



From the Vendor Trace document or declaration, identify all documents that pertain to the **System Maintenance Procedures**. Each submitted (Vol. 1, Sect. 1.1) Technical Data Package document (Vol.2 Sect. 6.6) is reviewed (Vol. 1, Sect. 1.6.2.2).

Note about revisions: The first time a review form is completed, the form revision number is 01. As the review process continues, newer versions of vendor documents, or additional documents, will be submitted to close discrepancies. Each time new versions of documents are examined, the review form is saved with a new revision number. Save the form with the new revision (Save As) before you update the document names, versions and/or file names. Enter your name and date on the new revision.

Applicable TDP Documents table: List each applicable TDP document. Put the Title from inside the document in the first column, along with the version and date. Under "File name," copy the full document file name.

Trace Table: Verify whether the vendor correctly documented each applicable VVSG requirement listed in this template. Use the following notations to indicate results:

- **Traced** column: For each positive finding, enter the document number(s) corresponding to the **Applicable TDP Documents** Table below, with the section number(s) in each applicable document where the requirement is fulfilled. (Example: Doc. 2, Sec. 1.2)
- **Comments** column:
 - "Y" indicates that the document(s) fulfill the requirement.
 - "N" indicates that the document(s) do not fulfill the requirement.
 - "P" indicates that the document(s) partially fulfill the requirement
 - "NT" (not tested) indicates documents that are part of the system configuration but outside the scope of this certification review effort (only if not a full cert).
 - "NS" (not supported) indicates requirements that apply to features that are not supported in the configuration being tested (such as paper ballots).
 - Explain "P", "N", "NT" or "NS" findings here.
 - In addition, use the Comments column to enter any comments that would be helpful throughout the project.
 - **Discrepancies:**
 - List discrepancies in red
 - A Documentation discrepancy is written when a VVSG requirement is not fulfilled or is partially fulfilled in the TDP.
 - An Informational discrepancy is written when the issue is outside the scope of the certification; Informational discrepancies are provided to the client but do not preclude certification.
 - Enter the discrepancy number of any discrepancies written (from the separate discrepancy report), with a short description in the Comments column.

Vendor :	Hart InterCivic	Reviewer(s):	L. Hoppert
Voting System:	Verity 2.0	Review Date:	11/17/2015

Applicable TDP Documents

Document Title (from cover pg), version, date	Doc #	File name
Verity Service and Maintenance Technical Reference Manual, Rev B01, no date	#1	Verity Service and Maintenance Operations Technical Reference Manual 6610001 B01
Verity System Description Technical Document, Rev B00, 8/14/15	#2	Verity System Description 4005466 B00



Document Title (from cover pg), version, date	Doc #	File name
	#3	
Verity Voting System Limits, Rev B.00, 10/25/15	#4	Verity System Limits 4005470 B00
Hart Secure Ballot Stock Specification, Rev A.00, no date	#5	Hart Secure Ballot Stock Specification 4005526 A00
Verity Voting Performance Characteristics, Rev B.00, 10/22/2015	#6	Verity Performance Characteristics 4005497 B00
Verity Operational Guide, Rev. B00, no date	#7	Verity Operational Guide 6640001 B00
Verity Polling Place Operations Technical Reference Manual, Rev B01, no date	#8	Verity Polling Place Operations Technical Reference Manual 6610100 B01

Trace Table

Req #	VVSG 2005 Testing Standards - Vol.2 unless otherwise specified	Traced	Comments
2	Technical Data Package		
2.1	Scope		
2.1.1	Content and Format		
2.1.1.1	Required Content for Initial Certification <i>(Indicate "***" if this document does not fall into the identified category of documentation.)</i>		
h.	At minimum, the TDP shall contain the following documentation: System maintenance procedures;	Doc #1 - Entire Doc	Y
2.1.1.3	Format		
	The requirements for formatting the TDP are general in nature; specific format details are of the vendor's choosing. The TDP shall include a detailed table of contents for the required documents, an abstract of each document and a listing of each of the informational sections and appendices presented. A cross-index shall be provided indicating the portions of the documents that are responsive to documentation requirements for any item presented.	TOC: Doc #1 - Table of Contents Index/Abstract: Doc #1 - Chapter 1 Introduction	Y
2.1.3	Protection of Proprietary Information		
	The vendor shall identify all documents, or portions of documents, containing proprietary information not	NA	NA - Doc #1 is not identified as proprietary



