



**Report Prepared for the
Texas Secretary of State
Elections Division**



**Voting System Certification
Evaluation Report**

**Hart InterCivic (Hart)
Verity Voting System 1.0**

Introduction

This report summarizes the findings and observations regarding the conformance of the Election Hart InterCivic (Hart) Verity Voting System 1.0 to the requirements of the State of Texas.

Pursuant to Texas Administrative Code §81.60, HART submitted their application for state certification. Included with their application was their Technical Data Package (TDP) and the test report upon which the EAC based their national certification. The EAC/NIST NVLAP accredited Voting System Test Laboratory (VSTL) was SLI Global Solutions. The system was evaluated to the 2005 version of the VVSG, see Appendix A - EAC Certificate of Certification.

Verity Voting includes the following components:

- Verity Build - Election definition software application
- Verity Central - Central scanning software application
- Verity Count - Tabulation and reporting software application
- Verity User Management - User management software application
- Verity Election Management - Data management software application
- Verity Scan - Digital scanning voting device
- Verity Touch Writer with Access – Ballot marking device, with audio tactile interface

To provide chain-of-custody, a copy of all firmware/software and source code was sent directly from SLI, the VSTL for this system. It was installed in the early part of the examination under the supervision of the Texas examination team.

The Hart Verity Voting System 1.0 was evaluated for certification by the State of Texas on September 22-23, 2015.

Recommendation

The Hart Verity Voting System 1.0 is recommended for certification. The system was judged to comply with the voting system requirements of the State of Texas.

Additional observations and recommendations for improvement are also presented in this report.

This recommendation is strengthened by the fact that the system is being successfully used to run elections in other states.



Report Prepared for the Texas Secretary of State Elections Division



The EAC maintains an interactive map identifying jurisdictions that are using EAC certified systems. They also maintain a report database of problems reported by election officials with certified systems. These resources were consulted as part of the process of preparing this report.

Sincerely,

A handwritten signature in cursive script that reads "H. Stephen Berger".

H. Stephen Berger



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Candidate System

This section describes the candidate system, the Hart Verity Voting System 1.0.

System Components

The system is comprised of the components listed in Table 1 and shown functionally in Figure 1. This information is based on companies “Application for Texas Certification of Voting System” (Form 100).

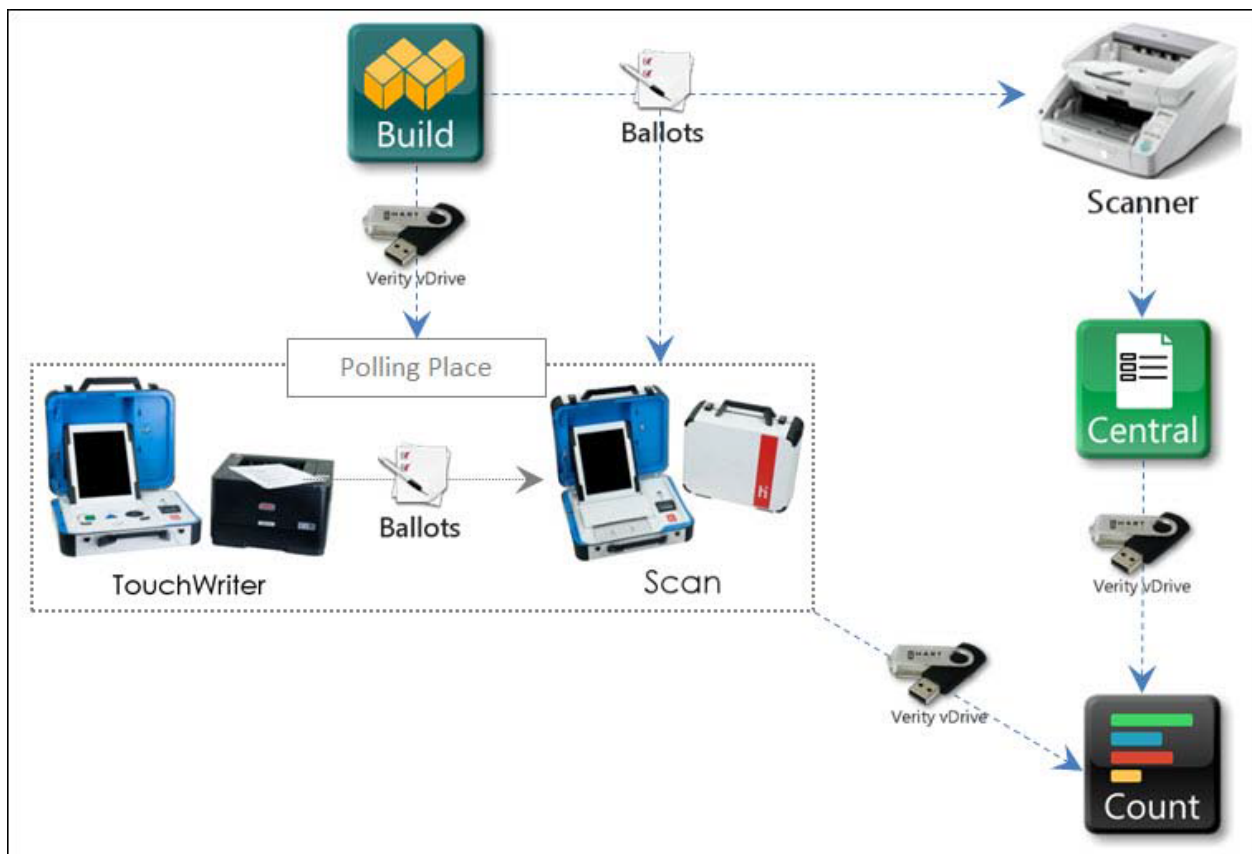


Figure 1 - Hart Verity Voting System 1.0 Process Flow

Table 1 - Hart Verity Voting System 1.0 System Components

System Components			
#	Unit/Application	Version	Function
Hart Verity Voting System 1.0			
1	Verity Build	1.0.3	Creates election definitions.
2	Verity Central	1.0.3	High-volume scanner for scanning ballot batches.
3	Verity User Management	1.0.3	User account and access management.
4	Verity Election Management	1.0.3	Election-definition and data loading and management.
5	Verity Desktop	1.0.3	Workstation management software ¹
6	Verity Scan	1.0.3	Scans completed ballots, creating Cast Vote Records (CVRs).
7	Verity Touch Writer with Access	1.0.3	Provides digital voting through a touch screen tablet system or accessibility interface.

¹ Verity Desktop is required system component but is not described in the operational guide.

System Limits

Hart reports the system limits recorded in Table 2.

Table 2 - Hart Verity Voting System 1.0 System Limits²

Element	Limit Requirement
Precincts	1,000
Splits per Precinct	20
Total Precincts + Splits in an election	6,000
Districts For voting devices and applications	100
Parties in a General Election	24
Parties in a Primary Election	10
Contests and Propositions combined	200
Contest Choices in a Contest	75
Total Contest Choices (voting positions) in an election	600
Maximum length of contestant name	100 characters
Maximum write-in length	25 characters
Ballot Styles	N/A
Voting Types	5
Maximum Polling Places per election	1200
Maximum devices per election	2400
Maximum number of central count devices	N/A
Media Device – Scan voting device	9999 sheets per vDrive
Media Device – Central application	60000 sheets per vDrive
Number of voters definable per election	1000000
Max. sheets per ballot	4 sheets
Scan - single sheet ballot	9999 Ballots
Scan - two sheet ballot	4999 Ballots
Scan - three sheet ballot	3333 Ballots
Scan – four sheet ballot	2499 Ballots
Central	1000000 Ballots
Count	4000000 CVRs 1200 vDrives

² EAC Scope of Certification for the Hart Verity 1.0 Voting System.

Examination Report

Description of the Examination

The examination occurred on September 22-23, 2015. It was preceded by the delivery of the companies Forms 100 and 101, Technical Data Package, authorization letters and related documents. The system software and firmware was provided directly from the VSTL that had examined the system to the VVSG for national certification.

