★ VIRGINIA ★
DEPARTMENT of ELECTIONS

Virginia
Ballot on Demand Systems
Certification Standards

August 2022

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Chapter 1 – Introduction

1.1. Purpose of Procedures

Pursuant to § 24.2-629, the State Board of Elections must approve of the use of all electronic voting systems in the Commonwealth. During the 2022 Virginia General Assembly Session, the definition of a voting system was expanded to *now* include Ballot on Demand systems (BOD). Ballot on Demand 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. BOD systems are an important and necessary tool for localities to utilize in the reporting of absentee ballots by precinct. The procedures described in this document provide a formal and organized process for vendors to follow when seeking state certification of Ballot on Demand systems (BOD) in Virginia. These procedures are designed to:

1. Ensure conformity with Virginia election laws relating to the acquisition and use of BOD systems;

2. Evaluate and certify BOD systems marketed by vendors for use in Virginia;

3. Evaluate and re-certify or additional capabilities and changes in the method of BOD system operations previously approved or certified for use in Virginia;

4. Standardize certification and recertification of BOD systems.

1.2. Specific Requirements

1. Compliance with the Code of Virginia and the policies and regulations issued by the State Board of Elections (SBE) or Department of Elections (ELECT) must be substantiated through the State Testing conducted by ELECT and locality officials.

2. Any modification to the hardware, software, firmware or any component of the BOD system 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; see the Appendix G for the De Minimis Change Guidelines that are applicable.

After July 2, 2022, BOD systems must be certified by the SBE to be purchased or used in the conduct of elections held in the Commonwealth of Virginia.

ELECT reserves the right to reexamine any previously certified BOD system for any reason at any time. Any BOD system that does not pass acceptance testing will not be certified. In addition, the SBE reserves the right to not certify any BOD system if the vendor does not comply with any of the following requirements:

1. Notify ELECT of any incident, anomaly, or security-related breach experienced in an election jurisdiction as soon as possible or in 24 hours of knowledge

2. Report to ELECT within 30 calendar days of knowledge of any changes to Corporate Information, including:

    a. Business Entity and Structure

    b. Parent and Subsidiary companies

    c. Capital or equity structure

    d. Control; identity of any individual, entity, partnership, or organization owning a controlling interest

    e. Investment by any individual, entity, partnership, or organization in an amount that exceeds 5% of the vendor's net cash flow from the prior reporting year

    f. Third-party vendors

    g. Good Standing status, credit rating

3. Submit any modifications to a previously certified BOD system to ELECT for review within 30 calendar days from modification; see Appendix G & J for appropriate reporting process

4. If the operating system or any component has reached and/or will reach the Last Date of Mainstream Support within 18 months send an upgrade plan with target date(s) to ELECT.

5. Update all software with the latest patching and vulnerability updates in alignment with Appendix D.

NOTE: The SBE reserves the right to require new testing when changes to regulations and/or standards occur.

Chapter 2: Basis for Acceptance, Approval and Certification

2.1. – State Testing and Evaluation

State Testing will evaluate the performance of a BOD system seeking certification to ensure that it complies with all applicable requirements in the Code of Virginia and the SBE and ELECT regulations and policies.

ELECT will examine the essential system functions, operational procedures, user guides, documents and reviews from product users.

The BOD system must demonstrate accuracy, reliability, security, and usability throughout all testing phases.

State Testing will examine all system operations and procedures, including:

1. Loading files into BOD system and printing ballots

2. Accurately maintain whole and separate count(s) of ballot printed by precinct(s) distinguishable by ballot style(s), including provisional ballots, if the voting systems used by the locality provides the functionality

3. Provides an intuitive and easy to navigate user interface

4. Perform data and operational integrity tests and display an appropriate error message when the BOD fails to print

5. System monitoring and notification of system errors, including:

    a. Perform a self-test upon start up

    b. Visible display indicating power supply

6. Data preservation to maintain a printable report of activity

7. If the BOD system has connectivity with electronic pollbooks (EPBs), any interruption of connection, BODs should retain all printing information upon restoration of connectivity between EPBs.

