★ VIRGINIA ★
DEPARTMENT *of* ELECTIONS

the Handbook

Chapter 4

Voting Equipment and Electronic Pollbooks

August 2024

4. VOTING EQUIPMENT

REQUIRED FORMS	ADDITIONAL RESOURCES
Voting Equipment Testing and Preparation Form – ELECT 633	Election Assistance Commission's Logic and Accuracy Testing ELECT Election Security Webpage
REFERENCES	**REGULATIONS**
Voting Systems Security Policy Ballot on Demand Systems Certification Standards Virginia Voting Systems Certification Standards Virginia Electronic Pollbook Certification Standards	**1VAC20-60-50** *Overfull Optical Ballot Scanner Container* **1VAC20-60-70** *Mandatory logic and accuracy testing for electronic pollbooks* **§24.2-625.1**. *Voting equipment security* **§24.2-632**. *Voting equipment custodians*

4.1 CHAPTER ORGANIZATION

The purpose of this chapter is to provide an overview of important aspects of voting equipment. §4.2 discusses the required state certification of voting systems used for elections in the Commonwealth. §4.3 provides information on Ballot on Demand voting equipment. §4. 4 provides information on electronic pollbooks. §4.5 discusses Ranked Choice Voting and the software used. §4.6 provides information on voting equipment. §4.7 provides information about equipment custodians and chain of custody for secured equipment §4.8 provides a brief outline to testing the equipment in the logic and accuracy testing each locality must complete prior to Election Day. §4.9 discusses voting equipment security and audits. Lastly, §4.10 outlines certain aspects FOIA that the local electoral board and general registrar should consider surrounding the security of voting systems.

4.2 STATE CERTIFICATION OF VOTING SYSTEMS

The State Board of Elections has established a voting system certification scheme that examines the vendors' voting systems and the ballots designed to be used with these systems.[1] Voting systems are defined in §24.2-101 of the Code of Virginia as electronic voting and counting machines used in elections, ballot scanner machines, on-demand ballot printing systems, and ballot marking devices used to manufacture or mark ballots to be cast by voters on electronic voting and counting machines. All voting systems must be approved by the State Board prior to their use in an election and must be tested in an actual or mock election in one or more counties or cities.[2] A governing body cannot adopt the use of any voting system that has not been approved by the State Board.

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[1] *See* Code of Virginia §24.2-629. *See also* ELECT, Voting System Certification Standard.
[2] *Id.*

VIRGINIA
DEPARTMENT *of* ELECTIONS

Modification to an existing voting system that has been previously certified will, in general, invalidate the results of the prior certification unless and until it can be determined by the State Board of Elections that the change does not affect the overall flow of program control or the manner in which ballots are interpreted, and the vote data are processed. No change of any kind can be made to any voting system software or firmware unless the Department of Elections has been informed of the proposed change and determined whether it will require recertification of the system.

Should a previously approved voting system be shown to no longer comply with the standards adopted by the State Board or be shown to have critical software or hardware issues the Board, at its discretion, may decertify the voting system.[3]

The State Board of Elections has determined that Direct Recording Electronic (DRE) Systems no longer provide the security needed to ensure protection from third-party interference; thus, these systems were and remain decertified and prohibited from use in any election taking place in the Commonwealth.[4] Voting systems must be capable of retaining and printing each ballot cast, in order for it to receive State Board approval for certification.[5]

4.3 STATE BOARD CERTIFICATION OF BALLOT ON DEMAND SYSTEMS

In 2022, the definition of a voting system, pursuant to §24.2-101, was expanded to include Ballot on Demand (BOD) systems.[6] BOD systems are stand-alone units that print ballots for each precinct/ballot style within a locality. These systems are typically used during early voting to provide the appropriate ballot style to a voter at check-in but may also be used on Election Day if, for example, a locality runs out of a certain ballot style. Pursuant to §24.2-629 of the Code of Virginia, the State Board must approve of any "voting system" in use in the Commonwealth.[7] The Ballot on Demand System Certification Standards can be found on ELECT's election security page.[8]

