



From the Vendor Trace document or declaration, identify all documents that pertain to Software Design & Specification. 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, Martin Buchanan, Georgia Fortun
Voting System:	Verity 2.0	Review Date:	12/7/2015, 1/27/2016, 02/09/2016

Applicable TDP Documents

Document Title (from cover pg), version, date	Doc #	File name
Verity System Description Technical Document, Rev B.00, 8/14/2015	#1	Verity System Description 4005466 B00
Verity Software Architecture & Design Technical Documentation, Rev. B.00, 3/31/2015	#2	Verity Software Architecture-Design 4005463 B00
Verity Coding Standard, Rev. A.11, 5/26/2015	#3	Verity Coding Standard 4005498 A11



Document Title (from cover pg), version, date	Doc #	File name
Software Design and Development Procedure, Rev. D.02, 5/19/2015	#4	Software Design Development Procedure 1000566 D02
Hart Requirements Management Process, Rev A.02, 5/19/2015	#5	SQA Requirements Management Process 1000540 A02
Verity 1.3.0 Technical Data Package Overview, Rev B.00, 10/10/2015	#6	Verity 2.0 TDP Overview 4005511 B00
Verity Voting Verity Operational Environment, Rev. B.01, 10/23/2015	#7	Verity Operational Environment 4005515 B01
THE CREATION AND CONFIGURATION OF THE TRUSTED BUILD ENVIRONMENT, Rev. A.02, 12/22/2014	#8	The Creation and Configuration of the Trusted Build Environment 4005518 A02
Creation and Configuration of the MCU and Access Build Environments (2 documents)	#9	The Creation and Configuration of the MCU Build Environment 4005519 A02, The Creation and Configuration of the Access Build Environment 4005517 A01
	#10	(Source documentation)
Verity Logging Technical Requirements Document, v A.04, 10/21/2015	#11	Verity Logging TRD 4005-499 A04
Verity Security Requirements Document	#12	Verity Security Requirements 4005464 A07
Voting Systems Acronyms, no version or date	#13	Voting Systems Acronyms
Voting Systems Glossary, no version or date	#14	Voting Systems Glossary
Verity Voting System Limits, B.00, 10/25/2015	#15	Verity System Limits 4005470 B00
Verity Service and Maintenance, V. B01, no date	#16	Verity Service and Maintenance Operations Technical Reference Manual 6610001 B01
Verity 2.0 Technical Data Package Overview, Rev. B.01, 02/02/2016	#17	Verity 2.0 TDP Overview 4005511 B01.pdf
Verity 2.0 Build Election Definition and Device Settings Technical Reference Manual, Document number 6600009 A01, no date	#18	Verity Build Technical Reference Manual 6600009 A01.pdf
Verity Voting Verity Operational Environment, Rev. B.02, 02/03/2016	#19	Verity Operational Environment 4005515 B02.pdf
Verity Database Attributes, REV:B.00, no date	#20	Verity Database Attributes 4005543 B00.xml

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 (Indicate "*" if		



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	<i>this document does not fall into the identified category of documentation.)</i>		
d.	At minimum, the TDP shall contain the following documentation: Software design and specifications;	Doc #1, 2, 3, 4 - 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.	Doc #1 - TOC, Section 1 Doc #2 - TOC, Section 1 Doc #3 - TOC, Section 1	Y
2.1.3	Protection of Proprietary Information		
	The vendor shall identify all documents, or portions of documents, containing proprietary information not 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.	Docs 1, 2, 3, and 4 identify whether they are proprietary or approved for public release.	Y
2.5	Software Design and Specification		
	The vendor shall expand on the system overview by providing detailed specifications of the software components of the system, including software used to support the telecommunications capabilities of the system, if applicable.	See below	Y DISC-20: The document "Verity 2.0 TDP Overview 4005511-B00" section 2.5.7 lists 8 User Interface Design documents that have not been provided in the TDP. Discrepancy Resolved: all user interface documents listed in Doc # 17 Section: 2.5.7 have been provided in the TDP