8. Audit Report(s) of the number of ballots printed and styles in a readable format.

2.2. Ballot on Demand - Hardware, Software, Firmware, or Component Elements

All equipment used in a BOD system shall be examined to determine its suitability for election use according to the appropriate procedures contained in this document.

Equipment to be tested shall be identical in form and function with production units.

Engineering or development prototypes are not acceptable.

Any modification to existing hardware, firmware, or other components will invalidate the prior approval by the SBE 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.

BOD systems generally utilize vendor-designed software operating on a variety of commercial-off the-shelf hardware devices. Approval shall be provided to only similarly identical, and previously designated, hardware and operating systems at the time of approval.

2.3. BOD System Software Elements

BOD system software shall be examined and tested to ensure that it adheres to performance standards.

BOD applications must be compatible with all computers, devices, operating system, platforms as specified in the system requirements.

Any modifications to existing software will invalidate the prior approval by the SBE unless ELECT can review and provide an assurance to the SBE that the change does not affect the accuracy, reliability, security, or usability of the system.

Chapter 3: Review and Approval Process

3.1. Summary of Process

The State certification is limited to the final Ballot of Demand systems that are provided by voting technology/system vendors certified in the state and have been used in full production environment and available for immediate installation. The certification review process goes through five phases. At the end of each phase, ELECT will evaluate the results to determine the approval status.

Five Phases of the Certification and Review Process:

1. Request from Vendor
2. Preliminary Review
3. Data Flow documentation
4. On-Site Testing
5. Approval by the SBE

Phase 1: Request from Vendor

A vendor will request an approval for either a specific BOD system, software, firmware, hardware, and/or modification to an existing approved BOD system. This request should include the following information:

1. BOD Application Request Form, signed by a company officer; see Appendix H
2. Documentation that the proposed BOD system has never been denied or withdrawn in any state
4. Eight copies (or a digital file) of a brief overview description of the BOD system (Marketing Brochure, usually sufficient for the description)
5. A list of all states where the proposed BOD system version is currently used
6. The BOD system applicant seeking certification shall be responsible for associated costs of the testing. ELECT has set a fee of $500.00 per vendor. Testing will be held on site at localities.

    a. The check or money order is a non-refundable fee.
    b. All fees must be collected before the certification will begin; checks or money orders should be made payable to Treasurer of Virginia.

7. Corporate Information* must clearly identify all items.

a. History and description of the business including the year established, products and services offered, areas served, branch offices, subsidiary and parent companies, capital and equity structure, identity of any individual, entity, partnership, or organization owning a controlling interest, and the identity of any investor whose investments have an aggregate value that exceeds more than 5% of the vendor's net cash flow in any reporting year

b. Management and staff organization, number of full time and part-time employees by category, and resumes of key employees who will assist Virginia localities in acquiring the system if it is authorized for use

c. Certified financial statements for current and past three (3) fiscal years

5. Certificate of Good Standing and credit rating issued within the last year

6. If the Corporate Information is incomplete or the items in the package are not clearly identified, the entire package could be returned to the vendor.

7. The evaluation process will be scheduled after the documents are received and reviewed.

8. Documentation:
Include system architecture, network, and data flow diagrams and to clearly specify all applicable components and any connectivity.

a. Customer Maintenance, Repair & Troubleshooting Manual: Documentation that is normally supplied to the customer for use by the person(s) who will provide maintenance, repair, and troubleshooting of the system
b. Operations Manual: Documentation that is normally supplied to the customer for use by the person(s) who will operate the system
c. User Guide and Documents: The vendor should provide the following: A quick reference guide with detailed instructions for an election officer to set up, use, and shut down the BOD system
d. Clear model of BOD system architecture with the following documentations: End User Documentation on the BOD system
e. A list of customers who are using or have previously used the BOD system
f. The description of any known incidents or anomalies involving the functioning of the BOD system
g. Recommended Security Practices

