



**NIST Voting Technology Series**  
**NIST VTS 100-3pt2sup1**

# **Usability and Accessibility of Electronic Pollbooks**

## *Part 3: Checklists for Usability and Accessibility*

Whitney Quesenbery  
Lynn Baumeister  
Dana Chisnell

This publication is available free of charge from:  
<https://doi.org/10.6028/NIST.VTS.100-3pt2sup1>

**NIST Voting Technology Series**  
**NIST VTS 100-3pt2sup1**

# **Usability and Accessibility of Electronic Pollbooks**

## *Part 3: Checklists for Usability and Accessibility*

Whitney Quesenbery  
Lynn Baumeister  
Dana Chisnell  
*Center for Civic Design*

This publication is available free of charge from:  
<https://doi.org/10.6028/NIST.VTS.100-3pt2sup1>

December 2023



U.S. Department of Commerce  
*Gina M. Raimondo, Secretary*

National Institute of Standards and Technology  
*Laurie E. Locascio, NIST Director and Under Secretary of Commerce for Standards and Technology*

Certain commercial entities, equipment, or materials may be identified in this document in order to describe an experimental procedure or concept adequately. Such identification is not intended to imply recommendation or endorsement by the National Institute of Standards and Technology, nor is it intended to imply that the entities, materials, or equipment are necessarily the best available for the purpose.

### **NIST Technical Series Policies**

[Copyright, Fair Use, and Licensing Statements](#)  
[NIST Technical Series Publication Identifier Syntax](#)

### **Publication History**

Approved by the NIST Editorial Review Board on 2023-12-01

### **How to Cite this NIST Technical Series Publication**

Quesenbery W, Baumeister L, Chisnell D (2023) Usability and Accessibility of Electronic Pollbooks: Part 3: Checklists for Usability and Accessibility. (National Institute of Standards and Technology, Gaithersburg, MD), NIST Voting Technology Series (VTS) NIST VTS 100-3pt2sup1.  
<https://doi.org/10.6028/NIST.VTS.100-3pt2sup1>

### **NIST Author ORCID iDs**

Shanée Dawkins: 0000-0002-8114-0608

### **Contact Information**

[voting@nist.gov](mailto:voting@nist.gov)

### **Preface**

Research referenced in this report was conducted in 2017. The use of e-pollbooks presented throughout the document reflects the state of elections in 2017.

## **Abstract**

This document is the third part of a series of documents on the usability of electronic pollbooks. It is supplementary to Part Two in the series, Usability Testing for E-pollbooks: A Test Protocol. In the effort to create this series, dozens of items were identified that can be used to evaluate e-pollbooks for usability and accessibility. These items form the usability checklists in this document and are organized by poll workers' tasks. They are not absolute requirements, but a guide to evaluating how well a specific e-pollbook supports poll workers and voters in the polling place.

Research referenced in this report was conducted in 2017. The use of e-pollbooks presented throughout the document reflects the state of elections in 2017. In the time since this research was performed, e-pollbooks have made progress addressing usability and accessibility issues. Additionally, as part of its ongoing Election Supporting Technology Evaluation Program (ESTEP) program, the Election Assistance Commission developed the Voluntary Electronic Poll Book Requirements (VEPBR) in collaboration with NIST. This publication is intended to provide a deep dive into how to evaluate the usability and accessibility of e-pollbooks in order to meet the relevant VEPBR user-centered design process and usability testing requirements as well as any state certifications pertaining to usability and accessibility.

## **Keywords**

E-pollbooks; elections; electronic pollbooks; human factors; usability; voting

## Table of Contents

<b>How to use this document.....</b>	<b>1</b>
<b>Checklists.....</b>	<b>4</b>
General usability features	4
Basic voter check in	4
Find a voter by scanning an ID	5
Finding a voter by searching	5
Reviewing the list of voters found	6
Checking voter status	6
Checking voter details	6
Handling updates and exceptions	6
Collecting signatures	7
Helping voters in line	7
Entering text with an on-screen keyboard	8
Supporting poll workers	8
Accessibility	8

# How to use this document

---

This document is a set of checklists supplemental to Part Two of this series on e-pollbooks usability, *Usability and Accessibility of Electronic Pollbooks: A Usability Test Protocol*. The checklists are based on the findings from NIST's landscape analysis of e-pollbooks<sup>1</sup> and from a related pilot usability test of e-pollbooks<sup>2</sup>. Dozens of items that form the checklists were identified as useful in evaluating e-pollbooks for usability and accessibility. This checklist guidance directly addresses e-pollbook evaluators and reviewers. It can be used to review a single e-pollbook model or to compare the usability of several different products.

