

System Qualification Test Report

Clear Ballot Group, Inc.

ClearAudit™ 1.4.4

July 2018



Florida Department of State
Division of Elections
R. A. Gray Building, Room 316
500 S. Bronough Street
Tallahassee, FL 32399-0250

Contents

EXECUTIVE SUMMARY	3
INTRODUCTION.....	4
BACKGROUND	4
SYSTEM OVERVIEW.....	5
CONDUCT OF TESTS / FINDINGS.....	5
PHYSICAL AUDIT & CONFIGURATION.....	5
INSTALLATION.....	6
BDF CREATION / IMPORT.....	6
ELECTION ADMINISTRATION.....	7
CRF CREATION / IMPORT.....	8
IMPROVEMENTS FROM PRIOR VERSIONS.....	9
RECOMMENDATIONS – CLEARAUDIT™ 1.4.4.....	9
CONCLUSION	10
APPENDIX A - ACRONYMS.....	11
APPENDIX B - COMPONENTS UNDER REVIEW	12
APPENDIX C – COMPARISON REPORTS FIGURES	13
APPENDIX D – TECHNICAL ADVISORY.....	15

Executive Summary

On February 19, 2018, Clear Ballot Group (CBG) submitted to the Florida Division of Elections' Bureau of Voting Systems Certification a request for approval for ClearAudit™ 1.4.4, an automated independent audit system. Version 1.4.4 is an upgrade of ClearAudit™ 1.0.6, which had interim approval until January 1, 2017.

The objective of this examination was to verify whether the enhancements made in ClearAudit™ 1.4.4 met the requirements of Florida's Election Code, specifically, section 101.591, Fla. Stat., and Rule 1S-5.026 Post-Election Certification Voting System Audit, Fla. Admin. Code. The Bureau of Voting Systems Certification focused its examination on the county's ability to setup, administer, and use the ClearAudit™ 1.4.4 system independent of vendor support. The examination included auditing a voting system that had an election coded in Election Systems and Software (ES&S) EVS and Dominion Voting Systems (Dominion) Democracy Suite voting systems. This examination did not include the following voting systems: ES&S Unity, ES&S GEMS, Dominion GEMS, or Dominion Sequoia WinEDS.

The CBG's audit system includes commercial-off-the-shelf (COTS) optical scanners, desktop and laptop computers, as well as the ClearAudit™ software application, which captures ballot images, via digital scanning for tabulation, and then independently verifies the results by comparison to the county's election voting system results.

The Bureau of Voting Systems Certification conducted the qualification test in three phases including a publicly noticed event. The Bureau used election definitions from the 2016 Presidential Preference Primary, Primary, and General Elections for the purpose of testing ClearAudit™. The Bureau installed ClearAudit™ 1.4.4 in accordance with the Technical Data Package (TDP). The Bureau conducted simulated elections using the EVS and Democracy Suite election management systems (EMS) in use in the state of Florida. Bay County and Leon County Supervisor of Elections (SOE) staff generated ballot PDFs and pre-marked ballots for testing. Test ballots were cast and XML results generated. BVSC working in conjunction with SOE staff created Ballot Definition Files (BDF), produced the elections in ClearAudit™, and scanned the ballot test decks. Using the XML results generated by the voting system, BVSC and SOE staff also created Comparison Results Files (CRF), imported them into ClearAudit™ and evaluated ClearAudit™'s system capability with enhancements represented in CBG's ClearAudit™ TDP. CBG provided election BDFs and CRFs as needed. The Bureau completed testing on May 30, 2018.

During testing, the Bureau of Voting Systems Certification determined that ClearAudit™ 1.4.4 was not able to properly process an XML results file that had small vote totals redacted. Upon learning of this issue, CBG's proffered solution for processing ExpressVote ballots was to manually duplicate them. The Bureau determined this duplication method to be too cumbersome and time-consuming process for Florida counties using the ExpressVote voter interface device and not acceptable for, other than a provisional, approval of this version. On July 3, 2018, upon post-test discussion, CBG requested another opportunity for BVSC to extend re-open testing for this functionality using the Clear Audit Resolver Tool as a more efficient alternative. The Bureau completed examination of these proposed solutions on July 9, 2018.

It is determined that ClearAudit™ 1.4.4 now meets the applicable requirements of Florida Statutes and Rule. Therefore, the Florida Division of Elections, Bureau of Voting Systems Certification, recommends an approval of the referenced audit system for use in elections using ES&S EVS, coded by precinct or by ballot style, and Dominion Democracy Suite voting systems subject to the conditions outlined in this report.

Introduction

CBG submitted a request for approval of ClearAudit™ 1.4.4 automated independent audit system to the Bureau of Voting System Certification (BVSC). This version represents an upgrade to the previously interim approved ClearAudit™ 1.0.6, which expired on January 1, 2017.

The objective of the examination was to verify that ClearAudit™ 1.4.4 meets the requirements in Florida's Election Code, specifically, section 101.591, Fla. Stat., and Rule 1S-5.026 Post-Election Certification Voting System Audit, Fla. Admin. Code. The examination focused on whether the audit system could be used independent of vendor support and included a review of whether the audit system provided a methodology for auditing ballots coded for an election by precinct, by ballot style, and whether it was able to report discrepancies of ½ of 1% or more when comparing the automated tally and the official totals in a contest.

