



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



Voting System Certification Evaluation Report

Hart InterCivic (Hart) Verity Voting System 2.0

Introduction

The Hart Verity Voting System 2.0 was evaluated for certification by the State of Texas on June 29-30, 2016. This reports the findings and observations regarding the conformance of the Election Hart InterCivic (Hart) Verity Voting System 2.0 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 for EAC certification to the 2005 version of the VVSG.

Verity Voting includes the following components:

- Verity Data – Ballot setup software
- 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 Desktop – Workstation management software
- Verity Scan - Digital scanning voting device
- Verity Controller – Controller for Verity Touch and other verity voting devices
- Verity Touch – Touch screen voting device
- Verity Touch with Access – Touch screen voting device with accessibility features
- Verity Touch Writer with Access – Ballot marking device, with audio tactile interface



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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 major additions to the previous Hart system certified in Texas, the Hart Verity Voting System 1.0, were:

- The Verity Data data management software.
- Introduction of direct record electronic (DRE) voting supported by the Verity Controller, Verity Touch and other DRE components.
- The ability to export ballot previews from Verity Data or Verity Build.
- Support for electronic provisional ballots.
- Support for cumulative voting.
- Additional exports options, including CSV exports of consolidated audit logs.

These additions to the system were one of the areas of focus for this exam.

Recommendation

The Hart Verity Voting System 2.0 was judged to comply with the voting system requirements of the State of Texas, 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, and therefore is recommended for certification.

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

Sincerely,

A handwritten signature in black ink 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 2.0.

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).

