

# Election Systems and Equipment 101

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## An Introduction To Voting Systems And Equipment

**From showing up to your “polling place” and declaring your vote in the 1800s, to filling out ovals on a ballot that’s scanned upon completion, voting has taken many forms over the years. As our government has matured, the way people exercise their democratic right to vote has evolved with it.**

Jurisdictions now have many options when thinking about how voters will cast their vote. Below is an overview of the different types of voting equipment/systems used in the United States (past and present) and how technology is changing the way Americans vote at the polls.

### Good old fashioned voting



Hand counted ballots- While not a popular method of tabulating votes, many jurisdictions manually count paper ballots cast in polling places by hand to this day. Even more jurisdictions manually count their absentee and/or provisional ballots as they receive a smaller number of each.

### (Slight) improvements are made



Lever machines- Introduced in the 1890’s many states adopted this mechanized voting system. Each candidate and ballot issue is assigned to a particular lever. To start the vote session, a voter pulls a separate lever that closes a privacy curtain. The voter then pulls smaller levers corresponding to their vote selections. The machine records each vote as well as how many votes were cast on each lever machine. Once a voter is done selecting their choices, they reopen

the privacy curtain and the vote levers return to their original positions. These machines were used in some locations as recently as 2010 and are still in use by certain municipalities today.



Punch cards- Originally designed to tabulate statistics; the punch card voting system consists of a card attached to a small, sturdy board. Voters punch holes with a provided stylus either next to their vote selection or next to a number that corresponds to their vote choice. After voting, each voter can place their ballot into a secure ballot box or feed it through an in-precinct tabulation device. The two types of punch card systems were the Votomatic, which had numbers listed on

the ballot instead of candidates (the corresponding candidates and ballot issues appeared elsewhere in the voting booth), and the Datavote.

### Technology in elections



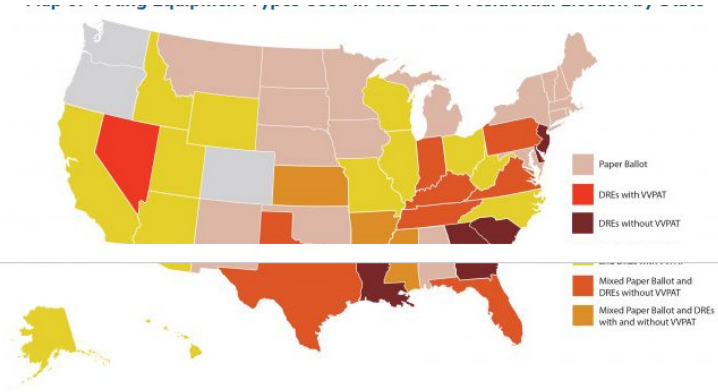
Optical Scan- Referred to as both mark-sense and optical scan, this voting system is commonly used in elections today. Voters receive a preprinted ballot consisting of candidates and ballot issues after checking-in at the poll. They then fill out a circle, oval or rectangle (some systems have voters complete an arrow) indicating their choices. The completed ballot can either be scanned by an in-precinct tabulator or collected securely and later scanned at Election Central by a central scanner. These computerized tabulators scan the ballot, guided by track marks also printed on each ballot, recognizing common voter marks to determine intent and tabulate results. Many jurisdictions prefer these voting system as tabulation can happen quickly and the paper ballot can serve as a record during later review or recount periods.



Direct Recording Electronics (DREs) – Direct Recording Electronics, or DREs as they’re commonly known, eliminate the paper ballot in the voting process. A voter inputs their selections using one of three basic interfaces (push button, touchscreen or dial) where it is tabulated and stored using a memory chip, disk or SD card. Typically a keyboard is provided for write-in votes, though some jurisdictions handle this portion manually.



Ballot marking devices- Created to assist voters with disabilities in marking paper ballots, most ballot marking devices (BMD) provide a touch-screen interface combined with audio and other accessibility features. A voter is still provided a paper ballot, marks their choices with the assistance of the BMD then scans their ballot according to their jurisdiction’s practices. Similar to a DRE, but no vote selections are stored internally; the marked ballot still has to be tabulated.



VVPAT: Voter Verified Paper Audit Trail Printers Data from [verifiedvoting.org](http://verifiedvoting.org)

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Truly modernized voting

Technology has played a key role in improving election systems and the voter experience since the introduction of optical scan and DREs. Today's voting system vendors are looking for ways to push this envelope even further, creating new innovations in the elections industry such as the ones below.



Digital scan tabulators- Digital scan tabulators were the next logical improvement to optical scan. Ballots are scanned exactly as an optical scan ballot would be — only with digital scanners, ballot images are captured while the ballot is tabulated. These images can then be used during recounts or review periods, saving election officials the hassle of tracking down physical ballots.



Ballot markers that can also tabulate – Vendors are also focusing on the next iteration of voting machines: ExpressVote BMDs that can also tabulate. These hybrids create a streamlined Election Day experience while safeguarding voter intent as paper records are still available.

No matter what types of equipment a jurisdiction uses, one thing's for sure: the ways in which we vote have come a long way from our forefathers. Curious about a particular voting system? Contact ES&S for a more inclusive look at voting systems and equipment currently on the market.



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