On the first day of the examination, the technical examiners (Stephen Berger and James Sneeringer), Christina Adkins and some members of the election division staff were present to observe and verify the installation of the vendor's software. The VSTL directly provided encrypted Ghost images for the exam with SHA-256 HASH codes to verify digital signatures of the decrypted files. After the images were decrypted, SHA256 Hash Generator was used to generate the digital signature and confirm that it was the same as the signature provided by the VSTL.

Photos of the equipment and labels were taken and where hardware and firmware versions could be provided either on a screen or printed, those were produced and recorded.

The conclusion of the exam was that the Hart Verity 1.0 meet the Voting System Standards outlined in Sections 122.001, 122.032, 122.033, and 122.0331 of the Texas Election Code and the rules outlined in Chapter 81, Subchapter C of the Texas Administrative Code.

Observations & Further Recommendations

Corrupted vDrive

During the original examination a problem with vDrives reported as corrupt by the tabulator prevented successful tabulation of a test election. This flaw resulted in a product advisory being issued by the company on September 30, 2015. The product advisory was followed by a solution being implemented. An engineering change request was submitted to the EAC and approved by the agency on December 4, 2015. The company then notified the Keith Ingram, Texas Director of Elections, of the successful resolution on the problem on December 8, 2015. The recommendation made in this report is based on the system with this change included in the system.

In the product advisory the problem is described as follows:

Issue Description

In Verity Central, it is possible to create an invalid vDrive that will not be accepted in Verity Count tabulation and reporting software. If this condition is encountered, Count will generate the message, "vDrive format is invalid." The user can recover from this error by rescanning all ballots contained on the affected vDrive. However, this advisory recommends an efficient and usable alternative workflow to avoid the condition altogether.

This issue can be encountered in some Central ballot adjudication workflows if the following conditions exist:

- The election contains a Straight Party Selector

- A contest that is included in the “Straight Party” has a marked write-in which is adjudicated in Verity Central
- Various combinations of additional adjudication actions are performed; an example of a sequence that results in an invalid vDrive is:
 - **Resolve** the write-in contest
 - **Accept** a voter intent issue in any contest (in Verity Central, “Accept” means to “confirm” the system processing of the mark)
 - **Make any change** to any contest on the ballot (i.e. manually check or uncheck a choice, using the software, to classify it as marked or not marked)

Different combinations of the actions above, as well as other adjudication action, can generate an invalid vDrive. Because these actions can occur in different sequences, and because they can also be preceded or followed by additional actions, it is not possible to specify a single workflow that will result in the invalid condition; other sequences of steps can also result in the invalid condition. After these steps have been performed and the ballot containing the resolved write-in has its Cast Vote Records (CVRs) written to a vDrive, the vDrive that contains this ballot will not be accepted in Verity Count. When the vDrive is read into Count, Count will generate the message, “vDrive format is invalid.”

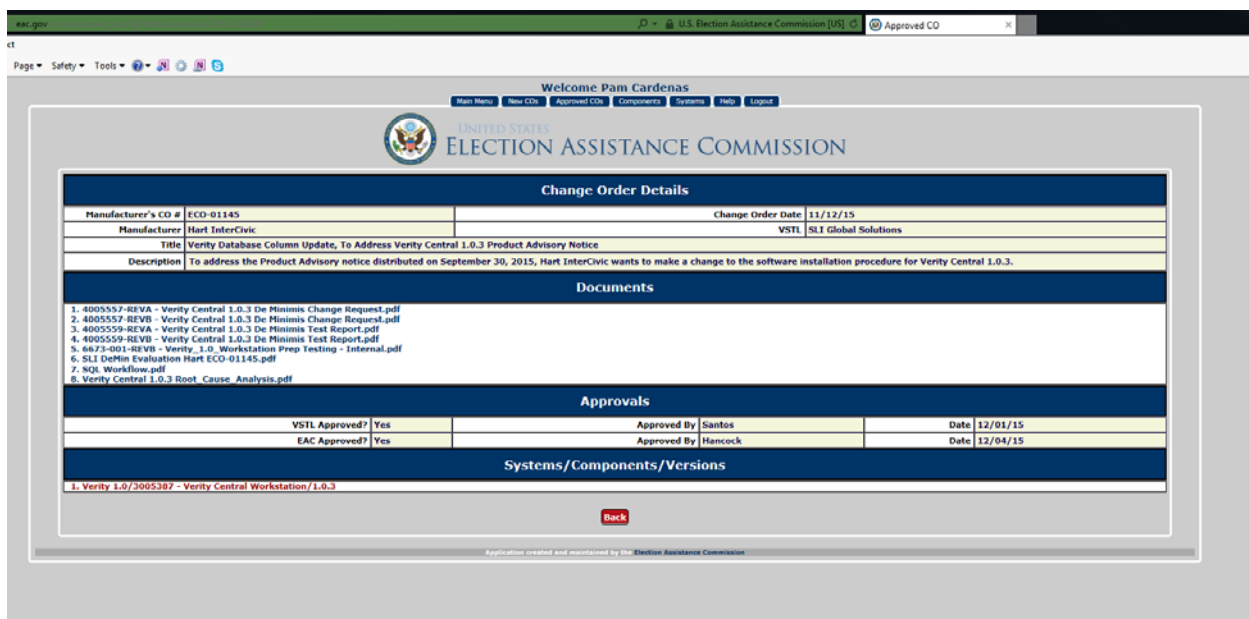


Figure 2 - EAC Approval of Change Correcting the vDrive Problem

While the problem itself was resolved there are additional opportunities for improvement that were identified by this finding:

- This issue was missed by Hart's internal testing and quality processes. One way to describe the problem is that different components in the system used different specifications for the upper limit of a shared variable. In this case the write-in field was limited to 100 characters in the central count software but 50 characters in the tabulation software. Further, in the system specifications, Table 2, the limit is set at 25 characters. Thus at least 3 different limits are used for the same variable. If this condition exists for other variables, including those listed in the system limits table,

Table 2, there is the potential for additional undiscovered conflicts. The fact that this possibility exists is an opportunity for improvement for Hart's quality system.

RECOMMENDED ACTION: *An analysis resulting in changes to the internal testing and product verification quality processes should be undertaken.*

- This issue was missed by the VSTL, SLI Global Solutions in its testing and as a result of that failure the problem was not identified during the EAC's certification. In addition several other states also missed the problem.

RECOMMENDED ACTION: *Both the company and EAC should request that SLI Global of that investigation and any resulting corrective actions.*

- The warning message given “vDrive format is invalid” was neither accurate nor unique to this problem. Further the system documentation did not give a description of why this error would be issued or what should be done about it.

RECOMMENDED ACTION: *A review of the accuracy of warning messages and the see if other guidance for other warning and error conditions needs improvement.*

- When examined the logs were functionally unusable. This issue will be discussed in more detail in a section dedicated to it.

System Log Function

A failing common to all of the current generation of voting systems is that the logging function is provided to pass various requirements for logs but is not functionally a usable or helpful facility. This shortcoming is not unique to the Verity system but this system shares this common failing. Log files are generally inaccessible. With this system they are only available in printed form and not available electronically, without extraordinary measures. The messages are poorly documented or not documented at all. The same message can be used for multiple events, often with very different levels of potential impact. There is no commonality of messaging or event description across system components.

Jurisdictions need the option to routinely consult system logs as part of the canvas. These logs are intended to be an important and independent record of the election. A review of them for system warnings, errors or other records of election issues is an important part of confirming the validity of election results. However, doing so requires that:

- the logs be obtainable in electronic files using commonly available file formats with human readable information.

RECOMMENDED ACTION: *The system logs should be easily available in electronic files*

using commonly used file formats with human readable messages.

- that the messages in the logs be clearly understood and consistently used across system components, so that the same event uses the same log message in all system components.