***NOTE*:** If the BOD system is certified, ELECT will retain the Corporate Information as long as the BOD system is marketed or used in Virginia. ELECT will sign a statement of confidentiality for Corporate Information only. Proprietary Information: Prior to or upon submission of its certification request, the vendor shall identify any information in its request and/or accompanying materials that it believes should be treated as confidential and proprietary. Furthermore, the vendor must state the reasons why such information should be treated as confidential and proprietary. "Identify" means that the information must be clearly marked with a justification as to why the information should be treated as confidential and proprietary information. A vendor shall not designate as proprietary information (a) the entire certification request or (b) any portion of the certification request that does not contain trade secrets or proprietary information. ELECT cannot guarantee the extent to which any material provided will be exempt from disclosure in litigation or otherwise. ELECT, however, agrees to provide the vendor with five (5) days' notice prior to disclosing such material to third parties so that the vendor has the opportunity to seek relief from a court prior to the disclosure of such materials by ELECT.

9. Vendor's capacity to provide, including:

On-Site Support and Technical Support within the Service Level Agreement on: Election Day (defined as the start of the Early Voting period up to and including Election Day; Within 60 days before Election Day; Resolution to outstanding issue(s), repair, maintenance, and service requests within 30 days

10. Maintenance Services, Pricing, and Financing Options:

A list of maintenance services with price. Terms for replacing a component or EPB system. Available financing options for purchase or lease

11. Warranty:

The vendor should provide a list of warranty specifications to include the following:

a. The period and extent of the warranty
b. Repair or replacement
c. The circumstances under which equipment is replaced rather than repaired
d. The method by which a user requests such replacement
e. Warranty coverage and costs

12. Software License Agreement BOD Certification

a. Vendor's internal quality assurance procedure, internal or external test reports, and software that can be used to demonstrate the various functions of the BOD system
b. Vendors should also verify that the version of the applications submitted are identical to the version that is in the locality

13. Non-Disclosure Agreement: *If applicable*.

Phase 2: Preliminary Review

ELECT's designee will review the documentation, Corporate Information and other materials provided, and notify the vendor of any deficiencies. Certification of the BOD system will not proceed beyond this phase until the documentation and Corporate Information are complete. ELECT's designee will notify the vendor to provide a locality that has purchased or plan to purchase the following for certification evaluation:

1. Production working model of the BOD to run through all phases of testing, including:

a. All hardware, software, and firmware necessary to run the BOD system

b. Software shall be provided in a format readable by the BOD hardware that are being submitted for certification

c. All commercial-off-the-shelf software and necessary drivers, including the operating system, any software applications for logging, reporting, printing, etc.

d. Any other components recommended by the manufacturer for use

2. A release to other states which have decertified the system or prior versions of the system to respond to any requests for information from the Commonwealth of Virginia

3. Any other materials and equipment deemed necessary by the ELECT's designee, who will conduct a preliminary analysis

ELECT's designee will review the Corporate Information and other materials to prepare a Certification Proposal, which includes:

1. Components of the BOD system to be certified

2. Financial stability and sustainability of the vendor to maintain product support and contractual agreement for the BOD system

3. Preliminary analysis of the documentation

Phase 3: The vendor should submit the documentation to ELECT's designee. The vendor must provide written confirmation that they will use only vendor specified ballot stock in the BOD system. The vendor must provide a Test Plan to ELECT and the locality prior to testing. The testing plan must print ballots for all precincts in a locality or print ballots for 10 precincts, whichever number is higher, to be used in testing.

Phase 4: On-Site Testing - ELECT will coordinate with a local jurisdiction(s) and vendor(s) to test the BOD system(s). With the vendor representative present, an Electoral Board member, Elections Director (General Registrar) from the local jurisdiction, and ELECT designee will oversee the testing of the BOD system. The testing results will be signed-by a member of the Electoral Board, the General Registrar, the vendor's representative, and ELECT's designee.