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	approved for public release. Any person or test agency receiving proprietary information shall agree to use it solely for the purpose of analyzing and testing the system, and shall agree to refrain from otherwise using the proprietary information or disclosing it to any other person or agency without the prior written consent of the vendor, unless disclosure is legally compelled.		
2.9	System Maintenance Procedures		
	The system maintenance procedures shall provide information in sufficient detail to support election workers, information systems personnel, or maintenance personnel in the adjustment or removal and replacement of components or modules in the field. Technical documentation needed solely to support the repair of defective components or modules ordinarily done by the manufacturer or software developer is not required.	Doc #1 - Entire doc Doc #7 - Entire doc	Y
	Recommended service actions to correct malfunctions or problems shall be discussed, along with personnel and expertise required to repair and maintain the system; and equipment, materials, and facilities needed for proper maintenance. This manual shall include the sections listed below.	See below	Y
2.9.1	Introduction		
	The vendor shall describe the structure and function of the equipment (and related software) for election preparation, programming, vote recording, tabulation, and reporting in sufficient detail to provide an overview of the system for maintenance, and for identification of faulty hardware or software.	See below	Y
a.	The description shall include a concept of operations that fully describes such items as: The electrical and mechanical functions of the equipment;	Doc #1 - 1.2 Polling Place System Hardware Doc #7 - Entire doc	Y
b.	The description shall include a concept of operations that fully describes such items as: How the processes of ballot handling and reading are performed (paper-based systems);	Doc #1 - 1.2.3 Verity Print; 1.2.4 Verity Scan Doc #7 - 6. Pre-voting Verity Print; 7. Voting - Verity Polling Place Equipment	Y



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c.	The description shall include a concept of operations that fully describes such items as: How vote selection and casting of the ballot are performed (DRE systems);	Doc #1 - 1.2.2 Verity Controller with Touch and Touch with Access Doc #7 - 7. Voting - Verity Polling Place Equipment	Y
d.	The description shall include a concept of operations that fully describes such items as: How transmission of data over a network is performed (DRE systems, where applicable);	Doc #1 - 1.2.2 Verity Controller with Touch and Touch with Access; 2.10.2.5 Polling Place Deployment, Verity Controller, Touch, & Touch with Access	Y
e.	The description shall include a concept of operations that fully describes such items as: How data are handled in the processor and memory units;	--Voting Devices - general: Doc #2 - 4.1.8.7 Memory; 5.1.2.1 Verity Tablet --vDrive: 1.2.5.6 vDrive --Controller/Touch: Doc #2 - 2.7.3 Verity Controller Capabilities, 2.7.4 Verity Touch and Touch with Access Capabilities; --Print: Doc #1 - 3.11 Print Testing Supplies --Touch Writer: Doc #1 - 3.2 Touch Writer Testing Supplies	Y
f.	The description shall include a concept of operations that fully describes such items as: How data output is initiated and controlled;	Doc #1 - Section 2.9 Predefine Procedures, Section 4.2.4 Predefining the Touch Writer and Scan, Section 7 Device Reports, Section 8 vDrive Processing and Election Night Procedures	Y
g.	The description shall include a concept of operations that fully describes such items as: How power is converted or conditioned;	Doc #1 - Section 1.6.6 Power Sources, 2.7 Equipment Environmental Standards. 2.8.3 Touch Writer Ballot Printer UPS	Y
h.	The description shall include a concept of operations that fully describes such items as: How test and diagnostic information is acquired and used.	Doc #1 - Section 3 Verity Device Equipment Testing	Y
2.9.2	Maintenance Procedures		
	The vendor shall describe preventive and corrective maintenance procedures for hardware and software.	See below	Y