RECOMMENDED ACTION: *Log messages should be consistently used across the system and unique to each event.*

- that the messages be unique to an event and one message not be used for different events or multiple messages be used for the same event in different system components.
- that the meaning of each message be clearly described along with the appropriate corrective action for each warning or error be available in the user documentation.

RECOMMENDED ACTION: *A usability review of the logging system, including the clarity of its documentation, should be performed with corrective actions taken to make the system a routinely usable for election verification and confirm the functionality of detection and correction guidance of warning and error conditions in any unit of the system.*

As an example of the general failure to design the logging to be a useful function is the fact that the vDrive error reported previously resulted in 161 pages of indecipherable logging. Appendix C provides the first 22 of the 161 pages that were produced by the vDrive error. As this log clearly demonstrates the system logging is not functionally usable and certainly presents a prohibitive barrier to its routine use as a tool in election management.

Use of China Export Mark

The CE "Conformité Européenne" Mark is a mandatory conformity marking for products sold within the European Economic Area (EEA). The CE marking is also found on products sold outside the EEA that are manufactured in, or designed to be sold in, the EEA. The mark is a companies declaration that its product meets applicable standards and requirements established by the various directives of the program.

In recent years some Chinese companies have created a slight variant of the CE Mark, called the Chinese Export Mark but commonly called the *Chinese Counterfeit Mark*, Figure 3, because its purpose appears to primarily be to falsely represent that a product meets the requirements of the CE Mark.



Figure 3 - Comparison of the CE and *Chinese Counterfeit* mark³

An instance was found in a system component using the Chinese Counterfeit Mark, Figure 4. This observation initiated a more careful examination of the compliance of that component with all applicable requirements, particularly safety requirements. Compliance with the relevant safety requirements was confirmed through the database of approved products of the Underwriters Laboratory. In this specific case specifications relevant to this exam were misrepresented.



Figure 4 - Use of "China Export" mark on P/N 1005380

³ "Comparison of two used CE marks" by Mattved - Own work. Licensed under CC0 via Commons - https://commons.wikimedia.org/wiki/File:Comparison_of_two_used_CE_marks.svg#/media/File:Comparison_of_two_used_CE_marks.svg

It is a common business strategy for vendors to seek larger assignments from their customers. Chinese manufacturers commonly offer to provide parts and system components at reduced cost to win further business. The challenge to a company is that unless its supply chain management is extremely diligent corners can be cut and specifications violated. Degraded quality can be a creeping problem that gets worse over time. The observance of the China Export mark heightens concerns of the adequacy of the supply chain management system.

RECOMMENDED ACTION: *A review of the accuracy of all representations by vendors in the supply chain should be undertaken with an emphasis on discouraging intentionally misleading practices.*

Compliance Checklist

The following checklist includes all Texas voting system requirements. The complete checklist is provided as detailed support for the conclusion and recommendation of this report.

Vendor: Hart Intercivic	Voting System: Verity 1.0	
Pre-Test Requirements		
• Is Form 100 complete and satisfactory?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
• Review Form 100 - Schedule A - Have recommendations/issues made from previous exams been corrected or addressed? • N/A	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
• Review Form 101 - Are responses satisfactory?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
• Review change logs and provide information for testing or questioning vendor	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
• Training manuals appear complete?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
• Training manuals appear to be easy to use? • A particular deficiency was identified related to instructions on how to obtain the various logs and the meaning of the messages in the logs. • Warning messages were insufficiently document to allow them to be understood and corrective action taken based solely on the documentation.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
• Check with other jurisdictions where system is in use and ask questions regarding system, support and training. • Staff called Oregon and Washington. Certification reports from MN & VA were also obtained.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
• Did the system receive favorable reviews? • No reviews of this system were available for this exam.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
• Do all configurations listed in application seem feasible? Keep this in mind during the examination to make sure components necessary to ensure the security are included in all configurations and that the configurations will meet the counties needs (scanner used as central and/or precinct, etc..)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
• Vendors' proposals shall state a clear, unequivocal commitment that the election management and voter tabulation software user's application password is separate from and in addition to any other operating system password.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
• Vendor's system shall support automated application password expiration at intervals specified by a central system administrator.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
• Vendor shall discuss the steps required by the system administrator to implement and maintain automated password expiration. This discussion will include narrative concerning the degree to which the application password expiration capabilities are based on (a) the server or client's operating system, (b) the software application, or (c) both	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
• The vendor's proposal shall state the name of any automated incident, issue, or problem tracking system used by the firm in providing support to its election system clients.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Verify Installation		
• Verify/List all hardware	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

• Verify/List all COTS hardware/software versions	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
• Is the COTS hardware being demonstrated the same version as what was tested at the VSTL?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
• Is the COTS software being demonstrated the same version as what was tested at the VSTL?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
• Witness or actual install the software and firmware with the SOS CDs received from VSTL.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

Vendor: Hart Intercivic		Voting System: Verity 1.0	
Texas Law	Federal Law		
System Review			
TEC 122.001		• Preserves the secrecy of the ballot	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
TEC 122.001		• Is suitable for the purpose for which it is intended	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
TEC 122.001		• Operates safely, efficiently, and accurately and complies with the error rate standards of the voting system standards adopted by the EAC	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
TEC 122.001		• Is safe from fraudulent or unauthorized manipulation (physical exam and review of manuals)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
TEC 122.001		• Permits voting on all offices and measures to be voted on at the election	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
TEC 122.001	HAVA	• Warns of Overvote - Prevents counting votes on offices and measures on which the voter is not entitled to vote	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
	HAVA	• Warns of Undervote	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
TEC 122.001		• Prevents counting votes by the same voter for more than one candidate for the same office or, in elections in which a voter is entitled to vote for more than one candidate for the same office, prevents counting votes for more than the number of candidates for which the voter is entitled to vote	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
TEC 122.001		• Prevents counting a vote on the same office or measure more than once	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
TEC 122.001		• Permits write-in voting	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
TEC 122.001		• Is capable of permitting straight-party voting	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
TEC 65.007		• Is capable of cross-over votes	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
TEC 122.001	HAVA	• Is capable of providing records from which the operation of the voting system may be audited	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
		• Is it easy to choose the appropriate ballot style?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
		• Is the number of ballot styles available on a unit limited?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
		• Can you cancel the marking of a ballot after starting? Explain how.	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
		• Is there a way to properly secure all ports on the system?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
		• Are instructions provided in the documentation for securing the system?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
		• Usable for curbside voting?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
		• How to setup or modify audio files	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
		• How to adjust volume	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

	<ul style="list-style-type: none"> Does the system have any RF (Radio Frequency) communications? 	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
	<ul style="list-style-type: none"> Have representatives of the visually impaired community evaluated the accessibility of the system? 	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	<ul style="list-style-type: none"> Test both early voting and election day - all functions opening/closing 	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	<ul style="list-style-type: none"> Does system include sip 'n puff for accessibility 	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	<ul style="list-style-type: none"> Does system include paddles for accessibility 	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Texas Real-time Audit Log Review			
TEC 81.62	<ul style="list-style-type: none"> A central tabulating device must include a continuous feed printer dedicated to a real-time audit log, which prints out all significant election events and their date and time stamps. <p>See VVSG 2005:</p> <p>2.2.5.2.1.d: "The audit record shall be active whenever the system is in an operating mode. This record shall be available at all times, though it need not be continually visible."</p> <p>2.2.5.2.1.g: "The system shall be capable of printing a copy of the audit record."</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
TEC 81.62	<ul style="list-style-type: none"> Log error messages and operator response to those messages <p>See VVSG 2005 Section 2.2.5.2.2.a & 4.4.3.d</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
TEC 81.62	<ul style="list-style-type: none"> Log the number of ballots read for a given precinct <p>See VVSG 2005 Section 4.4.4.a & c & e</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
TEC 81.62	<ul style="list-style-type: none"> Log completion of reading ballots for a given precinct <p>See VVSG 2005 Section 4.4.3.b.3</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
TEC 81.62	<ul style="list-style-type: none"> Log the identity of the input ports used for modem transfers from precincts <p>See VVSG 2005 Section 4.4.2.g.1-4</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
TEC 81.62	<ul style="list-style-type: none"> Log users logging in and out from election system <p>See VVSG 2005 4.4.3.a.4, 4.4.3.d, 6.5.5.a & c</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
TEC 81.62	<ul style="list-style-type: none"> Log precincts being zeroed <p>See VVSG 2005 4.4.3.b.2</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
TEC 81.62	<ul style="list-style-type: none"> Log reports being generated <p>See VVSG 2005 4.4.3.d</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
TEC 81.62	<ul style="list-style-type: none"> Log diagnostics of any type being run <p>See VVSG 2005 4.4.2.a & d</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	<ul style="list-style-type: none"> Print any attempt to tally or load votes that have already been tallied or counted, identifying the precinct or source of the votes and flagging it as a duplicate 	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	<ul style="list-style-type: none"> Print starting the tally software (e.g. from the operating system) or exiting 	Yes	No