4.4 STATE CERTIFICATION OF ELECTRONIC POLLBOOKS

The State Board of Elections has established an electronic pollbook certification scheme that provides a formal and organized process for vendors to follow when seeking state certification for an electronic pollbook (EPB) system in Virginia.[9]

Any modification to the hardware, software, firmware, infrastructure, or any component of a certified EPB, that is not determined to be de minimis, will invalidate the prior certification unless ELECT can review and provide an assurance to the SBE that the change does not affect the accuracy, reliability, security, usability, or accessibility of the system.[10]

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[3] *Id.*
[4] *See* Code of Virginia §24.2-626.
[5] *See* Code of Virginia §24.2-629.
[6] *See* Code of Virginia, §24.2-101.
[7] *See* Code of Virginia, §24.2-629.
[8] *See* ELECT, Virginia Ballot on Demand Systems Certification Standards.
[9] *See* ELECT, Election Security webpage
[10] *See* ELECT, Electronic Pollbook Certification Standard.

ELECT reserves the right to examine any previously certified EPB system for any reason at any time. EPB systems that do not comply with the policies, guidelines and directives regarding recertification as adopted and modified by the SBE from time to time may be decertified. The Department will work with vendors to resolve issues, but ultimately, the SBE reserves the right to decertify the EPB system. An EPB system that has been decertified by the State Board of Elections cannot be used for elections held in Virginia and cannot be purchased by localities to conduct elections.

4.5 STATE CERTIFICATION OF RANKED CHOICE VOTING TABULATION SOFTWARE

The State Board of Elections has approved the use of a ranked choice voting (RCV) tabulation software, Universal RCV Tabulator v1.2.0 (RCTab). RCTab is a federally tested open-source software that meets the Voluntary Voting System Guidelines (VVSG) established by the U.S. Elections Assistance Commission. RCTab does not fall under the definition of a voting system as it does not count the ballots cast but rather tabulates the votes displayed on the Cast Vote Record produced by the electronic voting system. Thus, a method was developed to ensure the security of RCTab and can be found in the approval report on Forms warehouse.[11]

4.6 VOTING EQUIPMENT

An **optical ballot scanning machine** counts marks made on paper by the voter. The tool used to make these marks is called the marking device. A polling place typically needs one optical ballot scanning machine for proper voting operation with certain exceptions for presidential elections.[12]

All localities are required to use a voting system at every precinct and for all elections held in the county, the city, or any part of the county or city as per Virginia Code §24.2-626.[13] While choosing a voting and counting system is at the discretion of the local electoral board, the systems chosen must be from the State Board of Elections' approved vendor and system list.

Localities may also experiment with new voting systems in one or more precincts.[14] A new system may be one that has already been certified for use by the Department of Elections, or it may be one that is still in the testing stage. In either case, the electoral board must have approval from the State Board of Elections for experimental use of election equipment.[15]

4.6.1 Purchasing Equipment

The governing body of each county and city is responsible for purchasing the voting machines that have been approved by the State Board.[16] For contracting purposes, the Department of Elections may negotiate a government rate for procuring machines; however, a local governing body is not required to use these contracts and should refer to local procurement procedures.

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[11] *See* ELECT, Ranked Choice Voting Tabulation Software Approval.
[12] *See* Code of Virginia, §24.2-627.
[13] *See* Code of Virginia §24.2-626.
[14] *See* Code of Virginia §24.2-630.
[15] *Id.*
[16] *See* Code of Virginia §24.2-626.

4.6.2   Number of Voting Machines Required

Each precinct is required to deploy a minimum number of ballot scanner machines based on the number of registered voters in the precinct.[17] In determining the number of registered voters, absentee voters may be excluded.[18] As previously mentioned, DREs are no longer permitted for use in elections in the Commonwealth. The number of ballot scanner machines required for an election is significantly lower than the required number for DREs previously set in code.