BVSC examined ClearAudit™ 1.4.4 for use with the ES&S EVS and Dominion Democracy Suite voting systems.

This examination did not include the following voting systems: ES&S Unity, ES&S GEMS, Dominion GEMS, or Dominion Sequoia WinEDS. ClearAudit™ 1.4.4 handling of ExpressVote ballots was not included in the initial submission and examination. CBG indicated that ClearAudit™ 1.4.4 does not support automatic auditing of ExpressVote ballots and the ClearAudit™ Election Administration Guide instructs users to duplicate ExpressVote ballots onto marksense ballots in order to scan them into ClearAudit™. Upon post-test discussions, CBG requested that BVSC re-open testing for this functionality using the ClearAudit Resolver Tool as a more efficient alternative. The Resolver Tool allows ExpressVote ballots to be processed (electronically adjudicated) through the ClearAudit™ software instead of manually duplicating ballots.

Background

BVSC previously examined ClearAudit™ 1.0.3 from May through July 2014 during which time CBG submitted four reiterations. BVSC's recommendation for interim approval was granted on August 18, 2014. See Voting System Qualification Test Report, Clear Ballot Group, ClearAudit™ 1.0.3, August 2014.

On July 21, 2014, CBG submitted ClearAudit™ 1.0.4, a subsequent reiteration to ClearAudit™ 1.0.3. ClearAudit™ 1.0.4 was to add the capability to report discrepancies using Form DS-DE 106A (Discrepancy Report for Automated Independent Audit) as required in Rule 1S-5.026, Florida Administrative Code, to make minor software changes, and to allow use of the system with a county that has an election coded by ballot style and precinct identification. The examination was suspended pending other priority election duties for the 2014 Primary Election.

On September 17, 2014, CBG requested another iteration to incorporate a coding change to Dominion Democracy Suite's ballot code channel checksum1, and to allow automatic reclassification of ES&S header cards for use with absentee coded by ballot styles. Consequently, ClearAudit™ 1.0.4 evolved into ClearAudit™ 1.0.6.

BVSC's recommendation for interim approval for ClearAudit™ 1.0.6 was granted on November 21, 2014 for use an official means of conducting a post-election voting system audit on or before December 31, 2015, and which was re-extended twice. The last extension expired January 1, 2017. See [Interim Approval Extension, January 25, 2016](#).

System Overview

The ClearAudit™ series is an automated, independent audit system which captures a ballot image using COTS scanners. This audit system also includes COTS desktop and laptop computers in a server/client network. ClearAudit™ uses the scanned ballot images to independently tabulate votes and compares results against the voting system results. The system also highlights differences in the number of votes tabulated and generates a DS-DE 106A if this difference exceeds the triggering threshold. CBG uses its Vote Visualization software application in ClearAudit™ to resolve voter intent.

Conduct of Tests / Findings

This examination was conducted to verify that ClearAudit™ 1.4.4 meets Florida's statutory and administrative rule requirements and, further, to ascertain whether this update corrected the issues reported to CBG in previous test reports.

The examination took place at the following locations:

- R. A. Gray Building, 3rd Floor, 500 S. Bronough Street, Tallahassee, Florida
February 19, 2018 through July 9, 2018
- Leon County Supervisor of Elections – 2990-1 Apalachee Parkway, Tallahassee, Florida
May 21, 2018 through May 23, 2018
- Bay County Supervisor of Elections – 830 West 11th Street, Panama City, Florida
May 21, 2018 through May 23, 2018

The scope of this qualification test included reviewing the election setup, preparation, installation, and administrative steps described in CBG's submitted TDP documentation for each of the listed voting systems, as well as other activities needed to satisfy the requirement that the system could be administered without vendor support.

The examination included systems testing requirements, since there were changes to the source code. This examination did not include the duplication method in Rule 1S-5.026, F.A.C. for DRE (touchscreen) ballots, as neither system tested included that type of device.

Physical Audit & Configuration

BVSC conducted a physical audit to verify that the system under test matched the specifications described in the application and the TDP documentation.

BVSC used two setups of the ClearAudit™ 1.4.4 system:

1. All components supplied by CBG. The system was set up as a client-server configuration by BVSC staff in the BVSC Test Lab. One ScanStation was used, with a Fujitsu fi-6400 scanner. The setup of the scanner was for 8-bit (256) grey-scale at 200 dots per inch (dpi) as per CBG's TDP. The images were in a compressed jpg file format. BVSC staff conducted a physical audit of the system to ensure that it matched the specifications as described in the application and the TDP

documentation. This system was used for the testing conducted at the Leon County Supervisor of Elections office.

2. Bay County Supervisor of Elections office set up its ClearAudit™ system before BVSC arrival. BVSC staff conducted a physical audit of the system to ensure that it matched the specifications as described in the application and the TDP documentation. Two ScanStations were used, both with their own Fujitsu fi-6800 scanner. The setup of the scanners was for 8-bit (256) grey-scale at 200 dots per inch (dpi) as per CBG's TDP. The images were in a compressed jpg file format.

Findings:

The systems under test matched the specifications described in the application and TDP documentation.

Installation

The examination began by using the *ClearAudit™ Election Preparation and Installation Guide* to set up the Scan Server, Scan Stations and Administration Station.