		the tally software, or any access to the operating system.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		• Record if a printer is paused, turned off, turned on, disconnected, and when reconnected.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Optical Scan System Review				
TEC 122.001		• Preserves the secrecy of the ballot	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
TEC 122.001		• Is suitable for the purpose for which it is intended	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
TEC 122.001		• Operates safely, efficiently, and accurately and complies with the error rate standards of the voting system standards adopted by the EAC	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
TEC 122.001		• Is safe from fraudulent or unauthorized manipulation (physical exam and review of manuals)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
TEC 122.001		• Permits voting on all offices and measures to be voted on at the election	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
TEC 122.001	HAVA	• Warns of Overvote - Prevents counting votes on offices and measures on which the voter is not entitled to vote	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	HAVA	• Warns of Undervote	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
TEC 122.001		• Prevents counting votes by the same voter for more than one candidate for the same office or, in elections in which a voter is entitled to vote for more than one candidate for the same office, prevents counting votes for more than the number of candidates for which the voter is entitled to vote	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
TEC 122.001		• Prevents counting a vote on the same office or measure more than once	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
TEC 122.001		• Permits write-in voting	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
TEC 122.001		• Is capable of permitting straight-party voting	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
TEC 65.007		• Is capable of cross-over votes	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
TEC 122.001	HAVA	• Is capable of providing records from which the operation of the voting system may be audited	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
		• Reports available by precinct?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
		• In order to perform a manual recount, can you print cast vote records for a precinct (including early voting, ED and absentee?) from an individual DRE?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
TEC 127.154		• Does each unit have a permanent identification number?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
		• Is there a way to properly secure all ports on the system?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
		• Are instructions provided in the documentation for securing the system?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

Appendix A - EAC Certificate of Certification

	United States Election Assistance Commission	
Certificate of Conformance		
Hart Verity 1.0		
<p>The voting system identified on this certificate has been evaluated at an accredited voting system testing laboratory for conformance to the 2005 <i>Voluntary Voting System Guidelines (2005 VVSG)</i> . Components evaluated for this certification are detailed in the attached Scope of Certification document. This certificate applies only to the specific version and release of the product in its evaluated configuration. The evaluation has been verified by the EAC in accordance with the provisions of the <i>EAC Voting System Testing and Certification Program Manual</i> and the conclusions of the testing laboratory in the test report are consistent with the evidence adduced. This certificate is not an endorsement of the product by any agency of the U.S. Government and no warranty of the product is either expressed or implied.</p>		
<p>Product Name: <u>Verity</u></p> <p>Model or Version: <u>1.0</u></p> <p>Name of VSTL: <u>SLI Global Solutions</u></p> <p>EAC Certification Number: <u>HRT-Verity-1.0</u></p> <p>Date Issued: <u>05/12/2015</u></p>	 <hr/> <p><i>Chief Operating Officer & Acting Executive Director</i> <i>U.S. Election Assistance Commission</i></p> <p>Scope of Certification Attached</p>	

Appendix B - Digital Signatures of Software Examined

There were 1,641 files on the installation media provide by SLI for this exam. SHA-256 digital signatures of those files were recorded to confirm continuity of the software certified in this exam with that tested by SLI and certified by the EAC. These signatures can be used to verify that the software used in the future is identical to that examined during this exam.

Appendix C - Verity System Log Report

The following is the log report of the vDrive failure. Note both the length and lack of clarity of the events recorded. Only the first 22 of the 161 pages of this log are reproduced below to provide an example of the system log.

Row	Log Date & Time	Device ID	Component	User	Fac ID	Tags	Event	Event Data
1	2015-09-23 11:00:48	W3494024503	Verity	none	0	System, Startup, Info	Starting up	The system is starting up
2	2015-09-23 11:01:15	W3494024503	Verity	none	0	Authorization, System, ElectionSecurity, Info	Access to OS	Access granted
3	2015-09-23 11:01:16	W3494024503	Verity	none	0	System, Info	Shutdown	The system is shutting down
4	2015-09-23 11:06:08	D1500097607	Verity	none	0	System, Startup, Info	Starting up	The system is starting up
5	2015-09-23 11:11:01	D1500097607	Verity	none	0	Authorization, Info	User Authorization	User 'user' log in is successful
6	2015-09-23 11:11:01	D1500097607	Verity	none	0	Authentication, System, ElectionSecurity, Info	User list action	user password was updated
7	2015-09-23 11:11:01	D1500097607	Verity	none	0	UI, Info	View loaded	View name: 'Your password has been successfully changed.' message box
8	2015-09-23 11:11:08	D1500097607	Verity	none	0	UI, Info	Button pressed	Button name: OK
9	2015-09-23 11:11:05	D1500097607	VerityUserManager 1.0.3	user	0	Startup, Info	Application opened	
10	2015-09-23 11:11:07	D1500097607	VerityUserManager 1.0.3	user	0	UI, Info	View loaded	View name: User Management
11	2015-09-23 11:11:27	D1500097607	VerityUserManager 1.0.3	user	0	System, Info	Application closed	
12	2015-09-23 11:31:48	D1500097607	Verity	none	0	UI, Info	View loaded	View name: 'The user has been logged out.' message box
13	2015-09-23 11:31:48	D1500097607	Verity	none	0	Authorization, Info	User Authorization	User 'user' has been logged out forcibly. Reason: 'Inactivity'
14	2015-09-23 11:40:07	D1500097607	Verity	none	0	UI, Info	Button pressed	Button name: OK
15	2015-09-23 11:40:10	D1500097607	Verity	none	0	Authorization, Info	User Authorization	User 'user' log in is successful
16	2015-09-23 11:40:16	D1500097607	VerityCentral 1.0.3	user	0	Startup, Info	Application opened	
17	2015-09-23 11:40:16	D1500097607	VerityCentral 1.0.3	user	0	UI, Info	View loaded	View name: Select Election chevron
18	2015-09-23 11:40:16	D1500097607	VerityCentral 1.0.3	user	0	UI, Info	View loaded	View name: Select Election task
19	2015-09-23 12:00:38	D1500097607	VerityCentral 1.0.3	user	0	System, Info	Application closed	
20	2015-09-23 12:00:38	D1500097607	Verity	none	0	UI, Info	View loaded	View name: 'The user has been logged out.' message box
21	2015-09-23 12:00:38	D1500097607	Verity	none	0	Authorization, Info	User Authorization	User 'user' has been logged out forcibly. Reason: 'Inactivity'
22	2015-09-23 12:02:07	D1500097607	Verity	none	0	UI, Info	Button pressed	Button name: OK