- Each precinct must have at least one scanner and one voting booth with a marking device for each 425 registered voters.[19]

- During a presidential election, a precinct with more than 4,000 registered voters will be required to have two ballot scanning machines. This requirement may change if the governing body of the county or city, in consultation with the general registrar and local electoral board, determines a second ballot scanning machine is unnecessary. [20]

4.6.3   Maintaining Digital Ballot Images

If your locality's voting system creates digital ballot images, these records must be maintained with the Clerk of the Circuit Court for twenty-two months for federal elections, pursuant to 52 U.S.C. § 20701 and §24.2-669, or for one year for any other election, pursuant to §24.2-669.[21] A locality may choose to transfer these records from the original data storage device to another device to ensure compliance with federal law. Any locality choosing to transfer records to another device should ensure proper transfer prior to sealing the records. To complete these processes, you should work closely with your vendor. If a locality decides to host a ranked choice voting contest, their voting equipment must be able to produce a digital ballot image.

4.7   CUSTODIANS

The voting equipment custodian is an individual identified by the electoral board or the general registrar to oversee the programming, configuration, and testing of voting systems in the locality.[22] The custodian programs and prepares voting and counting equipment and is charged with overseeing and instructing the vendor technician in programming, testing, calibrating, and delivery of the equipment.[23]

The electoral board and general registrar are responsible for choosing a custodian and are required to appoint an individual to this position at least 30 days before each election. Any individual within this position must sign an oath prior to taking the position.[24]

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[17] *See Code of Virginia §24.2-627.*
[18] *Id.*
[19] *Id.*
[20] *Id.*
[21] See 52 U.S.C. § 20701. *See Code of Virginia §24.2-669.*
[22] *See Code of Virginia §24.2-632.*
[23] *Id.*
[24] *Id.*

The electoral board may assign a board member or deputy registrar to serve without pay as a custodian; however, if the presence of a board member and the custodian is required, the same individual is prohibited from serving in both positions.[25]

With the approval of the Department of Elections, the electoral board or general registrar may contract with the voting equipment vendor or another contractor for the purpose of programming, preparing, and maintaining the voting equipment. The voting equipment custodians shall instruct and supervise the vendor or contractor technicians and oversee the programming, testing, calibrating, and delivering of the equipment. The vendor or contractor technicians shall be sworn to perform their duties honestly and faithfully.[26]

4.8 LOGIC AND ACCURACY TESTING

Logic and accuracy testing is an integral part of preparing for an election. Each machine and electronic poll book (not a sampling of machines) that will be used in an election must be tested prior to that election to ensure it has been programmed correctly and is functioning properly. This includes the ADA accessible voting systems required pursuant to §24.2-626.1.[27] The logic and accuracy test for voting machines will also uncover any ballot printing or coding issues that may affect accurate and complete tabulation.

Before the logic and accuracy testing of voting machines for any election, the general registrar must provide a written notice to the chairman of the local committee of each political party, or for an election in which no candidate is a party nominee and which is held when no other election having party nominees is being conducted, to the candidates.[28]

The notice must provide the time and place where the machines will be tested and state that the political party or candidate receiving the notice may have one representative present while the equipment is tested.[29] The representatives must be given an opportunity to see that the equipment is in proper condition for use at the election and that machines are properly sealed after testing.[30]

Each machine should be tested with enough ballots or votes to substantiate that each machine recorded the correct number of votes for each candidate. An electoral board member, general registrar, or a designated representative, must be present during this process and must certify the results from each machine.[31] A representative should be used only if it is impracticable for a board member or the general registrar to be present.[32] This representative cannot be the custodian or a vendor or contractor technician who was responsible for programming the ballot software, electronic activation devices, or electronic storage media.

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[25] *Id.*
[26] *Id.*
[27] *See* Code of Virginia §24.2-626.1.
[28] *See* Code of Virginia §24.2-633.
[29] *Id.*
[30] *Id.*
[31] *Id.*
[32] *See* Code of Virginia §24.2-632. *See* 2006 Op. Va. Atty. Gen. 58 (September 15, 2006).

Form ELECT-633 must be submitted electronically to the Department of Elections after logic and accuracy testing is complete for the voting machines.[33]

Per Virginia Administrative Code 1VAC20-60-70, logic and accuracy testing for electronic poll books must performed by 12:00 pm on the day before the election and testing must be certified to ELECT.[34] EPBs must be tested to ensure the proper election (or elections in the case of a dual primary) is loaded, the applicable voter registration files were downloaded so that all absentee ballot information is present, and that all precincts show the correct ballot style(s) for voters in the precinct.

