GEMS

GEMS 1.18
User’s Guide

Revision 4.0
November 1, 2002
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Diebold Election Systems Inc.
1611 Wilmeth Road
McKinney, Texas
USA 750610-8250

Diebold Election Systems Inc.
1200 W. 73rd Street, Suite 350
Vancouver, B.C.
Canada V6P 3G5

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## Document History

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1. Overview

The Overview of the GEMS User’s Guide contains a brief introduction of Diebold Election Systems in the section 1.1 Introduction, and the context of the GEMS software in the suite of products that the company provides to service elections. A summary of all of the sections of the document follows in 1.2 Document Structure, with a brief description of every section, the roles and responsibilities of all potential GEMS operators, as well as a flowchart detailing every step of the elections lifecycle implemented using Diebold Election Systems voting systems. Section 1.3 GEMS Functionality describes the mechanics of GEMS usage in the context of the Microsoft Windows environment.

1.1. Introduction

Diebold Election Systems is an industry leader in the election equipment marketplace with over 850 jurisdictions in North America utilizing its AccuVote-OS (optical scan) and AccuVote-TS (touch screen) voting systems. Its product line also includes VoteRemote, a high speed automated absentee ballot printing and processing system and the CMIS voter registration system.

The core of Diebold Election Systems’ software offering is GEMS, a power tool in the development of the election lifecycle, from the definition of jurisdictional information, the creation of ballot content and ballot artwork for both Diebold Election Systems’ AccuVote-OS marksense voting devices and the AccuVote-TS touch screen voting devices. The software manages voting device media programming and election results consolidation, and provides a full array of election results reporting tools, include print reports, web pages, export functionality, as well as interfacing with the Java-based JResult Client live results display tool.

GEMS also operates in concert with GEMS clients such as the Voter Card Encoder or VCProgrammer designed for creating voter access card, as well as Diebold Election Systems’ powerful central count solutions for batch absentee ballot processing.

1.2. Document Structure

The GEMS User’s Guide (System Operations Manual) is divided into the following sections. The guide may be used both in an instructive manner, each section continuing with an explanation of the election management process from the previous section, or as a reference, where any particular section may be reviewed for detailed information as required.

Section 1 presents an overview of the GEMS User’s Guide, a general election lifecycle using GEMS and a description of GEMS functionality.

1 Overview

  1.1 Introduction
  1.2 Document Structure

Every component of the GEMS User’s Guide is described in this section.

  1.3 GEMS Functionality

This section is designed to provide an overview of GEMS usage and operation. As GEMS operates in the Microsoft Windows environment, a thorough knowledge of using MS Windows is essential to successfully using GEMS.

2 Election Preparation

All components of the election preparation process using GEMS are contained in this chapter.

  2.1 Election Database Creation
This section describes the creation of the election and the means of accessing the database.

2.2 Import
The importing of election information is described in this section.

2.3 Setup
Setup includes many of the functions located under the Setup menu, including Users, Regions, Language, Voter Groups, Counter Groups, Ballot Options, Race Options, AccuVote-OS Options and AccuVote-TS Options.

2.4 Jurisdictional Definition
Jurisdictional definition describes the creation of districts, report and base precincts, district-precinct relationships, vote centers, and precinct-vote center relationships.

2.5 Races and Candidates
Race and candidate definitions are detailed in this section.

2.6 Preparing Ballot Artwork
The components of the ballot production lifecycle are discussed in this section, including ballot headers, ballot artwork layout, and generating ballot artwork and rotations. Paper ballot production issues include Ballot and Card Editors, printing ballot artwork from the Print Artwork window, proofing paper ballots and delivering artwork to the print shop. Additional information is provided on formatting ballot text, using color, as well as card quantities.

2.7 Audio
Audio recording and editing of election information is discussed in this section.

2.8 AccuVote Servers
This section discusses the programming of AccuVote-OS and AccuVote-TS memory cards.

2.9 Regional Processing
Administration of regional processing is detailed in this section.

2.10 Exporting Card and Voter Card Info
Once memory cards have been programmed, card information is exported to external voter registration applications and voter card information to the VCProgrammer application.

2.11 Voter Registration
Management of voter registration information is described in this section, including the voter registration import feature.

2.12 Election Results Reporting
This section reviews the Election Summary Report, the Statement of Votes Cast and the Cards Cast reports.

2.13 JResult Client
This section details operational and reference information on JResult Client, the company’s Java-based election results display utility.

2.14 Pre-Election Logic and Accuracy Test
The configuration of the pre-election Logic and Accuracy Test (L & A) is described in this section.

3 Conducting the Election
The process of conducting and closing the election is described in 3.0 Conducting the Election.

3.1 Administering Early and Absentee Voting
This section discusses the issues involved in the administration of early, absentee and any other non-precinct count voting methods used in the election.

3.2 Receiving Election Results
This section describes the uploading of election results from both the AccuVote-OS and AccuVote-TS units at election close.

3.3 Importing Results
This section describes the importing of BRC and IMARK results.

3.4 Election Results Reporting
This section describes the printing of Election Results reports at election close.

3.5 JResult Client
This section describes the operation of JResult Client at election close at election close.

3.6 Write-Ins
Write-in selections are tallied against registered write-in candidates and the results incorporated into the database as described in this section once write-in ballots have been tallied.

3.7 Ballot Auditing
AccuVote-TS ballot auditing and challenged ballot review are described.

3.8 Manual Entry
Results that have not been uploaded to the host computer may be manually entered, as detailed in this section.

3.9 Exporting Election Results
This section describes the export formats available in GEMS as well as results export process.

4.0 Election Close
Election closing activities are described, including staging a recount, as well as election auditing and the archiving of election materials.

4.1 Recount
The steps involved in staging a recount are described.

4.2 Audit and Archive
Procedures involved in the auditing and archiving of elections are described, including audit logs, certification of final election results, official election results reports generation and archiving of the election database and reports to external media.

Appendices

5.0 Appendix A: Glossary
Appendix A contains a glossary of GEMS terms.

6.0 Appendix B: Election Status
This appendix provides detailed information on the workings of the GEMS election status flags.

7.0 Appendix C: Rotation Rules
All candidate rotation rules available in GEMS are presented with in-depth examples.

8.0 Appendix D: GEMS Menu Entries
GEMS menu and tool bars are described, as well as the Ballot and Card Editors’ menu and tool bars.
9.0 Appendix E: Central Count
All GEMS-related aspects of central count are discussed in this appendix.

10.0 Appendix F: Hardware and Software Interfaces
All hardware and software products used in tandem with GEMS, either produced by the company or third party are listed in this appendix.

11.0 Appendix G: Firmware Release Log
All AccuVote-OS firmware and report files compatible with GEMS are listed.

12.0 Appendix H: Error Messages
All error messages that may occur in GEMS as well as error resolution activities are included.

13.0 Appendix I: Selected Election Scenarios
Popular election configuration scenarios are presented in this appendix.

14.0 Appendix J: Security Procedures
The security features offered by GEMS are discussed in this appendix.

15.0 Appendix K: System Acquisition, Installation and Verification
Means of acquiring GEMS, GEMS installation and readiness testing are detailed.

16.0 Appendix L: Technical Support
Technical support, hardware and software maintenance and correction as well as hardware and software upgrades offered by Diebold Election Systems are described in this appendix.

17.0 Appendix M: Modem Configuration
The configuration of modems used in the uploading of election results is described in this appendix.

18.0 Appendix N: System Limits
The limits inherent in GEMS are described in this appendix.

19.0 Appendix O: Systems Environment
This appendix describes the systems environment that GEMS is used in, either as stand-alone server, on the host computer in central count, or in regional processing configurations.

20.0 Appendix P: Administrative Reports
All GEMS Pre-Election reports are described and provided with sample layouts.

1.2.1. GEMS Operator Definitions
The following categories of GEMS operators exist:

- GEMS Administrator
- GEMS non-Administrator User
- GEMS Technical Services Administrator
- GEMS Regional User
- GEMS Audio Recorder

The GEMS Administrator is responsible for the election configuration process, and one or more GEMS non-Administrator Users are present in larger jurisdictions as assistants to the GEMS Administrator. A GEMS Technical Services Administrator should be present in larger jurisdictions. GEMS Regional Users
are required only if regional processing is implemented, and the GEMS Audio Recorder only if the AccuVote-TS is used in the election with the VIBS feature.

Each of the GEMS users is listed with their responsibilities and should be familiarized with the corresponding sections of the GEMS User’s Guide.

1.2.1.1. **GEMS Administrator**

Responsibilities:

- Primary GEMS Operator on host computer.
- Has full knowledge of all GEMS functions.
- Creates, defines, administers and operates election databases.
- Logs into database as Administrator user.
- Coordinates GEMS-related functions to all other users.
- Assumes responsibility for implementing election requirements into GEMS.
- Interface with Diebold Election Systems for support.

1.2.1.2. **GEMS Non-Administrator User**

Responsibilities:

- Secondary GEMS operator.
- Has knowledge of GEMS functionality at the discretion of the GEMS administrator. Knowledge areas might include race and issue data entry, candidate data entry, voter registration data entry, receiving results from voting machines and printing unofficial reports.
- Can be enlisted by the GEMS Administrator to perform time-consuming tasks relating to database definition and ballot proofing.
- Logs into database as non-Administrator user as defined by GEMS administrator.
- GEMS non-Administrator user has access to both regional and JResult Client PCs, as designated by GEMS administrator.

The GEMS non-Administrator user should be familiar with some or all of the following components of the GEMS User’s Guide, according to the requirements of the GEMS Administrator:

- all of Section 1.0
- 2.4 Jurisdictional Definition
- 2.5 Races and Candidates
- 2.6 Preparing Ballot Artwork
- 2.8 AccuVote Servers
- 2.11 Voter Registration
- 2.12 Election Results Reporting
- 3.2 Receiving Election Results
- 3.4 Election Results Reporting
- Appendix A: Glossary
- Appendix B: Election Status
1.2.1.3. **GEMS Technical Services Administrator**

Responsibilities:

- Technical implementation and support of GEMS on host and regional computers, central count, as well as JResult Client on election results display PCs.
- Ensures that import data is formatted correctly for the import of election information, voter registration data, and so on.
- Provides support for modems and modem transmissions.
- Operation and support of JResult Client on election results display PCs.
- Exporting election results to official agencies as well as media.
- Verifies that exported card information and results are correct.
- Porting election results to the internet.
- Access to GEMS as Administrator.
- Interface with company staff for technical support.

The GEMS Technical Services Administrator user should be familiar with the following components of the GEMS User’s Guide:

- 1.3 GEMS Functionality
- 2.1 Election Database Creation
- 2.2 Import
- 2.8 AccuVote Servers
- 2.9 Regional Processing
- 2.10 Exporting Card and Voter Card Info
- 2.13 JResult Client
- 3.2 Receiving Election Results
- 3.3 Importing Results
- 3.5 JResult Client
- 3.9 Exporting Election Results
- 4.2 Audit and Archive
- Appendix A: Glossary
- Appendix B: Election Status
- Appendix D: GEMS Menu entries
- Appendix E: Central Count
- Appendix F: Hardware and Software Interfaces
1.2.1.4. **GEMS Regional User**

Responsibilities:

- Primary GEMS operator on regional computer.
- GEMS regional user is responsible for managing regional PC on election night.
- Has knowledge of programming memory cards, receiving results from voting machines, printing unofficial reports, and sending regional results to host computer.
- Logs into database on regional computer as regional user.
- Does not have access to host computer.
- Makes decisions about actions in knowledge areas based upon GEMS training.

The GEMS Regional User should be familiar with the following components of the GEMS User's Guide:

- 1.3 GEMS Functionality
- 2.8 AccuVote Servers
- 2.9 Regional Processing
- 3.2 Receiving Election Results
- Appendix A: Glossary
- Appendix D: GEMS Menu entries

1.2.1.5. **GEMS Audio Recorder**

Responsibilities:

- GEMS audio recorder has access to host computer as non-Administrator user.
- GEMS audio recorder is responsible for maintaining election information in database in audio format.

The GEMS Audio Recorder should be familiar with the following components of the GEMS User’s Guide:

- 1.3 GEMS Functionality
- 2.5 Races and Candidates
- 2.7 Audio
- Appendix D: GEMS Menu entries

1.2.2. **The Election Process**

The components of the election lifecycle are shown in chronological order in the flowcharts presented in Figures 1-1, 1-2, 1-3 and 1-4.
Note that election configuration procedures described involve both the AccuVote-OS and AccuVote-TS – if the AccuVote-OS only is used, ignore AccuVote-TS-related procedures, and conversely, if the AccuVote-TS only is employed, ignore AccuVote-OS-related procedures.
Figure 1-1: Election Lifecycle Flowchart – Overall View
ELECTION LIFECYCLE FLOWCHART
Phase 1 – Defining and Setting Up an Election

Defining the Election
Create Database
Import Election Information
Define Election Options
Define Report Precincts
Define Base Precincts
Define Districts
Define Vote Centers
Define Races and Issues
Define Candidate Names

Preparing Ballot Artwork
Define Ballot Headers
Generate Ballot Artwork
Generate Ballot Rotations
Proof Ballot Artwork
Revise Ballot Artwork
Deliver AccuVote-OS Ballot Artwork to Printer

AccuVote-OS Ballot Preparation & Memory Card Programming
Define AccuVote-OS Options
Program Test Memory Cards
Print Test Ballots
Test Ballots
Print Final Ballots
Program Final Memory Cards

AccuVote-TS Ballot Preparation & Election Media Programming
Create Audio
Define AccuVote-TS Options
Program Test Election Media
Proof Ballot Artwork
Proof Audio
Program Complete Election Media

GEMS Client Configuration
Test Uploads
Configure Regional PCs
Populate Regional Databases
Test Regional Uploads
Configure Central Count Equipment
Configure Central Count Test Decks
Test Central Count
Configure JResult Client

To Phase 2 – Voting Support

Figure 1-2: Phase 1 – Defining and Setting Up An Election
ELECTION LIFECYCLE FLOWCHART
Phase 2 – Voting Support

Election Preparation and Results Reporting
Perform Administrative Exports
Define Voter Registration
Customize Election Results Reports
Print and Proof Test Results Reports
Test JResult Client
Perform Pre-Election Logic and Accuracy Test

Absentee Voting
Mail Paper Absentee Ballots
Paper Absentee Ballots Are Voted
Return Paper Absentee Ballots
Scan and Count Paper Absentee Ballots

Early Voting
AccuVote-OS
Issue Early Voting Paper Ballots
Early Voting Paper Ballots Are Marked and Scanned
AccuVote-TS
Issue Early Voting Voter Cards
Early Voting Electronic Ballots Are Voted

Polling Voting
AccuVote-OS
Polling Paper Ballots Are Issued
Polling Paper Ballots Are Marked And Scanned
AccuVote-TS
Polling Voter Cards Are Issued
Polling Electronic Ballots Are Voted

To Phase 3 – Election Close, Results Reporting, Audit and Archive

Figure 1-3: Phase 2 – Voting Support
ELECTION LIFECYCLE FLOWCHART
Phase 3 – Election Close, Results Reporting, Audit and Archive

Election Close
- Close Election on Polling Units
- Print Election Results Reports on Polling Units
- Upload Polling Memory Cards/Election Media
- Close Election on Early Voting Units
- Print Election Results Reports on Early Voting Units
- Upload Early Voting Memory Cards/Election Media
- Complete Absentee Ballot Count
- Close Election on Absentee Units
- Print Election Results Reports on Absentee Units
- Upload Absentee Memory Cards
- Import Election Results

Election Results Reporting
- Run JResult Client
- Print Election Results Reports
- Export Election Results

Post-Election Administration
- Count and Tally Write -Ins
- Register Write-In Candidates
- Review Challenged Ballots
- Manually Enter Election Results
- Perform Post -Election Logic & Accuracy Test
- Perform Recount

Audit and Archive
- Review Audit Logs
- Certify Final Election Results
- Generate Official Election Results Reports
- Archive Election Materials

Figure 1-4: Phase 3 - Election Close Activities
1.2.3. Defining the Election

The GEMS election lifecycle can be divided into the following categories:

- Defining the Election
- AccuVote-OS Ballot Preparation and Memory Card Programming
- AccuVote-TS Ballot Preparation and Memory Card Programming
- GEMS Client Configuration
- Election Preparation and Results Reporting
- Absentee Voting
- Early Voting
- Polling Voting
- Election Close
- Election Results Reporting
- Post-Election Administration
- Audit and Archive

See Figure 1 for a graphic of this process. Each step of the election lifecycle is addressed in one or more sections of this document, as detailed below.

1.2.3.1. Election Definition

At the outset of the election, the database is created (2.1 Election Database Creation) and optionally, district, precinct, vote center, race, candidate and voter group information entered by means of an automated import process (2.2 Import). Election options are defined (2.3 Setup), followed by all jurisdictional information, including districts, report precincts, base precincts, district-base precinct relationships, vote centers and vote center-report precinct relationships (2.4 Jurisdictional Definition), provided they have not already been imported. Race, question and candidate definition follows (2.5 Races and Candidates). Once the election has been configured, election definition information is reviewed and corrections implemented.

1.2.3.2. Preparing Ballot Artwork

Ballot headers are defined, and ballot artwork and rotations are generated. Ballot artwork is proofed and revised as necessary. Once AccuVote-OS ballot artwork has been finalized, it is delivered to the print company (2.6 Preparing Ballot Artwork).

1.2.3.3. AccuVote-OS Ballot Preparation and Memory Card Programming

AccuVote-OS Options are defined (2.3 Setup), and test ballots are printed, marked and tested with a sample set of programmed memory cards. Test memory cards uploaded (2.8 AccuVote Servers). After successfully passing ballot tests, the final set of ballots is printed and all memory cards programmed.

1.2.3.4. AccuVote-TS Ballot Preparation and Memory Card Programming

If the election employs Visually Impaired Ballot Station (VIBS) AccuVote-TS units, audio components are recorded for races, candidates, headers and voter groups (2.7 Audio). AccuVote-TS Options (2.3 Setup) are defined and test ballot stations programmed (2.8 AccuVote Servers). Electronic ballot artwork and audio recordings are verified on the test ballot stations, after which ballot artwork is revised and final
AccuVote-TS memory card programming performed. Sample ballots are voted and test results uploaded to the host computer.

1.2.3.5. **GEMS Client Configuration**

The configuration and testing of GEMS clients includes modems, regional computers, central count and JResult Client. Modem and network uploads are tested (2.8 AccuVote Servers, Appendix M: Modem Configuration), regional computers configured, loaded with the corresponding regional databases and regional transmissions tested (2.9 Regional Processing), provided regional processing is implemented. Central count equipment is configured and test decks processed (Appendix E: Central Count), where central count is used. Also, JResult Client PCs are configured (2.13 JResult Client).

1.2.3.6. **Election Preparation and Results Reporting**

Ballot card information is exported if necessary once memory cards have been programmed, and voter card information is exported to the VC Programmer software for AccuVote-TS voter card programming (2.10 Exporting Card and Voter Card Info). Voter registration is defined (2.11 Voter Registration). Election results reports are customized and proofed with the test upload results (2.12 Election Results Reporting), which are also used to test JResult Client on all of the display PCs (2.13 JResult Client). Once the election has been fully configured, the pre-election Logic and Accuracy Test is performed (2.14 Pre-Election Logic and Accuracy Test).

1.2.3.7. **Absentee Voting**

Once paper ballots have been printed, absentee ballots are mailed out, pre-processed once they have been returned and scanned when permitted by law (3.1 Administering Early and Absentee Voting, Appendix E: Central Count).

1.2.3.8. **Early Voting**

If early voting is implemented with the AccuVote-OS, paper ballots are issued at the early voting sites, marked by voters and scanned. If early voting is implemented with the AccuVote-TS, voter cards are issued to voters and electronic ballots cast (3.1 Administering Early and Absentee Voting).

1.2.3.9. **Polling Voting**

At the polls, paper ballots are issued to voters, marked and scanned with the AccuVote-OS and electronic ballots voted with the AccuVote-TS (this is discussed in the AccuVote-OS User’s Guide and the AccuVote-TS User’s Guide).

1.2.3.10. **Election Close**

At the end of election day, polling AccuVote-OS and AccuVote-TS units are electronically locked, election results reports printed and election results uploaded (3.2 Receiving Election Results). Early voting AccuVote-OS and AccuVote-TS units are electronically locked, reports printed and results uploaded (3.1 Administering Early and Absentee Voting, 3.2 Receiving Election Results). Absentee ballot counting is completed, absentee memory cards electronically locked, reports printed and results uploaded (3.1 Administering Early and Absentee Voting, 3.2 Receiving Election Results, Appendix E: Central Count). Election results are also imported where necessary (3.3 Importing Results).

1.2.3.11. **Election Results Reporting**

In the course of election close and during the completion of post-election administrative procedures, GEMS election results are reported using JResult Client (3.5 JResult Client) and print reports (3.4 Election Results Reporting), as well as being exported to the internet, media and official agencies as required (3.9 Exporting Results).
1.2.3.12. Post-Election Administrative

Write-in ballots are separated, write-in candidates registered, write-in votes counted and tallied (3.6 Write-Ins). AccuVote-TS challenged ballots are reviewed and tallied (3.7 Ballot Auditing). Manually tallied results are manually entered into GEMS (3.8 Manual Entry). Once all election results have been entered and administrative tasks are complete, the post-election Logic and Accuracy Test is performed. A recount is performed where necessary (4.1 Recount).

1.2.3.13. Audit and Archive

Once the election has finished, audit logs are printed, election results certified, official election results reports printed and all election materials are archived as required (4.2 Audit and Archive).

1.2.4. Other documents

Product documents also offered by Diebold Election Systems, Inc. include:

- AccuFeed User’s Guide
- AccuVote-HS Central Count User’s Guide
- AccuVote-OS Precinct Count User’s Guide
- AccuVote-OS Central Count User’s Guide
- AccuVote-OS Hardware Guide
- AccuVote-TS Hardware Guide
- Ballot Station User’s Guide
- GEMS System Administrator’s Guide
- Voter Card Encoder User’s Guide
- VC Programmer User’s Guide

1.3. GEMS Functionality

This section is designed to provide an overview of GEMS usage and operation. As GEMS operates in the Microsoft Windows environment, a thorough knowledge of using MS Windows is essential to successfully using GEMS. Although this guide does not provided in-depth information on Windows operating techniques, we provide a supplemental list of MS documentation that contains information on ‘Windows Basics’ and the use of Windows based systems.

1.3.1. General Layout

The GEMS window is divided into two components – the left-hand side is the tree view and the right-hand side is the list view. See Figure 1-5.

The top of the GEMS window contains a blue horizontal handle, which contains the name of the election as defined in the Name of Election field under the Election Info tab in the Election Options window. The title is followed by the file name of the GEMS database, the Id of the user and the region the user Id is valid in. See Figure 1-6.
Understanding the Interface:

Figure 1-5. Tree View on left, List View on right

Figure 1-6. Window handle

Underneath the window handle is the menu bar, which contains the entities Election, Setup, View, a floating menu bar entry, Artwork, GEMS and Help. See Figure 1-7. All of these entities are permanently present in the menu bar except for the floating menu bar entry, which varies depending on the item selected in the tree view. Entries contained within each entity are accessible by clicking on the menu bar and further selecting an entry in the menu that drops off the menu bar. The entries in the drop-down list that are enabled depend on the election status that has been set. Detailed information on the menu bar is presented in Appendix D: GEMS Menu entries as well as in Appendix B: Election Status.

Figure 1-7. Menu bar

Underneath the menu bar is the icon bar, which provides quick access to functions that are commonly performed in GEMS. See Figure 1-8. These functions include adding, editing, deleting, printing reports, printing ballots, generating ballots, generating ballot rotations, the AccuVote-OS Server-v1 and AccuVote-TS Server-v2 functions, refresh, find as well as search help. The entries in the icon bar that are active depend on the election status that has been set. As the mouse shadows a particular icon, a pop-up comment appears containing the icon function. More information on the GEMS icon bar is provided in Appendix D: GEMS Menu entries.

Figure 1-8. Icon bar
At the bottom of the GEMS menu is the status bar, which displays status-related information. See Figure 1-9. On the left-hand side of the status bar is an indicator that displays icon functionality if the mouse is over a particular icon; otherwise, Ready is displayed. The next field to the right displays the election status. To the right of the election status is a field that displays the number of records contained within the entity selected in the tree view. The right-most field in the status bar contains the number of items selected in the list view; if none are selected, 0 is displayed.

![Figure 1-9. Status bar](image)

Detailed information on the election status is provided in Appendix B: Election Status. Information on creating a database and activating an existing database is provided in section 2.1 Election Database Creation.

### 1.3.2. Tree and List Views

The tree view contains the following entities, listed in sequential order: District, Report Precinct, Base Precinct, Race, Header, Ballot Style, Ballot, Card Style, Card and Vote Center. See Figure 1-10.

![Figure 1-10. Tree view entities](image)

All districts and district categories in the election are contained within District. Polling and cumulative report precincts are contained within Report Precinct. All base precincts defined for the polling report precincts are listed within Base Precinct. All races in the election are defined under Race, and all headers defined are contained under Header. All ballot artwork is listed under the corresponding entities. Polling and cumulative vote centers are contained under Vote Center.

In order to list the information contained within each entity, either click on the expand (+) button, the icon between the expand button and the entity name or select the entity name itself. See Figure 1-11. By clicking on the expand button, all items within the entity are listed within the entity in the tree view, provided the list has not already been expanded. Once the entity list is expanded, the contract (-) button appears in place of the expand button – clicking on the contract button eliminates the item list from underneath the entity, and changes the button back to expand. See Figure 1-12.

![Figure 1-11. Expanding base precinct](image)
Clicking on an entity’s icon or the entity text causes a detail listing to appear in the list view. Selecting detailed items in the tree view provides a varying set of tabs in the list view, where selecting a specific tab allows a distinct view of each entry in the list view. See Figure 1-13.

For example, selecting a race in the tree view provides you with the option of looking at the race either in terms of candidate, base precinct, ballot style, ballot, card style, card or voting center.

<table>
<thead>
<tr>
<th>Candidate</th>
<th>Base Precinct</th>
<th>Ballot Style</th>
<th>Ballot</th>
<th>Card Style</th>
<th>Card</th>
<th>Vote Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>THOMAS RICO OLLER</td>
<td>10</td>
<td>REP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JON PETERSEN</td>
<td>20</td>
<td>LIB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>THOMAS TOM ROMERO</td>
<td>30</td>
<td>DEM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Write-in</td>
<td>40</td>
<td>NP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 1-13. Race tab

1.3.3. List View Tabs

Table 1-1 contains the tab contents corresponding to all possible tree view selections. For an explanation of terms in this table, please see Appendix A: Glossary.
<table>
<thead>
<tr>
<th>ICON (Tree View)</th>
<th>TAB (List View)</th>
<th>FIELD LABEL (List View)</th>
</tr>
</thead>
<tbody>
<tr>
<td>District</td>
<td>District</td>
<td>Label, Id</td>
</tr>
<tr>
<td>Individual District</td>
<td>Subdistrict</td>
<td>Label, Id</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td>Title, Id, District, Parties, Absentee/NonAbsentee, Type, #Vote, #Rot, #Cand</td>
</tr>
<tr>
<td>Base Precinct</td>
<td></td>
<td>Label, Id, Ballot Status</td>
</tr>
<tr>
<td>Report Precinct</td>
<td></td>
<td>Ballot Style, Status, Parties, Absentee</td>
</tr>
<tr>
<td>Category</td>
<td>Report Precinct</td>
<td>Label, Id</td>
</tr>
<tr>
<td>Report precinct category</td>
<td>Report Precinct</td>
<td>Label, Id, Category, #Batches, #Counted, %Counted, #VCenters, #Complete, %Complete</td>
</tr>
<tr>
<td>Individual Precinct</td>
<td>Vote Center</td>
<td>Label, Id, Method, MCVersion, Category, RegionId, RegionLabel, #Batches, #Loaded, #Counted, %Counted</td>
</tr>
<tr>
<td>Base Precinct</td>
<td></td>
<td>Label, Id, Ballot Status</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td>Title, Id, District, Parties, Absentee/NonAbsentee, Type, #Vote, #Rot, #Cand</td>
</tr>
<tr>
<td>District</td>
<td></td>
<td>Label, Id</td>
</tr>
<tr>
<td>Ballot</td>
<td></td>
<td>Ballot, Ballot Style, Parties, Absentee/NonAbsentee</td>
</tr>
<tr>
<td>Card</td>
<td></td>
<td>Card, Card Style, Ballot, Parties, Absentee/NonAbsentee, Length</td>
</tr>
<tr>
<td>Base Precinct</td>
<td>Base Precinct</td>
<td>Label, Id, Ballot Status</td>
</tr>
<tr>
<td>Individual Base Precinct</td>
<td>Race</td>
<td>Label, Id, District, Parties, Absentee/NonAbsentee, Type, #Vote, #Rot, #Cand</td>
</tr>
<tr>
<td>District</td>
<td></td>
<td>Label, Id</td>
</tr>
<tr>
<td>Ballot</td>
<td></td>
<td>Ballot, Ballot Style, Parties, Absentee/NonAbsentee</td>
</tr>
<tr>
<td>ICON (Tree View)</td>
<td>TAB (List View)</td>
<td>FIELD LABEL (List View)</td>
</tr>
<tr>
<td>------------------</td>
<td>----------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Card</td>
<td>Card, Card Style, Ballot, Parties, Absentee/NonAbsentee, Length</td>
<td>Absentee/NonAbsentee</td>
</tr>
<tr>
<td>Report Precinct</td>
<td>Label, Id Category, #Batches, #Counted, %Counted, #VCenters, #Complete, %Complete</td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>Title, Id, District, Parties, Absentee/NonAbsentee, Type, #Vote, #Rot, #Cand</td>
<td></td>
</tr>
<tr>
<td>Individual Race</td>
<td>Candidate, Name, Id, Voter Group</td>
<td></td>
</tr>
<tr>
<td>Base Precinct</td>
<td>Label, Id, Ballot Status</td>
<td></td>
</tr>
<tr>
<td>Ballot Style</td>
<td>BallotStyle, Status, Parties, Absentee/NonAbsentee</td>
<td></td>
</tr>
<tr>
<td>Ballot</td>
<td>Ballot, BallotStyle, Parties, Absentee/NonAbsentee</td>
<td></td>
</tr>
<tr>
<td>Card Style</td>
<td>Card Style, BallotStyle, Parties, Absentee/NonAbsentee, Length</td>
<td></td>
</tr>
<tr>
<td>Card</td>
<td>Card, Card Style, Ballot, Parties, Absentee/NonAbsentee, Length, RaceRot</td>
<td></td>
</tr>
<tr>
<td>Vote Center</td>
<td>Label, Id, Method, MCVer, Category, RegionID, RegionLabel, #Batches, #Loaded, #Counted, %Counted</td>
<td></td>
</tr>
<tr>
<td>Header</td>
<td>Label, Id</td>
<td></td>
</tr>
<tr>
<td>Individual Header</td>
<td>Card Style, BallotStyle, Parties, Absentee/NonAbsentee, Length</td>
<td></td>
</tr>
<tr>
<td>Ballot Style</td>
<td>BallotStyle, Status, Parties, Absentee/NonAbsentee</td>
<td></td>
</tr>
<tr>
<td>Individual Ballot Style</td>
<td>Card Style, BallotStyle, Parties, Absentee/NonAbsentee, Length</td>
<td></td>
</tr>
<tr>
<td>Base Precinct</td>
<td>Label, Id, Ballot Status</td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>Title, Id, District, Parties, Absentee/NonAbsentee, Type, #Vote, #Rot, #Cand</td>
<td></td>
</tr>
<tr>
<td>Card Style</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICON (Tree View)</td>
<td>TAB (List View)</td>
<td>FIELD LABEL (List View)</td>
</tr>
<tr>
<td>------------------</td>
<td>-----------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Ballot</td>
<td>Ballot, BallotStyle, Parties, Absentee/NonAbsentee, Length</td>
<td></td>
</tr>
<tr>
<td>District</td>
<td>Label, Id</td>
<td></td>
</tr>
<tr>
<td>Ballot</td>
<td>Ballot, BallotStyle, Parties, Absentee/NonAbsentee</td>
<td></td>
</tr>
<tr>
<td>Individual Ballot</td>
<td>Base Precinct</td>
<td>Label, Id, Ballot Status</td>
</tr>
<tr>
<td>Race</td>
<td>Title, Id, District, Parties, Absentee/NonAbsentee, Type, RaceRot</td>
<td></td>
</tr>
<tr>
<td>Card</td>
<td>Card, Card Style, Ballot, Parties, Absentee/NonAbsentee, Length</td>
<td></td>
</tr>
<tr>
<td>Card Style</td>
<td>Card Style, BallotStyle, Parties, Absentee/NonAbsentee, Length</td>
<td></td>
</tr>
<tr>
<td>Individual Card Style</td>
<td>Race</td>
<td>Title, Id, District, Parties, Absentee/NonAbsentee, Type, #Vote, #Rot, #Cand</td>
</tr>
<tr>
<td>Ballot Style</td>
<td>Ballot Style, Status, Parties, Absentee/NonAbsentee</td>
<td></td>
</tr>
<tr>
<td>Header</td>
<td>Label, Id</td>
<td></td>
</tr>
<tr>
<td>Card</td>
<td>Card, Card Style, Ballot, Parties, Absentee/NonAbsentee, Length</td>
<td></td>
</tr>
<tr>
<td>Individual Card</td>
<td>Base Precinct</td>
<td>Label, Id, Ballot Status</td>
</tr>
<tr>
<td>Card</td>
<td>Card, Card Style, Ballot, Parties, Absentee/NonAbsentee, Length</td>
<td></td>
</tr>
<tr>
<td>Vote Center</td>
<td>Vote Center</td>
<td>Label, Id, Method, MCVer, Category, RegionId, RegionLabel, #Batches, #Loaded, #Counted, %Counted</td>
</tr>
<tr>
<td>Vote center category</td>
<td>Vote Center Category</td>
<td>Label, Id</td>
</tr>
</tbody>
</table>

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GEMS User’s Guide
### 1.3.4. Using the Database

The procedures for adding, editing and deletion are common to most entities. Multiple options exist for each operation, including using the menu bar, the icon bar, right-clicking or double-clicking the entity. Which one of these activities is performed depends on the election status that has been set.

Adding, editing and deletion activities are identical for most entities, including District, Report Precinct, Race, Header and Vote Center. This functionality only applies to the report precinct categories within Report Precinct. The cumulative report precinct category is created only by creating at least one cumulative counter group. Base precincts may not be added within Base Precinct, but may be added by selecting a report precinct. Ballot styles, ballots, card styles and cards may only be modified and not added or deleted, as GEMS automatically generates ballot artwork. As with report precincts, adding, editing and deletion may only take place within vote center categories within Vote Center, as vote center categories are created within the Counter Group Editor.

For example, in order to add a header, select Header in the tree view and either:

- click on the New Record icon
- click on Headers in the menu bar and then New Header in the drop-down menu
- right-click on Header and select New Header in the pop-up menu.

See Figures 1-14, 1-15 and 1-16.

#### Table 1-1. Reference table of list view tabs

<table>
<thead>
<tr>
<th>ICON (Tree View)</th>
<th>TAB (List View)</th>
<th>FIELD LABEL (List View)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual Vote Center</td>
<td>Report Precinct</td>
<td>Label, Id, Category, #Batches, #Counted, %Counted, #VCenters, #Complete, %Complete, SeqNum</td>
</tr>
<tr>
<td></td>
<td>Race</td>
<td>Title, Id, District, Parties, Absentee/NonAbsentee, Type, #Vote, #Rot, #Cand</td>
</tr>
<tr>
<td></td>
<td>Card</td>
<td>Card, Card Style, Ballot, Parties, Absentee/NonAbsentee, Length, Sequence</td>
</tr>
<tr>
<td></td>
<td>Ballot</td>
<td>Ballot, BallotStyle, Parties, Absentee/NonAbsentee</td>
</tr>
</tbody>
</table>

---

**Figure 1-14. Adding by using the New Record icon**
or expand the header list in the tree or list views, select a header in the list and either:

- click on the New Record icon
- click on Headers in the menu bar and then Add Header in the drop-down menu
- right-click on Header and select Add Header in the pop-up menu

The Header Editor appears as a result.

In order to edit a header, either expand the header list in the tree view or display them in the list view. Select the header to edit and either:

- click on the Edit Record icon
- click on Headers in the menu bar and then Edit Header in the drop-down menu
- right-click on the header and select Edit Header in the pop-up menu
- double-click on the header

As a result, the Header Editor appears for the requested item. See Figures 1-17, 1-18 and 1-19.
In order to delete a header, either expand the headers in the tree view or display them in the list view. Select the header to delete and either:

- click on the Delete Record icon
- click on Headers in the menu bar and then Delete Header in the drop-down menu
- right-click on the header and select Delete Header in the pop-up menu

A prompt appears, asking you to confirm the deletion of the header. See Figures 1-20, 1-21 and 1-22.
1.3.5. Selecting Multiple Items

While individual items only may be selected in the tree view, multiple items may be selected in the list view. In order to select a cohesive list of items, left-click on the first item, then press the Shift key while left-clicking the mouse button on the last item in the list. In order to select more than one item not in sequential order, select the first item by left-clicking the mouse, and then select each subsequent item by pressing the CTRL button while left-clicking the mouse.

While building an election it may be necessary to change relationships between entities by dragging and dropping items from within one entity to another. These relationships include districts and base precincts, cumulative report precincts and polling precincts and report precincts and vote centers.

The following procedure is recommended for dragging, using the example of districts and base precincts. Select Base Precinct in the tree view so that all base precincts are displayed in the list view. Expand District in the tree view. Select all base precincts to be associated with the district in the list view, depress the left mouse button, drag the mouse onto the target district and release the mouse button. See Figures 1-23, 1-24, 1-25 and 1-26.

More information on creating these relationships is provided in the corresponding sections.
Figure 1-23. Select base precinct in tree view

Figure 1-24. Expand district in tree view

Figure 1-25. Select base precincts in list view

Figure 1-26. Drag base precincts from list view and drop onto district in tree view
1.3.6. Refresh

Changes made to the GEMS database are not automatically applied to the entire GEMS window. It may be necessary to refresh the screen in order for all information to be refreshed. Refreshing may be performed as follows:

- Click on View in the menu bar, then Refresh.
- Press F5.
- Contract an entity’s list in the tree view, then expand again, provided contents of the list have changed.
- Click on an unrelated item in the tree view, then select or expand the original item in the tree view.
- Click on a column header twice in the list view, provided information displayed in the list view has changed.

For example, Default Precinct Category is selected in the tree view, so that all report precincts are displayed in the list view. The Id of report precinct ‘CP8 210,211,212’ is to change from 210 to 225. Double-click on the report precinct in the list view, change the Id number in the Report Precinct Editor as required, then click on OK. Press F5 in order to refresh the screen. See Figures 1-27 to 1-28.

For example, Default Precinct Category is selected in the tree view, so that all report precincts are displayed in the list view. The Id of report precinct ‘CP8 210,211,212’ is to change from 210 to 225. Double-click on the report precinct in the list view, change the Id number in the Report Precinct Editor as required, then click on OK. Press F5 in order to refresh the screen. See Figures 1-27 to 1-28.

![Figure 1-27. Double-click on report precinct in list view](image)

![Figure 1-28. Change report precinct Id number](image)

![Figure 1-29. Press F5 in order to refresh display](image)
1.3.7. Shaping The Database Window

As with any other windows-based application, the size of the GEMS window may be sized and shaped according to your requirements. By clicking on the maximize button in the top, right-hand corner of the application either expands the application to the full size of your screen or reduces the window to a smaller size, which may be customized. The reduced-size window is created:

- by moving the mouse over either the top or bottom boundaries of the window (the mouse pointer changes to a two-sided vertical arrow), the left or right boundaries of the window (the pointer changes to a two-sided horizontal arrow) or over either of the corners of the window (the pointer changes to a two-sided diagonal arrow), and
- then depressing the left mouse button and dragging the boundary inward or outward in order to either decrease or increase the window size.

See Figures 1-30 and 1-31.

![Figure 1-30. Shaping the side of the GEMS window](image)

The vertical meridian that divides the tree view from the list view may also be moved either left or right. Moving this border left increases the size of the list view and moving it right increases the size of the tree view. This is accomplished by moving the mouse over the meridian so that the mouse pointer turns into two parallel vertical lines encased in a two-sided horizontal arrow. Depress the left mouse key and shift the border either to the left or right. See Figure 1-32.

![Figure 1-31. Shaping the top and bottom of the GEMS window](image)

![Figure 1-32. Placing the boundary between the tree and list view](image)
1.3.8. Id Numbers

Id numbers are automatically generated by the software according to the order in which the entities are defined. But the Id numbers may be changed, as long as the target Id number is unique (uniquely identifies many entities in GEMS). Regions, languages, voter groups, counter groups, reporting sets, monitor scripts, districts, report precincts, base precincts, races, candidates, headers and vote centers are all identified by Id numbers. Each of these entities may be added or changed in a corresponding editor, which commonly contains a field titled Id. The numbering of Ids begins at 10 and is automatically incremented by 10.

In order to view an item’s Id number, the editor must either be activated for that item, all items displayed for the entity in the list view, or an administrative report listing the item. For example, we select Race in the tree view and observe race Id numbers in the Id column in the list view. We make note of the number (300) of the LMUD Ward 5 race, and decide to change it to 350. We activate the Race Editor for the race, select the Id field, enter the number 350 and click on the OK button. The new number is reflected in the list view once we select another race in the list or click on the Id column heading.

By changing Id numbers in this fashion, we can affect the order in which items appear both in the GEMS window and reports. See Figures 1-33, 1-34 and 1-35.

![Figure 1-33. Edit Race](image)

![Figure 1-34. Change Id number in Race Editor](image)
<table>
<thead>
<tr>
<th>Title</th>
<th>Id</th>
<th>District</th>
</tr>
</thead>
<tbody>
<tr>
<td>LASSEN COLLEGE-THA4</td>
<td>100</td>
<td>LASSEN COLLEGE</td>
</tr>
<tr>
<td>LASSEN COLLEGE-THA5</td>
<td>110</td>
<td>LASSEN COLLEGE</td>
</tr>
<tr>
<td>BIG VALLEY JT UNIF-TA1</td>
<td>130</td>
<td>BIG VALLEY JT UNIFIED</td>
</tr>
<tr>
<td>BIG VALLEY JT UNIF-TA2</td>
<td>140</td>
<td>BIG VALLEY JT UNIFIED</td>
</tr>
<tr>
<td>BIG VALLEY JT UNIF-TA3</td>
<td>150</td>
<td>BIG VALLEY JT UNIFIED</td>
</tr>
<tr>
<td>FT SAGE JT UNIF-THA2 E2</td>
<td>150</td>
<td>FT SAGE JT UNIFIED</td>
</tr>
<tr>
<td>JANEVILLE ELEM [FT] E2</td>
<td>170</td>
<td>JANEVILLE ELEM</td>
</tr>
<tr>
<td>JANEVILLE ELEM [ST]</td>
<td>175</td>
<td>JANEVILLE ELEM</td>
</tr>
<tr>
<td>RAVENDELE-TERMDE ELEM [ST]</td>
<td>200</td>
<td>RAVENDELE ELEM</td>
</tr>
<tr>
<td>SHAFER ELEM E2</td>
<td>230</td>
<td>SHAFER UNION ELEM</td>
</tr>
<tr>
<td>SUSANVILLE ELEM E2</td>
<td>240</td>
<td>SUSANVILLE ELEM</td>
</tr>
<tr>
<td>WESTWOOD UNIF [FT] E2</td>
<td>250</td>
<td>WESTWOOD JT UNIFIED</td>
</tr>
<tr>
<td>WESTWOOD UNIF [ST]</td>
<td>260</td>
<td>WESTWOOD JT UNIFIED</td>
</tr>
<tr>
<td>MODOC JT UNIF E3</td>
<td>270</td>
<td>MODOC JT UNIFIED</td>
</tr>
<tr>
<td>LMUD WARD 1</td>
<td>280</td>
<td>LMUD</td>
</tr>
<tr>
<td>LMUD WARD 5</td>
<td>290</td>
<td>LMUD</td>
</tr>
<tr>
<td>SPALDING CSD E2</td>
<td>420</td>
<td>SPALDING CSD</td>
</tr>
<tr>
<td>WESTWOOD CSD E3</td>
<td>440</td>
<td>WESTWOOD CSD</td>
</tr>
</tbody>
</table>

*Figure 1-35. Verify New Id Number in List View*
2. Election Preparation

This chapter describes all components of the election preparation process using GEMS.
2.1. Election Database Creation

This section describes the creation of the election and the means of accessing the database.

2.1.1. Activating GEMS

Every election in GEMS corresponds to a unique database. An election database may be backed up, loaded from backup, or deleted. Inactive databases should be backed up to incur considerable space savings. Backed up rather than live databases should be transferred by e-mail to expedite transmission, particularly in the event that either side of the mail transmission has a slow modem.

2.1.1.1. Creating a Database

If you are using GEMS for the first time, select either the application icon on the desktop or select Programs in the Startup menu, then GEMS in the cascading Programs menu. The following window will appear (Figure 2-1):

Click on the New button. You must now enter the name of the database you wish to create, as well as a password associated with the database. You will need to enter this password every time you access the database. See Figure 2-2.
With the cursor positioned in the Database Name field, type the desired database name. The name you enter should accurately describe the election you will be working on. Tab forward to the Password field—every database must be defined with a password to restrict access to authorized personnel only. The password should be entered again in the Confirm Password field.

Note that the password you enter is case-sensitive, that is, if it was originally defined in lower case, it must be re-entered in lower case. Click on the OK button. Momentarily, the GEMS main window will appear.

2.1.2. Accessing an Existing Database

If you are accessing an existing database, the following screen will appear. See Figure 2-3.

Either select an election in the Existing Database Name list and click on the Open button, or double-click on the election name in order to activate the database. The logon screen for that database will appear. See Figure 2-4.
Once you enter the password, and click on the OK button, the GEMS main window with the existing database will appear. See Figure 2-5.

2.1.3. Accessing the Database as a Remote User

See section 2.9 Regional Processing for detailed information on regional processing including accessing the election database as a remote user.
2.2. Import

Jurisdictional information may either be defined manually or imported automatically into GEMS. Two import formats exist, the Standard as well as Los Angeles import. The Los Angeles import is used only in Los Angeles County, California, and is not relevant to GEMS users elsewhere.

Due to the technical nature of the import process, the discussion of the subject matter is limited to an overview.

2.2.1. Standard Import Procedure

The Standard import file is composed as an ASCII file and consists of a series of records containing the election data. Each record starts with a record type to identify the type of information in the record and ends with a line-feed or line-feed/carriage return character. The import file records must follow the sequence indicated. Fields in the import file’s records must be comma delimited, with character strings enclosed in double quotes. If a character string contains a quote mark then that quote mark must be preceded by a backslash. If a backslash is in a string then the backslash must also be preceded by a backslash, i.e. backslashes would be represented by a double backslash.

While the standard import procedure will attempt to preserve any existing contents of a database, the import should be performed before any other activities in the database.

Race and candidate text may be formatted either as simple text or rich text format (rtf) data. Rich text data should not be enclosed in quotes since it may contain embedded quotes.

2.2.2. Standard Import file format

The format of each record in the Standard Import file is detailed as well as the fields in the GEMS database that the record populates.

2.2.2.1. Header record

RecordType (int), MagicString (string), MajorNumber (int), MinorNumber (int)

2.2.2.2. Election record

RecordType (int), ElectionTitle (string), ElectionData (String)
This record populates the election title and election date.

2.2.2.3. District record

RecordType (int), ParentId (int), DistrictId (int), DistrictLabel (string)
This record populates the district Id, district label and link to parent district.

2.2.2.4. Vote center records (polling places)

RecordType (int), DepotId (int), VoteCenterId (int), VoteCenterLabel (string)
This record populates the vote center Id and vote center label.

2.2.2.5. Vote center/reportunit/baseunit

RecordType (int), VCenterId (int), ReportunitId (int), BaseunitId (int), ReportunitLabel (string), Reg.Voters (int), BaseunitLabel
This record populates the report precinct Id and label, linkage to vote center, and the base precinct Id and label.
2.2.2.6. Baseunit/district

RecordType (int), BaseunitId (int), DistrictId (int)

This record creates the base precinct-district linkages.

2.2.2.7. Voter Groups

RecordType (int), VGroupId (int), Label (string), ShortLabel (string), SortSeq, BallotText (string or rtf)

This record populates the voter group Id, long label, short label, ballot position and ballot text.

2.2.2.8. Race

RecordType (int), RaceId (int), RaceLabel (string), RaceType (int), Rotation (bool), DistrictId (int), VoteFor (int), NumWriteIns (int), BallotText (string or rtf), VGroupId (int)

Note: RaceType is either 0 for Candidate or 1 for Question, and Rotation is either 1 for Yes or 0 for No. The record populates the race Id, label, type, whether or not the race rotates, the race’s district, the number to vote for, the number of write-ins, the ballot text and the Id of the voter group to which the race is linked.

2.2.2.9. Candidate

RecordType (int), RaceId (int), CandId (int), Label (string), Type (int), SortSeq (int), VGroupId (int), BallotText (string or rtf)

Note that Type is either 0 for Candidate, 1 for Write-In or 2 or Registered Write-In. The Label field is limited to 20 characters.

This record populates the candidate Id, label, type, ballot position, the voter group to which the candidate is linked and the ballot text of every candidate within a race.

2.2.3. Performing the import

Click on Election in the menu bar, Import in the drop-down menu, then Standard Import in the cascading menu if performing the standard import, otherwise LA Import in the case of Los Angeles. See Figure 2-6.

GEMS displays a message offering to make a backup of the database. See Figure 2-7. Click on the Yes button to make a backup, or click on No to continue. A windows Open window is then displayed, requesting the location of the import file in default .txt format. Select the location of the import file in order to begin the import process.

Figure 2-6. Selecting the Standard Import
Figure 2-7. Backup message
2.3. Setup

Election configuration options are defined under Setup in the GEMS menu bar. Setup options include general administration, regions, languages, voter groups, counter groups, ballot and race options, AccuVote-OS and AccuVote-TS options, reporting sets, monitor scripts and finally, the printer audit function.

Configuration of these options is implemented in the order of the corresponding sections in this document, except for:

- AccuVote-OS Options and AccuVote-TS Options, which may be reviewed prior to section 2.8 AccuVote Servers, and
- Reporting Sets and Monitor Scripts, which may be reviewed prior to section 2.12 Election Results Reporting.

Setup options are reviewed in the corresponding editors after definitions have been completed.

2.3.1. Election Options

Click on Setup in the menu bar, and Election in the drop-down menu. See Figure 2-8. The Election Options window is organized under three tabs: Election Info, Ballots and Recount. See Figure 2-11.

**Figure 2-8. Selecting Election Options**

### 2.3.1.1. Election Info

The Election Info tab in the Election Options window is used to define election administrative information.

Define an election title no more than three lines in the Name of Election field. This title appears on all GEMS administrative and election results reports.

The election date and time are defined in Election Date/Time fields. The entire election date may be selected from a drop-down calendar, while the day and year may be also be entered manually. See Figure 2-9. Changing the date or year automatically cause the weekday to be set accordingly.

**Figure 2-9. Activating the calendar**

The calendar is activated by clicking on the drop-down list arrow. An earlier or later month may be selected by clicking on either of the arrows in the top left- and right-hand corners of the calendar.
month may also be selected by clicking on the month name in the calendar, which activates a drop-down list containing all months of the year, from which the desired month may be selected. See Figure 2-10.

A date is selected from the calendar by clicking on the corresponding day in the calendar. The day selected is then highlighted in blue. The current date is displayed at the bottom of the calendar and is circled in red if the current month is presently displayed. Right-clicking on the calendar at any point activates the pop-up menu ‘Go to today’ – clicking on this entry sets the election date to the current date.

The hour, minute, second and AM/PM components of the time may be defined by manually selecting and either changing the corresponding item or using the spin box buttons on the right hand side of the field to select different values.

The election Id is automatically defined in the EID field. If the database is copied from another database, for example a jurisdiction master, click on the Regenerate button in order for GEMS to create a new election Id.

Select the election status from one of the Cards Laid Out, Cards Printed or Set for Election check boxes in the Election Status group box. These check boxes determine the state of preparedness of the election, each status enabling some and disabling other functions in GEMS. Before ballot artwork has been completed, none of these check boxes should be selected. For information on election status concepts, refer to Appendix B: Election Status.
Figure 2-11. Election Info tab in the Election Options window

Click on the Ballots tab.

2.3.1.2. Ballots

The Ballots tab under the Election Options window indicates the status of ballot artwork and is display only. The Status group box indicates whether cards have been laid out and whether ballots have been generated. See Figure 2-12.

Figure 2-12. Ballots tab in the Election Options window

Click on the Recount tab.

2.3.1.3. Recount

The Recount tab under the Election Options window is used for election recount purposes. See Figure 2-13.

The Set For Recount check box is selected in order to set the election to recount. The races to be recounted are selected in the Recount Reporting Set list, which displays all reporting sets defined in the Reporting Sets window. For more information refer to section 4.1 Recount.
2.3.2. Regions

Regions are defined if regional processing is to be implemented in a jurisdiction. For more information on regions refer to section 2.9 Regional Processing.

Click on Setup in the menu bar, then Regions in the drop-down menu. See Figure 2-14.

In the Regions window, enter an export label for the Host region in the Export field. Click on the New button in order to create a new region. See Figure 2-15. Enter a descriptive label in the Label field, change the Id number in order to alter the sequence of the new region and enter an export label for the region in the Export field. Click on the New button and continue until all regions have been defined, then click on OK. Note that an export value may also be defined in the Export Id Editor.
Figure 2-15. Defining a region

Every region defined is listed in the display area of the window. Also, every election is defined with the default Host region.

In order to change region information, activate the Regions window, select the region for which changes are to be implemented in the Label column, enter new values and proceed in the same manner for any other regions that are to be changed. Click on the OK button when you are finished. The information that has been changed will also be altered in the display area of the window.

In order to delete a region, activate the Regions window, select the region to be removed in the Label column and click on the Delete button. Proceed in the same manner with all other regions that are to be deleted and click on the OK button. Note that Host cannot be deleted from the election.

2.3.3. Users

2.3.3.1. Concepts

For security purposes, the GEMS database is accessed by entering a user Id and password. While GEMS is a single-user application, various users may access the database, at varying points in time, and on varying PCs. Each user may have a different user Id and password, with varying access privileges. The individual activities of each user are tracked in the audit log.

Only users with administrative privileges may reset the election status, create users or change user passwords.

In regional processing, each regional user is assigned a unique user Id and password, which allows access to that user’s regional machine only. Regional users are not allowed administrative privileges and therefore are not capable altering the election database on the regional machines to which they are assigned. However, regional users may reset election results if necessary.

For more information on the roles of GEMS users, refer to section 1.1 Introduction. For more information on regional processing, refer to section 2.9 Regional Processing. For more information on audit procedures, refer to section 4.2 Audit and Archive.

2.3.3.2. Configuring Users

Click on Setup in the menu bar, then Users in the drop-down menu. See Figure 2-16.
Figure 2-16. Activating the User Modification window

The User Modification window appears with a display area as well four buttons. See Figure 2-17. The display area includes the Label, Full Name, Region and Type columns. By default, an election is defined with the admin user Id, with full name admin, region Host and type admin.

In order to add a user, click on the Add button.

Figure 2-17. Adding a new user

The Add User window now appears, in which the details of the new user are defined. See Figure 2-18.

Enter a unique short name of the new user in Username, the full name of the user in Full Name, enter the password in both the New Password and Confirm Password fields and select the region from the Region drop-down list. Click on the Add button in order to continue defining users, otherwise click on the OK button. Every user appears in the display area when added.

Figure 2-18. Defining a new user

In order to update user information, select the user Id in the Label column and click on the Configure button. See Figure 2-19. The Edit User window appears, in which the full name may be changed in the Full Name field, the password in both New Password and Confirm Password fields and region associated with the user in the Region drop-down list. Click on the OK button when changes have been completed. Proceed in the same manner in order to update other users.
2.3.4. Languages

2.3.4.1. Concepts

Elections may be defined with multiple languages. In order to employ multiple languages, each language must be defined in the Language window with the corresponding set of TSText folder, and language-related text and audio must be defined for all races, candidates, headers and voter groups.

GEMS compiles language-based ballots from all of the text defined for a particular language. AccuVote-OS voters are issued ballots according to language requested, whereas AccuVote-TS voters select the language desired prior to voting. Each language-based ballot varies from the base ballot card only in terms of the language text displayed, but is considered the same card. AccuVote-OS ballot artwork is laid out according to the requirements of English language text, so that non-English language ballot layout may be shrunk or expanded in order to accommodate the English language layout.

In order to define language-based text, the language is selected in the editor before entering the text. For example, in an election configured with Spanish ballots, the Spanish language is defined in the Language editor, and in the Race Editor, Spanish is selected from the Language drop-down list and the Spanish equivalent of the English race heading is entered.

By default, every election is defined with the language ‘Default’, which refers to English. If an election is defined with more than one language, ‘Default’ should be changed to ‘English’ for sake of clarity, unless another language is to be default.

Languages are defined with reserved codes or Locale Ids that pertain to operational instructions defined in corresponding folders within the TS Text folder in GEMS. These operational instructions are displayed on the AccuVote-TS only. For example, in order to create Spanish ballots, the Spanish language is defined in the Language editor with the Locale Id 1034, as GEMS is configured with the TS Text folder 1034, which contains all Spanish operational instructions.
Each language is also defined in the file TS Text.txt in the TS Text folder with the file location of each language-related operational instruction.

Language text may be selectively downloaded to either AccuVote-OS, AccuVote-TS, or both.

Every election is defined with the Default language, which may not be deleted. Languages may be added or deleted under any election status other than ‘Set for Election’.

### 2.3.4.2. Configuring languages

Select Setup in the menu bar and click on Language. See Figure 2-21.

![Figure 2-21. Activating the Language window](image)

In the Language window, change Default to English in the Label field and enter an export value in the Export field. Click on the New button and enter the name of the first language to be defined in the Label field, the Id number in the Id field if the sequence is to vary from the default, enter a corresponding locale Id in the Locale Id field and an export value in the Export field. Leave the AccuVote-OS and AccuVote-TS check boxes selected, as language-based ballots are currently only implemented with the AccuVote-TS. Note that export Ids may also be defined in the Export Id Editor.

Click on the New button and continue adding languages as necessary. See Figure 2-22. Once all languages have been defined, click on the OK button.

![Figure 2-22. Creating a new language](image)

In order to change language-related information, activate the Language window, select the Language in the Label column, and change Label, Id, Locale Id and Export fields as necessary. Change any other languages in the same manner and click on the OK button.
In order to delete a language from the election, activate the Language window, select the language to be deleted in the Label column and click on the Delete button. Proceed in the same manner in order to delete any other languages, and click on OK in order to save changes. Any text defined in the election for the languages that have been deleted is then lost. Note that deleting languages does not affect ballot layout.

Every language appears in the Label and Id columns in the window’s display-only area. The information in the display area varies according to languages that have been added, changed and removed.

2.3.5. Voter Groups

2.3.5.1. Concepts

Voters in an election are organized by voter group. Voter groups classify voters in a non-geographical manner, whereas districts organize voters geographically. If an office in an election is restricted to voters living in a certain area of the jurisdiction, the office is defined in GEMS as occurring in a particular district. On the other hand, if the office is restricted to voters for reasons other than their residence, the office is defined in GEMS as belonging to a corresponding voter group.

A voter group may be a political party, absentee/non-absentee or some other classification that determines which races voters may vote on. Political parties are defined both to create partisan races, split ballots in a closed primary election, and are used as well for endorsing candidates. Commonly, partisan voter groups are only set to create separate ballots in a closed primary election.

Absentee and non-absentee voter groups may also be defined if polling and absentee voters vote on distinct ballots.