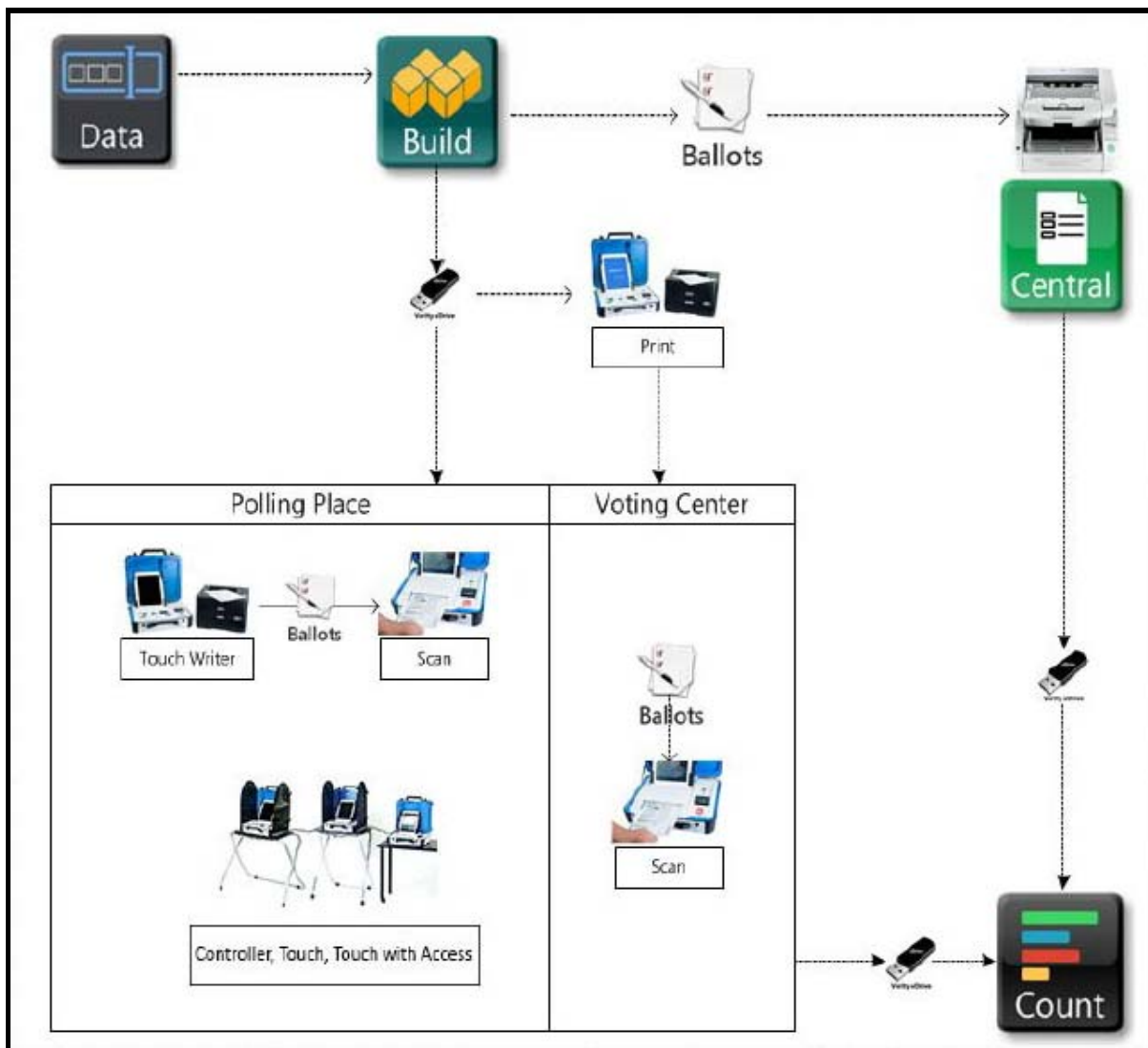


Figure 1 - Hart Verity Voting System 2.0 Process Flow¹

¹ Graphics from the EAC document, "Hart Verity 2.0 Certificate and Scope of Cert FINAL 4.27.16.pdf".

Table 1 - Hart Verity Voting System 2.0 System Components

System Components			
#	Unit/Application	Version	Function
Hart Verity Voting System 2.0			
1	Verity Data	2.0.2	Ballot setup software
2	Verity Build	2.0.2	Creates election definitions.
3	Verity Count	2.0.2	Central count accumulation and tallying software.
4	Verity Central	2.0.2	High-volume scanner software.
5	Verity User Management	2.0.2	User account and access management.
6	Verity Election Management	2.0.2	Election-definition and data loading and management.
7	Verity Desktop	2.0.2	Workstation management software
8	Verity Scan	2.0.3	Scans completed ballots, creating Cast Vote Records (CVRs).
9	Verity Touch Writer with Access	2.0.3	Provides digital voting through a touch screen tablet system or accessibility interface.
10	Verity Controller	2.0.3	Controller for voting devices.
11	Verity Touch	2.0.3	Touch screen voting device.
12	Verity Touch with Access	2.0.3	Touch screen voting device with accessibility features.

System Limits

Hart reports the system limits recorded in Table 2.

Table 2 - Hart Verity Voting System 2.0 System Limits²
(Increased limits highlighted in **blue** text. Decreased limits highlighted in **maroon** text.)

System Limits			
#	Element	System Limit	
		Verity 1.0	Verity 2.0
1	Precincts	1,000	2,000
2	Splits per Precinct	20	20
3	Total Precincts + Splits in an election	6,000	2,000
4	Districts for voting devices and applications	100	75
5	Parties in a General Election	24	24
6	Parties in a Primary Election	10	10
7	Contests and Propositions combined	200	200
8	Contest Choices in a Contest	75	200
9	Total Contest Choices (voting positions) in an election	600	600
10	Maximum length of contestant name (characters)	100	100
11	Maximum write-in length	25	25
12	Ballot Styles	N/A	N/A
13	Voting Types	5	5
14	Maximum Polling Places per election	1,200	1,200
15	Maximum devices per election	2,400	2,400
16	Maximum Central Count Scanners in a single network	not listed	4
17	Media Device – Scan voting device (sheets per vDrive)	9,999	9,999
18	Media Device – Central application (sheets per vDrive)	60,000	80,000
19	Number of voters definable per election	1,000,000	1,000,000
20	Maximum sheets per ballot	4	4
21	Scan – single sheet ballots	9,999	9,999
22	Scan – two sheet ballots	4,999	4,999
23	Scan – three sheet ballots	3,333	3,333
24	Scan – four sheet ballots	2,499	2,499

² EAC Scope of Certification for the Hart Verity 2.0 Voting System, “Hart Verity 2.0 Certificate and Scope of Cert FINAL 4.27.16.pdf”.

