

## Introduction

This section provides an overview of a top-level tabulation process flow for multi-contest, multi-voting method, tabulation by election contest. The top-level tabulation process flow depicted detects the contests on each ballot and determines which voting method is used for each contest. Based on the type of voting method detected, the tabulation method that applies is determined.

## Terminology

In this specification's domain model, a tabulation method is a set of process steps and rules for performing counting, summing, accumulation, and other data and math operations that are needed to produce a variety of tabulation outputs including but not limited to tabulation scenario counts, reporting, election ballot accounting or tally operations, including tabulation operations performed for the purpose of audits or recounts.

In contrast to a tabulation method, a voting method encompasses a broader set of process steps and rules as well as the tabulation method. Each voting method is associated with at minimum one tabulation method and one or more election outcome decision rules, that we label a 'decision rule set'. Executing the appropriate election contest decision rule set is in the scope of responsibility for the voting method rather than the tabulation method that a voting method uses to produce its output results.

The result of any particular application of a tabulation method may or may not be intended to be complete for an entire election contest, depending on the intended tabulation scenario being executed and the needs of the encompassing voting method.

## Tabulation Scenarios

- Batch
- Batch with Accumulation
- Contest
- Reporting Unit
- Aggregation
- Compositions of Batch and Contest variants with Accumulation and Aggregation
- Multi-Contest Multi Voting Method per Ballot
- Distributed variants of this list of tabulation scenarios
- Precinct or Central tabulation
- Any of the tabulation scenarios for the auditing use case
- Any of the tabulation scenarios for the recount use case

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As can be seen from the list of tabulation scenarios above, a tabulation method may be intended to count only a subset of the total number of ballots to count for an election contest result.

Some voting methods use the same tabulation method and differ only in the decision rule set that is used to determine the outcome of an election contest.

Where multiple voting methods or variants use a tabulation method in common, and those voting methods have few variants and differ only by their election contest decision rule set, they have been grouped together in the process flow diagram and within a single sub-section, for the reduction in complexity of this specification.

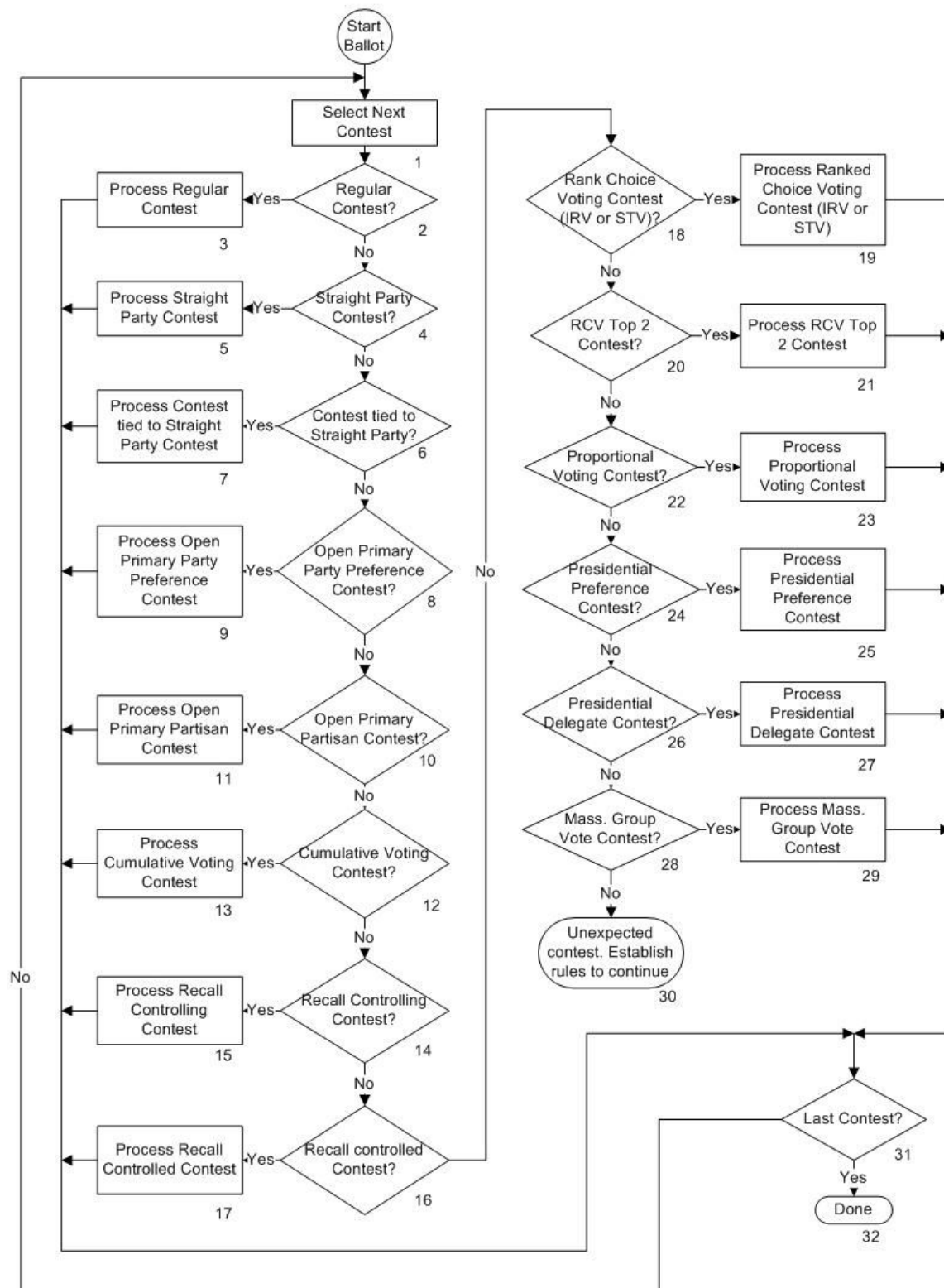
For example, plurality and majority are distinct voting methods that use the same tabulation method to obtain results. Plurality voting method and majority voting method use distinct decision rule sets. The tabulation method that plurality voting method and majority voting method share is labeled “Regular Contest” in this tabulation process flow diagram. The term regular contest is used to indicate that it is the tabulation method used by the most common voting methods. The plurality and majority voting methods are the voting methods used to operate almost all of the over ten thousand jurisdictions in the United States.

