Qualification Test Report
Democracy Live
LiveBallot™, Version 3.0.38

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Florida Department of State
Division of Elections
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Executive Summary

In May 2015, Democracy Live submitted an initial application requesting approval of its electronic ballot delivery system (EBDS) application, LiveBallot™ Version 3.0, with Runbeck Election Services, Inc.'s Simulo™ automatic ballot duplication system (ABDS), for use with Election Systems and Software's EVS and Unity voting systems and Dominion Voting System's Democracy Suite, GEMS, and Sequoia voting systems.

This release is a modification of LiveBallot™ 1.9.1, which was granted interim approval through September 30, 2015. This modification includes:

- A modified method for importing data from the voting system
- A modified ballot display on the voter interface
- Updated instructions detailing how to administer the LiveBallot™ website
- An optional Quick Response Code (QR Code) included on the marked/printed ballot for use with Runbeck Election Services, Inc. (RES)'s Simulo™ ABDS

After several iterations of review, testing, and collaboration with the vendor, Democracy Live submitted a satisfactory version to the Bureau of Voting Systems Certification (BVSC) in November 2015. Final qualification testing took place in Tallahassee, Florida during November – December and results affirm that LiveBallot™, Version 3.0.38 and Simulo™ 1.4.7 meet the applicable requirements of Florida Statutes and Administrative Rules, as well as the BVSC's Electronic Ballot Delivery System Specifications and Requirements [1] (EBDS Spec). BVSC therefore recommends final approval of LiveBallot™, Version 3.0.38 and Simulo™ 1.4.7 for use by counties with the Democracy Suite, EVS, GEMS, and Unity voting systems.

Due to administrative issues, Democracy Live removed the Sequoia voting system from testing with LiveBallot™ 3.0.38. In order to accommodate any county with the Sequoia voting system that wishes to use Democracy Live's services, BVSC recommends interim approval through January 1, 2018 of the previously interim approved LiveBallot™, Version 1.9.1 with Sequoia WinEDS.

[1] EBDS Spec, Version 4, December 16, 2013.

Introduction/System Overview

On May 4, 2015, Democracy Live submitted an application, which requested approval of its electronic ballot delivery system application, LiveBallot™ 3.0, with Runbeck Election Services, Inc., Simulo™ ABDS, for use with Election Systems and Software's EVS and Unity voting systems and Dominion Voting System's Democracy Suite, GEMS, and Sequoia voting systems.

The Democracy Live LiveBallot™ system is a web application available to county elections staff and voters with the use of any web-enabled computer. The system allows absentee voters to retrieve and return, by mail or fax, an absentee ballot to the county Supervisor of Elections (SOE) office. The system consists of a voter interface and an administrative website and can include a printed barcode on the marked, printed ballot, which allows it to be machine duplicated using Runbeck Election Services, Inc. Simulo™ automatic ballot duplication system and a ballot-on-demand printer.

The voter interface website allows a voter to log on using name, birthdate, and/or other county-specified data. When the voter's credentials have been appropriately authenticated by the system, the voter's proper ballot is retrieved/displayed. The voter then marks selections for each contest, including write-ins if they are included on the ballot. After marking is complete, the voter has an opportunity to review contest selections and is notified if any contest has been undervoted. Upon voter approval, the ballot is finalized, and the voter is instructed to download the ballot return package. The ballot return package contains the marked ballot, optionally with a QR code to use with the Simulo™ ABDS, the voter affidavit, and appropriate instructions depending on whether it will be returned by mail or fax.

The administrative interface website is used to create, maintain, and administer the LiveBallot™ election database for the county. It allows a county to import voter registration, precinct, and other county information, and to create election information and ballots for specific elections. This is also where the voter interface website can be custom tailored to contain county-specific banners, contact information, ballot return package files, and ballot return methods, as well as configured to include a barcode on the marked/printed ballot to use with the Simulo™ automatic ballot duplication system.

Background

Democracy Live first introduced a version of LiveBallot™ to BVSC in December 2011. Various configurations and upgraded versions of the system have been tested each year since that time. LiveBallot™ 3.0 was originally submitted in May 2015. After several iterations of review, discussion, testing, and collaboration with the vendor, Democracy Live submitted a final, updated, accepted version, LiveBallot™, Version 3.0.38, to BVSC on November 20, 2015.[2]

[2] See Appendix A for more detailed information.