System Limits			
#	Element	System Limit	
		Verity 1.0	Verity 2.0
25	Central (ballots)	1,000,000	1,000,000
26	Count (CVRs)	4,000,000	4,000,000
27	Count (vDrives)	1,200	1,200
28	Ballot Sizes	not listed	8.5" x 11" 8.5" x 14" 8.5" x 17" 8.5" x 19" 11" x 17"

Changes from Previous Version

Table 3 – Changes from the Previous Version Certified in Texas, Verity 1.0³

Category	Change
New	Verity Data – data management software
New	Verity Touch DRE – electronic voting device
New	Verity Touch with Access DRE – accessible electronic voting device, with ATI
New	Verity Controller – DRE polling place management device
New	Export of electronic ballot previews from Data or Build in PDF
New	Support for electronic provisional ballots
New	Support for cumulative voting
New	In Verity Count, HTML exports for Canvass, Cumulative, and Precinct Reports
New	In Verity Count, CSV and XLS exports for Canvass, Cumulative, and Precinct Reports
New	CSV exports for all System Logs and Audit Logs from all software applications
New	In Verity Count, CSV exports for consolidated audit logs for all devices
Changed	On Touch and Touch Writer, the “Contest List” that appears under “About your ballot” has enhanced
Changed	Verity Build - Improved ballot processing speed (export to PDF)
Changed	Verity Build – Maximum number of ballots per import file for ballot printing increased from 10,000 to 100,000
Fixed	Verity Build – When printing ballots, replaced the Windows dialog with a print dialog designed specifically for Verity

³ Copied from: 6_Final_Verity20_Deltas_For_TX.pdf

Fixed	Verity Data and Build – On Ballot Preview screen, precincts are now displayed in sequence order, rather than in precinct name
Fixed	Verity Central – No longer possible to create an invalid vDrive in a General Election with Straight
Fixed	Verity Central – Precinct Detail Report correctly sorts by precinct sequence order, rather than by
Fixed	Verity Count – In Precinct Groups, the order of the precincts listed on the screen now displays in
Fixed	Verity Count – Grid with <i>vDrives Read</i> now sorts by the date/time the vDrive was read, with the
Fixed	All devices – on the polling place selection screen for poll workers, the polling places are now listed

Examination Report

Description of the Examination

The examination occurred on June 29-30, 2016. 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 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.

Observations & Further Recommendations

In Schedule A, Attachment 1 to Hart's Form 100 they address findings and observations from the certification of the previous version, Verity 1.0. Their responses demonstrate both attention and responsiveness to the issued raised in that examination.

Table 4 – Responses to findings and observations from the examination of the prior system⁴

	Component	Issue	How Addressed
1	Central/Count	Invalid vDrive	This issue has been corrected in Verity Voting 2.0. A mismatch in character limits that existed in Verity Central and Verity Count in Verity Voting 1.0 has been reconciled in version 2.0. Additional detailed information about this specific issue, including root cause analysis and other corrective actions taken, has also been provided to the State of Texas in previous (separate) submissions.
2	System Audit Logs	Examiners requested availability in electronic format	This issue has been addressed in Verity Voting 2.0, through enhanced new features. All Audit logs can be exported into PDF or CSV formats.