Phase 5: Approval by the SBE based on the report provided from ELECT's designee with the Acceptance Testing Results from the On-Site Testing and other information in their possession, the SBE will decide whether the BOD system will be certified for use in the Commonwealth of Virginia. The State Board of Elections will confirm in writing any BOD system that the State Board of Elections determines to be capable of printing ballot cards on ballot stock designated by voting system vendors. Certifications are valid until revoked by the State Board of Elections.

3.2. Acceptance Testing and Approval Process

It is the responsibility of both the vendor and the local jurisdiction to ensure that a BOD system that is purchased for use in the Commonwealth of Virginia has been certified by the SBE. It is the responsibility of the vendor to submit any modifications to a previously certified BOD system to the ELECT for review. If any questions arise involving the certification of a BOD system in use in Virginia, ELECT shall verify that the BOD system in use is identical to the BOD system submitted for certification. Any unauthorized modifications to a certified system may result in decertification of the system by the SBE or bar a BOD system vendor from receiving certification of BOD systems in the future with the Commonwealth of Virginia.

3.3. Incomplete Certification Process

If the certification process is terminated, the vendor will forfeit all fees received by ELECT. Any certification process terminated under this provision must be re-initiated from Phase 1. The vendor is responsible to pay all outstanding balance due to ELECT before ELECT accepts subsequent requests from the vendor. ELECT reserves the right to terminate the certification process when:

1. Vendor does not respond to a request from ELECT within 90 days
2. ELECT issues any concerns regarding the certification
3. The Vendor withdraws from the process
4. The system fails the acceptance/certification test

APPENDIX – A

GLOSSARY

Ballot on Demand (BOD) System – A stand-alone system that prints ballots for each precinct/ballot style within a locality.

De Minimis Change – A minimum change to a certified BOD system's hardware, software, or data. The nature of changes will not materially alter the system's reliability, functionality, capability, or operation. Under no circumstance shall a change be considered De Minimis Change, if it has reasonable and identifiable potential to impact the system's performance.

Department of Elections (ELECT) – ELECT conducts the SBE's administrative and programmatic operations and discharges the board's duties consistent with delegated authority.

Election Officer – A registered voter in Virginia appointed by a local electoral board to serve at a polling place for any election.

Officers of Election - must attend training conducted by the electoral board or the general registrar. Some of their duties on Election Day (Early Voting) include identifying qualified voters and checking them in on the pollbooks; handing voters their correct ballots; telling voters the proper procedure for inserting ballots into the voting machine; and, when applicable, providing a voter with a provisional ballot.

Precinct – A precinct is a geographic area within a locality or a town, established by ordinance by the local governing body. As per the Code of Virginia § 24.2-307, the "governing body of each county and city may establish as many precincts as it deems necessary." A precinct must be wholly contained in any district used to elect members of the local governing body. The local governing body also determines the location of the polling place where residents vote. State Board of Elections (SBE) – The State Board of Elections is authorized to supervise, coordinate, and adopt regulations governing the work of local electoral boards, registrars, and officers of election.

Acceptance Test - As required by the Code of Virginia §24.2-629 (E) and the procurement process, the local jurisdiction with the assistance of state officials or locality officials will conduct the Acceptance Testing.

APPENDIX B – Contacts

The Department of Elections. The certification request package should be sent to:

Virginia Department of Elections
ATTN: BOD System Certification
1100 Bank Street, 1st Floor
Richmond, Virginia 23219-3497

All other inquiries should be sent to:

Email: info@elections.virginia.gov

APPENDIX C - Acceptance Test

The local jurisdiction will examine that the purchased or leased system to be installed is identical to the certified system and that the installed equipment and/or software are fully functional and compliant with the administrative and statutory requirements of the jurisdiction. The state requires localities to perform hash testing of applications software, as well as, send a letter to ELECT, as required by the procurement process, to confirm that the versions of all software and model(s) of equipment received are identical to the certified system.