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2.9.2.1	Preventative Maintenance Procedures		
a.	The vendor shall identify and describe: All required and recommended preventive maintenance tasks, including software tasks such as software backup, database performance analysis, and database tuning;	Hardware including workstations: Doc #1 - 2.11 Preventive Maintenance Procedures Software: Doc #1 Chapter 3 EMS Software: maintenance is covered in the Technical Reference Manual for each component (e.g., in the Build TRM, see Maintaining the Election Database)	Y Chapter 3 covers maintenance testing of the software on Touch Writer, Controller/Touch/Touch w/ Access, Scan, and Print
b.	The vendor shall identify and describe: Number and skill levels of personnel required for each task;	Doc #1 - 1.2.5.7 Personnel Requirements Doc #7 - Personnel Requirements under sections 4 (Data), 5 (Build), 6 (Print), 7 (Polling Place Equipment), 8 (Hardware Accessories), 9 (Central), 10 (Count), 11 and 12 (storage, deployment, maintenance)	Y
c.	The vendor shall identify and describe: Parts, supplies, special maintenance equipment, software tools, or other resources needed for maintenance;	Doc #1 - 2.11.8 Cleaning the Equipment Screens, 2.14.1 Scanner Calibration Supplies, Chapter 3 - Supplies sections for components testing	Y
d.	The vendor shall identify and describe: Any maintenance tasks that must be coordinated with the vendor or a third party (such as coordination that may be needed for off-the-shelf items used in the system).	Doc #1 - 2.11.2 Maintenance for Commercial Printers, 2.11.3 Maintenance for Commercial Scanners, 2.11.4 Verity Workstation Maintenance	Y
2.9.2.2	Corrective Maintenance Procedures		
	The vendor shall provide fault detection, fault isolation, correction procedures, and logic diagrams for all operational abnormalities identified by design analysis and operating experience.	See below	Y
	The vendor shall identify specific procedures to be used in diagnosing and correcting problems in the system hardware (or user-controlled software).	See below	Y
a.	Descriptions shall include: Steps to replace failed or deficient equipment;	Scan: Doc #7 - Section 15 Scan Replacement pg. 87, Verity Device Replacement pg. 94	Y
b.	Descriptions shall include:	Doc #1 Chapter 6 (general troubleshooting,	Y



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	Steps to correct deficiencies or faulty operations in software;	including software on devices) EMS Software: responses to various error conditions are covered in the Technical Reference Manual for each component	
c.	Descriptions shall include: Modifications that are necessary to coordinate any modified or upgraded software with other software modules;	Doc #7 - Sections 7 and 12 Hart build and installation documents* (noncustomer facing) * Not yet delivered as of 11/18/15	Y* Note: The Operational Guide explains that only Hart personnel can update software in the polling place/scanner equipment and the workstations. Hart's build and installation documents (not customer facing) explain the process.
d.	Descriptions shall include: The number and skill levels of personnel needed to accomplish each procedure;	Doc #7 - Section 15 Troubleshooting Procedures for Support Personnel	Y
e.	Descriptions shall include: Special maintenance equipment, parts, supplies, or other resources needed to accomplish each procedure;	Doc #7 - Table on pg. 31: Materials for warehouse/field technicians required for working or cleaning devices	Y
f.	Descriptions shall include: Any coordination required with the vendor, or other party, for off the shelf items.	Doc #1 - 2.11.2 Maintenance for Commercial Printers, 2.11.3 Maintenance for Commercial Scanners, 2.11.4 Verity Workstation Maintenance	Y
2.9.3	Maintenance Equipment		
	The vendor shall identify and describe any special purpose test or maintenance equipment recommended for fault isolation and diagnostic purposes.	Doc #1 - Section 5 Procedures: Field Techs & Help Desk, Section 6 Troubleshooting Procedures for Support Personnel	Y
2.9.4	Parts and Materials		
	Vendors shall provide detailed documentation of parts and materials needed to operate and maintain the system. Additional requirements apply for paper-based systems.	See below	Y
2.9.4.1	Common Standards		
	The vendor shall provide a complete list of approved parts and materials needed for maintenance.	Doc #7 - Section 7, table on pg 22: warehouse/field technicians (polling place)	Y