Scope

This test effort included an examination of Democracy Live's LiveBallot™, Version 3.0.38, which is a modification of a previously interim approved version, LiveBallot™, Version 1.9.1. This system upgrade includes:

- Modified method for importing data from the voting system
- Modified ballot display on the voter interface
- Updated instructions detailing how to administer the LiveBallot™ website
- Printing an optional QR code on the marked/printed ballot for use with Runbeck Election Services, Inc. (RES)'s Simulo™ automatic ballot duplication system (ABDS)

BVSC tested the system with the Democracy Suite, EVS, GEMS, and Unity voting systems. *Democracy Live voluntarily withdrew the Sequoia voting systems from consideration within its EBDS application.* Therefore, BVSC did not test it as a part of the final version of the EBDS submitted. In order to accommodate any county with the Sequoia voting system, which wishes to use Democracy Live's services, BVSC recommends interim approval through January 1, 2018 of the previously interim approved LiveBallot™, Version 1.9.1 with Sequoia WinEDS.

Conduct of Tests / Findings

BVSC staff examined the use of LiveBallot™ and Simulo™ with the Democracy Suite, EVS, GEMS, and Unity voting systems, with primary focus on the setup and administration website and on the processing of marked/printed ballots using Runbeck's Simulo™, Version 1.4.7, ABDS. However, BVSC used the voter interface to create marked/printed ballots for ABDS testing and performed regression tested to ensure that the systems modifications had introduced no error, fault or flaw into the application.

LiveBallot™ Setup and Administration

BVSC tested the election administration website to verify that all components operated as described in the technical data package (TDP) and that a county could set up and administer an election in LiveBallot™ without vendor assistance.

Administrative Menus

BVSC performed a functional audit by testing available menu options and systems functions in the course of testing.

Findings:
The system performed as indicated in the vendor's TDP and in accordance with the Florida Statutes, Administrative Rules, and the EBDS Spec.

Election Setup and Administration

BVSC used the administrative website to set up elections for the Democracy Suite, EVS, GEMS, and Unity voting systems.

Findings:

The system performed as indicated in the vendor's TDP and in accordance with the Florida Statutes, Administrative Rules, and BVSC's Electronic Ballot Delivery System Specifications document. Furthermore, BVSC staff verified that for each of the referenced voting systems (Democracy Suite, EVS, GEMS, and Unity) the county could set up and administer the election in LiveBallot™, Version 3.0.38 without vendor assistance.

BVSC staff noted three minor issues during the testing. These do not preclude approval, but rather represent areas for improvement in subsequent releases to facilitate setup and administration:

1. Every jurisdiction using this system receives a default website configuration to install. The default website configuration does not currently include a link to the voter sign-in page on the home page of the default website. This means that a jurisdiction has to be sure to add this link as it sets up the website and customizes the website for its use. If the link does not appear on the website, a voter has no other means of accessing the login page and getting to the ballot. While an administrator who inadvertently omits adding the link will eventually figure this out, it would facilitate an administrator's setup process to already include this link as part of the default website configuration with the option available to move or modify the link as necessary.
2. The default website configuration includes a default voter registration (VR) database. A VR database is necessary to complete an election setup. An election cannot be opened without one. The administrator has the option to create a new VR database with or without deleting the default VR database. However, if the administrator deletes the default VR database without creating a new one, the system does not first prompt the administrator before the deletion. Error messages appear later in the election setup process when the administrator is conducting system checks that rely on data in a VR database to function. Moreover, the errors messages do not clearly indicate the basis for the messages, the administrator must backtrack to uncover the reason. It would facilitate an administrator's election setup process if the system prompted an administrator to first create a new VR database before deleting the default one.
3. The system requires the administrator to define the electronic ballot package based on the method of returning the ballot to the county Supervisor of Elections office. Mail and fax are the two currently defined valid return types. One or more of these return types must then be associated with a valid voter type (Overseas Military, Overseas Civilian, etc.). Based on the specific package selected, the voter receives in addition to the electronic ballot, corresponding affidavits, instructions, or other paperwork, as may be applicable. Since this system is used in many different jurisdictions including jurisdictions that may not require corresponding documentation be sent with the ballot, the system provides the administrator the option to deselect all return types from a particular voter type. In Florida, at least one return method would have to be selected for each voter type to allow for corresponding required affidavits, instructions or other paperwork to accompany an absentee ballot. Currently the accompanying LiveBallot documentation provides notice and advises the administrator to enable at least one return method for each voter type. Since the inadvertent deselection of a return type for a specific category of voter type could result

in the voter who subsequently selects that voter type while using the website to receive only the ballot, BVSC recommends that the option to deselect all return types from a voter type either be eliminated, or at a minimum, that the system provide an express alert to the administrator before allowing the deselection.

