

Audit Requirements Gap Analysis

An overarching goal of the next VVSG is to have each requirement mapped to a principle and its associated guidelines. During the mapping activity for the audit requirements, some auditability requirements did not easily map to the current list of principles and guidelines. New guidelines may be necessary to completely map to all the requirements below.

Possible additions for requirements or guidelines include:

- ◆ Voter verification
- ◆ Observational testing
- ◆ Human readability
- ◆ Preserving ballot secrecy during the audit process

Below is a list of the auditability requirements that did not map directly to a principle and/or guideline. If a guideline is listed, NIST found that it did not fully map to the requirement, although partial applicability is noted. It is possible that requirements without an associated guideline may be superfluous and should be deleted. For more information about each requirement, please reference the full list of audit requirements document.

4.2.4-A IVVR vote-capture device, observational testing

Requirement:	IVVR vote-capture devices that support assistive technology SHALL support observational testing.
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4.2.4-B IVVR vote-capture device, authentication for observational testing

Requirement:	The mechanism for authenticating the voter to the accessible IVVR vote-capture device SHALL NOT allow the IVVR vote-capture device to distinguish whether a voter is performing observational testing. The pollworker issuing the ballot activation for voters performing observational testing SHALL NOT be capable of signaling to the IVVR vote-capture device that it is being tested.
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4.3.3-A.1 Tabulator, report combination for privacy

Requirement:	The EMS shall be capable of combining tabulator reports to protect voter privacy in cases when there are tabulators with few votes.
Principle(s)/ Guideline(s):	<i>Ballot Secrecy</i> Records produced by the voting system do not reveal how a voter voted. Justification: This requirement protects voter privacy.

4.3.5-A Ballot counter

Requirement:	Tabulators and vote-capture devices SHALL maintain a count of the number of ballots read at all times during a particular test cycle or election.
Principle(s)/ Guideline(s):	<i>Auditability</i> Voting system records are resilient in the presence of intentional forms of tampering and accidental errors.

Justification: This guideline somewhat reflects this requirement.

4.3.5-B Ballot counter, availability

Requirement:	Tabulators SHALL enable election judges to determine the number of ballots read at all times during a particular test cycle or election without disrupting any operations in progress.
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4.4.1-A.1 IVVR vote-capture device, IVVR direct verification by voters

Requirement:	IVVR vote-capture devices SHALL create an IVVR that voters can verify (a) without software, or (b) without programmable devices excepting assistive technology.
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Principle(s)/ Guideline(s):	<i>Auditability</i> An undetected error or fault in the voting system's software is not capable of causing an undetectable change in election results Justification: Voters will use the IVVR created, to verify there are no changes to their votes.
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4.4.1-A.2 IVVR vote-capture device, IVVR direct review by election officials

Requirement:	IVVR vote-capture devices SHALL create an IVVR that election officials and auditors can review without software or programmable devices.
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Principle(s)/ Guideline(s):	<i>Auditability</i> An undetected error or fault in the voting system's software is not capable of causing an undetectable change in election results Justification: Election officials and auditors will use the IVVR created, to verify there are no changes to the elections results.
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4.4.1-A.8 IVVR vote-capture device, IVVR public format

Requirement:	IVVR vote-capture devices shall create an IVVR in a non-restrictive, publicly available format, readable without confidential, proprietary, or trade secret information.
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Principle(s)/ Guideline(s):	<i>Auditability</i> An undetected error or fault in the voting system's software is not capable of causing an undetectable change in election results. Justification: With the IVVR created in a human readable format, voters, election officials, and auditors can verify that no changes are made to the ballots.
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4.4.1-A.10 IVVR vote-capture device, no codebook required to interpret

Requirement:	The human-readable ballot contest and choice information on the IVVR SHALL NOT require additional information, such as a codebook, lookup table, or other information, to unambiguously determine the voter's ballot choices.
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4.4.1-A.11 IVVR vote-capture device, multiple physical media

Requirement:	When a single IVVR spans multiple physical media, each physical piece of media SHALL include polling place, reporting context, ballot configuration, date
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of election, and number of the media and total number of the media (e.g. page 1 of 4).

Principle(s)/
Guideline(s):

Auditability

The voting system produces records that provide the ability to check whether the election outcome is correct, and to the extent possible, identify the root cause of any irregularities.

Justification: The requirement specifies what shall be included on the produced records.

4.4.1-A.12 IVVR vote-capture device, IVVR accepted or rejected

Requirement:

The IVVR SHALL be marked as accepted or rejected in the presence of the voter.

4.4.1-A.13 IVVR vote-capture device, IVVR accepted or rejected for multiple physical media

Requirement:

Each piece of IVVR physical media or SHALL be individually accepted or rejected by the voter.

4.4.1-A.17 IVVR vote-capture device, public format for IVVR non-human-readable data

Requirement:

Any non-human-readable information on the IVVR SHALL be presented in a fully disclosed public format.