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a.	This list shall contain sufficient descriptive information to identify all parts by: Type	Section 8, table on pg 31: Hardware accessories Section 9, table on pg 32: Central Section 10, table on pg 33: Count Section 11, table on pg. 35: storage Section 12, table on pg. 53: preventive	
b.	This list shall contain sufficient descriptive information to identify all parts by: Size		
c.	This list shall contain sufficient descriptive information to identify all parts by: Value or range		
d.	This list shall contain sufficient descriptive information to identify all parts by: Manufacturer's designation;		
e.	This list shall contain sufficient descriptive information to identify all parts by: Individual quantities needed		
f.	This list shall contain sufficient descriptive information to identify all parts by: Source from which they may be obtained		
2.9.4.2	Paper-Based Systems		
	For marking devices manufactured by multiple external sources, the vendor shall provide a listing of sources and model numbers that are compatible with the system.	NA for ballot marking device Pens for ballots: Doc #8 - 4.4 Working with Voters	Y Touch Writer printer - proprietary to Hart
	The TDP shall specify the required paper stock, size, shape, opacity, color, watermarks, field layout, orientation, size and style of printing, size and location of punch or mark fields used for vote response fields and to identify unique ballot formats, placement of alignment marks, ink for printing, and folding and bleed-through limitations for preparation of ballots that are compatible with the system	Doc #5 - paper characteristics Other areas: See PCA Doc - System Functionality Desc, Req. Vol. 1, 4.1.4.2.a.iii	Y Note: Vol. 1, 4.1.4.2.a.iii has the same language
2.9.5	Maintenance Facilities and Support		
	The vendor shall identify all facilities, furnishings, fixtures, and utilities that will be required for equipment maintenance. In addition, vendors shall specify the assumptions made with regard to any parameters that	Section 8, table on pg 31: Hardware accessories Section 9, table on pg 32: Central Section 10, table on pg 33: Count	Y



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	impact the mean time to repair.	Section 11, table on pg. 35: storage Section 12, table on pg. 53: preventive	
a.	These factors shall include at a minimum: Recommended number and locations of spare devices or components to be kept on hand for repair purposes during periods of system operation;	Doc #7 - Section 15 under Spare Equipment Requirements	Y
b.	These factors shall include at a minimum: Recommended number and locations of qualified maintenance personnel who need to be available to support repair calls during system operation;	Doc #7 - Section 15 under Help Desk Personnel Requirements	Y
c.	These factors shall include at a minimum: Organizational affiliation (i.e., jurisdiction, vendor) of qualified maintenance personnel.	Doc #7 - Section 15 under Personnel Requirements	Y
2.9.6	Appendices		
	The vendor may provide descriptive material and data supplementing the various sections of the body of the System Maintenance Manual. The content and arrangement of appendices shall be at the discretion of the vendor. Topics recommended for amplification or treatment in appendix include: Glossary: A listing and brief definition of all terms that may be unfamiliar to persons not trained in either voting systems or computer maintenance; References: A list of references to all vendor documents and other sources related to maintenance of the system; Detailed Examples: Detailed scenarios that outline correct system responses to every conceivable faulty operator input. Alternative procedures may be specified depending on the system state; and Maintenance and Security Procedures: This appendix shall contain technical illustrations and schematic representations of electronic circuits unique to the system.	Doc #1 - Appendix A Security Best Practices, Glossary (last section)	Y
Vol. 1, 7.9.4	Equipment Security and Reliability		



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I.	Vendor documentation shall include printer reliability specifications including Mean Time Between Failure estimates, and shall include recommendations for appropriate quantities of backup printers and supplies.	Doc #7 - Section 14, Table 7 - Verity Touch Writer Printer specifications	Y Note: In the prior certification effort, monthly duty cycles were added to the Verity Operational Guide as a rough equivalent to MTBF

End of Document