Use the checklists to review e-pollbooks:

- when your jurisdiction is making decisions about purchasing voting and pollbook systems
- as part of retrospective and post-election evaluations and reviews when there may have been problems in polling places
- to inform decisions about poll worker training scenarios and practice

## What's in the checklists

The usability checklists are organized by poll workers' tasks. They are not absolute requirements, but a guide to evaluating how well a specific e-pollbook supports poll workers and voters in the polling place.

The first set of items are for **general usability features** of e-pollbooks. They actually apply to nearly any digital interface you might encounter. Each is a simple Yes / No question. If you can answer Yes to each of the items, it is likely that poll workers will generally do well with the e-pollbook you are evaluating.

The **detailed checklists** that follow are designed to assess the usability of e-pollbooks from the point of view of poll workers, as they do typical tasks during an election. These aren't simple Yes / No ratings. As we so often find in usability studies, "usable" can fall within a range. Therefore, we frame the questions as, "How easily and successfully can users..." complete actions or tasks as listed in each section.

## Using the checklists

To use the checklists, start by using the e-pollbook yourself. Consider using the scenarios in the usability test plan (Part Two of this series on the usability and accessibility of e-pollbooks) to help you cover both easy and harder tasks. Check the items on the list against your experience.

Better yet, conduct a usability study of the equipment using our recommended protocol in Part Two of this series on e-pollbooks usability.

Whether you are doing a review or a usability test, you can rate the success against each checklist item using a stop light scale of green, yellow, or red:

- **Green** means that the scenario was completed accurately and easily, without help or any stumbles in using the e-pollbook.

---

<sup>1</sup> Part 1 of the series on usability and accessibility of e-pollbooks: Usability in the polling place.

<sup>2</sup> E-pollbooks usability: A report on the pilot of a usability test for e-pollbooks. <https://civicdesign.org/wp-content/uploads/2015/06/epb-pilot-test-report-15-1208-a11y.pdf>

- **Yellow** is for problems completing a scenario, from minor issues (like easily correcting a misspelling of a name in a search or simple mistake in navigation) to major problems (like actions repeated or having to hunt or ask for help)
- **Red** is for scenarios or actions with an important error, like selecting the wrong voter, giving up on a task, or handling a voter incorrectly.

## Understanding usability

To evaluate the usability of an e-pollbook, start with the broad features of *efficiency, effectiveness, and satisfaction*.

**Efficiency** is a measure of how well poll workers can complete both routine and unusual tasks. Efficiency is important because checking in voters is one of the bottlenecks that can cause long lines at a polling place.

**Effectiveness** is measured by the accuracy with which poll workers can handle each voter. For example, can they:

- Find and identify the correct voter registration record including records that are easily confusable such as Jr/Sr or similar and common names
- Recognize special conditions, such as whether the voter has already voted or identification requirements
- Take appropriate action to check the voter in or deal with special requirements
- Complete administrative procedures such as logging unusual events or updating records

Finally, **satisfaction** is a measure of poll workers' attitude towards e-pollbooks. This includes both positive attitudes and lack of negative attitudes about them. For example, do they believe that e-pollbooks:

- Help them do their job well
- Make finding voters easy
- Let them check voters in quickly
- Help them interact with voters in a helpful way

This work was performed under award 70NANB14H280 from the U.S. Department of Commerce, National Institute of Standards and Technology.

Research referenced in this report was conducted in 2017. The use of e-pollbooks presented throughout the document reflects the state of elections in 2017. In the time since this research was performed, e-pollbooks have made progress addressing usability and accessibility issues. Additionally, as part of its ongoing Election Supporting Technology Evaluation Program (ESTEP) program, in 2023, the Election Assistance Commission (EAC) completed its first voluntary e-poll book pilot to determine if federal certification is a viable solution for the future of e-pollbook usage during elections in the United States<sup>3</sup>. As part of the ESTEP e-pollbooks pilot, the Voluntary Electronic Poll Book Requirements (VEPBR) were developed in collaboration with NIST and include reporting of the user-centered design process and usability testing. This publication is intended

---

<sup>3</sup> <https://www.eac.gov/voting-equipment/estep-electronic-poll-books>

to provide a deep dive into how to evaluate the usability and accessibility of e-pollbooks in order to meet these VEPBR requirements as well as any state certifications<sup>4</sup> pertaining to usability and accessibility.

---

This report is Part 3 of the complete report on the usability and accessibility of e-pollbooks:

NIST VTS 100-3pt1: Usability and Accessibility of Electronic Pollbooks: Usability in the Polling Place

<https://doi.org/10.6028/NIST.VTS.100-3pt1>

NIST VTS 100-3pt2: Usability and Accessibility of Electronic Pollbooks: A Usability Test Protocol

<https://doi.org/10.6028/NIST.VTS.100-3pt2>

NIST VTS 100-3pt2sup1: Usability and Accessibility of Electronic Pollbooks: Checklists for Usability and Accessibility

<https://doi.org/10.6028/NIST.VTS.100-3pt2sup1>

---

---

<sup>4</sup> EAC clearinghouse of state certification requirements for electronic poll books <https://www.eac.gov/testing-and-certification/state-certification-requirements-electronic-poll-books>.