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Row	Log Date & Time	Device ID	Component	User	Exec ID	Page	Event	Event Data
42	2015-09-23 14:07:19	D1500097607	Election Manager 1.0.3	user	0	UI, Info	View loaded	View name: 'Elections list'
43	2015-09-23 14:07:22	D1500097607	Election Manager 1.0.3	user	0	UI, Info	Menu Item Selected	Menu Item Name: Delete
44	2015-09-23 14:07:22	D1500097607	Election Manager 1.0.3	user	0	UI, Info	View loaded	View name: 'The selected election will be deleted. Do you want to continue?' message box
45	2015-09-23 14:07:23	D1500097607	Election Manager 1.0.3	user	0	UI, Info	Button pressed	Button name: Yes
46	2015-09-23 14:07:24	D1500097607	Election Manager 1.0.3	user	0	ElectionData, Info	Election deleted	The election 'FINAL Texas General' was deleted
47	2015-09-23 14:27:25	D1500097607	Election Manager 1.0.3	user	0	System, Info	Application closed	
48	2015-09-23 14:27:25	D1500097607	Verity	none	0	UI, Info	View loaded	View name: 'The user has been logged out.' message box
49	2015-09-23 14:27:25	D1500097607	Verity	none	0	Authorization, Info	User Authorization	User 'user' has been logged out forcibly. Reason: 'Inactivity'
50	2015-09-23 15:52:23	D1500097607	Verity	none	0	UI, Info	Button pressed	Button name: OK
51	2015-09-23 15:52:34	D1500097607	Verity	none	0	Authorization, Info	User Authorization	User 'user' log in is successful
52	2015-09-23 15:52:36	D1500097607	VerityDesktop 1.0.3	user	0	Startup, Info	Application opened	
53	2015-09-23 15:52:39	D1500097607	VerityDesktop 1.0.3	user	0	System, Info	Application closed	
54	2015-09-23 15:52:39	D1500097607	VerityDesktop 1.0.3	user	0	Startup, Info	Application opened	
55	2015-09-23 15:54:30	D1500097607	VerityDesktop 1.0.3	user	0	System, ElectionSecurity, Info	Validation	Status: Started validation.
56	2015-09-23 15:54:32	D1500097607	VerityDesktop 1.0.3	user	0	System, ElectionSecurity, Info	Validation	Status: Completed validation successfully.
57	2015-09-23 15:54:32	D1500097607	VerityDesktop 1.0.3	user	0	System, DataExchange, Info	Export hashes	Hashes exported to 'F:\hashes.csv'
58	2015-09-23 15:54:32	D1500097607	VerityDesktop 1.0.3	user	0	UI, Info	View loaded	View name: 'Validation export completed successfully. Output file location is 'F:\hashes.csv.' message box
59	2015-09-23 15:54:37	D1500097607	VerityDesktop 1.0.3	user	0	UI, Info	Button pressed	Button name: OK
60	2015-09-23 16:15:01	D1500097607	VerityDesktop 1.0.3	user	0	System, Info	Application closed	
61	2015-09-23 16:15:01	D1500097607	Verity	none	0	UI, Info	View loaded	View name: 'The user has been logged out.' message box
62	2015-09-23 16:15:01	D1500097607	Verity	none	0	Authorization, Info	User Authorization	User 'user' has been logged out forcibly. Reason: 'Inactivity'

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Row	Log Date & Time	Device ID	Component	User	Exec ID	Page	Event	Event Data
63	2015-09-24 14:16:24	D1500097607	Verity	none	0	UI, Info	Button pressed	Button name: OK
64	2015-09-24 14:16:32	D1500097607	Verity	none	0	Authorization, Info	User Authorization	User 'user' log in is successful
65	2015-09-24 14:16:34	D1500097607	Election Manager 1.0.3	user	0	Startup, Info	Application opened	
66	2015-09-24 14:16:34	D1500097607	Election Manager 1.0.3	user	0	UI, Info	View loaded	View name: 'Elections list'
67	2015-09-24 14:16:49	D1500097607	Election Manager 1.0.3	user	0	UI, Info	Menu Item Selected	Menu Item Name: Import Signed
68	2015-09-24 14:16:53	D1500097607	Election Manager 1.0.3	user	0	UI, Info	Menu Item Selected	Menu Item Name: Import Signed
69	2015-09-24 14:17:17	D1500097607	Election Manager 1.0.3	user	0	Authorization, Hardware, Info	Verity Key requested	
70	2015-09-24 14:17:21	D1500097607	Election Manager 1.0.3	user	0	ElectionSecurity, Info	Verity Key read	Key for this election
71	2015-09-24 14:17:21	D1500097607	Election Manager 1.0.3	user	0	Authorization, Hardware, Info	Verity Key requested	
72	2015-09-24 14:17:31	D1500097607	Election Manager 1.0.3	user	0	Authorization, Hardware, Info	Password provided for Verity Key	Password correct: True
73	2015-09-24 14:17:32	D1500097607	Election Manager 1.0.3	user	0	DataExchange, Info	Signed election import	The election 'FINAL Texas General' (35674) was imported from 'E:\Texas\TX Certification Election\BulldCourt_Export_Signed_FINAL Texas General_59574_20150917-1922.zip'
74	2015-09-24 14:17:32	D1500097607	Election Manager 1.0.3	user	0	UI, Info	View loaded	View name: 'The import was successful' message box
75	2015-09-24 14:17:35	D1500097607	Election Manager 1.0.3	user	0	UI, Info	Button pressed	Button name: OK
76	2015-09-24 14:17:37	D1500097607	Election Manager 1.0.3	user	0	System, Info	Application closed	
77	2015-09-24 14:17:38	D1500097607	VerityCentral 1.0.3	user	0	Startup, Info	Application opened	
78	2015-09-24 14:17:38	D1500097607	VerityCentral 1.0.3	user	0	UI, Info	View loaded	View name: Select Election chevron
79	2015-09-24 14:17:38	D1500097607	VerityCentral 1.0.3	user	0	UI, Info	View loaded	View name: Select Election task
80	2015-09-24 14:18:09	D1500097607	VerityCentral 1.0.3	user	0	ElectionManagement, Info	Election Open	The election 'FINAL Texas General' (35674) was opened.
81	2015-09-24 14:28:39	D1500097607	VerityCentral 1.0.3	user	0	System, Exception, Fatal	Exception occurred	Exception details: System.Reflection.TargetInvocationException: Exception has been

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								<pre> thrown by the target of an invocation. --> System.NullReference Exception: Object reference not set to an instance of an object. at VerityCentral.BalloAdj usticator.ImageManag er.<_c__DisplayClass2 5.<NavigateTo>b__24 (AdjudicationViewMod el x) at System.Linq.Enumerab le.FirstOrDefault (TSource) (Enumerable`1 source, Func`2 predicate) at VerityCentral.BalloAdj usticator.ImageManag er.NavigateTo (AdjudicationViewMod el adjudicationViewMod el) at VerityCentral.ViewMod els.Resolve.BalloPren ewViewModel.Execute ThumbNailCommand (Object arg) at VerityCentral.ViewMod els.Resolve.BalloPren ewViewModel.<get_Th umbNailCommand>b__ 23(Object arg) --- End of inner exception stack trace --- at System.Runtime.Metho dHandle.InvokeMethod (Object target, Object[] arguments, Signature sig, Boolean constructor) at System.Reflection.Run timeMethodInfo.Unsaf elyInvokeInternal(Object obj, Object[] parameters, Object[] arguments) at System.Reflection.Run timeMethodInfo.Invoke (Object obj, BindingFlags invokeAttr, Binder binder, Object[] parameters, CultureInfo culture) at GalaSoft.MvvmLight.H elpers.WeakAction`1.E xecute(T parameter) at GalaSoft.MvvmLight.C ommand.RelayComm and`1.Execute(Object parameter) at </pre>