Voter Interaction

Activities included attempting to log on with invalid voter credentials, logging on as a voter assigned to a precinct with no ballot for the current election, attempting to overvote a contest, undervoting one or more contests, including unusual characters (e.g., accented characters, non-alphabetic characters, etc.) in a write-in string, very long write-in strings, and changing selections multiple times.

Findings:
LiveBallot™ correctly refused logins with incorrect credentials. The system provided a voter assigned to a precinct with no ballot for the election an appropriate error message and contact information as defined during setup by the election administrator. The system took voters using the correct login credentials to the correct ballot for their precinct in every case. Ballots were properly marked in accordance with the voter's selections. Write-in strings were correctly captured, up to the limit of 30 characters. The system appropriately provided voters attempting to overvote a contest an error message, and does not allow the overvote. If a voter undervotes one or more contests, the ballot review screen displays a header at the top of the ballot stating "You have under voted for the contests highlighted below. You can click the Back button to go back and change your selections." Each undervoted contest is outlined in yellow. The system gave the voter the proper ballot return package in each case. If the ballot included a barcode on the printed ballot, it properly reflected the voter's selections, including write-in strings and undervoted contests.

Automatic Ballot Duplication

BVSC also tested Runbeck Election Services Simulo™, Version 1.4.7, automatic ballot duplication system in conjunction with LiveBallot™, Version 3.0.38. BVSC tested Simulo™ with election ballots from the Democracy Suite, EVS, GEMS, and Unity voting systems. Tested ballots contained undervoted races, multiple write-ins, blank write-in strings, and write-in strings containing alphabetic, numeric, punctuation, and accented characters.

Findings:
The Simulo™ ABDS selected the correct ballot in all test cases. The system correctly marked and printed all ballots. It also correctly handled blank write-in strings and write-in strings which contained a comma (",") character. Write-in strings containing alphabetic, numeric, and punctuation characters printed correctly.

A very specific limitation, however, occurs when the system attempts to properly duplicate write-in strings containing accented characters (*e.g.*, é, á, ñ). The limitation occurs only when reading the barcode as printed on the ballot into a personal computer (PC) using a Microsoft Windows operating system. The

system is unable to print the accented characters in the write-in strings. For example, if the user entered the string "Mr. Niño" on the write-in line, and the barcode is read into a PC running Windows, the string appears as "Mr. Nio", omitting the accented character "ñ". This limitation does not otherwise occur. For example, if the user entered the string "Mr. Niño" on the write-in line, the barcode as printed on the ballot by LiveBallot™ would contain the data as ""Mr. Niño" or likewise when read into an iPhone or Android tablet. This issue appears to lie with the Windows operating system or drivers, and is likely outside the realm of the vendor for the LiveBallot™ website or the vendor for the Simulo™ ABDS software to address. BVSC staff believes this issue should not preclude approval of Simulo™ version 1.4.7, but may be a matter of further research and opportunity for the vendor to enhance in the future the Simulo™ system.

In the interim, BVSC recommends that the county SOE staff and/or the Canvassing Board to closely review duplicated ballots where accented characters should appear in a write-in string and manually reduplicate the ballots. This will help to ensure voter intent is determined for write-in votes containing accented characters.

Continuous Improvement / Recommendations

During testing, BVSC encountered no issues that prevent recommending LiveBallot™, Version 3.0.38 and Simulo™, Version 1.4.7 for approval. However, opportunities for future improvements include:

1. Adding a link to the voter sign-in page on the home page of the voter access website in the default configuration when the website is initially created.
2. Restricting the administrator's ability to delete the default voter registration (VR) database until another database has been created.
3. Ensuring that at least one return package is defined and linked to each valid voter type.
4. Addressing the way Simulo™ duplicates ballots with write-in strings that contain accented characters when read by a personal computer with a Windows operating system.

Conclusion

Qualification test results affirm that Democracy Live, LiveBallot™, Version 3.0.38 and Runbeck Election Services, Inc., Simulo™, Version 1.4.7 meet applicable requirements of Florida Statutes, Administrative Rules and BVSC's Electronic Ballot Delivery Specifications, for use with the Democracy Suite, EVS, GEMS, or Unity voting systems. Sequoia voting systems was withdrawn from consideration at this time.

The Bureau of Voting Systems Certification, Florida Division of Elections, therefore, recommends approval of Democracy Live's LiveBallot™ system either alone or in conjunction with Runbeck Election Services, Inc., Simulo™, Version 1.4.7. Since Democracy Live withdrew Sequoia voting systems from consideration with the modified LiveBallot™ system, BVSC also recommends the following in order to accommodate any county with the Sequoia voting system, which may want to use Democracy Live's services for its military and overseas voters. BVSC recommends the interim approval of the previously interim approved Democracy Live, LiveBallot™, Version 1.9.1 through January 1, 2018 for use with the Sequoia WinEDS voting system.