Findings:

1. Installation: An issue occurred during the setup of the ScanStation. The Fujitsu fi-6400 scanner driver and the Fujitsu Scanner Error Recovery Guide driver would not install. CBG's response was that the installation ISOs or DVDs used are read-only access. As part of the installation process the driver attempts to extract the file contents to a temporary folder on the DVD. Because it was not able to write to the DVD, the driver was unable to install.

Solution: To address this issue, CBG recommended copying those files to the local hard drive and executing them from there. Documentation was updated to reflect this recommendation.

2. Instructions: Staff was able to use the instructions in the *ClearAudit™ Election Preparation and Installation Guide* to successfully complete system setup. In many cases, the guide included detailed, easy-to-follow instructions. In any area where additional instructions or information would have been helpful, BVSC requested that the documentation be edited for clarification. In response, CBG submitted an updated version of the *ClearAudit™ Election Preparation and Installation Guide* (version 1.3.4, dated 06/05/2018.) Changes to the documentation were satisfactory.
3. Image Resolution: CBG uses a subjective method to quantify ClearAudit™'s scanned image resolution. It is recommended that CBG develop an objective method instead, particularly if there is future intent to use this system to scan images in accordance with the current minimum 300 dpi requirement set out in Rule 1B-26.003, Fl. Admin. Code, governing the conversion of paper records into electronic records.

BDF Creation / Import

The testing began by using the *ClearAudit™ Ballot Definition File Guide* to create the Ballot Definition File (BDF). The BDF file contains information obtained from the ballots related to precinct, ballot style, contests, and candidates. The BDF file allows the ClearAudit™ software to interpret scanned ballot images. An election is created in ClearAudit™ by importing the BDF file.

Findings:

1. Staff was able to successfully create the BDF files for the elections. However, the nature of the creation process requires a great deal of attention or errors could be made. BVSC recommends automated tools for gathering the ballot information would greatly diminish entry related errors.
2. Staff encountered an issue in an election coded by style in which the ballots of a particular style were all being placed into a single precinct. CBG explained that a special field was missing from the metadata.csv file which caused the issue. It allows ClearAudit™ to read the Target Cards that are designed to work with elections coded by style. When the field was added, the issue was resolved. This special field was not documented in the *ClearAudit™ Ballot Definition File Guide*.

CBG updated the instructions for using the special field in the *ClearAudit™ Ballot Definition File Guide*. CBG also supplied a new Excel tool and instructions, which simplified the Target Card creation process.

3. Staff encountered an issue after creating an election that did not have the Florida specific features available. After further testing it was determined that a capital "FL" was used instead of the required lower case "fl". Although documentation provided an example that contains the "fl", the documentation did not state specifically that it is required for Florida specific features.

CBG supplied updated versions of its *ClearAudit™ Ballot Definition File Guide*, *ClearAudit™ Election Administration Guide*, and the *ClearAudit™ Election Preparation and Installation Guide* which state that the lower case "fl" is required for Florida specific functions to be available.

4. Staff observed that the BDF for the multi-card ballot election did not have a cards.csv file. CBG responded that the cards.csv file is used to differentiate between ballots and cards in a multi-card ballot scenario. The absence of the cards.csv file only effects the ballot total on the Statement of Ballots Cast PDF report, which is not used for conducting the audit. All other reports were correct.

CBG supplied an updated version of the *ClearAudit™ Ballot Definition File Guide* with a note that cards.csv is required if the Statement of Ballots Cast PDF report is to be used.

Election Administration

Once the BDF has been imported and an election has been created the voted ballots are then scanned into the ClearAudit™ system.

Findings:

1. Staff did not observe any issues with the processes outlined in the *ClearAudit™ Election Administration Guide*.
2. Staff verified that in an election coded by ballot style, ClearAudit™ properly rejects a ballot which is of a style not valid for the precinct coded on the Target Card.
3. Staff verified that ClearAudit™ was able to create reports that remove issues, races, or candidates that were withdrawn from an election after it was too late to reprint ballots. ClearAudit™ was able to recalculate totals and percentages to account for the removal.
4. Staff determined that ClearAudit™ 1.4.4 was able to process ExpressVote ballots by using the Resolver Tool. The Resolver Tool allows the canvassing board to view the scanned ExpressVote ballots and manually select and save the voter's choice that was printed on the ballot. CBG documentation was updated to include this process. While this process is acceptable for approval

of this version, future versions of the ClearAudit™ system must be able to read, tabulate, and compare/audit ExpressVote ballots automatically.¹

5. Staff determined that ClearAudit™ 1.4.4 is not able to process an election that is coded by both precinct and by style². While not required for approval of this version, BVSC highly recommends that future versions should be able to properly process an election coded by both precinct and style.

CRF Creation / Import

The Comparison Results File (CRF) is created using an XML results file exported from the election management system. The CRF contains election data from the primary voting system such as vote totals. The CRF creates relationships between the BDF and XML results and it is required to generate comparison reports.

Findings:

1. Staff was able to successfully create CRF files for the elections. However, the nature of the creation process required a great deal of attention or errors could be made. When multiple contests or multiple choices are the same or very similar it is difficult and tedious to make the correct associations.