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2.5.1	Purpose and Scope		
	The vendor shall describe the function or functions that are performed by the software programs that comprise the system, including software used to support the telecommunications capabilities of the system, if applicable.	Doc #1 - section 1.2 Verity Voting Software Components and section 4 System Description	Y
2.5.2	Applicable Documents		
	The vendor shall list all documents controlling the development of the software and its specifications. Documents shall be listed in order of precedence.	Doc #6: 2.5.4 Software Standards and Conventions	Y
2.5.3	Software Overview		
a.	The vendor shall provide an overview of the software that includes the following items: A description of the software system concept, including specific software design objectives, and the logic structure and algorithms used to accomplish these objectives.	Doc #2 - entire doc	Y
b.	The vendor shall provide an overview of the software that includes the following items: The general design, operational considerations, and constraints influencing the design of the software.	Doc #2 - entire doc	Y
c.	The vendor shall provide an overview of the software that includes the following items: Identification of all software items, indicating items that were: <ul style="list-style-type: none"> i. Written in-house; ii. Procured and not modified; iii. Procured and modified, including descriptions of the modifications to the software and to the default configuration options. 	Doc #7: 2.3 Operating System and supporting software	Y
d.	The vendor shall provide an overview of the software that includes the following items: Additional information for each item that includes: <ul style="list-style-type: none"> i. Item identification; ii. General description; 	Doc #7: 2.3 (including referenced documents, e.g., the Technical Reference Document for each Verity software application)	Y



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	iii. Software requirements performed by the item; iv. Identification of interfaces with other items that provide data to, or receive data from, the item; and v. Concept of execution for the item;		
2.5.3 END	The vendor shall also include a certification that procured software items were obtained directly from the manufacturer or a licensed dealer or distributor.	Doc #7: 5 Software Tools and Licenses	Y
2.5.4	Software Standards and Conventions		
	The vendor shall provide information that can be used by an accredited test lab or state certification board to support software analysis and test design. The information shall address standards and conventions developed internally by the vendor as well as published industry standards that have been applied by the vendor.	Doc #3: entire document Doc #4: entire document	Y
a.	The vendor shall provide information that addresses the following standards and conventions: Software system development methodology;	Doc #3: entire document Doc #4: entire document Doc #6: 2.5.6 Software Functional Specifications, 2.5.7 Software Design Concepts/Specifications	Y
b.	The vendor shall provide information that addresses the following standards and conventions: Software design standards, including internal vendor procedures;	Doc #3: entire document Doc #4: entire document Doc #6: 2.5.6, 2.5.7	Y
c.	The vendor shall provide information that addresses the following standards and conventions: Software specification standards, including internal vendor procedures;	Doc #3: entire document Doc #4: entire document Doc #6: 2.5.6, 2.5.7	Y
d.	The vendor shall provide information that addresses the following standards and conventions: Software coding standards, including internal vendor procedures;	Doc #3: entire document Doc #4: entire document Doc #6: 2.5.6, 2.5.7	Y
e.	The vendor shall provide information that addresses the following standards and conventions: Testing and verification standards, including internal	Doc #5: entire document Doc #7: 2.3 (including referenced documents, e.g., the Technical Reference Document for	Y



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	vendor procedures, that can assist in determining the program's correctness and ACCEPT/REJECT criteria;	each Verity software application)	
f.	The vendor shall provide information that addresses the following standards and conventions: Quality assurance standards or other documents that can be used to examine and test the software. These documents include standards for program flow and control charts, program documentation, test planning, and test data acquisition and reporting.	Doc #5: entire document Doc #7: 2.3 (including referenced documents, e.g., the Technical Reference Document for each Verity software application)	Y
2.5.5	Software Operating Environment		
	This section shall describe or make reference to all operating environment factors that influence the software design.	Doc #7 - entire document	Y
2.5.5.1	Hardware Environment and Constraints		
2.5.5.1 a.	The vendor shall identify and describe the hardware characteristics that influence the design of the software, such as: The logic and arithmetic capability of the processor;	Doc #7: 2.2 Verity Hardware Environment	Y
2.5.5.1 b.	The vendor shall identify and describe the hardware characteristics that influence the design of the software, such as: Memory read-write characteristics;	Doc #7: 2.2	Y
2.5.5.1 c.	The vendor shall identify and describe the hardware characteristics that influence the design of the software, such as: External memory device characteristics;	Doc #7: 2.2	Y
2.5.5.1 d.	The vendor shall identify and describe the hardware characteristics that influence the design of the software, such as: Peripheral device interface hardware;	Doc #7: 2.2	Y
2.5.5.1 e.	The vendor shall identify and describe the hardware characteristics that influence the design of the software, such as: Data input/output device protocols;	Doc #7: 2.2	Y
2.5.5.1	The vendor shall identify and describe the hardware	Doc #1: 4.1.1.8 Data Input, 4.1.1.12 Usability	Y