Appendices

Appendix A – Specific Timeline/Background Details

- December 2011 - LiveBallot™ was granted interim approval for use with the GEMS and Unity voting systems through February 10, 2012
    - April 2012 - Interim approval was extended until November 7, 2012.
- July 2012 - Democracy Live submitted an application to test LiveBallot™ with BallotDNA, an automatic ballot duplication system from DemTech Voting Solutions, Inc. (DemTech). BVSC tested the system both in our testing facilities in Tallahassee, and onsite at the Supervisor of Elections offices in Okaloosa County and Escambia County.
    - October 2012 - Interim approval was granted to use BallotDNA with LiveBallot™ for counties using GEMS or Unity voting systems. This approval was valid through the end of the 2012 General Election.
- June 2013 - Democracy Live submitted an application to approve an upgraded LiveBallot™, Version 1.9.1 version.
    - July 2013 - BVSC had received all of the documentation required to begin testing. Testing was conducted from August 12, 2013 through February 28, 2014, in Tallahassee, Florida. The test period was prolonged because of various required code and documentation modifications that were identified during the test process. It was not until December 20, 2013, that BVSC received the complete code and documentation necessary to test the LiveBallot™ system. Of note was that LiveBallot™, Version 1.9.1 did not include the 2D barcode capability to enable use of an automatic ballot duplication system.
    - May 2014 - Division of Elections granted interim approval for LiveBallot™, Version 1.9.1 for use with Unity and GEMS. This approval was valid through December 31, 2014.
- June 2014 - Democracy Live requested that LiveBallot™, Version 1.9.1 be tested for approval with the Democracy Suite, EVS, and Sequoia WinEDS voting systems. BVSC tested LiveBallot™ for use with Democracy Suite, WinEDS, and EVS from June 24, 2014 through June 30, 2014.
    - July 2014, the interim approval for LiveBallot™ was extended to include use with Democracy Suite, EVS, and WinEDS, through December 31, 2014.
    - January 2015 - DOE extended the interim approval for LiveBallot™ until September 30, 2015.
- May 2015 - Democracy Live submitted an application for testing LiveBallot™ 3.0.
    - May 2015 - BVSC acknowledged submission and notified Democracy Live that submitted documentation did not meet the requirements of the EBDS specification.
    - June 2015 - BVSC provided additional feedback regarding online help screens and online documentation pages. Staff also met with Democracy Live to discuss requirements and expectations for the documentation and the LiveBallot™ website.
    - July 2015 - Democracy Live submitted a new documentation package.
    - July 2015 - Democracy Live and BVSC discussed testing ballots produced from LiveBallot™ with the RES Simulo™ ABDS. BVSC confirmed that the id: field in the barcode would be blank, to avoid having any information which could be used to trace a ballot back to an individual voter. In response to that meeting, Democracy Live submitted documentation demonstrating that the id: field would be blank.
    - October 2015 - BVSC sent an interim test report to Democracy Live including information regarding issues found during testing. During subsequent collaborative discussions with Democracy Live staff from October 20 – November 2, BVSC explained in more detail needed changes.

- November 2015 - Democracy Live delivered LiveBallot™, Version 3.0.38 documentation and websites to BVSC for testing. BVSC found that this version of LiveBallot™, which was tested in late November and early December, satisfactorily met requirements.
- December 2015 – Democracy Live withdrew testing with the Sequoia voting system from the current application. BVSC staff tested the Simulo™ automatic ballot duplication system with ballots from the LiveBallot™ testing.

Appendix B - Glossary

ABDS	Automatic Ballot Duplication System
BallotDNA	DemTech automatic ballot duplication system
BVSC	Bureau of Voting Systems Certification (FL Dept. of State, Div. of Elections)
Democracy Suite	Dominion Voting System, Inc. voting system
DemTech	DemTech Voting Solutions, Inc.
DOE	Division of Elections (FL Dept. of State)
EBDS	Electronic Ballot Delivery System
EBDS Spec	Electronic Ballot Delivery System Specifications and Requirements, Version 4, December 16, 2013
EMS	Election Management System
ES&S	Elections Systems and Software, LLC
EVS	ES&S ElectionWare voting system
GEMS	Global Election Management System (ES&S and Dominion products)
QR code	Quick Response two-dimensional barcode
RES	Runbeck Election Services, Inc.
TDP	Technical Data Package
Unity	ES&S voting system EMS
VR	Voter Registration
WinEDS	Dominion - Sequoia Voting Systems voting system EMS

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