

Electronic blank ballot distribution

The IEEE P1622 Standard on a Common Data Format for Electronic Blank Ballot Distribution

Helping UOCAVA and Overseas Voters

Estimates suggest that significant numbers of overseas voters may be disenfranchised from voting due to uncertain delivery, with paper ballots often arriving too late to be counted in the election or not arriving at all. Due in part to the MOVE Act's requirements, U.S. states increasingly are making ballots available to overseas voters by permitting them to download and print electronic blank ballots and mail them back to home jurisdictions.

The IEEE P1622 Standard

However, states still face significant obstacles in making electronic blank ballots available due to proprietary or non-compatible data formats used in election systems, with the result being that databases and election systems cannot "talk" to each other without translation software and manual effort. This results in greater risk of error and greater expense that is recurring for each election.

Recently, the IEEE P1622 working group created a common data format standard to facilitate blank ballot construction and distribution. Available from the IEEE website, ***IEEE Standard 1622-2011*** is based on the OASIS Election Markup Language (EML) international standard and is supported by major US voting system manufacturers. This standard defines an XML-based format for states to use when exporting information from election databases and election management systems (EMS) for constructing ballots. Additionally, the format provides for voter notification of returned ballot status as required by the MOVE Act.

How Will This Standard Help?

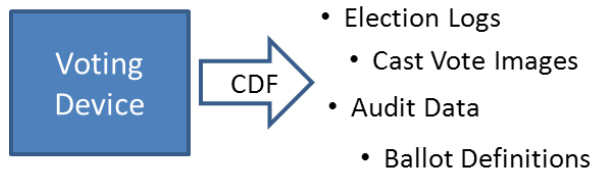
The IEEE standard assumes a use case in which states may either construct ballots pre-election and make them available for download, or may select the capability to dynamically construct ballots as needed. Overseas voters can then connect to online ballot distribution systems and be able to choose and subsequently download and print their ballots.

To enable this ballot delivery, the IEEE/EML format is designed to house the information from databases and EMSs in a structured yet flexible format that permits use by states as a common export format for their databases and devices. In addition integrity checks and digital signatures are provided that support authentication of the information. Online ballot distribution systems will be able to use the ballot information stored in the IEEE/EML format to find and retrieve pre-constructed ballots or to dynamically construct them upon request by overseas voters.

Additionally, the IEEE/EML format provides transformation capability with the ***PEW Foundation's Voting Information Project*** (VIP) format. Over 40 states now work with VIP and Google Maps to help voters find their polling places and identify ballot items. The IEEE/EML format is an interchangeable superset of the information provided by VIP, while providing additional details needed for ballot delivery administration and controls.

Why is a Common Data Format Needed?

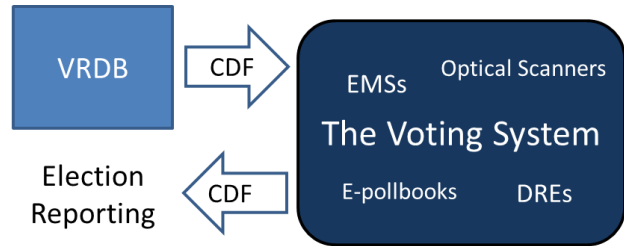
Prior to the development of OASIS EML, voting system manufacturers used proprietary data formats that did not interoperate with other manufacturers' devices or databases. This made interfacing with voter registration and candidate databases to collect ballot information more difficult and time consuming, with extensive manual data checking needed. It also made it much harder to interface with major news media for publishing election results.



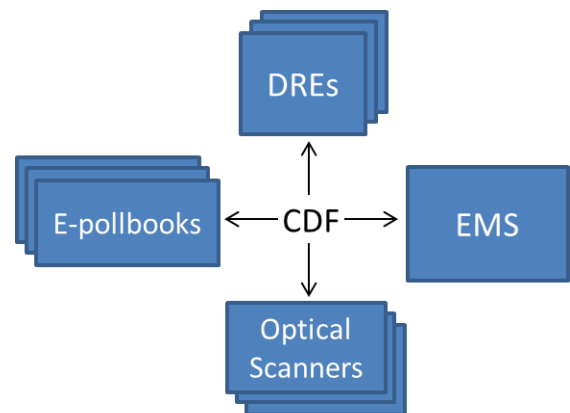
However, if voting devices were able to accept and produce data in a common format, jurisdictions could choose which devices are most appropriate for their needs regardless of manufacturer. Interfacing with databases and reporting outlets would be simpler, resulting in fewer errors in the data, a significant savings in cost and maintenance, and greater trust in election systems in general. The resultant interoperability would further permit voting devices to be certified individually as opposed to requiring an entire voting system to be certified and then recertified if new devices are introduced.

What Other Standards Are Underway?

The IEEE P1622 working group is now working on additional standards to facilitate other areas of the election process, including better ballot programming, election auditing and the reporting of election results in the IEEE/EML format. This will address the endpoints of the voting system and will permit news media outlets and independent auditors to develop interfacing software.



Future standards will address interoperability among voting devices and election event logging in the common format. These standards, as adopted by voting system manufacturers, will result in scenarios such as an EMS being able to provide ballot programming information for any manufacturer's voting device, and any voting device being able to export its auditing data or its cast vote ballot images in the common format.



For More Information

The IEEE Std 1622-2011 is available for no cost at <http://grouper.ieee.org/groups/1622/> under sponsorship of the IEEE Standards Association because of the IEEE's desire to support this work of national interest. More information about P1622's work and OASIS EML is available at <http://vote.nist.gov> and <http://www.oasis-open.org/committees/election>. IEEE P1622 welcomes participation from election officials and experts, voting system manufacturers, and IT professionals.