GEMS is defined with the default voter group <N.P.> or non-partisan, which encompasses all voters. This voter group may not be removed from the election.

Political parties

Each political party in an election is defined as a voter group. Partisan voter groups are defined under the Parties tab in the Voter Group Editor, and are used to endorse candidates, create partisan races in a primary election as well as create closed primary ballots.

For example, the candidates running for office of Mayor in an election are the Republican John Doe and the Democrat Jane Smith. In GEMS, two voter groups are defined, Republican and Democrat. The race for Mayor is defined with two candidates, John Doe, endorsed by the Republican voter group and Jane Smith, endorsed by the Democratic voter group.

In another example, a closed primary election includes Republican and Democrat offices for State Assembly. In GEMS, the Republican and Democrat voter groups are defined with the separate ballot option. One race for State Assembly is defined and linked to the Republican party, and another race for State Assembly is defined and linked to the Democratic party. GEMS will create two ballots, one with the Republican State Assembly office and the other with the Democrat State Assembly office.

Not all races or candidates in an election need be endorsed by partisan voter groups. Candidates need not be endorsed by any party, and are considered <N.P.> by default. Likewise, races not linked to partisan voter groups are considered <N.P.> by default.

No more candidates may be endorsed by one political party in a straight party votable race than the number to vote for. This restriction does not apply in non-straight party votable races.

For example, the race for City Councilor is vote for two. Three candidates are endorsed by the Republican party, and the race is not straight party votable. In another example, a race for City Councilor is held in an election, where the race is vote for two and straight party votable. Two candidates are endorsed by the Republican party, so that no more candidates may be endorsed by the Republican party.
Straight party voting

Voter groups are used to implement straight party voting. An endorsement race is defined with partisan voter groups and linked to all straight party votable races. A voter group selection in the endorsement race on the ballot effects the selection of all candidates in straight party votable races endorsed by the voter group.

Non-partisan candidates cannot be selected by straight-party voting.

Closed primary

All non-partisan races in a closed primary election are assigned their own ballot(s).

For example, an election is held for Republican and Democrat State Assembly members, as well as a bond issue. Republican voters vote for Republican State Assembly, Democrat voters vote for Democrat State Assembly and all voters vote on the bond issue. Republican, Democrat and non-partisan voters are to vote on distinct ballots.

In GEMS, the Republican and Democrat voter groups are defined, each with the Separate Ballots check box selected. The Republican State Assembly office is defined and linked to the Republican voter group and the Democrat State Assembly office is defined and linked to the Democrat voter group. The bond issue is defined and linked to <N.P.>. GEMS then creates three ballots, a Republican ballot with the Republican State Assembly race, a Democrat ballot with the corresponding State Assembly race and a non-partisan ballot with the bond issue only.

Open primary

All partisan as well as non-partisan races occur on the same ballot in an open primary election.

For example, an election is held for Republican and Democrat State Assembly members as well as a bond issue. In GEMS, the Republican and Democrat voter groups are defined without the Separate Ballot check box selected. The Republican and Democrat State Assembly races are defined and linked to the corresponding voter groups, and the bond issue is defined and linked to voter group <N.P.>. GEMS then creates one ballot, containing all three races.

All partisan race results are discarded if a voter may makes candidate selections in races endorsed by more than one voter group in an open primary. Any candidate selections in partisan races not endorsed by the party selected in the controlling preference race are discarded automatically if a preference race is present on the ballot.

For example, an open primary ballot contains races for Republican and Democrat State Assembly as well as a bond issue. A voter selects a candidate in each of the State Assembly races as well as in the bond issue. Only the bond issue selection is then counted.

Now the same ballot contains a preference race which precedes the other races. The voter selects the Republican party in the preference race in addition to the same selections as before. Now the Republican State Assembly and bond issue selections are chosen, as the selection in the Preference race has automatically discarded the selection in the Democratic State Assembly race.

Note that open primaries are not supported with the AccuVote-TS voting devices.

Absentee/Non-Absentee

Voter groups may be used to create separate ballots for polling and absentee voters. These voter groups are defined under the Absentee/NonAbsentee tab in the Voter Group Editor.

For example, the city of Fargo is holding an election for Mayor and Precinct Committee Officer, in which voters may vote either on election day or absentee. Election day voters may vote on the races for Mayor and Precinct Committee Officer, and absentee voters may vote on the race for Mayor only. In GEMS, the voter groups Polling and Absentee are defined. The race for Mayor is defined and linked to voter group <N.P.>, as all voters may vote for the office, and the race for Precinct Committee Officer is defined and linked to voter group Polling, as only election day voters may vote for the office. Polling voters will then receive a ballot with both offices, whereas absentee voters will receive ballots with the office for Mayor only.
Rotations

Absentee/non-absentee voter groups may be defined to create distinct ballot rotations for polling and absentee voters. Polling voters and absentee voters may either both vote on rotated ballots, one or the other vote on rotated ballots but not both, or neither vote on rotated ballots.

Absentee/non-absentee voter groups are defined only if polling and absentee voters vote on different races or have distinct rotation requirements. If neither is the case then absentee/non-absentee voter groups need not be defined.

Voter groups under the Absentee/NonAbsentee tab are defined with rotation by selecting the Rotate Ballots check box.

Polling rotation only

For example, an election for Mayor is held in precincts Wilson, Jackson and Lincoln. Three candidates are running for the office of Mayor, for which both polling and absentee voters may vote. Polling ballots are to be rotated by precinct but not absentee ballots. In GEMS, the Polling and Absentee voter groups are defined, the former set to rotate but not the latter. The three polling report precincts are defined as well as a cumulative absentee precinct, which is linked to the polling precincts. The race for Mayor is defined with precinct rotation.

GEMS creates three ballots with the race for Mayor, each a unique rotation. Voters in Wilson vote on the first rotation, voters in Jackson on the second and voters in Lincoln on the third rotation. Absentee voters vote on the first ballot rotation only.

If the polling voter group is defined with rotation and the absentee voter group is not, any of the 0 rotation polling ballots may be shared with the absentee voter group.

For example, an election is held for State Assembly and Mayor in the city of Fargo. The city of Fargo consists of two precincts, Wilson and Jackson. Wilson occurs in State Assembly district 14 and Jackson in State Assembly district 15. All races rotate by precinct, and polling voters vote on rotated ballots whereas absentee voters vote on non-rotated ballots.

Two voter groups are defined, Polling with rotation and Absentee without rotation. District category State Assembly is defined, containing District 14 State Assembly and District 15 State Assembly. District 14 State Assembly is linked to report precinct Wilson and District 15 State Assembly is linked to report precinct Jackson. The district City of Fargo is defined to both precincts. Races for District 14 and 15 State Assembly and Mayor of Fargo are defined with precinct rotation and defined with the corresponding districts.

GEMS creates one ballot for each of the two polling report precincts. The State Assembly races on both ballots are rotation 0 as they occur in one precinct only, but while the Mayor’s race on Wilson’s ballot is rotation 0, on Jackson’s ballot it is rotation 1. As a result, the polling ballot for Wilson is shared by the absentee voter group, as it is strictly rotation 0, but a distinct absentee ballot is created with the races for District 15 State Assembly and Mayor, both set to rotation 0.

Absentee rotation only

Suppose that candidates on polling ballots do not rotate but absentee ballots do. Absentee ballots then rotate over the base precincts comprised in the absentee report precincts.

For example, four candidates are running for election for Mayor in the city of Fargo, where Fargo consists of precincts Wilson, Jackson, Lincoln and Taylor. Polling ballots do not rotate but absentee ballots do rotate by precinct, and absentee results are reported cumulatively for the jurisdiction.

In GEMS, voter group Polling is defined to not rotate and Absentee is defined to rotate. The four polling report precincts are defined as well as a cumulative absentee precinct, linked to all four base precincts. The race for Mayor is defined with four candidates and precinct rotation.

GEMS creates a single polling ballot valid in all polling precincts. Four absentee ballots are created, one rotation for each base precinct in the absentee precinct.
For more information on rotation see Appendix C: Rotation Rules. For more information on ballot rotations see section 2.6 Preparing Ballot Artwork.

Counter group-based rotation

The absentee/non-absentee voter groups may create distinct ballot or rotation content for any counter group, although this category of voter group is commonly employed for the polling and absentee voter groups only.

For example, three candidates are running for the office of Mayor in the precincts Wilson, Jackson and Lincoln. Polling voters vote on precinct-rotated ballots and early voting voters vote on non-rotated ballots.

In GEMS, the Polling voter group is defined to rotate ballots and the Early Voting voter group to not rotate ballots. The three polling report precincts are defined and linked to an early voting report precinct, and the race for Mayor is defined with precinct rotation.

Three ballots with the office for Mayor are created, each with a distinct rotation. The polling report precincts Wilson, Jackson and Lincoln are assigned rotations 0, 1 and 2, respectively, and the early voting report precinct is assigned the rotation 0 ballot only.

Candidate rotation

Candidates may be rotated according to a selected rotation rule as well as by voter group. For more information on candidate rotation refer to Appendix C: Rotation Rules.

Multiple voter group classes in an election

Both partisan and absentee/non-absentee voter groups may be employed in an election, allowing a voter to belong to more than one voter group. The Voter Group Editor provides two separate tabs for creating these voter groups, and races may be defined with one voter group of each set.

For example, an open primary election is held for Republican and Democrat State Assembly offices as well as Precinct Committee Officer, in which voters may vote either on election day or absentee. While Republican or Democrat election day voters may vote on the corresponding State Assembly offices as well as the Precinct Committee office, absentee voters may vote on the State Assembly office only.

In GEMS, Republican and Democrat voter groups are defined to separate ballots under the Parties tab, and Polling and Absentee voter groups are defined under the Absentee/NonAbsentee tab. The Republican State Assembly office is defined to the Republican voter group, the Democrat State Assembly office is defined to the Democrat voter group and the Precinct Committee office is defined to the Polling voter group.

GEMS then creates two sets of two ballots. In the first set, Republican election day voters vote on the first ballot containing the Republican State Assembly and Precinct Committee offices and Democrat election day voters vote on the second ballot containing the Democrat State Assembly and Precinct Committee offices. The second set is available to absentee voters only, Republican absentee voters voting on the ballot with the Republican State Assembly office and Democrat absentee voters voting on the second ballot with the Democrat State Assembly office.

Other applications of voter groups

Voter groups under the Parties tab in the Voter Group Editor may be defined other than by party.

For example, English speaking voters in an election vote for the office of English School Board, while French speaking voters in an election vote for the office of French School Board. These races are to occur on separate ballots. In GEMS, English and French voter groups are defined to separate ballots under the Parties tab, the race for English School Board defined and linked to the English voter group, and the race for French School Board defined and linked to the French voter group. GEMS creates two ballots, one with the English School Board race and the other with the French School Board race. Either ballot may be cast at any polling location in the election.

In another example, an election is held for Mayor and bond issue. All voters may vote for Mayor, but only landholders may vote on the bond issue. In GEMS, the voter group Landholder is defined with separate ballot option, the race for Mayor defined and linked to voter group <N.P.> (as all voters may vote for
Mayor) and the bond issue to voter group Landholder. GEMS creates two ballots, one with the Mayor and bond issue and the other with the race for Mayor only. Either ballot may be cast at any polling location in the election.

Voter Registration

Voter registration amounts may be defined by base precinct and voter group in an election. Commonly, voter registration is defined by voter group only in primary elections. The Track Registration check box is selected in the Voter Group Editor in order to define voter registration amounts for a voter group. Voter registration amounts are then defined in the Voter Registration window. For more information on voter registration refer to section 2.11 Voter Registration.

Arranging Candidates by Voter Group

Candidates may be arranged into separate rows or columns by endorsing voter group on AccuVote-OS ballots. For example, all Republican candidates are to appear in the first column, all Democrat candidates in the second column, and all Libertarian candidates in the third column of a race. See Figure 2-23. In another example, all Republican candidates appear in the first row, all Democrat candidates in the second row and all Libertarian candidates in the third row.

Row/Column Assignment

In order to implement this feature, first voter groups are defined with row/column assignments. Activate the Voter Group Editor and either create or update existing voter groups with row/column assignments in the Row/Col field. See Figure 2-24.

The first row or column is 0, the second 1, and so on. For example, if Republican candidates are to appear in the first column and Democrat candidates in the second column, the Republican voter group is defined with Row/Col value 0 and the Democrat voter group with Row/Col value 1.

By default, all voter groups are assigned the row/column value 0, which places all candidates in the first column or row in a race box, irrespective of endorsing voter group.

If write-in or non-partisan candidates are defined, the <N.P.> voter group should also be assigned a unique row/column value. In this manner, write-in and non-partisan candidates appear in a unique row or column. For example, Republican candidates are to appear in the first column, Democrat candidates in the second column and write-in candidates in the third. The Republican voter group is defined in GEMS with Row/Col value 0, the Democrat voter group with Row/Col 1 and the <N.P.> voter group is set to Row/Col 2.
The row/column values assigned in the Voter Group Editor are universal in an election. In the prior example, Republican candidates in all eligible races on the ballot will appear in the first column, Democrat candidates always in the second column and write-in and non-partisan candidates always in the third column.

Multiple voter groups may be assigned to the same row or column. For example, if Republican and Democrat candidates are to appear in the first column and Libertarian candidates in the second column, the Republican and Democrat voter groups are both assigned the Row/Col value 0 and the Libertarian voter group is assigned 1. See Figure 2-25.

![Figure 2-25. Assigning multiple voter groups to columns](image-url)

**City Councillor**

*Vote for Four*

- Jack Strong  
  Republican
- Fred Black  
  Democrat
- Jackie O'Toole  
  Democrat
- Dick Woods  
  Republican
- Thurgood Maxwell  
  Democrat
- Terry Dixon  
  Libertarian
- Barth Francis  
  Libertarian
- Eric Stilton  
  Libertarian

![Figure 2-25. Assigning multiple voter groups to columns](image-url)

**Minimum candidate row/column**

Voter group candidate assignments are laid out within the number of rows or columns defined in the Min Candidate Row/Col field under the Options tab in the Race Editor. If candidates are ordered by column, each column is assigned equal width. For example, if voter group assignments in a race are to span three columns of equal width, Min Candidate Row/Col should be set to three.

If the value in Min Candidate Row/Col is less than the total voter group row/column assignments, GEMS automatically lays voter groups out in the race in the required number of rows or columns. For example, if the number of voter group columns required is three and Min Candidate Row/Col is set to two in a race with candidates arranged by column, candidates will be laid out in three columns. See Figure 2-26.

![Figure 2-26. Candidates laid out in three columns with two column minimum](image-url)

**Race Width**

If candidates are organized by column, row/column assignments should fit within the Race Width value as defined in the Size Options group box under the Options tab in the Race Editor. See Figure 2-27. GEMS will fit the number of columns required by the voter group candidate assignments or the Min Candidate Row/Col value into the race width, whichever is larger. The minimum candidate row/column
and race width should be adjusted in order to ensure that text and voting ovals are properly spaced, without being overwritten.

<table>
<thead>
<tr>
<th>Size Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race Width (blocks):</td>
</tr>
<tr>
<td>Candidate Spacing:</td>
</tr>
<tr>
<td>Min Candidate Row/Col:</td>
</tr>
</tbody>
</table>

**Figure 2-27. Defining Race Width and Min Candidate Row/Col in Size Options group box**

In the following example (see Figure 2-28) voter groups are assigned to 3 unique columns and the Min Candidate Row/Col value is set to 3, but Race Width is set to 2:

<table>
<thead>
<tr>
<th>City Councillor</th>
<th>Vote for Four</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jack Strong</td>
<td>Republican</td>
</tr>
<tr>
<td>Fred Black</td>
<td>Democrat</td>
</tr>
<tr>
<td>Terry Dixon</td>
<td>Libertarian</td>
</tr>
<tr>
<td>Dick Woods</td>
<td>Republican</td>
</tr>
<tr>
<td>Jackie O'Tool</td>
<td>Democrat</td>
</tr>
<tr>
<td>Garth Francis</td>
<td>Libertarian</td>
</tr>
<tr>
<td>Thurgood Maxwell</td>
<td>Democrat</td>
</tr>
<tr>
<td>Eric Stanton</td>
<td>Libertarian</td>
</tr>
</tbody>
</table>

**Figure 2-28. Insufficient race width using columns**

Setting Race Width to 3 allows sufficient space for candidates to be printed in all columns, as the following example illustrates, see Figure 2-29:

<table>
<thead>
<tr>
<th>City Councillor</th>
<th>Vote for Four</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jack Strong</td>
<td>Republican</td>
</tr>
<tr>
<td>Dick Woods</td>
<td>Republican</td>
</tr>
<tr>
<td>Fred Black</td>
<td>Democrat</td>
</tr>
<tr>
<td>Jackie O'Tool</td>
<td>Democrat</td>
</tr>
<tr>
<td>Thurgood Maxwell</td>
<td>Democrat</td>
</tr>
<tr>
<td>Eric Stanton</td>
<td>Libertarian</td>
</tr>
</tbody>
</table>

**Figure 2-29. Sufficient race width using columns**

If candidates are organized by row, race width should be defined to allow for the largest number of candidates per voter group. For example, setting the race width to 2 in the following example provides insufficient space for candidates, voter groups and voting ovals (see Figure 2-30):

<table>
<thead>
<tr>
<th>City Councillor</th>
<th>Vote for Four</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jack Strong</td>
<td>Republican</td>
</tr>
<tr>
<td>Dick Woods</td>
<td>Republican</td>
</tr>
<tr>
<td>Fred Black</td>
<td>Democrat</td>
</tr>
<tr>
<td>Jackie O'Tool</td>
<td>Democrat</td>
</tr>
<tr>
<td>Garth Francis</td>
<td>Libertarian</td>
</tr>
<tr>
<td>Eric Stanton</td>
<td>Libertarian</td>
</tr>
</tbody>
</table>

**Figure 2-30. Insufficient race width using rows**

Setting the race width to 3 assigns sufficient space to candidates (see Figure 2-31):

<table>
<thead>
<tr>
<th>City Councillor</th>
<th>Vote for Four</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jack Strong</td>
<td>Republican</td>
</tr>
<tr>
<td>Dick Woods</td>
<td>Republican</td>
</tr>
<tr>
<td>Fred Black</td>
<td>Democrat</td>
</tr>
<tr>
<td>Jackie O'Tool</td>
<td>Democrat</td>
</tr>
<tr>
<td>Thurgood Maxwell</td>
<td>Democrat</td>
</tr>
<tr>
<td>Eric Stanton</td>
<td>Libertarian</td>
</tr>
</tbody>
</table>
**Candidate Grid Layout**

In order for voter group Row/Col values to affect candidate row/column assignments, Layout must be set to the Fixed radio button in the Candidate Grid Layout group box under the Options tab in the Race Editor. See Figure 2-32. In order to organize candidates into columns, set Organize to the Column radio button in the same group box, otherwise set Organize to Row.

![Figure 2-32. Candidate Grid Layout group box](image)

Select the Flow radio button in order for candidates in a selected race to not be organized by voter group. If Flow is selected, candidates are laid out on the ballot in a continuous manner according to the order in which they were defined.

**Race Options**

The Race Width and Min Candidate Row/Col may be set as race defaults under the Race Default Settings tab in Race Options. See Figure 2-33. Likewise, the Layout and Organize fields in the Candidate Grid Layout group box may also be set as defaults in Race Options.

![Figure 2-33. Setting Size Options and Candidate Grid Layout defaults in Race Options](image)

Race width, minimum candidate row/columns, Layout and Organize may vary from race to race. For example, the race for Mayor on a ballot may be defined with one block Race Width, one block Min Candidate Row/Col, Layout Flow and Organize Column, while the race for City Councilor is defined with Race Width 2, Min Candidate Row/Col 2, Layout Fixed and Organize Column.

**Rotation**

Races with candidates arranged into rows or columns by voter group must be defined to rotate by voter group only. Select the rotation rule in the Rotation Options group box under the Options tab in the Race Editor, then select the Within VGroup check box. See Figure 2-34. Candidates will not rotate properly if the Within VGroup check box is selected. For more information on rotation refer to Appendix C: Rotation Rules.
Language

Voter groups may be defined by language. In an election defined with multiple languages, corresponding language text is defined for every voter group. Candidates appear on ballots with endorsing voter group text corresponding to the ballot language only. For example, an English language ballot will appear with English language voter group text, whereas a Spanish language ballot will appear with Spanish language voter group text.

2.3.5.2. Configuring voter groups

The Voter Group Editor contains two tabs – Parties and Absentee/NonAbsentee. All political parties and voter groups other than absentee/non-absentee are defined under the Parties tab in the Voter Group Editor. Polling and absentee voter groups are defined under the Absentee/NonAbsentee tab if polling and absentee voters vote on distinct ballots.

Adding voter groups

Select Setup in the menu bar and Voter Groups in the drop-down menu. See Figure 2-35.

![Figure 2-35. Activating the Voter Group Editor](image)

Click on the New button in order to create a new voter group. VGroup20 appears in the Name column with Id 20, in the Label field as well as in the ballot text field at the bottom of the window. Change the Label value to the full name of the first political party to be defined, and note that the Name column and ballot text field change accordingly.

Enter a 1 to 3 character party code in the Short field, change the Id number if the sequence of the voter group is to be revised, assign a Row/Col value, and enter an export value in Export. Select a background color in the Color palette. Select the Track Registration check box in order to define voter registration amounts for the political party, and select the Separate Ballot check box in order to be able to create unique ballots for the voter group.

Export Ids may also be defined in the Export Id Editor.

Click on the Audio button in order to record, import or format audio. For more information on audio refer to section 2.7 Audio.
The voter group appears on the ballot as defined in the ballot text field at the bottom of the Voter Group Editor. See Figure 2-36. Revise the appearance of the party name as necessary, using the formatting tools provided. Click on the Edit button in order to activate full screen editing if more editing space is required. Detailed information on the ballot text formatting tools is provided in the section 2.6.5 Ballot Text.

If other languages are defined in the election, select the next language in the Language drop-down list and enter the party name corresponding to the language selected.

![Figure 2-36. Defining voter groups under the Parties tab](image)

Once ballot text for the party has been defined in all languages, click on the New button and continue defining partisan as well as any other voter groups as required. Once these have been defined, click on the Absentee/NonAbsentee tab if distinct absentee/non-absentee voter groups are to be defined.

In the Label field, enter a full name for the desired Polling voter group, in the Short field a corresponding code, an Id number if the sequence in the voter group list is to change, a row/column value in Row/Col and an export value in Export.

Select the background color assignment for the voter group in the Color palette, the percentage of polling ballots to be printed, and de-select the Rotate Ballots check box if polling ballots are not to be rotated.

Record audio, revise ballot text and define the voter group for all remaining languages, as necessary. Once this is complete, click on the New button and do the same for the Absentee voter group. See Figure 2-37.
Click on the OK button when all voter groups have been added.

**Updating voter groups**

Click on Setup in the menu bar, then Voter Groups in the drop-down menu. Select the voter group to revise in the Label column under the Parties tab.

Note that the Label and Track Registration values of the <N.P.> voter group may not be changed. The Separate Ballots check box for <N.P.> may be de-selected but should not.

For any other voter group on file, change the Label, Short, and Id fields as necessary. Changing the Row/Col value will change ballot layout, as candidates endorsed by the voter group will be placed in another row or column. Change Export and Color assignments if necessary.

De-selecting the Track Registration check box if it has been selected will remove all voter registration amounts defined for the voter group. De-selecting the Separate Ballot check box if it has been selected will remove all ballot artwork corresponding to the voter group if ballot artwork has already been created.

Change the audio recorded for the voter group as well as the language-based voter group definitions.

Select any other voter groups under the Parties tab that require revision and proceed in the same manner. Select the Absentee/NonAbsentee tab and change either Polling or Absentee voter groups if necessary. Changing absentee/non-absentee ballot percentages will alter card quantities information, and changing the Rotate Ballots check box will alter rotation-based ballots created by GEMS.

Once revisions have been completed, click on the OK button.
Deleting voter groups

Click on Setup in the menu bar and Voter Groups in the drop-down menu. Select the voter group to delete in the Name column of the Voter Group Editor and click on the Delete button. See Figure 2-38. Proceed in the same manner for any other voter groups to be deleted and click on OK when finished.

![Figure 2-38. Deleting a voter group](image)

If the voter group to be deleted currently endorses some candidate or race GEMS will display a warning message to this effect. See Figure 2-39. The voter group must first be removed from any candidate or race endorsements before it is deleted.

![Figure 2-39. Voter group deletion warning message](image)

A warning message is displayed when de-selecting the Track Registration check box corresponding to a voter group, provided voter registration totals have been defined for the voter group. The same message is displayed when attempting to delete a voter group defined with registration totals, but not defined for any races and candidates.

Deleting a voter group has no effect on the election configuration insofar as the voter group will already have been removed from any race or candidate endorsements.

2.3.6. Counter groups

2.3.6.1. Concepts

What is a counter group

Ballots are counted in a counter group according to unique ballot counting criteria, which include the location at and the time frame in which the ballots are counted.

For example, in an election for Mayor in the city of Fargo, voters may cast ballots either on election day or at early voting polls. Election day ballots are counted in the Polling counter group and early voting ballots are counted in the Early Voting counter group.
Ballots are also counted in a counter group according to unique results reporting criteria.

For example, in the election for Mayor, results of election day and early voting ballots are to be reported separately. In GEMS, the results of ballots counted in the Polling and Early Voting counter groups may be reported separately.

Where does a counter group fit in

Ballots are counted in a counter group, cast at a vote center within a vote center category, and return results to a report precinct within a report precinct category.

For example, the results of ballots cast by voters in an election for Precinct Committee officer in precinct Wilson are to be tallied to the precinct. The results of polling ballots cast by voters at vote center Wilson defined within Polling Vote Center are returned to report precinct Wilson within Default Precinct Category.

The results of ballots counted in the default Polling counter group and cast in the Polling Vote Center vote center category are always tallied to report precincts defined within the Default Precinct Category report precinct category.

Non-cumulative vs. cumulative counter groups

Ballots may be counted either in a non-cumulative or cumulative counter group. The results of ballots counted in a non-cumulative counter group such as Polling are returned to polling report precincts defined in the Default Precinct Category report precinct category. Results of ballots counted in a cumulative counter group, on the other hand, are summarized to cumulative report precincts only.

A counter group is defined as being cumulative if the Cumulative Results Only check box in the Counter Group Editor is selected, and is defined as being non-cumulative if the check box is not selected.

Non-cumulative counter groups

The results of ballots counted in a non-cumulative counter group are tallied to report precinct(s) defined within Default Precinct Category.

For example, in an election for Mayor of Fargo, the results of election day ballots cast by voters in precinct Wilson are to be tallied to the precinct. In GEMS, report precinct Wilson is defined within Default Precinct Category. The race of Mayor is defined and linked to district Jurisdiction Wide, and ballot artwork is created. GEMS automatically creates vote center Wilson within Polling Vote Center, within the Polling counter group.

Ballots cast at vote center Wilson are counted in the non-cumulative Polling counter group and tallied to report precinct Wilson, defined within Default Precinct Category.

The Polling counter group is non-cumulative by definition and is created automatically in an election. The Polling counter group cannot be removed.

Multiple non-cumulative counter groups

An election may feature more than one non-cumulative counter group.

For example, polling and absentee election results are both tallied to the precincts in an election for Mayor of Fargo, which consists of precincts Wilson, Jackson and Lincoln.

In GEMS, non-cumulative counter group Absentee is defined to vote center category Absentee. Report precincts Wilson, Jackson and Lincoln are defined, and the race for Mayor defined and linked to district Jurisdiction Wide. The vote center Absentee is defined within vote center category Absentee and linked to all base precincts.

Ballots counted in both non-cumulative counter groups Polling and Absentee are tallied to the report precincts defined in Default Precinct Category.

Cumulative counter groups

The results of ballots counted in a cumulative counter group are tallied to report precinct(s) defined within the Cumulative Report units report precinct category.
For example, the results of absentee ballots cast in an election for Mayor of Fargo are to be summarized across the entire jurisdiction, where the jurisdiction consists of three precincts, Wilson, Jackson and Lincoln.

In GEMS, the cumulative counter group Absentee is defined and linked to vote center category Absentee. Report precincts Wilson, Jackson and Lincoln are defined within Default Precinct Category. The race for Mayor is defined and linked to district Jurisdiction Wide, and ballot artwork is created. Report precinct Absentee is defined within Cumulative Reportunits and linked to vote center Absentee within vote center category Absentee.

The results of ballots counted at vote center Absentee in the cumulative Absentee counter group are tallied to the Absentee report precinct defined within the Cumulative Reportunits report precinct category.

The Cumulative Reportunits report precinct category is created by defining at least one cumulative counter group.

**Multiple cumulative counter groups**

An election may feature more than one cumulative counter group.

For example, the results of both absentee and early voting ballots cast in an election for Mayor of Fargo are to be summarized across the entire jurisdiction, where the jurisdiction consists of three precincts, Wilson, Jackson and Lincoln.

In GEMS, cumulative counter group Absentee is defined and linked to vote center category Absentee. Cumulative counter group Early Voting is defined and linked to vote center category Early Voting. Report precincts Wilson, Jackson and Lincoln are defined within Default Precinct Category. The race for Mayor is defined and linked to district Jurisdiction Wide, and ballot artwork is created.

Report precincts Absentee and Early Voting are defined within Cumulative Reportunits. Vote center Absentee is created within vote center category Absentee and linked to report precinct Absentee, and likewise, vote center Early Voting is created within vote center category Early Voting and linked to report precinct Early Voting.

Ballots counted in both Absentee and Early Voting cumulative counter groups tally results to report precincts within Cumulative Reportunits.

**Cumulative and non-cumulative counter groups in an election**

An election may feature both non-cumulative and cumulative counter groups.

For example, the city of Fargo consists of three precincts, Wilson, Jackson or Lincoln. The results of ballots cast on election day in an election for Mayor are to be reported by precinct, while the results of absentee ballots are summarized across the entire jurisdiction. The election is then defined with the cumulative Absentee counter group, so that election day ballots are counted in the non-cumulative Polling counter group while absentee ballots are counted in the cumulative Absentee counter group.

**Tallying to report precinct categories**

Ballots cast in multiple counter groups may tally results to the same report precinct category.

For example, absentee and early voting results in an election are to be summarized across the entire jurisdiction. In GEMS, cumulative counter groups Absentee and Early Voting are defined, and report precincts Absentee and Early Voting are defined within Cumulative Reportunits and both linked to all base precincts. Ballots cast in both Absentee and Early Voting counter groups are tallied to report precincts in the Cumulative Reportunits.

Ballots counted in a non-cumulative counter group cannot be tallied to report precincts in Cumulative Reportunits, nor can ballots counted in a cumulative counter group be tallied to report precincts in Default Precinct Category.

**Vote center categories**

Each ballot cast in a counter group is counted at some vote center in a vote center category.
For example, election day voters in Fargo’s election for Mayor may cast ballots at either vote center Wilson, Jackson or Lincoln. In GEMS, Wilson, Jackson and Lincoln are defined as report precincts within Default Precinct Category. A ballot cast at any one of the three vote centers in the Polling Vote Center vote center category is counted in the Polling counter group.

A ballot cast in a counter group may not necessarily be valid in all vote centers in a vote center category. For example, an election for Mayor and City Councilor is held in the city of Fargo, which contains precincts Wilson and Jackson. Residents of Wilson are eligible to vote for Ward 1 Councilor and residents of Jackson may vote for Ward 2 Councilor.

In GEMS, the district category City is defined to contain districts Ward 1 and Ward 2, where Ward 1 contains base precinct Wilson and Ward 2 contains base precinct Jackson. The office for Ward 1 Councilor is defined for district Ward 1 and the office of Ward 2 Councilor is defined for district Ward 2. Two ballots are created, one with Ward 1 Councilor and the other with Ward 2 Councilor. While both ballots are cast in the Polling counter group, only the first ballot may be cast in vote center Wilson and only the second ballot only may be cast in vote center Jackson, where both vote centers occur in the Polling Vote Center vote center category.

No more than two counter groups may be defined to a vote center category.

Voter groups

The ballots of a voter group are counted in a counter group. For example, all voters vote in an election for Mayor on election day. In GEMS, the Polling counter group is linked to the default voter group <N.P.>, which includes all voters. The necessary report precincts are defined, and the race for Mayor is defined and linked to district Jurisdiction Wide. The ballots of voters in the <N.P.> voter group – namely all voters – may then be counted in the Polling counter group.

Counter groups linked to the default <N.P.> voter group accept ballots of all voter groups in the election. For example, voters in every election day voting location may cast either Republican or Democrat ballots in a closed primary election held for Republican and Democrat State Assembly members. In GEMS, the voter groups Republican and Democrat are both defined with ballot separation. Linking the Polling counter group to the <N.P.> voter group allows the ballots of all partisan voter groups to be accepted in the Polling counter group.

Linking counter group to partisan voter group

A counter group may be linked to a voter group defined under the Voter Group Editor Parties tab with ballot separation.

For example, an election is held for Mayor and bond issue in the city of Fargo, which consists of precincts Wilson and Jackson. All voters vote for Mayor, but landholders only vote on the bond issue. The results of landholder ballots are to be tallied separately from those of the general public, and the two sets of ballots may be counted separately.

In GEMS, voter groups Polling and Landholder are defined with ballot separation under the Parties tab in the Voter Group Editor. The Polling counter group is linked to voter group Polling in the VGroup1 list, and the non-cumulative counter group Landholder is created and linked to voter group Landholder in the same list. Counter group Landholder is created with vote center category Landholder.

Once report precincts Wilson and Jackson have been defined, vote center Landholder is created within vote center category Landholder, and linked to base precincts Wilson and Jackson. The race for Mayor is defined and linked to the default voter group <N.P.> and the bond issue is defined and linked to voter group Landholder, selected from the Group One list in the Race Editor. Both races are linked to district Jurisdiction Wide.
GEMS creates two ballots, one with the race for Mayor and another with the races for Mayor and bond issue. Ballots with the race for Mayor will only be accepted at vote centers within Polling Vote Center in the Polling counter group, and ballots with races for Mayor and bond issue will only be accepted at vote center Landholder in the Landholder counter group.

A counter group cannot be linked to a Parties voter group not defined with ballot separation.

**Linking counter group to absentee/non-absentee voter group**

A counter group may be linked to an absentee/non-absentee voter group.

For example, in an election held in the city of Fargo (precincts Wilson and Jackson), election day voters vote for Mayor and Precinct Committee Office while absentee voters vote for Mayor only. Election day ballots are to be cast at election day polls only, and absentee ballots at absentee polls only.

In GEMS, the Polling and Absentee absentee/non-absentee voter groups are defined in the Voter Group Editor. The Polling counter group is linked to the Polling voter group and the cumulative Absentee counter group is defined and linked to the Absentee voter group, where voter groups are selected in the VGroup2 list in the Counter Group Editor.

Report precincts Wilson and Jackson are defined, report precinct Absentee is defined within Cumulative Reportunits and linked to both base precincts. The race for Mayor is defined and linked to the <N.P.> voter group and the Precinct Committee race defined and linked to the Polling voter group, selected from the Group Two list in the Race Editor. Both races are linked to district Jurisdiction Wide. Vote center Absentee is defined in vote center category Absentee and linked to report precinct Absentee.

GEMS creates two ballots, one with the races for Mayor and Precinct Committee, and a second with the race for Mayor only. Polling ballots containing the races for Mayor and Precinct Committee office will only be accepted at vote centers in Polling Vote Center in the Polling counter group, while absentee ballots with the race for Mayor only will be accepted at vote center Absentee in the Absentee counter group.

Note that counter groups should always be linked to voter groups if a unique set of ballots is to be either counted at a unique location or tallied separately. For example, if absentee ballots in an election are distinct from polling ballots, the Absentee counter group should be linked to the absentee voter group and the Polling counter group to the <N.P.> voter group. The particulars of these assignments depend on the architecture of the election.

**Other concepts**

Ballot card quantities may be divided by counter group. For more information on counter groups and card quantities, refer to in the section **2.6.15 Card Quantities**.

Ballots counted in a counter group may be identified by precinct Id. For more information on defining counter groups with precinct identification, see the section **Precinct identifiers** within **2.3.7 Ballot Options**.

### 2.3.6.2. Configuring counter groups

Click on Setup in the menu bar, then Counter Groups in the drop-down menu. See **Figure 2-40**.

![Figure 2-40. Activating the Counter Group Editor](image)
A display area is shown on the left-hand side of the window in which the Label and Id of all counter groups on file are shown. See Figure 2-41.

The default counter group Polling is defined with Label Polling, Id 10, Short POL, with no export value, with voter group 1 and 2 both set to <N.P.> and Percent Ballots 100. The Cumulative Results Only check box is de-selected and Track Registration selected – neither of these two check boxes may be changed. Vote Center Category is set to Polling Vote Center and may not be changed.

Adding counter groups

In order to create a new counter group, click on the New button in the bottom left-hand corner of the Counter Group Editor. Counter 20 now appears in the display area as well as the Label field, with Id 20. Default counter group settings are Short value set to the Id number, with no export value, both voter groups set to <N.P.>, Percent Ballots set to 100, the Cumulative Results Only check box de-selected, the Pct Ids check box selected, and the vote center category set to Polling Vote Center.

Enter a correct name for the counter group in the Label field, and change the Id value if the position in the sequence of counter groups is to change. Enter an abbreviated counter group value in the Short field and an export value in the Export field. The export value may also be defined in the Export Id Editor.

Select a voter group in the VGroup1 list if the counter group is to be restricted to ballots of a Parties voter group defined with the Separate Ballots check box in the Voter Group Editor. See Figure 2-42. Likewise, if absentee or non-absentee ballots are to be counted in the counter group only, select the voter group in the VGroup2 list. See Figure 2-43.
Leaving VGroup1 at <N.P.> allows the counter group to accept the ballots of all Parties voter groups. Leaving VGroup2 at <N.P.> allows the counter group to accept all absentee/non-absentee ballots.

Assign the correct percentage of ballots to the Percent Ballots field. Select the Cumulative Results Only check box if counter group results are to be tallied cumulatively, and select the Pct Ids check box if ballots in the counter group are to be printed with precinct identifiers.

If the Cumulative Results Only check box is selected and no cumulative counter groups are currently on file, the Cumulative Report units report precinct category is created. Defining a counter group with precinct identification will cause all ballots counted in the counter group to appear in the Print Artwork window for the report precincts to which the ballots are tallied.

In order to assign a newly created vote center category to the counter group, click on the New button in the Vote Center Category group box. See Figure 2-44. The Label field in the VCenterCat window that appears is automatically assigned the counter group name, and should be changed as necessary. See Figure 2-45. Change the Id value if the sequence of the vote center category is to change. Enter an export value in Export and click on OK.

Note that vote center category export values may also be defined in the Export Id Editor.

If an existing vote center category is to be assigned to the counter group, click on the drop-down list arrow in the Vote Center Category group box and select the vote center category. If an existing vote
center category is to be updated, click on the Edit button, change the Label, Id and Export values as necessary, and click OK in the VCenterCat window when these changes have been completed.

If a vote center category is selected that is already defined to two counter groups, GEMS will display an error message. See Figure 2-46.

![GEMS Exception](image)

**Figure 2-46. Too many counter groups to the same vote center category**

Click on the New button in the bottom left-hand corner of the Counter Group Editor in order to continue adding counter groups. See Figure 2-47. When all counter groups have been defined, click on the OK button to save results.

![Counter Group Editor](image)

**Figure 2-47. Defining a typical absentee counter group**

**Updating counter groups**

Click on Setup in the menu bar and Counter Groups in the drop-down menu.

Select the counter group which you wish to change in the Label column, and change the Label, Id, Short and Export values as necessary.

In order to restrict the counter group to a different set of ballots, selecting new voter groups in either VGroup1 or VGroup2 voter group lists.
Changing the Cumulative Results Only setting will change the architecture of the election. If the check box is selected and no cumulative counter groups are currently on file, the Cumulative Reportunits precinct category is created. On the other hand, if the check box is de-selected and no other cumulative counter groups are currently on file, Cumulative Reportunits is removed, including any report precincts defined therein.

Changing the Pct Ids check box will alter the ballots that appear in the Print Artwork window. Selecting the check box will cause all ballots counted in the counter group to appear in the Print Artwork window for the report precincts to which the ballots are tallied, whereas de-selecting the check box will remove the corresponding set of ballots from the Print Artwork display.

In order to define a new vote center category to the counter group, click on the New button. The Label field in the VCenterCat window that appears is automatically assigned the counter group name, and should be changed as necessary. Change the Id value if the sequence of the vote center category is to change. Enter an export value in Export and click on OK.

If an existing vote center category is to be assigned to the counter group, click on the drop-down list arrow in the Vote Center Category group box and select the vote center category. If an existing vote center category is to be updated, click on the Edit button, and change the Label, Id and Export values as necessary, and click OK in the VCenterCat window when these changes have been completed.

Continue updating counter groups by selecting each counter group in the list and proceeding in the same manner. When you have finished, click on the OK button.

Deleting counter groups

Select Setup in the menu bar and Counter Groups in the drop-down menu. Select the counter group to delete in the Label display column and click on the Delete button. The Polling counter group may not be deleted – if the Polling counter group is selected, the Delete button is disabled.

Continue deleting counter groups as necessary and click on the OK button when finished.

If the counter group being deleted is the only cumulative counter group, the Cumulative Reportunits report precinct category will be removed as well as any report precincts defined therein.

2.3.7. Ballot Options

2.3.7.1. Concepts

Ballot-related configuration parameters are defined in the Ballot Options window. These include card layouts, precinct identification on ballots, margins, oval and race box positioning, endorsement label shaping and color definition. These issues are discussed in this section as well as in 2.6 Preparing Ballot Artwork.

AccuVote-TS

All parameters in the Ballot Options window pertain to the AccuVote-OS only, except for the components of the Color tab and the horizontal oval justification radio buttons under the Oval/Box tab.

Card Templates

Ballot artwork is laid out in the context of a card template. A card template is defined by the length of a ballot, the orientation and the number of blocks per side of the ballot.

The length of an AccuVote-OS ballot may be 11”, 14”, 17” or 18”. Ballot orientation may be either portrait or landscape, the width of the portrait ballot being shorter than the height when viewed right side up, and the width of the landscape ballot being greater than the height, viewed right side up. A card template may contain up to ten blocks per side, race and header information being laid out within the confines of each block. The number of blocks between the front and back of a ballot may vary.

For example, an election may employ a card template that is 11”, portrait orientation, with three blocks per side.
All ballots are laid out according to the composition of the card template. For example, if an election is defined with an 11" portrait, three-block front/back card template, then all ballot styles in the election will be laid out on an 11" portrait ballot with three blocks on the front and back.

Rather than assigning a card template that satisfies the ballot style with the most information in the election, several card template may be employed in an election in order to economize printing costs.

For example, an election is held in the city of Fargo, which consists of precincts Wilson and Jackson. Voters vote on five candidacy races only in Wilson, while voters in Jackson vote on the five candidacy races in addition to thirty amendments.

In GEMS, two card templates are defined. The first template is 11" portrait with three blocks per side. The second template is 18" portrait with three blocks per side. GEMS then assigns the first template to the ballot style required by Wilson and the second template to the ballot style required by Jackson.

In printing 18" ballots for only half of the jurisdiction, money is saved over the alternative of printing 18" ballots only for the entire jurisdiction.

GEMS selects the first card template defined which fits the races in a ballot style.

In the prior example, the 11" card template was defined before the 18" card template. The ballot style in precinct Wilson was satisfied with the 11" card template. However, the ballot style in precinct Jackson was not satisfied with the 11" card template, so that the 18" card template was taken.

Any of the information defined for a card template may be changed in the Card Editor for a particular card face. However, no races may be removed from a card as a result of implementing manual changes.

Precinct Identifiers

Every ballot card counted on an AccuVote-OS is identified with the report precinct to which it tallies results.

For example, the results of card 1 counted at vote center Wilson are tallied to report precinct Wilson. Card 1 is identified to the vote center with precinct Wilson.

In another example, vote center Wilson includes precincts Wilson and Jackson. The results of card 1 are tallied to report precinct Wilson and the results of card 2 are tallied to report precinct Jackson. Card 1 is identified with report precinct Wilson and card 2 with report precinct Jackson.

A ballot card is identified with every report precinct to which it tallies results.

For example, the results of card 1 are tallied to both report precincts Wilson and Jackson. An instance of card 1 is then identified with report precinct Wilson and another instance of card 1 is identified with report precinct Jackson.

Where do precinct identifiers arise

The precinct identifier is added to the ballot artwork upon printing, but is not included in ballot development in GEMS. Precinct identifiers are incorporated both in the encoded card ID marks and the text printed below the card ID marks on the ballot.

Precinct or precinct sequence number

Precinct identifier may be either a precinct number or precinct sequence number. The precinct number is the report precinct ld number the ballot card tallies to and the precinct sequence number is the position in the vote center that the report precinct to which the card tallies corresponds.

For example, voters vote at either vote center Wilson or Taylor. In vote center Wilson, the results of card 1 are tallied to report precinct Wilson and the results of card 2 are tallied to report precinct Jackson. In vote center Taylor, the results of card 3 are tallied to report precinct Taylor and the results of card 4 are tallied to report precinct Monroe.

If ballots are identified by precinct numbers, then card 1 is identified with precinct Wilson, card 2 to precinct Jackson, card 3 to Taylor and card 4 to Monroe. If ballots are identified with precinct sequence
numbers, then card 1 is assigned sequence 1, card 2 sequence 2, card 3 sequence 1 and card 4 sequence 2.

In another example, all report precincts in both vote centers accept card 1 only. If ballots are identified with precinct numbers, then card 1 is assigned precincts Wilson, Jackson, Taylor and Monroe. If ballots are identified with precinct sequence numbers, card 1 need only be identified with sequence numbers 1 and 2.

The precinct identifier in the election is defined in the Precinct Identifier on Card group box under the Card Definitions tab in the Ballot Options window.

**Plates**

Every ballot card/precinct identifier combination requires the creation of a ballot plate. Precinct sequence identifiers economize the usage ballot plate creation, particularly where a large number of report precincts accept common ballot cards.

Assigning card 1 with precinct identifiers Wilson, Jackson, Taylor and Monroe requires the creation of four ballot plates. Assigning card 1 sequence numbers 1 and 2 creates two plates only.

No economizing of ballot plate creation is achieved if every report precinct accepts a unique ballot card. Hence the same number of ballot plates are created in the four card example, irrespective of whether precinct numbers or precinct sequence numbers are used.

**Precinct identifier location**

Precinct identifiers may be located either on the ballot front or back. By default, the precinct identifier is placed at the front of the ballot. The placement of the precinct identifier is motivated by printing cost: the precinct identifier should be placed on whichever side incurs a lower printing cost.

Every unique ballot plate incurs additional expense in ballot printing. Precinct identifiers may be shifted from a non-unique ballot face to a unique ballot face in order to economize on ballot plates.

For example, an election features 50 unique ballot styles to be printed with precinct numbers. The front of every ballot style is identical, containing federal and state offices only. The back of every ballot style is unique, containing only local offices. Since GEMS automatically places precinct identifiers on ballot fronts, every ballot style will require a unique front and unique back plate, or 100 print plates in total.

If the precinct identifier is placed at the back of the ballot, one single print plate will be required for all ballot fronts and a unique plate for the back of every ballot style, or 51 print plates in total. Therefore, shifting the precinct identifier from the ballot front to the ballot back incurs a significant reduction in printing costs.

Shifting the precinct identifier from a non-unique ballot face to a unique ballot face does not necessarily economize ballot plates.

For example, suppose precinct sequence numbers are employed as precinct identifiers in the previous example, and vote centers in the election are single-precinct only. Since the precinct identifier is sequence 1 in all cases, printing the precinct identifier on the ballot front will require the creation of one plate only, so that the total number of ballot plates required is 51, whether precinct identifiers are printed on the ballot front or back.

The position of the precinct identifier on the ballot is defined in the Precinct Identifier on Card group box under the Card Definitions tab in the Ballot Options window.

**Counter groups with precinct identification**

Ballot precinct identification may be assigned by counter group. Ballots counted in a counter group are identified with the Ids of the report precincts to which results are tallied.

For example, polling results for an election for Mayor in precincts Wilson and Jackson are tallied to the precincts. In GEMS, report precincts Wilson and Jackson are defined with Ids 10 and 20, respectively. The race for Mayor is defined, and ballot artwork generated with Card 1 containing the race for Mayor.
Card 1/Id 10 and Card 1/Id 20 are counted at the vote centers Wilson and Jackson in the Polling counter group, and report results to the corresponding polling report precincts.

In the same election, absentee voters also vote on card 1, and absentee results are reported cumulatively for the jurisdiction. In GEMS, cumulative counter group Absentee is defined with precinct Ids and linked to vote center category Absentee. Cumulative report precinct Absentee is defined with Id 30 and is linked to base precincts Wilson and Jackson as well as vote center Absentee within the Absentee vote center category. Card 1/Id 30 is counted at vote center Absentee in the Absentee counter group and tallied to report precinct Absentee.

A counter group is defined with precinct Ids by selecting the Pct Ids check box for the counter group in the Counter Group Editor.

**Counter groups without precinct identification**

Polling ballots may be counted in a counter group defined without precinct identification.

For example, election day results are tallied to the precinct and absentee results tallied cumulatively in the election for Mayor held in precincts Wilson and Jackson. In GEMS, cumulative counter group Absentee is defined without precinct Ids and in turn linked to the Absentee vote center category. Polling report precincts Wilson and Jackson are defined with Ids 10 and 20 in addition to the race for Mayor. Cumulative report precinct Absentee with Id number 30 is defined and linked to base precincts Wilson and Jackson as well as vote center Absentee within the Absentee vote center category. Card 1/Id 10 and Card 1/Id 20 are counted in vote centers Wilson and Jackson and tally results to the corresponding polling report precincts, while the same cards are also counted at the Absentee vote center, returning results to the cumulative Absentee report precinct.

The same card/Id combinations are then used in both Polling and Absentee counter groups.

Sharing ballots between counter groups may economize ballot printing costs. For example, polling ballots may be used in Absentee or Early Voting counter groups, saving the printing of the same ballots with unique polling, absentee and early voting ids.

Cards with any precinct identifiers are accepted in a counter group defined without precinct identification.

For example, ballots printed with sequence numbers are cast at a single voting location in an election for Mayor, and are tallied to either precinct Wilson, Jackson, Lincoln or Taylor. Absentee ballots are cast at a single voting location and summarized for all precincts.

In GEMS, the cumulative Absentee counter group is defined with vote center category Absentee and without precinct identification. The race for Mayor is defined, and polling precincts Wilson, Jackson, Lincoln and Taylor are defined and linked to a single vote center, so that GEMS creates card 1 with sequence numbers 1, 2, 3 and 4. Cumulative report precinct Absentee is defined, linked to all polling report precincts, and linked to vote center Absentee within vote center category Absentee.

Card 1 is accepted in vote center Absentee printed with any one of the four sequence numbers, even though the card is tallied to a single report precinct.

A counter group is defined without precinct Ids by not selecting the Pct Ids check box for the counter group in the Counter Group Editor.

**Counter groups with mandatory precinct identification**

Ballots counted in the Polling counter group must be printed with precinct identifiers, either precinct numbers or precinct sequence numbers.

Counter groups must be defined with precinct identification only if ballots counted in the counter group do not tally to unique report precincts.

For example, in an election for Mayor, election day ballots are cast at and tallied to precincts Wilson, Jackson, Lincoln and Taylor, while absentee ballots are cast at a single voting location but tally results to either one of two absentee precincts. The results of absentee voter’s ballots in Wilson and Jackson are tallied to one absentee precinct while the results of the remaining absentee ballots are tallied to a second absentee precinct.
In GEMS, the four polling report precincts are defined as well as the race for Mayor. The cumulative counter group Absentee is defined without precinct IDs with the vote center category Absentee, and cumulative report precincts Absentee 1 and 2 are defined and linked to base precincts Wilson and Jackson, and Lincoln and Taylor, respectively. Vote center Absentee is defined in vote center category Absentee and linked to the two cumulative absentee report precincts.

Since absentee ballots are not printed with precinct identifiers from the Absentee counter group, the report precinct to which absentee ballots tally cannot be uniquely identified, as one vote center tallies the same card to either one of two absentee report precincts. Therefore, the Absentee counter group in this case should have been defined with precinct identifiers.

In the same example, if voters in each one of the four precincts casts a unique ballot, there is no ambiguity in determining which one of the two absentee precincts absentee ballots tally to. Voters in Wilson vote on card 1, in Jackson on card 2, in Lincoln on card 3 and in Taylor on card 4. Cards 1 and 2 cast in the Absentee vote center tally to report precinct Absentee 1 and cards 3 and 4 to Absentee 2, using polling ballots only.

**1.95 Auto Absentee**

The AccuVote-OS may be programmed to determine the counter group affiliation of ballots by selecting the check box 1.95 Auto Absentee under the Tally Settings tab in AccuVote-OS Options. This feature is designed to allow the AccuVote-OS to determine whether a ballot is to be tallied to a polling or absentee report precinct based on the precinct identifier printed on the ballot, while ballots are being counted in the Polling counter group.

In order to activate this feature, the Absentee counter group must be defined with precinct identifiers, so as to force a unique set of ballots with precinct identifiers for the Absentee counter group. The AccuVote-OS must also be installed with 1.95d firmware. Also, the 1.95 Auto Absentee check box must be selected under the Tally Settings tab of the AccuVote-OS Options window.

**Color**

Universal colors are defined for the AccuVote-TS page, races, candidates and headers in Ballot Options. The background of the AccuVote-TS ballot is taken from the TS Page field, and the race, candidate and header background colors are taken from the corresponding colors set in Ballot Options unless differing colors are defined in either Race Options or the corresponding editors. By default, all Ballot Options color components are set to non-transparent white.

The inclusion of color in the AccuVote-OS ballot may be limited to ballot text, background, or both.

For more information on color on ballots refer to the section 2.6.8 Color.

**2.3.7.2. Configuring Ballot Options**

The Ballot Options window is divided into four tabs: Card Definitions, Margins, Oval/Box and Color. Click on Setup in the menu bar and select Ballot Options in the drop-down menu. See Figure 2-48. The Card Definitions tab appears by default.
Card Definitions

Card layout and precinct identification are defined under the Card Definitions tab. See Figure 2-49.

Layout

In the Layout group box, select the ballot length in the Page Style drop-down list, select either Portrait or Landscape, depending on the desired orientation of the ballot, and set the Front and Back fields to values between 1 and 4, depending on the desired number of blocks per ballot side.

The Current Layout field indicates the number of the current card layout, while the Layout Count field indicates the total number of card layouts available. If more than one card layout is required in the election, increment the Layout Count spin button in order to define a second card layout. Current Layout is automatically set to 2, indicating that definitions now apply to the second card layout.

Define the ballot length, orientation and front and back blocks for the second card layout. Increment the Layout Count spin button and continue defining card layouts as necessary. Ensure that card layouts are defined in order of decreasing restriction, for example, in increasing order of length.

Precinct Identifier on Card

Select either the Precinct Number or Precinct Sequence radio buttons in the Precinct Identifier on Card group box, depending on whether ballots are to be identified to the AccuVote-OS by precinct number or by precinct sequence number. Select the Pct Id on back check box if precinct identification is to be placed at the back of the ballot.

Artwork

The Artwork group box selection should be left at v1.
Field defaults under the Card Definitions tab are as follows: Layout Count is 1, Page Style is 14 inch, orientation is Portrait, and Front and Back fields are both 3. Precinct Identifier on Card is set to Precinct Number and Artwork to v1.

Click on the Margins tab.

**Margins**

Header, race and candidate margins are defined under the Margins tab. See Figure 2-50.

Enter Left, Right, Top and Bottom margin values in the corresponding fields in 1/72” in the Header Margins group box. Do the same for the Race and Candidate Margins group boxes. Note that while the space allotted to races and headers on the ballot takes into account margins, candidates are limited by the number of voting lines assigned per candidate.

Minimal or zero margins place text against the immediate edge of race and header boundaries, making the ballot less readable or appealing. Conversely, margin sizes may be limited by the amount of information required to fit onto a ballot.

Header and Race Margins may be defined between 0 and ½”, whereas Candidate Margins may be defined between -½” and ½”. A negative left margin value causes the candidate to be pushed to the left, whereas a negative right margin value causes the candidate to be pushed to the right. All margin values are by default 0.

Click on the Oval/Box tab.
Oval/Box

Oval, race and header positioning, write-in text placement, endorsement label width and candidate wrapping are defined under the Oval/Box tab. See Figure 2-51.

Oval Justification

In the Oval Justification group box, select either Left or Right radio buttons, depending on whether ovals are to appear on the ballot on the left or right of the candidate. Select either Top, Bottom or Center radio buttons, depending on whether the oval is to appear at the top, at the bottom, or centered in the candidate area. These selections have identical effect if a candidate is single spaced.

Enter the distance the oval is to appear from the race margin in $\frac{1}{4}$" in the Margin field. Margin values must be between and including 0 and 6. The oval should be positioned from the race boundary at least $\frac{1}{4}$". The oval margin assigned should be judged based on the longest candidate and endorsement label combination required to fit into a race box.

Box Margins

The distance headers and races are shifted to the right on the ballot is entered in the Horz field in the Box Margins group box in $\frac{1}{72}$". Likewise, the distance headers and races are shifted downward on the ballot is entered in the Vert field in the same group box. Both fields must be between and including 0 and 18.

Shift Box

Headers, race boxes and race text are shifted horizontally according the amount entered in the Horz field in the Shift Box field in $\frac{1}{72}$". Likewise, headers, race boxes and race text are shifted vertically according to the amount entered in the Vert field in the same group box. Field limits are between and including –18 and 18, where negative amount indicate a shift left or upwards, and positive amounts indicate a shift right or downwards. Voting ovals and candidate text are not shifted when these fields have non-zero values.

Since voting ovals are not included in the shift operation, ensure that the shift values defined do not cause race boundaries to cross voting ovals.

Writein Text

The ballot text defined for write-in candidates is placed either above or below the write-in line on the ballot, depending on whether the Above Line or Below Line radio buttons are selected in the Writein Text group box. Lines are printed on the ballot for write-in candidates only if the Show Line check box is selected.
**Endorsement Label**

In order to assign the candidate endorsement label a size other than 2", enter the desired value in \(\frac{1}{72}\)" in the Width field in the Endorsement group box accordingly. The length of the endorsement label should be sufficiently large for the longest political party name, but should not cause the candidate name to be overwritten.

**Candidate Label**

In order to avoid the candidate label overwriting the endorsement label, the Wrap Label check box should be selected.

![Figure 2-51. Ballot Options – Oval/Box tab](image)

Oval/Box defaults are as follows:
- Horz is set to Left, Vert to Top and Margin to 0 in the Oval Justification group box.
- Horz and Vert and set to 0 in the Box Margins and Shift Box group boxes.
- Above Line is selected and Show Line de-selected in the Writein Text group box.
- Width is set to 144 and Wrap Label is not selected.

Click on the Color tab to continue.

**Color**

Background colors for the AccuVote-TS page, headers, races and candidates are defined under the Color tab, as well as whether color definitions are to apply to AccuVote-OS ballots. See **Figure 2-52**.

**Background**

Define the AccuVote-TS page background color in the TS Page color palette. Define a universal header background color in the Headers palette, a universal race background color in the Race palette, and a universal candidate background color in the Candidates palette.
Color Ink on Paper

Selecting the Text check box in the Color Ink on Paper group box applies all text color definitions in GEMS to the AccuVote-OS ballot. Selecting the Background check box applies all highlight and background color definitions to the AccuVote-OS ballot.

Figure 2-52. Card Definitions – Color tab

By default, all fields in the Background group box are set to White, and neither of the check boxes in the Color Ink on Paper group box are selected.

Once all ballot option information has been defined, click on the OK button in order to save results.

Changing Ballot Options

Changing information in the Ballot Options window may affect card layouts.