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f.	characteristics that influence the design of the software, such as: Operator controls, indicators, and displays.	Doc #7: 2.2	
2.5.5.2	Software Environment		
	The vendor shall identify the compilers or assemblers used in the generation of executable code, and describe the operating system or system monitor.	Doc #8, Doc #9 (2 documents) - entire document	Y
2.5.6	Software Functional Specification		
	The vendor shall provide a description of the operating modes of the system and of software capabilities to perform specific functions.	Doc #1: entire document Doc #6: 2.5.6 Software Functional Specifications, 2.5.7 Software Design Concepts/Specifications	Y
2.5.6.1	Configurations and Operating Modes		
	The vendor shall describe all software configurations and operating modes of the system, such as ballot preparation, election programming, preparation for opening the polling place, recording votes and/or counting ballots, closing the polling place, and generating reports.	Doc #1: entire document Doc #6: 2.5.6 Software Functional Specifications, 2.5.7 Software Design Concepts/Specifications	Y
a.	For each software function or operating mode, the vendor shall provide: A definition of the inputs to the function or mode (with characteristics, tolerances or acceptable ranges, as applicable);	Inputs: Technical Reference Manuals for Build, Central, Count, Data, Polling Place Operations, Print, Service and Maintenance Acceptable ranges: Doc #15 - entire doc	Y DISC 21:- In the document "Verity-Build Technical Reference Manual 6600002 B01" Chapter 3 pg. 41, the "Copy" bullet has a note in red: "(best guess; need to test)". Confirm the text is correct and the note is removed in the final version. Discrepancy Resolved: in Doc # 18 the "Copy" bullet note: "(best guess; need to test)" has been removed
b.	For each software function or operating mode, the vendor shall provide: An explanation of how the inputs are processed;	Documentation within source code	Y Source code module headers describe function inputs, processing, and outputs.
c.	For each software function or operating mode, the vendor shall provide: A definition of the outputs produced (again, with characteristics, tolerances, or acceptable ranges as	Device reports: Doc #16 - 7 Device Reports Logging: Doc #11 - entire doc Other outputs: Technical Reference Manuals	Y Source code module headers describe function inputs, processing, and outputs.



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	applicable).	for Build, Central, Count, Data, Polling Place Operations, Print, Service and Maintenance Documentation within source code	Acceptable characteristics, ranges, and tolerances are indicated by both data types and by comments in headers.
2.5.6.2	Software Functions		
a.	The vendor shall describe the software's capabilities or methods for detecting or handling: Exception conditions;	Doc #6: 2.5.6 Software Functional Specifications (including referenced documents); Technical Reference Manuals for Build, Central, Count, Data, Polling Place Operations, Print, Service and Maintenance	Y
b.	The vendor shall describe the software's capabilities or methods for detecting or handling: System failures;	Doc #6: 2.5.6 (including referenced documents) - for voting devices, see Verity Device Suite TRD	Y
c.	The vendor shall describe the software's capabilities or methods for detecting or handling: Data input/output errors;	Doc #6: 2.5.6 (including referenced documents); Technical Reference Manuals for Build, Central, Count, Data, Polling Place Operations, Print, Service and Maintenance	Y
d.	The vendor shall describe the software's capabilities or methods for detecting or handling: Error logging for audit record generation;	Doc #6: 2.5.6 (including referenced documents); Technical Reference Manuals for Build, Central, Count, Data, Polling Place Operations, Print, Service and Maintenance Doc #11 - entire doc	Y
e.	The vendor shall describe the software's capabilities or methods for detecting or handling: Production of statistical ballot data;	Doc #6: 2.5.6 (including referenced documents); Technical Reference Manuals for Build, Central, Count, Data, Polling Place Operations, Print, Service and Maintenance	Y
f.	The vendor shall describe the software's capabilities or methods for detecting or handling: Data quality assessment;	Doc #1: 2.2.11 System Validation, 4.1.1.8 Data Input; Technical Reference Manuals	Y
g.	The vendor shall describe the software's capabilities or methods for detecting or handling: Security monitoring and control.	Doc #1: 4.2 Security Description Doc 12: 3.3 – 3.6 (Software, electronic key, vDrive, software files), 3.10 Verity Secure Environment	Y