BVSC recommends the next version of the ClearAudit™ system be able to retain the name fields in the vsx files to facilitate proofreading and troubleshooting during the creation of the CRF files.

2. Staff encountered an issue when verifying the accuracy of the comparison reports for an election. Further examination revealed that ClearAudit™ 1.4.4 could not automatically audit a race or precinct results whenever the XML file contained redacted small vote totals in the counter groups³. (See Appendix C, Figures 1 and 2)

BVSC required that the documentation reflect that if an XML file containing redacted small vote totals is used to generate the CRF, the comparative reports will not display accurate comparisons (See Appendix C, Figures 3 and 4) and that in order to complete the audit, counties must manually compare ClearAudit™'s Statement of Votes Cast with the Voting System's Statement of Votes Cast and manually create the DS-DE 106A report.

BVSC will require that the next version of the ClearAudit™ system be able to properly process the precinct-level XML file, when small group totals have been redacted.

3. Staff was able to verify that ClearAudit™ is able to create a DS-DE 106A (Discrepancy Report for Automated Independent Audit Report) if the criteria outlined in Rule 1S-5.026, Fla. Admin. Code

¹ On January 1, 2020, §101.56075, Fla. Stat., will require that all voters, including those with disabilities, cast their ballots on voter interface devices that use marksense ballots. This change may affect the approval status of the ExpressVote voting device. If this is the case, the Division of Elections will re-visit this recommendation at that time.

² Broward County is currently the only county in Florida that codes its elections by a combination of style and precinct.

³ §98.0981(2)(a), Fla. Stat. and Rule 1S-2.053 Election Results, Precinct-Level Election Results, Voting History, and Reconciliation Reporting, Fla. Admin. Code, states that if any voter group total is less than 10 votes then all associated voter group totals are required to be redacted.

are met. The DS-DE 106A report is produced for elections coded by precinct or coded by ballot style. ClearAudit™ is not able to produce a DS-DE 106A report when a single election is coded by both precinct and by ballot style.

BVSC recommends that the next version of ClearAudit™ be able to produce a DS-DE 106A report for elections coded by both precinct and style.

Improvements from Prior Versions

As a part of this ClearAudit™ 1.4.4 examination, BVSC examined the audit system to determine whether this version resolved past issues. In the ClearAudit™ 1.0.6 (November 2014) test report and subsequent testing of ClearAudit™ versions 1.2.0 and 1.2.1, BVSC made functional and procedural recommendations to Clear Ballot Group for continual improvement of future releases of the independent audit system.

Findings:

1. In prior versions, ClearAudit™ users could not determine the versions of the BallotRegisterPDF.exe and ConvertFloridaXML.exe files. This matter is now resolved.
2. In prior versions, while generating a CRF for one of the Democracy Suite elections that had a race with a 'Two Vote' rule, an error message was displayed. ClearAudit™ was unable to process the XML file with a 'Vote for Multiple' contest without modifying the XML or using a command line switch that caused several of the reports to display incorrect data. This matter is now resolved.
3. In prior versions, ClearAudit™ would generate inconsistent data in reports for Presidential Preference Primary (PPP) elections. This matter is now resolved.
4. In prior versions, in elections coded by style, ClearAudit™ did not properly reject a ballot of a style not valid for the precinct coded on the Target Card. This matter is now resolved.
5. In prior versions, ClearAudit™ did not properly handle situations when a candidate or race was removed from a ballot after the ballots were printed. This matter is now resolved.

Recommendations – ClearAudit™ 1.4.4

BVSC makes the following recommendations to enhance usability and/or provide procedural improvements and that Clear Ballot Group address as many of these items as is practical:

1. CBG should develop or use an objective method (in lieu of a subjective method) to quantify that images scanned by ClearAudit™ meet an acceptable image resolution, particularly if there is any future intent to use this system to scan images in accordance with the current minimum 300 dpi requirement set out in Rule 1B-26.003, Fla. Admin. Code, governing conversion of paper records to electronic records.
2. CBG should develop automated tools for gathering the ballot information during the BDF creation. These automated tools would greatly diminish data entry related errors.

3. ClearAudit™ should be able to properly process an election coded by precinct and style, including production of the DS-DE 106A report for an election coded by precinct and style.
4. ClearAudit™ should be able to retain the name fields in the vsx files. This would be helpful for proofreading and troubleshooting purposes during the creation of the CRF files.

BVSC will require that future versions of ClearAudit™ submitted for approval be able:

1. To scan, tabulate, and compare/audit ExpressVote ballots automatically. This version does not support a completely independent, automated audit of ExpressVote ballots.⁴
2. To automatically audit a race or precinct results with redacted group totals.⁵

NOTE: Subject to grant of approval of ClearAudit™ 1.4.4, CBG **must** develop and share with their current and future customers a Technical Advisory detailing the issue stated above, along with instructions to work around the issue when it is encountered.

The Technical Advisory **must** be reviewed/accepted by BVSC and it must be sent to all current Florida customers within 10 days of ClearAudit™ 1.4.4 approval and **must** be provided on the install disk for future ClearAudit™ 1.4.4 customers.