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Row	Log Date & Time	Device ID	Component	User	Exec ID	Tags	Event	Event Data
								<pre> MS.Internal.Command s.CommandHelpers.Gr abialExecuteCommand Source (CommandSource commandSource, Boolean userInitiated) at System.Windows.Cont rols.Primitives.ButtonB ase.OnClick() at System.Windows.Cont rols.Button.OnClick() at System.Windows.Cont rols.Primitives.ButtonB ase.OnMouseUp(Button nUp) (MouseButtonEventAr gs e) at System.Windows.UIE lement.OnMouseUp(Bu tonUpThunk)(Object sender, MouseButtonEventArg s e) at System.Windows.Input .MouseButtonEventArgs .InvokeEventHandler (Delegate genericHandler, Object genericTarget) at System.Windows.Rout edEventArgs.InvokeHa ndler(Delegate handler, Object target) at System.Windows.Rout edEventHandlerInfo.In vokeHandler(Object target, RoutedEventArgs routeEventArgs) at System.Windows.Event Route.InvokeHandlers Impl(Object source, RoutedEventArgs args, Boolean isRouted) at System.Windows.UIE lement.RaiseEvent(A s(DependencyObject sender, RoutedEventArgs args, RoutedEventArgs newEvent) at System.Windows.UIE lement.OnMouseUpTh unk)(Object sender, MouseButtonEventArgs e) at System.Windows.Input .MouseButtonEventArgs .InvokeEventHandler (Delegate genericHandler, Object </pre>

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82	2015-09-24 14:28:40	D1500097607	VerityCentral 1.0.3	user	0	System, Exception, Fatal	Exception occurred	<p>genericTarget() at System.Windows.RoutedEventHandler.InvokeHandler(Delegate handler, Object target) at System.Windows.RoutedEventHandlerInfo.InvokeHandler(Object target, RoutedEventArgs routedEventArgs) at System.Windows.EventRoute.InvokeHandlersImpl(Object source, RoutedEventArgs args, Boolean reRaised) at System.Windows.UIElement.RaiseEventImpl(DependencyObject sender, RoutedEventArgs args) at System.Windows.UIElement.RaiseEvent(RoutedEventArgs args) at System.Windows.Input.InputManager.ProcessStagingArea() at System.Windows.Input.InputManager.ProcessStagingArea() at System.Windows.Input.Provider.ReportInput(InputReport inputReport) at System.Windows.Interop.HwndMouseInputProvider.ReportInput(IntPtr hwnd, InputMode mode, Int32 timestamp, RawMouseActions actions, Int32 x, Int32 y, Int32 wheel) at System.Windows.Interop.HwndMouseInputProvider.FilterMessage(IntPtr hwnd, WindowMessage msg, IntPtr wParam, IntPtr lParam, Boolean handled) at System.Windows.Interop.HwndSource.InputFilterMessage(IntPtr hwnd, Int32 msg, IntPtr wParam, IntPtr</p> <p>Param, Boolean& handled) at MS.Win32.HwndWrapper.WndProc(IntPtr hwnd, Int32 msg, IntPtr wParam, IntPtr lParam, Boolean& handled) at MS.Win32.HwndSubclass.DispatcherCallbackOperation(Object o) at System.Windows.Threading.ExceptionWrapper.InternalInvokeCall(Delegate callback, Object args, Int32 numArgs) at MS.Internal.Threading.ExceptionFilterHelper.TryCallWhen(Object source, Delegate method, Object args, Int32 numArgs, Delegate catchHandler)</p> <p>Exception details: System.Reflection.TargetInvocationException: Exception has been thrown by the target of an invocation. --- System.NullReferenceException: Object reference not set to an instance of object. at VerityCentral.BallotAdjudicator.ImageManager.<<c__DisplayClass25.>.NavigateToC_24(AjudicatorViewModel o) at System.Linq.Enumerable.FirstOrDefault(TSource) (IEnumerable`1 source, Func`2 predicate) at VerityCentral.BallotAdjudicator.ImageManager.NavigateTo(AjudicatorViewModel o) at VerityCentral.ViewModels.ResolveBallotReviewViewModel.ExecuteThumbNailCommand(Object arg) at VerityCentral.ViewModels.ResolveBallotReviewViewModel.<get_ThumbNailCommand>b_23(Object arg) ---</p>

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Row	Log Date & Time	Device ID	Component	User	Src ID	Tags	Event	Event Data
								End of inner exception stack trace — at System.RuntimeMethodHandle.InvokeMethod(Object target, Object[] arguments, Signature sig, Boolean constructor) at System.Reflection.RuntimeMethodInfo.UnsafeInvokeInternal(Object obj, Object[] parameters, Object[] arguments) at System.Reflection.RuntimeMethodInfo.Invoke(Object obj, BindingFlags invokeAttr, Binder binder, Object[] parameters, CultureInfo culture) at Castle.MicroKernel.Registers.WalkAction`1.Execute(T parameter) at GatoSoft.MvvmLight.Command.RelayCommand`1.Execute(Object parameter) at MS.Internal.Commands.CommandHelpers.CriticalExecuteCommandSource(ICommandSource commandSource, Boolean userInitiated) at System.Windows.Controls.Primitives.ButtonBase.OnClick() at System.Windows.Controls.Button.OnClick() at System.Windows.Controls.Primitives.ButtonBase.OnMouseLeftButtonDown(MouseButtonEventArgs e) at System.Windows.UIDataElement.OnMouseLeftButtonDownThunk(Object sender, MouseButtonEventArgs e) at System.Windows.Input.MouseButtonEventArgs.InvokeEventHandler(Delegate genericHandler, Object genericTarget) at System.Windows.RoutedEventArgs.InvokeHandler(Delegate handler, Object target)

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Row	Log Date & Time	Device ID	Component	User	Src ID	Tags	Event	Event Data
								at System.Windows.RoutedEventArgs.InvokeHandler(Delegate handler, Object target) at System.Windows.RoutedEventHandlerInfo.InvokeEventHandler(Object source, RoutedEventArgs args, Boolean reraised) at System.Windows.UIDataElement.RaiseEvent(RoutedEventArgs e, DependencyObject sender) at System.Windows.UIDataElement.RaiseEvent(RoutedEventArgs e, DependencyObject sender) at System.Windows.Input.MouseButtonEventArgs.InvokeEventHandler(Delegate genericHandler, Object genericTarget) at System.Windows.RoutedEventArgs.InvokeHandler(Delegate handler, Object target) at System.Windows.RoutedEventHandlerInfo.InvokeHandler(Object target, RoutedEventArgs args) at System.Windows.UIDataElement.RaiseEvent(RoutedEventArgs e, DependencyObject sender) at System.Windows.UIDataElement.RaiseEvent(RoutedEventArgs e, DependencyObject sender) at System.Windows.Input.InputManager.ProcessStagingArea() at

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83	2015-09-24 14:28:41	D1900097607	VerityCentral 1.0.3	user	0	System, Exception, Fatal	Exception occurred	<p>System.Windows.Input.InputManager.ProcessInput(InputEventArgs input) at System.Windows.Input.InputProviderClass.ReportOutput(IInputReport inputReport) at System.Windows.Input.HwndMouseInputProvider.ReportInput(IHwnd hwnd, InputMode mode, Int32 timestamp, RawMouseActions actions, Int32 x, Int32 y, Int32 wheel) at System.Windows.Input.HwndMouseInputProvider.FilterMessage(IntPtr hwnd, WindowMessage msg, IntPtr wParam, IntPtr lParam, Boolean& handled) at System.Windows.Input.HwndSource.InputFilterMessage(IntPtr hwnd, Int32 msg, IntPtr wParam, IntPtr lParam, Boolean& handled) at MS.Win32.HwndWrapper.WndProc(IntPtr hwnd, Int32 msg, IntPtr wParam, IntPtr lParam, Boolean& handled) at MS.Win32.HwndSubclass.DispatcherCallbackOperation(Object o) at System.Windows.Threading.ExceptionWrapper.InternalCallCall(Delegate callback, Object args, Int32 numArgs) at MS.Internal.Threading.ExceptionFilterHelper.TryCatchWhen(Object source, Delegate method, Object args, Int32 numArgs, Delegate catchHandler)</p> <p>Exception details: System.Reflection.TargetInvocationException: Exception has been thrown by the target of an invocation. --> System.NullReferenceException: Object reference not set to an instance of an object.</p>