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2.5.7	Programming Specifications		
	The vendor shall provide in this section an overview of the software design, its structure, and implementation algorithms and detailed specifications for individual software modules.	See below	N
2.5.7.1	Programming Specifications Overview		
	This overview shall include such items as flowcharts, data flow diagrams, and other graphical techniques that facilitate understanding of the programming specifications. This section shall be prepared to facilitate understanding of the internal functioning of the individual software modules. Implementation of the functions shall be described in terms of the software architecture, algorithms, and data structures.	Doc #2 - entire doc Doc #6: 2.5.6 (including referenced documents)	Y
2.5.7.2	Programming Specifications Details		
	The programming specifications shall describe individual software modules and their component units, if applicable.	See below	N
a.	For each module and unit, the vendor shall provide the following information: Module and unit design decisions, if any, such as algorithms used;		Y - DISC 20: The document "Verity 2.0 TDP Overview 4005511-B00" section 2.5.7 lists 8 User Interface Design documents that have not been provided in the TDP. Discrepancy Resolved: all user interface documents listed in Doc # 17 Section: 2.5.7 have been provided in the TDP
b.	For each module and unit, the vendor shall provide the following information: Any constraints, limitations, or unusual features in the design of the software module or unit;	Doc #6: 2.5.6 (including referenced documents) Doc #15 - entire doc	Y - DISC 20: The document "Verity 2.0 TDP Overview 4005511-B00" section 2.5.7 lists 8 User Interface Design documents that have not been provided in the TDP. Discrepancy Resolved: all user interface documents listed in Doc # 17 Section: 2.5.7 have been provided in the TDP



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c.	For each module and unit, the vendor shall provide the following information: The programming language to be used and rationale for its use if other than the specified module or unit language;	Doc #3 - entire doc	Y
d.	For each module and unit, the vendor shall provide the following information: If the software module or unit consists of, or contains, procedural commands (such as menu selections in a database management system for defining forms and reports, on-line queries for database access and manipulation, input to a graphical user interface builder for automated code generation, commands to the operating system, or shell scripts), a list of the procedural commands and reference to user manuals or other documents that explain them;	Doc #6: 2.5.6 (including referenced documents); Technical Reference Manuals for Build, Central, Count, Data, Polling Place Operations, Print, Service and Maintenance	Y - DISC 20: The document "Verity 2.0 TDP Overview 4005511-B00" section 2.5.7 lists 8 User Interface Design documents that have not been provided in the TDP. Discrepancy Resolved: all user interface documents listed in Doc # 17 Section: 2.5.7 have been provided in the TDP
e.	For each module and unit, the vendor shall provide the following information: If the software module or unit contains, receives, or outputs data, a description of its inputs, outputs, and other data elements as applicable. (Section 2.5.9 describes the requirements for documenting system interfaces.) Data local to the software module or unit shall be described separately from data input to, or output from, the software module or unit;	Documentation within source code	Y Source code module headers describe function inputs, processing, and outputs. Data local to classes or functions is separated in the source code text from both module headers and overall class or function signatures. Local data is described by mnemonic names, specified data types, and descriptive comments. Info-DISC 22: The following files were provided with the TDP but are not listed in "Verity 2.0 TDP Overview 4005511-B00": _Verity-Ballot Creation TRD 4005-551-A01, _Verity-Election-Definition-Data TRD 4005-552-A01, _Verity-Vote-Counting-and-Cast-Vote-Records TRD 4005-554-A01 Discrepancy Resolved: the files listed above are listed in Doc #17.



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f.	For each module and unit, the vendor shall provide the following information: If the software module or unit contains logic, the logic to be used by the software unit, including, as applicable: i. Conditions in effect within the software module or unit when its execution is initiated; ii. Conditions under which control is passed to other software modules or units; iii. Response and response time to each input, including data conversion, renaming, and data transfer operations; iv. Sequence of operations and dynamically controlled sequencing during the software module's or unit's operation, including: • The method for sequence control; • The logic and input conditions of that method, such as timing variations, priority assignments; • Data transfer in and out of memory; and • The sensing of discrete input signals, and timing relationships between interrupt operations within the software module or unit;	Documentation within source code Verity Base Station Microcontroller Specification 4005462 A01.pdf Verity Electronics Specification 4005461 A07.pdf	Y Module headers indicate preconditions. Module headers list other modules called. Response times are negligible for in-memory operations. Response times are longer but not fixed for file access; module headers describe file access. Sequencing is via C# control structures as allowed by the VVSG and the vendor coding standards. Module headers describe logic and input conditions. Data transfer in and out of memory is generally via file access, described in module headers. Verity Base Station Microcontroller Specification 4005462 A01.pdf and Verity Electronics Specification 4005461 A07.pdf describe low-level signals and timing.
g.	For each module and unit, the vendor shall provide the following information: Exception and error handling	Doc #6: 2.5.6 (including referenced documents)	Y
h.	For each module and unit, the vendor shall provide the following information: If the software module is a database, provide the information described in Volume II, Section 2.5.8.	Doc #6: 2.5.8 System Database Design (including referenced documents) Doc #7: 3 Verity Datastore Environments	Y
2.5.8	System Database		
	The vendor shall identify and provide a diagram and narrative description of the system's databases, and any external files used for data input or output.	Doc #6: 2.5.8 System Database Design (including referenced documents) Doc #7: 3 Verity Datastore Environments	Y
a.	The information provided shall include for each database or external file:	Doc #6: 2.5.8 (including referenced documents)	Y DISC 23: With the addition of Verity Data, do any of