Card Definitions

Adding a layout count and re-generating ballot artwork may change the card templates that are assigned to card styles. Changing the ballot length, orientation or number of front and back columns on the ballot may change card templates. Effecting any changes in the Layout group box will require ballot artwork to be re-generated.

Switching any of the Precinct Identifier on Card selections will change the amount of ballot plates to be printed in the election. Ballot artwork need not be re-generated.

Margins

Decreasing margins under the Margins tab will allow more space to headers, races and candidates. On the other hand, increasing margin values will cause the corresponding header, race or candidate text to shrink in size. Selecting the Force Re-Layout check box will automatically re-generate affected ballot styles to accommodate the revised margin requirements.
Oval/Box
Changing Horz and Vert values in the Oval Justification group box does not affect the card layout. However, changing the Margin value will alter the amount of space available for the candidate and voter group to be displayed on the ballot.

Changing the Horz and Vert Box Margin values may change the card layout. If these values are altered sufficiently card layouts will automatically change. Changing the Horz and Vert values in the Shift Box group box does not change the card layout. Changing the writein text position does not change the card layout either.

Increasing Width in the Endorsement Label group box may cause the endorsement label to overwrite the candidate name. On the other hand, decreasing the value of Width may cause the font of endorsement label to shrink.

Selecting the Wrap Label check box will cause candidate text to wrap without overwriting the endorsement label, while de-selecting the Wrap Label check box will cause candidate text to potentially overwrite the endorsement label.

Color
Colors may be changed as required in the Background group box. If the Text check box in the Color Ink on Paper group box is selected, color definitions will be included in AccuVote-OS ballot text, otherwise, if the check box is de-selected, color will not be included. Likewise, if the Background check box is selected, color will be included in AccuVote-OS ballot background, otherwise, if the check box is de-selected, color will not be included.

2.3.8. Race Options

2.3.8.1. Concepts

Default formatting information for races, candidates, headers and voter groups may be defined in the Race Options window. The Race, Header and Voter Group Editors appear with formatting options defined in Race Options.

Race Options apply exclusively to AccuVote-OS ballots.

Boundary lines

One or some subset of the top, bottom, left and right boundary lines may be drawn around races and headers. See Figure 2-53 and Figure 2-54. Default boundary line values are defined in the Left, Right, Top and Bottom check boxes under the Race and Header Default Settings tabs.

Figure 2-53. Race with lines on all sides
Figure 2-54. Race with lines on top and bottom only

Race line

A line may be drawn between race and candidate text. Default race lines are defined in the Race Line check box under Race Default Settings. See Figure 2-55.

![Figure 2-55. Race drawn with race line](image)

Candidate lines

Horizontal as well as vertical lines may be drawn between candidates. See Figure 2-56 and Figure 2-57. Vertical lines do not apply to single-column races. Note that drawing both candidate and write-in lines may be visually confusing. Default horizontal lines are defined with the Cand Horz Line check box, and default vertical lines are defined with the Cand Vert Line check box, both under the Race Default Settings tab.

![Figure 2-56. Horizontal and vertical lines drawn around candidates](image)

Horizontal lines may either be drawn partially between candidates, separating the candidate name only but not the voting oval, or completely between race column boundaries.
In order to draw default extended horizontal lines between candidates, the Horz Extend check box should be selected under Race Default Settings. Selecting both Horz Extend and Cand Horz Line is redundant.

A full grid of lines may be drawn in the unoccupied portions of races with multiple candidate rows and columns. See Figure 2-58 and Figure 2-59. The default full grid feature is implemented in races by selecting the Full Grid check box as well as the Cand Vert Line and Horz Extend check boxes.

Multiple write-ins may be drawn if candidates have double or greater spacing. See Figure 2-60 and Figure 2-61. The number of lines drawn for every write-in is equivalent to candidate spacing. For example, if candidates are triple-spaced, GEMS will draw 3 lines for each candidate on the ballot. Default multiple write-in lines are drawn if the Multiple Write-in Lines check box is selected under the Race Default Settings tab.
Candidate spacing

Candidates may be assigned a default spacing of between 0 and 7 blank voting lines between candidates. This spacing applies equally to candidates, questions responses and write-in positions. Larger candidate spacing provides increased space for candidate text and improves legibility, although decreasing the total number of races that may fit on the ballot.

2.3.8.2. Configuring Race Options

Click on Setup in the menu bar, then Race Options in the drop-down menu. See Figure 2-62.

The default settings of Race Options are organized under four tabs: Race Default Settings, Candidate Default Settings, Endorsement Default Settings and Header Default Settings.

Race Default Settings

The default settings for the Race Editor are defined using the toolbar, draw options, size options, candidate grid layout and candidate block options under the Race Default Settings tab. See Figure 2-63.
Default text formatting such as font, font size, font color, bold, italic, underline, background text color, text justification and paragraph formatting can be set using the toolbar at the top of the Race Options screen.

**Draw Options**

In the Draw Options group box, select the default race color from the Race palette. If no color is selected, the header color is taken from TS Page under the Color tab in the Ballot Options window.

Select the default candidate color from the Candidates palette. If no color is selected, the candidate color is taken from the race color.

Selecting a check mark in the following boxes creates the associated default effects:

- **Top** Places a default line at the top of the race box.
- **Bottom** Places a default line at the bottom of the race box.
- **Left** Places a default line to the left of the race box.
- **Right** Places a default line to the right of the race box.
- **Shaded** Places default shading in the text area of the race box.
- **Race Line** Places a default line between the text and candidates.
- **Cand Horz Line** Places a default horizontal line between candidates.
- **Cand Vert Line** Places a default vertical line between candidate columns if candidates are listed in the race box in more than one column.
• **Thick Top** Places a default 1/8" thick line across the top of the race box.

• **Thick L/R** Places a default 1/8" vertical line on the side of the race box across from the voting ovals.

• **Multiple Write-in Lines** Places a default write-in line printed every 1/4" where candidates have multiple spacing. Note that the Show Line check box must also be set under the Oval/Box tab of the Ballot Options window.

• **Horz Extend** Places default horizontal lines across the entire race box between candidates in multiple-candidate column races.

• **Full Grid** Places default horizontal and vertical lines to unoccupied candidate positions in multiple-column races. In order to effect a full grid the Cand Vert Line and Horz Extend check boxes must also be selected.

**Size Options**

In the Size Options group box, type in a number in the Race Width box to set the default number of columns (or blocks) occupied by a race on a ballot. The actual default amount of space horizontally spanned by a race is a multiple of the Number of Columns defined under the Card Definitions tab in the Ballot Options window. Enter default candidate spacing in the Candidate Spacing field. Enter a minimum candidate row/column value in Min Candidate Row/Col.

**Candidate Grid Layout**

Select the Flow radio button in order to let candidates flow on the ballot by default in the Candidate Grid Layout group box, otherwise, select Fixed in order to place candidates in fixed columns.

Select the Column radio button in order to print candidates on the ballot by column by default, otherwise, click on the Row button in order to print candidates on the ballot by row.

**Candidate Block Options**

Enter a value in the Width field in the Candidate Block Options group box in order to set the default amount of space assigned to candidate text. This amount is defined in 1/4" increments. To set the default justification of the candidate name, select the Left button, the Center button or the Right button.

Once race default settings have been defined, click on the Candidate Default Settings tab.

**Candidate Default Settings**

The default settings of candidate are defined using the toolbar options under the Candidate Default Settings tab. See Figure 2-64.
Figure 2-64. Race Options - Candidate Default Settings tab

**Toolbar**

Default text formatting such as font, font size, font color, bold, italic, underline, background text color and text justification can be set using the toolbar under the Candidate Default Settings tab.

**Endorsement Default Settings**

The default settings of endorsement are defined using the toolbar options under the Endorsement Default Settings tab. See Figure 2-65.
Figure 2-65. Race Options - Endorsement Default Settings tab

**Toolbar**

Default text formatting such as font, font size, font color, bold, italic, underline, background text color and text justification can be set using the toolbar under Endorsement Default Settings.

**Header Default Settings**

The default settings of header are defined using the toolbar and the draw options under the Header Default Settings tab. See Figure 2-66.
Figure 2-66. Race Options - Header Default Settings tab

**Toolbar**

Default text formatting options include font, font size, font color, bold, italic, underline, background text color and text justification and can be set using the toolbar in Header Default Settings.

**Draw Options**

In the Draw Options group box, select the default header color from the color palette. If no color is selected, the header color is taken from Headers under the Color tab in the Ballot Options window. Selecting a check mark in the following boxes creates the associated default effects:

- **Top** Places a default line at the top of the header box.
- **Bottom** Places a default line at the bottom of the header box.
- **Left** Places a default line to the left of the header box.
- **Right** Places a default line to the right of the header box.
- **Thick Top** Places a default 1/8" thick line across the top of the header box.
- **Shaded** Places default shading in the header box.
- **Thick L/R** Places a default 1/8" vertical line on the side of the header box opposite the voting ovals.
2.3.9. **AccuVote-OS Options**

2.3.9.1. **Concepts**

Administrative and performance options for the AccuVote-OS are defined in AccuVote-OS Options. This window is only applicable for AccuVote-OS units used in the election. The window is divided into four tabs: AccuVote-OS Settings, Server, Reject Settings and Tally Settings.

Changing AccuVote-OS Options if memory cards have already been programmed will require memory cards to be re-programmed.

**Report files**

The format of the AccuVote-OS Zero Total and Election Results reports are defined in the ABasic report file that is programmed with election data to the memory cards. The report file determines the format of information displayed on reports, including the amount of detail provided at election close or the wording of the oath text at the end of the report.

Report files vary by region; the location of a jurisdiction determines the report file that must be used. The standard American report file is 194us.abo.

**Ballot return**

The AccuVote-OS may be programmed to return ballots according to special voting conditions. These include:

- overvoted ballots
- undervoted ballots
- blank voted races
- blank voted ballots
- overvoted crossover races
- overvoted straight party races

Each of these return conditions may be activated by selecting the corresponding check box in the Return Ballots With group box under the Reject Settings tab in AccuVote-OS Options. If the check for a return condition is not selected, the ballot is accepted and counted, otherwise, if the check box is selected, the ballot is returned by the AccuVote-OS and thus not counted.

It is possible to override the return of rejected ballots by pressing the Yes button and re-feeding ballots. If the corresponding check box is selected in the Print Message on Override Of group box, a concise informatory message is displayed on the AccuVote-OS tape upon ballot override.

For example, no ballot return options are selected under the Reject Settings tab. An overvoted ballot is fed into the AccuVote-OS, the ballot is counted, and all races except the overvoted race counted.

If the Over Voted Races check box is selected in the Return Ballots With group box in AccuVote-OS Options, the ballot is rejected by the AccuVote-OS. The Yes button is then pressed while re-feeding the ballot and the ballot is counted, and again all races except the overvoted race are counted.

Now the Over Voted Races check box in the Print Message on Override Of group box is selected. The overvoted ballot is rejected by the AccuVote-OS, however, on override, an informatory message is displayed on the AccuVote-OS tape. Again, the ballot is counted, and all races except the overvoted race are counted.

The check boxes in the Print Message On Override Of group box are activated only if the corresponding messages in the Return Ballots With group box are selected.
**Overvoted ballots**

Selecting the Over Voted Races check box in the Return Ballots With group box causes the AccuVote-OS to return any ballot with one or more races with at least one greater than the number to vote for. Upon override, the ballot is counted, the overvoted ballot counter incremented, candidates counted for all non-overvoted races, the overvote counters for overvoted races incremented, and no candidates in overvoted offices counted.

**Undervoted ballots**

Selecting the Under Voted Races check box in the Return Ballots With group box causes the AccuVote-OS to return any ballot with at least one race with at least one less than the number to vote for. Undervotes apply only to races with a number to vote for greater than 1 – an unvoted race with number to vote for 1 is considered blank voted.

Upon override, the ballot is counted, the undervoted ballot counter incremented, candidates in all races counted and the undervote counters in the undervoted races incremented by the corresponding shortfall between the number to vote for and the number of candidates selected.

**Blank voted races**

Selecting the Blank Voted Races check box in the Return Ballots With group box causes the AccuVote-OS to return any ballot with at least one race with no candidate selections. Upon override, the ballot is counted, candidates counted in every voted race and the blank vote counter incremented in every unvoted race.

**Blank voted ballots**

Selecting the Blank Voted Ballots check box in the Return Ballots With group box causes the AccuVote-OS to return any ballot with no candidate selections. Upon override, the ballot is counted, the blank voted ballot counter incremented and every race’s blank vote counter incremented. No candidates on the ballot are counted.

Processing blank voted ballots has no effect on total candidate counts.

**Overvoted crossover races**

Selecting the Over Voted Crossover Races check box in the Return Ballots With group box causes the AccuVote-OS to return any ballot with multiple crossover candidate selections. Upon override, the ballot is counted, candidates counted in all voted races except the overvoted crossover races.

**Overvoted straight party races**

Selecting the Over Voted Straight Party Race check box in the Return Ballots With group box causes the AccuVote-OS to return any ballot with an endorsement race with at least one greater than the number to vote for. Upon override, the ballot is counted, the overvoted ballot counter incremented, all candidate selections counted and the overvoted endorsement race overvote counter is incremented. In this case the overvoted endorsement race has no effect on candidate selection.

**Straight Party**

The straight party tally rule is specified in the Straight Party group box. The straight party tally rules selected affects only races that are defined as endorsed by an endorsement race. Straight party tally options are not applicable if no endorsement races are defined in the election.

Straight party tally options include Exclusive, Additive, Combined and Supplemental, and are defined by selecting the corresponding radio buttons under the Straight Party group box under the Tally Settings group box in AccuVote-OS Options.

Endorsement races are defined in the Race Editor by setting Type under the Race tab to Endorsement, and races are endorsed by selecting the endorsement race from the Endorsement drop-down list in the Controlling Races group box under the Options tab in the Race Editor.
The AccuVote-OS automatically counts all candidates on the ballot endorsed by the party selected by the voter in the endorsement race, subject to the constraints of the straight party tally rule defined.

Note that the terms 'straight party' and 'endorsement' have the same meaning.
All cases

For example, an endorsement race is defined with Democrat and Republican parties. The vote for 1 race for Mayor is defined as being endorsed by the endorsement race. Two candidates are defined in the race for Mayor, one being Republican and the other Democrat. The voter selects the Republican party in the endorsement race, and makes no candidate selection in the race for Mayor.

In all cases, the AccuVote-OS counts the Republican candidate.

Exclusive

The Exclusive straight party tally option causes straight party choices to be selected only if no candidate selections have been made in an office.

Suppose that the voter selects the Republican party in the endorsement race, but selects the Democrat candidate in the race for Mayor. As a result, the AccuVote-OS counts the Democrat candidate in the race for Mayor.

Additive

The Additive option causes both straight party choices as well as candidate selections to be counted if the number to vote for is not exceeded, otherwise, only the candidate selections are counted. This rule has the same effect as Exclusive in vote for 1 races.

Suppose that a ballot contains an endorsement race containing the Republican and Democrat parties. A vote for 2 race for Councilor is defined with two Republican and two Democrat candidates, and the straight party tally option is set to Additive.

The voter selects the Republican party as well as one Republican candidate in the race for Councilor only. Since the straight party selection combined with the single Republican selection does not create an overvote, the AccuVote-OS counts both Republican candidates in the race for Councilor.

In another example, the voter selects the Republican party in the endorsement race, but selects one Democrat candidate in the race for Councilor. Since the straight party selection combined with the single Democrat candidate selection creates an overvote, the AccuVote-OS counts the Democrat candidate only.

Combined

The Combined option causes both straight party choices as well as candidate selections to be counted if the number to vote for is not exceeded, otherwise, race results are discarded.

Using the prior example, the voter selects the Republican party as well as one Republican candidate in the race for Councilor. Since the straight party selection combined with the single Republican selection does not create an overvote, the AccuVote-OS counts both Republican candidates in the race for Councilor.

On the other hand, if the voter selects the Republican party in the endorsement race but selects one Democrat candidate in the race for Councilor, the straight party selection combined with the single Democrat candidate selection creates an overvote, and the AccuVote-OS considers the race overvoted.

Supplemental

The Supplemental radio button causes straight party choices to be counted from the top of the candidate list in addition to candidate selections until the number to vote for is satisfied. This rule has the same effect as Exclusive in vote for 1 races.

A ballot contains an endorsement race containing the Republican and Democrat parties. A vote for 2 race for Councilor is defined with two Republican and two Democrat candidates, in that order.

The voter selects the Republican party in the endorsement race as well as the first Republican candidate in the race for Councilor. Since the candidate selection falls one candidate short of the number to vote for, the AccuVote-OS counts the first and second Republican candidates.
The voter now selects the Republican party in the endorsement race as well as the first Democrat candidate in the race for Councilor. Since the candidate selection falls one candidate short of the number to vote for, the AccuVote-OS counts the first Republican and first Democrat candidates.

Write-In

A write-in tally rule is defined for elections with write-in candidates. Write-in tally options include Combined, Preference and Override, and are defined by selecting the corresponding radio buttons in the Write-In group box under the Tally Settings tab in AccuVote-OS Options.

The write-in tally rule has no effect if no write-in candidates are present in the election.

**Combined**

The Combined write-in tally option causes both candidate and write-in choices to be counted if the number to vote for is not exceeded, otherwise race results are discarded.

For example, an election is defined with the vote for 2 race for Councilor, with four candidates and two write-ins. The voter selects a candidate and a write-in vote, and the AccuVote-OS counts both candidate and write-in selections. If the voter selects the candidate and both write-in selections, race results are discarded.

**Preference**

Write-in selections replace ‘No Preference’ candidates if candidate selections combined with write-ins exceed the number to vote for.

For example, an election is defined with the vote for 2 race for Councilor, with four candidates and two write-ins. The last candidate defined is titled ‘No Preference’. The voter selects the first candidate and a write-in vote, and the AccuVote-OS counts both candidate selections. If the voter selects the first candidate, the ‘No Preference’ candidate and the first write-in selection, the AccuVote-OS counts the first candidate as well as the write-in selection. On the other hand, if the voter selects the first two candidates and one of the write-ins, the AccuVote-OS discards race results.

**Override**

The Override write-in option causes both candidate and write-in choices to be counted if the number to vote for is not exceeded, otherwise only write-in selections are counted.

For example, an election is defined with the vote for 2 race for Councilor, with four candidates and two write-ins. The voter selects a candidate and a write-in vote, and the AccuVote-OS counts both candidate selections. If the voter selects the candidate and both write-in selections, the two write-in candidates are counted.

**1.95 Auto Absentee**

Absentee ballots counted at the polls are commonly counted separately from polling ballots. Polling ballots are counted on the AccuVote-OS throughout election day, and once the election is closed, the Absentee Count Card is fed into the AccuVote-OS, setting the unit into absentee count mode, and absentee ballot counting takes place. Once absentee ballot counting is complete, the AccuVote Ender card is fed in order to close the election.

It is possible to count absentee ballots while counting polling ballots in the AccuVote-OS. This feature is only possible with 1.95 and 1.96 AccuVote-OS firmware, and requires the 1.95 Auto Absentee check box to be selected under the Tally Settings tab in AccuVote-OS Options. Furthermore, polling and absentee ballots must be distinct.

**2.3.9.2. Configuring AccuVote-OS Options**

Click on Setup in the menu bar, then AccuVote-OS Options in the drop-down menu. See Figure 2-67.
The AccuVote-OS options are organized under four tabs: AccuVote-OS Settings, Server, Reject Settings and Tally Settings.

**AccuVote-OS Settings**

Administrative settings of AccuVote-OS are defined under the AccuVote-OS Settings tab. See Figure 2-68.

In the AccuVote-OS group box, select the report file to be programmed to memory cards from the Reports drop-down menu. See Figure 2-69.
Define the AccuVote-OS Supervisor Password in the Password field. Select the AccuVote-OS ballot return message display time in seconds from the Display Message Time field. Select the AccuVote-OS firmware version number from the Version drop-down menu. See Figure 2-70.

**Figure 2-70. AccuVote-OS firmware version list**

### Sorting Ballot With

In the Sorting Ballots With group box, check the Write-In Votes box to have Write-in ballots dropped into the alternate compartment of the ballot box. Check the All Races Blank Voted box to have blank ballots dropped into the alternate compartment of the ballot box.

### Central Count

In order to central count when ballots with write-ins are encountered, check the Stop on write-ins box. Click on the Server tab to continue.

### Server

Control information for the upload network service provider is defined under the Server tab in the AccuVote-OS Options window. See Figure 2-71.
Type in the appropriate information in the following fields:

- **Server**: IP address of the election host computer.
- **PPP User**: The network service provider user Id
- **PPP Password**: The network service provider password
- **Timeout**: Number defining the maximum allowable time for a modem connection to be established and idle before hanging up.

Now click on the Reject Settings tab.

**Reject Settings**

Ballot return conditions programmed to the AccuVote-OS are defined under the Reject Settings tab in the AccuVote-OS Options window. See Figure 2-72.
In the Return Ballots With group box, conditions under which ballots are returned are defined by checking the following boxes:

- **Over Voted Races** A ballot with at least one overvoted office is returned by the AccuVote-OS.
- **Undervoted Races** A ballot with at least one undervoted office is returned by the AccuVote-OS.
- **Blank Voted Races** A ballot with at least one blank voted office is returned by the AccuVote-OS.
- **Blank Voted Ballots** An entirely blank voted ballot is returned by the AccuVote-OS.
- **Over Voted Crossover Races** An open primary ballot with multi-partisan office selections is returned.
- **Over Voted Straight Party Race** A ballot with an overvoted endorsement race is returned.

**Print Message on Override Of**

An override message is printed on the AccuVote-OS tape if the rejection of any ballot according to one of the reject settings is overridden:

- **Over Voted Races** Overriding the return of an overvoted ballot prints a message on the AccuVote-OS tape.
- **Under Voted Races** Overriding the return of an undervoted ballot prints a message on the AccuVote-OS tape.
- **Blank Voted Races** Overriding the return of a ballot with at least one blank voted office prints a message on the AccuVote-OS tape.
- **Blank Voted Ballots** Overriding the return of a blank voted ballot prints a message on the AccuVote-OS tape.
- **Over Voted Crossover Races** Overriding the return of an open primary ballot with multiple-partisan race selections prints a message on the AccuVote-OS tape.
• **Over Voted Straight Party Race** Overriding the return of a ballot with an overvoted endorsement office prints a message on the AccuVote-OS tape.

**Tally Settings**

Straight party and write-in tally rules are specified under the Tally Settings tab in the AccuVote-OS Options window. See **Figure 2-73**.

![AccuVote-OS Options - Tally Settings tab](image)

**Straight Party**

Select either the Exclusive, Additive, Combined or Supplemental radio buttons.

**Write-In**

Select either the Combined, Preference or Override radio buttons.

**1.95 Auto Absentee**

Check this box to instruct 1.95 and 1.96 firmware to determine the counter group based on the card Id where possible in case of multiple-counter group vote centers.

Click on OK in order to save definitions in the AccuVote-OS Options window.

**2.3.10. AccuVote-TS Options**

**2.3.10.1. Concepts**

AccuVote-TS display and counting options are defined in the AccuVote-TS Options window. These options do not apply to the AccuVote-OS. Changing AccuVote-TS Options requires that memory cards be re-programmed.

**Size**

Headers, footers and voting box size may be customized using the fields in the Size group box. The Header Height box determines the height of the header, the Footer Height box determines the height of the footer and the Vote Box field determines the height of the vote box.
Headers and footers refer to headers that are defined as Card Header and Card Footer, respectively, in the Type group box under the Options tab in the Header Editor.

**Layout**

The number of columns in which a race is displayed on the AccuVote-TS screen is defined in the No. Columns field in the Layout group box. Increasing this number increases the amount of information that may be displayed on the screen and decreases the likelihood of races scrolling across multiple pages, but also decreases the amount of space available for candidates and endorsing parties.

The ballot image may be scaled according to the amount entered in the Scale % field. This value may be no more than 100. Scaling down the ballot display will allow more ballot information to be displayed on the screen, but will decrease legibility. Scaling up the ballot display, on the other hand, will increase legibility but increase the potential for races to scroll across columns and pages.

Representative ballot artwork should be reviewed on the AccuVote-TS units in order to determine an optimal number of columns and scale percentage.

**Logging**

All trivial transactions are logged to the AccuVote-TS printer if the Pedantic check box is selected. For example, an audit record is created for every ballot that is cast on the unit if the Pedantic check box is selected.

**Buttons**

Control button height is defined in the Buttons group box. Button height is measured in pixels and is defined in the Height field.

**One click voting**

By default, the voter must first de-select the candidate selection in order to make another selection on the touch screen. However, with the One Click Vote check box selected in the Vote Flags group box, the voter may immediately select another candidate.

For example, suppose the AccuVote-TS units are programmed without One Click Vote selected. A voter is making candidate selections on a ballot containing the vote for 1 race for Mayor with two candidates.

The voter initially selects the first candidate, then decides to select another candidate instead. The voter selects the first candidate, then touches the first candidate again in order to cancel the choice before selecting the second candidate.

In another example, the voter is making candidate selections in a vote for four councilor office defined with 10 candidates. The voter has selected 4 candidates and wishes to change one of the candidate selections. The voter must select the candidate that is no longer applicable before selecting the new candidate.

Now suppose units are programmed with One Click Vote selected. The voter initially selects the first candidate, then decides upon the second candidate. The voter selects the first candidate, then selects the second candidate, without having to cancel the first candidate selection beforehand.

In another example, the voter is making candidate selections in a vote for four councilor office defined with 10 candidates. The voter has selected 4 candidates and wishes to change one of the candidate selections. Touching the fifth candidate automatically invalidates all of the prior choices, requiring all candidates to be selected again.

**Pennsylvania straight party voting**

All candidates endorsed by the party selected in the straight party race are automatically selected in straight party votable races. If the PA Straight Party check box is not selected, all candidate choices made prior to the straight party selection are lost. Selecting the PA Straight Party check box retains all candidate selections prior to the straight party selection.
Voter group background

By default, the background color of the voter group on the touch screen is taken from the background color defined for the voter group in the Color palette in the Voter Group Editor.

Selecting the VGroup Background check box in the Draw Flags group box uses the race background color defined in the Color palette in the Race Editor.

Race Keys

By default, every candidate must be played in the audio ballot before it is possible to advance to the next race or return to the previous race. Selecting the Race Keys check box allows the voter to advance immediately to the next race or skip immediately to the preceding race.

Play all candidates

Selecting the Play All Candidates check box requires the audio ballot voter to play all candidates preceding the current candidate before returning to the preceding race, and play all candidates following the current candidate before advancing to the next race.

Not selecting the Play All Candidates check box changes race playback logic only if the number of candidates voted corresponds to the number to vote for. The audio ballot automatically returns to the preceding race if the current candidate is the first candidate selection in the race, and advances automatically to the next race if the current is the last candidate selection in the race.

Warn undervotes

The audio ballot voter may be issued a warning message if attempting to return to the preceding race or advance to the next race without selecting candidates corresponding to the number to vote for. A warning message is played only if the Warn Undervotes check box is selected. The issuance of the warning message does not prevent the voter from taking the desired action.

Pollworker audio

The AccuVote-TS may be programmed to issue an audible tone when a ballot is ready to be voted as well as when a ballot is cast. In order to play an audible tone prior to voting and following ballot casting, the Pollworker Audio check box must be selected, otherwise, in order to not play any audible tone in either of these instances, the check box should not be selected.

2.3.10.2. Configuring AccuVote-TS Options

Click on Setup in the menu bar, then AccuVote-TS Options in the drop-down menu. See Figure 2-74.

![Figure 2-74. Activating the AccuVote-TS Options window](image)
The AccuVote-TS Options are organized in the following groups: Size, Layout, VIBS Flags, Buttons, Vote Flags and Draw Flags. See Figure 2-75.

**Figure 2-75. AccuVote-TS Options window**

Define the card header height in Header Height, the card footer height in Footer Height and the vote box size in Vote Box.

Define the number of columns in No. Columns and the scale percentage in Scale %.

If VIBS voters are required to listen to the entire candidate name, select the Disallow Skip Cand check box.

Define Next and Previous button height in the Height field. Select the position for buttons to be displayed on the screen from the Position drop-down list, and select the type of button display from the Type drop-down list.

Select the One Click Vote check box if voters are not to re-select an existing candidate selection before making another selection. Select the PA Straight Party check box if existing candidate selections are to be retained upon making a straight party selection.

Finally, select the VGroup Background check box if the voter group is to be assigned the race background color.

Click on OK in order to save results.

**2.3.11. Reporting Sets**

A *reporting set* includes all or some subset of races defined in the election, and is used to provide election results in the Election Summary and Statement of Votes Cast (SOVC) reports, define JResult Client monitor scripts as well as configure an election for recounting.

Click on Setup in the menu bar, then Reporting Sets in the drop-down menu. See Figure 2-76.
The Reporting Sets window provides a display area, in which all currently defined reporting sets are displayed. Reporting sets may be added by clicking on the Add button, updated by selecting the Properties button and deleted by selecting the Delete button. See Figure 2-77.

Every election is defined by default with the 'All Races' reporting set, which contains all races defined in the election.

![Figure 2-76. Activating the Report Sets window](image)

2.3.11.1. Adding reporting sets

In the Reporting Sets window, click on the Add button in order to add a reporting set. The Reporting Set Properties window now appears, in which a label and Id number are defined, as well as the races in the reporting set. See Figure 2-78.
Enter a short description of the reporting set in the Label field. This value appears in the drop-down lists from which the reporting set is selected, as well as in the JResult Client title. Enter an Id number in the field adjacent to Label.

Select the races to be added to the reporting set from the check boxes in the B column. Multiple races may be added by selecting the races in the Race column and clicking on the Set button. Likewise, multiple races may be cleared from the list by selecting the races and clicking on the Clear button.

Once the reporting set has been defined, click on the OK button. The reporting set has now been added to the Reporting Sets list.

Click on OK in the Reporting Sets window in order to exit.

### 2.3.11.2. Updating a reporting set

In order to update a reporting set, select a reporting set in the Label column of the Reporting Set window and click on the Properties button in order to activate the Reporting Set Properties window.

Change the Label and Id fields, and add and delete races from the reporting set as necessary.

When updating is complete, click on the OK button to save results. Click on OK in the Reporting Sets window in order to exit.

### 2.3.11.3. Deleting a reporting set

Select the reporting set to delete in the Label column of the Reporting Set window and click on the Delete button. The reporting set is automatically removed from the reporting set list.

Click on OK in the Reporting Sets window in order to exit.

### 2.3.12. Monitor Scripts

#### 2.3.12.1. Concepts

Monitor scripts are JResult Client election results display formats, and comprise reporting set, district, precinct and counter group definitions. Monitor scripts are defined in the Monitor Scripts window, and are selected for display in the JResult Client Open Results Set window.
Monitor script properties

A monitor script is composed of one or more monitor script properties, which are defined in the Monitor Script Properties window. Each monitor script property is defined as a combination of a single reporting set and either one report precinct category or one report precinct, or one district. A monitor script property is defined for either a precinct or district but not both.

When the JResult Client Open Results Set window is activated, all monitor script properties of the monitor script are displayed in sequence, for their reporting set, district or precinct selected.

Example

An election is defined with District 15 and District 16 State Senate races, amongst others. Both State Senate districts are divided by State Assembly districts 10 and 11. The jurisdiction wishes to dedicate a JResult Client to display the results of both races for the corresponding districts, then divided by State Assembly district.

Three reporting sets are defined:

1. State Senate, including the District 15 and 16 State Senate races
2. District 15 State Senate, including the District 15 State Senate race only
3. District 16 State Senate, including the District 16 State Senate race only

A monitor script is defined with the following monitor script properties:

1. The first monitor script property is defined for reporting set State Senate, and district Jurisdiction Wide.
2. The second monitor script property is defined for reporting set District 15 State Senate, and district State Assembly District 10.
3. The third monitor script property is defined for reporting set District 15 State Senate, and district State Assembly District 11.
4. The fourth monitor script property is defined for reporting set District 16 State Senate, and district State Assembly District 10.
5. The fifth monitor script property is defined for reporting set District 16 State Senate, and district State Assembly District 11.

In this manner, JResult Client displays complete results for both Senate races, then for each Senate race, divided by the two State Assembly districts.

Counter groups

JResult Client displays results only for the counter groups selected. Results may be displayed for any combination of the counter groups defined in the election.

Even though election results may be displayed in JResult Client for counter groups in addition to Polling, the precincts reporting statistic may be limited to the Polling counter group by selecting the Use Only Polling Counter For Precincts Reporting check box. By default, the check box is not selected.

For example, the city of Fargo is holding an election for Mayor in which polling election results are returned to three precincts and absentee are tallied cumulatively. JResult Client is to report the total number of both polling and absentee precincts reporting.

Three polling precincts are defined in the Default Precinct Category report precinct category, the cumulative Absentee counter group is defined, and report precinct Absentee is defined in Cumulative Reportunits and linked to the base precincts.

A monitor script is defined for the All Races reporting set and the Jurisdiction Wide district, without the Use Only Polling Counter For Precincts Reporting check box set, for both Polling and Absentee counter groups.
Once all polling and absentee results have been uploaded, JResult Client configured for the monitor script will indicate that 4 out of 4 precincts are reporting, and will include the results of all precincts.

If the Polling counter group only is selected, JResult Client will indicate that 4 out of 4 precincts have reported, but results will be provided for the polling precincts only.

If the monitor script is defined with the Use Only Polling Counter For Precincts Reporting check box selected, JResult Client will indicate that 3 out of 3 precincts have reported once all polling precincts have uploaded results, irrespective or whether the absentee precinct has uploaded results.

The Use Only Polling Counter For Precincts Reporting check box should only be selected if the Polling counter group has been selected for reporting.

2.3.12.2. Configuring Monitor Scripts

Click on Setup in the menu bar, then Monitor Scripts in the drop-down menu. See Figure 2-79.

Adding monitor scripts

In the Monitor Scripts window, click on the Add button in order to add a monitor script. See Figure 2-80.

In the Monitor Script Properties window, enter a label for the monitor script in the Label field, an Id number in the adjacent field to the right and a description for the monitor script in the Description field.

Select the counter groups from which results are to be included from the Counter Group list, and select the Use Only Polling Counter For Precincts Reporting check box if the number of precincts reporting are to be polling precincts only. See Figure 2-81.
Figure 2-81. Defining counter group information

Define a monitor script property with a reporting set and district by clicking on the Add District button, or define the monitor script property with the reporting set and precinct by clicking on the Add Precinct button. See Figure 2-82.

Figure 2-82. Monitor Script Properties

In either case, a Script Entry window appears, in which the reporting set and district or precinct may be selected. Click OK in the Script Entry window. See Figure 2-83.
Once all monitor script properties have been defined for the monitor script, click on the OK button in Monitor Script Properties.

In the Monitor Script window, continue defining monitor scripts as required. Once definitions are complete, click on the OK button in the Monitor Scripts window.

Continue adding monitor scripts as required, and when complete, click on the OK button to save definitions.

**Updating monitor scripts**

Select the monitor script to update in the Label column in the Monitor Script window and click on the Properties button.

Update the Label, Id, Description and counter group information as required. Select each monitor script to update in the # column, and click on the Properties button. Revise monitor script properties in the Script Entry window and click on the OK button.

Add monitor script properties by clicking on the Add District or Add Precinct buttons and make the appropriate selections in the Script Entry window. Remove monitor script properties by selecting the property in the # column and clicking on the Delete key.

Once revisions have been completed, click on OK in the Monitor Scripts Properties window.

Continue updating monitor scripts in this manner and click on the OK button when finished.

**Deleting monitor scripts**

Select the monitor script to delete in the Label column in the Monitor Script window and click on the Delete button. Continue deleting monitor scripts as necessary and click on the OK button when finished.
2.4. Jurisdictional Definition

Jurisdictional configuration involves the definition of geographical, results reporting and ballots counting locations. The geography of a jurisdiction is described by means of districts and base precincts. A district represents an area of a jurisdiction defined in GEMS in terms of base precincts, and a base precinct is any largest contiguous area of land not intersected by district boundaries. The results of ballots counted in base precincts and cast at vote centers is tallied to report precincts.

2.4.1. Concepts

2.4.1.1. Districts

Districts are used to determine the geographical scope of races in an election. Districts may also be used to rotate candidates as well as report election results for a selected portion of a jurisdiction. Districts are defined in a hierarchical fashion, whereby one or more subdistricts may be defined within a district category. All districts of a particular class are defined within the district category. As many embedded levels of districts may be defined within a category, although commonly no more than three levels are defined.

For example, a jurisdiction consists of two cities, Jackson and Fargo, where the city of Jackson consists of three wards, 1, 2 and 3. An election is held for mayor of Jackson and Ward 1 Jackson City Council. In GEMS, a district category is defined as City and within the category Jackson and Fargo as cities. Within the city of Jackson, wards Ward 1, Ward 2 and Ward 3 are defined. A race for mayor of Jackson is defined to the district Jackson, and a race for Ward 1 City Council of Jackson is defined to the district Ward 1. All ballots generated by GEMS for all precincts within the district Jackson will contain the race for mayor, and all ballots for all precincts within the district Ward 1 will contain the Ward 1 City Council race.

2.4.1.2. District rotation

In some case races are rotated over a particular district. The race is defined for some district that represents a portion or the entirety of the jurisdiction, but is rotated by the subdistricts of another district.

For example, in a jurisdiction in Congress District 15 and State Assembly districts 3, 4 and 5, an election for the office of District 14 Congress is held in which candidates are to be rotated by State Assembly district. In GEMS, two district categories are then defined - Congress and State Assembly. District 14 Congress is defined within district category Congress and State Assembly Districts 3, 4 and 5 are defined with the category State Assembly. The Congressional race is then defined for Congress District 14 and rotated over State Assembly, so that that State Assembly District 3 receives rotation 0, State Assembly District 4 rotation 1 and State Assembly District 5 rotation 2.

District rotations may either be assigned in the order of rotation district or according to a customized sequence. For example, unless otherwise specified, candidate rotations in the above example are assigned in the sequence of rotating district, as stated in the previous example. However, the rotation sequence may also be customized to an order other than the order in which the State Assembly districts were defined. Defining State Assembly district 4 as rotation 0, district 3 as rotation 2 and district 5 with rotation 1 will cause candidate rotations to be set accordingly.

Note that rotation districts may be only assigned one customized order. If more than one race is rotated in non-standard sequence of a rotation district, a rotation district must be defined for every set of custom rotations required.

For more information on rotations, refer to Appendix C: Rotation Rules.

2.4.1.3. Reporting election results by district

Election results may be reported by district. Results reported in any one of the Statement of Votes Cast, Election Summary Report or Cards Cast report for a particular district will contain only results tallied from
2.4.1.4. Default districts

Every election is defined by default with the Unassigned and Jurisdiction Wide districts. Every newly created race is defined by default to the Unassigned district. If the district assignment is not changed from Unassigned, the race will not appear on any ballot style. The Jurisdiction Wide district, on the other hand, comprises the entire jurisdiction, so that any race assigned the Jurisdiction Wide district automatically appears on every ballot style. The Unassigned and Jurisdiction Wide districts should not be altered nor have sub-districts added.

2.4.1.5. Eligible districts

Not all districts defined in an election need be used. Only districts linked to races are considered eligible.

2.4.2. Base Precincts

The geographical area covered by a district in a jurisdiction is defined in terms of base precincts. A jurisdiction is defined in its entirety by base precincts, and any location in the jurisdiction will occur in a unique base precinct. A base precinct is commonly any largest area of a jurisdiction not intersected by district boundaries. Base precincts boundaries may be further defined by legacy requirements, voter registration limits as well as reporting requirements.

For example, one set of voters in precinct Wilson vote for the office District 15 Representative, whereas the remaining voters vote for District 16 Representative. The portion of the precinct in which voters vote for the District 15 Representative is then one base precinct, which we may name Wilson Leg. District 15, and the remainder of the precinct becomes the base precinct Wilson Leg. District 16.

2.4.2.1. Base precinct boundaries

Traditional precinct boundary assignments may determine the shape of a base precinct. As such, a base precinct may be smaller in size than necessary, even though the base precinct may be enlarged without being divided by district lines. However, no base precinct is enlarged so as to be divided by district boundaries.

Suppose that in the above example, the total number of registered voters in Wilson Leg. District 15 is 2500, the total in Wilson Leg. District 16 is 1500, and that the jurisdiction allows no more than 2000 registered voters per precinct. As a result, the Wilson Leg. District 15 would be divided into two further base precincts.

2.4.2.2. Districts and base precincts

Each district is linked to one or base precincts in order to define the district’s geographical scope. A district may be defined to as many base precincts as necessary, although a base precinct may not be defined to more than one district within a district category. For example, a base precinct defined to State Assembly District 2 may not be defined to either State Assembly Districts 3 or 4 where all three State Assembly districts are defined to the same district category.

All base precincts in all districts in a district category are automatically linked to the district category.

Adding and linking base precincts to eligible districts or deleting or removing base precincts from eligible districts may potentially change ballot artwork. All jurisdictional information should be defined before ballot layout takes place.

2.4.2.3. Vote registration

Voter group and base precinct define voter registration amounts. Maintenance of voter registration information is presented in section 2.11 Voter Registration.
2.4.3. Report Precincts

The results of ballots counted in base precincts are tallied to report precincts. Since the report precinct represents the lowest level of reporting in an election, multiple base precincts are defined to the report precinct in case district boundaries divide the report precinct, where each base precinct represents a unique district combination. A report precinct must be defined with at least one base precinct. GEMS creates a unique base precinct for each report precinct, and assigns the same name to the base precinct as the report precinct.

For example, in a prior example, precinct Wilson consists of base precincts Wilson Leg. District 15 and Wilson Leg. District 16. The results of ballots counted in both of these base precincts are tallied to report precinct Wilson, as a more detailed level of reporting is not required.

2.4.3.1. Report Precinct category

Report precincts are either polling (or non-cumulative) or cumulative, defined either in the Default Precinct Category or in Cumulative Reportunits. Both of these entities are report precinct categories. The GEMS database is automatically created with the Default Precinct Category, but Cumulative Reportunits only if at least one cumulative counter group is defined in the Counter Group Editor. Polling precincts are defined under the Default Precinct Category, and any cumulative reporting precincts such as absentee and early voting are defined under Cumulative Reportunits.

It is not possible to delete the Default Precinct Category. Cumulative Reportunits can only be removed by deleting all cumulative counter groups.

2.4.3.2. Counter groups

Report precincts are defined for both polling (non-cumulative) and cumulative counter groups. For example, a set of polling report precincts is defined for the polling counter group, a set of absentee precincts may be defined for the absentee counter group, and likewise, a set of early voting precincts may be defined for the early voting counter group. While polling report precincts must be defined to the election, the absentee and early voting precincts need not. Furthermore, the polling report precincts are always non-cumulative, whereas the absentee and early voting report precincts are commonly cumulative.

In another example, an election is defined with two report precincts, Wilson and Jackson. Absentee ballots for both of these polling precincts are to be tallied to a single absentee precinct. The Absentee report precinct is defined in GEMS under Cumulative Reportunits and is linked to the two polling report precincts. The results of absentee ballots valid for these two precincts is then reported to the Absentee report precinct.

For more information on configuring counter groups as well as absentee and early voting, refer to section 2.3 Setup.

2.4.3.3. Election results reporting

The Election Summary report provides summarized election results for one or more report precincts in print form but for a single report precinct only if viewed online. The Statement of Votes Cast provides election results for select districts only, detailed by report precinct. Both election results reports and JResult Client display precincts reporting statistics, which may represent all report precincts or be limited to polling report precincts. For more information on election results reports, refer to section 2.12 Election Results Reporting.

2.4.4. Vote Centers

The vote center is the physical location at which ballots are counted. The results of ballots counted at a vote center are tallied to the report precinct(s) associated with that vote center. GEMS automatically
creates a vote center of the same name as every polling report precinct created. However, vote centers must be manually defined for any cumulative report precincts.

For example, polling ballots in an election are to be counted and tallied at precincts Wilson and Jackson, and absentee ballots for these precincts are counted and tallied at a distinct absentee precinct. In GEMS, Wilson and Jackson are defined as report precincts, and two vote centers of the same name are automatically created as a result. An absentee report precinct is created under Cumulative Report units, an absentee vote center is then defined, and finally the absentee precinct is linked to the absentee vote center.

Remember that vote centers represent physical ballot counting locations at which voters vote, while base precincts represent the geographical entities in which voters reside and which are associated with a particular (set of) voting location(s). In GEMS, configuring report precincts with base precincts then linking the report precincts to vote centers creates this association. Only the ballots valid in a set of base precincts will then be accepted at the corresponding vote centers.

2.4.4.1. Sequence numbers on ballots

The report precincts linked to a vote center determine the precinct sequence numbers printed on ballots. The precinct sequence number represents the position in the vote center that the report precinct occupies, according to the report precinct Id number. For example, if the report precincts Wilson and Jackson have Id numbers 10 and 20, respectively, and are both linked to the same vote center, and ballots are printed with precinct sequence numbers, then the ballots printed for Wilson will be assigned sequence 1 and those for Jackson sequence 2.

2.4.4.2. Vote center categories

Vote centers are grouped into vote center categories, which are defined in the Counter Group Editor. By default, an election is created with the Polling Vote Center vote center category, into which all vote centers corresponding to polling report precincts are placed.

Multiple vote center categories may be defined. More than one vote center category may be defined to return results to polling report precincts, and more than one vote center category may be defined to return results to cumulative report precincts. It is also possible for vote centers within a single vote center category to return results to both polling and cumulative report precincts. Commonly, however, an election is defined with the Polling Vote Center category, which returns polling results, as well as one or more vote center categories returning cumulative results.

For example, voters in an election may vote either on election day, absentee or early. The election is then configured in GEMS with polling and cumulative report precincts as well as three vote center categories, polling (for election day voting), absentee and early voting. The vote centers in Polling Vote Center are automatically linked to the polling report precincts, and ballots counted at these vote centers return results to the same polling report precincts.

Continuing with this example, absentee and early voting counter groups are defined with unique vote center categories of the same name, absentee and early voting report precincts are defined under Cumulative Report units, followed by absentee and early voting vote centers, which are then linked to the corresponding precincts. Ballots counted at the absentee vote centers will then return results to the absentee report precincts, while ballots counted at the early voting vote centers will return results to the early voting precincts.

For more information on counter groups refer to section 2.3 Setup.

It is not possible to delete the Polling Vote Center. Any other vote center categories can only be removed in the Counter Group Editor.

2.4.4.3. Default vote centers

All vote center categories are created with default vote centers, into which report precincts are dropped if they are deleted and no longer linked to any other vote center in the category. The default polling vote
center is named Polling Vote Center <Default>, and the remaining default vote centers are named after the parent vote center category, followed by <Default VC>. The default vote centers should not be deleted or renamed, and should be ignored in the AccuVote-OS Server-v1 console.

2.4.4.4. Administration

Ensure that once jurisdictional information has been completely defined, all unnecessary vote centers have been removed to eliminate potential confusion. This is accomplished by verifying that each vote center is linked to at least one report precinct. In some cases vote centers must be kept on file even though they are not in use.

2.4.4.5. Linking vote centers to report precincts

One vote center may return election results to one or more report precincts. Likewise, multiple vote centers may return election results to the same set of report precincts. More commonly, one vote center may be defined with multiple memory cards, which allow multiple ballot counting units to return election results to the same set of report precincts. The number of memory cards is defined in No. Mem Cards, and is 1 by default.

For example, voters from precincts Wilson and Jackson are to cast ballots at a single location, but results are to be reported by precinct. Since two vote centers are created as a result of the two polling report precincts being defined in GEMS, the extra vote center is deleted, and both precincts are linked to the remaining vote center. Ballots cast at the one vote center will then return results to either of the two report precincts.

In another example, absentee ballots in an election are to be counted at five locations but return results to a single precinct. A cumulative absentee precinct is then defined in GEMS, the corresponding vote center defined and linked to the absentee precinct, and the number of memory cards for the absentee vote center set to five. The results of all five absentee ballot counting units will then return results to a single absentee precinct.

2.4.4.6. Vote center size

The memory storage requirements for a particular vote center vary, depending on the number of report precincts, ballot styles, races, candidates and other information that must be supported. In some cases, this size is critical, as AccuVote-OS memory cards in particular are limited to either 32K, 64K or 128K sizes. By clicking on the Calc. Size button, vote center storage requirements are displayed in the adjoining field and allow the operator to decide the size of memory card to employ. This function is only available to AccuVote-TS memory cards.

2.4.4.7. Count method

The vote center is also defined with a ballot count method, which may be one of AccuVote-OS, AccuVote-TS, Central Count, Manual Entry or Challenge. AccuVote-OS vote centers are programmed to AccuVote-OS memory cards, AccuVote-TS vote centers are programmed to memory cards, Central Count vote centers are counted centrally by means of the Central Count console, election results are manually entered in Manual Entry vote centers, and finally, Challenge vote centers are defined in order to accumulate results from challenged AccuVote-TS ballots only.

Ballots may be counted (and in the case of manual entry, results entered) with a unique count method for each vote center, but the count method may not be varied within the same vote center.

The AccuVote-OS Server-v1 console is dedicated to programming and uploading AccuVote-OS memory cards and the AccuVote-TS Server-v2 console is dedicated to programming and uploading AccuVote-TS memory cards.

All vote center/memory card combinations are listed in the server consoles. For example, if a vote center is defined with three memory cards, the vote center is listed three times in the console. Defining a vote
center with count method Central Count or Manual Entry results in the vote center not being displayed in either AccuVote Server console.

Only one Challenge vote center should be defined in the election, and only if challenged AccuVote-TS ballots are anticipated. The Challenge vote center is defined in the Polling Vote Center category, and must be linked to all polling report precincts on file.

2.4.4.8. Closing election in vote center

It is not necessary for all vote centers in an election to upload election results. A vote center may be marked as closed, even if it has not physically uploaded. This option is available for manual entry and central count vote centers, as well as vote centers that are defined but not in use in an election. Setting a vote center to closed is transparent in the election results reports, AccuVote Server consoles and AccuVote-OS and Vote Center Status reports. Note that results reporting is only monitored by report precinct on election results reports, and not by vote center.

2.4.4.9. Regions

Each vote center is associated with a region, which is defined in the Region drop-down list. By default, each vote center’s region is set to Host. This need not be changed, unless regional processing is in effect, in which case each vote center is defined with the region in which it will be uploading. For more information on regions refer to 2.9 Regional Processing.

2.4.4.10. Filters

Vote centers may be limited to return election results for a subset of races present on ballots. For example, a recount may require that the results of only some races on the ballot be returned. Some jurisdictions limit the number of races that voters may vote on, as may the case with federal absentee ballots, but do not wish to create separate sets of ballots. For more information refer to section 4.1 Recount.

2.4.5. Results management

2.4.5.1. Challenged counter group

Challenged or provisional ballots are ballots of voters whose right to vote has been questioned. These ballots may be counted and tallied separately by creating a distinct ‘Challenged’ counter group. The Challenged counter group is defined as non-cumulative, with the unique vote center category ‘Challenged’. The default vote center created in the Challenged vote center category is configured with Count Method ‘Challenge’, and all polling report precincts are then linked to this vote center.

All ballots listed on the Challenge Board will be automatically tallied to the Challenge counter group.

The Challenged counter group is created only in an election in which Challenged or Provisional ballots are processed, and is valid only for AccuVote-TS ballots.

2.4.5.2. BRC Results Import

BRC results are imported from appropriately formatted ASCII results files at election close. In order to perform BRC results import, the election must be configured with a non-cumulative counter group in which BRC voting devices are to be used. The counter group is defined with a unique vote center category, which in turn is defined with a single vote center in a general election, or one vote center for each political party in case of a primary election. Each vote center is linked to all polling report precincts in the election.

Each vote center configured for BRC results import must be defined with the Manual Results Only count method. Furthermore, in a primary election, each vote center is defined with a reporting set filter containing all corresponding partisan and non-partisan races only.
For example, a primary election is run using BRC voting devices at the polls, and results from these voting devices are to be imported at election close into the GEMS database. Voters may vote on either Democrat or Republican partisan ballots.

The election is configured with the non-cumulative counter group ‘Election Day’, which is defined with the unique vote center category ‘Election Day’. The vote center category is created with two vote centers, ‘ED Rep’, corresponding to election day Republican voters, and ‘ED Dem’, corresponding to election day Democrat voters. Each vote center is linked to all polling report precincts defined in the election. The Democrat vote center is defined with a filter reporting set containing Democrat and non-partisan races only, and the Republican vote center is defined with a filter reporting set containing Republican and non-partisan races only.

At the end of election day, Democrat BRC results are imported into the ‘ED Dem’ vote center, and Republican results are imported into the ‘ED Rep’ vote center.

2.4.6. When Jurisdiction Information is Defined

Jurisdictional information is defined once the steps in section 2.3 Setup have been completed. Districts, report precincts and base precincts must be defined before races and candidates in order for ballot style assignments not vary. Vote center categories and vote centers may be defined as late as ballot artwork delivery to the printer in case of paper ballots, since the vote center-report precinct relationship affects the precinct sequence number on ballots. If precinct numbers are printed on ballots, vote centers may be defined before memory card programming. AccuVote-TS vote centers may be defined once ballot artwork has been completed. However, for sake of consistency vote centers should be completely defined with all other jurisdictional information.

2.4.7. Required Documentation

In order to begin the definition of jurisdiction information, documentation should be made available for the jurisdiction containing the following information:

1. A complete list of districts with names and district numbers.
2. The subset of districts that are eligible.
3. A complete list of precincts, with names and numbers.
4. Complete lists of precincts that are split, include all possible district combinations and names of splits.
5. Tallying and reporting requirements for election results.
6. Are polling ballots counted in the election?
7. How are polling ballots to be tallied, if not by precinct?
8. Are absentee ballots counted in the election?
9. How are absentee ballots to be tallied (i.e. cumulatively)?
10. Are early voting ballots counted in the election?
11. How are early voting ballots to be tallied (i.e. cumulatively)?
12. Are challenged AccuVote-TS ballots anticipated in the election?
13. Are any other types of ballots to be counted in the election?
14. A complete list of polling, absentee, early voting and any other voting locations.
15. A complete list of the report precincts to which each of the voting locations is to report results.
2.4.8. Setting up the Jurisdiction

2.4.8.1. Districts

Adding districts

Districts are defined using the District Editor. Districts may be defined in two stages: first district categories are defined, then districts or subdistricts within the categories. In order to add the categories, select District in the tree view and click on the New Record icon. Enter a descriptive district label in the Label field, an appropriate sequence number in the Id field if the district is being added in non-standard sequence and an export value in Export if necessary. Click on the Add button. Continue adding districts - once the last district has been defined, click on the OK button in order to exit the District Editor. See Figure 2-84 and Figure 2-85.

![District Editor](image)

**Figure 2-84. Activating the District Editor**

![Adding a district](image)

In order to add subdistricts, select each category in the expanded district list in the tree view, right click the mouse and select Add Sub-District in the pop-up menu. Enter the full district name in the Label field, the Id number in the Id field if the district is in non-standard order and an export value in the Export field where necessary. Click on the Add button and proceed until the second last district has been defined in the category, otherwise click on the OK button.

See Figure 2-86.
Continue adding subdistricts in this manner until all districts have been defined.

If any rotation districts are to be defined, double-click the rotation district category in order to activate the District Editor, and click on the Rotation District check box. This check box only appears in district categories. Click on the OK button. If candidates are not rotated in district order, double-click on each individual district in the category, enter the rotation number in the Start Rotation # field and click on the OK button. The Start Rotation # field only appears in the District Editor if the Rotation District check box is selected in the parent category. See Figure 2-87.

Note that districts cannot be added to the <Unassigned> default, nor should they be added to Jurisdiction Wide.

2.4.8.2. Updating districts

Double-click on a district in order to activate the District Editor, and change the Label, Id and Export fields as necessary. The Rotation Districts check box cannot be de-selected if at least one race rotates candidates over the rotation district. Note that the name of the <Unassigned> district cannot be changed, nor should the name of Jurisdiction Wide be changed.

2.4.8.3. Deleting districts

Deleting a district removes the district from the database as well as any of the district’s linkages to base precincts. Any race linkages defined for the district are set to <Unassigned>. Deleting a district category removes the category as well as all subdistricts from the database. A district category that has been set to rotation district cannot be deleted until the Rotation District check box is de-selected. See Figure 2-88.
Select the district and click on the Delete Record icon. A message appears, requesting that the deletion operation be confirmed. Click on the Yes button to continue. See Figure 2-89.

![Figure 2-88. Deleting a district](image)

![Figure 2-89.Confirming district deletion](image)

2.4.9. Precincts

2.4.9.1. Adding report precincts

Expand Report Precinct in the tree view, select Default Precinct Category and click on the New Record button. Enter a descriptive name in the Label field and Id number in the Id field if the report precinct is in non-standard order and an export value in the Export field. Click on the Add button and continue adding report precincts until all report precincts have been defined. See Figure 2-90 and Figure 2-91.

Note that base precinct label combined with voter group on the Voter Card Encoder display must fit within 12 characters in order to not be truncated. Since the base precinct label is taken by default from the report precinct label, ensure that the report precinct is assigned a label that is sufficiently descriptive but terse if the Voter Card Encoder is to be used in the election.

![Figure 2-90. Adding a report precinct](image)
2.4.9.2. Adding split precincts

Right click on the first report precinct in the tree view for which base precincts are to be added and click on Add Base Precinct in the pop-up menu. Enter the report precinct name followed by an appropriate qualifier in the Label field, change the Id number in the Id field if the base precinct is to be added in non-standard order, enter an export value in the Export field and click on the Add button. Continue adding base precincts, and click on the OK button when the last base precinct in the report precinct has been added. See Figure 2-92 and Figure 2-93.

Since GEMS automatically creates every report precinct with one base precinct, the first base precinct that is manually added is in fact the report precinct's second base precinct. Once a second base precinct has been added, an expand/contract icon will appear to the left of the report precinct label in the tree.
view. Once all base precincts have been added, double-click on the first base precinct in the list and enter the Label, Id number and export value as required.

Continue adding base precincts to report precincts until all precinct splits have been added to report precincts. Note that base precincts may be displayed either within report precincts or within Base Precinct.

**2.4.9.3. Adding cumulative report precincts**

If cumulative precincts are defined in the election, the steps are to

- Select Cumulative Reportunits and click on the New Record icon
- Add the necessary cumulative report precincts in the same manner that polling report precincts have been created
- Ensure that Cumulative Reportunits is expanded in the tree view and select Base Precinct in the tree view in order to display all base precincts in the list view.
- For each report precinct under Cumulative Reportunits, select the correct base precincts in the list view and drag them onto the cumulative report precinct. See Figure 2-94.

![Figure 2-94. Dragging base precincts onto cumulative report precinct](image)

**2.4.9.4. Updating precincts**

In order to revise report precinct information, double-click on the report precinct, change the Label, Id and Export fields as required and click on the OK button. Likewise, in order to revise a base precinct, double-click on the base precinct and change the Label, Id and Export fields as required.

**2.4.9.5. Deleting precincts**

Deleting a report precinct will remove the report precinct as well as any base precincts contained therein from the election. The base precinct(s) contained in the report precinct will be removed from any districts, and the report precinct will be removed from any vote centers to which it is linked. When deleting base precincts, ensure that a report precinct is not kept on file with no base precincts – the entire report precinct should be deleted instead.

In order to delete a report precinct, select the report precinct and click on the Delete Record icon.

In order to delete a base precinct, select the base precinct, click on the Delete Record icon and press the Yes button in the confirmation message. See Figure 2-95 and Figure 2-96.
2.4.10. Linking Base Precincts to Districts

Expand all districts within district categories in the tree view, and select Base Precinct in the tree view in order to display all base precincts in the list view. Select and drag the correct base precincts onto each district. See Figure 2-97.

It is not possible to link a base precinct to more than one district in a district category. If this is attempted, GEMS will display a prompt requesting whether the new district is to assume the base precinct. If you wish to place the base precinct in the target district, click on the Yes button, otherwise click on No.