Unlike logic and accuracy testing for voting machines, testing of EPBs does not require notice to be sent to the chairman of the local committee of each political party.

Frequently Asked Questions

Can a candidate or her representative request to attend the L&A testing of voting machines?

Yes. The general registrar of each locality may exercise discretion in considering whether to grant a candidate's request to attend the testing. If the general registrar permits the requesting candidate to attend the testing, she/he must, as soon as reasonably possible, contact all other candidates for that office to provide an equal opportunity.

Can a general registrar proactively provide notice of the L&A testing to all candidates?

The general registrar must provide equal notice to all candidates or their representatives if they choose to do this. For example, a general registrar should not provide notice to some candidates by telephone and notice by mail to others.

Conducting logic and accuracy testing for electronic pollbooks identifies potential problems within the data files or election setup that might impact the voter check-in process. Carrying out these tests on pollbooks is instrumental in detecting any issues that might lead to either minor or major complications on the day of the election. Electronic pollbooks should be tested with the real data files of the election to verify that each precinct is present, correct ballot styles are assigned to several voters across party lines and password-protected access is in place according to the designated roles at the polling locations.

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[33] *See* ELECT, Formswarehouse, Formsite Links.
[34] *See* Virginia Administrative Code, 1VAC20-60-70.

4.9 VOTING EQUIPMENT SECURITY

The electoral board or the general registrar of each locality must develop and annually update written plans and procedures to ensure the security and integrity of its electronic voting system.[35]The local electoral board is responsible for the security of all voting systems, including electronic pollbooks. The State requires each locality to develop a written security plan and review the plan annually.[36] A cover letter confirming the review and updating of the plans is signed by the electoral board and general registrar must be submitted annually through the Annual Voting Security System Plan Review survey in Formsite as directed by the Department of Elections.[37]

4.9.1 Risk-limiting Audits

Va. Code §24.2-671.2 requires the Department of Elections supervise a risk-limiting audit (RLA), which is performed by the localities. The purpose of the audit is to verify that the electronic voting systems have accurately reported the outcome of an election.[38] In the Commonwealth, there are two methods for performing an RLA, ballot polling and batch comparison. Details regarding these methods are covered in the RLA Manual.[39] Additionally, local electoral boards may apply for an RLA of a race wholly contained within the jurisdiction of the local electoral board, pursuant to §24.2-671.2(D).[40]

The Department of Elections will coordinate and has established procedures relating to the audit, which can be found in the RLA Manual.[41] The local electoral board is required to submit the results of the audit to the Department. The Department is required to submit a report to the State Board detailing the results of the audited election results and analysis of any detected discrepancies.

4.10 VIRGINIA FREEDOM OF INFORMATION ACT (FOIA)

There are limited exemptions from VFOIA public meeting and records disclosure requirements for voting equipment security issues. For reference, please be aware that "records of the Department of Elections or of a local electoral board, to the extent such records describe protocols for maintaining the security of ballots or voting and counting equipment, or reveal the results of risk assessments of specific local electoral procedures, the release of which would compromise the security of any election, shall be confidential and excluded from inspection and copying under the Virginia Freedom of Information Act (FOIA)."[42]

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[35] *See Code of Virginia* §24.2-625.1.
[36] *Id.*
[37] *See* ELECT, Formswarehouse, Formsite Links.
[38] *See Code of Virginia* §24.2-671.2.
[39] *See* ELECT, RLA Manual.
[40] *See Code of Virginia,* §24.2-671.2. *See Virginia Administrative Code* 1VAC20-60-80.
[41] *Id.*
[42] *See Code of Virginia* §24.2-625.1.

An electoral board of the State Board of Elections may close a meeting to discuss security protocols and conduct security compliance site visits preceded and followed by open meetings about the visits.[43] Records describing security protocols or specific risk assessments that could compromise election security if released are exempt from disclosure.

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[43] *Id.*