Solution: CBG supplied a Field Service Bulletin outlining the issue above, along with instructions to work around the issue. BVSC reviewed and approved the proposed Field Service Bulletin for use. (See Appendix D)

Conclusion

The Florida Division of Elections, Bureau of Voting Systems Certification, recommends approval of ClearAudit™ 1.4.4 as the official means of conducting an automated post-election voting system audit in accordance and compliance with section 101.591, Fla. Stat. and Rule 1S-5.026, Fla. Admin. Code for use with elections using ES&S EVS coded by precinct or by ballot style and Dominion Democracy Suite voting systems. The recommendation for approval is granted to allow Florida counties use of the system while also allowing Clear Ballot Group the opportunity to continually improve their automated independent audit system.

⁴ On January 1, 2020, §101.56075, Fla. Stat., will require that all voters, including those with disabilities, cast their ballots on voter interface devices that use marksense ballots. This change may affect the approval status of the ExpressVote voting device. If this is the case, the Division of Elections will re-visit this requirement at that time.

⁵ Rule 1S-5.026 (7)(b)1, Fla. Admin. Code.

Appendix A - Acronyms

BDF	Ballot definition file
BVSC	Bureau of Voting Systems Certification (Florida Dept. of State, Division of Elections)
CBG	Clear Ballot Group
COTS	Commercial off-the-shelf
CRF	Comparison Results File
CSV	Comma-separated values
Democracy Suite	Dominion Voting System product
Dominion	Dominion Voting Systems, Inc.
DOE	Division of Elections (Florida Dept. of State)
DPI	Dots per inch
EMS	Election Management System
ES&S	Elections Systems and Software, LLC
EVS	ES&S Voting System product
GEMS	Global Election Management System (ES&S and Dominion Voting System product)
PDF	Portable Document Format
PPP	Presidential Preference Primary
SOE	Supervisor of Elections
TDP	Technical Data Package
Unity	ES&S Voting System product

Appendix B - Components Under Review

- ScanServer
 - Hardware
 - 4 core / 8 thread processor
 - 8+ Gb of RAM
 - 500 Gb – 1 TB of disk space
 - Gigabit LAN
 - USB 3.0
 - Software
 - ClearAudit™ 1.4.4
 - Disc 01 – ClearAudit™ 1.4.4 – ScanServer with Ubuntu 16.04.1.iso
- ScanStation Client for use with the scanner
 - Hardware
 - 4 core / 8 thread processor
 - 4+ Gb of RAM (8+ is recommended)
 - 500+ Gb of disk space
 - Gigabit LAN
 - USB 2.0 or higher
 - Software
 - Operating system
 - Windows 10 Professional
 - Client Fujitsu ScandAll PRO v.2.0.12
 - Client Fujitsu TWAIN driver
- Fujitsu Scanners
 - Fujitsu fi-6400
 - Fujitsu fi-6800
 - Fujitsu fi-7180
- Scanners TWAIN drivers
 - Fujitsu fi-6400 IP v1.30.0
 - Fujitsu fi-6800 v.10.10.710
 - Fujitsu fi-7180 PaperStream IP v1.4.0
- Administration and Reporting Station
 - Hardware
 - 4 core / 8 thread processor
 - 4+ Gb of RAM (8+ is recommended)
 - 500+ Gb of disk space
 - Gigabit LAN
 - USB 2.0 or higher
 - Software
 - Operating system
 - Windows 10 Professional
 - Browser(s) from the list below:
 - Google Chrome
- Router - Gigabit
 - Wired only, no wireless capability
- Ethernet Cables
 - Cat5 or better