A pass through the flowchart is made for each contest on the ballot.

It is expected that contests on a ballot are processed in ballot order sequence, the order in which they are presented on the ballot, to produce the correct outcome. This expectation also applies to the case of election contests using a voting method that is dependent on other contests and their voting method. Straight Party voting is an example of a voting method that overlays additional rules, or that is 'tied' to other election contests and therefore is dependent on one or more other voting methods.

An outcome determination for any particular tabulation method or voting method does not imply a declaration of a 'winner'. In the NIST 1500-10X domain model, an elections official or adjudicator has the authority to determine whether one or more candidates have won, or whether a ballot measure has passed. The outcome of a voting method executing its decision rule set is, in that sense, advisory or unofficial, and does not become an official outcome until eventual certification by election officials or adjudicators (election judges). In addition, the determination by an election official or election adjudicator is always governed by the applicable state and local statute, law or rules of practice.

The remainder of this section illustrates the Top Level Multi-Contest Multi-Voting Method Tabulation By Contest process flow through the process flow diagram (below), followed by concise text descriptions for each step and block in the process flow diagram. The sub-sections following this section, 3.1.3.1 through 3.1.3.X, illustrate each of the other voting method tabulation methods, similarly.



### **1. Select Next Contest**

The next contest on the ballot is selected (or the first contest if processing is just beginning).

### **2. Regular Contest?**

A “Regular Contest” is one whose tabulation does not interact with the tabulation of any other contest and has no special contest type identification. It would include any nonpartisan contest on a partisan or nonpartisan ballot as well as any contest on a General election ballot where straight party voting is not applicable as well as any contest on a Closed Primary ballot (one that is issued based on party registration or party choice). The No path is taken if the contest is not “Regular”. The Yes path is taken if it is.

### **3. Process Regular Contest**

Use the Regular Contest Tabulation document for the low level flow chart and description of processing a Regular contest.

### **4. Straight Party Contest?**

A Straight Party contest is used on a General election ballot in states where straight party voting is permitted. It is the contest that provides party selection. The No path is taken if the contest is not a Straight Party contest. The Yes path is taken if it is.

### **5. Process Straight Party Contest**

The Straight Party voting method provides a voter the ability, with a single ballot selection, to select all candidates on the ballot associated with a given party in all contests on the ballot that are linked to the Straight Party contest. The Straight Party contest contains the list of party selections. See the Straight Party Voting Methods document for an overview of this method and the variations. See the Process Straight Party Contest for the low level flow chart and description of processing a Straight Party contest.

### **6. Contest Tied to Straight Party?**

For a Straight Party selection to control selection of candidates of that party in other contests, those contests must be programmatically tied to the Straight Party contest. The No path is taken if the contest is not one that is tied to a Straight Party contest. The Yes path is taken if it is.