# Checklists

---

## General usability features

If you can answer *Yes* to each of these items, the rest of the evaluation is likely to be positive, too.

- ☐ Does the screen look clean and easy to use?
- ☐ Is it easy to see what is what on the screen?
- ☐ Can you tell what the most important information is?
- ☐ Are related pieces of information grouped (for example, are name, address, and date of birth together)?
- ☐ Is the text big enough (but not too big)?
- ☐ Is the text easy to see in different lighting conditions?
- ☐ Can you tell what is clickable?
- ☐ Are buttons and links large enough to click or tap easily?
- ☐ When you click or tap something, can you tell that the device is doing something?
- ☐ Are labels on links, icons, and buttons simple and clear?
- ☐ Are buttons and links in the right place for the steps in a task and overall workflow?
- ☐ Are information and error messages helpful?
- ☐ Do messages appear in the most helpful, visible place?

## Basic voter check in

How easily and successfully can poll workers:

- ☐ Get to and return to the starting point
- ☐ Get search results
- ☐ Navigate and narrow search results
- ☐ Identify the correct person in the list of results
- ☐ Select the name or address and check a voter in
- ☐ Recover from or correct a mistake
- ☐ Return to search results from a search they've already done

## Find a voter by scanning an ID

How easily and successfully can poll workers

- ☐ Handle the scanner
- ☐ Get the scanner in the position to quickly scan the barcode
- ☐ Tell that the scanner has scanned the barcode
- ☐ Check a voter in
- ☐ Respond to and recover from mistakes
- ☐ Determine whether the scanned ID matches the voter record
- ☐ Protect personally identifying information for the voter

How easily and successfully can **voters** who are scanning their own ID

- ☐ Position their ID to be scanned
- ☐ Recognize whether the scan was successful
- ☐ See whether the information in their voter record is correct

## Finding a voter by searching

How easily and successfully can poll workers

- ☐ Find the right place to start a search
- ☐ Type part of a name or an address to start a search
- ☐ Get a search result closely matching the voter in one try
- ☐ See which information is required for a search (such as last name versus full name, street names versus full address)
- ☐ Narrow the search results

## Reviewing the list of voters found

How easily and successfully can poll workers

- ☐ Pick out a specific voter from a list of voters
- ☐ Determine whether a voter
  - ☐ Is the person in front of them (is this Jr. Sr., etc.)
  - ☐ Has already voted
  - ☐ Is in the wrong precinct
- ☐ Expand the search to county, state, or inactive voters
- ☐ Narrow the results list by adding search criteria

## Checking voter status

How easily and successfully can poll workers

- ☐ Tell who has already voted
- ☐ Find the voter status

## Checking voter details

How easily and successfully can poll workers

- ☐ See and read the voter's name or address
- ☐ Recognize and interpret voter status

## Handling updates and exceptions

How easily and successfully can poll workers

- ☐ Find where to start handling an exception
- ☐ Make necessary changes (and make no other changes)
- ☐ Take the next step to close or complete the exception

## Collecting signatures

How easily and successfully can poll workers

- ☐ Get to the right place for voters to sign
- ☐ Tell that the signature form is for the correct voter

OR

- ☐ Print the paper signature form

How easily and successfully can **voters**

- ☐ Find the space for signing
- ☐ Sign their name
- ☐ Clear the space and start over
- ☐ Tell that they are signing for the correct voter

## Helping voters in line

When using a tablet computer to interact with voters in line, how easily and successfully can poll workers

- ☐ Open a version of the poll book on the portable device
- ☐ Manage and hold the e-pollbook
- ☐ Hold the e-pollbook in one hand and interact with the other
- ☐ See and use the data in bad lighting and weather conditions, such as street lights at night, in cold or wet weather
- ☐ Turn the display for voter to see

OR

- ☐ Print or send a polling place location for a voter

## Entering text with an on-screen keyboard

If the e-pollbook has an on-screen keyboard, how easily and successfully can poll workers

- ☐ Get to the keyboard when and where it is needed
- ☐ Get rid of the keyboard (or hide it) when it is not needed
- ☐ Get to all of the fields, controls, and information needed for a task while using the keyboard
- ☐ See the necessary voter information and controls while using the keyboard

## Supporting poll workers

How easily and successfully can poll workers

- ☐ Find appropriate supplemental information, procedures, and online training manuals and navigate them
- ☐ Follow on-screen scripts
- ☐ Follow troubleshooting procedures under stress
- ☐ Enter notes about voters or polling place incidents

## Accessibility

How easily and successfully can poll workers

- ☐ Change aspects of the display that will make it easier to see, read, and perform tasks
- ☐ Use assistive technology such as a screen reader