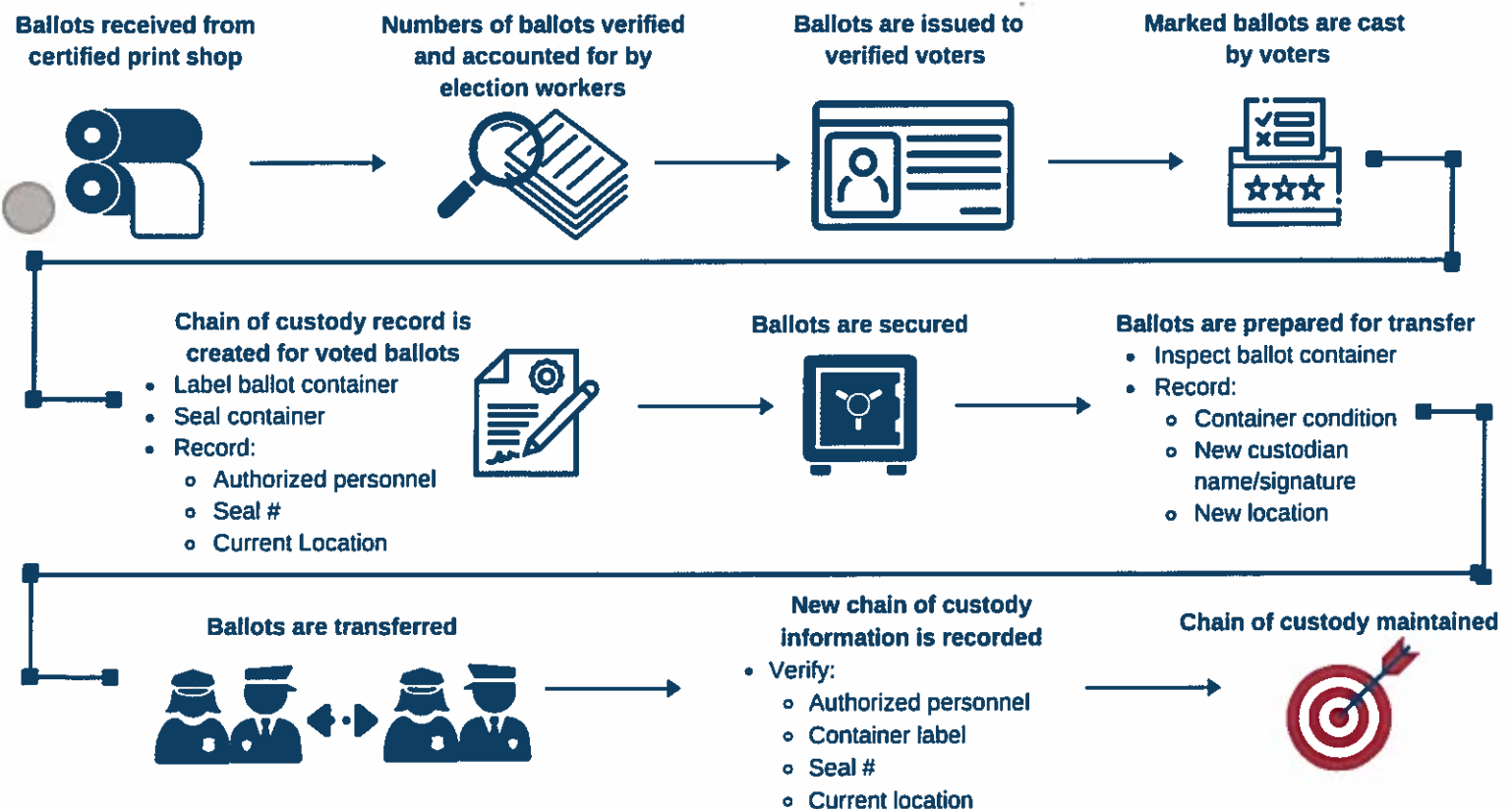
Example: Paper Ballots

The following procedure is one example of how the chain of custody for paper ballots may be maintained (note: Chain of Custody practices may vary depending on local laws and procedures):

It Takes Two (or Three)

No fewer than two people should document a chain of custody. Many jurisdictions require three or more bipartisan (or nonpartisan) participants to document certain parts of the ballot tabulation process.

Chain of Custody Example



Don't Break the Chain

It is critically important to maintain a proper chain of custody. However, if the chain of custody is broken, it is important to document all known information as thoroughly as possible. **Remember:** Keeping a proper chain of custody is more than a best practice - it is essential to encouraging trust in our democracy.



Best Practices: Chain of Custody for Ballot Marking Devices

What is Chain of Custody?

Chain of Custody refers to the paper trail that documents the transfer of materials from one person (or place) to another.

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Example: Ballot Marking Devices

The following procedure is one example of how the chain of custody for ballot marking devices may be maintained (note: Chain of Custody practices may vary depending on local laws and procedures):

It Takes Two (or Three)

No fewer than two people should document a chain of custody. Many jurisdictions require three or more bipartisan (or nonpartisan) participants to document certain parts of the ballot tabulation process.