### **7. Process Contest Tied to Straight Party Contest**

A contest that is tied to the Straight Party contest allows a party selection in the Straight Party contest to select all candidates associated with the selected party to be automatically selected. See the Straight Party Voting Methods document for an overview of this method and the variations. See the Process Contest Tied to Straight Party for the low level flow chart and description of processing this contest.

#### **8. Open Primary Party Preference Contest?**

An Open Primary ballot is one that contains partisan contests from all parties but the voter can only choose to only vote in contests from one party. If they vote in contests from more than one party, their entire partisan ballot is spoiled. The Open Primary Party Preference contest is used in some states to allow the voter to select the party ballot they intend to vote in. If a selection is made in the contest, it prevents the voter from spoiling their partisan ballot. The No path is taken if the contest is not a Party Preference contest. The Yes path is taken if it is.

#### **9. Process Open Primary Party Preference Contest**

The Open Primary Party Preference contest is a nonpartisan contest that allows the voter to choose the party whose set of contests that they plan on voting in. It only applies to an Open Primary ballot (one that contains the set of contest for all parties represented in the election). See the Open Primary Voting Method document for an overview of this method of voting. See the Process Party Preference Contest document for the low level flow chart and description of processing this contest.

#### **10. Open Primary Partisan Contest?**

An Open Primary ballot is one that contains partisan contests from all parties but the voter can only choose to only vote in contests from one party. If they vote in contests from more than one party, their entire partisan ballot is spoiled. The No path is taken if this is not a Partisan contest on an Open Primary ballot. The Yes path is taken if it is.

#### **11. Process Open Primary Partisan Contest**

An Open Primary contest is a partisan contest that appears on an Open Primary ballot (one that contains the set of contest for all parties represented in the election). See the Open Primary Voting Method document for an overview of this method of voting. See the Process Open Primary Partisan Contest document for the low level flow chart and description of processing this contest.

#### **12. Cumulative Voting Contest?**

A Cumulative Voting contest is one where a voter can allot more than one vote to a candidate selection. The number of choices allowed can be distributed to one or more desired candidates but in whole vote increments. The total number of distributed votes cannot exceed the number allowed. The No path is taken if the contest is not a Cumulative Voting contest. The Yes path is taken if it is.

#### **13. Process Cumulative Voting Contest**

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A Cumulative Voting Contest is one where the voter can allot the allowable votes to one or more candidates in whole vote increments. See the Process Cumulative Voting Contest document for the low level flow chart and description of processing this contest.

**14. Recall Controlling Contest?**

A recall controlling contest is one where it is part of a linked contest pair and a vote selection in it determines whether the contest that is linked to/controlled by it is tabulated or skipped. The No path is taken if the contest is not a Recall Controlling contest. The Yes path is taken if it is.

**15. Process Recall Controlling Contest**

This is the controlling contest in a linked pair of contests where a selection in this contest determines whether the linked contest is tabulated. See the Recall Contest Control Voting Method for an overview of this voting method. See the Process Recall Controlling Contest document for the low level flow chart and description of processing this contest.

**16. Recall Controlled Contest?**

Is the contest under control of a specific Recall Controlling contest? The No path is taken if the contest is not a Recall Controlled contest. The Yes path is taken if it is.

**17. Process Recall Controlled Contest**

This is a contest whose tabulation is controlled by selections (or lack thereof) in the linked controlling contest. See the Recall Contest Control Voting Method for an overview of this voting method. See the Process Recall Controlled Contest document for the low level flow chart and description of processing this contest.

**18. Ranked Choice Voting Contest (IRV or STV)?**

Ranked Choice Voting (RCV) is a method of allowing the voter to identify their order of preference of candidates running for the designated office. The contest can be a single seat or multi-seat contest and uses a process known as Instant Runoff Voting (IRV) for single seat or Single Transferable Vote (STV) for multi-seat. The No path is taken if the contest is not a “traditional” Rank Choice Voting contest (not an RCV contest nor the Top 2 variation of an RCV contest). The Yes path is taken if it is.

**19. Process Ranked Choice Voting Contest (IRV or STV)**

Ranked Choice Voting (RCV) is a method of allowing the voter to identify their order of preference of candidates running for the designated office. RCV requires a winning candidate to have sufficient votes to exceed a threshold (typically 50% + 1 in a single seat contest). There are several variations for processing Ranked Choice Voting (RCV) depending on jurisdiction rules. Some of these variations depend on whether the contest is a single seat or a multi-seat contest.

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Some jurisdictions use tabulated 1<sup>st</sup> choice to determine whether RCV processing is required. RCV processing requires the use of a Cast Vote Record of the voted choices on each ballot cast. The CVRs from all ballots are required for algorithmic processing that uses multiple passes/round to essentially eliminate candidates with the least votes and promote the next choice of a non-eliminated candidate to count in place of the eliminated candidate.