As part of the acceptance test the vendor will demonstrate the system's ability to execute its designed functionality, including:

1. Data and operational integrity safeguards

2. System monitoring and notification of system errors, including:

    a. Visible display indicating power supply

    b. Visible display indicating system connections

3. Comply with and enable voter and operator compliance with all applicable procedural, regulatory, and statutory requirements

4. Produce an audit report on number of ballots printed and ballot styles

5. During an interruption of a connection or power, BODs should retain print jobs data of ballots already processed

APPENDIX D - Software Patching Guidelines

All vendors must comply with the policies, guidelines, and directives regarding software patching of BOD systems as adopted and modified by the SBE from time to time.

APPENDIX E - Recertification Guidelines

All vendors must comply with the policies, guidelines, and directives regarding recertification of BOD systems as adopted and modified by the SBE from time to time. If there is evidence of a material non-compliance, ELECT will work with the vendor to resolve the issue, and ultimately the SBE reserves the right to decertify the BOD system. A BOD system that has been decertified by the SBE cannot be used for elections held in the Commonwealth of Virginia and cannot be purchased by localities to conduct elections.

APPENDIX F - BOD System Modifications & Product

End of Life Planning BOD System Modifications

The process for reporting modification will be determined by ELECT based upon policies, guidelines, and directives as adopted and modified by the SBE from time to time.

Product End of Life Planning "End-of-life" (EOL) is a term used with respect to product (hardware/software/component) supplied to customers, indicating that the product is in the end of its useful life (from the vendor's point of view), and a vendor stops sustaining it; i.e. vendor limits or ends support or production for the product. Product support during EOL varies by product. Depending on the vendor, EOL may differ from end of service life, which has the added distinction that a vendor of systems or software will no longer provide maintenance, troubleshooting or other support.

For example, Extended Support is the period following the end of Mainstream Support. The definitions of Last Date of Mainstream Support and Extended Support, as applicable to decertification/recertification and associated policies and procedures, will be determined by ELECT based upon policies, guidelines, and directives as adopted and modified by the SBE from time to time. As of initial adoption of this standard by the SBE, the definitions are as follows:

Mainstream Support: The first phase of the product life cycle; when support is complimentary

Extended Support: The phase following Mainstream Support, in which support is no longer complimentary

Last Date of Mainstream Support: The last day of Mainstream Support Policies and procedures applicable to decertification/recertification of BOD systems which contain software or hardware components that have and/or will reach the Last Date of Mainstream

Support within 18 months, will be determined by ELECT based upon policies, guidelines, and directives as adopted and modified by the SBE from time to time. A BOD system could still be decertified even if an upgrade plan is submitted. This could happen for a variety of reasons, such as a vendor is not showing progress in meeting their upgrade plan.

APPENDIX G – De Minimis Change Guidelines

To request a De Minimis change the procedure begins with correspondence (email or letter) and submission of the De Minimis Change Form in APPENDIX J. The correspondence begins the process to evaluate whether the De Minimis change will be approved for use on Ballot on Demand Systems certified in Virginia.

De Minimis Changes should have the following characteristics:

1. Update a discrete component of the system and do not impact overall system functionality.

2. Do not affect the accuracy of the component or system.

3. Do not negatively impact the functionality, performance, accessibility, usability, safety, or security of a component or system.

4. Do not alter the overall configuration of the certified system.

5. Can be reviewed and/or tested by ELECT's personnel in a short amount of time.

APPENDIX H - Ballot on Demand (BOD) Certification Application Request Form

The company officer or designee who is responsible for the Ballot on Demand System (BOD) should complete this form. With this signature, the company officer agrees to a release for other states that may have decertified the BOD to respond to any questions by ELECT.

This application must be signed by a company officer and enclosed in the BOD Certification Request Package which begins with a letter to ELECT requesting certification of the Ballot on Demand system.