⁴ Source for this table is: "4_Final_Form100_A_Attachment 1.pdf"

3	Touch Writer	Multi-select overvote	<p>Improvements for this issue are currently in the design stage, for a future release. The human factors use case that is the subject of item #3 has long been studied by a variety of researchers and other vendors, and no single design or implementation has satisfied everyone. In our legacy Hart Voting System, we included UI behavior similar to that recommended by the Texas examiner, and it was also deemed confusing to voters. Particularly given the fact that Verity 2.0 followed close on the heels of Verity 1.0, the development and testing cycle did not allow time for the design review that this topic requires to result in the best usability. That design review is currently underway, and Hart InterCivic plans to include additional voter interface alerts in future versions of Verity Touch Writer and Verity Touch, likely to be released in 2017.</p>
4	Internal Audit Logs	Changes to audit logs appear as corruptions but are not prevented	<p>The Verity system is working as designed, and this functionality has not changed.</p> <p>From the outset, Verity was designed to be a transparent system that relies on NIST-compliant digital signatures to provide tamper evidence, and to prevent data that has been altered from being accepted/validated by the system.</p> <p>If the log file on a vDrive is altered, and the vDrive is returned to the same device, the vDrive fails signature validation. The device recognizes that the vDrive has been altered and automatically recovers the vDrive from the CFAST backup. These actions are all recorded in the device's audit log.</p>

5	Scan	Real-time audit log with continuous feed printer	The functionality of Verity Scan can be configured to disallow the accumulation of results, so that the machine simply counts <i>quantities</i> of ballots scanned and cannot produce results. In this configuration, Verity Scan does not function as a central accumulator, and it does not tabulate and/or consolidate the vote totals for multiple precincts/devices. Furthermore, because it is impossible for Verity Scan to print a tally tape when so configured, the only way a user can access tabulation reports for the ballots processed on the device is by tabulating the Cast Vote Records from the vDrive in Verity Count, which does print a real-time audit log with continuous feed printer. In addition, regardless of the mode in which Verity Scan is configured, it always maintains robust, detailed audit logs in an intuitive plain-language format, and audit logs for Verity devices and Verity software can be exported from the system in CSV format, to allow additional careful review and searchable “data mining.”
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Missing Audio File

While evaluating voting using an audio ballot on the Verity Touch with Access there was no audio for part of the screen under “Learn to Use This Ballot”. Audio was available for all other elements examined. Further the missing audio was not on the ballot but on one part of the instructions to the voter. This finding was judged to be an oversight. No other examples of missing audio were found.

The quality of the audio was judged to be good. Voting using the audio ballot was found to provide a good alternative for voters who need to use an audio ballot.

Compliance Checklist

The following checklist includes all Texas voting system requirements.

The checklist is provided as detailed support for the conclusion and recommendation of this report.

Texas Secretary of State Voting System Examination

Vendor Hart InterCivic (Hart)

System, Version No. Verity Voting System 2.0

Date of Examination: June 29-30, 2016

Category	Source of Law	Requirement	Assessment Method	Compliant		Notes
General Requirements	122.001(a)(1)	Must preserve the Secrecy of the Ballot	General Review	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	One of the better security implementations.
	122.001(a)(2)	Must be suitable for the purpose for which it is intended	General Review	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	The system is well designed and responsive to requirements required of voting systems.
	122.001(a)(3)	Operates safely, efficiently, and accurately and complies with the voting system standards adopted by the EAC.	EAC Certification #	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	EAC Certification Number: HRTVerity2.0
	122.001(a)(4)	Is safe from fraudulent or unauthorized manipulation	General Review	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
	122.001(a)(5)	Permits voting on all offices and measures to be voted on at the election.	L&A test	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
	122.001(a)(6)	Prevents counting votes on offices and measures on which the voter is not entitled to vote	L&A Test	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
	122.001(a)(7)	Prevents counting vote 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.	L&A Test	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

