VVSG 2.0
Scope Discussion
Help America Vote Act
Definition of Voting System

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

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

- Combining or merging data (in previous boxes) to create ballot styles.
  - Have the capability to associate the data necessary for constructing a ballot.

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

- Generating ballots.
  - 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
  - Have the capability to retrieve a ballot.

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

- Have the capability to transfer the vote selections.

- Storing vote selections
  - Have the capability to store vote selections.

- Retrieving vote selections from memory
  - Have the capability to retrieve vote selections.

- Tabulating 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
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.
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
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)
Futuristic Voting System (Hypothetical & Sci-Fi System)
Define political subdivision boundaries and multiple election districts

Identify contests, candidates, and issues

Define ballot formats and appropriate voting options

Generate ballots and election-specific programs

Install ballots and election-specific programs

Test that ballots and programs have been properly prepared and installed

Accumulate vote totals at multiple reporting levels

Generate post-voting reports

Process and produce audit reports of the data

Tabulate vote selections

Transfer tabulated vote results

System presents tabulated results

Retrieve a ballot
Use Case Example: Electronic Ballot Marker (EBM)

EBM in Vote Location

Remote EBM
Questions???

- Brian Hancock – Director, Testing and Certification
  - BHancock@eac.gov

- Ryan Macias – Certification Program Specialist
  - RMacias@eac.gov