VVSG 2.0
Scope Discussion
Section 301 (b) (1) defines voting system as:
(1) the total combination of mechanical, electromechanical, or electronic equipment (including the software, firmware, and documentation required to program, control, and support the equipment) that is used—
(A) to define ballots;
(B) to cast and count votes;
(C) to report or display election results; and
(D) to maintain and produce any audit trail information
Background
Functional Based Requirements

- 2007 TGDC recommended guidelines – looked at classifications structure for voting systems
- Participation in Working Groups showed focus on process & inputs/outputs
  - Election Working Groups’ Process Model
- VVSG 2.0 Project Charter
  - Specifically Objectives for VVSG 2.0
Questions to TGDC

- EAC sent a list of 30 questions regarding functions and methods/modes for fulfilling those functions.
- EAC received feedback and questions from members and groups represented.
- Determined that methods/modes were too low-level. Which led to the $1M question:

  What are the core functions?
Ballot Construct/Development

Data exported from GIS, VRDB, Candidate Filing System, etc.

Allow manual input of candidate, contests, measures, instructions, languages, etc.

Combining or merging data (in previous boxes) to create ballot styles.

Laying out ballot

Generating ballots

Have the capability to input data necessary for constructing a ballot.

Have the capability to associate the data necessary for constructing a ballot.

Have the capability to layout the data necessary for constructing a ballot.

Have the capability to generate ballots.
Ballot Display

- Transfer ballot data to another device
  - Have the capability to transfer ballots.

- Transfer ballot data within a device

- Retrieve a ballot
  - Have the capability to retrieve a ballot.

- Present a ballot visually
  - Have the capability to present a ballot.

- Present a ballot audibly
Vote Selection/CVR Creation

Capture vote selections on a ballot

Interpret vote selections from scanned ballot

Interpret vote selections from electronic ballot

Extract vote selections from scanned ballot

Extract vote selections from e-ballot to memory

Extract vote selections from e-ballot to paper

Present vote selections visually on screen

Present vote selections visually on paper

Present vote selections audibly

Have the capability to capture the vote selections on the ballot.

Have the capability to interpret the vote selections.

Have the capability to extract the vote selections.

Have the capability to present the vote selections.
Tally Process

- Transfer vote selectors to internal memory
- Transfer vote selectors to external memory
- Transfer vote selections to paper
- Transfer vote selections across a network

- Have the capability to transfer the vote selections.
- Have the capability to store vote selections.
- Have the capability to retrieve vote selections.
- Have the capability to tabulate vote selections.
Reporting Results

- Transfer tabulated results on paper
- Transfer tabulated results electronically
  - Have the capability to transfer tabulated results.

- Present tabulated results on paper
- Present tabulated results electronically
  - Have the capability to present the tabulated results.
Voting Systems
17 Core Functions

- Input Data for Ballot Construct
- Associate Data for Ballot Construct
- Ballot Layout
- Ballot Generation
- Ballot Transfer
- Ballot Retrieval
- Ballot Presentation

- Capture Vote Selections
- Interpret Vote Selections
- Extract Vote Selections
- Present Vote Selections
- Transfer Vote Selections
- Store Vote Selections
- Retrieve Vote Selections
- Tabulate Vote Selections
- Transfer Results
- Present Results
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Device-Based Model (Current VVSGs)

- §301 (b) (1) (A): to define ballots
  - Device: Election Management System

- §301 (b) (1) (B): to cast and count votes
  - Devices: Ballot Marking Device, DRE & Scanners

- §301 (b) (1) (C): to report or display election results
  - Device: Election Management System

- §301 (b) (1) (D): to maintain and produce any audit trail information
  - Devices: ALL
Device-Based Model  
(By Functions)

EMS – to define ballots [§301 (b) (1) (A)]:

EBM & scanner or DRE – to cast and count votes [§301 (b) (1) (B)]:

EMS – to count and report/display results [§301 (b) (1) (C)]:
VVSG 2.0 Voting System Model

Data Entry → Associate data → Layout of associated data → Generate ballot → Transfer ballot data

Retrieve ballot data → Present ballot → Capture vote selections on ballot → Interpret vote selections → Extract vote selections → Present selections → Transfer vote selections → Store vote selections

Retrieve vote selections → Tabulate vote selections → Extract tabulated data → Present results of tabulation
VVSG 2.0 Objectives

Project Charter

- To assess the ability of the election systems to correctly execute secure, usable and accessible elections in order to provide assurance to voters that the election is an accurate reflection of the voters’ will.
- To enable, not obstruct or impede, innovation and needed response to changing statutes, rules, jurisdictional and voters’ needs.
- To create a set of implementable guidelines that allows effective deployment of systems by jurisdictions constrained by election calendars, schedules and budgetary restrictions.
VVSG 2.0 Objectives (continued)

Project Charter

- To facilitate the interoperability of election systems.
- To facilitate an open and transparent process that allows voters and election jurisdictions to assess the performance and capability of the election systems.
- To provide a set of testable requirements that a jurisdiction can understand and use to evaluate the performance of election systems and to procure new systems.
Voting System (VVSG 2.0)

- What constitutes a voting system?
  - A combination of devices that fulfills all of the functions.

- Could any combination of all the functions be tested by the EAC?
  - No, the combination of devices would also have to meet all of the requirements set forth in the Help America Vote Act.
No Tech Solution
Voting System
(All paper)
Voting System
(Paper and Digital)
Typical Voting System
Paper (in-person and mail) and Digital

[Diagram of voting system process]

1. LEO uploads pre-generated ballots
2. Ballots printed by vendor
3. Ballots mailed to voter
4. Paper Paths
5. Ballots printed by BID
6. Ballots handed to voter
7. Ballots marked w/ pen
8. 12 & 8
9. Ballots marked w/ pen
10. Ballots placed in scanner
11. Voter reviews choices
12. Voter submits votes
13. Votes stored on device
14. Votes transferred to central
15. LEO accumulates results
16. Print Results Tape
17. 14 & 18
18. Close Polls
Futuristic Voting System
(Hypothetical & Sci-Fi System)

1-4: LEO creates and generates ballots on system

5-7: Voter telepathically retrieves ballot

8: Voter thinks selections

8-10: System captures, interprets and extracts selections

12 & 11: System sends confirmation of selections

12: Voter accepts vote selections

13-17: System stores, tabulates, reports and display results
Use Case Example: Election Management System

1. Define political subdivision boundaries and multiple election districts
2. Identify contests, candidates, and issues
3. Define ballot formats and voting options
4. Generate ballots and election-specific programs
5. Install ballots and election-specific programs
6. Test that ballots and programs have been properly prepared and installed
7. Accumulate vote totals at multiple reporting levels
8. Generate post voting reports
9. Process and produce audit reports of the data
Use Case Example: Electronic Ballot Marker (EBM)

EBM in Vote Location

Remote EBM
Questions???

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