2.4.10.1. Removing base precincts from districts

Select the district in the tree view and click on the Base Precinct tab in the list view in order to display all base precincts linked to the district. Select the base precinct(s) to be removed from the district and click on the Delete Record icon. Press Yes in the confirmation message in order to continue. Note that the base precincts are not removed from the election, only their linkage to the district is removed.

2.4.11. Vote Centers

2.4.11.1. Adding Vote Centers

Expand Vote Center in the tree view in order to display all vote center categories. Select each vote center category and click on the New Record button in order to add the vote center. See Figure 2-98.
Figure 2-98. Adding a vote center

Enter a descriptive label for the vote center in the Label field. Change the Id number if the vote center is to be added in non-standard sequence. Define a Tag value if necessary. Enter the appropriate number in the No. Mem Cards field if the vote center is to be counted on more than one ballot counting device. Enter an export value in the Export field if necessary. Note that the Category field is set to the vote center category and is display only. Click on the Calc. Size button if the vote center storage requirements are necessary.

Click on the Count Method drop-down list and select the count method from one of AccuVote-OS, Central Count, Manual Entry Only, AccuVote-TS or Challenge.

If regional processing is implemented, click on the Region drop-down list and select the correct region. If the vote center is to return results for select races only, click on the Filter drop-down list and select the correct reporting set.

In the UL field, enter the telephone number the vote center's ballot counting unit(s) will upload results over if transmission is to occur by modem.

Enter any comments pertaining to the vote center in the Notes text box.

Click on the Add button and continue adding vote centers as necessary. When the last vote center in the vote center category has been defined, click on the OK button and continue to the next vote center category. See Figure 2-99.
2.4.11.2. Updating vote centers

Double-click on the vote center in order to activate the Vote Center Editor, change any of the fields in the editor and click on the OK button in order to save results. Changing the Id number changes the order of the vote center list. Changing the number of memory cards changes the number of entries in the AccuVote Server consoles. Caution should be exercised in changing this value once memory cards have been programmed, as some program settings may be become lost as a result. Do not change the name of any default vote center.

2.4.11.3. Deleting vote centers

Even though a vote center is created automatically for every polling report precinct created, deleting a polling report precinct does not effect the deletion of the corresponding vote center. Deleting the report precinct only removes the precinct linkage to the vote center. If any report precincts are linked to a vote center being deleted, they are re-linked to the default vote center in the vote center category after deletion. In order to delete the vote center, select the vote center and click on the Delete Record icon. Click on the Yes button in the confirmation message to delete the vote center. See Figure 2-100 and Figure 2-101.

Figure 2-99. Defining a vote center
Do not delete any default vote center. Note that vote center categories can only be removed from the Counter Group Editor.

### 2.4.11.4. Linking report precincts to vote centers

In order to configure a vote center with ballot and results tallying information, the vote center must be linked to report precinct(s). By default, each polling report precinct is created with an equivalent vote center in the Polling Vote Center category. However, a jurisdiction may require that vote center-report precinct relationships be configured differently. Linkages between cumulative report precincts and vote centers, on the other hand, must be manually maintained.

In order to add polling report precinct linkages to vote centers, select Default Precinct Category in the tree view in order to display all report precincts in the list view. Expand Polling Vote Center as well as any other polling vote center category. Select the correct report precincts in the list view and drag them onto each vote center that needs revision. See Figure 2-102.
Adding report precincts to a vote center will not affect the currently linked precincts. Attempting to link report precincts already in a vote center has no effect. Dragging a report precinct to another vote center removes the precinct from the original vote center and links it to the target vote center.

In order to link a report precinct to more than one vote center in a vote center category press the CTRL key before dragging the report precinct to the vote center and release the CTRL key after releasing the mouse. If a report precinct is already linked to more than one vote center and is dragged onto another yet another vote center without using the CTRL key, GEMS will not be able to complete the vote center report precinct assignment. GEMS does not know which vote center to remove the report precinct from. See Figure 2-103.

Removing a report precinct from a vote center drops the precinct into the default vote center in the vote center category, unless it is not also in another vote center. GEMS prevents the operator from removing the report precinct from the default vote center if the precinct is not linked to any other vote center in the category, displaying an error message to this effect.

Jurisdictional information may be verified either by reviewing reports or by browsing the GEMS database. While all information may be verified by viewing the database window, printed reports provide a concrete benchmark and paper trail, useful for audit purposes. It is not necessary to perform verification of both reports and using the GEMS window. Complete verification should be performed only once all jurisdictional information has been entered. No changes to jurisdiction information of any sort should be performed after these reports have been signed off.

Figure 2-102. Dragging report precincts onto vote center

Figure 2-103. Vote center assignment conflict

2.4.11.5. Removing report precinct/vote center linkages

2.4.12. Deliverables
2.4.12.1. Reports

For more information on reports, refer to Appendix P: Administrative Reports.

Districts with Subdistricts
Verify the Id numbers and labels of all districts and subdistricts.

Report Precincts with Base Precincts (either by Id or Label)
Verify the Id number and label of all report precincts, the Id number and label of all base precincts, as well as all report precinct-base precinct relationships.

Districts with Base Precincts
Verify that each district category and district is defined with the correct base precincts.

Vote Centers with Reporting Precincts (either by Id or Label)
Verify that each vote center is on file for each region, with the correct Id number, label and vote center category, and verify that each vote center is linked to the correct report precincts.

2.4.12.2. Viewing the GEMS Window

Verifying districts
In order to verify that district information is correct; expand all district categories and districts in the tree view. Select District in the tree view in order to display all district categories in the list view and verify that all categories are present and defined with the correct Id numbers and labels. Next, select each of the district categories containing districts and again verify that the Id numbers and labels are correct, and that all districts are present within each category.

Verifying report precincts
Expand Report Precinct, select Default Precinct Category in the tree view, and verify that all report precincts are present with the correct Id numbers and labels in the list view. Select each of the report precincts with splits in the tree view and verify under the Base Precinct tab in the list view that the base precinct splits are defined correctly with Id numbers and labels. Select Cumulative Reportunits (if present) under Report Precinct in the tree view, and verify in the list view that all cumulative report precincts are present, with the correct Id number and label. Expand Cumulative Reportunits in the tree view, select and verify that each cumulative report precinct is defined under the Base Precinct tab with the correct base precincts.

Verifying Base Precincts
Select Base Precinct in the tree view and verify that all base precincts with the correct Id numbers and labels are on file.

Verifying Districts In Base Precincts
In order to verify district-precinct relationships, ensure that all districts are expanded in the tree view, then select each district in the tree view, and observe under the Base Precinct tab in the list view that the correct base precincts are present for the selected district.

Verifying Vote Centers With Report Precincts
Expand Vote Center in the tree view and verify that every vote center category is present. Expand every vote center category and verify that the correct vote centers are present within each category. Select every vote center in every category and verify under the Report Precinct tab in the list view that the vote center is linked to the correct report precincts.
2.4.13. Master Jurisdictional Database

A master database may be created in which complete jurisdictional information is defined and used as a template for all elections. No other election information is contained in the database. Maintaining a jurisdictional master database saves the re-entry each election of all of the jurisdictional information and ensures consistency yet also requires continuous maintenance as well as potentially extensive revision to the election database in order to reduce unnecessary jurisdictional information. The expected time spent with re-entering jurisdictional information should be weighed against the disadvantages described in deciding whether or not to maintain a master database.

Every election, the jurisdiction master is copied in Windows NT Explorer from the LocalDB folder into the same folder, and the copy’s name is changed to the name of the election. GEMS is then activated for the newly created database, and the election Id changed by clicking on Setup in the menu bar, Election in the drop-down menu, and clicking on the Regenerate button under the Election Info tab. If the election database is to be reduced to contain only the necessary districts, precincts and vote centers, you need to ensure that a complete verification of the revised jurisdictional information is performed before continuing with the election definition.

Maintaining a jurisdictional database is not appropriate if the jurisdictional information is constructed by means of an import procedure.
2.5. Races and Candidates

Race and candidate information is defined in the Race Editor. General race information is defined under the Race tab, administrative information under the Options tab and candidate information under the Candidates tab. Voter groups defined for endorsement and preference races are defined under the VGroup tab.

2.5.1. Race definition process

Race definition is performed in the sequence of the following list:

1. Review documents required.
2. Define preference race if necessary.
3. Define endorsement race if necessary.
4. Define several races only.
5. Generate ballot artwork and observe a ballot style with all races.
6. Revise Race and Candidate Default Settings under Race Options as necessary.
7. Define all race and candidate information for all languages.
8. Record audio for races and candidates.
9. Add final candidates to existing races once candidate final deadline has passed.
10. Deliverables are reviewed.
11. Once ballot artwork has been printed, candidates may be withdrawn as necessary.
12. Write-in candidates are registered and defined in GEMS.

2.5.2. Before defining races and candidates

Before defining race and candidate information, jurisdictional information must have been completely defined, as described in the section 2.4 Jurisdictional Definition.

The jurisdiction must assemble the following information for the election before beginning race definition:

1. A complete list of races.
2. The correct order of races on ballots.
3. The district in which each race runs.
4. Partisan voter groups endorsing either candidates or races.
5. Which races appear on non-absentee or absentee ballots, or both.
6. The number to vote for each race.
7. Race formatting requirements.
8. Rotation requirements for each race.
9. Whether a straight party race occurs in the election.
10. The races endorsed by the straight party race.
11. Whether a primary preference race occurs in the election.
12. The races controlled by a preference race.
13. Districts or voter groups to which Shadowed races report.
14. Weighted race tags.
15. A list of candidates as complete as possible.
16. Candidate endorsements.
17. Whether cross-endorsed candidates are to appear on ballot once only, or once for every endorsing party.
18. The order in which candidates are to appear on reports.
19. Race text as it is to appear on ballots.
20. Candidate text as it to appear on ballots.
22. Audio content corresponding to all multi-language race and candidate text.
23. Race and candidate export values
24. Coloring requirements for ballots, if any.
25. Which voting devices races are to be valid for.

While race and candidate definition is in progress, candidate lists are to be completed once the candidate filing deadline is cleared.

2.5.3. Concepts

In broad terms, a race is an offering of responses subject to selection criteria, and in more specific terms, a race may be set of candidates running for an office, a set of responses for a question, or a set of parties grouped for the purpose of controlling other races. Every race is assigned text area on the ballot, and includes a voting oval for every candidate or response.

The following are examples of races:

- the offering of candidates John Doe and Jane Smith for the position of Mayor
- the offering of Yes and No responses to a question as to whether taxes may be raised
- the offering of the Democrat and Republican parties for automatically determining candidate selections on the ballot.

The combination of race, district and base precinct relationships allows GEMS to create ballot styles, each ballot style containing a unique set of races, valid for one or more base precincts in the jurisdiction.

Races are defined in the Race Editor once all jurisdictional information has been defined. A backup should be performed before beginning race definition. Races are commonly defined in decreasing order of importance, for example, first federal races are defined, then state, then local. Furthermore, races should be ordered consistently either by office or endorsing voter group in a primary election.

2.5.3.1. Race Type

Races are classified according to race type – these include Candidate, Question, Endorsement, Recall, Recalled, Preference, Shadow and Shadowed. The race type is selected from the Type drop-down list under the Race tab. By default, a race is defined the race type Candidacy.

Candidacy

A candidacy is a choice of one or more people for the occupation of a particular office. A candidacy may also be a choice among one or more selections toward the fulfillment of certain criteria.

For example, the race for Mayor is a candidacy, offering a selection of candidates for the position of Mayor.
Candidates are defined under the Candidates tab.

**Question**

A *Question* presents the opportunity of either a positive or negative response to a particular choice. For example, a proposition asking voters whether or not to accept an increase in taxes is a question.

Upon setting the race type to question, GEMS automatically assigns the Yes and No responses as candidates, with number to vote for 1.

**Endorsement**

All candidates in races endorsed by a voter group selected in an Endorsement race are automatically selected subject to the election’s straight-party voting tally rule.

For example, selecting the Democrat party in an endorsement race will effect the selection of all candidates endorsed by the Democrat party.

An endorsement race is configured with voter groups defined in the Voter Group Editor as responses. In order for an endorsement race to affect the candidate selections in a race, the race is defined as endorsed by selecting the endorsement race in the Endorsement drop-down list in the Controlling Races group box under the Options tab. This list is only enabled if at least one endorsement race is defined in the election.

The endorsement race should be placed at the beginning of the race list, although an election may be defined with multiple endorsement races.

Commonly, endorsement races are defined in a general election only, although the endorsement race may also be used to define a slate in a primary. The counting of endorsement selections occurs according to the tally rules defined in the Straight Party group box under Tally Settings in AccuVote-OS Options.

For example, an open primary election is held for both Republican and Democrat offices. Republican candidates are divided into two slates, A and B, and Democrat candidates into C and D.

In GEMS, slates A, B, C and D are defined as voter groups, and all candidates are defined and endorsed with their affiliated slate. An endorsement race is defined as first race in the election, and includes all four voter groups. Selecting any one of the slates will automatically effect the choice of all candidates endorsed by the slate.

Alternatively, two endorsement races could be defined on the ballot, a Republican endorsement race preceding the Republican races, with slates A and B, and a Democrat endorsement race preceding the Democrat party, containing slates C and D.

Commonly, Question, Endorsement, Recall, Preference and Shadowed races are not endorsed. Question and Recall races contain responses for which endorsement is not relevant; endorsing an Endorsement or Preference race is not applicable and Shadowed races are not defined with unique candidates.

**Recall**

A *Recall* race presents a possible positive response to a question concerning the removal from office of an official. A *Recalled* race providing a choice of candidates to replace the candidate selected for removal in the Recall race is defined after the Recall race. The recalled race must be explicitly linked to the recall race, and is counted only if the single response to the recall race is selected. One or more recalled races may be based on the same recall race selection.

For example, a question is posed to the voter as to whether a certain judge is to be removed from office. If the voter selects Yes in response to the recall question, the voter may select a candidate for judge in the following recalled race. If the voter does not select Yes in the recall race and makes candidate selections in the recalled race, the recalled race selection is not counted.
Recall races are automatically configured with the single response Yes, and number to vote for 1. The Recalled race type is only made available if at least one Recall race is defined in the election.

**Preference**

Any selections made in partisan races not endorsed by the voter group selected in a preference race are not counted. Preference races are commonly only used in open primary elections, with all partisan races on the same ballot. A preference race only takes effect over races to which it is defined as controlling race.

For example, an open primary election is held for Republican and Democrat State Assembly members as well as a bond issue. If a voter selects a candidate in each of the State Assembly races as well as in the bond issue, only the bond issue selection is counted.

Using the prior example, a preference race is defined and linked to the State Assembly races. The voter selects the Democrat party as well as making selections in every race on the ballot. Only the selections in the race for Democrat State Assembly and bond issues are counted, since the Democrat preference choice causes the Republican State Assembly selection to be ignored.

The preference race is configured with voter groups defined in the Voter Group Editor as responses. In order for an endorsement race to affect the candidate selections in a race, the race must be linked to a preference race by selecting the preference race in the Preference drop-down list in the Controlling Races group box under the Options tab. This list is only enabled if at least one preference race is defined in the election.

Commonly, Question, Endorsement, Recall, Preference and Shadowed races are not assigned a Preference race. Question, Recall, Endorsement and Preference races are not partisan and Shadowed races do not physically occur on the ballot.

**Shadow**

The results of one race may be reported simultaneously for distinct districts or voter groups when defined as Shadow race. A race is defined with Type Shadow with district, voter group and all other parameters of a candidacy, with as many Shadowed races as necessary to satisfy reporting requirements. Upon setting the race type to Shadowed, the race enables the selection of a controlling Shadow race.

For example, a closed primary election is held for the offices for the President of the United States, Democrat State Senator and Republican State Senator. All voters vote on the race for President, Democrat voters on the race for Democrat State Senator and Republican voters vote for Republican State Senator. The jurisdiction requires election results reported for the race for President both for the entire jurisdiction and for the individual parties.

The Democrat and Republican parties are defined with ballot separation in the Voter Group Editor. The races for President of the United States is defined three times; first, as a Shadow race for voter group <N.P.>, secondly, as Shadowed for voter group Democrat and thirdly, as Shadowed for voter group Republican. Shadowed races are linked to the Presidential Shadow race. Races for Democrat and Republican State Senator are defined for the corresponding voter groups.

Election results reports will include three instances of the race for President. The first reports results for all voters, the second reports results for Democrat voters only and the third reports results for Republican voters.

In another example, the city of Harrison is holding an election for Mayor in the precincts of Jackson and Lincoln, which correspond to Ward 1 and 2, respectively. All voters vote on the race for Mayor, yet the jurisdiction wants results reported by ward in addition for all of Harrison.

In GEMS, district category City is defined, within City district Harrison and within Harrison Ward 1 and Ward 2. Polling report precincts Jackson and Lincoln are defined and linked to Ward 1 and Ward 2, respectively. The race for Mayor is defined as Shadow race, and the same race is defined twice again, once as Shadowed for Ward 1 and secondly, as Shadowed for Ward 2. Both Shadowed races are linked to the Mayoral Shadow race.
Election results will list the race for Mayor three times on election results reports; the first instance reports results for all of Harrison, the second for Ward 1 only and the third for Ward 2 only.

The Shadowed race type is only present in the race list if at least one Shadow race has been defined. The Shadowed race does not allow any definition of ballot text or revision to the number to vote for under the Race tab, does allow voter group selection under the Options tab, and disables the Candidates tab.

**Weighted**

Weighted races are tallied by weights, assigned from the voter registration system, and may be counted in Central Count vote centers only.

Bar codes are assigned by the voter registration system, containing encoded information identifying the voter, tags identifying races as well as weight values for every voter and every race.

The tag defined for each weighted race should correspond to the race tag in the voter registration system.

**Race types**

A weighted race has the same attributes as a candidacy, and other than being weighted, is counted in the same manner as candidacies. In order to configure a question as a weighted race, two candidates are defined as positive and negative values in a vote for one race.

Preference and endorsement races control weighted races in the same manner as candidacies.

**Election results**

Weighted results are reflected in the election results reports in candidate totals as well as votes cast, and results are reported with two decimal places. Likewise, weighted results are manually entered in decimal amounts. Note that totals are not verified when manually entering the results of weighted races.

Since GEMS does not contain weight information, it is not possible to perform verification of manually entered weighted results, so that it is critical that these results entered be verified independently both prior to and following manual entry.

**Examples**

Voters vote on two propositions in a weighted election, Proposition A and Proposition B. Three voters vote in the election, John Doe, Jane Doe, and Bill Smith. John Doe is defined in the voter registration system with weight 25 for Proposition A and 50 for Proposition B, Jane Doe with weights 33 and 45, and Bill Smith with weights 20 and 40, respectively for the two propositions.

The three voters then vote as follows:

<table>
<thead>
<tr>
<th>Race</th>
<th>Selection</th>
<th>Voters</th>
<th>Tallies</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposition A</td>
<td>Yes</td>
<td>John Doe</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Jane Doe</td>
<td>33</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>Bill Smith</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Proposition B</td>
<td>Yes</td>
<td>Jane Doe</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>John Doe</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bill Smith</td>
<td>40</td>
<td>90</td>
</tr>
</tbody>
</table>

**2.5.3.2. District**

Not all voters in a jurisdiction may vote on all races in an election.

For example, the city of Harrison consists of precincts Jackson and Lincoln. Voters in the precinct Jackson vote for Ward 1 City Councilor and voters in Lincoln vote for Ward 2 City Councilor. Therefore, not all voters in the election vote on both of these races.
A race runs in a district, which in turn is defined in terms of the precincts in which voters may vote for the race. Defining a race for a district restricts the race to a geographical area in the jurisdiction.

In the prior example, polling precincts Jackson and Lincoln are defined. District category City, within which Harrison is defined, and within Harrison, Wards 1 and 2 are defined. Ward 1 is linked to base precinct Jackson and Ward 2 to base precinct Lincoln. The race for Ward 1 City Councilor is then defined for district Ward 1 and Ward 2 City Councilor defined for Ward 2.

The district is selected from the District drop-down list under the Race tab. All district categories and districts defined appear in this list. By default, a race is assigned the district <Unassigned>. Races valid in the entire jurisdiction should be assigned the district Jurisdiction Wide. A district category automatically includes all districts contained therein.

2.5.3.3. Number to vote for

A voter is entitled to select no more candidates or responses than the number to vote for.

For example, a voter may select no more than 4 candidates for the office for Ward 1 City Councilor. The race for Ward 1 City Councilor's number to vote for is 4.

Selecting more candidates than the number to vote for effects an overvote. Selecting no candidates in a race is considered a blank vote. Selecting less candidates than the number to vote for effects an undervote. Undervotes are only applicable to races with a number to vote for greater than 1.

Commonly, the number to vote for of Question, Endorsement, Recall and Preference races is 1. The number to vote for is not applicable to Shadowed races, as they do not occur on the ballot.

The number to vote for is defined in the Vote For field under the Race tab. By default, a race is assigned the number to vote for 1.

2.5.3.4. Not counting

Headers may be linked to ballot styles by voter group, but only to ballot styles that already exist and are specific to the voter group. Despite this, voter group-based headers in some cases must be assigned to the same ballot style. A dummy race may be defined using the Not Counted check box under the Race tab, which may be used to force a unique ballot style for the headers. The dummy race may be formatted so as to be transparent on the ballot, and furthermore, be restricted from the printed ballot according to voting device assignment.

For example, an election is held for President of the United States and United States Senator, using the AccuVote-OS only. Polling and absentee voters vote on the same race, but polling and absentee voters are to receive ballots titled 'Polling' and 'Absentee', respectively.

Voter groups Polling and Absentee are defined under the Absentee/NonAbsentee tab in the Voter Group Editor. The races for President of the United States and United Senator are defined, both to voter group <N.P.>.

A race titled ‘Absentee header’ with no race text or candidates is defined, with the Not Counted check box selected under the Race tab, with no boundary lines are defined for the race (in the Draw Options group box), and is linked to the absentee/non-absentee voter group Absentee. The AccuVote-OS check box is also de-selected in the Include On group box under the Options tab.

Two headers are defined and linked to all races, a polling election title, linked to voter group Polling and an absentee election title, linked to voter group Absentee.

GEMS will create two ballot styles with both races for President and U.S. Senate and with unique election titles, one polling and the other absentee. The dummy race is linked to the absentee ballot but does not appear on the printed ballot, since it was defined to not be included on AccuVote-OS ballots. The AccuVote-OS reports will contain an entry titled ‘Absentee header’, but GEMS election results reports will not contain this race.
The Not Counted check box is selected under the Race tab. By default, the Not Counted check box is not selected. Races defined with Not Counted appear on the ballot, but are not counted.

2.5.3.5. **Ballot text**

Race ballot text is the text defined for a race as it appears on the ballot, candidate ballot text is defined for every candidate as the candidate is to appear on the ballot, and voter group ballot text is defined for every voter group as it is to appear on the ballot in preference and endorsement races.

Initially, the ballot text fields are assigned the Label value of the race, candidate or voter group. Once race definition has been saved, however, changing the label value does not change the value in the ballot text field.

Ballot text may be defined over as many lines as required, using the following formatting options and tools: Cut, Copy, Paste, Undo, New Object, Find, Replace, font, font size, Text Color, Bold, Italic, Underline, Highlight Color, justification, Paragraph Format and Bullet. Ballot text formatting options and tools are detailed in the section 2.6.5 Ballot text in 2.6 Preparing Ballot Artwork.

Race ballot text is initially formatted according the options defined under the Race Default Settings tab in Race Options, and candidate and voter group ballot text is initially formatted according to the options defined under Candidate Default Settings.

2.5.3.6. **Language**

Ballot text is defined for races and candidates by language selected from the corresponding Language drop-down list. Language-specific ballots are assembled from all of the race, candidate and voter group ballot text assigned to the corresponding language. Ballot text for all languages is defined within the same race in the Race Editor.

The space in which a race is laid out on the AccuVote-OS ballot is taken from the Default language. For example, race text requires three lines on the AccuVote-OS ballot using the Default language. Even though Spanish, on the other hand, requires two lines only, Spanish race text is assigned three lines on the ballot.

For example, an election is held for Mayor of Harrison, in which the candidates John Doe and Jane Smith are running. John Doe is an assessor and Jane Smith an accountant. The city requires separate ballots to be available to voters in English and Spanish, and candidate names are to include professions.

The race for Mayor is defined, with the text ‘Mayor/Vote for 1’ as race ballot text, and ‘John Doe/Assessor’ and ‘Jane Smith/Accountant’ as candidate ballot text for the English language. Under the Race tab, the Spanish language is selected, and the equivalent Spanish text is defined for the race ballot text, and under the Candidates tab, the Spanish language is selected, and Spanish equivalents are defined for the candidate ballot text.

All languages listed in the Language list are defined in the Language editor. By default, a race is assigned the language Default.

2.5.3.7. **Audio**

Audio may be recorded for race and candidate ballot text. The audio feature for recording race ballot text is accessed by clicking on the Audio button under the Race tab, and candidate ballot text recording is accessed by clicking on the Audio button under the Candidate tab. For more information on using audio, refer to section 2.7 Audio.

2.5.3.8. **Rotations**

The sequence of candidates in a race may be varied according to rotation rule selected. Rotation rules include Precinct, District, Precinct by VReg, Kansas, Minnesota, Pima County and King County. The rotation rule is selected from the Type drop-down list in the Rotation Options group box under the Options tab. All of these rotation rules may be further qualified by voter group, which is effected by selecting the
Within VGroup check box. Furthermore, King County rotation requires the definition of a voter registration cutoff amount in the Voters Per Rotation field, that is activated only if the King County rotation rule is selected.

By default, a race is defined with rotation type None, or without rotation. Races of type Question, Endorsement, Recall and Preference are not commonly rotated. Shadowed races are not rotated as they are not defined with candidates.

For more information on rotation refer to section *Appendix C: Rotation Rules*.

### 2.5.3.9. Options

The Size Options, Candidate Grid Layout, Candidate Block Options and Draw Options group boxes include race and candidate formatting options. Defaults for these options are defined under Race Default Settings in Race Options. The descriptions of race default settings in section 2.3 Setup applies equally to the formatting options used to define races.

### 2.5.3.10. Voting devices

The race may be included on AccuVote-OS ballots only, AccuVote-TS ballots only, or both. A race is placed on the AccuVote-OS ballot by selecting the AccuVote-OS check box in the Include On group box under the Options tab, and is placed on the AccuVote-TS ballot by selecting the AccuVote-TS flag in the Include On group box.

### 2.5.3.11. Voter groups

Voter groups endorse both races and candidates, and comprise preference and endorsement races as well. For more information on voter groups, see the section 2.3.5 Voter Groups in 2.3 Setup.

#### Races

A race is defined for a class of voters or voter group.

For example, Democrat voters only may vote on the race for Democrat State Senator and Republican voters only may vote on the race for Republican State Senator. In GEMS, the partisan voter groups Democrat and Republican are defined, and the races for Democrat State Senator and Republican State Senator are defined to the Democrat and Republican voter groups, respectively.

Partisan ballots in a closed primary contain only corresponding partisan races as well as non-partisan ballots; for example, Republican ballots contain only Republican and non-partisan races and Democrat ballots contain only Democrat and non-partisan races. Non-partisan ballots contain only non-partisan races.

Voters may not cross party lines when voting on open primary ballots, which contain all partisan and non-partisan races. For example, a voter may make a candidate selection in either the race for Democrat State Senator or Republican State Senator, but not both.

In another example, an election is held for Precinct Committee Office. Election day voters may vote in this office, but absentee voters may not. In GEMS, the absentee/non-absentee voter groups Polling and Absentee are defined, and the race for Precinct Committee Office is defined and linked to the voter group Polling. All races that both polling and absentee voters may vote on are endorsed with voter group <N.P.>. Election day voters are assigned ballots including the Precinct Committee Office, and absentee voters are assigned ballots without this race.

A race may be defined with both partisan and absentee/non-absentee voter groups.

Partisan voter groups are selected from the Group One drop-down list in the Voter Groups group box under the Options tab, and absentee/non-absentee voter groups are selected from the Group Two drop-down list. The Group One list is only enabled if at least one voter group is defined under the Parties tab of the Voter Group Editor, and the Group Two list is only enabled if at least one voter group is defined under the Absentee/NonAbsentee tab in the Voter Group Editor.
By default, both voter groups are set to <N.P.>. Endorsement and Preference races can not be linked to an absentee/non-absentee voter group, and Recalled races must be linked to the same voter groups as the corresponding Recall race.

Candidates

A candidate may be endorsed by a partisan voter group, selected from the Endorse drop-down list under the Candidates tab.

For example, in an election for State Senator, John Doe is running as Republican candidate and Jane Smith as Democrat candidate. In GEMS, the Republican and Democrat voter groups are defined, and the race for State Senator is defined with John Doe endorsed by the Republican voter group and Jane Smith endorsed by the Democrat voter group.

The voter group selected in an endorsement race counts all candidates endorsed by the voter group on the ballot. Suppose that an endorsement race is now defined with the Republican and Democrat voter groups in addition to the race for State Senator. The selection of Republican in the endorsement race affects the selection of Republican candidate John Doe in the race for State Senator.

No more candidates may be endorsed by one political party in a straight party votable race than the number to vote for. This restriction does not apply in non-straight party votable races.

For example, the race for City Councilor is vote for two. Three candidates are endorsed by the Republican party, and the race is not straight party votable. In another example, a race for City Councilor is held in an election, where the race is vote for two and straight party votable. Two candidates are endorsed by the Republican party, so that no more candidates may be endorsed by the Republican party.

By default, the candidate endorsement is set to <N.P.>, or non-partisan.

2.5.3.12. Candidate type

A candidate type may be either Candidate, Write-in, Registered Write-in or Header.

A candidate of Type Candidate is defined by name and appears on ballots and reports. Voters may write in the name of the desired candidate in the space provided for Write-in candidates. Commonly, jurisdictions only consider Write-in candidates that have been registered. Once the filing deadline for registered write-in candidates has passed, these candidates may be added to races as Registered Write-in candidates.

Registered Write-in candidates may be defined after memory cards are programmed and appear on GEMS election results reports, although they do not change ballot artwork. Election results for registered write-in candidates are manually tallied and entered into GEMS.

Candidates of Type Header are intended as header text embedded in the candidate list. The text defined in the Label field is inserted in the corresponding position in the candidate list, but no voting oval is assigned the candidate, nor is the candidate endorsed.

Write-in candidate selections are subject to the tally rules defined in the Write-in group box under the Tally Settings in AccuVote-OS Options.

For more information on write-ins refer to section 3.8 Manual Entry.

2.5.3.13. Candidate ordering

Candidates are not necessarily ordered in the same manner on the ballot as they are to be ordered on election results reports. Every candidate is defined with an Art Seq value, which determines the position of the candidate on the ballot. The Report Seq field, on the other hand, determines the position of the candidate on voting device and GEMS election results reports.

By default, both fields are assigned the same sequence numbers.
2.5.3.14. Candidate withdrawal

Before ballot artwork has been finalized, a candidate’s withdrawal from a race is implemented by deleting the candidate from the race and re-generating ballot artwork. Once ballots have been printed, however, the candidate must be withdrawn by selecting the Withdraw check box under the Candidates tab. The candidate appears on all AccuVote-OS reports, even if the candidate was withdrawn from the race before programming memory cards. GEMS election results reports, however, do not include any withdrawn candidate.

This feature only applies to AccuVote-OS ballots, as AccuVote-TS memory cards are re-programmed upon candidate deletion from the Race Editor.

2.5.3.15. Cross-Endorsement

A candidate endorsed by more than one voter group is cross-endorsed. For example, in a race for Ward 1 City Councilor, candidate Jack White is endorsed by both Republican and Democrat parties.

The total number of candidate endorsements in a race may not exceed the number to vote for. For example, in a race for City Councilor, Joe Smith is endorsed by both the Republican and Reform parties, while Betty Garcia is endorsed by the Reform party. Since both Joe Smith and Betty Garcia are Reform candidates in a vote for two race, no more Reform candidates are allowed in the race. Cross-endorsed candidates may be selected either within the race or by straight party choice.

Ballot appearance

Cross-endorsed candidates may appear on the ballot once only, or once for every endorsing party. For example, Joe Smith is running for City Councilor, and is endorsed by both Reform and Republican parties. If Joe Smith is to appear on the ballot once only, then the candidate’s name appears on the ballot only as non-partisan candidate. Otherwise, the candidate name will appear on the ballot once with the endorsing Republican party, and a second time with the endorsing Reform party.

The appearance of cross-endorsed candidates on the ballot is determined by the Cross endorse on ballot once check box; selecting this check box places the candidate on the ballot once only, and not selecting the check box places the candidate on the ballot once for every endorsing party.

Cross-endorsed candidates defined in GEMS are automatically grouped together in GEMS. Every partisan instance of the same cross-endorsed candidate is assigned the same Id number. Furthermore, all instances of the same cross-endorsed candidates employ the same ballot text and audio.

The appearance of cross-endorsed candidates on the ballot is defined by race. It is essential that the party be printed on the ballot if the candidate appears on the ballot once for every endorsing ballot.

Voter group rotation

Rotation by voter group may be applied to races defined with cross-endorsed candidates. Cross-endorsed candidates that appear on the ballot once only rotate in the same manner as other candidates. However, candidates that appear on the ballot once for every endorsing party are rotated by political party, so that the cross-endorsed candidate list effectively becomes disjoint on the ballot.

Tally logic

Cross-endorsed candidates are defined in GEMS once for every endorsing party, as well as once with the N.P. endorsement. The N.P. candidate is defined in order to hold tallies that cannot be tied to a specific endorsing party. The N.P. candidate never appears on ballots, and only appears on reports.

Candidate appears on ballot once only

Every vote for the cross-endorsed candidate that appears on the ballot once only is tallied to the N.P. instance of the candidate. Every vote for the candidate as a result of straight-party selection, on the other hand, is tallied to the corresponding endorsing party on reports.

Votes are tallied to partisan instances of the cross-endorsed candidate only by means of straight party selection. For example, Joe Smith is endorsed by both the Republican and Reform parties in the race for
City Councilor. Even though Joe Smith appears on the ballot once only, a Republican straight-party selection of Joe Smith is tallied to the Republican counter for the candidate.

Additional endorsements may be added to the cross-endorsed candidate without affecting ballot artwork, since the candidate appears on the ballot once only.

**Candidate appears on ballot once for every political party**

Votes for the candidate are tallied to the corresponding partisan instance of the candidate, whether the votes occur either due to candidate or straight party selection.

Votes are tallied to the non-partisan instance of the cross-endorsed candidate only if selections occur of the same candidate in races with number to vote for greater than two. For example, Joe Smith is endorsed by both Republican and Reform parties in the vote for two race for City Councilor. Races are defined with candidates appearing on the ballot once for every endorsing party. Selecting both instances of Joe Smith on the ballot will effect a single tally to the N.P. counter for Joe Smith.

Note that it is not possible to select a cross-endorsed candidate more than once in a race on the AccuVote-TS ballot.

**Reporting**

Cross-endorsed candidates may appear on GEMS election results reports once only, or once for every endorsing party. Reports printed with candidates once for every endorsing party include the N.P. endorsed candidate. All partisan and non-partisan instances of cross-endorsed candidates appearing on election results reports once only are tallied to the single entry on the report.

Cross-endorsed candidates appear on the Election Summary and SOVC reports once only if the Cross-Endorse Totals Only check boxes in the corresponding windows are selected, otherwise, candidates appear on the election results reports once for every endorsing party.

2.5.4. Configuring races

2.5.4.1. Adding races

Select Race in the tree view and click on the New Record icon. The Race Editor appears, set to the Race tab. See Figure 2-104 and 2-107.

![Figure 2-104. Adding a race](image)

**Race tab**

Enter a unique and descriptive name in the Label field. This field identifies the race on administrative election results reports. Select the race type from the Type drop-down list. Select the district from the District drop-down list.

Adjust the Id number in order to determine the position in the race list, where necessary. Define text in the Tag field, define the number to vote for in the Vote For field, and enter an export value in the Export field, if necessary.
If the race has been defined as a Recalled race, select the controlling Recall race from the Recall Race drop-down list. If the race has been defined as Shadowed, select the controlling Shadow race from the Controlling Race drop-down list. See Figure 2-105.

Figure 2-105. Selecting a controlling Recall race

In case of dummy races, select the Not Counted check box.

Using the formatting tools and options available, enter race text for the default language in the ballot text field at the bottom of the Race tab. Select a language in the Language drop-down list and enter language-based race text for every language used in the election. Race ballot text does not appear under the Race tab if the race type is Shadowed.

If race text is not entered for a particular language when race results are saved, a message appears, reminding the operator that text for the language must be entered. See Figure 2-106.

Figure 2-106. Spanish race text not entered

Click on the Audio button in order to record, import or format audio information corresponding the race.
Figure 2-107. Race tab of Race Editor

Click on the Options tab. See Figure 2-107.

Options tab

Select a rotation rule where applicable in the Rotation Options group box. See Figure 2-108.

Define Race Width, Candidate Spacing and Min Candidate Row/Col values in the Size Options group box. In the Candidate Grid Layout group box, select the appropriate Layout and Organize radio buttons. Define the Width value and oval justification in the Candidate Block Options group box.

If the race is to be included on AccuVote-OS ballots, select the AccuVote-OS check box, and if the race is to be included on AccuVote-TS ballots, select the AccuVote-TS check box.
In the Voter Groups group box, select a partisan voter group from the Group One drop-down list and an absentee/non-absentee voter group from Group Two. See Figure 2-109.

Figure 2-109. Selecting an endorsing partisan voter group

Select a preference race from the Preference drop-down list and/or an endorsing race from the Endorsement drop-down list.

Define all formatting options necessary in the Draw Options group box. Select the Cross-endorse on ballot once check box if cross-endorsed candidates are to be appear on ballots once only, otherwise, do not select the check box if cross-endorsed candidates are to appear on ballots once for every endorsing party.

Figure 2-110. Options tab in the Race Editor

If the race type is not Endorsement, Preference or Shadowed, click on the Candidates tab. If the race type is Endorsement or Preference, click on the VGroups tab. See Figure 2-110.

If the race type is Shadowed, no Candidates tab appears, so click on the Add button in order to continue adding races, otherwise, click on the OK button once all races have been added.
Only a partisan voter group may be selected under the Options tab if the race type is Shadowed.

Candidates tab

The Candidates tab appears in the Race Editor for races of type candidate, question, recall, recalled and Shadowed. Candidate, recalled and shadowed races involve the selection of candidates, while question and recall races involve the selection of positive or negative responses.

Candidates

Click on the New button in order to add the first candidate. Enter the candidate name in the Label field, select the candidate type from the Type drop-down list, and apply formatting options and enter or change text in the ballot text area at the bottom of the Candidates tab as necessary. Change the Art Seq and Report Seq values if the candidate is to be ordered differently either on the ballot or reports. Enter a candidate export value in the Export field. See Figure 2-111.

Figure 2-111. Adding the first candidate

Select the party endorsing the candidate from the Endorse drop-down list. See Figure 2-112.

Figure 2-112: Selecting party endorsing candidate

Select a language in the Language drop-down list and enter language-based candidate text for every language defined. If candidate text is not entered for a particular language when race results are saved, a message appears, reminding the operator that text for the language must be entered.

Click on the Audio button in order to record, import or format audio information corresponding the candidate.
Once all information for the candidate has been defined, click on the New button and continue with the addition of the next candidate. Add all write-in candidates once candidates have been defined. See Figure 2-113.

Once all candidate definition is complete, click on the Add button to continue adding races in the election. Once all races have been defined, click on the OK button.

**Cross-Endorsement**

If a candidate in the race is to be cross-endorsed, select the candidate in the Label display column and click on the XEndorse button. Two further instances of the same candidate name automatically appear on the column, one endorsed by N.P. and the second endorsed by the first political party defined in the voter group list. Select the second partisan candidate instance, and select the appropriate party from the Endorse drop-down list.

Continue adding cross-endorsements by selecting the candidate, clicking on the XEndorse button, then selecting the new endorsement instance and define the new endorsing party as required.

**Responses**

Question races are automatically defined with Yes and No responses as candidates, and Recall races are automatically defined with Yes only. The response ballot text may be changed as necessary as well as being assigned export values in the Export field. It is not possible to add or delete candidates in a Question race (ie. Yes or No values).

Once the formatting of responses is complete, click on the Add button to continue adding races in the election in this manner. Once all races have been defined, click on the OK button.

**VGroups**

The VGroups tab is only displayed if the race type is Endorsement or Preference.

Selecting a voter group in the top, right-hand list and clicking on the New button transfers the party to the list in the top, left-hand corner of the tab. Voter groups may be removed from the race by selecting the voter group to remove in the left-hand window and clicking on the Delete button. See Figure 2-114.
Enter voter group text for every voter group and every language in the ballot text field. If voter group text is not entered for a particular language when race results are saved, a message appears, reminding the operator that text for the language must be entered.

Once all voter groups have been defined, click on the Add button to continue adding races. Once all races have been defined, click on the OK button.

2.5.4.2. Updating races and candidates

Expand Race in the tree view, select a race and click on the Edit Record icon. Change information as necessary under the Race, Options and Candidates or VGroups tab. Click on the OK button in order to save results. Continue updating race information in the same manner. See Figure 2-115.

The candidate type cannot be updated. If the candidate type of a race must be changed, the race must be deleted and re-added. The Withdraw check box is selected if the candidate has withdrawn.

Add candidates by clicking on the New button and proceeding as described in the section 2.5.4.1 Adding Races. Select candidates to delete in the Label column under the Candidates tab and click on the Delete button. Registered write-in candidates may be added or deleted for any election status setting.
Dragging onto districts

One or more races may assigned to a particular district by dragging the races onto the district. The current district affiliation of any races is set to the target district once the races have been dragged onto the district. Dragging races onto Jurisdiction Wide sets the races to the Jurisdiction Wide district, and dragging races onto Unassigned sets the races’ districts to Unassigned.

Re-layout

If the entry of ballot text requires ballot layout to change, select the Force Re-Layout check box.

Changing the following fields in the Race Editor does not change ballot layout:

- race Label
- Tag
- race Export
- Vote For
- Not Counted
- race ballot text (without requiring layout to be changed)
- non-Default language race ballot text
- Audio
- Preference race
- Endorsement race
- Draw Options (other than cross-endorsement appearance on ballot)
- candidate Type
- candidate Label
- candidate Report Seq
- candidate Export
- candidate withdraw
- candidate Endorse
- cross-endorsement (if candidate appears on ballot once only)
- voter group ballot text (when re-layout in not required)
- candidate audio

Changing the following fields in the Race Editor changes ballot layout:

- district
- language
- race Id
- race ballot text (requiring layout to be changed), Default-language only on AccuVote-OS ballots
- rotation type
- Size Options
- Candidate Grid Layout
- Candidate Block Options
Election Preparation

- Include On voting device
- Voter Groups
- cross-endorsed candidate appearance on ballots
- candidate addition and removal
- candidate Art Seq
- cross-endorsement (if candidate appears on ballot once for every endorsing party)
- number of voter groups
- voter group ballot text (upon re-layout)

2.5.4.3. Deleting races

Expand Race in the tree view, select the race to delete, and click on the Delete Record icon. Press Yes in the deletion confirmation message and continue deleting races as necessary. Race deletion automatically affects ballot layout. See Figure 2-116.

![Figure 2-116. Deleting a race](image)

2.5.5. Deliverables

At the completion of race and candidate definition, the following reports should be verified to ensure that race and candidate definition is correct. Race reconciliation on ballot artwork, verification of race and candidate ballot text and race formatting options must be verified once ballot artwork has been completed, from either printed or electronic artwork. Race and candidate export values are verified in export reports. See the section titled 2.6.12 Ballot proofing.

2.5.5.1. Race Report

Verify the following information in the Race Report:

1. All races defined are present in the report, using the Race Id and Label as reference.
2. Race labels are correct for every race.
3. Races are defined in the correct order, as they are to appear on reports.
4. Race type is correctly defined for each race.
5. The district is defined correctly for every race.
6. Polling and absentee/non-absentee voter groups are correctly defined for every race.
7. Every race is listed with the correct endorsement and preference race, where applicable.
8. The number to vote for is correct for every race.
9. Recalled races are linked to the correct Recall race.
10. Shadowed races are linked to the correct Shadow race.

2.5.5.2. *Races with Candidates*

Review the Races with Candidates report and verify that all candidates are present, spelled correctly in the Labels, defined in the correct order and endorsed by the correct political party for every race.

2.5.5.3. *Race Rotation Detail with VReg*

Review the Race Rotation Detail with VRReg report, and verify that all base precinct/rotation assignments are correct for every rotating race in the election. Voter registration amounts by base precinct provide supplementary information in the case of voter registration-based rotations.

2.5.5.4. *Ballot Text Report*

The Ballot Text Report contains ballot text defined for all races and candidates, as it is to appear on the ballot.
2.6. Preparing Ballot Artwork

This section provides a comprehensive overview of the creation, review and printing of ballot artwork. Detailed administrative information is also present with respect to the administration and composition of ballot artwork.

The following topics are presented:

1. Ballot artwork preparation procedure
2. Ballot artwork preparation inputs
3. Ballot artwork terminology
4. Ballot text
5. Tags
6. Ballot headers
7. Shaping races, headers and candidates
8. Color
9. RTF Export/Import
10. Generating ballot artwork
11. Ballot and Card Editors
12. Ballot proofing
13. Printing ballot artwork
14. Voter group/ballot affiliation
15. Card quantities
16. Ballot artwork completion deliverables

The section titled 2.6.1 Ballot artwork preparation procedure lists the steps involved in the ballot artwork development cycle, with the pertaining components of this section.

For technical information regarding ballot printing requirements, see the Ballot Specifications Guide.

2.6.1. Ballot artwork preparation procedure

This procedure details the steps involved in the ballot artwork preparation cycle. Each step is listed with a section in this document as reference, where appropriate.

1. Review requirements.
2. Review relevant GEMS documentation.
3. Scheduling ballot printing.
4. Define ballot headers.
5. Ensure that all tags are defined, if necessary.
8. Translate English ballot text in multi-language election.
15. Proof ballot artwork.
16. Revise ballot content as necessary.
17. Review ballot color assignments and revise as necessary.
18. Back up database.
21. Issue artwork to print company.
22. Retain offline copy of ballot artwork.
23. Proofing test ballots.
24. Print quality review for test, absentee and polling ballots.
25. Preparing overseas ballots.
27. Preparing and delivering polling ballots to polls.

2.6.2. Ballot artwork preparation inputs

Prior to creating ballot artwork, 2.5 Races and Candidates as well as all prior sections should have been completed.

The following exceptions exist. AccuVote-OS and AccuVote-TS Options may be defined prior to programming memory cards. Reporting Sets may be defined prior to reviewing election results reports and Monitor Scripts prior to testing JResult Client.

Vote center categories and vote centers may be defined as late as ballot artwork delivery to the printer in case of paper ballots, since the vote center-report precinct relationship affects the precinct sequence number on ballots. If precinct numbers are printed on ballots, vote centers may be defined before memory card programming. AccuVote-TS vote centers may be defined once ballot artwork has been completed. However, for sake of consistency vote centers should be completely defined with all other jurisdictional information.

2.6.3. Required Information

The following information should be determined prior to completing ballot production:

2.6.3.1. General

The following information applies to both AccuVote-OS and AccuVote-TS ballots.

Races, candidates and questions

All race, candidate and question information, in all languages, must be determined before final ballot artwork can be completed.
Race order
The correct order of races as they are to appear on ballots must be finalized before ballot artwork is created.

Candidate order
The correct order of candidates as they are to appear on ballots must be finalized before ballot artwork is created.

Ballot heading text
All non-race related heading text, in all languages, as well as its positioning on the ballot must be decided before finalizing ballot artwork.

Formatting requirements
All ballot formatting requirements must be decided in the course of ballot development or earlier, including fonts, font sizes, justification, and so on.

Color requirements
Color assignments to ballot text must be determined and incorporated into the ballot text definitions. If the print company does not employ color printers, color assignments must be specified to the print company.

Jurisdiction-assigned ballot styles
If jurisdictions employ pre-assigned ballot style numbers, GEMS ballot information must be reconciled with the jurisdiction’s anticipated ballot style information.

Race/precinct relationships
Race/precinct relationships as charted by the jurisdiction are reconciled with GEMS-generated ballot artwork. These reconciliations incorporate the jurisdiction’s ballot style numbers if they are used.

2.6.3.2. AccuVote-OS ballots
The following information applies to AccuVote-OS ballots only.

Printer certification
The jurisdiction must establish that the print company is certified to print AccuVote-OS ballots.

Ballot stock
The print company must be informed of the AccuVote-OS ballot stock, stock size and total paper quantity required.

Stub information
AccuVote-OS ballot stub information may include a serial number, election date, precinct number, informatory text and any other text the jurisdiction may require. This information must be specified to the print company upon submission of the ballot order.

Overprint information
Any text that is not comprised within the AccuVote-OS ballot artwork, such as precinct numbers or ballot style numbers, must also be defined for submission to the print company.

Packaging requirements
The print company must be informed as to whether AccuVote-OS ballots are to be bundled into pads, the amount of ballots per package, and the type of packaging to be used, be it shrink wrap, paper, boxes or some other type of packing material.
Delivery schedules
The jurisdiction must issue deadlines for AccuVote-OS test, absentee, early voting and polling ballot delivery dates. The print shop should also be informed about the turnover required to comply with makeup orders.

Voter registration amounts
Voter registration amounts must be determined before ballot artwork is sent to the print shop, provided card quantities are to be used in printing ballot artwork.

2.6.4. Terminology
GEMS uses four different terms for describing ballots. Every one of the following ballot entities comprises all language-based variants. For example, in an election defined with English and Spanish languages, ballot style 1 will refer to both the English as well as the Spanish ballot style 1.

2.6.4.1. Ballot style
A ballot style is a unique collection of races.

For example, the city of Fargo is holding an election for Mayor and City Council. Active in this election are precincts Wilson and Lincoln. Voters in Wilson vote for Mayor and Ward 1 City Councilor, and voters in Lincoln vote for Mayor and Ward 2 City Councilor.

In GEMS, district category City Council is defined, and in this category the districts Ward 1 and Ward 2. Report precincts Wilson and Lincoln are defined, and Wilson linked to district Ward 1 and Lincoln to district Ward 2. The race for Mayor is defined as Jurisdiction Wide, the race for Ward 1 City Councilor linked to district Ward 1 and the race for Ward 2 City Councilor linked to district Ward 2 City Councilor.

GEMS creates two ballot styles, ballot style 1 and ballot style 2. Voters in Wilson vote on ballot style 1, which contains the races for Mayor and Ward 1 City Councilor, and voters in Lincoln vote on ballot style 2, which contains Ward 2 City Councilor.

2.6.4.2. Ballot
A ballot is a rotated ballot style. Ballots differ from ballot styles only if rotation is implemented in an election, otherwise ballots and ballot styles bear the same Id number and occur in the same quantity.

For example, in the above election, if rotation is not required, then ballot style 1 corresponds to ballot 1 and ballot style 2 corresponds to ballot 2.

Now suppose that Fargo consists of four precincts, Wilson, Jackson, Lincoln and Taylor. Voters in Wilson and Jackson vote for Ward 1 City Councilor and voters in Lincoln and Taylor vote for Ward 2 City Councilor. Four candidates are running for the office of Mayor, and each precinct in Fargo receives a unique precinct rotation.

In GEMS, district category City Council is defined with districts Ward 1 and 2. Report precincts Wilson and Jackson are defined and linked to Ward 1 and Lincoln and Taylor are defined and linked to Ward 2. The race for Ward 1 City Councilor is defined and linked to district Ward 1, Ward 2 City Councilor is defined and linked to district Ward 2, and the race of Mayor is defined as Jurisdiction Wide with precinct-based rotation.

GEMS creates two ballot styles; voters in Wilson and Jackson vote on ballot style 1, which contains the races for Mayor and Ward 1 City Councilor, and voters in Lincoln and Taylor vote on ballot style 2, which contains the races for Mayor and Ward 2 City Councilor.

Since the race for Mayor contains 4 candidates and rotates over 4 precincts, ballot style 1 in Wilson corresponds to ballot 1, or rotation 0, ballot style 1 in Jackson corresponds to ballot 2, rotation 1, ballot style 2 in Lincoln corresponds to ballot 3, rotation 2, and finally, ballot style 2 in Taylor corresponds to
ballot 4 or rotation 3. Note that the Mayor’s race rotates fully over all four precincts, independent of the district assignments of other races.

2.6.4.3. Card style

Card styles are the physical documents that comprise a ballot style. The amount of information contained in a ballot style may require multiple documents or card styles to be used in an election. For administrative purposes, it is advantageous to attempt to fit all races onto one card style. Card styles differ from ballot styles only if at least one ballot style requires multiple documents in an election, otherwise card styles and ballot styles bear the same Id number and occur in the same quantity.

2.6.4.4. Card

A card is a rotated card style and is the basic building block of ballot artwork. Cards differ from card styles only if rotation is implemented in an election, otherwise cards and card styles bear the same Id number and occur in the same quantity. If no ballot styles are created with multiple card styles, then ballot styles and cards also bear the same Id number and occur in the same quantity. Every card comprises all language-based variants in an election defined with multiple languages.

Using the example given in the section 2.6.4.2 Ballot, suppose that in addition to the races for Mayor and City Council, voters vote on numerous amendments which require the use of two 11” documents for every ballot.

Ballot styles, ballots, card styles and cards are assigned as in Figure 2-117:

<table>
<thead>
<tr>
<th>Precinct</th>
<th>Ballot Style</th>
<th>Ballot</th>
<th>Card Style</th>
<th>Card</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wilson</td>
<td>1</td>
<td>1</td>
<td>1, 2</td>
<td>1, 2</td>
</tr>
<tr>
<td>Jackson</td>
<td>1</td>
<td>2</td>
<td>1, 2</td>
<td>3, 4</td>
</tr>
<tr>
<td>Lincoln</td>
<td>2</td>
<td>3</td>
<td>3, 4</td>
<td>5, 6</td>
</tr>
<tr>
<td>Taylor</td>
<td>2</td>
<td>4</td>
<td>3, 4</td>
<td>7, 8</td>
</tr>
</tbody>
</table>

Figure 2-117. Ballot styles, ballots, card styles and cards assignment

2.6.5. Ballot text

2.6.5.1. Content

Ballot text content is created by defining text in a ballot text editor and applying formatting tools and features. Note that the contents of the ballot text window provide little indication of the space requirements of the text on the ballot.

Text definition

The ballot text field in the Voter Group, Race and Header Editors is used to define text as it appears on the ballot. The political party is defined in the Voter Group Editor, race, candidate and voter group text is defined in the Race Editor, and header text is defined in the Header Editor.

Cut/paste

A portion of text may be moved to another point within the text. Select the desired text to move, click on the Cut button, click the mouse on the insertion point in the text and click on the paste button. See Figures 2-118 to 2-222. The text has now been removed from the source position.
Copy/paste

A portion of text may be copied to another point within the text. Select the desired text to copy, click on the Copy button, click the mouse on the insertion point in the text and click on the paste button. The text has been retained from the source position.

Undo

Click on the Undo button in order to undo the last activity.
New Object

Objects may be inserted into ballot text from sources external to GEMS using the New Object function. An object may be defined either in rich text format (rtf), ASCII format (txt), Windows metafile (wmf) or bitmap (bmp). By default, GEMS offers the Filled Oval.wmf file, stored in the GEMS images folders. This file contains a filled oval graphic, commonly inserted in voter instruction text as an example of a filled oval. An object may be selected from any other folder on the computer.

For example, select the position in the text to insert the filled oval. Click on the New Object icon, select the Filled Oval.wmf file, and click on the Open button. See Figures 2-123 to 2-125.

![Figure 2-123. Position cursor and click on New Object](image)

**INSTRUCTIONS TO VOTERS**

1. To vote you must completely darken the oval next to the candidate or measure of your choice. If you mismark an oval or change your mind, exchange your ballot for a new one.

2. To write in a name, you must completely darken the oval to the left of the name.

![Figure 2-124. Select file and click on Open](image)

**INSTRUCTIONS TO VOTERS**

1. To vote you must completely darken the oval next to the candidate or measure of your choice. If you mismark an oval or change your mind, exchange your ballot for a new one.

![Figure 2-125. Oval is now inserted in text](image)

Find

A search may be performed in the text for a character string, optionally case sensitive, either following or backwards from the current cursor position.

Insert the cursor at the desired search position in the text and click on the Find button. In the Find window, enter the search text in the Find what field. Every instance of clicking the Find Next button highlights the next instance of the search text. See Figures 2-126 to 2-127.
Select the Match whole word only check box in order to restrict the search to entire words that match the search text. Select the Match case check box in order to restrict the search to text that corresponds to the case of the search string.

If the search is to proceed forwards from the current cursor position, click on the Down radio button. If the search is to proceed backwards from the current cursor position, click on the Up radio button.

Replace

One or more instances of a character string may be replaced in text using the Replace function. The replacement may be performed for whole word matches of the search string, or for case-sensitive text matches only. Select the desired search character string in the text and click on the Replace button. In the Find window, enter the search text in the Find what field. Every instance of clicking the Find Next button highlights the next instance of the search text. Clicking on the Replace button replaces the first instance of text in the Find what field with the text entered in Replace with. Clicking on the Replace All button replaces all instances of text. See Figure 2-128 and Figure 2-129.
INSTRUCTIONS TO VOTERS
1. To **voted**, you must completely darken the oval next to the candidate or measure of your choice. If you mismark an oval or change your mind, exchange your ballot for a new one.

2. To write in a name, you must completely darken the oval to the left of the name you wish to write in. You may write in as many names as you wish, but you must ensure that the oval for each name is completely filled in order for the write-in vote to be counted. Write-ins are not permitted on the back of the ballot.

3. After filling in the oval next to the name you wish to write in, place the top of the writing instrument **lightly** on the name to prevent the ink from running. Avoid writing in names with a cap or felt tip pen, as this will void the write-in vote.

Figure 2-128. Select text to replace and click on Replace button

Figure 2-129. Replace text using the Replace function

Select the Match whole word only check box in order to restrict the search to entire words that match the search text. Select the Match case check box in order to restrict the search to text that corresponds to the case of the search string.

Font

Select the text for which the font is to be changed, then select the font from the font drop-down list. See Figure 2-130 and Figure 2-131.
Font size
Select the text for which the font size is to be changed, then select the size from the font size drop-down list. See Figure 2-132 and Figure 2-133.
Color
Select the text which is to be colored, click on the Text Color button, select the desired color in the color palette and click on OK. For more information on Color, refer to the section 2.6.8 Color.

Bold
Select the text to be set to bold and click on the Bold button. In order to reset text from bold, perform the same activity. See Figure 2-134 and Figure 2-135.

Italics
Select the text to be set to italicize and click on the Italics button. In order to reset italicized text, perform the same activity. See Figure 2-136 and Figure 2-137.
Underline
Select the text to be set to underline and click on the Underline button. In order to reset underlined text, perform the same activity. See Figure 2-138 and Figure 2-139.

Figure 2-138. Select text to underline

Figure 2-139. Text is underlined

Highlight Color
Select the text which is to be highlighted, click on the Highlight Color button, select the desired color in the color palette and click on OK. For more information on text highlighting, refer to the section 2.6.8 Color.

Justify
Text justification may be implemented using the Align Left, Center or Align Right buttons. Position the cursor in the text that is to be justified, and click on the desired button. See Figure 2-140 and Figure 2-141.

Figure 2-140. Select text to center
Paragraph Format

Indentation and justification may be implemented with the Paragraph Format function. Position the cursor in a paragraph to format and click on the Paragraph Format button. All lines except the first line in the paragraph are left-indented by the amount entered in the Left field. The entire paragraph is right-indented by the amount specified in the Right field. The entire paragraph is shifted left by the amount entered in First Line. Units of measurement in the Paragraph window are twips, comprising 1440 to an inch.

Select either Left, Centered or Right in the Alignment drop-down list in order to set text justification.