Row	Log Date & Time	Device ID	Component	User	Device ID	Page	Event	Event Data
								<p>at VerityCentral.BalotAdj ucticator.ImageManag er.<>c__DisplayClass2 5.<NavigateTo>_24 (AdjudicatorViewMod el x) at System.Linq.Enumer able.FirstOrDefault [TSources] (IEnumerable`1 source, Func`2 predicate) at VerityCentral.BalotAdj ucticator.ImageManag er.NavigateTo (AdjudicatorViewMod el adjudicatorViewModel) at VerityCentral.ViewMod els.Resolve.BalotRavi wViewModel.Execute ThumbnailCommand (Object arg) at VerityCentral.ViewMod els.Resolve.BalotRavi wViewModel.<get_Th umbnailCommand>_b_ _23(Object arg) --- End of inner exception stack trace --- at System.RuntimeMethod othandle.InvokeMethod (Object target, Object[] arguments, Signature sig, Boolean constructor) at System.Reflection.Run timeMethodInfo.Unsaf elyInvokeInternal(Object obj, Object[] parameters, Object[] arguments) at System.Reflection.Run timeMethodInfo.Invoke (Object obj, BindingFlags invokeAttr, Binder binder, Object[] parameters, CultureInfo culture) at GalaSoft.MvvmLight.H elpers.WeakAction`1.E xecute(T parameter) at GalaSoft.MvvmLight.C ommand.RelayComm and`1.Execute(Object parameter) at MS.Internal.Command s.CommandHelpers.Cr iticalExecuteCommand Source (ICommandSource commandSource,</p>

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Row	Log Date & Time	Device ID	Component	User	Exec ID	Tags	Event	Event Data
							Boolean userInitiated) at System.Windows.Controls.Primitives.ButtonBase.OnClick() at System.Windows.Controls.Button.OnClick() at System.Windows.Controls.Primitives.ButtonBase.OnMouseLeftButtonDown(MouseButtonEventArgs e) at System.Windows.UIElement.OnMouseLeftButtonDown(ThunkObject sender, MouseButtonEventArgs e) at System.Windows.Input.MouseButtonEventArgs.InvokeEventHandler(Delegate genericHandler, Object genericTarget) at System.Windows.RoutedEventArgs.InvokeHandler(Delegate handler, Object target) at System.Windows.RoutedEventHandlerInfo.InvokeHandler(Object target, RoutedEventArgs routedEventArgs) at System.Windows.EventRoute.InvokeHandlersImpl(Object source, RoutedEventArgs args, Boolean reRaised) at System.Windows.UIElement.RaiseEvent(AependencyObject sender, RoutedEventArgs args, RoutedEvent newEvent) at System.Windows.UIElement.OnMouseThunk(Object sender, MouseButtonEventArgs e) at System.Windows.Input.MouseButtonEventArgs.InvokeEventHandler(Delegate genericHandler, Object genericTarget) at System.Windows.RoutedEventArgs.InvokeHandler(Delegate handler, Object target) at	System.Windows.RoutedEventHandlerInfo.InvokeHandler(Object target, RoutedEventArgs routedEventArgs) at System.Windows.UIElement.RaiseEvent(AependencyObject sender, RoutedEventArgs args) at System.Windows.UIElement.RaiseEvent(RoutedEventArgs args) at System.Windows.UIElement.RaiseEvent(RoutedEventArgs args) at System.Windows.Input.InputManager.ProcessStagingArea() at System.Windows.Input.InputManager.ProcessInput(InputEventArgs input) at System.Windows.Input.Provider.RaiseReportInputReport() at System.Windows.Interop.HwndMouseInputProvider.ReportInput(IntPtr hwnd, InputMode mode, Int32 timestamp, RawMouseActions actions, Int32 x, Int32 y, Int32 wheel) at System.Windows.Interop.HwndMouseInputProvider.FilterMessage(IntPtr hwnd, WindowMessage msg, IntPtr param, IntPtr wParam, Boolean handled) at System.Windows.Interop.HwndSource.InputFilterMessage(IntPtr hwnd, Int32 msg, IntPtr wParam, IntPtr lParam, Boolean handled) at MS.Win32.HwndWrapper.WndProc(IntPtr hwnd, Int32 msg, IntPtr wParam, IntPtr

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14	2015-09-24 14:28:43	0150007607	VerityCentral 1.0.3	user	0	System, Exception, Fatal	Exception occurred	<p>Param, Boolean& handled) at MS.Win32.HwndSubclass.DispatcherCallbackOperation(Object) at System.Windows.Threading.ExceptionWrapper.InternalRealCall (Delegate callback, Object args, Int32 numArgs) at MS.Internal.Threading.ExceptionFilterHelper.TryCatchWhen(Object source, Delegate method, Object args, Int32 numArgs, Delegate catchHandler)</p> <p>Exception details: System.Reflection.TargetInvocationException: Exception has been thrown by the target of an invocation. --> System.NullReferenceException: Object reference not set to an instance of an object. at VerityCentral.BalotAdjudicator.ImageManager.<>c__DisplayClass25.<NavigateTo>b__24 (AdjudicatorViewModel x) at System.Linq.Enumerable.FirstOrDefault (TSource) (IEnumerable`1 source, Func`2 predicate) at VerityCentral.BalotAdjudicator.ImageManager.NavigateTo (AdjudicatorViewModel adjudicatorViewModel) at VerityCentral.ViewModels.Resolve.BalotPlanViewViewModel.ExecuteThruBallotCommand (Object arg) at VerityCentral.ViewModels.Resolve.BalotPlanViewViewModel.<get_ThruBallotCommand>b__23 (Object arg) -- End of inner exception stack trace -- at System.RuntimeMethodInfo.DispatchInvokeInternal (Object target, Object[] arguments, Signature</p>

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Row	Log Date & Time	Device ID	Component	User	Rec ID	Tags	Event	Event Data
							routedEventArgs) at System.Windows.EventRoute.InvokeHandlersImpl(Object source, RoutedEventArgs args, Boolean reRaised) at System.Windows.UIElement.RaiseEventImpl(DependencyObject sender, RoutedEventArgs args, RoutedEvent newEvent) at System.Windows.UIElement.OnMouseUpThunk(Object sender, MouseButtonEventArgs e) at System.Windows.Input.MouseButtonEventArgs.InvokeEventHandler(Delegate genericHandler, Object genericTarget) at System.Windows.RoutedEventArgs.InvokeHandler(Delegate handler, Object target) at System.Windows.RoutedEventHandlerInfo.InvokeHandler(Object target, RoutedEventArgs args) at System.Windows.EventRoute.InvokeHandlersImpl(Object source, RoutedEventArgs args, Boolean reRaised) at System.Windows.UIElement.RaiseEventImpl(DependencyObject sender, RoutedEventArgs args) at System.Windows.UIElement.RaiseTrustedEvent(RoutedEventArgs args) at System.Windows.Input.InputManager.ProcessStagingArea() at System.Windows.Input.InputManager.ProcessInput() at System.Windows.Input.InputProviderSite.ReportInput()	
85	2015-09-24 14:28:44	D1500097607	VerityCentral 1.0.3	user	0	System, Exception, Fatal	Exception occurred	orInput(InputReport InputReport) at System.Windows.Input.Provider.ReportInput(IntPtr hwnd, InputMode mode, Int32 timestamp, RawMouseActions actions, Int32 x, Int32 y, Int32 wheel) at System.Windows.Input.Provider.FlashMessage(IntPtr hwnd, WindowMessage msg, IntPtr wParam, IntPtr lParam, Boolean handled) at System.Windows.Input.Provider.FilterMessage(IntPtr hwnd, Int32 msg, IntPtr wParam, IntPtr lParam, Boolean handled) at MS.Win32.HwndWrapper.WndProc(IntPtr hwnd, Int32 msg, IntPtr wParam, IntPtr lParam, Boolean handled) at MS.Win32.HwndSubclass.DispatcherCallbackOperation(Object o) at System.Windows.Threading.ExceptionWrapper.InternalRealCall(Delegate callback, Object args, Int32 numArgs) at MS.Internal.Threading.ExceptionFilterHelper.TryCatchWhen(Object source, Delegate method, Object args, Int32 numArgs, Delegate catchHandler)