Category	Source of Law	Requirement	Assessment Method	Compliant		Notes
	122.001(a)(8)	Prevents counting a vote on the same office or measure more than once	L&A Test	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
	122.001(a)(9)	Permits write-in voting	L&A Test	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
	122.001(a)(10)	Is capable of permitting straight-party voting (See also, Straight Party Voting in checklist)	L&A Test	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
	122.001(a)(11)	Is capable of providing records from which the operation of the voting system may be audited.	Review of Audit Logs	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
	122.001(e)	For an election for federal office in which a state or federal court order has extended the time for voting beyond the time allowed by Subchapter B, Chapter 42, a voting system must provide a separate count of the votes cast after the time allowed by that subchapter.	General Review	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
	122.033(1)	Must be equipped with a security system capable of preventing operation of the machine	General Review	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
	122.033(2)	Must be equipped with registering counter that can be secured against access	General Review	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
	122.033(3)	Must be equipped with a public counter	General Review	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
	122.033(4)	Voting system must be equipped with a protective counter.	General Review	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
	122.0331(a)	Copies of program codes and other user and operator manuals and copies or units of all other software and any other information, specifications, or documentation required by the SOS related to an approved electronic voting system and its equipment must be filed with the Secretary.	Certification Packet	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
	122.001(d)(2)	Must not use a punch-card ballot or similar form of tabulating	General Review	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

Category	Source of Law	Requirement	Assessment Method	Compliant		Notes
	122.001(d)1)	Must not be a mechanical voting machine	General Review	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
	127.1231	Procedure to ensure that any computer terminals located outside the central counting station that are capable of accessing the automatic tabulating equipment during the tabulation are capable of inquiry functions only	General Review	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
	127.1231	No modem access to the tabulating equipment is available during the tabulation	General Review	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
	129.054	A voting system may not be connected to any external communications network, including the internet.	General Review	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
		A voting system may not have the capability or permitting wireless communication unless the system uses line-of-sight infrared technology that shields the transmitter and receiver from external infrared transmission and the system can only accept transmissions generated by the system.	General Review	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
	85.032	Ballot box in which voters deposit their marked EV ballots must have two locks, each with a different key and must be designed and constructed to that the box can be sealed to detect any unauthorized opening of the box and that the ballot slot can be sealed to prevent any unauthorized deposit in the box.	Review of Equipment	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
	127.154	Each unit of automatic tabulation equipment must have a permanent identification number Each part of that equipment that contains the ballot tabulation must also have a permanent identification number.	Review of Equipment	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
	272.005	Ballots must be printed with all ballot	Review Ballot	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