This round by round process continues until a winner is established. See the Process Ranked Choice Voting Contest (IRV or RCV) document for a more detailed overview and for the low level flow chart and description of processing this contest with its different variations. This document does not cover the Top 2 variation for handling single seat contests.

**20. RCV Top 2 Contest?**

Ranked Choice Voting (RCV) is a method of allowing the voter to identify their order of preference of candidates running for the designated office. There is a variation of RCV in a single seat contest where only the top 2 vote getters are eligible to win. The Yes path is taken if this contest uses the Top 2 variation of RCV processing. The No path is taken if it is not.

**21. Process RCV Top 2 Contest**

Ranked Choice Voting (RCV) is a method of allowing the voter to identify their order of preference of candidates running for the designated office. RCV requires a winning candidate to have sufficient votes to exceed a threshold (typically 50% + 1 in a single seat contest). However, the method of processing of these selections can vary including methods known as IRV or STV as well as Top 2. Block 19 covers IRV and STV processing. See the Process RCV Top 2 Contest document for an overall description of the Top 2 method and the low level flow chart that shows how the contest choices are processed and a description of the blocks in the flow chart.

**22. Proportional Voting Contest?**

A Proportional Voting contest allots a number of votes to each selected candidate equal to the votes allowed divided by the number of selected candidates as long as the number of selected candidates doesn't exceed the allowed number of selections. The No path is taken if the contest is not a Proportional Voting contest. The Yes path is taken if it is.

**23. Process Proportional Voting Contest**

A Proportional Voting contest is one where the votes allowed is proportionally allotted to selected candidates. See the Process Proportional Voting Contest document for the low level flow chart and description of processing this contest.

**24. Presidential Preference Contest?**

The Presidential Preference contest appears on a Presidential Preference Primary partisan ballot for a specific party where party rules restrict the vote for delegates to their national nominating

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convention to those candidates representing the presidential choice made by the voter. The No path is taken if this is not a Presidential Preference contest. The Yes path is taken if it is.

**25. Process Presidential Preference Contest**

The Presidential Preference contest is partisan contest used on a Presidential Preference Primary ballot in states where a political party requires the presidential candidate selection to restrict delegate selection to the nominating convention to those candidates representing their presidential selection. See the Presidential Delegate Voting Method document for an overview of this voting method. See the Process Presidential Preference Contest document for the low level flow chart and description of processing this contest.

**26. Presidential Delegate Contest?**

The Presidential Delegate contest is a partisan contest on a Presidential Preference Primary ballot where delegates to the party's National Nominating Convention are chosen from various categories but where the voter's choice is limited to the candidates that represent their presidential choice. The No path is taken if this is not a Presidential Delegate contest. The Yes path is taken if it is.

**27. Process Presidential Delegate Contest**

The Presidential Delegate contest appears on specific party ballot in a Presidential Preference Primary where candidate selection is limited to candidates representing the presidential candidate selected in the Presidential Preference contest on the same ballot. See the Presidential Delegate Voting Method document for an overview of this voting method. See the Process Presidential Delegate Contest document for the low level flow chart and description of processing this contest.

**28. Mass. Group Vote Contest**

A Massachusetts Group Vote contest is a contest for Town, Village or Ward Committee and only appears on a Massachusetts Presidential Primary ballot. A large number of candidates are concurrently chosen and candidates may run in groups with a special group selection position embedded in the contest. The No path is taken if this is not a Massachusetts Group Vote contest. The Yes path is taken if it is.

**29. Process Mass. Group Vote Contest**

The Massachusetts Group Vote contest only appears on a Massachusetts Presidential Primary ballot and is used to elect a large number of candidates (as many as 35) for Town, Village or Ward committee. Due to the large number of candidates and seats to be filled, candidates can run as affiliated groups (i.e. incumbents) with a group select for each identified group to simplify



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voting for the large number. See the Process Massachusetts Group Vote document for the low level flow chart and description of processing this contest.

**30. Unexpected contest.** Establish rules to continue

This is a placeholder to cover the existence of a contest type associated with a voting method that is not currently included. If encountered, it would essentially cause contest processing of the ballot to cease. Rules would have to be determined for a new contest type and added to the flow diagram and explanation.

**31. Last Contest?**

If the last contest on the ballot has just been processed, the Yes path is taken and processing has been completed. If not, the No path is taken and the next contest on the ballot is selected for the next processing iteration.

**32. Done**

Processing of all contests on the ballot has been completed.