Chain of Custody Example

Ballot Marking Device seals and serial numbers verified



Blank ballot stock present and total number of sheets accounted for



Ballots are issued to verified voters



Marked ballots are printed and cast by voters



Chain of custody record is created for voted ballots

- Label ballot container
- Seal container
- Record:
 - Authorized personnel
 - Seal #
 - Current Location



Ballots are secured



Ballots are prepared for transfer

- Inspect ballot container
- Record:
 - Container condition
 - New custodian name/signature
 - New location

Ballots are transferred



New chain of custody information is recorded

- Verify:
 - Authorized personnel
 - Container label
 - Seal #
 - Current location

Chain of custody maintained



Don't Break the Chain

It is critically important to maintain a proper chain of custody. However, if the chain of custody is broken, it is important to document all known information as thoroughly as possible. **Remember:** Keeping a proper chain of custody is more than a best practice - it is essential to encouraging trust in our democracy.



Best Practices: Chain of Custody for DREs with VVPAT

What is Chain of Custody?

Chain of Custody refers to the paper trail that documents the transfer of materials from one person (or place) to another.

Chain of custody documentation can also provide evidence that all proper procedures were followed. For election materials, the chain of custody of ballots and voting equipment is essential to ensure the election system remains trustworthy.



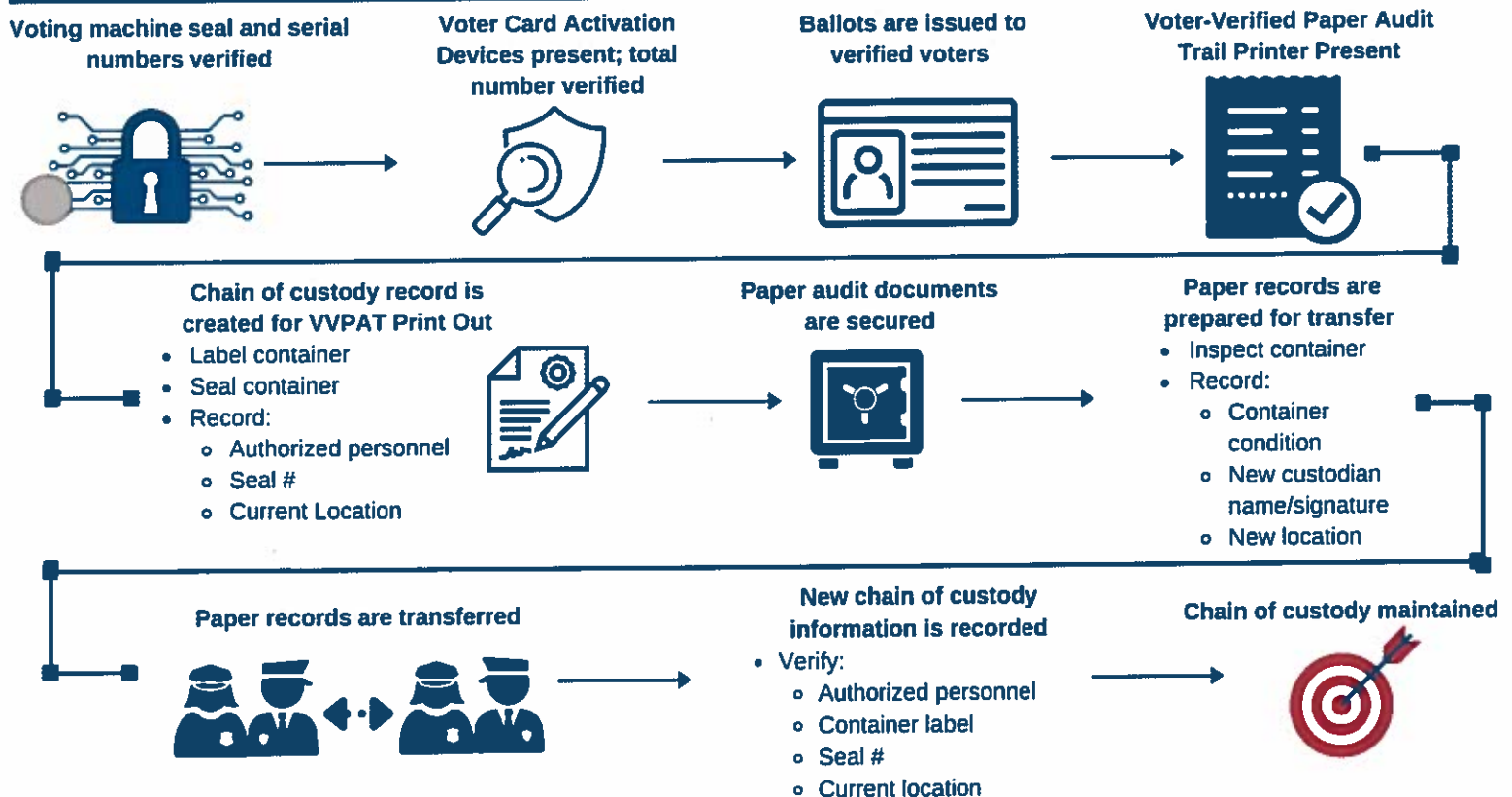
Example: Direct-Recording Electronic Voting Machines (DREs) with Voter-Verified Paper Audit Trail (VVPAT)

The following procedure is one example of how the chain of custody for DREs may be maintained (note: Chain of Custody practices may vary depending on local laws and procedures):

It Takes Two (or Three)

No fewer than two people should document a chain of custody. Many jurisdictions require three or more bipartisan (or nonpartisan) participants to document certain parts of the ballot tabulation process.

Chain of Custody Example



Don't Break the Chain

It is critically important to maintain a proper chain of custody. However, if the chain of custody is broken, it is important to document all known information as thoroughly as possible. **Remember:** Keeping a proper chain of custody is more than a best practice - it is essential to encouraging trust in our democracy.