Appendix C – Comparison Reports Figures

Figure 1. Sample of result XML file. Example of precinct without redaction of small vote group totals.

```

<GroupMap>
  <Group id="0" name="TV - Total Votes" equipmentType="" groupType="TV"/>
  <Group id="1" name="EV" equipmentType="CC" groupType="EV"/>
  <Group id="2" name="AV" equipmentType="CC" groupType="AV"/>
  <Group id="3" name="ED" equipmentType="DS2" groupType="ED"/>
  <Group id="4" name="PV" equipmentType="CC" groupType="PV"/>
  <Group id="5" name="OT" equipmentType="CC" groupType="OT"/>
</GroupMap>
<PartyMap>
  <Party id="1" name="Democratic Party" partyCastPercentage="00.0" partyRegistration="0" partyBallotsCast="2110" abbrv="DEM"/>
  <Party id="2" name="Republican Party" partyCastPercentage="00.0" partyRegistration="0" partyBallotsCast="2110" abbrv="REP"/>
  <Party id="3" name="Libertarian Party" partyCastPercentage="00.0" partyRegistration="0" partyBallotsCast="2110" abbrv="LPP"/>
  <Party id="4" name="Nonpartisan" partyCastPercentage="00.0" partyRegistration="0" partyBallotsCast="2110" abbrv="NON"/>
</PartyMap>
<Election id="0" precinctsReportedPercentage="100.00" precinctsReported="48" totalPrecincts="48" totalCastPercentage="00.0" totalRegistration="0" totalBallotsCast="8440" provisionalsCompleted="N" precinctsCompleted
earlyVotingCompleted="N" absenteesCompleted="N" groupReporting="1" resultsType="P" electionTitle="" electionName="24BAYPRI">
  <ContestList>
    <Contest title="Representative in Congress" id="101" precinctsReported="48" totalPrecincts="48" regVoters="0" altId2="" castPercentage="00.0" ballotsCast="2110" partyId="1" underVotes="1441" overVotes="
writeInVotes="0" voteFor="1">
      <Candidate id="1" name="Candidate CC" altId2="" partyId="1" votes="211" pos="1">
        <CandidateGroup groupId="0" totalVotes="211"/>
        <CandidateGroup groupId="1" totalVotes="91"/>
        <CandidateGroup groupId="2" totalVotes="70"/>
        <CandidateGroup groupId="3" totalVotes="60"/>
        <CandidateGroup groupId="4" totalVotes="0"/>
        <CandidateGroup groupId="5" totalVotes="0"/>
        <Votes groupId="0" refPrecinctId="1">0</Votes>
        <Votes groupId="1" refPrecinctId="1">0</Votes>
        <Votes groupId="2" refPrecinctId="1">0</Votes>
        <Votes groupId="3" refPrecinctId="1">0</Votes>
        <Votes groupId="4" refPrecinctId="1">0</Votes>
        <Votes groupId="5" refPrecinctId="1">0</Votes>
        <Votes groupId="0" refPrecinctId="2">0</Votes>
        <Votes groupId="1" refPrecinctId="2">0</Votes>
        <Votes groupId="2" refPrecinctId="2">0</Votes>
        <Votes groupId="3" refPrecinctId="2">0</Votes>
        <Votes groupId="4" refPrecinctId="2">0</Votes>
        <Votes groupId="5" refPrecinctId="2">0</Votes>
        <Votes groupId="0" refPrecinctId="3">0</Votes>
        <Votes groupId="1" refPrecinctId="3">0</Votes>
        <Votes groupId="2" refPrecinctId="3">0</Votes>
        <Votes groupId="3" refPrecinctId="3">0</Votes>
        <Votes groupId="4" refPrecinctId="3">0</Votes>
        <Votes groupId="5" refPrecinctId="3">0</Votes>
        <Votes groupId="0" refPrecinctId="4">96</Votes>
        <Votes groupId="1" refPrecinctId="4">66</Votes>
        <Votes groupId="2" refPrecinctId="4">20</Votes>
        <Votes groupId="3" refPrecinctId="4">10</Votes>
        <Votes groupId="4" refPrecinctId="4">0</Votes>
        <Votes groupId="5" refPrecinctId="4">0</Votes>
      </Candidate>
    </Contest>
  </ContestList>
</Election>

```

Figure 2. Sample of results XML file. Example of precinct with redaction of small vote group totals.

```

<votes groupId="5" refPrecinctId="8">0</votes>
<Votes groupId="0" refPrecinctId="9">23</Votes>
<Votes groupId="1" refPrecinctId="9">0</Votes>
<Votes groupId="2" refPrecinctId="9">0</Votes>
<Votes groupId="3" refPrecinctId="9">0</Votes>
<Votes groupId="4" refPrecinctId="9">0</Votes>
<Votes groupId="5" refPrecinctId="9">0</Votes>
<Votes aroupId="0" refPrecinctId="10">0</Votes>

```

Figure 3. Comparison of Votes Cast with Precincts Report. Comparison System column not showing results.

Choice	precinct	Ballots With Contest			Votes			Overvoted With Vote for this Choice	Undervoted Without Vote for this Choice	Links
		Comparison System	This System	Difference	Comparison System	This System	Difference			
Representative in Congress (Vote for 1)										
Candidate CC	PCT 1	0	0	0	0	0	0	0	0	
Candidate CC	PCT 10	0	0	0	0	0	0	0	0	
Candidate CC	PCT 11	0	0	0	0	0	0	0	0	
Candidate CC	PCT 12	0	0	0	0	0	0	0	0	
Candidate CC	PCT 13	0	0	0	0	0	0	0	0	
Candidate CC	PCT 14	230	230	0	0	23	+23	10	151	
Candidate CC	PCT 15	0	0	0	0	0	0	0	0	
Candidate CC	PCT 16	0	0	0	0	0	0	0	0	
Candidate CC	PCT 17	0	0	0	0	0	0	0	0	
Candidate CC	PCT 18	0	0	0	0	0	0	0	0	
Candidate CC	PCT 19	0	0	0	0	0	0	0	0	
Candidate CC	PCT 2	0	0	0	0	0	0	0	0	
Candidate CC	PCT 20	0	0	0	0	0	0	0	0	
Candidate CC	PCT 21	0	0	0	0	0	0	0	0	
Candidate CC	PCT 22	0	0	0	0	0	0	0	0	
Candidate CC	PCT 23	0	0	0	0	0	0	0	0	
Candidate CC	PCT 24	230	230	0	0	23	+23	3	158	

Figure 4. Comparison of Votes Cast Report. Comparison System column not showing all of the results.