Name of Company: _____

Name and Title of Corporate Officer: _____

Contact Phone Number: _____

Email Address: _____

Primary Address of Company: _____

City, State, Zip Code: _____

I reviewed and confirmed that the BOD meets the requirements of the Virginia Ballot on Demand (BOD) Certification Standard. My company will comply with additional requests in a timely manner to complete this certification.

Signature of Corporate Officer:

_____Date: _____

Please note the following requirements:

Applicants must provide all documentation necessary for the identification of the full system configuration submitted for evaluation.

After a completed application is accepted by ELECT, testing shall be completed by ELECT's designee, a locality's General Registrar/Elections Director and an Electoral Board member and a representative from the vendor.

No vendor, company, or person shall sell, lease, or contract with a jurisdiction for the use of a ballot on demand system unless it has been approved by the State Board of Elections starting July 1, 2022.

APPENDIX I - REQUEST PACKET FOR BALLOT ON DEMAND SYSTEM

Vendor Name: _____Application Date: _____

SYSTEM NAME AND VERSION: _____

IDENTIFICATION OF SYSTEM COMPONENTS:

Type - Indicate whether the component is "New," being "Updated," or contains "No Change."

Name (Model #) - Provide the official name and model number of the component. (*Identify the following for each hardware component of this system and provide a brief description.):*

Version - Provide the exact version number of any software/firmware that runs on the component. (*Identify the following for each software or firmware component of this system and provide a brief description.)*

Documentation:

- Financials for the last three years
- Marketing brochures (8 copies or a digital file) for BOD system
- Provide identifying photos of the hardware components of the system. Photos of the ballot on demand systems should be submitted in .JPG, .BMP, .GIF or .TIF format.
- System overview that explains specifications of the system architecture, configurations, option settings and parameters for all software, firmware, and hardware (including COTS).
- Vendors must provide detailed use procedures, providing all information necessary for system use by all personnel who support activities with regard to all system functions and operations. The document shall include step-by step instructions. The end user should be able to utilize the system from setup to shut down based on the document alone.
- Vendors must confirm in writing the capability of the ballot on demand system to print all ballot styles for a locality.
- Vendors must confirm in writing that they will use only vendor approved specified ballot stock/cards for the voting system of the locality.
- All documents supplied must be current for the version for which approval is being requested.

*All confidential documents must be marked confidential. Confidential and proprietary information of ballot on demand systems are exempt from FOIA based on (24.2-625.1) and will not be shared by ELECT.

Documents must be titled and submitted to:

Karen Hoyt-Stewart, ELECT
Virginia Department of Elections
1100 Bank Street, 1st Floor
Richmond, VA 23219

Karen.Hoyt-Stewart@elections.virginia.gov

APPENDIX J - Virginia State Board of Elections

Request for De Minimis Change for Ballot on Demand (BOD) systems

In accordance with the State Certification of Ballot on Demand Requirements and Procedures, SBE has adopted guidelines to manage hardware/software related changes to certified Ballot on Demand (BOD) systems.

To request a De Minimis change the procedure begins with correspondence (email or letter) from the vendor to the Secretary of the State Board of Elections. This letter shall begin the process to evaluate whether the De Minimis change will be approved for use on Ballot on Demand Systems certified in Virginia.

De Minimis Changes should have the following characteristics:

1. Update a discrete component of the system and do not impact overall system functionality.
2. Do not affect the accuracy of the component or system.
3. Do not negatively impact the functionality, performance, accessibility, usability, safety, or security of a component or system.
4. Do not alter the overall configuration of the certified system.
5. Can be reviewed and/or tested by ELECT's personnel in a short amount of time.

Vendor description of the De Minimis Change: _____

_____

Description of the facts giving rise to or necessitating the change: _____

_____

Document any potential impact to election officials currently using the system and any required notifications to those officials. _____

_____

Signature of Company Officer: _____Date: _____

ELECT's Action: Received by: _____Date:_____

Reviewed by: _____Date: _____

APPROVED / DENIED

☐ ☐

Vendor Notified of Status by: (initials) _____Date: _____