P1622.4

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Type of Project: New IEEE Standard
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Status: PAR for a New IEEE Standard

1.1 Project Number: P1622.4
1.2 Type of Document: Recommended Practice
1.3 Life Cycle: Full Use

2.1 Title: Recommended Practice for Election Modeling

3.1 Working Group: Election Data Modeling (C/VSSC/1622/EDM_WG)
Contact Information for Working Group Chair
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None

3.2 Sponsoring Society and Committee: IEEE Computer Society/Voting Systems Standards Committee (C/VSSC)
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4.1 Type of Ballot: Individual
4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot: 04/2015
4.3 Projected Completion Date for Submittal to RevCom: 10/2015

5.1 Approximate number of people expected to be actively involved in the development of this project: 10
5.2 Scope: This standard defines a core model of election data that supports the end-to-end process of administering an election. The model consists of data objects common to elections, the relationships between the objects, and the minimum required attributes of each data object. The model is documented using Unified Modeling Language (UML) notation to better support visualization and to avoid prescribing an implementation format for the data. The UML notation is also accompanied by additional diagrams, annotation and commentary that explain specific aspects of the model or its notation.

5.3 Is the completion of this standard dependent upon the completion of another standard: No
5.4 Purpose: The purpose of election modeling is to establish an implementation-independent baseline understanding of election data, its inter-relatedness and minimum required attributes. The model is based on a high level but comprehensive understanding of the processes that are common to elections. The model provided establishes common terminology that contributes to a more formal glossary and serves as a tool for the development of other election-related standards.

5.5 Need for the Project: The work of developing data standards for voting systems is an inherently challenging undertaking, due to the nature of election administration. Every election is a project composed of a sequence of distinct tasks, each governed by a unique set of rules and processes, and often supported by an information system built for the specific purpose. Consequently, the operating environment of elections tends to characterized by a heterogeneous mix of information systems involving complex data flows and multiple integration points. To make matters more complicated, the legal framework of elections in the United States grants autonomy to state and local governments in how elections are to be conducted, so the processes, culture, and language of elections varies significantly around the country.

So far, attempts to develop data standards focusing on specific use cases have become bogged down in the manifold and often subtle
differences in how jurisdictions throughout the country conduct elections, and the peculiarities of their systems and operational environments. It has become apparent that the development of standards through a process of induction - that is, arriving at universals by analyzing the needs of specific jurisdictions - may not be the most effective approach. This project seeks to add clarity to the data standards development effort by approaching it through a process of deduction, beginning with simple, universal data concepts and then further elaborating and defining a common core of minimum required data elements.

The development of a UML data model for elections will then provide a common linguistic and conceptual framework, and a technical specification, from which more detailed standards, focusing on more specific use cases, may be explored and defined. The UML model will also serve as an independent tool for validating methods for implementing the data standard in various formats, such as Extensible Markup Language [XML] (e.g., Election Markup Language [EML], Voter Information Project [VIP]), JavaScript Object Notation [JSON], and any other formats, both future and existing, that may be desired.

5.6 Stakeholders for the Standard: This standard will be used by members of the VSSC and its working groups to inform, clarify and validate the more specific standards emerging from the VSSC's various working groups. The data model may also be used by election administrators and members of the public to gain a comprehensive understanding of the domain and architecture of data supporting American elections. The data model will be developed in a manner that respects the needs of voting system developers, election administrators, and advocacy organizations, and finds a balance among often competing principles fundamental to elections, such as feasibility, performance, affordability, accessibility, transparency, security, and integrity, to name just a few.

Intellectual Property
6.1.a. Is the Sponsor aware of any copyright permissions needed for this project?: No
6.1.b. Is the Sponsor aware of possible registration activity related to this project?: No

7.1 Are there other standards or projects with a similar scope?: No
7.2 Joint Development
   Is it the intent to develop this document jointly with another organization?: No

8.1 Additional Explanatory Notes (Item Number and Explanation):