

NVLAP  
Laboratory  
Accreditation

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# Outline

- What is accreditation
- What is NVLAP
- Background of the Voting Testing Accreditation Program
- Updates to the Accreditation Requirements (NIST HB 150-22)

# Laboratory Accreditation

- Independent, third party assessment of laboratory technical competence
- Assessment is based on an international standard (ISO/IEC 17025)
- Assessment of specific scope of accreditation
- Assessment by peer technical experts
- Results in formal recognition by an authoritative body

# NVLAP

## National Voluntary Laboratory Accreditation Program

- NVLAP is:
  - A program within the Standards Coordination Office - NIST
  - A system for accrediting laboratories found competent to perform specific tests or types of tests (CFR, Title 15, Part 285)
- NVLAP is not:
  - A certifier of test data
  - A certifier of products
  - An operator of a certification program

# Purpose of Accreditation Program

- To accredit Voting Systems Testing Laboratories (VSTLs) to conduct testing of voting systems and components, providing a measure of confidence that such laboratories are capable of performing testing to meet the requirements of HAVA

# Background of Accreditation Program

- The Help America Vote Act (HAVA) of 2002 (Public Law 107-252).
- Section 231 of HAVA requires NIST to provide for the accreditation of laboratories that conduct testing on the hardware and software of voting systems.
- In response to the HAVA, the National Voluntary Laboratory Accreditation Program (NVLAP) has established a program for laboratories that test voting systems.

## Background of Accreditation Program

- The EAC adopted the Voluntary Voting System Guidelines of 2005 (VVSG 1.0).
- The VVSG 1.0 took effect in December 2007.
- Voting systems could no longer be tested against VSS-2002.
- VVSG 1.1 – released 2015

# VSTL

- VSTLs are required to meet the requirements in NIST Handbook 150, NIST HB 150-22, HAVA requirements, VVSG-1.0, VVSG 1.1, and any other criteria deemed necessary by the EAC.
- Labs that achieve NVLAP accreditation are recommended by NIST to the EAC for designation as EAC-accredited Voting System Test Laboratories (VSTLs).



## VSTL – cont'd

- The EAC maintains a list of accredited VSTLs to help vendors and elections officials identify resources to fulfill system testing requirements.

# NIST HB 150-22

- Supplements the procedures and general requirements found in NIST Handbook 150.
- The additional requirements and interpretive comments contained in the handbook make the general NVLAP criteria specifically applicable to the Voting System Testing laboratory accreditation program (VST LAP).
- requirements of NIST HB 150 and HB 150-22 are normative (i.e., mandatory) and must be combined to produce the criteria for accreditation in the VST LAP

# HB 150-22:2016 [DRAFT]

- HB 150-22:2016 DRAFT is being sent through NIST's Washington Editorial Review Board (WERB)
- The 2016 edition is based upon revisions to:
  - *Voluntary Voting System Guidelines (VVSG) Version 1.1;*
  - *Election Assistance Commission's (EAC) Testing and Certification Program Manual Version 2.0;*
  - *EAC Voting System Test Laboratory Program Manual Version 2.0,*
  - supersedes and replaces the HB150-22:2008.

# HB 150-22 updates

- Majority of changes to the handbook are updates to include references to VVSG 1.1 and updated versions of the related guidance/requirement documents...

# HB 150-22 updates

- Section 4.1 – Organization

Policies and Procedures shall ensure:

- *c) the laboratory has defined its prohibited conflicts and prohibited practices; and*
- *d) the laboratory has documented the process for enforcement of its policies and procedures with regard to prohibited conflicts and practices. The enforcement program shall include an annual collection and review of employee information related to testing or development of voting systems including, but not limited to: any financial interests, any prior employment or activities in outside organizations, gifts, work related to voting system development. Any potential conflicts shall be resolved and documented.*

# HB 150-22 updates

- 5.3.1 (Accommodation and environmental conditions)
  - *....If performing usability tests with users, the location shall also be accessible for people with disabilities.*

# Core Testing

## (HB 150-22 updates)

- 1.5.3: Core Tests
  - Technical Data Package review,
  - physical configuration audit,
  - source code review,
  - functional configuration audit,
  - system integration test,
  - volume tests,
  - telecommunications,
  - security tests (with the exception of vulnerability and penetration testing that require specialized skillsets).

# Core Testing

## (HB 150-22 updates)

- Section 1.5.3
  - These “core” tests must be done by the VSTLs or by contractors hired by the VSTLs who act as employees of the VSTLs.
  - VSTLs can contract the "core" testing to another lab as long as that lab is also NVLAP accredited.



# Non-core Testing

## (HB 150-22 updates)

- Non-Core Testing (4.5.3)
  - Accessibility
  - Usability
  - Vulnerability (security)
  - Penetration (security)
- *Subcontracts for non-core testing are not required to be accredited under the VST LAP.*
- *If laboratories accredited in another LAP are available for non-core testing, VSTLs shall use accredited laboratories.*
- *When an accredited laboratory is not available for non-core testing, the VSTL shall conduct an audit of the subcontracted laboratory and shall document that the laboratory is competent and qualified for use.*

# Non-core Testing

## (HB 150-22 updates)

- Accessibility & Usability
  - Identified as “non-core” to allow the laboratory to bring in specialized technical expertise;
  - Cost Effective;
  - In the previous version of the HB150-22, labs could employ an expert as a contractor (still true);
  - Revised HB150-22 permits laboratory to contract with a non-accredited lab for non-core activities.

# HB 150-22 updates

- 5.2.6 (Lab Personnel Qualification)

*The laboratory shall have staff members with knowledge and skills commensurate with the scope of work, i.e., a technical or scientific degree (e.g., a Bachelor or advanced degree in Computer Science, Computer Engineering, Computer Security, Electrical Engineering, Human Factors and Ergonomics, Usability Engineering, Human Factors and Applied Psychology, Human Computer Interaction, or similar discipline), or equivalent experience (e.g., professional certification; experience conducting testing in areas related to voting systems, experience conducting security and penetration testing, experience conducting usability and accessibility reviews in several domains (not just web sites), testing with users, and conformance to usability and accessibility standards).*

# HB 150-22 Updates

- 5.2.7 (personnel knowledge / training)

*The personnel shall possess knowledge of, or be trained prior to accreditation on/in the areas listed below:*

- *general requirements of the test methods, including generation of test reports;*
- *familiarity with testing techniques including penetration testing on Internet networks;*
- *system security concepts;*
- *physical security;*
- *identification and authentication technologies and techniques;*
- *cryptographic and security terminology;*
- *assessing system performance against both usability and accessibility requirements;*
- *universal design principles;*
- *expert heuristic review for usability and accessibility;*
- *executing summative, quantitative, performance-based human-computer interaction usability tests and reporting on these tests;*
- *protocols for interacting with people who have disabilities;*
- *standards compliance.*

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