For example, a paragraph is to be left-indented 400 twips, right-indented 200 twips and left-shifted 200 twips. See Figure 2-142 to 2-144.
Figure 2-144. Indentation implemented in text

**Bullet**

Select the text to bullet and click on the Bullet button. See Figure 2-145 and Figure 2-146.

Figure 2-145. Select text to bullet

Figure 2-146. Text has been bulleted

2.6.5.2. **Ballot Text report**

The Ballot Text Report contains all race, candidate, header and voter group text as it appears on the ballot, listed in order of Id, beginning with voter groups, then headers, and finishing with races and candidates.

The Ballot Text Report is printed from the Ballot Text Report window, accessible from the GEMS menu bar. The window allows the specification of print destination as well as print options, the language the ballot text is to be printed for, as well as the option to preview the report.

**Printing the Ballot Text Report**

Click on GEMS in the menu bar, then Ballot Text Report in the drop-down menu. See Figures 2-147 and 2-148.
Select the print destination from the Name drop down list, and set printer properties as necessary by clicking on the Properties button. Select the language for which ballot text is to be printed from the Language drop-down list. Either click on Preview in order to Preview the report online, otherwise click on Print in order to print the report.

### 2.6.6. Tags

Tags are short, alphanumeric descriptors that may be defined for various GEMS entities used for ballot identification purposes. Tag may be defined for voter groups, districts, report precincts, base precincts, races and vote centers. District tags may be assigned to ballots by means of the @district set of macros. Tags are also used to identify races to the voter registration system where weighted voting occurs.

All tags should be unique. Tags defined to report precincts are automatically assigned to the corresponding base precincts and vote centers, although base precinct and vote center tag values may be changed.

The Tag field appears in the District Editor as shown in Figure 2-149.
The Tag field also appears in the Voter Group Editor, District Editor, Report Precinct Editor, Base Precinct Editor, Race Editor and Vote Center Editor.

2.6.7. Headers

Headers allow the addition of text to the ballot in addition to race and candidate text. Headers commonly are used for assigning an election title to the ballot, instructions to vote, or the administrative level of offices, such as ‘Federal’, ‘State’ or ‘County’.

2.6.7.1. Concepts

Header information is defined under two tabs in the Header Editor, Text and Options. Customisation options may be defined which determine the races to which a header is linked, endorsing voter groups, placement of the header and formatting options.

Headers are utilized on both AccuVote-OS and AccuVote-TS ballots. All header options apply to AccuVote-OS ballots, and apply to AccuVote-TS ballots where specified.

Headers are defined in the Header Editor and limited header information may be updated in the Ballot and Card Editors. Header placement may also be customised in the Ballot and Card Editors.

Headers should be defined after all races have been defined. Determine all necessary ranges of races and options before adding headers in order to expedite header definition.

All headers other than the election title, instructions to vote, card header and card footer should preferably be initially defined with default Placement and Grouping Options. Once ballot artwork has been generated and base precinct, ballot style and race relationships verified, header Grouping and Placement Options may be customized.

Note that headers can not be linked to candidate rotations. A header must appear on all cards within a card style.

Linking races

Headers are placed on ballots by several means. A header may be linked to a range of races, placing the header prior to the first in the range of races encountered on the ballot, the header may be defined as a Card Header or Card Footer, or the header may be dragged onto the ballot either in the Ballot or Card Editors.

If no races occur on a ballot to which a header is linked, the header will not be placed on the ballot. The range of races to which a header is linked is defined in the From Id and To Id fields in the Link to Race IDs group box. Headers may also be defined to appear automatically on all ballots, either as card header or card footer.

If more than one header is linked to a common group of races, headers appear on the ballot in increasing order of header Id number. On AccuVote-OS ballots, headers are placed by default immediately prior to the first race to which they are linked, that is, headers are not left floating at the bottom of one column, with the first linked race at the top of the next column. On AccuVote-TS ballots, headers and races scroll on the ballot, potentially leaving a header at the bottom of one column, with linked races beginning at the top of the next column.

By default, Link To Race IDs fields are 0 and –1, indicating that the header is not linked to any races. In order not to link a header to any races, these values should be retained, or 0 values may be entered in both fields.

Placement Options

The Placement Options group box is used to determine the placement and frequency of the header on the ballot. Specify Column is the only option that allows a header and linked races to be placed prior to the current position on the ballot.
Current  
A header may be placed in the next available position on the ballot by selecting the Current radio button. Current is the default header placement option.

Next Side  
The header and following race text may be placed automatically at the beginning of the next ballot card face using the Next Side option.

For example, a header and following races are to be placed at the beginning of the back face of the ballot, even though the preceding race occurs in the middle of the second column of the front of a three column card. This is achieved by defining the header with the Next Side radio button.

Front Side  
A header and subsequent races are automatically placed on the front side of a card using the Front Side option.

For example, a header and following races are to be placed on the front face of the ballot card. The preceding race occurs in the middle of the first column of the front of a three column card. Defining the header with the Front Side radio button will place the header and following races immediately after the prior race.

If the prior race in the preceding example occurs in the middle of the first column of the back of a ballot card, GEMS automatically creates a second card for the ballot and places the header and subsequent races at the beginning of the front of the next card.

Back Side  
A header and subsequent races are automatically placed on the back side of a ballot card using the Back Side option.

For example, a header and following races are to be placed on the back side of the ballot. The preceding race occurs in the middle of the first column of the back of a three column card. Defining the header with the Back Side radio button will place the header and following races immediately after the prior race.

If the prior race in the preceding example occurs in the middle of the first column of the front of a ballot card, GEMS automatically places the header and subsequent races at the beginning of the back side of the card.

Next Card  
A header and subsequent races are automatically placed at the beginning of the front of a newly created ballot card using the Next Card option.

For example, a header and following races are to be automatically placed on the beginning of a new ballot card. The preceding race occurs in the middle of the first column of the front of a three column card. Defining the header with Next Card will create a new card and place the header and subsequent races at the beginning of the new card.

Next Col Same Side  
A header and subsequent races are automatically placed at the beginning of the next column of the ballot card using the Next Col Same Side option, but only if the next column occurs on the same card face.

For example, a header and following races are to be automatically placed in the next column of the same card face, but only if the next column occurs on the current side. The preceding race occurs in the middle of the first column of the front of a three column card. Defining the header with Next Col Same Side will place the header and subsequent races at the beginning of the second column of the card front. However, if the preceding race occurs in the middle of the third column of a three-column card front and this option is specified, GEMS will not be able to lay out races.
**Next Column**

A header and subsequent races are automatically placed at the beginning of the next column of the card using the Next Column option.

For example, a header and following races are to be automatically placed in the next column of the card. The preceding race occurs in the middle of the first column of the front of a three column card. Defining the header with Next Column will place the header and subsequent races at the beginning of the second column of the card front. If the preceding race occurs in the middle of the third column of a three-column card front and this option is specified, GEMS will place the header and subsequent races at the beginning of the first column of the card back.

**Specify Column**

A header and linked races may be placed at the beginning of a specified column using the Specify Column option. If the column precedes the current position on the card face, the header and linked races are located in the specified position on the ballot, and subsequent races continue where the preceding race left off. Interleaving columns are left blank if the column specified is two or greater than the current column number. Column numbering begins at 0, so that the highest column number available is the total number of columns less one.

In addition to selecting the Specify Column radio button, select either Front or Back radio buttons to indicate which card face the column is to occur on in addition to the column in the Column field.

For example, although the preceding race occurs in the middle of the first column of a 3-column card front, the header and linked races are to appear at the beginning of the third column of the card face. The header is then defined with the Specify Column and Front radio buttons selected, with 2 in the Column field. If the header and linked races are to be placed in the second column on the back, the header is defined with the Specify Column and Back radio buttons selected, with 1 in the Column field.

The default Placement Option is Current.

**AccuVote-TS**

All placement options other than Front Side, Back Side and Specify Column apply to AccuVote-TS ballots. The Next Side and Next Card options place the header on the next page. Next Col Same Side places the header in the next column on the same page.

**Type**

A header may either appear in the race stream, or on the top or bottom of every card face. The Header radio button indicates that a header appears in the race stream, the Card Header radio button indicates that the header is to appear at the top of every card face and Card Footer that the header is to appear at the bottom of every card face. The default type is Header. If a header is defined as Card Header or Footer, it does not need to be linked to a range of races.

Card Header and Card Footer headers are the only headers that appear on the ballot without being linked to a range of races.

The default Type is Header. All header types apply to AccuVote-TS as well as AccuVote-OS ballots.

**Appear Options**

A header of type Header may appear either at the beginning of the range of races to which it is linked on a card only, at the beginning of the range of races on every card face or at the beginning of every column which the range of races spans.

In order for the header to occur once on every card, the Once/Card radio button is selected in the Appear Options group box. In order for the header to appear once on every card face, the Once/Side radio button is selected, and the Once/Column radio button is selected if the header is to appear at top of every column.

The default setting is Once/Card. Once/Card and Once/Side effect being laid out once per page on the AccuVote-TS.
Voter Groups

A header may be linked to voter groups defined either under the Parties or the Absentee/NonAbsentee tabs in the Voter Group Editor. Voter groups defined under the Parties tab are listed in the Group 1 drop-down list in the Voter Groups group box, and voter groups defined under the Absentee/NonAbsentee tab are listed in the Group 2 drop-down list.

A header may be linked to either a Group 1 or Group 2 voter group, or both voter groups. A header only appears on the ballots endorsed by the voter groups to which it is linked.

In order to link a header to a Group 1 voter group, select the Use Group 1 check box, then select the voter group from the drop-down list. Likewise, in order to link a header to a Group 2 voter group, select the User Group 2 check box and select the voter group from the corresponding drop-down list.

By default, headers are not linked to any voter group.

Grouping options

A header and the races to which it is linked may be positioned according to the spacing requirements of the header and linked races.

All radio buttons referenced occur in the Grouping Options group box.

Scroll

A header may be positioned prior to the first in the range of races to which it is linked, irrespective of the positioning requirements of the races. This feature is implemented using the Scroll radio button.

For example, a header linked to 5 races on the card is to appear immediately after the preceding race on the ballot card, irrespective of the position of the preceding race. The preceding race is located in the middle of the first column of the front face of the ballot card. Selecting Scroll will place the header immediately after the preceding race, so that the first 2 linked races occur in the remainder of the first column on the front of the card and the next 3 continue in the beginning of the second column.

Scroll is the default Grouping Option. Scroll has the same effect with AccuVote-TS as with AccuVote-OS ballots.

Same side

A header and linked races may be forced to appear on the same card face if races scroll between card faces.

For example, a header is linked to 5 races on a 3-column card, the first 2 of which occur in the middle of the last column on the front side of the ballot, the next 3 of which continue at the beginning of the first column on the second side.

In order for the header and linked races to appear on the same card face, the Same Side radio button is selected. As a result, the header will appear at the top of the first column on the back side of the ballot, followed by the linked races.

If all linked races do not fit on the same side despite beginning at the top of the first column of the side, races will scroll onto the next side.

The header and linked races are placed on the same page on the AccuVote-TS ballot.

One side

A header and linked races may be positioned at the beginning of the next side as first choice, and laid out on a more generous card template as second choice in order to force the header and races onto one side.

For example, a header is linked to races that not only fill a 3-column, 11” card front but scroll into the first column on the back side of the card.

In order for the header and linked races to appear on the card front only, a second card template is defined with 14” length and 3 columns per side, and the header is defined with the One Side radio button
selected. Since this template is less restrictive, GEMS will assign the card the 14" card template, so that the header and linked races occur on the front side only.

If GEMS is not able to fit the header and linked races onto one side using the least restrictive card template, the header is positioned at the beginning of the next side and races are left to scroll onto the following side.

The header and linked races are placed on the same page on the AccuVote-TS ballot.

**Same column**

A header and linked races may be forced to appear in the same column if races scroll across multiple columns.

For example, a header is linked to 5 races on a 3-column card, the first 2 of which occur in the middle of the first column on the front side of the ballot card, the next 3 of which continue in the second column on the front side.

In order for the header and linked races to appear in the same column, the Same Column radio button is selected. As a result, the header will appear at the top of the second column on the back side of the ballot, followed by the linked races.

If all linked races do not fit in the same column despite beginning at the top of the column, races will scroll onto the next column.

The header and linked races are placed on the same column on the AccuVote-TS ballot.

**One column**

A header and linked races may be positioned at the beginning of the next column as first choice, and laid out on a more generous card template as second choice in order to force the header and races into one column.

For example, a header is linked to 5 races on a 3-column 11" card, the first 2 of which occur in the middle of the first column on the front side of the card, the next 3 of which continue in the second column on the front side. The header and all five races must be placed in one column, even though they do not fit into one column using the current card template.

A second card template is defined with 14" length and 3 columns per side, and the header is defined with the One Column radio button selected. Since this template is less restrictive, GEMS will assign the card the 14" card template, so that the header and linked races all fit into the second column.

If GEMS is not able to fit the header and linked races onto one column using the least restrictive card template, the header is positioned at the beginning of the next column and races are left to scroll onto the following column.

The header and linked races are placed on the same column on the AccuVote-TS ballot.

**One column, same side**

A card may be assigned a more generous card template in order to position a header and linked races into a column on the same card face.

For example, a header is linked to 5 races on a 3-column 11" card, the first 2 of which occur in the middle of the last column on the front side of the card, the next 3 of which continue in the first column on the back side. The header and all five races must be placed in the third column, even though they do not fit into the third column using the current card template.

A second card template is defined with 14" length and 3 columns per side, and the header is defined with the One Column, Same Side radio button selected. Since this template is less restrictive, GEMS will assign the card the 14" card template, so that the header and linked races all fit into the third column on the front side of the card.

The header and linked races are placed on the same column on the AccuVote-TS ballot.
Inherit

Select the Inherit radio button in for the header to inherit the grouping options of the prior header on the ballot card.

Soft

If GEMS is incapable of laying out a header and races using either the One Side or One Column options, the header and linked races may be left to scroll. This is accomplished by selecting the Soft check box, which is selected in tandem with either of these radio buttons.

@district

The @district:<parent tag>@, @district-tag:<parent tag>@ and @district-exp:<parent tag>@ macros automatically print district information on the ballot.

These macros are defined with the tag corresponding to a parent district and are placed in text which is to appear on the ballot, either header or race text. The macro causes information for the corresponding sub-district to be automatically printed on the ballot.

@district:<parent tag>@ prints the sub-district label on the ballot, @district-tag:<parent tag>@ prints the sub-district tag on the ballot, and @district-exp:<parent tag>@ prints the sub-district export Id on the ballot. The <parent-tag> value is replaced by the parent district tag.

These macros may appear in any text on the ballot, and in any combination and frequency.

Note that the district information will only appear on the physical ballot, and not in artwork that is previewed in GEMS in either the Ballot or Card Editors. In order to implement the @district macros, precinct identifiers must be printed on ballots as precinct numbers.

Examples

An election is defined with three State Senate districts, State Senate 1, State Senate 2 and State Senate 3. Each State Senate district is assigned a unique card. The parent State Senate district is defined with the tag ‘SEN’, and State Senate 1 is defined with Label ‘State Senate 1’, Tag ‘SEN1’ and Export ‘D030-10’. See Figure 2-150.

![Figure 2-150. District Editor](image)

A ballot title is defined as header containing the @district:SEN@ macro, referring to the parent State Senate district, as shown in Figure 2-151.
The ballot printed for State Senate District 1 now appears with the Label value defined for State Senate District 1, as shown in Figure 2-152.

Now the macro is defined in the header text as @district-exp:SEN@. The ballot printed for State Senate District 1 will contain the Export value defined for the district, as shown in Figure 2-153.

2.6.7.2. Configuring headers

Adding headers
Select Header in the tree view and click on the New Record icon in order to activate the Header Editor. See Figure 2-154.
**Label**

In the Label field, type a descriptive text value for the header being added. Change the Id value if the header is to occur in an order on the ballot other than the order in which it has been defined.

**Export**

Define an export value for the header in the Export field.

**Ballot text**

Enter the ballot text for the header in the ballot text window at the bottom of the Header Editor window using the formatting tools provided. Refer to the section 2.6.5 Ballot text for more information on the formatting tools available. Note that text initially assumes the formatting options defined under the Header Default Settings tab in the Race Options window.

If the election employs multiple languages, select the next language defined for the election in the Language drop-down list and define ballot text for this Language. Continue defining ballot text for all languages in the election.

If the space provided in the window is insufficient for defining all of the ballot text required, click on the Edit button in order to increase the window size and shape the ballot text window as necessary. Click the Okay button in the Ballot Text Editor when ballot text has been entered.

**Audio**

Click on the Audio button in order to either record or import audio information for the header. More information on Audio is presented in the section 2.7 Audio.

Click on the Options tab in order to continue. See Figure 2-155 and Figure 2-156.

![Figure 2-155. Defining header text](image)
Placement Options
Define the header position on the ballot by selecting a Placement Option radio button. If the header is to appear:

- in the current position on the ballot, select the Current radio button
- on the next side, select Next Side
- only on the front side of the ballot, select Front Side
- only on the back side of the ballot, select Back Side
- on the next card, select Next Card
- in the next column on the same side only, select Next Col, Same Side
- in the next column, irrespective of the side, select Next Column
- in a specific column, select Specify Column, either Front or Back radio buttons, and enter the column into the Column field.

Type
If the header is to appear in the race stream, select the Header button in the Type group box, otherwise, select Card Header in order for the header to appear at the top of every card, otherwise select Card Footer in order for the header to appear at the bottom of every card.

Draw Options
Select a header background color from the Color palette in the Draw Options group box. Select the Top, Bottom, Left or Right check boxes if the corresponding lines are to border the header box. Select Thick Top to place a 1/8” thick black line at the top of the header, select Thick L/R in order to place an 1/8” thick line opposite the voting ovals in the race, and select Shaded if the header is to shaded grey.

Linking races
Define the Id of the first and last in the range of races to which the header is to be linked in the From Id and To Id fields in the Link To Race IDs group box.

Appear Options
In the Appear Options group box, select the Once/Column radio button if the header is to appear once per column; select Once/Side if the header is to appear once on the side only; otherwise select Once/Card if the header is to appear once on the card only.

Voter groups
If the header is to appear on partisan ballots only, select the Use VGroup 1 check box in the Voter Groups group box and select the partisan voter group from the corresponding drop-down list. If the header is to appear on either absentee or non-absentee ballots only, select the Use VGroup 2 check box and select either the absentee or non-absentee voter group from the corresponding drop-down list.

Grouping Options
If the header is to take its grouping option from the preceding header on the ballot, click on the Inherit radio button in the Grouping Options group box. If the header is to scroll on the ballot, select the Scroll radio button. If the header and linked races are to appear:

- on the same side of the ballot, select Same Side
- on one side of the ballot only, select One Side
- in the same column, select Same Column
- in a single column only, select One Column
- in a single column on the same side, select One Col, Same Side
Selecting the Soft check box will allow the header to be scrolled if GEMS cannot comply with the grouping option rule selected.

**Voting device**

Select the AccuVote-OS check box in the Include On group box in order to include the header on AccuVote-OS ballots. Select the AccuVote-TS check box in order to place the header on AccuVote-TS ballots.

**Width**

Define the Width of the header as a multiple of the column width allocated by the card template.

Click on the Add button in order to continue adding headers. Once the last header has been defined, click on the OK button.

![Header Editor](image)

Figure 2-156. Defining header options

**Updating headers**

Expand Header in the tree view and double-click on the header to update. Change information for the header as necessary, both under the Text and Options tabs, and click on the OK button in order to save results. Continue selecting headers to update in this manner and until all header updating is complete.

Any changes to AccuVote-TS ballot artwork require memory cards to be re-programmed.

Any changes to header options other than Draw Options will change AccuVote-OS ballot layout. Revising Placement or Grouping Options will not necessarily change ballot layout, provided the new assignment does not change the position of the header on any ballot.

Revising AccuVote-OS ballot text does not in and of itself change ballot layout, however, increasing ballot text may cause text to shrink on the ballot while decreasing ballot text may cause text to expand or blank
space to appear on the ballot. In order to properly format changes to ballot text, ballot artwork should be re-laid out.

In order for GEMS to force re-laying out of ballot artwork, select the Force Re-Layout check box under the Text tab.

**Deleting headers**

Expand the header list in the tree view, select the header to delete and click on the Delete Record icon. See Figure 2-157. Click on the Yes button in the confirmation message that appears. See Figure 2-158. Deleting a header that appears on ballots will change ballot layout.

![Figure 2-157. Deleting ballot header](image)

![Figure 2-158. Header deletion confirmation message](image)

2.6.7.3. **Shaping races, headers and candidates**

A number of tools are available for shaping race, header and candidate information on AccuVote-OS ballots other than by means of defining ballot text. The greater the amount of space made available to races, headers and candidates, the less may fit on a ballot.

Changing any of the following information may require ballot artwork to be re-laid out in order to retain original text formatting.

2.6.7.4. **Number of Columns**

The Front and Back Number of Columns defined under the Card Definitions tab in Ballot Options specifies the number of columns races and headers are laid out with. Less columns on a ballot provide greater width to races and headers, but allow less races and headers to fit on the ballot.

GEMS attempts to allocate an equal width to every column on the ballot, drawing from an available 8” in portrait mode. In landscape mode, the total widths available are as follows: 9 ¾” are available to 11” ballots, 12 ¾” to 14” ballots, 15 ¾” to 17” ballots and 16 ¾” to 18” ballots. The number of voting lines assigned to a race or header depend on the ballot text and the physical width of the column into which the race or header fit.
2.6.7.5. **Race, header and candidate margins**

Left, right, top and bottom margins are defined for races, headers and candidates under the Margins tab in the Ballot Options window. The greater the margin amount, the less space available for ballot text.

2.6.7.6. **Oval margins**

The greater the oval margin defined, the less space is available for candidate text within the confines of the race boundary. The oval margin is defined in the Margin field in the Oval Justification group box under the Oval/Box tab in Ballot Options.

2.6.7.7. **Candidate Label**

By default, the candidate name will overwrite the voter group label if the candidate name is long enough. Selecting the Wrap Label check box under the Oval/Box tab in Ballot Options will limit the candidate name within a prescribed margin, so that the name never overwrites the voter group label.

2.6.7.8. **Thick lines**

A thick line may be drawn across the top of the race or header, lessening the amount of space available to ballot text by an 1/8”. A thick line may be drawn along the side of a race or header, lessening the amount of space available to ballot text by 1/16”.

The thick top line is set either as a race default by selecting the Thick Top check box under Race Default Settings in Race Options, or for an individual race under the Options tab in the Race Editor. The thick top line is set either as a header default by selecting the Thick Top check box under Header Default Settings in Race Options, or for an individual header under the Options tab in the Header Editor.

The thick side line is set either as a race default by selecting the Thick L/R check box under Race Default Settings in Race Options, for an individual race under the Options tab in the Race Editor. The thick side line is set either as a header default by selecting the Thick L/R check box under Header Default Settings in Race Options, for an individual header under the Options tab in the Header Editor.

2.6.7.9. **Race width**

Every race is assigned a width defined in terms of a ballot column, either as race default or by individual race. The race width is defined either in the Race Width field under Race Default Settings in Race Options, or under the Options tab in the Race Editor. The race width assigned affects the amount of space available for defining race and candidate text.

2.6.7.10. **Candidate spacing**

The greater candidate spacing is, the more space is available for the definition of candidate names. Candidates may be assigned single or multiple spacing, either by default or by race. Default candidate spacing is defined in the Candidate Spacing field under Race Default Settings in Race Options, while candidate spacing for individual races may be defined under the Options tab in Race Options.

2.6.7.11. **Minimum candidate row/column**

The amount of space available for candidate text is limited by the minimum candidate row/column value in races defined with multi-row and multi-column candidate grids. These values are defined as default in the Min Candidate Row/Col field under the Race Default Settings tab in Race Options, or for individual races in the same field under the Options tab in the Race Editor.
2.6.7.12. **Candidate length**

The maximum amount of space available to define a candidate name is defined as default in the Width field in the Candidate Block Options group box under the Race Default Settings tab in Race Options, or in the same field under the Options tab in the Race Editor.

2.6.7.13. **Header width**

The amount of space available to a header is defined in the Width field under the Options tab in the Header Editor. The width is defined in terms of the ballot column assignments defined in the Number of Columns field in Race Options.

2.6.8. **Color**

All AccuVote-OS and AccuVote-TS ballot components may be colored except the AccuVote-OS voting ovals and ballot background. These components include the AccuVote-TS page as well as races, headers, candidates and voter groups.

Text, text highlight and background color may be set for races, candidates, headers and voter groups. Highlight refers to the band that encases the immediate text background.

GEMS offers 48 standard colors selected from a palette as well as up to 16 custom colors that may be selected from a color spectrum or defined in terms of Hue, Saturation, Luminosity, as well as Red, Green and Blue content.

Note that color is not supported on the AccuVote-TS R4 touch screen unit.

2.6.8.1. **Color priority**

Colors are assigned according to the following priority rules in GEMS:

1. Text color overrides text highlight color
2. Text highlight color overrides background color.
3. Voter group color overrides candidate background color.
4. Candidate color overrides race color.
5. Race color overrides page color.
6. Header color overrides page color.

Note that color assignments are not blended.

For example, the race for State Senator is defined with black text and no highlighting. Race text then appears as in Figure 2-159:

**State Senator**

*Figure 2-159. Black text and no highlighting*

When this race is defined against a white background, the race appears on the ballot with black text on a white background as in Figure 2-160:

*Figure 2-160. Black text on a white background*

In another example, a race is defined with text set to red, with no highlighting, on a yellow background has the following effect, see Figure 2-161:
The race is now defined with red text, green highlighting, and set against a yellow background. See Figure 2-162.

The race for State Senator is defined with candidates, both races and candidates with black text, no highlighting, and white background as in Figure 2-163:

Now race text is assigned a yellow background and candidate text a green background. See Figure 2-164.

In the same example, the candidate John Doe is endorsed by the Republican party and Janet Smith by the Democrat party. Voter groups are defined with red text. See Figure 2-165.

Both race and candidate text are set to blue. See Figure 2-166.

Lastly, race text is highlighted in violet. See Figure 2-167.
2.6.8.2. Transparency

Setting a color to transparent adopts the color from the underlying ballot layer. When transparent:

1. Voter group text highlight color is set to the voter group background.
2. Voter group background is set to the candidate background.
3. Candidate text highlight color is set to the candidate background.
4. Candidate background color is set to the race background.
5. Candidate background color is set to the universal candidate background if the race background is also transparent.
6. Candidate background color is set to the universal race background if the race background is also transparent.
7. Race text highlight color is set to the race background.
8. Race background color is set to the universal race color.
9. Race background color is set to the TS Page color if the universal race color is transparent.
10. Header text highlight color is set to the header background.
11. Header background color is set to the universal header color.
12. Header background color is set to the TS Page color if the universal header color is transparent.

For example, an election is defined with red voter group text, transparent voter group highlight, transparent voter group background and green candidate background. See Figure 2-168.

![Figure 2-168: Red voter group text](Image)

In the same example, the race for State Senator is defined with black candidate text and transparent highlight color. See Figure 2-169.

![Figure 2-169: Black candidate text, transparent highlight](Image)

Now the race background is set to yellow and the candidate background to transparent. See Figure 2-170.
Figure 2-170: Race background yellow, candidate background transparent

Setting the race background to transparent and the universal candidate color to blue has the following effect, see Figure 2-171:

Note that candidate text color may be not be set to be transparent.

2.6.8.3. AccuVote-OS color

Colors are only incorporated into printed AccuVote-OS artwork if specified in the Color Ink on Paper group box under the Color tab in Ballot Options. Either text only may be colored by selecting the Text check box, background and text highlight color by selecting the Background check box, or both. Color paper ballots may be printed to a color printer or viewed in full color using Adobe Acrobat or Aladdin Ghostview. Electronically generated AccuVote-OS artwork incorporates color definitions within Postscript artwork.

For example, an election contains a race for State Senator, which is preceded on the ballot by a header containing the text ‘State’. The race and candidate text is defined with dark green color and light green background, respectively, and the header is defined with red text and yellow background, respectively.

If the Text check box only is selected in the Color Ink on Paper group box, color appears on the paper ballot as in Figure 2-172.

If the Background check box only is selected, the effect is as in Figure 2-173:

2.6.8.4. Ballot Options

Color is defined in three stages in GEMS: universal colors are defined in the Ballot Options, default colors in the Race Options, and specific colors in the Voter Group, Race and Header editors.

Universal colors are defined for the AccuVote-TS page, races, candidates and headers in Ballot Options. The background of the AccuVote-TS ballot is taken from the TS Page field, and the race, candidate and
header background colors are taken from the corresponding colors set in Ballot Options unless differing colors are set in either Race Options or the corresponding editors. By default, all Ballot Options color components are set to non-transparent white. See Figure 2-174 and Figure 2-175.

Figure 2-174. Color tab

Figure 2-175. Color palette

2.6.8.5. Race Options

Default text and text highlight colors are defined in Race Options and affect corresponding race, candidate, header and voter group definitions that follow. Default race, candidate and header background colors are assigned to corresponding races, candidates and headers definitions that follow. Default text colors are black, and default text highlight and background colors are transparent. Entities set to transparent color adopt the background color set in Ballot Options. See Figures 2-176 to 2-178.
2.6.8.6. Editors

Specific race, candidate, header and voter group text, highlight and background colors are assigned in the Race, Header and Voter Group editors. Highlight and background colors that are transparent are overridden by colors defined in Race Options.

Races, candidates, headers and voter groups appear with colors in the ballot text fields. For example, if race is set to red and background is set to green, ballot text appears in the Race Editor as in Figure 2-179:

If the Shaded option is selected in an editor, ballot text will appear darkened. The first is an example of non-shaded color background, while the second example is shaded. See Figures 2-180 and Figure 2-181.

All ballot text is highlighted if specified in Race Options, otherwise, only selected text is highlighted.
2.6.9. RTF Export/Import

2.6.9.1. Concepts

Once Default (normally English) ballot text has been defined in a multi-language election, it may be sent to a translation agency, English text translated into all the required languages, and the translated ballot text incorporated into GEMS. The RTF Export function is used to issue the initial Default ballot text, and the RTF Import function is used to import the translated ballot text back into GEMS. The translation agency incorporates translated language text into the available language ballot text fields in the export file.

Ballot text is exported and imported for races, candidates, headers, and voter groups.

Ballot text may be imported either for all languages, or by selective languages only. In this manner, database content management may progress flexibly according to the scheduling requirements of the translation agency. For example, if an election is configured with Spanish and Chinese, Spanish translations may be completed prior to Chinese translations. Once the Spanish translations have been completed, they may be imported first, then the Chinese translations, once they have been finished.

File format

Both RTF Export and Import files assume the same file format. The files contain records in the following order:

1. headers
2. races
3. candidates
4. voter groups

Each ballot entity is listed for every language. For example, if the race for State Senator is defined in an election with English, Spanish, and Chinese languages, then the file will contain one record for the English State Senator ballot text, one for the Spanish text, and one for the Chinese text.

Fields in the file are comma delimited.

Record format is as follows:

1. ‘_SOR_’ (appears at the beginning of each record)
2. record type (‘0’ for comment, ‘1’ for header, ‘2’ for race, ‘3’ for candidate, and ‘4’ for voter group)
3. Item Id number (ie. header, race, candidate, or voter group Id number)
4. Label (ie. header, race, candidate, or voter group label)
5. Sort sequence number
6. Race (used by candidate records only; headers, races, and voter groups assign ‘’; candidates assign ‘0’)
7. Field type (used only for races – 2 for race type question, 0 in all other cases)
8. Language Locale Id
9. Language Label
10. Language Id ??
11. Ballot text with encoded formatting options
2.6.9.2. Performing the RTF Export/Import

Click on Election in the menu bar, Export in the drop-down menu, and Export Rich Text in the cascading menu. See Figure 2-182.

Figure 2-182. Activate ballot text export

In the Save As window shown in Figure 2-183, specify the ballot text export file name and location, and click on Save.

Figure 2-183. Export ballot text Save As window

Once the file has been created, the confirmation message shown in Figure 2-184 is displayed, indicating the number of records exported.

Figure 2-184. Ballot text export completion confirmation
Language ballot text is now translated. Once translation has completed, the ballot text may be imported into the database.

Click on Election in the menu bar, Import in the drop-down menu, and Import Rich Text in the cascading menu, as shown in Figure 2-185.

Select languages to import either by clicking on the check boxes to the left of the languages listed in Figure 2-186, or click on the Select All button in order to select all languages. In order to reset the language selection, click on Deselect All. Once the desired languages have been selected, click on the OK button in order to import the multi-language ballot text.

Once all of the language ballot text has been imported, the confirmation message shown in Figure 2-187 is displayed, indicating the number of records updated, unchanged, and not found.
2.6.10. Generating ballot artwork

2.6.10.1. Concepts

Once races, candidates and headers have been defined, ballot artwork must be created. Ballot artwork is created in GEMS using the Generate Ballots function.

Ballot generation and layout

GEMS generates ballot artwork as follows. GEMS analyzes race, district and base precinct combinations, and creates the minimum number of unique ballot styles to satisfy the districting requirements of all races in the election. For every precinct without ballot artwork, ballot artwork is laid out and generated, then every existing ballot that requires re-layout is laid out again.

Re-laying out ballot artwork includes the re-creation of ballot artwork taking into account revisions in voting oval positions, while ballot generation does not necessarily include layout.

Ballot generation automatically performs the re-layout of changes to ballot content that require voting oval positions to change. Ballot generation does not perform ballot re-layout if changes to ballot content do not require voting oval positions to change, and the Force Re-Layout check box was not selected since the changes were implemented.

For example, changing the number of columns on a ballot or changing candidate spacing automatically forces ballot artwork to be re-laid out. In this case, ballot generation will automatically re-lay out voting ovals. On the other hand, changing ballot text for a header without selecting the Force Re-Layout check box will not effect ballot re-layout when artwork is generated.

If changes to ballot artwork require that ballot artwork must be generated, it will not be possible to change the election status. The election status may only be changed once ballot artwork has been generated.

Multi-language AccuVote-OS ballots assume the layout of the Default language.

Changes may be made to ballot content that do not require re-laying out of ballot artwork.

In order to generate ballot artwork, either click on the Generate Ballots icon or click on Artwork in the menu bar, then the Generate Ballots icon. A ballot generation progress bar appears while ballot artwork is being generated.

Note that changing ballot re-layout will cause any manual revisions to ballot artwork to be lost.

Generating ballot artwork and ballot rotations is posted to the Audit Log.

Ballot layout example

Suppose that header margins in an election are set to 0. See Figure 2-188.
Figure 2-188. Header margins are set to 0

A typical header then appears on the ballot as in Figure 2-189:

```
State

State Senator
☐ John Doe Republican
☐ Janet Smith Democrat
```

Figure 2-189. Original header

Now Left, Right, Top and Bottom header margins are set to 4, as in Figure 2-190:

```
Card Definitions  Margins  Oval/Box  Color

Header Margins (1/72")
Left 4               Right 4         Top 4          Bottom 4
```

Figure 2-190. Header margins are set to 4

The header now appears as in Figure 2-191:

```
State

State Senator
☐ John Doe Republican
☐ Janet Smith Democrat
```

Figure 2-191. Revised ballot header

Notice that the text in the header has shrunk. The original single voting line of space cannot accommodate top and bottom margins of 4/72" as well as text with the original font size. In order to allow for sufficient voting lines for the top and bottom margins as well as the original font size of the header text, ballot artwork must be re-laid out. This is accomplished by selecting the Force Re-Layout check box in the Ballot Options window. See Figure 2-192.
As a result, the header now appears on the ballot with sufficient space. See Figure 2-193.

Rotation

Once ballot artwork has been generated, ballot rotations must be generated separately. Changing rotation rules in the Race Editor only requires ballot rotations to be re-generated, but not ballot artwork. Changes to ballot artwork that do not affect layout do not require ballot rotations to be re-generated, however, they must be re-generated when artwork is re-generated and layouts have changed.

Numbering

Changing jurisdictional information may cause ballot styles to be removed or added to the ballot style list. Once all races have been defined and race/district relationships have been finalized, the ballot styles in the election should be re-numbered to start at one and increment in a continuous manner.

In order to revise ballot numbering, click on Artwork in the menu bar, then Reset Artwork in the drop-down menu. Click Yes in the confirmation message that appears. Once ballot artwork has been re-set, click on the Generate Ballots icon. Click on View in the menu bar and Refresh in the drop-down menu.

Sequence numbers

If ballots are printed with sequence numbers, once vote center/report precinct combinations are finalized, review the Cards Artwork Report. If sequence numbers assigned to ballot cards do not start at 1 or are not incremented continuously, sequence numbers must be re-generated.

Select Artwork in the menu bar and select Re-Generate Seq. Numbers in the drop-down list. Re-print the Cards Artwork Report, and verify that sequence numbers now begin at 1 and increment continuously.
2.6.10.2. Generating the ballot artwork

In order to generate ballot artwork, click on the Generate Ballots icon. See Figure 2-194 and Figure 2-195.

Figure 2-194. Clicking on Generate Ballots icon

<table>
<thead>
<tr>
<th>Generate Ballots</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Baseunits: 501</td>
</tr>
<tr>
<td>ETA: 00:00:09</td>
</tr>
<tr>
<td>Avg: 0.25s</td>
</tr>
<tr>
<td>Abort</td>
</tr>
</tbody>
</table>

Figure 2-195. Ballot generation in progress

In order to generate ballot rotations, click on the Generate Ballot Rotations icon. See Figure 2-196 and Figure 2-197.

Figure 2-196. Clicking on Generate Ballot Rotations button

<table>
<thead>
<tr>
<th>Generate Ballot Rotations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Base Precincts: 153</td>
</tr>
<tr>
<td>ETA: 00:00:02</td>
</tr>
<tr>
<td>Avg: 0.0s</td>
</tr>
<tr>
<td>Abort</td>
</tr>
</tbody>
</table>

Figure 2-197. Ballot rotation generation progress bar

In order to reset ballot artwork, select Artwork in the menu bar, then Reset Artwork in the drop-down menu. See Figure 2-198. Click on the Ok button in the confirmation message in order to reset the artwork. See Figure 2-199.
In order to revise precinct sequence numbers, select Artwork in the menu bar, then Re-Generate Seq. Numbers in the drop-down list. See Figure 2-200.

Progress bars appear for the above activities as they take place. The progress bar may not seem to appear if functions are completed instantaneously.

### 2.6.11. Ballot and Card Editors

#### 2.6.11.1. Concepts

The Ballot Editor and Card Editors are used for performing minor manual modifications to ballot artwork and more importantly, for reviewing ballot artwork. Ballot artwork review criteria are described in the section 2.6.12 Ballot proofing. It is essential that manual revisions are implemented at the conclusion of ballot artwork development, as manual changes may be lost with ballot artwork re-layout.

Both Ballot and Card Editors have the same appearance and offer the same functionality, except that the Ballot Editor is capable of creating and deleting cards. The Ballot Editor is activated for editing ballot styles and ballots, whereas the Card Editor is activated for editing card styles and cards.

The editor is activated by double-clicking on the ballot entity. Either expand Ballot Style, Ballot, Card Style or Card in the tree view and double-click on the desired ballot in the list, or select the ballot entity in the tree view and click on the desired item in the list view.

For sake of simplicity, this section refers to the ballot only, however, the ballot entity referred to may be the ballot style, ballot, card style or card, depending on the ballot entity for which the editor is activated.
Any changes made in the Ballot and Card Editors is logged in the Audit Log.

Editor window

The editor contains a menu bar and tool bar underneath. See Figure 2-201. Races that have been cut from the ballot are listed on the clipboard in the top left-hand corner of the editor window. All headers in the election are listed on the clipboard in the bottom left-hand corner of the editor. The ballot image is displayed on the right-hand side of the window.

Figure 2-201. Ballot Editor menu and tool bar

The editor displays only one face of the ballot at one time. In order to view the other ballot face, use the Switch to Front and Switch to Back functions.

Revisions

Manual revisions are applied to all language instances of all ballots within the ballot style as well as to all language instances of all cards within the card style.

For example, suppose that 3 ballot styles are present in an election. Ballot style 1 corresponds to ballots 1, 2 and 3, ballot style 2 to ballots 4, 5 and 6, and ballot style 3 to ballots 7, 8 and 9. Dragging a header onto ballot style 1 in the Ballot Editor will cause the header to appear in the same position on ballots 1, 2 and 3.

Manual revisions affect all language instances of all card faces with the same plate.

For example, now suppose that only the ballot fronts contain races and the backs are blank. Dragging a header onto the back of ballot style 1 will cause the header to appear in the same position on all ballots, as every card back uses the same plate.

Ballot generation and layout

Ballot artwork is automatically re-generated if necessary when accessing a ballot style whose contents have changed. Changing ballot style content will remove the corresponding card styles and cards from the Card Style and Card displays in the GEMS window.

For example, suppose that the content of ballot style 1 has changed, affecting layout. Select Ballot Style in the tree view, and observe the Status column under the Ballot Style tab in the list view. Ballot style 1 will indicate ‘Not Laid Out’ and ballot styles 2 and 3 will indicated ‘Laid Out’. Activating the Ballot Editor for ballot style 1 will automatically lay out the ballot style.

After exiting the Ballot Editor and refreshing, GEMS will mark the ballot style as laid out.

Ballot artwork may also be re-generated by generating ballot artwork. Re-generation of ballot artwork only affects ballot styles that have changed; in this case, ballot generation affects ballot style 1 only.

Re-generating ballot artwork does not affect manual revisions to artwork unless Force Re-Layout was requested.

For example, a header containing instructions to vote is dragged onto a ballot style and two blank lines are added to the election title. The Force Re-Layout check box is not selected in the Header Editor before re-generating ballot artwork.

The election title shrinks as GEMS must fit more text lines into the same number of voting lines, but the instructions to vote are not removed from the ballot. Activating the Header Editor for the election title, selecting Force Re-Layout and saving results, followed by ballot artwork re-generation will cause the header containing the instructions to vote to be lost, but the election title to be re-shaped with the text displayed with the original font.
Functions

The editor includes the following functions:

**Save**

Changes made to the ballot are saved by clicking on the Save button. The same action is performed by clicking on Ballot in the menu bar, and Save in the drop-down list.

If changes made to the ballot have not been saved before exiting the editor, GEMS will issue a confirmation prompt on exiting, requesting whether changes should be saved. Click on the Yes button in order to save results, otherwise click on No.

**Print**

The ballot face is printed by clicking on the Print button. The same action is performed by clicking on Ballot in the menu bar, and Print in the drop-down list. A Print window appears, in which the print device and printing options should be specified as necessary, then click on the OK button to print. Printing entire ballots, printing with the options available in Print Artwork or printing artwork to file should occur in the Print Artwork window.

**Delete**

Select the race or header to delete and click on the Delete button. See Figure 2-202. The same action is performed by selecting the race or header, clicking on Edit in the menu bar, and Delete in the drop-down list.

![Ballot Editor](image)

Figure 2-202. Select a race for deletion
A deleted race is placed in the race list in the race clipboard. All deleted races must be re-located on the ballot in order to save changes. In case of races, the Delete function acts as Cut. See Figure 2-203.

**Figure 2-203. After the race has been deleted**

**New Card**

A new card is created for the ballot clicking on the New Card button. The same action is performed by clicking on Ballot in the menu bar, and New Card in the drop-down list.

The New Card function is only available in the Ballot Editor, since cards can not be added to a card style or card. Any headers or races on the existing card or cards may be cut and pasted to the new card.

Moving races to a new card and saving results changes ballot layout.

**Delete Card**

A manually created card may be deleted by clicking on the Delete Card button. The same action is performed by clicking on Ballot in the menu bar, and Save in the drop-down list.

The Delete Card function is only available in the Ballot Editor, and applies only to cards that have been manually created. Any races moved to the new card are dropped onto the race clipboard, and must be re-located on the existing cards comprising the ballot.

Deleting a ballot card and saving results changes ballot layout.

**Switch to Front**

The front of the ballot is accessed by clicking on the Switch to Front button. The same action is performed by clicking on View in the menu bar, and Front in the drop-down list. This function has no effect if the editor currently displays the ballot front. The button remains depressed while the front is displayed.

**Switch to Back**

The back of the ballot is accessed by clicking on the Switch to Back button. The same action is performed by clicking on View in the menu bar, and Back in the drop-down list. This function has no
effect if the editor currently displays the ballot back. The button remains depressed while the back is displayed. See Figure 2-204.

**Figure 2-204. Switching to the ballot back**

**Portrait**

The ballot orientation is changed to portrait mode by clicking on the Portrait button. This function has no effect if the current ballot orientation is portrait. The button remains depressed while the ballot orientation is portrait.

Changing ballot orientation and saving results changes ballot layout.

**Landscape**

The ballot orientation is changed to landscape mode by clicking on the Landscape button. This function has no effect if the current ballot orientation is landscape. The button remains depressed while the ballot orientation is landscape.

Changing ballot orientation and saving results changes ballot layout.

**Set Ballot Height to 11”**

The ballot length is changed to 11” by clicking on the Set Ballot Height to 11” button. The same action is performed by clicking on Height in the menu bar, and 11 inches in the drop-down list. This function has no effect if the current ballot height is 11”. The button remains depressed while the ballot length is 11”.

Note that reducing the ballot length may cause races to be cut from the ballot – truncated races are placed on the clipboard, and ballot artwork cannot be saved until these races have been re-located on the ballot. Changing ballot length and saving results changes ballot layout.

**Set Ballot Height to 14”**

The ballot length is changed to 14” by clicking on the Set Ballot Height to 14” button. The same action is performed by clicking on Height in the menu bar, and 14 inches in the drop-down list. This function has no effect if the current ballot height is 14”. The button remains depressed while the ballot length is 14”.

Note that reducing the ballot length may cause races to be cut from the ballot – truncated races are placed on the clipboard, and ballot artwork cannot be saved until these races have been re-located on the ballot. Changing ballot length and saving results changes ballot layout.

**Set Ballot Height to 17”**

The ballot length is changed to 17” by clicking on the Set Ballot Height to 17” button. The same action is performed by clicking on Height in the menu bar, and 17 inches in the drop-down list. This function has no effect if the current ballot height is 17”. The button remains depressed while the ballot length is 17”.

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Note that reducing the ballot length may cause races to be cut from the ballot – truncated races are placed on the clipboard, and ballot artwork cannot be saved until these races have been re-located on the ballot. Changing ballot length and saving results changes ballot layout.

**Set Ballot Height to 18”**

The ballot length is changed to 18” by clicking on the Set Ballot Height to 18” button. The same action is performed by clicking on Height in the menu bar, and 18 inches in the drop-down list. This function has no effect if the current ballot height is 18”. The button remains depressed while the ballot length is 18”.

Changing ballot length and saving results changes ballot layout.

**Zoom Out**

Click on the Zoom Out button in order to zoom out, or click on Zoom on the menu bar and Zoom Out in the drop-down list. See **Figure 2-205**.

**Zoom In**

Click on the Zoom In button in order to zoom in, or click on Zoom on the menu bar and Zoom In in the drop-down list.

**Grid**

Click on the Grid button in order to place a ¼” grid over the ballot. See **Figure 2-206**. This is useful for measuring the exact position and size of ballot contents. The same action is performed by clicking on View in the menu bar, and Gridline in the drop-down list.

---

**Figure 2-205. Zooming out**

**OFFICIAL BALLOT**

**CONSOLIDATED GENERAL ELECTION**

**COUNTY OF LASSEN**

**TUESDAY, NOVEMBER 7, 2000**
Race ID

Click on the Race ID button in order to place race and header Id numbers in the top-left hand corner of the ballot. See Figure 2-207. Race numbers are displayed with race rotation numbers. Race Ids are useful for proofing races, race rotations and headers on ballots. The same action is performed by clicking on View in the menu bar, and Race Id in the drop-down list.
Fully Marked

Click on the Fully Marked button in order to fully mark all ovals on the ballot. See Figure 2-208. The same action is performed by clicking on View in the menu bar, and Fully Marked in the drop-down list. This function is more useful when printing ballots from the Print Artwork window.
Score Marks

Click on the Score Marks button in order to place score marks on the ballot. The same action is performed by clicking on View in the menu bar, and Score Marks in the drop-down list. This function is more useful when printing ballots from the Print Artwork window.

Card

Select the card to display from the Card drop-down list. All cards for the ballot are displayed in this list. Only one card is present when editing a card. Any new card that is created is added to the list, and removed if the card is deleted.

Language

Select the language instance of the ballot from the Language drop-down list. Only the race, candidate, header, and voter group ballot text corresponding to the language specified will be displayed. This list is only applicable in elections configured with multiple languages.

2.6.11.2. Using the Ballot and Card Editors

Manual editing in the Ballot and Card Editors involves:

- adding races and headers
- changing the position of races and headers
- removing headers
- changing card template parameters
- modifying race and header contents
- changing race and header formatting information
- altering language-related ballot text
• saving results

Adding races and headers

Races are added to a card style face by dragging the race from the race clipboard to the desired position on the card style. See Figure 2-209. If the race is to be located at the back of the card style, click on the Switch to Back button in order to drag the race to the back. If the back is being currently viewed and the race is to be dragged to the front, select the Switch to Front button before dragging the race.

![Figure 2-209. Dragging a race onto the ballot](image)

The top of the race box should align with the top of the area on the card style where the race is to be located. Expand the width of the race by dragging the left- and right-hand boundaries of the race box into the target area. See Figure 2-210. Ensure that sufficient space is available for candidates and voting ovals.

Drag the bottom of the race so the race box fits entirely into the area provided. Ensure that the race has been assigned enough space so that ballot text is not shrunk, and not too much space, so that blank space has been added to the end of the race box.

![Figure 2-210. Sizing the race](image)

Neighboring race and header boxes will assume the boundary lines of the new race. In order to override the race boundaries of the newly added race, click on the affected races and headers, then click on any blank section of the card style.

If any voting ovals are obstructed by the position of the race or header on the ballot, GEMS will display a confirmation message to this effect. See Figure 2-211.
Changing the position of races and headers

Select a race to move and drag it to the target position. Ensure that no other races or headers are obstructed in positioning the race. If a race is to be moved to another ballot face or card, the race must be cut, the target face or card selected, and the race dragged to the desired position.

Observe editing considerations described in the section *Adding races and headers*.

Removing headers

Remove a header by selecting the header to delete and clicking on the Delete icon.

Changing card template parameters

Add a card to the ballot by clicking on the New Card button. Delete a manually added card by activating the card and clicking on the Delete Card button. Change the orientation of the ballot by clicking on either the Portrait or Landscape buttons.

Change the ballot length using the Set Ballot Height to 11”, Set Ballot Height to 14” and Set Ballot Height to 18” buttons.

Modifying race and header contents

Double-clicking on a race will activate the Race Editor, revise information as desired and click on the OK button in the editor. Revisions will be immediately displayed on the card style in the Ballot/Card Editor window.

Headers are modified directly from the Ballot/Card Editor in the same manner.

Changing race and header formatting information

Any changes may be applied to races as described in the section *Modifying race and header contents* except for changes that affect ballot layout. In order to implement changes that affect ballot layout, exit the editor and access the race editor directly from the GEMS window.

Saving results

Once all changes have been implemented, click on the Save button to save results. Remember that no races may be deleted from the ballot, and that no voting ovals should be covered as a result of manual editing.

2.6.12. Ballot proofing

Ballot artwork should be proofed once it has been generated. Ballot proofing is best organized in four stages, whereby the most detectable errors are resolved before continuing onto more detailed proofing.

Ballot proofing should be performed in the order of the following stages:

1. Deliverables
2. Ballot Editor/AccuVote-TS
3. Ballot proofs
4. Ballots
5. Ballot print quality
All steps apply to AccuVote-OS ballots; only the first two steps apply to AccuVote-TS ballots.

Once ballot preparation has been completed, the election database should be backed up.

2.6.12.1. Deliverables

Review the following in GEMS administrative reports and implement corresponding revisions as necessary. The verification of deliverables applies equally for AccuVote-OS and AccuVote-TS ballots.

Race/candidates

Verify that every race is defined with the correct candidates in the Races with Candidates report.

Race/ballot style

Review the Ballot Styles with Races report in order to verify race/ballot style relationships. Discrepancies in this report may be rectified by changing jurisdictional definitions or race/district assignments.

Ballot style/ballot

Review the Ballot Styles with Ballots report in order to verify ballot style/ballot relationships. Discrepancies in this report may be rectified by changing rotation rules in the Rotation Options group box under the Options tab in the Race Editor for affected races. This activity is only applicable to elections with race rotations.

Ballot style/card style

Review the Ballot Styles with Card Styles report in order to verify ballot style/card style relationships. This activity is not applicable if no multi-card ballots are present. Multi-card ballots may be reduced to single-card by changing the following:

1. A larger card template may be defined in the Layout group box under the Card Definitions tab in Ballot Options.
2. Voting oval margins may be reduced in the Margin field in the Oval Justification group box under the Oval/Box tab in Ballot Options.
3. Text margins may be reduced in the Header, Race and Candidate Margins group boxes under the Margins tab in Ballot Options.
4. Box margins may be reduced in the Shift Box group box under the Oval/Box tab in Ballot Options.
5. Candidates may be set to flow in races rather than assuming fixed positions by setting Layout to Flow in the Candidate Grid Layout group box under the Oval/Box tab in Ballot Options.
6. Header options may be revised under the Options tab in the Header Editor in order to eliminate gaps of space.
7. Unnecessary header text may be reduced in the ballot text field in the Header Editor.
8. Race, candidate and text header font sizes may be reduced in the ballot text fields in the Race and Header Editors.
9. Candidate spacing may be reduced under the Candidates tab in the Race Editor.
10. Min Candidate Row/Col values may be reduced in the Size Options group box under the Options tab in the Race Editor.

Ballots/cards

Review the Ballots with Cards report in order to verify ballot/card relationships. This activity is not applicable to elections with single-card ballots. Discrepancies in this report may be rectified according to the recommendations in the preceding section.


Card styles/cards

Review the Card Styles with Cards report in order to review card style/card relationships. This report need only be reviewed if the election features rotation and multi-card ballots. Discrepancies in rotations are rectified as detailed in the section Ballot style/ballot. The number of cards to a card style may be reduced as detailed in the section Ballot style/card style.

Cards/races

Review the Cards with Races report in order to verify card/race relationships. Discrepancies in this report may be rectified by changing jurisdictional definitions or race/district assignments.

Cards/race rotations

Review the Race Rotation with Cards report in order to verify card/race rotation relationships. Discrepancies in this report may be rectified by changing rotation rules in the Rotation Options group box under the Options tab in the Race Editor for affected races. This activity is only applicable to election with race rotations.

Base precincts/cards

Review the Base Precincts with Cards report in order to verify base precinct/card relationships. Ensure that every base precinct is linked to the correct partisan ballots in a closed primary. Discrepancies in this report may be rectified by changing jurisdictional definitions or race/district assignments.

Ballot Text Report

Verify ballot text for all race, candidate, header and voter group defined in the election. This report is accessible by clicking on GEMS in the menu bar, then Ballot Text Report in the drop-down menu.

Printing or previewing the Ballot Text report is posted to the Audit Log.

2.6.12.2. Ballot Editor

Single ballot style

Initially, a general review of the most common ballot style should be performed to correct gross errors, that is, the ballot style that occurs in most vote centers. The most common ballot style is often the lowest ballot style number, i.e. 1. This is easily determined by expanding Ballot Style in the tree view, selecting each ballot style and observing the number of base precincts in which each ballot style occurs, and selecting the most common ballot style. Select the most common partisan ballot styles in a closed primary.

AccuVote-TS memory cards must be programmed with a vote center that accepts the ballot style(s) selected. Expand Ballot Style in the tree view and click on the Ballot tab in the list view, and for every ballot style selected observe the corresponding ballot number.

Once all ballot numbers have been determined, expand the vote center categories that are counted by AccuVote-TS in the tree view and click on the Ballot tab in the list view, then select each vote center and review the ballots listed in the list view. Select any vote center which accepts the ballots determined in the preceding step.

All criteria apply to both AccuVote-OS and AccuVote-TS ballots unless otherwise indicated. Perform the entire suite of proofs described in this section on a language-by-language basis, if the election is defined with more than one language. For example, if the election is defined with English and Spanish languages, perform all verification first with English language ballots, then perform all verification with Spanish language ballots.

The ballot styles selected should be review on these common ballot styles for the following criteria. If a ballot style contains multiple card styles, review each card style in the Ballot Editor using by selecting the card style from the Card drop-down list.
Length
Card template length should be as expected. Revise the length in the Page Style field in the Layout group box under the Card Definitions tab in Ballot Options if necessary.
This criterion does not apply to AccuVote-TS ballots.

Number of columns
The number of columns should be as expected. For AccuVote-OS ballots, revise the number of columns in the Layout group box under the Card Definitions tab in Ballot Options if necessary. For AccuVote-TS ballots, change the No. Columns value in the Layout group box in AccuVote-TS Options.

Election title
The election title and instructions to vote should be present, in the correct position, and contain the correct content. Ensure that any required title information occurs at the back of the ballot. Revise text and formatting options of the election header and instructions to vote as well as the linked races as necessary.

Card headers and footers
Verify that card headers and footers are present on the ballot. Change the Type radio button under the Options tab for card headers and footers as necessary. Revise the AccuVote-TS Header And Footer Height fields in the Size group box in AccuVote-TS Options.

Voting oval position and size
Voting ovals on AccuVote-OS ballots should be positioned correctly on either the left- or right-hand side of candidates. If they are not, select the correct Horz radio button in the Oval Justification group box under the Oval/Box tab in Ballot Options.
Revise the voting oval size on AccuVote-TS ballots in the Vote Box field in the Size group box in AccuVote-TS Options if necessary.

Oval vertical justification
Oval vertical justification should be positioned correctly relative to candidates. Observe whether candidates with single as well as multiple spacing are properly positioned either at the top, center or bottom of candidate text. Oval positioning is defined with a Vert radio button in the Oval Justification group box under the Oval/Box tab in Ballot Options.
This criterion does not apply to AccuVote-TS ballots.

Candidate spacing
Observe that candidate spacing is as expected for all races. Candidate spacing is changed in the Candidate Spacing field in the Size Options group box under the Options tab in the Race Editor.
This criterion does not apply to AccuVote-TS ballots.

Formatting
Observe that all race, candidate and header text has the correct fonts and is otherwise formatted correctly. Correct the fonts and any other formatting options as necessary in the ballot text fields in the Race and Header Editors. For AccuVote-TS ballots, change the Scale % value in the Layout group box in AccuVote-TS Options. This review need not be thorough.

Box shifting
If any text or voting ovals are touching or positioned outside of race boundaries, race boxes may be shifted improperly. Race box shifting is changed in the Horz and Vert fields in the Shift Box group box under the Oval/Box tab in Ballot Options.
This criterion does not apply to AccuVote-TS ballots.
Text margins
Ensure that text margins appear correctly for races, candidates and headers. These margin values are changed in the Header, Race and Candidate Margins group boxes under the Margins tab in Ballot Options. This review need not be thorough.

This criterion does not apply to AccuVote-TS ballots.

Race sequence
Observe that all Jurisdiction Wide races occur on the ballot in the correct sequence. Change the Id number of each affected race as required.

Header sequence
Observe that all headers occur on the ballot in the correct sequence and position. Change the Id number of affected headers in order to revise the position on the ballot. Change the Link to Race IDs values as required.

Shading
Observe that all race and header shading is correct. Set the Shaded check box in the Draw Options group box under the Options tab in the Race and Header Editors, as necessary.

This criterion does not apply to AccuVote-TS ballots.

Color
Observe that all race, candidate and header color assignments are correct, observing text, highlight and background color. Change colors in the color palettes in the Draw Options group box under the Options tab in the Race and Header Editors, as necessary.

Buttons
Observe the height, position and type of the AccuVote-TS buttons. Button height may be revised in the Height field, the button position in the Position field and type in the Type field, all in the Buttons group box in AccuVote-TS Options. This criterion does not apply to the AccuVote-OS.