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	The number of levels of design and the names of those levels (such as conceptual, internal, logical, and physical);	Doc # 20 Tabs: Build. Count.	the documents listed in section 2.5.8 "System Database Design" of the Verity 2.0 TDP Overview need to be updated? (For example, "Verity Database Attributes 4005543-A00" has no tab for Data.) Discrepancy resolved: Doc # 20 Tabs: Build. Count.
b.	The information provided shall include for each database or external file: Design conventions and standards (which may be incorporated by reference) needed to understand the design;	Doc #6: 2.5.8 (including referenced documents)	Y
c.	The information provided shall include for each database or external file: Identification and description of all database entities and how they are implemented physically (e.g., tables, files);	Doc #6: 2.5.8 (including referenced documents)	Y
d.	The information provided shall include for each database or external file: Entity relationship diagrams and description of relationships;	Doc #6: 2.5.8 (including referenced documents)	Y
e.	The information provided shall include for each database or external file: Details of table, record or file contents (as applicable) to include individual data elements and their specifications, including: <ul style="list-style-type: none"> i. Names/identifiers; ii. Data type (alphanumeric, integer, etc.); iii. Size and format (such as length and punctuation of a character string); iv. Units of measurement (such as meters, dollars, nanoseconds); v. Range or enumeration of possible values (such as 0-99); vi. Accuracy (how correct) and precision (number of significant digits); 	Doc #6: 2.5.8 (including referenced documents) Doc #7: 3	Y Note from Verity 1.0 - still applies: The Verity Operational Environment Document, which describes Microsoft's SQL Server Management Studio, does not provide many of the attributes required by the VVSG; this is stated in the Hart documentation. It is Hart's observation that the VVSG was written with a certain database implementation or model in mind and that the Verity implementation or model of data management does not follow the expected implementation.



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	<ul style="list-style-type: none"> vii. Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the data element may be updated and whether business rules apply; viii. Security and privacy constraints; ix. Sources (setting/sending entities) and recipients (using/receiving entities). 		
f.	The information provided shall include for each database or external file: For external files, a description of the procedures for file maintenance, management of access privileges, and security.		NS
2.5.9	Interfaces		
	The vendor shall identify and provide a complete description of all internal and external interfaces, using a combination of text and diagrams.	Doc #1 - Figure 1 Verity Voting System Abstract Diagram	Y
2.5.9.1	Interface Identification		
a.	For each interface identified in the system overview, the vendor shall: Provide a unique identifier assigned to the interface;	Doc #7 - 4 Verity System Interfaces	Y
b.	For each interface identified in the system overview, the vendor shall: Identify the interfacing entities (systems, configuration items, users, etc.) by name, number, version, and documentation references, as applicable;	Doc #7 - 4	Y
c.	For each interface identified in the system overview, the vendor shall: Identify which entities have fixed interface characteristics (and therefore impose interface requirements on interfacing entities) and which are being developed or modified (thus having interface requirements imposed on them).	Doc #7 - 4	<p>Y</p> <p>DISC 24: The document "Verity Operational Environment 4005515 B01" refers to "Verity XML Reference," which has not been delivered in the current TDP.</p> <p>Discrepancy resolved: Doc # 19:Change History, pg. 2 Removed "Verity XML Reference" in sections 3.3.2, 3.3.4, 3.3.10</p>