Choice	Ballots With Contest			Votes			Overvoted With Vote for this Choice	Undervoted Without Vote for this Choice	Links	
	Comparison System	This System	Difference	Comparison System	This System	Difference				
Representative in Congress (Vote for 1)										
Candidate DD	2,110	2,110	0	192	412	+220	46	1,441		
Candidate CC	2,110	2,110	0	96	211	+115	46	1,441		
Governor (Vote for 1)										
Candidate HH	2,110	2,110	0	580	752	+172	33	56		
Candidate GG	2,110	2,110	0	288	633	+345	30	56		
Candidate FF	2,110	2,110	0	192	422	+230	13	56		
Candidate EE	2,110	2,110	0	96	201	+105	16	56		
Attorney General (Vote for 1)										
WRITE-IN	2,110	2,110	0	288	633	+345	0	798		
Candidate YY	2,110	2,110	0	192	422	+230	46	798		
Candidate XX	2,110	2,110	0	96	211	+115	46	798		
Commissioner of Agriculture (Vote for 2)										
Candidate HHH	2,110	2,110	0	370	656	+286	10	1,431		
Candidate GGG	2,110	2,110	0	202	445	+243	10	1,642		
Candidate FFF	2,110	2,110	0	96	257	+161	10	1,853		
United States Senator (Vote for 1)										
Candidate BB	2,110	2,110	0	111	117	+6	46	1,892		
Candidate AA	2,110	2,110	0	52	55	+3	46	1,892		

Appendix D – Technical Advisory



Field Service Bulletin
2018-002

Small Vote Totals on the Primary Voting System's XML File

Product ClearAudit
Versions 1.4
Date July 11, 2018

When the primary voting system produces comparative results with small vote totals redacted to preserve voter privacy, the comparison of votes cast may show discrepancies due to two different methods of reporting redacted results. This bulletin provides two methods of concluding the audit.

Method 1: Manually compare the statements of votes cast from ClearAudit and the primary voting system

Print the ClearAudit Statement of Votes Cast by Precincts and Counter Groups by following the instructions in section 2.2.14 of the *ClearAudit Reporting Guide*. Print the statement of votes cast from the primary voting system at the precinct and counter group level of detail. Manually compare the results for each candidate.

Method 2: Update the ClearAudit Florida Form 106A report with results from the unredacted statement of votes cast from the primary voting system

Use the following procedure to determine if the redactions for small vote totals, when replaced by the actual vote totals reported by the primary voting system, eliminate the exception and, therefore, are not required to be reported to the Division of Elections.

1. Generate the unredacted statement of votes cast from the primary voting system at the precinct and counter group level of detail.
2. Generate the unredacted ClearAudit Statement of Votes Cast with Precincts report.
3. Generate the Florida Form 106A Audit report in ClearAudit and print it. See the *ClearAudit Reporting Guide* for more information.
4. Beginning with the first contest (such as, Representative in U.S. Congress in Example A below), replace the vote totals in column M (VSPaperVotes) with the unredacted vote totals from the statement of votes cast from the primary voting system at the precinct and counter group level of detail.
5. Replace the numbers in column N (VoteDiscrepancy) with the difference between column L (AuditPaperVotes) and column M (VSPaperVotes). Ignore minus signs.
Note: See the yellow highlights in column N of Example B below.
6. Compute the sum of column M (VSPaperVotes) for all rows in that contest (which is 622 in Example B below).
7. Compute the sum of column N (VoteDiscrepancy) for all rows in that contest (which is 3 in Example B below).

8. Divide the sum of column N by the sum of column M (which is 0.48% in Example B below). If that result is less than 0.5%, delete all rows for that contest because the contest does not actually exceed the threshold.
9. Repeat steps 4–8 for each contest. The remaining rows, if any, represent contests that exceed the 0.5% threshold and, therefore, should be displayed on the 106A report submitted to the Division of Elections.

Example A: Initial ClearAudit Florida Form 106A Audit report

Initial FS 106A Report with redactions for small vote totals						
Contest for Representative in U.S. Congress is ABOVE the audit threshold of 0.5%						
ContestName	ChoiceName	PrecinctName	CounterGroup	AuditPaperVotes # Votes computed by ClearAudit	VSPaperVotes # Votes Computed by Voting System; fill in zeros from EL20A	VoteDiscrepancy Col L Col M ignore minus signs
Representative in Congress	Candidate CC	PCT 14	AB	10	10	0
Representative in Congress	Candidate CC	PCT 14	ED	10	10	0
Representative in Congress	Candidate CC	PCT 14	EV	3	0	3
Representative in Congress	Candidate CC	PCT 24	AB	10	10	0
Representative in Congress	Candidate CC	PCT 24	ED	10	10	0
Representative in Congress	Candidate CC	PCT 24	EV	3	0	3
Representative in Congress	Candidate CC	PCT 33	AB	10	10	0
Representative in Congress	Candidate CC	PCT 33	ED	10	10	0
Representative in Congress	Candidate CC	PCT 33	EV	3	0	3
Representative in Congress	Candidate CC	PCT 4	AB	20	20	0
Representative in Congress	Candidate CC	PCT 4	ED	10	10	0
Representative in Congress	Candidate CC	PCT 4	EV	66	66	0
Representative in Congress	Candidate CC	PCT 43	AB	10	10	0
Representative in Congress	Candidate CC	PCT 43	ED	10	10	0
Representative in Congress	Candidate CC	PCT 43	EV	3	0	3
Representative in Congress	Candidate CC	PCT 9	AB	10	10	0
Representative in Congress	Candidate CC	PCT 9	ED	10	10	0
Representative in Congress	Candidate CC	PCT 9	EV	3	0	3
Representative in Congress	Candidate DD	PCT 14	AB	20	20	0
Representative in Congress	Candidate DD	PCT 14	ED	20	20	0
Representative in Congress	Candidate DD	PCT 14	EV	6	0	6
Representative in Congress	Candidate DD	PCT 24	AB	20	20	0
Representative in Congress	Candidate DD	PCT 24	ED	20	20	0
Representative in Congress	Candidate DD	PCT 24	EV	6	0	6
Representative in Congress	Candidate DD	PCT 33	AB	20	20	0
Representative in Congress	Candidate DD	PCT 33	ED	20	20	0
Representative in Congress	Candidate DD	PCT 33	EV	6	0	6
Representative in Congress	Candidate DD	PCT 4	AB	40	40	0
Representative in Congress	Candidate DD	PCT 4	ED	20	20	0
Representative in Congress	Candidate DD	PCT 4	EV	132	132	0
Representative in Congress	Candidate DD	PCT 43	AB	20	20	0
Representative in Congress	Candidate DD	PCT 43	ED	20	20	0
Representative in Congress	Candidate DD	PCT 43	EV	6	0	6
Representative in Congress	Candidate DD	PCT 9	AB	20	20	0
Representative in Congress	Candidate DD	PCT 9	ED	10	10	0
Representative in Congress	Candidate DD	PCT 9	EV	6	0	6
<i>Likely redactions due to # votes less than 10 shown as zeros</i>					578	45
Initial Vote Discrepancies						
					Audit Threshold Ratio (should be < 0.5%)	7.79%
						100 x 45 / 578
						X