Category	Source of Law	Requirement	Assessment Method	Compliant	Notes
		instructions, office titles, column headings, proposition heading, and propositions appearing in English and Spanish.			
	129.055	The sole purpose of voting system equipment is the conduct of an election, and only software certified by the SOS and necessary for an election may be loaded on the equipment.	General Review	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	11.054, Education Code	Must allow for cumulative voting.	General Review	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Straight-Party Voting	122.001(b)	Must be capable of allowing straight party voting in accordance with 65.007(c) and (d)	L&A test	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	65.007 (c)	If a ballot indicates a straight-party vote and a vote for an opponent of one or more of that party's nominees, a vote shall be counted for the opponent and for each of the party's other nominees whether or not any of those nominees have received individual votes. (cross-over voting)	L&A test	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	65.007 (d)	If a ballot indicates straight-party votes for more than one party, those votes may not be tallied. Only candidates receiving individual votes will be counted.	L&A test	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Ballot Requirements	43.007	DRE's only authorized for CWPP --- must have the capability of more than 1 ballot style.		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	124.001	In an election in which voters are entitled to cast straight-party votes, the voting system ballot shall be arranged to permit the voters to do so.	Review of Ballot	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	124.002(a)	In an election in which a candidate's name is to appear on the ballot as the nominees of a political party, the voting system ballot shall be arranged	Review of Ballot	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Category	Source of Law	Requirement	Assessment Method	Compliant	Notes
		(1) in party column in the same manner as for a regular paper ballot, or (2) by listing the office titles in a vertical column in the same manner as for a regular paper ballot on which a party nominee does not appear, except that the nominees' party alignment shall be indicated next to their names.			
	124.002(b)	The order in which party nominees listed by office title appear on a voting system ballot is determined in accordance with the same priorities and in the same manner as for party nominees listed in party column, with the changes appropriate to the circumstances.	Review of Ballot	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	124.062(b)	The SOS may authorize the use of electronic system ballots that comprise two or more separate parts and may prescribe conditions and limitation under which the multipart ballots may be used. Multipart ballots must comply with the same standards as a voting system using a ballot consisting only of a single part. (See op scan ballot requirements in TAC rules 81.43 – at end of checklist.)	Review of Ballot	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	124.063	Certain Instructions Required on Electronic Voting System Ballot -- “Vote for the candidates of your choice in each race by making a mark in the space provided adjacent to the name of that candidate” “Make a mark in the space provided beside the statement indicating the way you desire to vote” (b)Instructions can be changed in certain	Review of Ballot	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Category	Source of Law	Requirement	Assessment Method	Compliant	Notes
		<p>circumstances</p> <p>(c) Must contain instructions for casting a write-in vote. SOS will prescribe wording.</p> <p>(d) Must contain instruction under Section 52.071(b) of the code for straight party voting.</p> <p>(Vendor must show that instructions are customizable to fit appropriate ballot)</p>			
	129.002(a) (DRE Only)	Each direct recording electronic voting machine must provide the voter with a screen in summary format of the voter's choices for the voter to review before the vote is actually cast.	Review of Summary Screen	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Provisional Ballots	124.006	The SOS shall prescribe the form of a provisional ballot and the necessary procedure to implement the casting of a provisional ballot as described by Section 63.011 and the verification and processing of provisional ballots under Subchapter B, Chapter 65.	Review Provisional Ballot	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	52.074	The authority responsible for having the official ballot prepared shall have a provisional ballot prepared in a form approved by the Secretary of State for use by a voter who executed an affidavit in accordance with Section 63.011 of the Code. <u>(NOTE: Need to show SOS how provisional ballot works)</u>	Review Provisional Ballot	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	81.173, TAC (DRE ONLY)	Provisional ballots may be cast electronically on a Direct Record Electronic (DRE) voting system if: (C) the system segregates provisional votes from regularly-cast votes on the precinct returns; and	Review Provisional Ballot	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Category	Source of Law	Requirement	Assessment Method	Compliant	Notes
		(D) the system provides a method for the cast provisional ballots to be accepted and added to the election results by the Early Voting Ballot Board or central counting station personnel, as applicable.			
	127.063	<p>Sealed ballot box must be:</p> <ol style="list-style-type: none"> 1. Equipped with a lock to prevent opening the box without a key 2. Ballots can be deposited and delivered w/o damage 3. Box can be sealed to detect any unauthorized opening of the box 4. Slot used by the voters to deposit ballots can be sealed to prevent any unauthorized deposit in the box. <p>NOTE: for Ballots to be counted at CCS.</p>	Review of Equipment	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Optical scan Systems	81.43, TAC	<ol style="list-style-type: none"> 1. Optical scanner ballots may be divided into parts and printed upon two or more pages. 2. When party columns appear on the ballot, the names of the parties and spaces for voting a straight-party ticket must be printed at the head of the ballot so the voter may cast a straight ticket by making a single mark on the first page. 3. Where all candidates for the same office cannot be placed on the same face of the same page, the names can appear on more than one page, but the first page must contain a statement that the names of other candidates appear on the following page(s). 4. If the ballot is printed on more than one page, different tints of paper other than yellow, or some other suitable means may be used to facilitate the sorting of 	Review of Ballot	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Category	Source of Law	Requirement	Assessment Method	Compliant	Notes
		ballots. 5. Each page shall bear the same ballot number.			
	81.52(1)	If the machine returns a ballot to the voter because the ballot is blank, mismarked damaged, or otherwise spoiled, the voter may either attempt to correct the ballots, request another ballot, or request the election official to override the rejection so that the precinct counter accepts the ballot and outstacks the write- in.	L&A Test	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	81.52, TAC	The precinct counter must be set up to reject and return the ballot to the voter rather than outstack the ballot if it is blank, mismarked, undervoted, or overvoted.	L&A test/General Review	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	81.52, TAC	If a precinct ballot counter is to be used during early voting by personal appearance, a continuous feed audit log printer must remain attached to the precinct counter throughout the early voting period	General Review	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	81.62, TAC	<ol style="list-style-type: none"> 1. For any Election Management System's central accumulator to be certified for use in Texas elections, the central accumulator shall include a continuous feed printer dedicated to a real-time audit log. All significant election events and their date and time stamps shall be printed to the audit log. 2. The definition of "significant election events" in subsection (a) of this rule includes but is not limited to: <ol style="list-style-type: none"> a. error and/or warning messages and operator response to those messages; b. number of ballots read for a given 	Review of Audit Logs	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<p>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> <p>Also VVSG 2005 Section 2.2.5.2.2.a, 4.4 & 6.5.5</p>