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2.5.9.2	Interface Description		
a.	For each interface identified in the system overview, the vendor shall provide information that describes: The type of interface (such as real-time data transfer, storage-and-retrieval of data) to be implemented;		Y
b.	For each interface identified in the system overview, the vendor shall provide information that describes: Characteristics of individual data elements that the interfacing entity(ies) will provide, store, send, access, receive, etc., such as: <ul style="list-style-type: none"> i. Names/identifiers; ii. Data type (alphanumeric, integer, etc.); iii. Size and format (such as length and punctuation of a character string); iv. Units of measurement (such as meters, dollars, nanoseconds); v. Range or enumeration of possible values (such as 0-99); vi. Accuracy (how correct) and precision (number of significant digits); vii. Priority, timing, frequency, volume, sequencing, and other constraints, such as whether the data element may be updated and whether business rules apply; viii. Security and privacy constraints; and ix. Sources (setting/sending entities) and recipients (using/receiving entities); 	Verity Database Attributes 4005543 A00.xlsx Verity Application Programming Interface Specification.pdf	Y Verity Database Attributes 4005543 A00.xlsx describes characteristics of individual stored data elements. Verity Application Programming Interface Specification.pdf describes the names and types of entities and their properties for major entities and properties of in-memory objects.
c.	For each interface identified in the system overview, the vendor shall provide information that describes: Characteristics of communication methods that the interfacing entity(ies) will use for the interface, such as: <ul style="list-style-type: none"> i. Communication links/bands/frequencies/media and their characteristics; ii. Message formatting; iii. Flow control (such as sequence numbering and 	Doc #19 Section: 5 Verity System Interfaces, pgs.135-143.	Y The details listed in this requirement apply to network communication interfaces. Disc. 25: Our review did not find adequate and unified descriptions of the network communication protocols used, including multiple protocols at multiple levels of the network protocol stack, such as Ethernet, IP, TCP, DHCP, and application protocols (such as TDS



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	buffer allocation); iv. Data transfer rate, whether periodic/aperiodic, and interval between transfers; v. Routing, addressing, and naming conventions; vi. Transmission services, including priority and grade; and vii. Safety/security/privacy considerations, such as encryption, user authentication, compartmentalization, and auditing;		to communicate with SQL Server); Discrepancy resolved: Doc #19 Section: 5 Verity System Interfaces, pgs.135-143.
d.	For each interface identified in the system overview, the vendor shall provide information that describes: Characteristics of protocols the interfacing entity(ies) will use for the interface, such as: i. Priority/layer of the protocol; ii. Packeting, including fragmentation and reassembly, routing, and addressing; iii. Legality checks, error control, and recovery procedures; iv. Synchronization, including connection establishment, maintenance, termination; and v. Status, identification, and any other reporting features;	Doc #19 Section: 5 Verity System Interfaces, pgs.135-143.	Y The details listed in this requirement apply to network communication interfaces. Disc. 25: Our review did not find adequate and unified descriptions of the network communication protocols used, including multiple protocols at multiple levels of the network protocol stack, such as Ethernet, IP, TCP, DHCP, and application protocols (such as TDS to communicate with SQL Server). Discrepancy resolved: Doc #19 Section: 5 Verity System Interfaces, pgs.135-143.
e.	For each interface identified in the system overview, the vendor shall provide information that describes: Other characteristics, such as physical compatibility of the interfacing entity(ies) (such as dimensions, tolerances, loads, voltages, plug compatibility).	Verity Base Station Microcontroller Specification 4005462 A01.pdf Verity Electronics Specification 4005461 A07.pdf	Y Verity Base Station Microcontroller Specification 4005462 A01.pdf and Verity Electronics Specification 4005461 A07.pdf describe hardware interfaces. (The listed characteristics do not apply to software interfaces.)
2.5.10	Appendices		
	The vendor may provide descriptive material and data supplementing the various sections of the body of the Software Specifications. The content and arrangement of appendices shall be at the discretion of the vendor. Topics recommended for amplification or treatment in appendix	Doc #13: Entire document Doc #14: Entire document	Y



Req #	VVSG 2005 Testing Standards - Vol.2 unless otherwise specified	Traced	Comments
	form include: <ul style="list-style-type: none">A. Glossary: A listing and brief definition of all software module names and variable names, with reference to their locations in the software structure. Abbreviations, acronyms, and terms should be included, if they are either uncommon in data processing and software development or are used in an unorthodox semantic;B. References: A list of references to all related vendor documents, data, standards, and technical sources used in software development and testing;C. Program Analysis: The results of software configuration analysis algorithm analysis and selection, timing studies, and hardware interface studies that are reflected in the final software design and coding.		

End of Document