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Row	Log Date & Time	Device ID	Component	User	Rec ID	Tags	Event	Event Data
								orInput(InputReport InputReport) at System.Windows.Input.Provider.ReportInput(IntPtr hwnd, InputMode mode, Int32 timestamp, RawMouseActions actions, Int32 x, Int32 y, Int32 wheel) at System.Windows.Input.Provider.FlashMessage(IntPtr hwnd, WindowMessage msg, IntPtr wParam, IntPtr lParam, Boolean handled) at System.Windows.Input.Provider.FilterMessage(IntPtr hwnd, Int32 msg, IntPtr wParam, IntPtr lParam, Boolean handled) at MS.Win32.HwndWrapper.WndProc(IntPtr hwnd, Int32 msg, IntPtr wParam, IntPtr lParam, Boolean handled) at MS.Win32.HwndSubclass.DispatcherCallbackOperation(Object o) at System.Windows.Threading.ExceptionWrapper.InternalRealCall(Delegate callback, Object args, Int32 numArgs) at MS.Internal.Threading.ExceptionFilterHelper.TryCatchWhen(Object source, Delegate method, Object args, Int32 numArgs, Delegate catchHandler)
								Exception details: System.Reflection.TargetInvocationException: Exception has been thrown by the target of an invocation. --> System.NullReferenceException: Object reference not set to an instance of an object. at VerityCentral.BalotAdjudicator.ImageManager.<>c__DisplayClass25.<NavigateToTab_24>AdjudicatorViewMod

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Row	Log Date & Time	Device ID	Component	User	Class ID	Tags	Event	Event Data
								<pre> e() at System.Linq.Enumerab le.FirstOrDefault [TSource] ()Enumerable'1 source, Func'2 predicate) at VerityCentral.BalotAd justicator.ImageManag er.NavigateTo (AdjudicationViewMod el adjudicationViewMod el) at VerityCentral.ViewMod els.ResolveBallotRev iewViewModel.Execute ThumbnailCommand (Object arg) at VerityCentral.ViewMod els.ResolveBallotRev iewViewModel.<get_Th umbnailCommand>_o _23(Object arg) --- End of inner exception stack trace --- at System.Runtime.Metho dHandle.InvokeMethod (Object target, Object[] arguments, Signature sig, Boolean constructor) at System.Reflection.Run timeMethodInfo.Unsaf eInvokeInternal(Object obj, Object[] parameters, Object[] arguments) at System.Reflection.Run timeMethodInfo.Invoke (Object obj, BindingFlags invokeFlags, Binder binder, Object[] parameters, CultureInfo culture) at GalaSoft.MvvmLight.H elpers.WalkAction'1.E xecute(T parameter) at GalaSoft.MvvmLight.C ommandRelayComma nd'1.Execute(Object parameter) at MS.Internal.Command s.CommandHelpers.Cr itics.ExecuteCommand Source (ICommandSource commandSource, Boolean userInitiated) at System.Windows.Cont rols.Primitives.ButtonB ase.OnClick() at System.Windows.Cont </pre>

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								<pre> role.Button.OnClick() at System.Windows.Cont rols.Primitives.ButtonB ase.OnMouseLeftButto nUp (MouseButtonEventArgs e) at System.Windows.UIEl ement.OnMouseLeftBut tonUpThunk(Object sender, MouseButtonEventArgs e) at System.Windows.Input .MouseButtonEventArgs .InvokeEventHandler (Delegate genericHandler, Object genericTarget) at System.Windows.Rout edEventArgs.InvokeHa ndler(Delegate handler, Object target) at System.Windows.Rout edEventHandlerInfo.In vokeHandler(Object target, RoutedEventArgs routedEventArgs) at System.Windows.Even tRoute.InvokeHandlers Impl(Object source, RoutedEventArgs args, Boolean isRaised) at System.Windows.UIE lement.RaiseEvent(A sDependencyObject sender, RoutedEventArgs args, RoutedEventArgs newEvent) at System.Windows.UIE lement.OnMouseUpTh unk(Object sender, MouseButtonEventArgs e) at System.Windows.Input .MouseButtonEventArgs .InvokeEventHandler (Delegate genericHandler, Object genericTarget) at System.Windows.Rout edEventArgs.InvokeHa ndler(Delegate handler, Object target) at System.Windows.Rout edEventHandlerInfo.In vokeHandler(Object target, RoutedEventArgs routedEventArgs) at </pre>

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								System.Windows.EventRoute.InvokeHandlersImpl(Object source, RoutedEventArgs args, Boolean reRaise) at System.Windows.UIElement.RaiseEventImpl(DependencyObject sender, RoutedEventArgs args) at System.Windows.UIElement.RaiseTrustedEvent(RoutedEventArgs args) at System.Windows.UIElement.RaiseEvent(RoutedEventArgs args, Boolean trusted) at System.Windows.Input.InputManager.ProcessStagingArea() at System.Windows.Input.InputManager.ProcessInput(InputEventArgs input) at System.Windows.Input.InputProviderSite.ReportInput(InputReport inputReport) at System.Windows.Interop.HwndMouseInputProvider.ReportInput(IntPtr hwnd, InputMode mode, Int32 timestamp, RawMouseActions actions, Int32 x, Int32 y, Int32 wheel) at System.Windows.Interop.HwndMouseInputProvider.FilterMessage(IntPtr hwnd, WindowMessage msg, IntPtr wParam, IntPtr lParam, Boolean& handled) at System.Windows.Interop.HwndSource.InputFilterMessage(IntPtr hwnd, Int32 msg, IntPtr wParam, IntPtr lParam, Boolean& handled) at MS.Win32.HwndWrapper.WndProc(IntPtr hwnd, Int32 msg, IntPtr wParam, IntPtr lParam, Boolean& handled) at MS.Win32.HwndSubclass.DispatcherCallbackOperation(Object o) at

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86	2015-09-24 14:29:48	D1500097607	VerityCentral 1.0.3	user	0	System, Exception, Fatal	Exception occurred	System.Windows.Threading.ExceptionWrapper.InternalRealCall(Delegate callback, Object args, Int32 numArgs) at MS.Internal.Threading.ExceptionFilterHelper.TryCatchWhen(Object source, Delegate method, Object args, Int32 numArgs, Delegate catchHandler) Exception details: System.Reflection.TargetInvocationException: Exception has been thrown by the target of an invocation. --> System.NullReferenceException: Object reference not set to an instance of an object. at VerityCentral.BalotAdjudicator.ImageManager.<>c__DisplayClass25.<NavigateTo>b__24(AdjudicationViewModel x) at System.Linq.Enumerable.FirstOrDefault(TSource) (IEnumerable`1 source, Func`2 predicate) at VerityCentral.BalotAdjudicator.ImageManager.NavigateTo(AdjudicationViewModel adjudicationViewModel) at VerityCentral.ViewModels.Resolve.BalotReviewViewModel.ExecuteThumbNailCommand(Object arg) at VerityCentral.ViewModels.Resolve.BalotReviewViewModel.<get_ThumbNailCommand>b__23(Object arg) -- End of inner exception stack trace -- at System.RuntimeMethodHandle.InvokeMethod(Object target, Object[] arguments, Signature sig, Boolean constructor) at System.Reflection.RuntimeMethodInfo.UnsafeInvokeInternal(Object obj, Object[]