Language
Ensure that all of the above criteria are reviewed for all languages on multi-language AccuVote-TS ballots. This criterion does not apply to AccuVote-OS ballots.

Header options
Once all other options have been successfully reviewed, all headers other than the election title, instructions to vote, card header and card footer should be assigned Placement and Grouping Options, where applicable.

All ballot styles
Once the ballot styles have been revised, re-generate ballot artwork, re-laying out artwork as necessary. All criteria apply to both AccuVote-OS and AccuVote-TS ballots unless otherwise indicated. Once the above criteria have been met with the ballot styles selected, review all ballot styles for the following:

Length
Card template length should be as expected. Revise the length in the Page Style field in the Layout group box under the Card Definitions tab in Ballot Options if necessary.

This criterion does not apply to AccuVote-TS ballots.

Election title
The election title and instructions to vote should be present on all ballots styles. Change the Link to Race IDs for the headers as necessary.
**Formatting**

Observe that all race, candidate and header text has the correct fonts and is otherwise formatted correctly. Correct the fonts and any other formatting options as necessary in the ballot text fields in the Race and Header Editors. For AccuVote-TS ballots, change the Scale % value in the Layout group box in AccuVote-TS Options. This review need not be thorough.

**Candidate spacing**

Observe that candidate spacing is as expected for all races. Candidate spacing is changed in the Candidate Spacing field in the Size Options group box under the Options tab in the Race Editor. This criterion does not apply to AccuVote-TS ballots.

**Graphics**

Ensure that all graphics such as jurisdiction coat-of-arms or watermarks are placed in headers as intended. Modify race and header text where applicable.

**Box shifting**

If any text or voting ovals are touching or positioned outside of race boundaries, race boxes may be shifted improperly. Race box shifting is changed in the Horz and Vert fields in the Shift Box group box under the Oval/Box tab in Ballot Options. This criterion does not apply to AccuVote-TS ballots.

**Race sequence**

Observe that all races occur on the ballot in the correct sequence. Change the Id number of each affected race as required.

**Header sequence**

Observe that all headers occur on the ballot in the correct sequence and position. Change the Id number of affected headers in order to revise the position on the ballot. Change the Link to Race IDs values as required.

**Race text**

All race and amendment text should be verified for content and spelling. Revise text as necessary in the race ballot text field in the Race Editor. Verify that the correct races are present on closed primary ballots.

Verify only one instance of each race encountered; check off each race verified on the Races with Ballot Styles report.

AccuVote-OS ballot race text should be verified on printed proofs for increased accuracy.

**Candidate text**

All candidates should be present in every race, and candidate text should be verified for content and spelling. Revise candidate text as necessary in the candidate ballot text field in the Race Editor. AccuVote-OS ballot candidate text should be verified on printed proofs for increased accuracy.

Verify candidates for only one instance of each race encountered; check off each race once its candidates have been verified on the Races with Candidates report.

**Candidate endorsements**

Verify that every candidate has the correct endorsing party. Revise endorsing party in the Endorse field under the Candidates tab in the Race Editor for all affected races. Candidate endorsements should be verified on printed proofs for increased accuracy.
Header text

All header text should be verified for content and spelling. Revise header text as necessary in the ballot text field in the Header Editor. AccuVote-OS ballot header text should be verified on printed proofs for increased accuracy.

Race and header boundaries

Ensure that all race and header boundaries appear as expected. Boundary attributes may be revised in the Draw Options group box in the Race and Header Editors.

This criterion does not apply to AccuVote-TS ballots.

Shading

Observe that all race and header shading is correct. Set the Shaded check box in the Draw Options group box under the Options tab in the Race and Header Editors, as necessary.

This criterion does not apply to AccuVote-TS ballots.

Color

Observe that all race, candidate and header color assignments are correct, observing text, highlight and background color. Change colors in the color palettes in the Draw Options group box under the Options tab in the Race and Header Editors, as necessary.

Voter group overlap

No candidate text should overlap endorsing party names. The following options are available:

- Oval margins may be decreased in the Margin field in the Oval Justification group box under the Oval/Box tab in Ballot Options.
- The card template may be defined with less columns in Number of Columns in the Layout group box under the Card Definitions tab in Ballot Options.
- Candidate names may be shortened under the Candidates tab in the Race Editor.
- Candidate name space assignment may be decreased in the Width field in the Candidate Block Options group box under the Options tab in the Race Editor.
- Candidate fonts may be decreased under the Candidates tab in the Race Editor.
- Party labels may be shortened under the Parties tab in the Voter Group Editor.
- Voter group fonts may be decreased under the Parties tab in the Voter Group Editor.
- The candidate label may be set to wrap by selecting the Wrap Label check box in the Candidate Label group box under the Oval/Box tab in Ballot Options.
- The endorsement label length may be decreased by changing the Width value in the Endorsement Label group box under the Oval/Box tab in Ballot Options.

Language

Ensure that all of the above criteria are reviewed for all languages on multi-language AccuVote-TS ballots. This criterion does not apply to AccuVote-OS ballots.

Ballot proofs

Reviewing ballot proofs applies to AccuVote-OS ballots only.

Once the review work performed in the preceding section is complete, all ballot card proofs should be printed and comprehensively proofed using the criteria detailed in the section All ballot styles. Final ballot proofs should be archived.

Ensure that all card/precinct identifier combinations are accounted for using the Cards Artwork Report.
**Rotations**

If rotations are implemented in the election, review a single card for each card style only according to the preceding criteria with the assistance of the Card Styles with Cards report.

Once this verification is complete, use the Card Styles with Cards and Base Precincts with Cards reports in order to verify that the correct rotations have been assigned to each card. If voter registration-based rotation is employed, use the Voter Registration report in addition for verifying candidate rotation assignments.

**Proofing ballots**

Test, absentee, early voting and polling ballots should be reviewed independently, provided they are printed separately. Every unique card should be verified against the final printed ballot proofs, rather than using the ballot proofing criteria in preceding sections. Verify printed ballots for overprint and stub information required, as well as any other special criteria requested. Ensure that ballot quantities are as ordered.

**Ballot print quality**

Ballot print quality should be reviewed as follows.

**Cut marks**

Cut marks are used to position the ballot image on the ballot card stock. A cut mark should occur on the four corners of every ballot front and back. The placement of the cut mark should be exactly in the corner so that if you observe any one of the four corners of the pack of ballots, it will be black.

There should be no white space between a cut mark and the edge of the ballot stock, nor should the cut mark be pushed off the edge of the card stock.

**Diagnostic marks**

Diagnostic marks refer to the black rectangles running along the top of the front and back of the ballot. The distance from the beginning of each diagnostic mark to the next mark should be exactly ¼". Line an exact ruler (use only a ruler with 1/32" breakdown) with the 1" notch lined up against the left side of the left-most Diagnostic mark, lining the ruler alongside the diagnostic marks. As you run your eye alongside the ruler, observe that the left-hand sides of the diagnostic marks occur at ¼" points on the ruler. Use this method to scan the front and back of three or four ballots in a ballot pack.

**Clearance**

Using the same test ballots from the prior test, measure that there is at least ¼" of space above the top of the Diagnostic Marks on both the ballot front and back, and ¼" of space below the text below the card ID marks at the bottom of the ballot front and back. This ¼" clearance allows the AccuVote-OS to establish a white level on the ballot, that is, a base blank color against which a filled oval can be gauged. Note that this rule is only used for ballots used by visible light AccuVote-OS units.

**Stock width**

Using these same ballots, verify that the width of the ballot stock exactly 8 ½".

**Smudging**

Run your thumb along each of the four sides of the front and back of the ballot pack and observe that there are no smudges amongst the control marks.

This inspection is to be performed for every card/precinct identifier combination.

**2.6.13. Printing ballot artwork**

**2.6.13.1. Concepts**

This section is applicable only to AccuVote-OS ballots.
Ballot artwork may be printed either from the Ballot and Card Editors, or from the Print Artwork window. Since the Ballot and Card Editors allow the printing of individual card faces only, the Print Artwork screen is used for printing multiple cards, printing artwork electronically as well as preparing ballot artwork for distribution to the print company. Printing card faces from the Ballot and Card Editors is described in the section 2.6.11 Ballot and Card Editors.

Organization

Ballots may be organized for printing in one of four possible arrangements: by card, by precinct identifier, by card style or for Ballot on Demand. By default, ballot artwork is listed in the Print Artwork window by Card and Card Style. Each of the precinct identifier, card style and Ballot on Demand options are activated by selecting corresponding check boxes. Selecting one of these check boxes disables all of the remaining check boxes; in order to display artwork using another options, the check box must first be de-selected before continuing.

Every ballot or card is automatically printed for all language instances defined in the election. It is not possible to print a ballot or card specific to a language; irrespective of the printing options specified in the Print Artwork window, all languages instances of the ballot or card will be printed.

Artwork contents

In addition to ballot content created by GEMS that may be viewed in either Ballot or Card Editors, ballot artwork is printed with cut marks, cut tolerance marks, fold marks and precinct identifiers. Cut, cut tolerance and fold marks are placed outside the perimeter of the ballot, and are designed for control purposes for the print company only.

Cut marks are joined, inward-pointing horizontal and vertical lines that occur in each of the four corners of the ballot face. Cut marks are designed to allow the print company to center the ballot perfectly on the ballot stock, as well as provide a guide for ballot proofing. Cut tolerance marks are outward-pointing horizontal and vertical lines radiating out from the cut marks, designed to assist in the aligning the ballot stock properly for cutting.

Fold marks are represented by dotted lines that radiate from either side of the ballot, and are intended to determine the exact positioning of absentee ballot folds. GEMS automatically determines the position of fold marks, ensuring that no fold mark overlaps any voting ovals. It is essential that ballots be folded only where designated fold marks occur. Fold marks are only necessary for ballots that are folded.

Precinct identifiers determine the precinct affiliation of the ballot card, and are described in detail in the section Precinct identifiers in 2.3 Setup.

Ballot artwork should be printed and proofed with control marks in order to ensure that both ballot contents and control information are subjected to proper scrutiny. Note that ballot artwork does not contain pad information.

Printing by card

If none of these check boxes are selected, then artwork is arranged by card. Selecting an individual card in Print Artwork’s display window will print all card/precinct identifier combinations of the card. If ballots are printed with precinct numbers, then all card/precinct number combinations will be printed, and if precinct sequence numbers are printed on ballots, then all card/sequence number combinations will be printed.

This feature is useful when all ballot artwork requires printing. However, if individual ballots are to be printed for verification purposes only, individual card/precinct identifier combinations should be printed only. In order to print a single card only without precinct identification, ensure that the Pct IDs or Seq IDs check box is de-selected.

Precinct identifier

The precinct identifier check box is labeled ‘By Precincts’ if precinct numbers are printed on ballots, and ballot artwork is displayed in the columns Id, Report Pct, Card and Style. Id refers to the report precinct Id, Report Pct to the report precinct label, Card to the card number and Style to the Card Style number.
Ballot artwork is listed in order of report precinct Id, but artwork may be listed in increasing or decreasing order by clicking on the corresponding column header.

If sequence numbers are printed on ballots, the check box is labeled ‘By Sequence’, and ballot artwork is displayed with the columns Card, Card Style and Seq #. Ballot artwork is listed in order of card number, but may also be listed in increasing or decreasing order of card style or sequence number by clicking on the corresponding column headers.

Selecting the precinct identifier check box automatically selects and disables the Pct Ids or Seq Ids check box in the Options group box.

**Card style**

Selecting the Styles Only check box displays all artwork by card style only. Since candidate rotation affects only the order of candidates on the ballots, all other ballot proofing may be condensed to the card style. Selecting the Card Style check box disables the Pct or Seq IDs check box as well as the Proof check box.

**Ballot on Demand**

In a Ballot on Demand environment, ballot artwork is printed on a precinct-specific basis, and so the Ballot on Demand feature arranges ballot artwork by report precinct, base precinct and voter group combination. Selecting the BOD check box displays artwork with the columns Report Unit, Base Unit, VGroup1, VGroup2 and Ballot Rot.

Artwork is listed in alphabetical order of report precinct label, and within each report precinct in alphabetical order of base precinct label. Each unique report precinct, base precinct and voter group combination is assigned a unique row in the Print Artwork display. Artwork may be listed in ascending or descending order for any one of these qualifiers by clicking on the corresponding column header.

**Print destination**

Ballot artwork may be printed either to a local printer or to file. In general terms, the artwork is routed to the destination associated with the selected printer. If the selected printer represents a physical print destination, artwork is routed to the selected printer. If the print destination is configured as a file, then artwork is printed to file as a result. Note that the print destination acts as a print driver, configuring the print job for printing to a physical device according to certain specifications.

For example, Adobe Acrobat may be installed with the printer Acrobat PDFWriter, which may be defined as being a logical, not a physical printer. In this manner, ballot artwork may be printed electronically as pdf documents. Note that GEMS computers are pre-installed with Adobe Acrobat Reader, which does not allow the creation of pdf documents.

The print destination selected should correspond to the printer designated by the print company for printing ballots. The printer is selected from the Name drop down-list in the Printer group box.

**Format**

Selecting to print ballot artwork to a directory enables the selection of a print destination in the Print Artwork window, as well as a file extension. By default, a file extension of .ps or Postscript is assigned, although the extensions .eps, .pcl or .prn may also be employed.

Printers create artwork in varying formats, as indicated by these extensions. Postscript files are created as static documents that can not be positioned over a printing plate. EPS or Encapsulated Postscript files, on the other hand, may be edited so that they may be positioned on a ballot plate. PCL files are created by Hewlett-Packard (HP) printers, and prn files refer to generic print jobs.

The file extension assigned to ballot artwork being printed should then conform to the print driver selected. For example, if ballot artwork is to be printed electronically for an HP printer, it should be assigned the extension .pcl. Note that the extension does not create the format of the artwork, only indicates the format it has been prepared with to the recipient.

Unless specifically required, the file extension should be set to .ps.
The print file extension is selection from the Extension drop-down list in the Printer group box.

Properties

Printer drivers may be customized according to the options available in the Properties window. Print settings available vary from printer to printer, but the following options are generally common to all printers. Ensure that properties are reset when using non-standard settings, as GEMS will retain the last settings defined, rather than reverting to defaults.

Properties are accessed by clicking on the Properties button in the Printer group box.

  Paper size

The paper size selected varies according to the application, be it printing proofs, ballots, or creating artwork for the print company.

  Proofs

Ballot proofs are printed to a desktop printer single sided, to 20 lb. bond paper stock. These proofs are intended for visual inspection but not for ballot testing.

The paper size selected will depend on the paper stock accepted by the print device as well as the printing application. A tabloid or 11x17" form size will accommodate 11" and 14" with control marks. 17" and 18" ballots, however, will be cropped at the top and bottom, so that complete, full-scale artwork can not be printed in one pass. Artwork must be either be printed shifted up and then down, with resultant cropping, or shrunk so as to fit onto a single form. 11x22 paper stock will fit 17" and 18" ballots with control marks, although this paper size is uncommon.

A printer may be limited to letter or legal stock paper, which implies that either the ballot image must be shrunk or ballots must be cropped. Only paper sizes may be selected that the print device supports, i.e. letter, legal, tabloid.

Diebold Election Systems recommends that the jurisdiction employ a printer capable of printing tabloid (11x17") stock.

  Ballots

A printer may be available to the jurisdiction that is capable of printing proper ballots. The ballot size must be specified as tabloid oversize (11.7x17.7"), and offsets defined in order to center the ballot image perfectly on the ballot stock. More information is provided in the section titled 2.6.13.3 Printing ballots in-house.

  Print company

Ballot artwork prepared for the printing company is printed electronically, and therefore not constrained by physical paper stock limitations. The 11x22" form fits all ballot sizes with control marks, and is therefore recommended for all ballot printing. If it is not available, the next largest form should be employed, such as Tabloid Oversize, or 11.7x17.7".

  Orientation

Ballot artwork may be printed either portrait or landscape. Commonly, orientation is set to portrait.

  Paper source

The paper size, weight and trays available on the print device determine which paper source should be selected.

  Number of copies

The number of copies to print of each ballot is specified.

  Duplex

In order to print ballots, a print device must be capable of printing duplex or on both sides of the ballot stock. The duplex option should be set when printing ballots, otherwise, the duplex option should not be
selected. The print device may require an additional physical insert in order to print duplex ballots. More information is provided in the section titled 2.6.13.3 Printing ballots in-house.

Scaling

Ballot artwork should ideally be reviewed at 100% scaling, as essential details of ballot content become less tangible with decreased scaling. However, scaling is useful when a printer is not capable of printing to sufficiently large forms. Diebold Election Systems recommends that the jurisdiction employ a printer capable of printing tabloid (11x17") stock.

Separation

Ballot faces may either be printed individually, with ballot fronts and backs directed to separate files, or with front and back both in one file. Ballot face separation is specified by selecting the Separate Files group box in the Printer group box.

Offsets

The position of the ballot image may be shifted on paper stock or electronic form according to vertical placement and horizontal and vertical shifting options. The ballot image may be placed either at the vertical center of the form, at the top of the form – with the top of the ballot image at the top of the form – or at the bottom of the form, with the bottom of the ballot image at the bottom of the form.

The image may also be shifted from its vertical placement with offsets defined in twips, measurements of 1440 per inch. Positive numbers indicate a vertical shift downward and a horizontal shift to the right, whereas negative numbers indicate a vertical shift upward and a horizontal shift to the left.

Offsets are defined in the Print Cards – Advanced Options window accessed by clicking on the Offsets button. The vertical position is selected from the Top, Center and Bottom radio buttons, and the horizontal and vertical offset factors are defined in the Horz and Vert fields, for both ballot faces.

For example, suppose a ballot is to be printed with the front 2 inches from the top and 1.5 inches from the left-hand side of the form, and the back 3 inches from the bottom, and 1.5 inches from the left-hand side. The ballot front is then assigned the Top radio button, and the Horz field set to 2160 (1440 x 1.5) and the Vert field to 2880 (1440 x 2); the ballot back the Bottom radio button, 2160 in the Horz field and 4320 (1440 x 3) in the Vert field.

By default, the ballot image is vertically centered, with all offsets set to 0. Commonly, ballots are printed with default offset values.

Options

Ballot printing options are specified by selecting the appropriate check boxes in the Options group box.

Cut marks

Cut marks are placed on ballot artwork if the Cut Marks check box is selected. This check box is selected by default, as cut marks are recommended for ballot printing as a useful proofing tool for both the print company as well as the jurisdiction.

Grid Lines

A ¼" spaced grid is laid over the printed ballot if the Grid Lines check box is selected. By default, this check box is not selected. This option enables the exact measurement of ballot content placement, and should not be used for printing final ballot artwork.

Proof IDs

Selecting the Proof IDs check box places Id numbers in the top left-hand corner of every race and header on the ballot, followed by rotation numbers in the case of races. The Proof IDs check box is de-selected by default, and should not be selected when creating ballot artwork to be delivered to the print company. The Proof IDs feature has the identical effect as Race ID in the Ballot and Card Editors.
Separate Ovals

Many jurisdictions require ballot artwork to be printed with red instead of black ovals. Red is a color that is more visible to the visually challenged, and Pantone 032 red in particular is invisible to the AccuVote-OS. As a result, ballot artwork may be printed with thick 032 red ovals for increased visibility to the human eye yet remaining invisible to the AccuVote-OS. It is not possible to increase the oval weight of black ovals, as this creates a likelihood of oval boundaries being detected as marks.

The Separate Ovals option is used to create two ballot separations, one with all ballot contents except ovals, and the second with ovals only. The print company then prints the non-oval separation using black ink, and overlays the oval separation using red ink. Creating separations is unnecessary if a printer has the technology of printing multiple colors in a single pass, as is the case with digital color printing technology.

The Separate Ovals check box is de-selected by default. Selecting Separate Ovals automatically enables and selects the Thick Ovals check box. It is possible to select Separate Ovals but de-select Thick Ovals, although the intent of creating ballot separations is to create red ovals that are thickened for increased visibility. De-selecting Separate Ovals disables the Thick Ovals check box.

Front/Back

Ballot artwork printed may be limited to the front, back or both front and back. Note that the ballot front and back may be incorporated into individual documents by selecting the Separate Files check box, or be placed into the same document by de-selecting the Separate Files check box. By default, both check boxes are selected.

Pct/Seq Ids

The check box is labeled Pct Ids if ballots are printed with precinct numbers, otherwise the check box is labeled Seq Ids if ballots are printed with sequence numbers. If the precinct identifier check box is selected at the top of the Print Artwork window, this Pct/Seq Ids check box is automatically selected and disabled.

Selecting this check box forces precinct identifiers onto ballots. By default, this check box is selected. De-selecting both the precinct identifier check box and Pct/Seq Ids will automatically label ballots as proof only, as ballots printed without precinct identification will not be accepted by the AccuVote-OS.

Fully Marked

Fully marked ballots may be automatically created from GEMS for the purpose of performing the AccuVote-OS Fully Marked Ballot Test. Ballots are printed with every voting oval filled if the Fully Marked check box is selected. By default, this check box is not selected.

Proof

Selecting the Proof check box places the printing date and time next to card ID text information at the bottom of the ballot. This check box is not selected by default, and should not be selected when preparing artwork to be delivered to the print company. Selecting the Styles Only check box de-selects and disables this check box.

File naming

Ballot artwork file names include some or all of the following information which uniquely identifies a particular card/precinct identifier combination: language, card number, report precinct Id, sequence number, voter group, front or back designator, separation and extension.

The language prefixes the ballot file name only if multi-language AccuVote-OS ballots are created in the election. Ballot artwork for each language is placed in a separate folder in the location specified, each folder named according to the language label defined in the Language window. Ballot artwork is not separated by language if multiple languages are in use in the election, but only one language is used with the AccuVote-OS.

The card number is always included on the file name. The report precinct Id is assigned to the file name if precinct numbers are printed on ballots, otherwise, the sequence number is assigned to the file name if
sequence numbers are printed on ballots. The voter group Short value is also assigned to the ballot file name and is set to NP unless the election is a closed primary, in which case the voter group may correspond to a political party.

Ballot fronts are designated with ‘F’, backs with ‘B’, and combined front/back files with ‘FB’.

Ballot artwork separations are printed with ‘TXT’ representing the non-oval component, and ‘OVL’ representing the oval component of the artwork.

The extension assigned to the ballot file corresponds to the selection from the Extension drop-down list. **Figure 2-212** displays examples of ballot artwork created in an election configured with one AccuVote-OS language.

<table>
<thead>
<tr>
<th>File name</th>
<th>Card #</th>
<th>Precinct Identifier</th>
<th>Voter Group</th>
<th>Front/Back</th>
<th>Separation</th>
<th>Extension</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-1-NP-F-TXT.ps</td>
<td>5</td>
<td>1</td>
<td>NP</td>
<td>F</td>
<td>TXT</td>
<td>ps</td>
</tr>
<tr>
<td>1-110-NP-FB.eps</td>
<td>1</td>
<td>110</td>
<td>NP</td>
<td>FB</td>
<td>n/a</td>
<td>eps</td>
</tr>
<tr>
<td>1-1-DEM-B.pdf</td>
<td>1</td>
<td>1</td>
<td>DEM</td>
<td>B</td>
<td>n/a</td>
<td>pdf</td>
</tr>
</tbody>
</table>

**Figure 2-212. Examples**

### 2.6.13.2. Configuring ballot artwork

Click on Artwork in the menu bar and Print Artwork in the drop-down menu in order to activate the Print Artwork window. See **Figure 2-213** and **Figure 2-214**.

**Figure 2-213. Activating the Print Artwork window**
In the Print Artwork window, select the By Precinct or By Sequence check box if ballot artwork is to be printed by precinct or sequence number, respectively, select the Styles check box if all cards (rotations) within a set of card styles are to be printed, or select BOD if ballot artwork is to be printed using the Ballot on Demand feature. See Figure 2-215.
Options

The Print Artwork window appears with the Cut Marks, Front, Back and Pct IDs check boxes selected in the Options group box. De-select Cut Marks if no cut marks are to appear on the ballot. Select Grid Lines if you wish to print grid lines on the ballot proof. Select Proof IDs in order to place race and header numbers on the proof. Select Separate Ovals if artwork is to be printed with red ovals, and de-select Thick Ovals if ovals are not to be thickened.

De-select Front if ballot backs only are to be printed, and de-select Back if ballot fronts are to be printed only. Select Pct IDs or Seq IDs in order to print all card/precinct identifier combinations for the selected ballots. This check box will not be activated if either the precinct identifier or Styles Only check boxes are selected at the top of the Print Artwork window.

Select the Fully Marked check box in order to print fully marked ballots. Select the Proof check box in order to print proof information in the card ID area. Again, this check box will not be selected if the Styles Only check box is selected. See Figure 2-216.

Figure 2-216. Options for printing proofs
Printer

Select the printer from the Name drop-down list. See Figure 2-217. Click on the Properties button, select all the necessary driver options for the print job and click on OK in the Properties window.

![Selecting a printer](Figure 2-217)

If ballot artwork is to be printed to file, select the Print to Directory check box, then click on the ... button and select the folder destination for the ballot artwork. If ballot fronts and backs are to be printed to file in separate documents, select the Separate Files check box, otherwise, if fronts and backs are to be printed in single files, de-select this check box. Select the extension in the Extension drop-down list.

Offsets

Click on the Offsets button. In the Print Cards – Advanced Options window, click on the Default button in order to set offsets to default, otherwise, change the offsets as necessary and click on the OK button. See Figure 2-218.

![Setting default offsets](Figure 2-218)

Now select the cards you wish to print in the display window and click on the Print button. See Figure 2-219.
2.6.13.3. Printing ballots in-house

Printing live ballots in-house is useful for ballot testing and other administrative functions. However, it is essential that commercially printed ballots are used in the election wherever possible in order to optimize the quality of ballots available in the election. The jurisdiction must employ a printer designated by Diebold Election Systems for this task.

**Printer**

The printer must contain a duplexing mechanism, that allows ballots to be printed two-sided. While it is possible in some cases to re-feed ballot stock to print the second ballot face, it is recommended that the printer be equipped to perform this task automatically.

The printer must be capable of printing *edge-to-edge*, or to the edge of the stock, without imposing a margin. Conventional desktop printers assign an approximate margin of 1/8” on all edges of paper stock.

Lastly, the printer must be capable of printing 90 to 100 lb. index stock, where conventional desktop printers print 20 lb. bond paper only.

Ballots printed in-house should be strictly monitored for quality. Refer to the section *Ballot print quality* for more information on monitoring print quality. Quality control should be exercised on a continuous basis, and should include ongoing verification that calibration quality is maintained.

**Ballot on Demand**

A useful application for printing ballots in-house is Ballot on Demand. Small ballot quantities are printed for precincts in an election that experience a shortfall in print quantities. Ideally, the jurisdiction should correctly gauge card quantities ordered from the print company so that such shortfalls are not experienced.
Print Artwork

In the Print Artwork window, the BOD check box is selected. Cards are displayed in order of report precinct, base precinct, partisan and absentee/non-absentee voter group, and include rotation number. Every combination of report precinct, base precinct and voter group is shown on a unique line in the display area of the Print Artwork window. Each combination corresponds to a single ballot card. This arrangement allows the jurisdiction to print cards based on the needs of individual report precincts.

In the Options group box, the Grid Lines, Proof IDs, Fully Marked and Proof check boxes should not be selected.

Select the correct printer from the Name drop-down list in the Printer group box. In the Properties window, select the 11.7x17.7" or Tabloid Oversize form as well as the Duplex printing option.

The Print to Directory and Separate Files check boxes should not be selected.

Initially define offsets as default. Print a single proof and observe the discrepancies in the horizontal and vertical positioning of both ballot front and back. Measure with an accurate ruler preferably to 1/64" the amounts the ballot image must be shifted horizontally and vertically on both faces, and incorporate these values into the settings in the Print Cards – Advanced Options window. Note that these values are retained in subsequent print jobs.

Continue this process until ballots of an acceptable quality are printed. Once offsets have been finalized they should be recorded.

2.6.13.4. Delivering artwork to the print company

It is essential that a jurisdiction employ only print companies that have been certified by Diebold Election Systems in order to print AccuVote-OS ballots in order to be assured the quality of ballots required for an election.

Determine the printer driver that artwork should be prepared with from the print company before delivering ballot artwork.

Create a folder in Windows NT Explorer for the election’s ballot artwork.

Activate the Print Artwork window. Select the precinct identifier check box. Ensure that the Grid Lines, Proof IDs, Fully Marked and Proof check boxes are not selected. If ballots are to be printed with red ovals, select the Separate Ovals check box.

Select the print driver from the Name drop-down list in the Printer group box, and select a sufficiently large form in Properties. Select the Print to Directory and Separate Files check boxes, select the destination folder and change the extension from .ps if necessary.

Select the entire list and click on the Print button.

Once artwork has been printed to file, verify that all artwork files have been printed using the Cards Artwork Report.

Using Ghostview, review each ballot artwork file corresponding to a unique card style and compare to the corresponding printed ballot proof.

Make a backup of the election database. Compress ballot artwork files using Winzip, copy to offline media, and email to the print company. Retain the offline media such as diskette or Imation disk for archive purposes.

Note that all ballot artwork must be completed before delivering artwork to the print company.
2.6.14. Voter groups

2.6.14.1. Voter group-ballot affiliation

Ballots are affiliated with two sets of voter groups, voter group 1, as defined under the Parties tab in the Voter Group Editor, and voter group 2, defined under the Absentee/NonAbsentee tab in the Voter Group Editor.

For example, a closed primary election is held for Republican and Democrat State Assembly. In GEMS, the Republican and Democrat voter groups are defined to separate ballots. The Republican State Assembly race is defined and linked to the Republican voter group, and the Democrat State Assembly race is defined and linked to the Democrat voter group. GEMS creates two ballot styles: ballot style 1 contains the Republican State Assembly race and is linked to the Republican voter group, and ballot style 2 contains the Democrat State Assembly race and is linked to the Democrat voter group.

In another example, an election is held for Mayor and Precinct Committee Office. Election day voters vote on both races but absentee voters vote only for Mayor – no rotations apply in the race. Polling and Absentee voter groups are defined in the Voter Group Editor, and in the Counter Group Editor, the <N.P.> counter group is linked to the Polling voter group and the Absentee counter group is defined and linked to the Absentee voter group.

The race for Mayor is defined and linked to the <N.P.> voter group and the race for Precinct Committee Office is defined and linked to the Polling voter group. GEMS creates two ballot styles, polling ballot style 1 contains both races and is linked to the Polling voter group and absentee ballot style 2 contains the race for Mayor only, and is linked to the Absentee voter group.

Ballots are by default linked to the voter group <N.P.> if no absentee/non-absentee voter groups are defined, otherwise, ballots are by default linked to the first voter group defined under the Absentee/NonAbsentee tab.

2.6.14.2. Partisan ballots

In a closed primary election, partisan voter groups are defined to separate ballots. The partisan races on a ballot determine the voter group affiliation of the ballot. For example, a ballot with Republican races is a Republican ballot.

Races defined in a primary election should be defined in the order they are to appear on the ballot. In a closed primary, all partisan races appear on corresponding partisan ballots, and non-partisan races on a non-partisan ballot. Partisan races may be grouped together either by office or party in a closed primary, but in an open primary election, they must be grouped by party, as all partisan offices should be ordered on the ballot by party, followed by non-partisan offices.

2.6.14.3. Arranging candidates by voter group

Candidates may be arranged into separate rows or columns by voter group. This is described in greater detail under the section 2.3.7 Ballot Options.

2.6.15. Card quantities

2.6.15.1. Concepts

GEMS generates card quantity information useful for determining ballot quantities to print. This information is only required for elections using the AccuVote-OS.

How are card quantities measured?

Base precinct

Card quantities are measured by base precinct.
For example, if 1000 voters are registered in precinct Wilson, and all voters vote on the same ballot, then GEMS assigns a card quantity of 1000 to the single ballot in base precinct Wilson.

**Base precinct and voter group**

Card quantities are measured by voter group within base precinct.

Suppose that of a total of 1000 registered voters in Wilson, 600 are Democrat and 400 are Republican. Democrat voters vote on card 1 and Republican voters on card 2. GEMS then assigns a card quantity of 600 in base precinct Wilson to the Democrat ballots (card 1) and 400 to the Republican ballots (card 2).

Parties must be defined to track registration in a primary election in order for card quantities to be computed by voter group.

**Vote center, base precinct and voter group**

Card quantities are measured by vote center, base precinct and voter group.

For example, suppose that the primary election in the above example extends to precinct Lincoln. Voters in precinct Wilson cast ballots at vote center Wilson and voters in Lincoln cast ballots at vote center Lincoln. Democrat voters in both Wilson and Lincoln vote on card 1 and Republican voters in both precincts on card 2. Lincoln holds 1200 registered voters, of which 550 are Democrat and 650 are Republican.

GEMS then assigns base precinct Wilson within vote center Wilson the card quantity of 600 to Democrat card 1 and 400 to Republican card 2, and base precinct Lincoln within vote center Lincoln card quantities of 550 to Democrat card 1 and 650 to Republican card 2.

**Multi-vote center report precincts**

Card quantities are duplicated for precincts assigned to multiple vote centers. In order to create meaningful card quantities, duplicate card quantities should be ignored on reports or vote centers should be assigned a multiple number of memory cards instead of linking report precincts to multiple vote centers.

For example, 1000 registered voters may vote for Mayor in precinct Wilson. Voters may vote either in vote center Wilson 1 or 2, and the results of ballots cast in both vote centers are to be tallied to report precinct Wilson. In GEMS, the report precinct is defined and linked to vote centers Wilson 1 and Wilson 2. The Jurisdiction Wide race for Mayor is defined, appearing on card 1, which may be cast in vote centers Wilson 1 and 2. GEMS then assigns a card quantity of 1000 to card 1 in each one of the two vote centers. The total card quantity becomes 2000, even though there are only 1000 registered voters.

**How can card quantities be subdivided?**

**Counter group**

Card quantities may be subdivided by counter group.

For example, 1000 voters are registered to vote in precinct Wilson in the election for Mayor. Voters may vote either on election day or absentee, and 70% of all ballots in the election are to be designated polling and 30% absentee. Absentee results are to be tallied to an absentee precinct.

In GEMS, counter group Polling is assigned a ballot percentage of 70, and the cumulative counter group Absentee is defined and assigned the percentage 30. Precinct Wilson is defined and assigned a voter registration amount of 1000. An absentee precinct is defined and linked to an absentee vote center. The race for Mayor is defined. GEMS creates ballot card 1 for both polling precinct Wilson and the absentee precinct. GEMS assigns a card quantity of 700 to card 1 in polling vote center Wilson and 300 to card 1 in the absentee vote center.

**Voter group**

Card quantities may be divided by absentee/non-absentee voter group.

For example, 1000 voters are registered to vote in precinct Wilson in the election for Mayor and Precinct Committee office. Election day voters may vote for both Mayor and Precinct Committee office, and
absentee voters may vote for the office of Mayor only. Election day voters are assigned 70% of ballots printed and absentee voters 30%. Absentee ballots are counted at and tallied to an absentee precinct.

In GEMS, the absentee/non-absentee voter groups Polling and Absentee are defined with ballot percentages 70 and 30, respectively. Counter group Polling is linked to voter group Polling, and cumulative counter group Absentee is defined and linked to voter group Absentee. Precinct Wilson is defined and assigned a voter registration amount of 1000.

The race for Mayor is defined and linked to voter group <N.P.> and the Precinct Committee Office is defined and linked to voter group Polling. GEMS creates two ballots, polling card 1 with both races and absentee card 2 with the race for Mayor only. GEMS assigns the card quantity 700 to card 1 in vote center Wilson, and 300 to card 2 in vote center Absentee.

**Counter groups and voter groups**

Card quantities may be computed from both absentee/non-absentee voter group as well as counter group percentages, although this is uncommon.

For example, 1000 voters in precinct Wilson are eligible to vote for Mayor, Precinct Committee office and bond issue. Election day voters are eligible to vote on all offices, while absentee voters may vote for Mayor and bond issue only. Only landholders may vote on the bond issue. Absentee ballots are counted and reported with polling ballots, while landholder ballots are counted and reported separately. Election day voters are assigned 70% of ballots and absentee voters 30%. Non-landholder ballots are assigned 90% of ballots and landholders 10% of ballots.

In GEMS, the voter groups All Voters and Landholder are defined with ballot separation under the Parties tab of the Voter Group Editor. Polling and Absentee voter groups are defined under the Absentee/NonAbsentee tab in Voter Group Editor with 70% and 30% ballot percentages, respectively. The Polling counter group is assigned the All Voters voter group and ballot percentage 90%, and the non-cumulative Landholder counter group is defined and assigned voter group Landholder and ballot percentage 10%.

Report precinct Wilson is defined with 1000 registered voters. Vote center Landholder is defined and linked to report precinct Wilson. The three Jurisdiction Wide races are defined, the race for Precinct Committee office linked to voter group Polling and the bond issue to voter group Landholder.

GEMS creates four ballots. Election day non-landholders vote on card 1, with the races for Mayor and Precinct Committee Office. Absentee non-landholders vote on card 2, with the race for Mayor only. Election day landholders vote on card 3, which includes the race for Mayor, Precinct Committee and bond issue. Finally, absentee landholders vote on card 4, which includes the races for Mayor and bond issue.

GEMS assigns a card quantity of 630 to card 1, 270 to card 2, 70 to card 3 and 30 to card 4. Together these quantities total 1000.

Absentee/non-absentee voter group percentages must total 100, otherwise card quantities computed will not reconcile with voter registration amounts. The same is true for counter group percentages.

**Assigning percentages**

If absentee/non-absentee voter groups are defined, their percentages default to 0. If these percentages are to be employed in computing card quantities, they should be set to total 100. If the voter groups are defined but card quantities are not computed using voter group percentages, each value should be set to 100.

If card quantities are computed using counter groups ballot percentages in an election, they should total 100. If card quantities are computed from voter group percentages, then each counter group percentage should be 100. If both counter group and voter group percentages are employed, then all permutations of counter group/voter group percentages should total 100.
Language
Card quantities do not differentiate between languages. The jurisdiction must manually determine the quantities assigned to individual language instances of each card in multi-AccuVote-OS language elections, beginning with

Reports
Card quantity information is listed in the following GEMS administrative reports. Total all card quantities for each base precinct/voter group 1 combination in one of these reports and reconcile them with the corresponding information in the Voter Registration report. In case of discrepancies, ensure that the voter group and counter group percentages have been assigned correctly.

Card quantities associated with the default vote centers in the reports should be ignored.

**Card Quantity by Card**
Each card in the election is listed with the region, vote center, report precinct, base precinct and voter group 1 and 2 combination for which it is valid, with partisan registered voters for the base precinct and net card quantity assigned to the combination. Card quantities are subtotaled by precinct for each card, and totaled by card. Partisan voter groups are not printed in the report.

**Card Quantity by Card with Parties**
Each card in the election is listed with the region, vote center, report precinct, base precinct and voter group 1 and 2 combination for which it is valid, with partisan registered voters for the base precinct and net card quantity assigned to the combination. Card quantities are subtotaled by precinct for each card, and totaled by card.

**Card Quantity by VCenter Id**
The report lists every region, vote center, card, report precinct, base precinct and voter group 1 and 2 combination by vote center, with partisan registered voters and net card quantity for each combination. Card quantities are subtotaled by card within each vote center and are again totaled by region. Vote centers are ordered by vote center Id, and partisan voter groups are not printed in the report.

**Card Quantity by VCenter Id with Parties**
The report lists every region, vote center, card, report precinct, base precinct and voter group 1 and 2 combination by vote center, with partisan registered voters and net card quantity for each combination. Card quantities are subtotaled by card within each vote center and are again totaled by region. Vote centers are ordered by vote center Id.

**Card Quantity by VCenter Name**
The report lists every region, vote center, card, report precinct, base precinct and voter group 1 and 2 combination by vote center, with partisan registered voters and net card quantity for each combination. Card quantities are subtotaled by card within each vote center and are again totaled by region. Vote centers are ordered by vote center label, and partisan voter groups are not printed in the report.

**Card Quantity by VCenter Name with Parties**
The report lists every region, vote center, card, report precinct, base precinct and voter group 1 and 2 combination by vote center, with partisan registered voters and net card quantity for each combination. Card quantities are subtotaled by card within each vote center and are again totaled by region. Vote centers are ordered by vote center label.

For samples of card quantity reports refer to Appendix P: Administrative Reports.

**2.6.15.2. Implementing card quantities**
Card quantities are implemented by defining voter registration amounts as well as voter group and counter group percentages. Voter registration amounts are defined in the Voter Registration editor, voter group percentages in the Voter Group Editor and counter group percentages in the Counter Group Editor.
For more information on voter registration, refer to section 2.11 Voter Registration. For more information on voter groups and counter groups, refer to the corresponding sections in 2.3 Setup.

### 2.6.16. Deliverables

Ballot production deliverables include both ballot artwork and ballot artwork-related administrative information. Administrative information may be verified either by reviewing reports or by browsing the GEMS database. Printed reports are preferable insofar as they provide a concrete benchmark and paper trail, useful for audit purposes. It is not necessary to perform verification both of reports and using the GEMS window. Complete verification should be performed only once all ballot artwork is complete. No changes to ballot artwork of any sort should be performed after these reports have been signed off.

A complete set of ballot proofs should be printed and archived once ballot artwork has been completed. This artwork should also be printed and stored offline.

#### 2.6.16.1. Reports

For more information on reports refer to Appendix P: Administrative Reports. Card quantities reports are detailed in the section 2.6.15 Card quantities.

**Race with Candidates**

Verify that every race is defined with the correct candidates.

**Ballot Styles with Races**

Verify that every ballot style required in the election is present, and contains the correct races and rotations.

**Ballot Styles with Ballots**

Verify that the correct ballots exist for every ballot style in the election. This report need not be reviewed if no races are rotated.

**Ballot Styles with Card Styles**

Verify that the correct card styles are present for every ballot style in the election. This report need not be reviewed if ballots are single-card.

**Ballots with Cards**

Verify that the correct cards are present for every ballot in the election. This report need not be reviewed if ballots are single-card.

**Card Styles with Cards**

Verify that the correct cards are present for every card style in the election. This report need only be reviewed if the election features rotation and multi-card ballots.

**Cards with Races**

Verify that every card required is accounted for, and contains the correct races with Id and label.

**Race Rotation with Cards**

Verify that the rotation/card assignments for every race is correct. This report need not be reviewed if rotations are not used.

**Base Precincts with Cards**

Verify that every card is correct for every base precinct, as well as the partisan and absentee/non-absentee voter group affiliations and length. Ensure that every base precinct is linked to the correct partisan ballots in a closed primary.
Cards Artwork Report
Verify that every ballot card is present on the report with the correct sequence or precinct number.

Front Plates with Cards
Verify that all common card fronts utilize the same plate, for each common card front. This report is not applicable if all card fronts are unique.

Back Plates with Cards
Verify that all common card backs utilize the same plate, for each common card back. This report is not applicable if all card backs are unique.

2.6.16.2. Viewing the GEMS Window
Note that plate information may only be verified in print report form.

Verifying ballot styles
Expand Ballot Style in the tree view. For every ballot style listed in the tree view, select the ballot style, determine the base precincts that the ballot style occurs in under the Base Precinct tab in the list view, then click on the Race tab in the list view and verify that the correct races occur on the ballot style.

If races are rotated in the election, select every ballot style in the tree view, and determine the ballots corresponding to each ballot style under the Ballot tab in the list view. If ballots are multi-card, select every ballot style in the tree view and determine the card styles corresponding to each ballot style under the Card Style tab in the list view.

Select Ballot Style in the tree view, and observe in the list view that all partisan and absentee/non-absentee voter groups are correct for each ballot style.

Verifying ballots
Ballots need only be verified if ballots are multi-card. Expand Ballot in the tree view and click on the Card tab in the list view. For every ballot selected in the tree view, determine the corresponding cards in the list view under the Card tab.

Verifying card styles
Card styles need only be verified if rotation is implemented in the election and ballots are multi-card. Expand Card Style in the tree view and click on the Card tab in the list view. For every card style selected in the tree view, determine the corresponding cards in the list view under the Card tab.

Verifying cards
Expand Card in the tree view. For each card selected under the tree view, click on the Base Precinct tab in the list view and verify that the card occurs in the correct base precincts, then click on the Race tab in the list view and verify that the correct races occur on each card, with the correct rotations.

Select Card in the tree view and verify that the correct partisan and absentee/non-absentee voter groups are associated with each card.
2.7. Audio

Races, candidates, headers and voter groups may be recorded as sound files for every language active in the election for usage with AccuVote-TS units loaded with the Visually Impaired Ballot Station (VIBS) feature. This information may be recorded either within the corresponding Race, Header and Voter Group editors, or recorded externally and imported into GEMS. Externally recorded audio may be performed while other testing and configuration work is in progress. However, all information to be recorded must be final, in order to avoid re-recording.

Only race, candidate, header and voter group information that is to appear on the VIBS units needs to be recorded. Recorded sound files should be verified for quality and correctness, and verified again once VIBS AccuVote-TS units are programmed.

Audio recording is not applicable to the AccuVote-OS.

2.7.1. Procedure

Audio should be recorded in the context of the following procedure:

1. Identify all text for which sound recording is required.
2. Determine the text that must be recorded.
3. Perform sound recording.
4. Review sound recordings.
5. Re-record as necessary.
6. Import sound recordings.
7. Program AccuVote-TS units with VIBS.
8. Review all ballot styles with VIBS recordings.

2.7.2. Before recording

Before recording, identify the exact content of all race, candidate, header and voter group information. This corresponds to the completion of sections 2.3.5 Voter Groups, all of 2.5 Races and Candidates and the section 2.6.7 Headers. Recording prior to the completion of any of these sections requires accurate and complete printed proofs as recording source.

2.7.3. Concepts

2.7.3.1. Formats

Numerous recording formats are available in the recording of GEMS audio files. The format selected should provide an optimal choice of quality and storage requirements, where increased quality usually implies greatest storage requirements. Conventionally, GEMS uses the MPEG Layer 3 format for recording, although the PCM format is also acceptable.

Recording formats are expressed in terms of the following parameters:

- recording standard
- frequency
- bit rate
- mono or stereo
- transfer rate
The audio format may be defined by the selection of explicit format and attribute criteria, or by the selection of a class of formats, such as ‘Telephone Quality’, which automatically sets the format and attributes standards.

2.7.3.2. Recording externally

Since GEMS is not a dedicated sound recording product, greater recording sophistication may be provided in the use of dedicated recording products. Advantages of using such products include:

- improved sound quality
- noise filtration
- recording volume control
- miscellaneous formatting functions
- appropriate management of large sound recordings
- recording may be proceed once all text has been finalized, but may occur simultaneous with other configuration and testing activities

2.7.3.3. Importing

Sound recordings recorded externally to GEMS should be recorded with the MPEG format, although GEMS is capable of importing most audio file formats.

Importing may occur manually, for every occurrence of race, candidate, header and voter group text, for every language in the election, or it may be performed automatically, but only for the Default language. If multiple languages are defined for the election, audio information must be manually imported.

2.7.3.4. Operational text

Every VIBS AccuVote-TS is also installed with a set of operational audio instructions, that need not be re-installed with every election. Recorded election information is embedded into the operational text so as to present the election and its constituent races and selections in a coherent and understandable manner.

2.7.4. Configuring equipment

The computer used for recording should have a quality sound card as well as microphone installed. Recording should occur in a quiet environment, using a directional microphone is used, which is impartial to environmental noise. The microphone must be positioned an appropriate distance from the recorder - this distance is arrived at by experimentation.

2.7.5. Configuring audio

This section details recording, playback and importing using GEMS’ audio function.

2.7.5.1. Recording audio

Activate the Race, Header or Voter Group Editor for the desired entity to be recorded. Select the appropriate language from the Language drop-down list in the editor. See Figure 2-220.

![Figure 2-220. Selecting the language to record](image)
Click on the Audio button in order to activate the Audio window. Since the Audio window appears over the ballot text window, it should be dragged away in order to render all ballot text visible while allowing full access to the Audio window. See Figure 2-221.

![Figure 2-221. Activating the Audio function](image)

Click on the Record button in order to commence recording; when the recording is complete, click on the Stop button. See Figure 2-222.

![Figure 2-222. Recording in the Audio window](image)

In order to interrupt a recording, click on the Pause button, then click on Record again to continue. If the Record button is clicked after a recording has stopped, the entire recording will be restarted. Observing the second clock in the top right-hand side of the Audio window will allow the position in the recording to be tracked.

Once recording is completed, click on the Play button in order to verify the content of the recording. Observe the source text while playing back audio. See Figure 2-223.
Figure 2-223. Playing back a recording

If the source text exceeds the size of the nominal ballot text window, either transfer the text to a text editor and then to hard copy, or print ballot artwork. Otherwise, it is also possible to scroll through text as recording is in progress, although this awkward.

The ballot text window may be expanded and sized by clicking on the Edit window, but the Audio function is not active while ballot text is in Edit mode. However, if recording is performed externally to GEMS, the ballot window may be sized and shaped in this manner.

Once recording has been completed, click on the OK button in the Audio window in order to save audio recording and return to the invoking editor.

GEMS is also capable of recording automated text-to-speech, which is activated by clicking on the TTS button in the Audio window.

In order to revise a recording, the entire text should be re-recorded, as the modification of a sound file is beyond the scope of the GEMS audio function.

2.7.5.2. Importing audio

Externally recorded audio files should be organized in a systematic fashion in order to facilitate the import process.

Organizing audio files

For example, folders may be organized by language, and within each language folder, three folders should be defined: one for races, one for headers and one for voter groups.

Within the race folder, assign a folder to each race, named by the race Id, followed by a blank space, followed by the race label. Within each race, one audio file is defined for every candidate, named again with the candidate report sequence Id, followed by a space, followed by the candidate label. Files containing positive and negative responses to questions are named ‘yes’ and ‘no’. The file containing race ballot text is labeled ‘text’, and is also stored within the race folder.

Headers are defined within the Headers folder, each file corresponding to a header that appears on the AccuVote-TS ballot. Header audio files may be labeled with the header Id, followed by a space, followed by the header label. Voter group audio files may be organized in a similar manner under the Voter Groups folder.

Automated import

Sound files should be imported in a single process using GEMS’ audio import feature in case of elections featuring a larger number of races and candidates, with one language only. Moreover, the import function applies only to races and candidates, not headers or voter groups. Commonly, however, headers and voter groups are limited in number.

Race audio files should be organized in the manner described in the prior section Organizing audio files.
Click on Election in the menu bar, then Import in the drop-down list, and Import Audio in the cascading menu. In the Browse for Folder window, open the race audio folder corresponding to the default language. See Figure 2-224.

Once the audio import is complete, every race and candidate audio file may be activated and played for verification. More conveniently, these recordings may be verified once the VIBS AccuVote-TS machines have been programmed.

Manual import

Sound files may be imported individually into the Race Editor, and in any case must be manually imported in the Header and Voter Group Editors.

Activate the respective editor, select the appropriate language in the editor, and click on the Audio button. Click on the Import button, select the audio file to import and click on the Open button. Once the file has been imported, click on the Play button in order to review the imported file. Click on the OK button in order to save the imported file. See Figure 2-225.

Continue importing audio files in this manner.

Once all audio import is complete, imported audio recordings may be most easily verified once VIBS AccuVote-TS machines have been programmed.

Formatting audio

Imported audio files may be formatted in order to optimize sound quality and storage requirements. MPEG Layer 3 is a recommended recording format, although other formats, such as PCM, are acceptable.
In order to format an audio file, activate the Audio window and click on the Format button. In the Sound Selection window, select a format from the Format drop-down list and sound attributes from the Attributes list.

Selecting a general quality level from the Name drop-down list will automatically set the Format and Attributes values. The lowest level of quality is telephone, which is acceptable as voice recording quality. See Figure 2-226 and Figure 2-227.

![Figure 2-226. Sound selection window](image1)

![Figure 2-227. Selecting a sound format in Sound Selection](image2)

### 2.7.6. Deliverables

Once all audio recording has been performed, print the Races with Candidates and Headers reports.

Every race and candidate, every header and every voter group audio recording should be proofed on a VIBS AccuVote-TS unit at least once. Every race and candidate verified should be checked off on the Races with Candidates report, and every header verified should be checked off on the Headers report. Voter groups are usually limited in number, rendering this administrative function unnecessary.
2.8. AccuVote Servers

Two consoles manage the programming of memory cards, and uploading of election results in GEMS; AccuVote-OS Server-v1 for AccuVote-OS memory cards and AccuVote-TS Server-v2 for AccuVote-TS voting devices.

Memory cards must be programmed prior to election results being uploaded. Commonly, a subset of memory cards are programmed for test purposes, followed by the remainder once all ballot testing is complete. Test uploads are performed prior to and again during the Public Logic and Accuracy Test. At election close, results tallied to all memory cards are consolidated to the GEMS host computer.

Memory cards are programmed with the information pertaining to corresponding vote centers, including races, candidates, ballot styles and counters, so that only the ballots specific to the vote center are accepted. Included in AccuVote-OS downloads is report file information, which determines the format of AccuVote-OS Zero Total and Election Results reports, while AccuVote-TS downloads contain TS Text information used to configure operational instructions not specific to the election.

Each vote center in the election may be programmed to one or more memory cards. The results of ballots counted to memory cards or election media are tallied to one or more related report precincts in GEMS. If a vote center is defined with multiple memory cards, results are merged in the database upon uploading.

Voting devices are loaded with exactly one instance of memory card; however, voting devices and memory cards are interchangeable.

Downloading and uploading may occur simultaneously with other functions, such as Results Server, and Election Summary report printing, as is the case at election close.

Uploading election results from the AccuVote-TS Results Accumulator tags all affected memory cards on the AccuVote-TS Server 2 console as uploaded.

AccuVote Server logs are stored in the Log folder, within the election Id folder, within the GEMS/Data folder. It is essential that neither these files, nor the folders containing these files are removed prior to election close.

2.8.1. Procedures

The following operations comprise AccuVote Server usage:

1. Review AccuVote Server terminology.
2. Review documents required.
3. Program test memory cards.
4. Test ballots.
5. Upload test election results.
6. Program final memory cards.
7. Review programming deliverables.
8. Program memory cards for L & A Test.
9. Program additional memory cards on election day as necessary.
10. Clear test election results.
11. Upload election results.
12. Review Poster, where necessary.
13. Review election close deliverables.
14. Program memory cards for recount.
15. Upload recount memory cards.

2.8.2. Before using AccuVote Servers

Prior to using the AccuVote-OS Server-v1, AccuVote-OS ballot production must be complete, as described in section 2.6 Preparing Ballot Artwork.

AccuVote-TS Server-v2 programming and uploading activities described in this section are combined with AccuVote-TS ballot production until ballot artwork is complete. Once ballot artwork has been finalized, usage of the AccuVote-TS Server-v2 console continues according to the preceding section 2.8.1 Procedures.

2.8.3. Terminology

**AccuVote-OS On-Line**: Indicates that an AccuVote-OS is connected to the port but is not ready to receive or issue transmission.

**AccuVote-OS Server-v1**: The GEMS console used for programming AccuVote-OS memory cards and receiving election results from AccuVote-OS units.

**AccuVote-TS Server-v2**: The GEMS console used for programming AccuVote-TS memory cards and receiving AccuVote-TS election results.

**Console**: The GEMS windows used to monitor memory card programming and election results uploading; includes AccuVote-OS Server-v1 and AccuVote-TS Server-v2.

**Count Method**: The voting device or configuration assigned the vote center; may be one of AccuVote-OS, AccuVote-TS, Central Count or Manual Entry Only.

**CPY**: The number of times a memory card has been programmed without ballot layout having changed.

**Download**: The act of programming election and ballot information to memory cards.

**FBC**: FBC, or First Ballot Count, represents the number of times the memory card has been set to Election Mode and results uploaded.

**Log**: An audit log maintained by both AccuVote-OS Server-v1 and AccuVote-TS Server-v2 consoles for all download and upload transmission-related activities.

**Memory Card**: The AccuVote-OS memory card stores election and ballot information specific to the polling location as well as election results once ballots have been counted.

**MID**: MID, or Memory Card Id, identifies the memory card in vote centers with multiple memory cards.

**Modem On-Line**: A modem is connected to the port but is not ready to receive or issue transmission.

**Port**: An interface which allows the transmission of data between the computer and an external device.

**Region**: An area of a jurisdiction which consolidates election results internally before consolidating to the GEMS host computer.

**TS Text**: Multi-language operational text files programmed to AccuVote-TS memory cards, containing election-independent voting instructions.

**Upload**: The transmission of election results to the host computer.

**Version**: The number of times a memory card has been re-programmed with new or changed data and the election status reset from Set for Election.
2.8.4. Concepts

2.8.4.1. Regional processing

Larger jurisdictions may divide the consolidation of election results into two stages, the upload of results to regional computers, which in turn upload results directly to the host computer. The AccuVote Server and Regional Results consoles on both the election host and regional machines are configured to receive election results from the voting devices at the polls and forward regional uploads to the host computer. See the section 2.9 Regional Processing for more information.

2.8.4.2. Election status

The election status must be set to Set for Election in order to program memory cards. Resetting the election status from Set for Election may potentially require re-programming of memory cards. GEMS restores the vote centers whose information has not changed since programming occurred. Vote centers which have changed must be re-programmed.

2.8.4.3. Consoles

The AccuVote-OS Server-v1 and AccuVote-TS Server-v2 consoles manage GEMS memory card downloads as well as the upload activities from the voting devices. The AccuVote-OS Server-v1 console is used to program AccuVote-OS memory cards as well as receive results either directly from AccuVote-OS units or by modem, from the polling places. The AccuVote-TS Server-v2 console is used to program AccuVote-TS memory cards directly or over a network connection, and receive election results from an AccuVote-TS unit.

Both AccuVote Server consoles are organized into 3 tabs: Ports, Vote Centers and Log. Tab contents vary between AccuVote-OS Server-v1 and AccuVote-TS Server-v2, and feature similar functionality.

The AccuVote-OS Server-v1 and AccuVote-TS Server-v2 consoles may be activated at the same time. These consoles are modal, so that they may activated while other GEMS functions are activated.

AccuVote-OS Server-v1

The AccuVote-OS Server-v1 console is dedicated to programming AccuVote-OS memory cards and receiving AccuVote-OS results, and is organized into 3 tabs: Ports, which automatically lists all ports installed on the election host, Vote Centers, which lists all vote centers/memory card combinations of Count Method AccuVote-OS, and Log, which contains a AccuVote-OS transmission-related audit transactions in chronological order.

AccuVote-OS memory cards are programmed by selecting and queuing the desired vote centers to program under the Vote Centers tab, and activating the ports over which programming is to occur. Election results are received by activating the ports over which transmission is to occur.

GEMS creates a download file of election and ballot information for every vote center selected for downloading that is programmed to the physical memory cards as transmissions are completed.

A vote center/memory card combination may be programmed as often as required, although every prior memory card programmed for the combination should be cleared in order to avoid erroneously uploading an older program version. A label should be affixed to the memory card immediately after having been programmed.

A single vote center/memory card combination may be uploaded once only. Once a combination has been uploaded, it must be cleared in order to be able receive another.

Ports

All ports defined to the PC are automatically detected and displayed under the Ports tab on the AccuVote-OS Server-v1 console. Ports are listed in increasing order, each port in the Port column with a corresponding status in the Status column and last transmission message in the Last Message column.
Port
Port activity is indicated by icons placed on the left-hand side of the Port column. These icons appear as either happy, neutral or sad faces:

- A sad face indicates that the port is inactive or has been stopped.
- An indifferent face indicates that the AccuVote-OS is connected to the port and the port is started, but no transmission is taking place.
- A happy face indicates the AccuVote-OS is ready to receive a transmission, or is actively receiving or issuing a transmission.

Status
The Status column indicates the current transmission status over the port, be it memory card programming or receiving election results. The port status may be one of the following:

- Stopped; the port is inactive.
- AccuVote-OS On-Line; an AccuVote-OS is connected to the port but is not ready to receive or issue transmission.
- Modem On-Line; a modem is connected to the port but is not ready to receive or issue transmission.
- Download; transmission is in progress.
- Disconnect; appears briefly once a transmission is complete.
- Checking Port; GEMS performs a routine status check on port.