Example B: Modified ClearAudit Florida Form 106A Audit report

Modified FS 106A Report Showing Correction of VSPaperVotes (Col M) from EL30A Report.							
Contest for Representative in Congress is now BELOW the threshold of 0.5% and no longer an exception.							
ContestName	ChoiceName	PrecinctName	CounterGroup	AuditPaperVotes # Votes computed by ClearAudit	VSPaperVotes # Votes Computed by Voting System fill in zeros from EL30A	VoteDiscrepancy Col L - Col M ignore minus signs	
Representative in Congress	Candidate CC	PCT 14	AB	10	10	0	
Representative in Congress	Candidate CC	PCT 14	ED	10	10	0	
Representative in Congress	Candidate CC	PCT 14	EV	3	3	0	
Representative in Congress	Candidate CC	PCT 24	AB	10	10	0	
Representative in Congress	Candidate CC	PCT 24	ED	10	10	0	
Representative in Congress	Candidate CC	PCT 24	EV	3	3	0	
Representative in Congress	Candidate CC	PCT 33	AB	10	10	0	
Representative in Congress	Candidate CC	PCT 33	ED	10	10	0	
Representative in Congress	Candidate CC	PCT 33	EV	3	3	0	
Representative in Congress	Candidate CC	PCT 4	AB	20	20	0	
Representative in Congress	Candidate CC	PCT 4	ED	10	10	0	
Representative in Congress	Candidate CC	PCT 4	EV	66	66	0	
Representative in Congress	Candidate CC	PCT 43	AB	10	10	0	
Representative in Congress	Candidate CC	PCT 43	ED	10	10	0	
Representative in Congress	Candidate CC	PCT 43	EV	3	3	0	
Representative in Congress	Candidate CC	PCT 9	AB	10	10	0	
Representative in Congress	Candidate CC	PCT 9	ED	10	10	0	
Representative in Congress	Candidate CC	PCT 9	EV	3	3	0	
Representative in Congress	Candidate DD	PCT 14	AB	20	20	0	
Representative in Congress	Candidate DD	PCT 14	ED	20	20	0	
Representative in Congress	Candidate DD	PCT 14	EV	6	6	0	
Representative in Congress	Candidate DD	PCT 24	AB	20	20	0	
Representative in Congress	Candidate DD	PCT 24	ED	20	20	0	
Representative in Congress	Candidate DD	PCT 24	EV	6	6	0	
Representative in Congress	Candidate DD	PCT 33	AB	20	19	1	
Representative in Congress	Candidate DD	PCT 33	ED	20	20	0	
Representative in Congress	Candidate DD	PCT 33	EV	6	6	0	
Representative in Congress	Candidate DD	PCT 4	AB	40	40	0	
Representative in Congress	Candidate DD	PCT 4	ED	20	20	0	
Representative in Congress	Candidate DD	PCT 4	EV	132	131	1	
Representative in Congress	Candidate DD	PCT 43	AB	20	20	0	
Representative in Congress	Candidate DD	PCT 43	ED	20	20	0	
Representative in Congress	Candidate DD	PCT 43	EV	6	6	0	
Representative in Congress	Candidate DD	PCT 9	AB	20	20	0	
Representative in Congress	Candidate DD	PCT 9	ED	10	10	0	
Representative in Congress	Candidate DD	PCT 9	EV	6	7	1	Note: minus sign is ignored
Redactions, initially shown as zeros, replaced from EL30A							
Final Vote Discrepancies, minus signs ignored					622	3	
				Audit Threshold Ratio (should be < 0.5%)		0.48%	
						100 x 3 / 622	
						✓	

Please contact your Clear Ballot representative if you have questions about this field service bulletin.
Thank you.



Florida Department of State
KEN DETZNER
Secretary of State