Category	Source of Law	Requirement	Assessment Method	Compliant	Notes
		precinct; c. completion of reading ballots for a given precinct; d. identity of the input ports used for modem transfers from precincts; e. users logging in and out from election system; precincts being zeroed; f. reports being generated; g. diagnostics of any type being run; and h. change to printer status.			
Accessibility for Disabled Voters	81.57, TAC	See checklist for details of requirement.	Checklist for Voting System Accessibility for more details.	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
	64.009, TEC	If a voter is physically unable to enter the polling place without personal assistance or likelihood of injuring the voter's health, on the voter's request, an election officer shall deliver a ballot to the voter at the polling place entrance or curb. NOTE: "Curbside voting"	General Review	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Supplemental Checklist

The following additional items were check. This supplemental checklist provides details on additional items check or adds detail on how specific aspects of the Texas voting system requirements were evaluated.

Vendor: Hart Intercivic		Voting System: Verity 2.0	
General 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?	Yes <input checked="" type="checkbox"/>	No <input 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 checked="" type="checkbox"/>	No <input type="checkbox"/>	
• Training manuals appear to be easy to use?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
• Check with other jurisdictions where system is in use and ask questions regarding system, support and training.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
• Did the system receive favorable reviews?	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 county's 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"/>	

Vendor: Hart Intercivic	Voting System: Verity 2.0	
	<input checked="" type="checkbox"/>	<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"/>
System Review		
• Warns of Undervote	Yes <input checked="" type="checkbox"/>	No <input 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"/>
• Test both early voting and election day - all functions opening/closing	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
• Does system include sip 'n puff for accessibility	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Texas Real-time Audit Log Review		
• 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"/>
• Print starting the tally software (e.g. from the operating system) or exiting the tally software, or any access to the operating system.	Yes <input checked="" type="checkbox"/>	No <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"/>

Appendix A - EAC Certificate of Certification



United States Election Assistance Commission

Certificate of Conformance

Hart InterCivic Verity 2.0



The voting system identified on this certificate has been evaluated at an accredited voting system testing laboratory for conformance to the 2005 *Voluntary Voting System Guidelines (2005 VVSG)*. 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 *EAC Voting System Testing and Certification Program Manual* 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.

Product Name: Verity

Model or Version: 2.0

Name of VSTL: SLI Global

EAC Certification Number: HRTVerity2.0

Date Issued: 4/27/2016



Executive Director
U.S. Election Assistance Commission

Scope of Certification Attached

Appendix B - Digital Signatures of Software Examined

There SHA-256 digital signatures of the software files were confirmed to match the signatures provided by SLI. This was done to document 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.

Further analysis of the files provides useful insights to the system's software structure. A large percentage of the files are common to several units and often to all units. There was a total of 175 unique files for these 5 units. Of those 134 or 76.6% were common to all five units. Other files were used on several units. Only 22 files or 12.6% were unique to one unit.

The Verity Central and DBC were also checked. For Verity Central a total of 151 files had digital signatures computed. The Verity DBC had 173 files checked.

Table 5 - Hart Verity Voting System 2.0 System Components

Software Verification			
#	Unit	Total Files	
Hart Verity Voting System 2.0			
1	Verity Controller	145	
2	Verity Scan	151	
3	Verity Touch	148	
4	Verity Touch with Access	148	
5	Verity Touch Writer with Access	153	
	Unique Files	22	12.6%
	Files Common to 2 Units	7	4.0%
	Files Common to 3 Units	9	5.1%
	Files Common to 4 Units	3	1.7%
	Files Common to 5 Units	134	76.6%