Last message
The Last Message column provides information pertaining to the transmission.

Vote Centers
All vote center/memory card combinations in the election with Count Method AccuVote-OS are listed under the Vote Centers tab.

By default, every vote center is defined with one memory card only, although a vote center may also correspond to multiple memory cards. The number of memory cards in a vote center is defined in the No. Mem Cards field in the Vote Center Editor, and the Count Method is selected from the Count Method field, also in the Vote Center Editor. All default vote centers (such as Polling Vote Center) appear under the Vote Centers tab and should be ignored.

The Vote Centers tab contains the following column headings:

1. VCenter; containing the vote center label, prefixed by the program status of the vote center/memory card combination. No indicator implies that the combination has not been programmed. A red error pointing downwards to the left of the vote center label indicates that the vote center has been programmed. A green arrow pointing upwards to the left of the vote center label indicates that the combination has been uploaded.

2. Region; displaying the vote center’s region. Vote centers of all regions are displayed on the AccuVote-OS Server-v1 console of both the GEMS host computer and all regional machines, where used. Vote centers are listed on the console by region.

3. Id; containing the vote center Id number.

4. MID; representing the memory card Id of each multi-memory card vote center. This field is 0 for all single-memory card vote centers. The MID of the first vote center/memory card combination is 0, of the second is 1, and so on.
5. **CPY;** the number of times the memory card has been downloaded without ballot layout having changed; CPY increments by 1 every time the vote center/memory card combination is re-programmed, irrespective of re-setting election status, unless election data is changed.

6. **VER;** the number of times a memory card has been re-programmed with new or changed data and the election status reset from Set for Election.

7. **FBC;** the number of times the memory card has been set to Election Mode and results uploaded.

8. **Time;** the time that the memory card uploaded results into GEMS.

**Log**

All download and upload transactions are recorded under the Log tab, with transaction date, time and description. This log may be printed, saved or deleted. The log should be printed and saved at the close of the election for audit and archiving purposes. See **Figure 2-228.**

**AccuVote-OS Server Log**

**AccuVote-TS Server-v2**

The AccuVote-TS Server-v2 console is dedicated to programming AccuVote-TS memory cards and receiving AccuVote-TS results.

The AccuVote-TS Server-v2 console is organized into 3 tabs: Ports, which momentarily displays an informatory message for every download as it occurs, Vote Centers, which lists all vote centers/memory card combinations of Count Method AccuVote-TS, and Log, which contains a AccuVote-TS transmission-related audit transactions in chronological order.

AccuVote-TS memory cards are programmed by selecting and queuing the desired vote centers to program under the Vote Centers tab.

A vote center/memory card combination may be programmed as often as required, although prior programmed memory card for the combination should be cleared in order to avoid erroneously uploading
an older program version. A label should be affixed to the election media immediately after having been programmed.

A unique combination of vote center and memory card may be uploaded once only. Once uploaded, it must be cleared in order to be able receive another.

**Ports**

This tab displays vote center, network address of the AccuVote-TS with which transmission is occurring. Status messages are displayed under the Ports tab as transmissions occur; if no transmissions are in progress, nothing is displayed under the Ports window. Since the voting or consolidation devices are programmed with the network address of the GEMS host, and it is not necessary to specify the network location of the receiving or sending devices.

**Vote Centers**

All vote center/memory card combinations in the election with Count Method AccuVote-TS are listed under the Vote Centers tab.

By default, every vote center is defined for one combination of memory card only, although one vote center may also correspond to multiple memory card combinations, as defined by the No. Mem Cards value and Count Method value in the Vote Center Editor. All default vote centers appear under the Vote Centers tab and should be ignored.

The Vote Centers tab contains the following column headings:

1. VCenter; containing the vote center label, prefixed by the program status of the vote center/memory card combination. No indicator implies that the combination has not been programmed. A red down error to the left of the vote center label indicates that the vote center has been programmed, and a green arrow to the left of the vote center label indicates that the combination has been uploaded.

2. Region; displaying the vote center’s region. Vote centers of all regions are displayed on the AccuVote-TS Server-v2 console of both the GEMS host computer and all regional machines, where used. By default, vote centers are arranged on the console by region.

3. Id; containing the vote center Id number.

4. MID; representing the memory card Id for each vote center with multiple memory cards. This field is 0 for vote centers utilizing a single instance of memory card. The MID of the first vote center/memory card combination is 0, of the second is 1, and so on.

5. CPY; the number of times memory cards have been programmed without ballot layout having changed; CPY increments by 1 every time the memory card combination is re-programmed, irrespective of re-setting election status, unless election data is changed.

6. VER; the number of times memory cards have been re-programmed with new or changed data and the election status reset from Set for Election.

7. FBC; the number of times memory cards has been set to Election Mode and results uploaded.

8. Time; the time that results were uploaded from the AccuVote-TS to GEMS.

**Log**

All download and upload transactions are recorded under the Log tab, with transaction date, time and description. This log may be printed, saved or deleted. The log should be printed and saved at the close of the election for audit and archiving purposes.
2.8.5. Configuring transmissions

2.8.5.1. Programming memory cards

Ensure that the AccuVote-OS or AccuVote-TS units are properly configured and connected to the GEMS host computer.

Click on the AccuVote-OS Server-v1 icon in order to program AccuVote-OS memory cards, and on the AccuVote-TS Server-v2 icon in order to program AccuVote-TS memory cards. See Figure 2-229 and Figure 2-230.

In the activated console, click on the Vote Centers tab, select the vote center/memory card combinations to download, and click on the Queue button. All vote centers selected will now be displayed with a red Q to the left of the vote center combinations.

In the AccuVote-OS Server-v1 console only, click on the Ports tab, select the ports to be used for downloading, and click on the Start button. See Figure 2-231 and Figure 2-232.
Figure 2-231. Selecting vote centers for programming

Figure 2-232. Ports are selected for programming

Observe the Ports tab for transmission activity, as well as the Vote Centers tab in order to monitor vote centers as they are programmed. Label memory cards as they are programmed, and ensure that earlier program versions are cleared.

Select activated ports under the Ports tab and click on the Close button once AccuVote-OS programming is complete.

In order to close either console, click on the Stop button; GEMS displays a message as ports are prepared for closing. See Figure 2-233.
2.8.5.2. **Resetting the election status**

Memory cards may require re-programming if the election status is reset from Set for Election. Only vote centers containing information that has changed must be re-programmed.

Click on Setup in the menu bar, then Election in the drop-down menu. See Figure 2-234.

In the Election Options window, under the Election Info tab, reset the election status from Set for Election. GEMS displays a prompt, indicating whether a backup is to be created before continuing. Click on the Yes button in order to create a backup. See Figure 2-235.

If memory cards have been programmed, GEMS displays a message indicating that some vote centers may require re-programming, and may be lost if the election status is reset. Click on Yes to continue. See Figure 2-236.

Implement changes as necessary to the database.

In order to return the election to Set for Election, click on Setup in the menu bar, then Election in the drop-down menu. Set the election status to Set for Election and click on OK.

GEMS displays a message indicating that at least one memory card must be re-programmed if vote center information has changed. Click on the Yes button in order to set the election status and restore memory cards that have not changed. See Figure 2-237.
GEMS will proceed to restore the programming of any vote centers which have not changed.

### 2.8.5.3. Receiving election results

Ensure that voting equipment is properly configured for receiving election results directly as well as by modem.

Click on the AccuVote-OS Server-v1 icon in order to activate the AccuVote-OS Server-v1, and click on the AccuVote-TS Server-v2 icon in order to activate the AccuVote-TS Server-v2 console for receiving election results. Either console appears with the Ports tab selected by default.

In the AccuVote-OS Server-v1 console, select the ports to be used for uploading election results and click on the Start button. The AccuVote-TS Server-v2 console does not require further activation in order to be readied for the reception of election results.

It is not necessary to select the vote centers to receive results, as GEMS performs this task automatically.

Observe the Vote Centers tab for vote centers that have received results, both in the assignment of green arrows to the left of the vote center label and the upload time displayed in the Time column, as well as the Upload display field at the top of the Vote Centers tab, which indicates the total vote center/memory card combinations uploaded.

### 2.8.5.4. Clearing election results

Election results may be cleared either by individually selecting vote centers under the Vote Centers tab and clicking on the Reset button, or clicking on GEMS in the menu bar, then Reset Election. Click on the Yes button in the reset confirmation message. After clearing, verify that the vote center label is assigned a red arrow pointing downwards, and that there is no time entered in the Time column next to the vote center. See Figure 2-238 and Figure 2-239.
Figure 2-239. Confirming clearing counters

Test election results are automatically cleared when the election status is reset from Set for Election. Reset Election is disabled if any one of the AccuVote-OS Server-v1, AccuVote-TS Server-v2, Results Server or Central Count consoles are active.

Note that election results may be reset, irrespective of whether the user Id accessing the database belongs to region Host or not.

2.8.5.5. Resolving transmission disruptions

While ports must be activated before transmissions may occur, ports remain independently active, so that a disruption of transmission over one port does affect the integrity of transmission over other ports. The disruption of a transmission over a port does not require that the port be restarted in order to continue.

The resolution of transmission disruption includes ensuring that:

- ports are correctly installed on the GEMS host computer
- ports are not assigned conflicting processes
- cabling is appropriate
- cable connections are intact
- power is supplied to modems and voting devices
- modems are correctly configured
- port extension devices are correctly configured
- telephone lines are correctly configured
- telephone roll-over lines are correctly configured
- network connections are correctly configured

2.8.6. Poster

2.8.6.1. Concepts

Posting includes any activity that requires the updating of candidate counters in the GEMS database. Poster events are monitored in the Poster window. The Poster is a query-only window, although the Poster log may be printed or saved from the window. Posting activities include:

- Uploading
- Central Count
- Manual Entry
- Challenge Board
- Regional results
- Import IMARK Results
• Import BRC Results

Note that poster files are stored in the Poster folder within the Data folder named after the database’s election Id. These files should not be removed or altered until the election has completed.

2.8.6.2. Fields

The panel at the bottom of the Poster window lists all posting transactions in chronological order, including the posting date, time that each transaction was queued, started, and finished. Log entries include the count method, vote center Id, machine Id, and vote center label.

The following fields occur in the Poster window and are display-only:

  - **Status**: This field displays the Poster status, and may be either *Waiting*, in which case the Poster is waiting for a posting transaction, or *Stopped*, in which case the Poster has stopped.

  - **Started At**: The time the poster was last started at.

  - **Jobs Since Start**: The number of posting jobs that occurred since the Poster started.

  - **Queued**: The number of outstanding jobs queued for posting.

  - **Peak**: The highest number of jobs queued for posting since the Poster was started.

  - **Last**: The last job queued for posting, including the count method, vote center Id, machine Id, and vote center label, as well as queuing time.

  - **Current**: The posting job currently being transacted, including the count method, vote center Id, machine Id, and vote center label.

  - **Last Job**: The last posting job that was transacted, including the count method, vote center Id, machine Id, and vote center label, as well as the length of time taken for posting.

  - **Last Alert**: The last posting job that gave rise to an alert message, include the transaction time.

2.8.6.3. Using the Poster

Click on GEMS in the menu bar, then Poster in the drop-down menu. See Figure 2-240.
Review Poster information as necessary. In order to save Poster contents, click on the Save As button, specify a file name and location for the Poster log file, and click on Save in the Save As window. In order to print the Poster log, click on the Print button.

In order to clear the Poster log, click on the Clear button. Note that the Poster log should not be cleared until the election has been closed.

Click on the Close button in order to close the Poster.

See Figure 2-241.
2.8.7. Deliverables

Deliverables in AccuVote Server usage comprise memory card programming as well as election results uploading.

2.8.7.1. Programming

Once all memory cards have been programmed, the following reports should be reviewed.

**Memory Card Status Report**

Verify that the memory card corresponding to every vote center in the election designated for AccuVote-OS voting has been programmed, including the memory card copy. This report is printed again in the course of testing, for the verification of first ballot count, upload time and card count statistics.

**AccuVote-TS Floppy Status Report**

Verify that the memory cards corresponding to every vote center in the election designated for AccuVote-TS voting has been programmed, including copies. This report is printed again in the course of testing, for the verification of first ballot count, upload time and card count statistics.

2.8.7.2. Before the election closes

**Election Summary Report**

Print the Election Summary Report in order to verify that results are set to zero before election begin.
2.8.7.3. **Election close**

Once the results stored on all memory cards have been consolidated to GEMS, the following reports should be reviewed.

**AccuVote-OS Status Report**
Verify that every AccuVote-OS vote center/memory card combination in the election has uploaded using the AccuVote-OS Status Report.

**AccuVote-TS Status Report**
Verify that every AccuVote-TS vote center/memory card combination in the election has uploaded using the AccuVote-TS Status Report.

**AccuVote-OS Status Report By Upload Time Report**
Verify the sequence in which AccuVote-OS memory cards were uploaded in the election.

**AccuVote-TS Write-In Race Summary**
The AccuVote-TS Write-In Race Summary report lists write-in names and tallies, uploaded from AccuVote-TS units, ordered by machine, race and write-in name.

**AccuVote-TS Write-In Report**
The AccuVote-TS Write-In Report displays the race Id and label, write-in name, ballot serial number, vote center Id and label, machine Id, report precinct Id and label and counter group Id and label for every write-in uploaded from AccuVote-TS units, ordered by race Id.

**AccuVote-TS Write-In Summary Report**
The AccuVote-TS Write-In Summary Report lists the names and tallies of write-ins uploaded from AccuVote-TS units, ordered by ballot number.
2.9. Regional Processing

Regional results processing provides increased robustness to the election close process in large jurisdictions while significantly minimizing both average results delivery time and risk of critical data loss. Regional processing may be configured with both the AccuVote-OS and AccuVote-TS voting devices.

A jurisdiction is subdivided into regions, each of which is assigned a unique regional client. Vote centers upload to the corresponding regional machine, which in turn resends results to the election host. If an upload to a regional machine is unsuccessful, the memory card is delivered to the regional site for secure uploading, rather than to election central.

Redundancy between the election server and regional clients eliminates the risk of data loss if one of the machines fail. If a regional machine fails, AccuVote-OS units in the region may send results directly to the host. If the election server fails, results remain resident on the regional clients. When a memory card fails it may be re-programmed from a regional site.

An entry is posted in both regional client and GEMS host computer for every regional upload.

2.9.1. Overview

A jurisdiction is subdivided into distinct geographical areas, which are defined as regions with corresponding user IDs in the election database on the host computer. Each vote centers is assigned a region, and the database’s election status is set to 'Set for Election' once ballot artwork has been completed. After memory cards have been programmed, the database is copied to the regional PCs. Both the election host and the regional PCs are configured with the necessary modems and IP connections, and the upload to each of the regional PCs is tested as well as the transmission of results from the regional PC to the election host. Contingency procedures are established in case of machine failure election close.

2.9.2. Defining regions

A region is defined in the GEMS database for every regional PC. These regions are created in the Regions window, then linked to corresponding regional user IDs. Each regional PC is accessed with its user ID and only receives uploads from corresponding regional vote centers.

Click on Setup in the menu bar, then Regions in the drop-down menu. In the Regions window, click on the New button in order to add a region. Enter a description of the region in the Label field and an export value in the Export field, where necessary. Continue adding regions in this manner, changing the value of the ID field in order to change the order of the region list, where necessary. See Figure 2-242.

Once all regions have been defined, click on the OK button in order to save results.
2.9.3. Users

A user Id is defined for every region in the election. The regional database is accessed by means of the regional user Id and password.

On the election host, click on Setup in the menu bar, then Users in the drop-down menu. In the User Modification window, click on the Add button in order to add a regional user. In the Add User window, type a short user Id for in the Username field and a descriptive name in Full Name. Type an identical password in both New Password and Confirm Password fields. Passwords are masked as they are typed. Select the region to which the user Id corresponds from the Region drop-down list, and click on the Add button. When the last user Id is being added, click on the OK button instead of the Add button. See Figures 2-243 and 2-244.

Continue adding users in this manner until one user Id has been defined for every region in the election.
2.9.4. Vote centers

Every vote center must be defined to correspond to a region. Only the vote centers for a particular region will upload results to the corresponding regional PC.

Once ballot artwork has been completed and the election status has been set to ‘Cards Printed’, expand all vote center categories, and for each vote center, double-click the vote center in order to activate the Vote Center Editor. Select the region designated for the vote center from the Region drop-down list, and click on the OK button. Assign the correct regions to all vote centers in this manner. See Figure 2-245.
2.9.5. Downloading vote centers

Click on Setup in the menu bar, then Election in the drop-down list. Under the Election Info in the Election Options tab, set the election status to ‘Set to Election’, and click on the OK button.

Click on the AccuVote-OS Server-v1 icon. Click on the Vote Centers tab in the AccuVote-OS Server-v1 console and observe that all AccuVote-OS vote centers are listed with the correct region. Program memory cards, ensuring that each memory card is separately labeled with its region, as AccuVote-OS labels do not contain region information. See Figure 2-246.

Once telephone lines have been configured at the regional sites, program the AccuVote-OS memory cards with regional PC telephone numbers.

Click on the AccuVote-TS Server-v2 icon. Click on the Vote Centers tab in the AccuVote-TS Server-v2 console and observe that vote centers are listed with the correct region. Program memory cards, ensuring that each copy is marked with the corresponding region, as AccuVote-TS labels do not contain region information.
2.9.6. Configuring regional machines

Each of the regional PCs should be installed with GEMS and the election database set to ‘Set for Election’. Establish IP connections between the regional PCs and the election host - these are commonly implemented with a dial-up networking connection on the regional PCs and Remote Access Service configured on the election host.

Install regional PCs with port expansion devices, modems, telephone lines and directly connected voting devices, as necessary.

2.9.7. Loading databases onto regional machines

On the host computer, back up the database by selecting Election in the menu bar and Backup in the drop-down menu. Save the database backup in the GEMS Backup folder. Copy the database into each regional PC’s GEMS Backup folder either by means of external media such as floppy diskette, or copy the file over a network connection.

On each regional PC, activate GEMS, click on the Load button in the Connect to Database window, select the database from the GEMS Backup folder and click on the Open button.

In the Logon Information window, enter the regional user Id in Username, the password in Password and click on OK. See Figure 2-247.

Note that the regional user Id and region are displayed in the window handle of the GEMS database.

2.9.8. Activating regional transmission

2.9.8.1. Election host

Activate the Region Server console on the election host by selecting GEMS in the menu bar and Regional Results in the drop-down menu. In the Region Server window, click on the Start button under the Status tab. See Figure 2-248.
Activate the AccuVote-OS Server-v1 console by clicking on the AccuVote-OS Server-v1 icon. Select the ports to use for uploading and click on the Start button. The AccuVote-OS Server-v1 console is activated on the election host in order to receive stray AccuVote-OS uploads as well as monitor incoming regional transmissions.

Likewise, activate the AccuVote-TS Server-v2 console by clicking on the AccuVote-TS Server-v2 icon. Click on the Start button under the Ports tab. The AccuVote-TS Server-v2 console is activated on the election host in order to receive stray AccuVote-TS uploads as well as monitor incoming regional transmissions.

### 2.9.8.2. Regional machines

On the regional machines, click on the AccuVote-OS Server-v1 icon in order to activate the AccuVote-OS Server-v1 console, then select ports for uploading and click on the Start button. Verify that only the vote centers for the corresponding region are listed under the Vote Centers tab on each regional machine.

If election results are being received from AccuVote-TS or related devices, click on the AccuVote-TS Server-v2 icon in order to activate the AccuVote-TS Server-v2 console and click on the Start button under the Ports tab. Verify that only the vote centers for the corresponding region are listed under the Vote Centers tab on each regional machine.

Activate the Send Regional Results console on each of the regional machines by selecting GEMS in the menu bar and Regional Results in the drop-down menu. In the Send Regional Results window, enter the election host’s IP address in the Host field. See Figure 2-249.

![Figure 2-249. Entering the host IP address](image)

The Region Server on the election host must be activated before Send Regional Results on the regional machines in order for a connection to be established between the machines.

### 2.9.9. Transmitting regional results

As uploads are received on the regional PCs, they are logged on the AccuVote-OS Server-v1 and AccuVote-TS Server-v2 consoles, depending on the voting devices used, as well as being accumulated under the Queue tab on the Send Regional Results console. Clicking on the Send button in the Send Regional Results window will transfer results to the election host. While the results remain resident on the regional machines, the vote centers transmitted regionally are removed from the Queue tab in Send Regional Results.

On the Region Server console on the election host, regional transmissions are tracked under the Log tab. See Figure 2-250. The transmission start and finish date and time as well as the vote center number and source IP address are listed on the Region Server console, and the transmission time is listed on the
AccuVote-OS Server-v1 and AccuVote-TS Server-v2 consoles. Related transactions such as clearing results are also logged on the Region Server.

![Region Server](image)

**Figure 2-250. Regional transmissions**

Test the regional upload configuration with direct uploads to the regional PCs first, before repeating the same tests with modem uploads. Test the regional transmission cycle by sending regional results to the host in batches, rather than all at once.

As transmissions progress, verify that regional computers receive uploads from vote centers and in turn send results correctly to the host computer. Print and verify results reports as well as reviewing JResult Client displays.

### 2.9.10. Closing

#### 2.9.10.1. Regional machines

In order to terminate regional processing on the regional machines, select the active COM ports under the Ports tab on the AccuVote-OS Server-v1 console and click on the Stop button. Under the Log tab, click on the Save As button in order to save the upload log, assign a file name and folder location in Save As window, and click on the Save button.

Click on the Stop button under the Ports tab in the AccuVote-TS Server-v2 console. Under the Log tab, click on the Save As button in order to save the upload log, assign a file name and folder location in Save As window, and click on the Save button.

Under the Log tab of the Send Regional Results console, click on Save As in order to save the log, then close by clicking on the Close button.
2.9.10.2. Election host

Select the active ports under the Ports tab on the AccuVote-OS Server-v1 console on the election host and click on the Stop button. Click on the Log tab, click on the Save As button in order to save the upload log, assign a file name and folder location in Save As window, and click on the Save button.

Click on the Stop button under the Ports tab in AccuVote-TS Server-v2 console. Click on the Log tab, click on the Save As button in order to save the upload log, assign a file name and folder location in Save As window, and click on the Save button.

Under the Log tab of the Region Server console, click on Save As in order to save the log, then close by clicking on the Close button.

2.9.11. Preparing for election

Once testing is complete, clear results and transmission logs on both the regional and host machines.

Clear election results on the host by selecting GEMS in the menu bar and Reset Election in the drop-down menu. See Figure 2-251. Click on the Clear button under the Log tab under the Region Server console in order to clear the transmission log.

On the regional machines, clear election results by selecting GEMS in the menu bar and clicking on Reset Election. Clear the logs by clicking on the Clear button under the Log tab on the Region Server console. See Figure 2-252.
2.10. Exporting Card and Voter Card Info

This section describes the export of card as well as voter card information.

2.10.1. Exporting card data

The Export Card Info function extracts card information from the election configuration and exports it as an ASCII file.

2.10.1.1. Concepts

The card data export file contains a record for every unique combination of vote center, counter group, report precinct, base precinct, voter group 1 and 2, and language.

Fields are delimited in the card information file by commas, and alphanumeric values are contained in double quotes. If a value is unknown it is shown as ‘…’. The first record in the card data file is a control record and contains ‘0, “GEMS Ballot Data”, 1, 1’.

Records contain the following fields, in sequence:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record Id</td>
<td></td>
</tr>
<tr>
<td>Vote Center Id</td>
<td></td>
</tr>
<tr>
<td>Vote Center Export Id</td>
<td></td>
</tr>
<tr>
<td>Vote Center Label</td>
<td></td>
</tr>
<tr>
<td>Counter Group Id</td>
<td></td>
</tr>
<tr>
<td>Counter Group Export Id</td>
<td></td>
</tr>
<tr>
<td>Counter Group Label</td>
<td></td>
</tr>
<tr>
<td>Report Precinct Id</td>
<td></td>
</tr>
<tr>
<td>Report Precinct Export Id</td>
<td></td>
</tr>
<tr>
<td>Report Precinct Label</td>
<td></td>
</tr>
<tr>
<td>Base Precinct Id</td>
<td></td>
</tr>
<tr>
<td>Base Precinct Export Id</td>
<td></td>
</tr>
<tr>
<td>Base Precinct Label</td>
<td></td>
</tr>
<tr>
<td>Voter Group 1 Id</td>
<td></td>
</tr>
<tr>
<td>Voter Group 1 Export Id</td>
<td></td>
</tr>
<tr>
<td>Voter Group 1 Label</td>
<td></td>
</tr>
<tr>
<td>Voter Group 2 Id</td>
<td></td>
</tr>
<tr>
<td>Voter Group 2 Export Id</td>
<td></td>
</tr>
<tr>
<td>Voter Group 2 Label</td>
<td></td>
</tr>
<tr>
<td>Language Id</td>
<td></td>
</tr>
<tr>
<td>Language Export Id</td>
<td></td>
</tr>
<tr>
<td>Language Label</td>
<td></td>
</tr>
<tr>
<td>Ballot Id</td>
<td></td>
</tr>
</tbody>
</table>
2.10.2. Exporting voter card info

The Export Voter Card Info function extracts card information from the election configuration and exports it in ASCII format. This file is used by the VCProgrammer program in order to program AccuVote-TS voter cards at the polling places.

2.10.2.1. Concepts

Fields in the voter card info file are delimited by commas, and alphanumeric values are contained in double quotes. If a value is unknown, it is shown as ‘…..’.

There are three different types of records in the voter card data file:

- The first record in the card data file is a control record and contains ‘0, "GEMSVoterCardData", 1, 1’.
- The second record in the card data file contains the ‘1’, followed by the election Id, election title and date.
- The third record in the file is the voter group record, which contains ‘2’, followed by the voter group internal Id, voter group Id number, voter group short label, voter group label and voter group export Id.
- All remaining records are data records, which contain ‘3’, followed by the fields report precinct internal Id, report precinct Id, report precinct label, report precinct export Id, base precinct internal Id, base precinct Id, base precinct label and base precinct export Id.

The voter group, report precinct and base precinct internal Ids are internal to GEMS and not displayed in the GEMS window.
The election status must be ‘Set for Election’ in order to export voter card data.

2.10.2.2. Performing the voter card export

In order to export voter card data, click on Election in the menu bar, Export in the drop down menu and Export Voter Card Info in the cascading menu. See Figure 2-254.

A Save As window subsequently appears with the default file name GEMSVoterCardData.txt. Select the destination folder for the voter card export file, changing the file name as necessary, and click on the Save button.
2.11. Voter Registration

Voter registration amounts are used to determine voter turnout in an election, projecting the quantities of ballots to be printed, as well as being used by the jurisdiction to determine precinct sizing. Voter registration amounts are recorded by base precinct and voter group, and may be updated throughout the election management process as current voter registration statistics are received. In a general election, voter registration is tracked by non-partisan voter group and in a primary election, voter registration is tracked by political party.

Voter registration amounts comprise all counter groups. For example, the voter registration amount defined for a precinct includes all voters who are registered to vote, either Polling, Absentee, or Early Voting.

Before defining voter registration amounts, each partisan voter group must be defined with the Track Registration check box set. This check box may be set throughout the election management process, up to and including when the election status is set to ‘Set for Election’. Likewise, voter registration amounts may be defined with any election status set, including ‘Set for Election’.

Adding or changing voter registration amounts is posted to the Audit Log.

2.11.1. Vote Centers

Voter registration totals apply to all vote centers a particular base precinct occurs in. For example, Ballots for base precinct Ford are counted in both polling vote center Ford and cumulative vote center Absentee. The 2,000 registered voters defined to base precinct Ford comprise voters in both of these vote centers.

2.11.2. Card Quantities

Card quantities are computed from voter registration totals and the percentages of ballots allocated to counter groups and absentee/non-absentee voter groups.

2.11.2.1. Adding Voter Registration

Before defining voter registration amounts, ensure that all partisan voter groups have been set to track registration. Click on Setup in the menu bar, then Voter Groups in the drop-down menu. In the Voter Group Editor, select every partisan voter group for which registration amounts are to be defined, and click on the Track Registration check box. Note that registration amounts are commonly only defined by voter group in primary elections. See Figures 2-255 and 2-256.
Select GEMS in the menu bar, then Voter Registration in the drop-down menu. The Voter Registration table is arrayed with polling base precinct in the vertical column and voter groups in the horizontal column. Voter group totals are automatically computed and displayed at the top of each column, as base precinct totals are automatically computed and displayed at the left-hand side of each row. See Figures 2-257 and 2-258.
2.11.2.2. **Updating voter registration**

Re-setting a party’s Track Registration check box, or deleting or adding a voter group or base precinct will affect the voter registration table.

A warning message is displayed if the Track Registration check box is de-selected in the Voter Group Editor for any voter group with registration values defined. In the Voter Group Editor, select a partisan voter group for which registration tracking has been defined, and de-select the Track Registration check box, as shown in Figure 2-259.

Click on the OK or Apply button, and the warning message shown in Figure 2-260 now appears.
2.11.2.3. **Deliverables**

In order to verify that voter registration amounts have been defined correctly, either visually inspect the Voter Registration window, or print the Voter Registration report, accessible from the Pre-Election Reports window.
2.12. Election Results Reporting

GEMS election results reports include the Election Summary report, the Statement of Votes Cast (SOVC) and the Cards Cast report. The Election Summary report displays election results by race, summarized across the jurisdiction, the SOVC report displays election results for each race, by precinct, and the Cards Cast report displays the number of cards cast in the election by report precinct and voter group, with card and ballot information, registered voters and turnout. Each of these reports may be extensively customized, as detailed in this section.

The Election Summary report is printed from the Election Summary Report window, the SOVC report from the Statement of Votes Cast window and the Cards Cast report from the Cards Cast window. Report formats may be pre-defined in both of the Election Summary Report and Statement of Votes Cast windows.

Candidate and summary totals are reported as whole numbers on both reports except in the case of weighted races, for which results are printed with two decimal places.

The Election Summary should be presented with a minimum of customization at election close. The Statement of Votes Cast report is best printed at a less critical time, due to its length and complexity.

In order to activate election results reports, the election status must be set to Set for Election. Re-setting the election status from Set for Election will clear all election results. Dashes are printed for every race/report precinct combination on the SOVC report for which no results are returned.

Printing either of the Statement of Votes Cast, Election Summary or Card Cast reports generates an entry in the Audit Log.

After election close, some tallying activities may remain outstanding at election completion. Election results reports may also be printed individually at the completion of each of these stages. These include:

- absentee ballot processing
- challenged board review
- manual entry
- importing results

An Audit Log entry is created when an election results report is either printed or previewed.

2.12.1. Before printing election results reports

Tentative voter registration amounts should have been defined as outlined in section 2.11 Voter Registration, in order to provide realistic turnout amounts in SOVC test reports. Representative sets of test decks should have been processed and results uploaded, as described in section 2.8 AccuVote Servers.

2.12.2. Process

Election results report printing comprises the following procedures:

1. Determine what election results reports are to be printed
2. Determine timing and frequency of reports.
3. Define customizations to be applied to election results reports.
4. Determining reports that require archiving.
5. Print election results reports with test results.
6. Review test election results reports.
7. Print election results reports at the completion of Pre-Election L & A testing.
8. Enter final voter registration amounts.
9. Reset election results prior to election close.
10. Print Election Summary report with zero totals prior to election close.
11. Print election results reports at election completion.
12. Perform reconciliation of polling location results with GEMS-generated election results reports.
13. Print election results reports at the completion of a Post-L & A Test.
14. Print election results reports at the completion of recount, if applicable.

Further information about printing election results reports at election completion is provided in section 2.12 Election Results Reporting.

2.12.3. Concepts

2.12.3.1. Title

A report title box appears at the top of every report page, containing the date, time and page number in the top right-hand corner, with the following information centered in the middle of the box:

- The report type, i.e. Election Summary Report
- The election title, as defined in the Name of Election field under the Election Info tab in the Election Options window
- A description of the district, counter group and reporting set for which the report is produced
- The descriptive report title, defined in the Report field in the reports editor.

The title entered in the Reports field may be defined with as many lines as required in the Election Summary and SOVC reports, but is assigned a single line only in the Cards Cast report. Both the Election Summary and SOVC reports print the descriptive title only if the Include Std. Title check box is selected.

Reports should be titled as ‘Unofficial’ until they are deemed official. See Figure 2-261 and Figure 2-262.

<table>
<thead>
<tr>
<th>Election Summary Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Report Unofficial Title</td>
</tr>
<tr>
<td>Include Std. Title</td>
</tr>
</tbody>
</table>

Figure 2-261. Defining a report title

Election Summary Report
Presidential General 2000
Lassen County, Ca
Summary For Jurisdiction Wide, All Counters, All Races
Unofficial Title

Figure 2-262. Viewing the title on the report

The Cards Cast report does not include a description of district, counter group or reporting set.
2.12.3.2. Districts

Election results reports may be produced for the entire jurisdiction, or a specific districts only, as selected from the Districts display column. Only races valid in the district selected are displayed, and race results are exclusive to the district.

For example, an election for Mayor and City Councilor is held in the city of Harrison, which consists of precincts Wilson and Jackson. Voters in both precincts vote for Mayor, while voters in Wilson vote for Ward 1 City Councilor and voters in Jackson vote for Ward 2 City Councilor.

The race for Mayor is defined in the election as Jurisdiction Wide, but the race for Ward 1 City Councilor is defined to district Ward 1, linked in turn to base precinct Wilson, while the race for Ward 2 City Councilor is defined to district Ward 2, which is linked to base precinct Jackson.

An election results report printed for district Ward 1 contains the races for Mayor and Ward 1 City Councilor only, as the race for Ward 2 City Councilor does not run in Ward 1. Results reported are derived from ballots cast in precinct Wilson only.

The default district selected in the reports windows is Jurisdiction Wide. Reports may be printed for multiple districts, which are printed in sequence, but reports may only be previewed for a single district. See Figure 2-263.

![Figure 2-263. Selecting a district](image)

Election results report can not be generated for cumulative report precincts by district, since cumulative report precincts may be defined in terms of all districts within in a district category.

2.12.3.3. Precincts

While the SOVC and Cards Cast reports allow reporting by district only, the Election Summary report may be customized to print either by district or precinct. District- or report precinct-based reporting is selected from either of the District and Precinct radio buttons in the report window. Selecting the District radio button displays all districts in the Districts column, while selecting the Precinct radio button displays all precincts in the Precincts column.

Reports may be printed for multiple precincts, which are printed in sequence, but reports may only be previewed for a single report precinct. See Figure 2-264.
2.12.3.4. Sorting precincts

Precincts are listed in election results reports in order of report precinct Id, by default. In order to print reports in order of report precinct label, the Sort Precincts by Name check box must be selected. See Figure 2-265 and Figure 2-266.

### Figure 2-265. Precincts on the SOVC in order of Report Sequence Id

<table>
<thead>
<tr>
<th>Jurisdiction Wide</th>
<th>precinct</th>
<th>Registered Voters</th>
<th>Total Votes</th>
<th>HAGELIN/GOLDDB (NL)</th>
<th>BROWNE/OLIVIER (LIB)</th>
<th>BUSH/CHENEY (REP)</th>
<th>BUCHANAN/FOS (RP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP1 110.01</td>
<td>388</td>
<td>268</td>
<td>269</td>
<td>0.00%</td>
<td>2.71%</td>
<td>139</td>
<td>48.64%</td>
</tr>
<tr>
<td>CP1 111.112</td>
<td>660</td>
<td>357</td>
<td>353</td>
<td>0.00%</td>
<td>3.56%</td>
<td>207</td>
<td>53.03%</td>
</tr>
<tr>
<td>MB3 113</td>
<td>344</td>
<td>131</td>
<td>131</td>
<td>0.00%</td>
<td>3.20%</td>
<td>65</td>
<td>16.33%</td>
</tr>
<tr>
<td>MB3 116</td>
<td>264</td>
<td>209</td>
<td>209</td>
<td>0.49%</td>
<td>0.00%</td>
<td>139</td>
<td>66.51%</td>
</tr>
<tr>
<td>CP4 111</td>
<td>746</td>
<td>678</td>
<td>675</td>
<td>0.00%</td>
<td>4.59%</td>
<td>510</td>
<td>71.44%</td>
</tr>
<tr>
<td>CP5 118</td>
<td>368</td>
<td>202</td>
<td>203</td>
<td>0.00%</td>
<td>0.00%</td>
<td>233</td>
<td>72.19%</td>
</tr>
<tr>
<td>MB4 220</td>
<td>220</td>
<td>101</td>
<td>109</td>
<td>0.00%</td>
<td>0.00%</td>
<td>123</td>
<td>62.76%</td>
</tr>
<tr>
<td>CP7 203.203.215</td>
<td>746</td>
<td>595</td>
<td>594</td>
<td>0.78%</td>
<td>0.55%</td>
<td>349</td>
<td>53.23%</td>
</tr>
<tr>
<td>CP8 210.211.212</td>
<td>563</td>
<td>366</td>
<td>394</td>
<td>0.51%</td>
<td>0.76%</td>
<td>253</td>
<td>63.45%</td>
</tr>
<tr>
<td>CP9 213.214.216</td>
<td>572</td>
<td>402</td>
<td>403</td>
<td>0.00%</td>
<td>0.75%</td>
<td>233</td>
<td>58.00%</td>
</tr>
<tr>
<td>CP10 218.221</td>
<td>700</td>
<td>655</td>
<td>651</td>
<td>0.13%</td>
<td>0.31%</td>
<td>443</td>
<td>60.06%</td>
</tr>
</tbody>
</table>

### Figure 2-266. Precincts on SOVC ordered by report precinct label

<table>
<thead>
<tr>
<th>Jurisdiction Wide</th>
<th>precinct</th>
<th>Registered Voters</th>
<th>Total Votes</th>
<th>HAGELIN/GOLDDB (NL)</th>
<th>BROWNE/OLIVIER (LIB)</th>
<th>BUSH/CHENEY (REP)</th>
<th>BUCHANAN/FOS (RP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP1 111.112</td>
<td>606</td>
<td>537</td>
<td>533</td>
<td>0.00%</td>
<td>0.56%</td>
<td>207</td>
<td>53.05%</td>
</tr>
<tr>
<td>CP11 218.221</td>
<td>503</td>
<td>575</td>
<td>575</td>
<td>0.00%</td>
<td>1.34%</td>
<td>220</td>
<td>58.98%</td>
</tr>
<tr>
<td>CP11 301</td>
<td>780</td>
<td>655</td>
<td>651</td>
<td>0.15%</td>
<td>0.31%</td>
<td>443</td>
<td>60.05%</td>
</tr>
<tr>
<td>CP12 203.213.215</td>
<td>1070</td>
<td>884</td>
<td>977</td>
<td>0.00%</td>
<td>1.11%</td>
<td>596</td>
<td>69.10%</td>
</tr>
<tr>
<td>CP13 203.44.32</td>
<td>634</td>
<td>520</td>
<td>526</td>
<td>0.00%</td>
<td>1.29%</td>
<td>404</td>
<td>75.37%</td>
</tr>
<tr>
<td>CP14 205</td>
<td>711</td>
<td>546</td>
<td>345</td>
<td>0.88%</td>
<td>0.55%</td>
<td>377</td>
<td>69.17%</td>
</tr>
<tr>
<td>CP16 418.431</td>
<td>481</td>
<td>406</td>
<td>403</td>
<td>0.49%</td>
<td>0.49%</td>
<td>347</td>
<td>85.68%</td>
</tr>
<tr>
<td>CP18 417</td>
<td>921</td>
<td>597</td>
<td>576</td>
<td>0.00%</td>
<td>0.00%</td>
<td>402</td>
<td>69.70%</td>
</tr>
<tr>
<td>CP19 412.220</td>
<td>506</td>
<td>444</td>
<td>443</td>
<td>0.00%</td>
<td>0.45%</td>
<td>285</td>
<td>64.33%</td>
</tr>
</tbody>
</table>

2.12.3.5. Printer Options

Select the correct printer for printing election results reports from the Name drop-down list in the Printer group box. Printing options may be customized according to the options specified in the Properties window.
The pages of the report to be printed may be selected from the Print Range group box. By default, the All radio button is selected, indicating that the entire report will be printed. The number of copies is specified in the Copies group box; by default, this value is 1.

### 2.12.3.6. HTML

The Election Summary report may be printed in HTML format, for convenient incorporation in a jurisdiction’s web site, or other appropriate applications. Selecting the HTML checkbox in the Election Summary window will output the report as a web page (HTML document). See Figure 2-267.

![Figure 2-267: Printing Election Summary Report to HTML](image)

### 2.12.3.7. Report settings

Election Summary and SOVC reports may be pre-defined as report settings, and invoked at any point following report definition. A report setting may be defined in terms of any of the formatting options offered in either of the report windows. As many report settings may be defined as required, and a default report setting may also be defined, which appears automatically when a report window is activated.

Report settings defined in the Election Summary window are only recognized in the Election Summary window; the same is true for report settings defined in the Statement of Votes Cast window.

Before defining the first report setting, set report formatting options as required, and click on the Add button in the Report Settings group box, as shown in Figure 2-268.

![Figure 2-268. Report Settings group box](image)

In the New Set window, enter a descriptive name for the report setting and click on OK, as shown in Figure 2-269.

![Figure 2-269. New Set window](image)

Continue defining report settings in this manner. Note that the report name, district and precinct selections and print destination are not saved as part of the report setting.
In order to print a report for a pre-defined report setting, select the report setting from the drop-down list and click on the Print or Preview button.

In order to change a report setting's formatting options, select the setting from the Report Settings drop-down list, change formatting options in the report window as required, then click on the Set button, as shown in Figure 2-270.

![Figure 2-270. Changing report settings formats](image)

In order to change the report settings default status, either select the default report setting from the list, and de-select the Default button, or select the new default report setting, and select the Default check box.

In order to delete a report setting, select the report setting from the drop-down list, and click on the Delete button.

### 2.12.3.8. Reporting Set

The reporting set, or set of races for which the election results report is printed, is selected from the Reporting Set drop-down list. All reporting sets defined in the Reporting Sets window are listed.

Most jurisdictions will choose “All Races”; the default race set that includes all the races in the database. However, some jurisdictions would like to print results for a subset of the races defined in the election only. Ensure that the appropriate reporting sets are programmed before printing election results reports.

See Figure 2-271.

![Figure 2-271: Selecting a reporting set](image)

Reporting sets are not applicable to the Cards Cast report.

For more information on configuring reporting sets, refer to the section 2.3.11 Reporting Sets.

### 2.12.3.9. Counter Groups

The counter groups for which the report is printed is selected from the Counter Group list. Select the check box next to every counter group to be incorporated into the report. See Figure 2-272.
Cumulative

For example, voters in the city of Harrison may vote for Mayor either on election day, absentee, or early. Harrison consists of precincts Wilson and Jackson; absentee and early voting results are summarized across both precincts.

In GEMS, polling report precincts Wilson and Jackson are defined. Cumulative counter groups Absentee and Early Voting are defined, cumulative report precincts Absentee and Early Voting are defined and linked to both base precincts.

4,000 ballots are cast on election day in Wilson, 6,000 in Jackson, 1000 ballots are cast in early voting and 2000 ballots are cast absentee.

If election results are reported for the Polling counter group only, the election results report displays the results for the 4000 ballots cast in Wilson and the 6000 ballots cast in Jackson only. An election results report printed for the Absentee and Early Voting counter groups only will include the results of the 2000 ballots cast in report precinct Absentee and the 1000 ballots cast in report precinct Early Voting.

Non-cumulative

Now suppose that absentee results are returned to the polls in Harrison, and 1500 absentee ballots are cast in Wilson and 500 in Jackson. An election results report combining Polling and Absentee counter groups will show the results of 5500 ballots cast in Wilson and the results of 6500 ballots cast in Jackson only. An election results report printed for the Absentee counter group only will display report precincts Wilson with the results of the 1500 absentee ballots cast, and Jackson with the results of the 500 absentee ballots cast.

For more information on counter groups, refer to the section 2.3.6 Counter Groups.

2.12.3.10. Show Data

The check boxes in the Show Data group box determine the statistics that are incorporated into the election results report. The Winners, Num. Pcts and Num. Pcts Reporting check boxes do not appear in the Statement of Votes Cast window.

These statistics include:

- **Times**: the number of times a ballot has been counted with the race, expressed in terms of registered voters if the Reg. Voters check box has been selected.
- **Over**: the number of overvotes in each race. This option appears as Times Over Voted in the Cards Cast window.
- **Under**: the number of undervotes in each race. This option appears as Times Under Voted in the Cards Cast window.
- **Blank**: the number of blank votes in each race. This option appears as Times Blank Voted in the Cards Cast window.
- **Total**: the total number of votes in each race.
- **Write-in**: the total write-in selections in each race. This option appears as Times WriteIn in the Cards Cast window.
- **Vote For**: the number to vote for in each race.
• **Winners;** the number of candidates corresponding to the number to vote for with the highest results are displayed in bold.

• **Cards Cast;** total ballots cast is displayed at the top of the report.

• **Reg. Voters;** the total registered voters is displayed at the top of the report, and is expressed with the number of times the race is counted if the Times check box is selected.

• **Num. Pcts;** the number of precincts in which the race occurs.

• **Num. Pcts Reporting;** the number of precincts for which the race is reporting; will be less than or equal to the value printed for Num. Pcts.

Selecting both Num. Pcts and Num. Pcts Reporting check boxes in the Election Summary Report window prints the percentage of precincts reporting at the top of the report. Selecting both the Cards Cast and Reg. Voters check boxes in the Election Summary Report window prints the percentage of voter turnout at the top of the report.

The times counted for each race matches ballots cast for races that occur on every ballot.

See **Figures 2-273 to Figure 2-276.**

![Figure 2-273. Default Show options for Election Summary report](image)

<table>
<thead>
<tr>
<th>Registered voters 13529 - Cards Cast 10655</th>
<th>Num. Report Precinct 37 - Num. Reporting 37</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRESIDENTIAL</strong></td>
<td></td>
</tr>
<tr>
<td>Number of Precincts</td>
<td>37</td>
</tr>
<tr>
<td>Precincts Reporting</td>
<td>37</td>
</tr>
<tr>
<td>Vote For</td>
<td>1</td>
</tr>
<tr>
<td>Times Counted</td>
<td>10655/10639</td>
</tr>
<tr>
<td>Total Votes</td>
<td>10654</td>
</tr>
<tr>
<td>Times Blank Voted</td>
<td>48</td>
</tr>
<tr>
<td>Times Over Voted</td>
<td>2</td>
</tr>
<tr>
<td>Number Of Under Votes</td>
<td>0</td>
</tr>
<tr>
<td>HAOLEIN/GOLDHABER</td>
<td>NL</td>
</tr>
<tr>
<td>BROWN/OLIVIER</td>
<td>LE</td>
</tr>
<tr>
<td>BUSH/CHENEY</td>
<td>REP</td>
</tr>
<tr>
<td>BUCHANAN/FOSTER</td>
<td>NFM</td>
</tr>
<tr>
<td>PHILLIPS/FRAZER</td>
<td>AJ</td>
</tr>
<tr>
<td>GOERE/CLIBBERMAN</td>
<td>DEM</td>
</tr>
<tr>
<td>NADER/LADUKE</td>
<td>ORN</td>
</tr>
<tr>
<td>McReynolds</td>
<td>0</td>
</tr>
<tr>
<td>Kanyon</td>
<td>0</td>
</tr>
<tr>
<td>Write-In Votes</td>
<td>18</td>
</tr>
</tbody>
</table>

![Figure 2-274. Election Summary report – all Show options selected](image)
Candidate returns may be expressed as percentages of either ballots cast, votes cast, or not at all. Ballots cast represent a sum of votes cast, overvotes, undervotes and blank votes. In order to express returns in terms of votes cast, select the Votes Cast radio button in the Percents By group box, otherwise, select the Ballots Cast radio button in order to express candidate returns in terms of ballots cast. This option is not applicable to the Cards Cast report; Votes Cast is the default.

For example, John Doe and Jane Smith are candidates in an election for Mayor in the city of Harrison. 10,000 ballots are cast in the election; 4,000 voters selected John Doe, 5,000 voters chose Jane Smith, 600 voters overvoted and 400 voters cast their ballots without making any selection.

If total candidate returns are expressed in terms of votes cast, John Doe received a total of 4,000/9,000 = 44.4% of votes cast and Jane Smith a total of 5,000/9,000 = 55.6%. If returns are expressed in terms of ballots cast, John Doe received a total of 4,000/10,000 = 40% and Jane Smith a total of 5,000/10,000 = 50%.

Note that it may be confusing to viewers if the election results report is printed with candidate returns expressed in terms of ballots cast without showing over-, blank- and undervoted statistics.

See Figure 2-277 to Figure 2-279.
2.12.3.12. Sort Candidates By

Candidates may be listed on election results report either in the order which they are defined or in decreasing order of candidate returns. Selecting the Sort Seq. radio button in the Percents By group box displays candidates in the order of the Report Seq. value defined under the Candidates tab in the Race Editor. Selecting the Votes radio button, on the other hand, lists candidates in decreasing order of candidate returns.

Candidate sorting does not apply to the Cards Cast report. Furthermore, the Statement of Votes Cast does not include the Votes button, therefore displays results only in terms of report sequence number. See Figure 2-280 and Figure 2-281.
Election results may be either printed by counter group, or summarized across counter groups. By default, the Election Summary and Cards Cast reports are printed without counter group detail, whereas the SOVC report is. In either Election Summary or Statement of Votes Cast windows, counter group detail is not printed if the Counter Group Totals Only check box is selected, and is printed if the check box is not selected. In the Cards Cast window, counter group detail is printed if the Counter Group Detail check box is selected, otherwise, counter group detail is not printed. Counter group detail is printed in the Election Summary report in column form, and in the SOVC and Cards Cast reports in row form.

For example, in the race for Mayor of Harrison, 4,000 polling ballots are cast for John Doe and 5,000 for Jane Smith. Another 1,000 absentee ballots are cast for John Doe and 800 for Jane Smith, as well as 600 early voting ballots for John Doe and 800 for Jane Smith.

If the Counter Group Totals Only check box is not selected, election results are presented in the following manner:

<table>
<thead>
<tr>
<th></th>
<th>Polling</th>
<th>Absentee</th>
<th>Early Voting</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>John Doe</td>
<td>4,000</td>
<td>1,000</td>
<td>600</td>
<td>5,600</td>
</tr>
<tr>
<td>Jane Smith</td>
<td>5,000</td>
<td>800</td>
<td>800</td>
<td>6,600</td>
</tr>
</tbody>
</table>

However, if the check box is selected, then results appear as:

<table>
<thead>
<tr>
<th>Candidate</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>John Doe</td>
<td>5,600</td>
</tr>
<tr>
<td>Jane Smith</td>
<td>6,600</td>
</tr>
</tbody>
</table>

For examples of election results reports with counter group detail, see Figures 2-282 and 2-283.
### Cross-endorsed totals

Cross-endorsed candidates may appear on GEMS election results reports once only, or once for every endorsing party. Reports printed with candidates once for every endorsing party include the N.P. endorsed candidate. All partisan and non-partisan instances of cross-endorsed candidates appearing on election results reports once only are tallied to the single entry on the report.

Cross-endorsed candidates appear on the Election Summary and SOVC reports once only if the Cross-Endorse Totals Only check boxes in the corresponding windows are selected, otherwise, candidates appear on the election results reports once for every endorsing party. The cross-endorsed totals option appears on the Election Summary Report and Statement of Votes Cast windows.

### Separate Under

Candidate totals which are less than a designated amount may be reported in a distinct category on the SOVC report. If a candidate amount is less than the separation amount specified in the Separate Under field, the candidate amount is reported as zero for the report precinct, and is added to the Less Than category for the candidate.

The separation feature applies to candidates reported in a non-cumulative counter group on the Statement of Votes Cast only.

For example, ten report precincts return results in the cumulative Absentee counter group for candidate Joe Smith. Three of these report precincts contain totals less than 5 for Joe Smith; report precinct Wilson returned 3 votes for Smith, Jackson 4 votes, and Moore 1 vote. The SOVC report printed with the
Separate Under field set to 5 will display total fields for Joe Smith as zero for report precincts Wilson, Jackson, and Moore, and will list 8 votes in the Less Than entry for Joe Smith.

### 2.12.3.16. Counter group detail

The Counter Group Detail check box in the Cards Cast report has the opposite effect of the Counter Groups Only check box in the Election Summary report. Cards cast are reported by counter group within each report precinct if the check box is selected, otherwise, cards cast are summarized by report precinct on the Cards Cast report.

Only the counter group pertinent to a report precinct is listed on the report. For example, an election is defined with the non-cumulative Polling counter group as well as a cumulative Absentee counter group. The Cards Cast report printed with counter group detail will include the Polling counter group only with polling report precincts, and the Absentee counter group with absentee report precincts only.

See Figure 2-284.

<table>
<thead>
<tr>
<th>District/Report Unit</th>
<th>CounterGroup</th>
<th>V/Group1</th>
<th>V/Group2</th>
<th>Card</th>
<th>Ballot</th>
<th>Cast</th>
<th>Votes</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP2 110-01</td>
<td>Polling</td>
<td>NP</td>
<td>NP</td>
<td>1</td>
<td>1</td>
<td>218</td>
<td>383</td>
<td>56.52</td>
</tr>
<tr>
<td>Absentee</td>
<td>NP</td>
<td>NP</td>
<td>1</td>
<td>1</td>
<td>65</td>
<td>383</td>
<td>36.97</td>
<td></td>
</tr>
<tr>
<td>CP2 110-01 - Total</td>
<td>Absentee</td>
<td>TOTAL</td>
<td>NP</td>
<td>65</td>
<td>383</td>
<td>36.97</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP1 111,112</td>
<td>Polling</td>
<td>NP</td>
<td>NP</td>
<td>1</td>
<td>1</td>
<td>419</td>
<td>344</td>
<td>121.50</td>
</tr>
<tr>
<td>Absentee</td>
<td>NP</td>
<td>NP</td>
<td>1</td>
<td>1</td>
<td>110</td>
<td>344</td>
<td>34.30</td>
<td></td>
</tr>
<tr>
<td>CP1 111,112 - Total</td>
<td>Absentee</td>
<td>TOTAL</td>
<td>NP</td>
<td>110</td>
<td>344</td>
<td>34.30</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 2-284. Cards Cast report with counter group detail

By default, the Counter Group Detail check box is not selected.

### 2.12.3.17. Precincts reporting

The total number of precincts reporting may include Polling precincts only, or include the precincts corresponding to all counter groups, such as Absentee and Early Voting. The total precincts reporting are expressed in terms of Polling precincts only if the Use Only Polling Counter For Precincts Reporting check box is selected, otherwise, all precincts are included in the total.

In the prior example, polling ballots are tallied to report precincts Wilson and Jackson, absentee ballots to report precinct Absentee and early voting ballots to report precinct Early Voting. If the Use Only Polling Counter For Precincts Reporting check box is not selected and all precincts have uploaded results, the total number of report precincts reporting is 4. On the other hand, if the check box is selected, the total number of report precincts reporting is 2.

### 2.12.3.18. Group by District

Results included in the SOVC and Cards Cast reports may be subtotaled across district categories.

For example, if an election is defined with district category State Assembly, containing districts State Assembly districts 10, 11 and 12, then printing an SOVC report by Jurisdiction Wide and State Assembly districts will produce two listings of results; the first is provided for Jurisdiction Wide, with all precincts subtotaled for the entire jurisdiction, followed by a list of all precincts in order of State Assembly district, subtotaled by State Assembly district.

Distinguish between the reporting ‘for a district’, as described in the section 2.12.3.2 Districts, and reporting ‘by a district’, as is described here.

The report is issued by district by selecting one or both of the adjacent check boxes in the I and D columns of the Group by District list. Selecting the I check box provides a summary of results by district, and selecting the D check box provides detailed results by report precinct within the district category.
Both and I and D check boxes must be selected in order to print detailed results. See Figures 2-285 to 2-287.

Figure 2-285. Grouping SOVC results by district

<table>
<thead>
<tr>
<th>District</th>
<th>I</th>
<th>D</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td></td>
<td></td>
<td>SENATORIAL</td>
</tr>
<tr>
<td>30</td>
<td></td>
<td></td>
<td>ASSEMBLY</td>
</tr>
<tr>
<td>40</td>
<td></td>
<td></td>
<td>SUPERVISORIAL</td>
</tr>
<tr>
<td>50</td>
<td></td>
<td></td>
<td>BOARD OF EDU</td>
</tr>
<tr>
<td>70</td>
<td></td>
<td></td>
<td>TOTAL</td>
</tr>
</tbody>
</table>

Sub Total: 2048 2226 2226 2 0.09% 12 0.52% 1477 67.7% 12 0.52%

Figure 2-286. SOVC report by precinct within Supervisory districts

<table>
<thead>
<tr>
<th>Precinct</th>
<th>Reg. Voters</th>
<th>Time Counted</th>
<th>Total Votes</th>
<th>HAGLEIN/SOLDB (HL)</th>
<th>BROWNE/OLIVE (LD)</th>
<th>BUSH/CHEVENY (REP)</th>
<th>BUCHANAN/MUSGA (FPM)</th>
<th>PHILIP STRAZZA (AD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP1 301</td>
<td>780</td>
<td>655</td>
<td>651</td>
<td>1 0.15%</td>
<td>2 0.31%</td>
<td>443 68.6%</td>
<td>3 0.46%</td>
<td></td>
</tr>
<tr>
<td>CP12 003</td>
<td>130</td>
<td>183</td>
<td>167</td>
<td>0 0.00%</td>
<td>1 0.11%</td>
<td>196 68.1%</td>
<td>7 0.00%</td>
<td></td>
</tr>
<tr>
<td>CP3 030</td>
<td>024</td>
<td>252</td>
<td>252</td>
<td>0 0.00%</td>
<td>1 0.04%</td>
<td>494 76.3%</td>
<td>5 0.5%</td>
<td></td>
</tr>
<tr>
<td>CP5 056</td>
<td>119</td>
<td>56</td>
<td>57</td>
<td>0 0.00%</td>
<td>0 0.00%</td>
<td>222 43.6%</td>
<td>5 1.2%</td>
<td></td>
</tr>
<tr>
<td>CP15 234</td>
<td>341</td>
<td>200</td>
<td>200</td>
<td>0 0.00%</td>
<td>4 2.0%</td>
<td>143 69.7%</td>
<td>2 0.5%</td>
<td></td>
</tr>
<tr>
<td>CP22 002</td>
<td>17</td>
<td>16</td>
<td>16</td>
<td>0 0.00%</td>
<td>0 0.00%</td>
<td>14 67.0%</td>
<td>0 0.00%</td>
<td></td>
</tr>
<tr>
<td>CP23 005</td>
<td>10</td>
<td>17</td>
<td>17</td>
<td>0 0.00%</td>
<td>0 0.00%</td>
<td>9 52.9%</td>
<td>0 0.00%</td>
<td></td>
</tr>
<tr>
<td>CP24 003</td>
<td>350</td>
<td>2897</td>
<td>2879</td>
<td>2 0.08%</td>
<td>11 0.38%</td>
<td>2011 69.5%</td>
<td>21 0.73%</td>
<td></td>
</tr>
</tbody>
</table>

Sub Total: 2048 2226 2226 2 0.09% 12 0.52% 1477 67.7% 12 0.52%

Figure 2-287. SOVC report summarized by Supervisory district
2.12.3.19. Edit certification

Manually entered text may be added to the end of the SOVC report by clicking on the Edit Certification button in the Statement of Votes Cast window. Clicking on this button activates a window titled Ballot Text Editor, with all formatting options described in the section 2.6.5 Ballot text.

The @RACE macro may be entered in the certification text window in order to automatically generate a record of all candidate results in the election, by race, in text format.

This feature is available only for the SOVC report. See Figure 2-288.

THE WHOLE NUMBER OF VOTES GIVEN: PRESIDENTIAL WAS 10604 (OF WHICH)

HAGELIN/GOLDBAER (NL) RECEIVED 13
BROWNE/OLIVIER (LIB) RECEIVED 58
BUSH/CHENEY (REP) RECEIVED 7080
BUCHANAN/FOSTER (RFM) RECEIVED 78
PHILLIPS/FRAZIER (AI) RECEIVED 36
GORE/LIEBERMAN (DEM) RECEIVED 2982
NADER/LADUKE (GRN) RECEIVED 339
McReynolds RECEIVED 0
Kanyon RECEIVED 0
Scattering RECEIVED 18

Figure 2-288. Sample results of @RACE macro in SOVC report

2.12.4. Printing reports

2.12.4.1. Printing the Election Summary report

Click on GEMS in the menu bar, then Election Summary Report in the drop-down menu. See Figure 2-289.

In the Election Summary Report window, enter a descriptive title for the Election Summary report in the Report field. If GEMS default report headings are not to be used, de-select the Include Std. Title check box.

Select either the District or Precinct radio buttons, depending on whether the report is to be printed by district or precinct. Select the district(s) or precinct(s) to report from the display window.

If precincts are to be ordered by name in the report, select the Sort Precincts by Name check box.

Select the print destination from the Name drop-down list in the Printer group box, and define print formatting requirements by clicking on the Properties button. If a portion of the report is to be printed only, select the Pages radio button in the Print range group box and enter the pages to print in the from and to fields. If multiple copies of the report are to be printed, enter the number of copies in the Copies group box.
Report setting defined
If report formatting options have already been defined, select the report setting from the Report Settings drop-down list, then click on the Print button.

No report setting defined
If the Election Summary is to be printed as HTML report, select the HTML check box.
Select the reporting set to report for from the Reporting Set drop-down list.
Select the counter groups to issue the report for from the Counter Groups list.
Select check boxes in the Show group box as required for the formatting of the report.
If candidate totals are to be reported without percentages, select the None radio button in the Percents By group box. Select the Votes Cast radio button if returns are to be expressed in terms of votes cast, and select the Ballots Cast button if returns are to be expressed in terms of ballots cast.
If candidates are to be listed on the report by report sequence number, select the Sort Seq. radio button in the Sort Candidates By group box. If candidates are to be listed in decreasing order of votes cast, click on the Votes Cast radio button.
If election results are to summarized across counter groups, ensure that the Counter Group Totals Only check box is selected, otherwise, de-select this check box. If cross-endorsed candidates are to be placed on the report once only, select the Cross-Endorse Totals Only check box, otherwise, do not select the check box.
If the number of precincts reporting is to be based on polling report precincts only, select the Use Only Polling Counter For Precincts Reporting check box, otherwise, if the number of precincts reporting is to be drawn from the total number of report precincts in the election, de-select this check box.
If formatting options have been defined for the first time and are to be saved, click on Add in the Report Settings group box and enter a descriptive title in the New Set window. Click on the Print button in order to print the report. As the report is prepared for printing, an activity message box is displayed. See Figure 2-290 and Figure 2-291.
**Figure 2-290. Election Summary report window**

**Figure 2-291. Report printing activity window**

**Previewing Election Summary report**

In order to view the report online, click on the Preview button. The activity message box is displayed as the reported is prepared for viewing. Click on the Yes button in the confirmation message that appears in order to view the Election Summary report. See Figure 2-292.
The Election Summary report is viewed online by scrolling vertically. In the Election Summary preview window, click on the single down arrow to page down and the double-down arrow to display the last page in the report. On the last page, the single- and double-down arrows are disabled. Likewise, to page up, click on the single up-arrow, and to page to the top of the report, click on the double-up arrow. Both up arrow buttons are disabled on the first page of the report. See Figure 2-293.

Click on the Print button in order to print the report. Click on the Yes button in response to the print confirmation message in order to print the report. See Figure 2-294.

Click on the Exit icon in the top right-hand corner of the Summary report window in order to close the window.

Once all required reports have been printed, click on Done in the Election Summary Report window.

2.12.4.2. Printing the Statement of Votes Cast report

Click on GEMS in the menu bar, then Statement of Votes Cast in the drop-down menu. See Figure 2-295.

In the Statement of Votes Cast window, enter a descriptive title for the SOVC report. If GEMS default report headings are not to be used, de-select the Include Std. Title check box.

Select the district(s) to report from the display window.

If precincts are to be ordered by name in the report, select the Sort Precincts by Name check box.
Select the print destination from the Name drop-down list in the Printer group box, and define print formatting requirements by clicking on the Properties button. If a portion of the report is to be printed only, select the Pages radio button in the Print range group box, and enter the pages to print in the from and to fields. If multiple copies are to be printed of the report, enter the number of copies in the Copies group box.

Report setting defined
If report formatting options have already been defined, select the report setting from the Report Settings drop-down list, then click on the Print button.

No report setting defined
Select the reporting set to report for from the Reporting Set drop-down list.
Select the counter groups to issue the report for from the Counter Groups list.
Select the detail and summary check boxes for each of the districts to report by in the Group by District list.
Click on the Edit Certification button in order to activate the Ballot Text Editor, and enter certification text as required. Click on Okay in the Ballot Text Editor window when finished.
Select check boxes in the Show group box as required for the formatting of the report.
If candidate totals are to be reported without percentages, select the None radio button in the Percents By group box. Select the Votes Cast radio button if returns are to be expressed in terms of votes cast, and select the Ballots Cast button if returns are to be expressed in terms of ballots cast.
In order to print the report with counter group totals only, select the Counter Group Totals Only check box, otherwise do not select the check box. If cross-endorsed candidates are to be placed on the report once only, select the Cross-Endorse Totals Only check box, otherwise, do not select the check box. Enter an amount in the Separate Under field if candidate totals less than the amount are to report separately, otherwise, leave the field blank.
If formatting options have been defined for the first time and are to be saved, click on Add in the Report Settings group box and enter a descriptive title in the New Set window. Click on the Print button in order to print the report. Observe the report length in the print confirmation message before clicking on the Yes button in order to print the report. In order to reduce the size of the SOVC report, reduce the number of Show options accordingly. As the report is prepared for printing, an activity message box is displayed. See Figure 2-296 and Figure 2-297.
Previewing Statement of Votes Cast report

In order to view the report online, click on the Preview button. An activity message box is displayed as the report is prepared for viewing. Click on the Yes button in the confirmation message that appears in order to view the Statement of Votes Cast report.

The SOVC report is viewed online by scrolling horizontally. Large numbers of precincts and districts on the report require vertical in addition to horizontal scrolling, as these are displayed vertically on the report.

In the SOVC Preview window, click on the single right arrow to page forward and the double-right arrow to display the last page in the report. On the last page, the single- and double-right arrows are disabled. Likewise, to page back, click on the single left-arrow, and to page to the top of the report, click on the double-left arrow. Both left arrow buttons are disabled on the first page of the report.
Click on the single down arrow to page downwards and the double-down arrow to display the bottom of the current page. At the bottom of the page, the single- and double-down arrows are disabled. To page upwards, click on the single up-arrow, and to advance to the top of the page, click on the double-up arrow. Both up arrow buttons are disabled when viewing the top of the page.

Click on the Print button in order to print the report. Click on the Yes button in response to the print confirmation message in order to print the report.

Click on the Exit icon in the top right-hand corner of the SOVC Preview window in order to close the window.

Once all required reports have been printed, click on Done in the Statement of Votes Cast window.

2.12.4.3. **Printing the Cards Cast report**

Click on GEMS in the menu bar, then Cards Cast in the drop-down menu. See Figure 2-298.

![Figure 2-298](image)

**Figure 2-298. Activating Cards Cast window**

In the Cards Cast window, enter a descriptive title for the Cards Cast report in the Report field. Select the district(s) to report from the display window. If precincts are to be ordered by name in the report, select the Sort Precincts by Name check box.

Select the Counter Group Detail check box if counter group detail is to be provided. Select Times Blank, Over or Under Voted check boxes in order to print related statistics on the report. Select the Times WriteIn check box in order to print the number of write-ins on the report.

Select the print destination from the Name drop-down list in the Printer group box, and define print formatting requirements by clicking on the Properties button. If a portion of the report is to be printed only, select the Pages radio button in the Print range group box, and enter the pages to print in the from and to fields. If multiple copies are to be printed of the report, enter the number of copies in the Copies group box.

Select the counter groups to issue the report for from the Counter Groups list. Select the Counter Group Detail check box if the number of cards cast are to be printed by counter group, rather than summarized by report precinct.

Select the detail and summary check boxes for each of the districts to report by in the Group by District list.

Click on the Print button in order to print the report. As the report is prepared for printing, an activity message box is displayed. See Figure 2-299.
Previewing Cards Cast report

In order to view the report online, click on the Preview button. An activity message box is displayed as the report is prepared for viewing. Click on the Yes button in the confirmation message that appears in order to view the Cards Cast report.

The Cards Cast report is viewed online by scrolling vertically. In the Cards Cast Preview window, click on the single down arrow to page down and the double-down arrow to display the last page in the report. On the last page, the single- and double-down arrows are disabled. Likewise, to page up, click on the single up-arrow, and to page to the top of the report, click on the double-up arrow. Both up arrow buttons are disabled on the first page of the report.

Click on the Print button in order to print the report. Click on the Yes button in response to the print confirmation message in order to print the report.

Click on the Exit icon in the top right-hand corner of the Cards Cast Preview window in order to close the window.

Once all required reports have been printed, click on Done in the Cards Cast window.

2.12.5. Deliverables

Complete sets of election results reports are printed and archived, including the Election Summary, SOVC report and Cards Cast report, at the conclusion of test results uploading, the Pre-Election L & A Test, the election itself, the Post-Election L & A, any recount that may be called after the election. An Election Summary report containing zero totals should also be printed and archived preceding election close.
Reports delivered should also reflect the reporting structure and requirements of the election, compliant with the requirements outlined in response to the section titled 2.12.2 Process.
2.13. JResult Client

JResult Client is a Java-based election results display client of GEMS, designed to be run on any number of PCs at election close, presenting results served by the GEMS host computer. Election results are served continuously by the GEMS Results Server to a file location on a local area network, which JResult Client machines read and refresh results display from on a continuous basis. JResult Client machines should be configured in public areas with overhead display projectors for ease of public viewing.

Every JResult Client may be configured with one or more unique results presentations, although it is recommended to present results as consistently as possible.

2.13.1. Procedure

JResult Client should be implemented according to the following procedure:

1. Review related terminology (section 2.13.2 Terminology).
2. Determine that JResult Client requirements have been met. (section 2.13.3 Before using JResult Client).
3. Determine the races, districts and report precincts for which results are to be presented (section 2.3.11 Reporting sets, 2.3.12 Monitor scripts, Monitor script properties).
4. Determine the number of unique JResult Client presentation configurations required (see section 2.3.12 Monitor scripts).
5. Determine the number of JResult Client machines to be used in the election.
6. Plan the installation of JResult Client in terms of existing and prospective network configuration.
7. Determine which units are to project in public areas.
8. Implement JResult Client equipment installation and configuration (sections 2.13.5 Installation; Appendix K: System Acquisition, Installation And Verification).
9. Upload test results (section 2.8 AccuVote Servers).
10. Verify JResult Client installation (section 2.13.6 JResult Client verification).
11. Upload election results at election close.
12. Run JResult Client at election close.
13. Verify JResult Client operation.

2.13.2. Terminology

The following terminology is used in this section:

**AccuVote Server**: A console used for either programming AccuVote-OS memory cards or AccuVote-TS election media, or uploading election results.

**Administrator**: Logon user Id with full access privileges.

**Export Results**: The act of exporting election results.

**JResult Client**: The Java-based software client that interfaces with GEMS in order to supply election results.

**Monitor Script**: A JResult Client configuration, defined in terms Monitor Script Properties, in turn defined in terms of sets of reporting sets and precincts or districts.

**Monitor Script Properties**: Monitor Scripts are defined in terms of Monitor Script Properties, which are in turn defined in terms of sets of reporting sets and precincts or districts.
**Reporting Set:** A set of races in the election used to report election results and configure monitor scripts.

**Results Server:** The console which creates election results files on a continuous basis for JResult Client.

**Server:** A machine or program which provides service to related machines or programs.

### 2.13.3. Before using JResult Client

Upload testing as described in section 2.8 AccuVote Servers should have been completed before this section is reviewed. The manually tallied results of ballot tests should be verified in election results reports as described in section 2.12 Election Results Reporting as well as using JResult Client displays.

### 2.13.4. Concepts

#### 2.13.4.1. Monitor scripts

JResult Client election results are defined by monitor scripts, which in turn are defined in terms of one or more monitor script properties. Each monitor script property is composed of a reporting set as well as a district or report precinct. A JResult Client machine may display election results in terms of one monitor script only at any particular time. All monitor scripts are displayed in the Open Result Set window when JResult Client is activated, and results are displayed according to the monitor script selected.

For more information see sections 2.3.11 Reporting sets and 2.3.12 Monitor scripts.

#### 2.13.4.2. Results Server

The GEMS Results Server creates election results files on a continuous basis. These results files are captured by the JResult Client machines and formatted for election results display. Election results files are served to a folder location either on the GEMS host or at a jointly accessible location on the network.

**Results files**

The Results Server creates two type of files: a text file for every monitor script, containing configuration information and election results, and a script list, containing general election information. The script file is created once only when Results Server is activated, but the text files are updated according to the refresh rate defined on the Results Server console.

The script list file contains the election date, time, election title and the names of all monitor scripts defined in the election. The text files contain precincts reporting and election results for all races and candidates defined for the monitor script.

**Results file locations**

By default, the Open result Set window searches for results files at `FILE:\C:\Program Files\GEMS\Data\EID\Results`, where `EID` is the election Id as defined in the EID field under the Election Info tab in the Election Options window. The folder in which the results files are placed may be changed by clicking on the Browse button in the Results Server window.

**Updating results files**

Results files are updated according to the refresh rate defined in the Update Every field in the Results Server window. This value should be no less than 5 minutes in elections defined with 50 or less report precincts, and should be no less than 10 minutes in elections defined with more than 50 report precincts.

The time the files were last updated is displayed in the Last field, and the amount of time required to perform the last update is displayed in the Update Time field.

Results files may also be manually refreshed by clicking on the Refresh button.
Exporting results files

The results files issued by the Results Server may also be exported to results management functions used by a jurisdiction that are external to GEMS, although this is not recommended.

2.13.4.3.  Open result set

The source of the election results files issued by the GEMS Results Server may be accessed either as a file location on a network or as an internet site using the http protocol. The syntax for defining the results file location is either file:\file location, or http://internet address.

By default, the Open result Set window searches for results files at FILE:\C:\Program Files\GEMS\Data\EID\Results, where EID is the election Id as defined in the EID field under the Election Info tab in the Election Options window. The location the results files are issued to may be manually changed in Results Server. See Figure 2-300.

![Open Result Set](image)

*Figure 2-300. Open Result Set*

The Open Result Set window appears automatically by activating JResult Client, or by clicking on File in the JResult Client menu bar, then Open Result in the drop-down menu.

Once the location of the results files has been defined in the Open Result Set window, the operator clicks on the Refresh button in order to retrieve and display the monitor scripts, and selects the monitor script desired and clicks on the Ok button in order to activate JResult Client for the monitor script. See Figure 2-301.
2.13.4.4. Menu

The JResult Client menu bar located at the top of the window contains the entries File, View, Format and Help. The button bar at the bottom of the window contains a process message in the left-hand corner, as well as the Back, Stop, Next and Next-Auto buttons.

Both menu and button bars are removed from the display by either clicking on View in the menu bar, then Hide Menu in the drop-down list or right-clicking on the JResult Client display area and selecting Hide Menu in the pop-up menu. In order to display the menu and button bars again, right-click on the JResult Client display area, and select Show Menu in the pop-up menu.

Hiding the menu is useful for a kiosk look, and removes the possibility of unwanted tampering to occur with the JResult Client display.

2.13.4.5. Title

The JResult Client display derives its title from the monitor script, although it is also possible to add text to the title from within JResult Client. The desired text should be entered in the Reporting Name field in the Option window, accessed by clicking on Format in the menu bar, then Option in the drop-down menu.

2.13.4.6. Scrolling

Scrolling by race/page

JResult Client scrolls through all races defined in the monitor script, as it is not possible to display all races in a single window display. JResult Client may be programmed to scroll through races either by race or by page. In order to advance the display by race, select View in the menu bar, then Scrolling in the drop-down menu and Scroll by Race in the cascading menu. In order to advance the display by page, select View in the menu bar, Scrolling in the drop-down menu and Scroll by Page in the cascading menu. See Figure 2-302.
Scrolling continuously

The results display may be scrolled either continuously or instantaneously. In order to scroll continuously, select View in the menu bar, Scrolling in the drop-down menu and Smooth Scrolling. In order to scroll instantaneously, select View in the menu bar, Scrolling in the drop-down menu and de-select Smooth Scrolling.

Scroll buttons

In order for automatic scrolling to be enabled, click on the Next-Auto button in the button bar. In order to force the display to scroll forward, click on Next, and in order to force the display to scroll backward click on the Back button. Whether the display scrolls by race or by page depends on the scrolling settings defined.

In order to terminate scrolling and fix the display to the current image, click on the Stop button. See Figure 2-303.

Refresh time

The results display refresh time may be defined according to the type of scrolling defined. The frequency with which race scrolling occurs is defined in the Pause Time on Races field, and the frequency with which page scrolling occurs is defined in the Pause Time on Pages field. Both fields are located in the Options window, accessed by clicking on Format in the menu bar, then Options in the drop-down menu.

The speed at which continuous scrolling occurs is defined in the Scroll Speed Level field in the Options window; the higher the number entered, the more quickly scrolling occurs. See Figure 2-304.

2.13.4.7. Refresh

Just as the Results Server issues results files on a continuous basis according to a specified refresh rate, JResult Client reads these files according to a refresh rate. JResult Client may be programmed to either refresh results manually or automatically; commonly, JResult Client is configured with an automatic refresh rate. The default automatic refresh rate of 1 minute is recommended.
In order to set JResult Client to automatically refresh results, click on View in the menu bar, Refresh in the drop-down menu and Auto Refresh in the cascading menu. In order to define the automatic refresh rate, click on View in the menu bar, Refresh in the drop-down menu, then Set AutoRefresh Interval in the cascading menu. In order to refresh results immediately, click on View in the menu bar, Refresh in the drop-down menu and Refresh Now in the cascading menu. See Figures 2-305 and 2-306.

2.13.4.8. Sorting

Candidates may be ordered in the JResult Client display by candidate Id, by rank or by name. The candidate Id number used is the Report Seq. value defined for the candidate under the Candidate tab in the Race Editor. Candidate ordering by rank displays candidates in decreasing order of votes received. Candidates sorted by name are ordered by the candidate label as defined in the Race Editor; in order for this sorting rule to be useful, candidate names should be defined last name first.

Winning candidates are displayed highlighted in yellow.

Click on View in the menu bar, Sorting in the drop-down menu, and Sort by Id in the cascading menu in order to display candidates in order of reporting sequence number; Sort by Rank in order to display candidates in decreasing order of votes returned; and Sort by Name in order to display candidates in order of candidate label. See Figure 2-307.
2.13.4.9. Fonts

JResult Client may also be customized with font information. Select Format in the menu bar, and font in the drop-down list. In the Font Setting window, select the font to display results with from the Font list, the font style – plain, bold or italic – from the Font style list, and the font size from the Size list. Click on Ok to save results. See Figure 2-308.

![Font Settings window](image)

**Figure 2-308. Font Settings window**

2.13.4.10. Formatting

Formatting options are accessed by clicking on Format in the menu bar, then Option in the drop-down list. Once all formatting information has been defined, click on Ok to save results. See Figure 2-309.

![Selecting formatting options](image)

**Figure 2-309. Selecting formatting options**

Empty votes

JResult Client may be programmed to display races reporting results only. By selecting the Display Races with Empty Votes check box, all races in the monitor script are displayed. De-selecting this check box only displays races containing non-zero results.

Pie charts

Election results may be displayed with a colored pie chart next to each race, providing a convenient visual reference for each candidate’s relative standing. Pie charts are only displayed for races with non-zero results. In order for pie charts to be displayed, click on the Display Pie Charts check box; in order for pie charts not to be displayed, de-select the Display Pie Charts check box. See Figure 2-310.

![Displaying results with pie charts](image)

**Figure 2-310: Displaying results with pie charts**
Percentages

Percentage returns for every candidate may be optionally displayed. These percentages are expressed in terms of votes cast; it is not possible to display these percentages in terms of ballots cast. In order to display percentages, click on the Enable Percentages check box; otherwise, de-select this check box in order not to display percentages.

Precincts reporting

The number of precincts reporting is displayed at the top of the JResult Client window. The total number of precincts reporting is drawn from polling precincts only if the Use Only Polling Counter For Precincts Reporting check box is selected in the corresponding monitor script property, otherwise, the total number of precincts reporting is drawn from all report precincts defined in the election.

JResult Client may optionally display the total number of report precincts reporting for every race. This is implemented by selecting the Enable Precinct Reporting check box; de-select this check box in order to suppress the display of precincts reporting by race.

2.13.5. Installation

The installation of JResult Client machines should be performed by technically qualified staff of a jurisdiction only, according to the instructions provided by Diebold Election Systems. Details of JResult Client installation are provided in section 15.2.4 Installing JResult Client.

JResult Client machines should be configured in a secure manner if installed on a network. Ensure that the JResult Client configuration is fully tested before election day.

JResult Client PCs broadcasting results onto projection screens should be positioned so as to eliminate any image cropping that may occur. Furthermore, lighting should be adjusted so that the projection image is clearly visible from all audience access points.

The following installation scenarios are common:

2.13.5.1. Exclusive local area network

JResult Clients are installed on a local area network exclusive to the results display machines and the GEMS host computer. All machines are attended by authorized staff. All JResult Client machines read files served by the election host to a folder on its hard drive on a continuous basis. No other machines in the corporate environment have access to this network.

2.13.5.2. Corporate local area network

JResult Clients as well as the host computer are installed on the corporate network. The network should be customized to restrict access to the GEMS host to JResult Client machines only, and eliminate GEMS host and JResult Client access to remainder of network. All JResult Client machines read files served by the election host to a folder on its hard drive on a continuous basis.

2.13.5.3. Stand-alone host

GEMS host remains stand-alone, and JResult Client machines are configured on local area network; results files are manually copied from the GEMS host to principal JResult Client machine, from which all remaining JResult Clients draw results. Election results files served by the GEMS host are copied to diskette as they are refreshed, then copied to a folder on an adjacent JResult Client installed on the network, from which all other JResult Clients machines read results.

2.13.6. JResult Client verification

The verification of JResult Client operation should occur as test results are being fed from every ballot counting and tallying device configured for the election, including AccuVote-OS, AccuVote-TS and Central Count. The following verification activities are recommended:
• JResult Client may be activated on all machines
• JResult Client machines successfully detect the results location
• results as issued by Results Server are reflected in JResult Client displays
• precincts reporting are correct
• live results reconcile with print reports
• pie charts appear
• all races and candidates appear in correct order
• refresh rates are as specified
• registered write-in candidates appear on reports
• scrolling options are as defined
• refresh options are as specified

2.13.7. Using JResult Client

Click on GEMS in the menu bar, and Results Server in the drop-down menu. See Figure 2-311.

![Figure 2-311: Activating Results Server](image)

In Results Server, click on the Start button in order to begin serving results files. Note that the Start and Refresh buttons are temporarily disabled as the Result Server creates the results files. The Start button reappears as Stop, indicating Results Server is live. See Figure 2-312.
Figure 2-312: Starting the Results Server

On election night Result Server should be minimized as it extracts data from the GEMS database and places it in the destination folder for JResult Client to extract and use.

Launch JResult Client from the JResult Client shortcut on the desktop of every JResult Client in order to activate the Open Result Set dialog box. A window appears for the jview.exe application, which is automatically minimized and should be ignored.

Enter the path to the results files in the Address field. Enter the EID value in the default address, or enter an alternative address as necessary. If you are running JResult Client from a Web Server the address should be defined as a web location, prefixed with http:. See Figure 2-313.

Figure 2-313: Entering the election Id in Open Result Set

Click on the Refresh button in order for all monitor scripts defined in the election to appear in the Open Result Set dialog box. Highlight the monitor script desired and click on Ok. The JResult Client window now appears with live results. See Figure 2-314.
In order to terminate JResult Client, click on File in the menu bar, then Exit in the drop-down menu. Perform this activity on all JResult Client machines.

Click on the Stop button on the Results Server console on the GEMS host computer, then click on Close. See Figure 2-315.
2.14. Pre-Election Logic and Accuracy Test

This section provides a suggested template for the Logic and Accuracy Test (L & A Test) using both the AccuVote-OS and AccuVote-TS. Logic and Accuracy Test information is separated by voting device; if both AccuVote-OS and AccuVote-TS units are used in an election, the Logic and Accuracy Test procedures corresponding to the AccuVote-OS and AccuVote-TS should be integrated as required.

This document may be used as a template for both the pre-election as well as the post-election Logic and Accuracy Test.

2.14.1. AccuVote-OS

2.14.1.1. Designing the Logic and Accuracy Test

The Logic and Accuracy Test using the AccuVote-OS should include all language instances of all cards in the election, and should be performed on a representative subset of AccuVote-OS units, as well as for one or more vote centers in each vote center category.

The design of the Logic and Accuracy Test performed using the AccuVote-OS should be based on the following considerations:

- the number of AccuVote-OS units used in the election
- counter groups defined (ie. polling, absentee)
- vote centers
- report precincts
- ballots
- ballot marking scheme
- straight party voting rules
- write-in voting
- use of multiple AccuVote-OS languages
- other special voting considerations
- a manual tally equivalent of the Logic and Accuracy Test deck against which AccuVote-OS results may be proofed

2.14.1.2. Logic and Accuracy Test components

Assemble the supplies necessary for performing the Logic and Accuracy Test using the AccuVote-OS:

- AccuVote-OS units
- ballots
- GEMS host computer
- download/upload configuration equipment
- memory cards
- manual tally materials

2.14.1.3. Performing the Logic and Accuracy Test

The suggested Logic and Accuracy Test using the AccuVote-OS is as follows:
1. Review the Logic and Accuracy Test design criteria listed in section 2.14.1.1 Designing the Logic and Accuracy Test.

2. Determine the AccuVote-OS units to be used.

3. Select representative AccuVote-OS vote centers within every counter group.

4. Assign vote centers to AccuVote-OS units.

5. Determine all language instances of all cards that are to be used for each vote center.

6. Determine ballot marking scheme. A complete set of ballots should be marked for every AccuVote-OS language.

7. Include ballots with write-in and straight party selections into selected test decks.

8. Include ballots with overvotes, blank votes, undervotes into selected test decks.

9. Include ballots with any other appropriate special voting options into selected test decks.

10. Mark and assemble test decks.


12. Assemble Logic and Accuracy Test components as listed in section 2.14.1.2 Logic and Accuracy Test components.

13. Install AccuVote-OS units and power on.

14. Connect one AccuVote-OS to GEMS host computer.

15. Make a copy of a GEMS database titled ‘L&A Test’.


17. Reset election results in the GEMS database ‘L&A Test’.

18. Program all memory cards.

19. Set memory cards to Election Mode.

20. Install programmed memory cards into corresponding AccuVote-OS units.

21. Print Zero Total reports for each AccuVote-OS.

22. Print zero Election Summary report on ‘L&A Test’ database in GEMS.

23. Verify that all reports are zero.

24. Feed L&A decks into each AccuVote-OS/memory card combination.

25. Electronically lock and print the Election Results report for each AccuVote-OS/memory card combination.

26. Assemble all memory cards for upload.

27. Upload memory cards to GEMS host computer.

28. Print the Election Summary report in GEMS and reconcile results with AccuVote-OS Election Results reports.

29. Print the Statement of Votes Cast report in GEMS and reconcile results with AccuVote-OS Election Results reports, if results are necessary by precinct.

30. Reconcile GEMS and AccuVote-OS election results reports with manual tallies.
2.14.2. AccuVote-TS

2.14.2.1. Designing the Logic and Accuracy Test

The Logic and Accuracy Test should include all ballots in the election, and should be performed on a representative subset of AccuVote-TS units, as well as one or more vote centers in each vote center category.

The design of the Logic and Accuracy Test performed using the AccuVote-TS should be based on the following considerations:

- the number of AccuVote-TS units used in the election
- voter card programming technology
- counter groups defined (ie. polling, early voting)
- vote centers
- one vote center with multiple machines
- report precincts
- ballots
- ballot marking scheme
- AccuVote-TS L & A testing features
- straight party voting rules
- write-in voting
- use of multiple AccuVote-TS languages
- audio voting requirements
- a manual tally equivalent of the Logic and Accuracy Test deck against which AccuVote-TS results may be proofed

2.14.2.2. Logic and Accuracy Test components

Assemble the supplies necessary for performing the Logic and Accuracy Test:

- AccuVote-TS units
- numeric keypad and headphones if audio ballots are to be voted
- GEMS host computer
- download/upload configuration equipment
- memory cards
- Supervisor card
- VCProgrammer, if necessary
- Voter Card Encoder, if necessary
- voter access cards
- manual tally materials
2.14.2.3. **Performing the Logic and Accuracy Test**

The suggested Logic and Accuracy Test is as follows:

1. Design the Logic and Accuracy Test according to the criteria listed in section 2.14.2.1 *Designing the Logic and Accuracy Test*.
2. Determine the AccuVote-TS units to be used.
3. Configure AccuVote-TS units for audio voting.
4. Select representative AccuVote-TS vote centers within every counter group.
5. Assign vote centers to AccuVote-TS units.
6. Determine the ballots that are to be voted visually as well as audio for each vote center.
7. Determine ballot marking scheme for each vote center.
8. Build manual tally based on ballot marking scheme.
9. Designate one vote center with multiple AccuVote-TS units.
10. Assemble Logic and Accuracy Test components as listed in section 2.14.2.2 *Logic and Accuracy Test components*.
11. Install voter access card programming equipment.
12. Install AccuVote-TS units and power on.
13. Connect one AccuVote-TS to GEMS host computer.
15. Set GEMS database ‘L&A Test’ to ‘Set for Election’.
17. Program all memory cards.
18. Set memory cards to Election Mode.
19. Program voter access cards.
20. Insert programmed memory cards into each AccuVote-TS unit.
21. Print Zero Total reports for each AccuVote-TS.
22. Print zero Election Summary report on ‘L&A Test’ database in GEMS.
23. Verify that all reports are zero.
24. Observers vote on each AccuVote-TS unit using designated ballot marking scheme and pre-programmed voter cards.
26. Perform Automatic L&A Test on every AccuVote-TS as necessary.
27. Print Election Totals report on each AccuVote-TS.
28. Reconcile manual tally with AccuVote-TS Election Total reports.
29. Assemble all memory cards for accumulation that correspond to the multiple unit vote center.
30. Accumulate memory cards to Accumulator AccuVote-TS.
31. Print Accumulated Total report and reconcile with the Test Total reports of the individual memory cards.
32. Assemble all memory cards for upload.
33. Upload memory cards to GEMS host computer.

34. Print the Election Summary report in GEMS and reconcile results with AccuVote-TS Test Total reports.

35. Print the Statement of Votes Cast report in GEMS and reconcile results with AccuVote-TS Test Total reports, if results are necessary by precinct.
3. Conducting the Election

This chapter focuses on the process of conducting the election, and includes the following steps:

- Administering Early and Absentee Voting
- Receiving Election Results
- Importing Results
- Election Results Reporting
- JResult Client
- Write-Ins
- Ballot Auditing
- Manual Entry
- Exporting Election Results

At the close of the election, the election database should be backed up and the GEMS host computer shut down.

3.1. Administering Early and Absentee Voting

The administration of early voting and absentee ballots is described in this section. Common procedures in the administration of absentee and early voting are presented; there are many variants on these procedures, so that common issues to all jurisdictions are included. For example, a jurisdiction may count both absentee and early voting ballots by AccuVote-OS, or absentee ballots by AccuVote-OS and early voting ballots by AccuVote-TS.

If an election does not include early voting, ignore the information concerning early voting, and likewise, if an election does not include absentee voting, ignore the information concerning absentee voting.

3.1.1. Procedures

It is imperative that absentee and early voting proceed according to comprehensive written procedures, and that contingency procedures be in place for every activity planned in the election.

3.1.1.1. Absentee procedures

Written procedures for absentee processing should be composed and include the following issues:

- the organization of paper absentee ballots received from the printer
- mailing absentee ballots to voters
- managing absentee ballots as they are received from voters
- organizing absentee ballots according to counting requirements
- ballot duplication procedures
- the organization of ballot counting equipment
- programming of absentee memory cards
- absentee voting component of L & A Test
- assembly of ballot counting equipment
• absentee processing staff training
• absentee ballot count opening
• absentee ballot processing, including troubleshooting
• creating backups of memory cards as necessary
• closing absentee ballot processing
• consolidating and reporting absentee results and memory cards
• archiving processed ballots

3.1.1.2. Early voting procedures

AccuVote-OS
Written procedures for AccuVote-OS-based early voting ballot processing should include the following:
• the organization of early voting ballots received from the printer
• distribution of early voting ballots to early voting sites
• organization of ballot counting equipment
• programming early voting memory cards
• early voting component of L & A Test
• issuing early voting ballots to voters
• processing early voting ballots
• the organization of ballot counting equipment
• early voting pollworker training
• early voting opening procedures
• on-site troubleshooting
• closing early voting processing
• consolidating and reporting early voting results
• archiving early voting ballots and memory cards

AccuVote-TS
Written procedures for AccuVote-TS-based early voting ballot processing should include the following:
• programming of early voting memory cards
• early voting component of L & A Test
• organization of ballot counting equipment
• organization of voter card programming equipment
• distributing voting equipment to early voting polling locations
• programming voter cards
• early voting pollworker training
• early voting opening procedures
• on-site troubleshooting
• closing early voting processing
• consolidating and reporting early voting results
• archiving early voting memory cards

3.1.2. Configuring vote centers

One or more vote centers are commonly defined for both absentee and early voting. These vote centers may be defined within their own vote center categories, depending on the election architecture.

In the Vote Center Editor the count methods and number of cards for each vote center must be defined correctly. See Figures 3-1 and 3-2.

![Figure 3-1. Vote Center Editor defined with 2 memory cards and AccuVote-OS](image)

![Figure 3-2. Vote Center Editor defined with 4 memory cards and AccuVote-TS](image)
3.1.3. Programming memory cards

AccuVote-OS memory cards are programmed by means of the AccuVote-OS Server-v1 console in GEMS. Absentee and early voting vote centers are selected under the Vote Centers tab and queued, ports are activated and downloading begins to one or more AccuVote-OS units connected directly or by modem to the GEMS host computer. See Figure 3-3.

![Figure 3-3. AccuVote-OS Server-v1](image)

AccuVote-TS memory cards are programmed by means of the AccuVote-TS Server-v2 console. See Figure 3-4.

![Figure 3-4. AccuVote-TS Server-v2](image)

Only one of the AccuVote server consoles may be running at one time.

A Logic and Accuracy Test must be performed on all AccuVote-OS and AccuVote-TS units, with memory cards, before voting is to begin.
3.1.4. Processing ballots

It is essential that absentee and early voting ballots only be counted, but not tallied prior to election close.

3.1.4.1. Absentee

Procedures for processing absentee ballots must be performed in conjunction with the written instructions outlined in section 3.1.1.1 Absentee procedures. Absentee ballots must be mailed out to absentee voters a designated time period prior to election day. This time period is usually stipulated by law.

Organization of ballots

Absentee ballots should be organized according to processing requirements before absentee processing begins. For example, if absentee ballots are to be assigned to the AccuVote-OS by precinct or precinct range, ballots should then be organized accordingly beforehand. Any pre-processing requirements must be organized prior to processing the ballots.

Processing

Absentee ballot processing may begin either prior to election day, the morning of election day or election close, depending on state legislation. Processing may continue as long as permitted; ideally, processing is completed as rapidly as possible. The more AccuVote-OS units and staff that are available for processing ballots, the more rapidly absentee ballot processing will be completed.

Ballots that can not be processed by the AccuVote-OS due to specifications conflicts (i.e. erroneous marks in control mark area, improper voting marks, etc.) must be counted according to an alternative process, as approved by local legislation. Sufficient staff should be scheduled for this process to be implemented efficiently and completed in a timely manner.

Central count

Absentee ballots are organized into batches in order to be scanned using GEMS Central count. Central count is especially useful where large numbers of precincts and ballot styles are returned (as is the case in at Vote By Mail election) by voters. Batches may be separated into lots of 1000 ballots before processing. GEMS assigns each of these batches a deck number; each of these batches should be archived separately with the central count deck number. The central count client should be monitored in order to ensure that no tallying takes place prior to election close.

Once the election has closed, election results reports may be printed.

AccuVote-OS stand-alone

In a non-central count environment, AccuVote-OS units installed with memory cards with live election results must be powered off without feeding AccuVote Ender cards before election close, in order to avoid the possibility of reporting election results before election close.

Once the election has closed, all absentee memory cards are assembled and electronically locked with an AccuVote Ender card in order to automatically generate election results reports. Memory cards are uploaded either by direct connection or by modem if the absentee counting site is remote from election central.

Ensure that any absentee memory cards programmed but not used in the election are uploaded in order to ensure that precincts reporting counters appear as expected.

3.1.4.2. Early voting

Procedures for processing early voting ballots must be performed in conjunction with the written instructions outlined in section 3.1.1.2 Early voting procedures.

Voters attend early voting polls an amount of time prior to election day as designated by state legislation.

Ballots are voted and counted at the early voting polls. AccuVote-OS ballots are issued to voters and reconciled on a daily basis. AccuVote-TS ballots are reconciled on a daily basis by maintaining a running
total of early voting voters and comparing that number daily with the Election total displayed on the  
AccuVote-TS units.

If an error occurs in either the reconciliation of the optical scan ballots or the TS units it must be  
documented and validated. Quality voter education and pollworker training will minimize difficulties in the  
voting process. For example, AccuVote-OS memory cards may be programmed so as to reject overvoted  
and blank voted ballots, which should be returned to voters with appropriate explanations. The  
AccuVote-TS does not allow overvote, and provides voters with the opportunity to review ballots before  
they are cast.

At the end of each early voting day, AccuVote-OS and AccuVote-TS units are powered off but not  
electronically locked. At the end of election day, the election is electronically closed on each of the voting  
deVICES. Memory cards are consolidated to the GEMS host computer.

3.1.5. Reporting

Absentee and early voting election results reports are printed both on voting devices as well as in GEMS.  
In GEMS, absentee and early voting results may be reported separately from total election results by  
selecting the desired counter group only when either printing the Election Summary or Statement of Votes  
Cast report, or defining monitor script properties for JResult Client.

3.2. Receiving Election Results

This section describes the uploading of election results from both the AccuVote-OS and AccuVote-TS  
units.

AccuVote-TS results should be transmitted to the GEMS host computer either before or after AccuVote-OS  
transmission, but not before. Absentee, early voting and any other non-polling results uploading  
should be scheduled so as to not collide with the uploading of polling results. For example, these results  
may be uploaded immediately after election close, before polling results are expected.

For more information on receiving election results, refer to section 2.8 AccuVote Servers.

3.2.1. Receive Election Results – AccuVote-OS units

After the modems are powered on, activate the AccuVote-OS Server-v1 console by clicking on the  
AccuVote-OS Server-v1 icon. See Figure 3-5.

![Figure 3-5. Activating AccuVote-OS Server-v1](image)

The AccuVote-OS Server-v1 window will now appear, set by default to the Ports tab. This view of the  
window manages the modems and communications (COM) ports.

To activate ports for uploading, select the appropriate port(s) and click on the Start button. Ensure that all  
modems connected to active ports are powered on and properly configured. The port icon for each COM  
port will turn from a red colored frowning face to a yellow neutral colored face. As AccuVote-OS units  
from the field dial the host computer modems, GEMS will automatically connect with the AccuVote-OS’  
and receive the data. When GEMS makes a connection, the face icon on the COM port will turn from a  
yellow neutral face to a green smiling face. See Figure 3-6.

![Figure 3-6](image)

Modem equipment should be activated at the point of election close, and left active until all results upload  
transmissions have been completed. The AccuVote-OS Server-v1 console should also be left active until  
all results have been uploaded.
In the course of uploading results, the activity and status of ports and corresponding modems should be observed in the Ports tab. Ensure that all ports and modems remain active throughout the election.

The status of vote centers is verified under the Vote Centers tab; vote centers for which results have been uploaded are tagged with a green, upward pointing arrow to the left of the vote center label, and the upload time is displayed in the Time column. The total number of vote centers that have uploaded are displayed in the Upload field at the top of the Vote Center tab. Election Summary reports may be printed and results issued to JResult Client as election results are uploaded. Vote centers whose uploads are outstanding should be contacted by election central.

Once all AccuVote-OS vote centers have uploaded, select all active COM ports under the Ports tab and click on the Stop button, then click on the Close button in the AccuVote-OS Server-v1 console.

### 3.2.2. Receive Election Results – AccuVote-TS units

Click on the AccuVote-TS Server-v2 icon in the icon bar in order to activate the AccuVote-TS Server-v2 console, and click on the Start button under the Ports tab. The console will automatically receive the results of all AccuVote-TS units issuing results to the host computer’s IP address. Since AccuVote-TS transmission occurs with the TCP/IP protocol and units transmitting results automatically detect the network address of the GEMS host computer, it is not necessary to activate ports, as is the case with the AccuVote-OS Server-v1 console.

Three tabs are visible on the AccuVote-TS Server-v2 console – Ports, Vote Centers, and Log. See Figure 3-7.

The status of vote centers is verified under the Vote Centers tab; vote centers for which results have been uploaded are tagged with a green, upward pointing arrow to the left of the vote center label, and the upload time is displayed in the Time column. The total number of vote centers that have uploaded are displayed in the Upload field at the top of the Vote Center tab. Election Summary reports may be printed and results issued to JResult Client as election results are uploaded. Vote centers whose uploads are outstanding should be contacted by election central.

Once all AccuVote-TS vote centers have uploaded, click on the Close button in the AccuVote-TS Server-v2 console.
3.3. Importing Results

Election results may be incorporated from other tabulation systems (BRC and IMARK) using the results importing function, so that the imported totals are integrated into the election night report totals in GEMS. Both BRC and IMARK results importing follow similar procedures, so only BRC results importing is described below. IMARK results are imported as an MS Access database, while BRC results are imported in ASCII format.

Election results should be imported either before or after uploading results using the AccuVote Server consoles, but not at the same time. Results may only be imported after election close. The election database should be backed up both before as well as after results have been imported.

3.3.1. BRC Results Import

BRC results are imported from appropriately formatted ASCII results files at election close. In order to perform BRC results import, the election must be configured with a non-cumulative counter group in which BRC voting devices are to be used. The counter group is defined with a unique vote center category, which in turn is defined with a single vote center in a general election, or one vote center for each political party in case of a primary election. Each vote center is linked to all polling report precincts in the election.

BRC results may not be imported on a partial basis. All results must be imported in a single step into one vote center in a general election, and all results must be imported in a single step for each party in a primary election. One results file is imported in a general election, and one results file for each political party in a primary election.

For more information on configuring a database for BRC results importing, refer to section 2.4.5.2 BRC Results Import.

1. Click on Election in the menu bar, Import Results, then Import BRC Results in the cascading menu. See Figure 3-8.

   ![Figure 3-8. Activate BRC Results Import](image)

2. In the Import BRC Results window, click on the Select button to the right of ‘VCenter’. See Figure 3-9.
3. In the Select Vote Center window, click on the ‘All Vote Centers’ check box, select the vote center to which BRC results are to be tallied, then click on the OK button. See Figure 3-10.

4. Once the vote center to which results are to be tallied has been selected, the file from which BRC results are to be imported is selected. Click on the Select button to the right of ‘Import’ in the Import BRC Results window, as shown in Figure 3-11.

5. In the Open window, select the appropriate results file, then click on Open, as shown in Figure 3-12.
Figure 3-12. Select results file

6. Once both the vote center and results file have been selected, click on the Import button in order to process the results import, as shown in Figure 3-13.

Figure 3-13. Initiate results import

7. An Import Progress bar is displayed as the results import occurs, as shown in Figure 3-14.

Figure 3-14. Import Progress

8. Continue importing results files for each primary party in this manner, if the election is a primary. Once all results have been imported, click on Done, as shown in Figure 3-15.
9. Back up the database, and print a sample Election Summary report in order to verify that BRC results have been imported as expected.

3.4. Election results reporting

3.4.1. Before election close

Before election close, a jurisdiction wide Election Summary report is printed with zero totals in order to verify that the database does not contain any results before results are uploaded. Click on GEMS in the menu bar, Election Summary report in the drop-down menu, type ‘Zero Total Report’ in the Report field in the Election Summary Report window, then click on the Print button in order to print the report.

3.4.2. During election close

About 20 minutes or so after results are uploaded from the first vote center, a Jurisdiction Wide Election Summary report should be printed. The Election Summary report may be printed every 20 minutes following the initial printing, depending on how quickly vote centers upload results, the number of vote centers uploading as well as the jurisdiction’s reporting requirements.

HTML-based Election Summary reports should also be printed every 20 minutes, or as necessary, in order to provide reasonably current election results to the jurisdiction’s web site.

Once the majority of vote centers have uploaded results, print an AccuVote-OS Status report in order to determine the AccuVote-OS vote centers that have not yet reported. Likewise, the AccuVote-TS Status Report should be printed in order to determine the AccuVote-TS vote centers that have not yet reported results.

The Statement of Votes Cast report provides comprehensive election results by race and report precinct. Due to the potential report size, this report should be printed at the conclusion of the election only.

The Cards Cast Report is used to determine the numbers of cards cast by voter group, counter group and report precinct, and may be printed at the end of the election.

The following table suggests the type and frequency of reports to be issued by GEMS.
### 3.4.3. Following election close

Before final election results reports are printed, ensure that all absentee, early voting and any other non-polling vote centers have uploaded results, as well as any blank memory cards that were programmed but not used for counting. Ensure that all write-in candidates have been entered, challenged ballots processed and any outstanding manual entry tasks performed.

A final Jurisdiction Wide Election Summary report is printed with the election’s unofficial final results. A copy of the report is also printed in HTML format for the Internet. The AccuVote-OS and AccuVote-TS Status reports are printed as proof that all vote centers have uploaded results.

The Statement of Votes Cast report is printed after all other reports are printed. AccuVote-OS and AccuVote-TS election results reports are reconciled against this report as one of the election’s final audit activities.

For more information on printing election results reports, refer to section 2.12 Election Results Reporting.

### 3.5. JResult Client

Before activating JResult Client, ensure that election results have been set to zero and the zero Election Summary report has been printed. It is critical that JResult Client not appear live at election close with test results.

Click on GEMS in the menu bar, then Result Server in the drop-down menu in order to activate the Results Server console. In the Result Server console, click on the Browse button in order to specify the folder in which JResult Client results scripts are placed. Define a results refresh time in the Update Every field as necessary. Click on the Start button.

Activate Windows NT Explorer and verify that the Script.lst file and one file for every monitor script have been created in the results destination folder. Optionally, size the Windows NT Explorer window so that only the folder with the election results files and update times are displayed.

Organize the GEMS host display with all windows placed next to each other in a clear and visible manner. In this manner, the GEMS window, either AccuVote Server console, Results Server and Windows NT Explorer are visible simultaneously.

Every JResult Client should be activated and inspected by attendants. All units should display zero results when activated. Once results uploads are received, verify that results are properly refreshed on the JResult Client units, and that results are displayed with the expected display options. Optionally, verify refresh times of results files in Windows NT Explorer.
JResult Client units should remain active until the election has closed, and public and viewing officials are no longer present.

In order to close JResult Client, click on File, then Exit in the drop-down menu in every JResult Client unit. In GEMS, click on Stop in Results Server, then click on Close in order to close the console.

For more information on JResult Client, refer to section 2.13 JResult Client.

3.6. Write-Ins

In many elections, voters are allowed to select a candidate that does not appear on the ballot. The number of write-in choices available in a race usually corresponds to the number to vote for.

Commonly, write-in candidates have not registered in time for the candidate filing deadline, and therefore register with the jurisdiction as registered write-in candidates. Ballots with registered write-in selections must be isolated from write-in ballots, and then organized in order for the tallies to be manually entered into GEMS.

3.6.1. Preparing ballots

3.6.1.1. AccuVote-OS

The voter physically writes name of the candidate into the space provided on AccuVote-OS ballots, as well as filling in the oval next to the write-in candidate. If the oval is not filled in, the write-in candidate is not counted.

The AccuVote-OS does not recognize the name of the candidate written into the blank space provided, however, a total tally of write-in selections for each race will be provided. Write-in candidate selections are tallied subject to the write-in tally rule defined under the Tally Settings tab in the AccuVote-OS Options window in GEMS. Write-in tally rules differ only in case of a potential overvote, and therefore are not applicable to the AccuVote-TS.

If AccuVote-OS memory cards are not programmed to separate write-in ballots in the ballot box, pollworkers must manually review each ballot and separate any ballot with a write-in selection. If AccuVote-OS memory cards are programmed to separate write-in ballots, pollworkers need only remove these ballots from the alternate compartment at the polls.

Tallying write-ins

Ballots with registered write-in selections must first be culled from all write-in ballots, then manually tallied by region, count method, vote center, machine Id, report precinct and counter group.

At any particular polling location, all ballots counted should belong to the same region, all ballots will have count method AccuVote-OS, and all ballots the same vote center. If one AccuVote-OS unit is present at the vote center, the machine Id will be the same for all ballots, otherwise, write-in candidates must be recorded by machine number. Write-ins must be tallied by the report precinct number, determined either from the ballot report precinct identifier or report precinct implied by the ballot sequence number. Lastly, if the vote center category is of a single counter group, all ballots at the polling location should be of the same counter group, otherwise, write-in tallies must also be separated by counter group.

Write-in tallying should be performed at election central, possibly after election close, due to its time-consuming nature. All final write-in tallies must be organized as required in order for write-in results to be properly inputted into GEMS.

3.6.1.2. AccuVote-TS

Touching the voting area next to a write-in candidate space on the AccuVote-TS automatically activates a write-in panel with an electronic keyboard. Using the keyboard provided, the voter enters the name of the write-in candidate. AccuVote-TS Election Total and Accumulated Total reports optionally included write-in candidates.
Reports

Once election results have been uploaded, the AccuVote-TS Write-In Race Summary Report, the AccuVote-TS Write-In Report and the AccuVote-TS Write-In Summary Report all include AccuVote-TS write-in candidate names. Election results reports do not include write-in candidate tallies, which must first be extracted from the AccuVote-TS write-in reports and then manually entered into GEMS.

The AccuVote-TS Write-In Race Summary Report displays all AccuVote-TS write-ins and tallies by race. The AccuVote-TS Write-In Report displays all write-in candidates with the serial number of the ballot they appear on, by race, with vote center Id and label, machine number, report precinct Id and label as well as counter group Id and label. The AccuVote-TS Write-In Summary report lists all write-in candidates by ballot serial number, with the total number of write-ins for each ballot, with vote center, report precinct, counter group and race labels for each write-in.

Tallying write-ins

Print the AccuVote-TS Write-In Summary Report and cross out every write-in that does not correspond to a registered write-in candidate. Organize and total registered write-in selections by region, count method, vote center, machine Id, report precinct and counter group combination. If regions are used in the election, determine the region corresponding to every vote center, using any of GEMS vote center-based reports, matching every ballot’s vote center with the vote center’s region. The count method will always be AccuVote-TS in case of AccuVote-TS-based reports.

3.6.2. Adding registered write-ins

Write-in candidates must be defined to the GEMS database in order to be able to appear on GEMS election results reports. Registered write-in candidates are usually defined once the list of valid registered write-ins is known in the jurisdiction. Registered write-in candidates may be added to the GEMS database with any election status set. For example, registered write-in candidates may be added when the election status is ‘Set for Election’.

Expand Race in the tree view, right-click upon the race for which the registered write-in candidate is to be added, and click on Edit Race in the pop-up menu. Click on the Candidates tab in the Race Editor, then click on the New button.

The candidate Type is automatically set to Registered Write-In if any election status is set. Enter the name of the candidate in the Label field and the Export value for the registered write-in candidate, if required. It is not necessary to define ballot text for the registered write-in candidate, since the candidate will not appear on the ballot. See Figure 3-16.

Continue adding registered write-in candidates in this manner, and click on the OK button in the Race Editor when you have completed. Continue adding registered write-in candidates to races until all registered write-in candidates have been defined.

Print a Jurisdiction Wide test Election Summary report in order to verify that registered write-in candidates are on file. See Figure 3-17.
### Conducting the Election

**Figure 3-16. Adding registered write-in candidate in Race Editor**

**Figure 3-17. Election Summary report with registered write-in candidate**

---

**Race Editor**

<table>
<thead>
<tr>
<th>Label</th>
<th>Id</th>
<th>Type</th>
<th>Label</th>
<th>Art Seq</th>
<th>Report Seq</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRIAN M REES (NATUR...)</td>
<td>11</td>
<td>Registered Write-in</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GAIL K LIGHTFOOT (LIB...)</td>
<td>21</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JOSE L JOE CAMAHORT</td>
<td>31</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOM CAMPBELL (REPUB...)</td>
<td>41</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEDEA S BENJAMIN (G...)</td>
<td>51</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIANE BEALL TEMPLIN (...)</td>
<td>61</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIANNE FEINSTEIN (...</td>
<td>71</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Write-in ({N.P.})</td>
<td>80</td>
<td>Write-in</td>
<td>William Smith</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>William Smith ({N.P.})</td>
<td>90</td>
<td>Write-in</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Election Summary report with registered write-in candidate**

<table>
<thead>
<tr>
<th>UNITED STATES SENATOR</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Precincts</td>
<td>37</td>
</tr>
<tr>
<td>Precincts Reporting</td>
<td>0</td>
</tr>
<tr>
<td>Times Counted</td>
<td>0/13539</td>
</tr>
<tr>
<td>Total Votes</td>
<td>0</td>
</tr>
</tbody>
</table>

| BRIAN M REES             | NL    | 0 | N/A |
| GAIL K LIGHTFOOT         | LIB   | 0 | N/A |
| JOSE L JOE CAMAHORT      | RFM   | 0 | N/A |
| TOM CAMPBELL             | REP   | 0 | N/A |
| MEDEA S BENJAMIN         | GRN   | 0 | N/A |
| DIANE BEALL TEMPLIN      | AI    | 0 | N/A |
| DIANNE FEINSTEIN         | DEM   | 0 | N/A |
| William Smith            |       | 0 | N/A |
| Write-in Votes           |       | 0 | N/A |
3.6.3. Manually entering write-in results

Once AccuVote-OS and AccuVote-TS write-in candidates have been tallied as required and registered write-in candidates defined, write-in tallies should be manually entered into the GEMS database. Once all results have been entered, an Election Summary report should be printed in order to verify that results have been properly entered, and the GEMS database backed up. The registered write-in candidate tally is added for the registered write-in candidate, but must also be deducted from the write-in total.

For more information on manual entry, refer to section 3.8 Manual Entry.

3.7. Ballot Auditing

The View Ballots and Challenged Board features are used for the auditing AccuVote-TS ballots. These features are used once AccuVote-TS election results have been uploaded to GEMS. View Ballots allows every ballot to be viewed within any AccuVote-TS vote center and machine Id combination in the election, and Challenged Board allows challenged ballots to be reviewed and accepted by vote center and machine Id.

3.7.1. View Ballots

3.7.1.1. Concepts

View Ballots displays all AccuVote-TS vote center/machine Id (memory card) combinations with ballot counts in the upper panel, with detail ballot listing in the lower panel. All ballots corresponding to the memory card selected in the upper panel are displayed in the lower panel. Each ballot is displayed with its report precinct Id, report precinct label, ballot number, ballot serial number, and Challenged code (C if ballot is challenged or provisional; blank otherwise).

Any voted ballot may be viewed in the lower window by clicking on the ballot, then clicking on the View button. In order to print the ballot, click on the Print button. The voted ballot is then displayed in the Ballot Editor with no update functionality, with candidate selections represented by filled voting ovals, and write-ins selections displayed in write-in lines where appropriate.

In order to print all ballots in a vote center/machine Id combination, select the vote center/Id combination and click on the Print button. Note that individual ballot faces may also be printed from within the Ballot Editor.

3.7.1.2. Using View Ballots

In order to activate View Ballots, select GEMS in the menu bar, then View Ballots in the drop-down menu. See Figures 3-18 and 3-19.
Figure 3-18. Activate View Ballots
Select a vote center/machine Id combination in the upper panel, then select a ballot in the lower panel. Click on the View button to view the ballot, otherwise, click on the Print button to print the ballot. See Figure 3-20.
Conducting the Election

Figure 3-20. Viewing ballot in Ballot Editor

Once ballot viewing and printing has been completed, close the View Ballots window.

3.7.2. Challenge Board

3.7.2.1. Overview

Ballots of voters whose eligibility to vote has been challenged are processed separately, and the results of these ballots are not incorporated into election results reports until they have been accepted, either on the AccuVote-TS or in GEMS. The challenged voter is assigned a voter card that permits the voter to vote but does not incorporate results into the AccuVote-TS Election Total reports. At election close, the Challenge Board reviews all challenged ballots and determines the challenged ballots that are to be accepted and those that are rejected. Challenged ballots are then logged in the GEMS Challenge Board as reviewed and accepted, where applicable.

An election in which Challenged or Provisional ballots are counted must be configured with a Challenged counter group, as described in section 2.4.5.1 Challenged counter group. Challenged results are then tallied to the Challenged counter group.

3.7.2.2. Processing challenged ballots

Select GEMS in the menu bar, then Challenge Board in the drop-down menu in order to activate the Challenge Board. See Figures 3-21 and 3-22.
Prior to reviewing ballots, select the Challenge vote center that results are to be posted to. Click on the Select button, select the Challenge vote center and click on OK. See Figure 3-23.
3.8. Manual Entry

3.8.1. Concepts

Election results that have not been uploaded to the host computer as well as write-in tallies may be manually entered in GEMS. Manual entry is performed once all election results have been uploaded, and all write-in results have been manually tallied.

Note that it is not possible to perform manual entry for vote centers with Count Method Central Count. An Audit Log entry is generated for every manual entry transaction.

3.8.1.1. Organization

Election results that are to be manually entered must first be organized by region, count method, vote center, machine Id, report precinct and counter group. If the entire election is conducted in a single region, then the region qualifier is not applicable. If manual results are to be entered for single counter group vote center categories only, then the counter group is not applicable.
3.8.1.2. Procedure

Election results may be manually entered either by report precinct or vote center. In order to manually enter results by report precinct, the user must first select a valid region, count method, vote center, machine Id and counter group combination that the report precinct occurs in. In order to manually enter results in a vote center, the user must first select a valid machine Id, report precinct and counter group combination that the vote center occurs in.

Whether results are to be manually entered by report precinct or vote center should be determined before manual results are organized, as either method requires a unique organization for efficient entry. If only one combination is present in the report precinct or vote center, no combination needs to be selected, and the user may proceed directly to manually entering election results.

Once a combination has been selected, control is passed to the manual entry window. The manual entry window is titled with the count method, the report precinct, the vote center, the machine Id and the counter group, and is organized under two tabs, Cards and Race. The total cards cast for each card in the report precinct or vote center combination is entered under the Cards tab. Candidate totals are then entered under the Races tab.

3.8.1.3. Entering results

In order to enter candidate totals, a race is selected from the Title column, and totals are then entered for every candidate in the Counter list. Each race is selected and candidates entered in this manner until all candidate totals have been defined for the combination. Races may either be selected from the Title column, or Next and Prev buttons used to advance or move back in the race list.

3.8.1.4. Statistics

In addition to entering candidate amounts, the times counted, times blank voted, times overvoted and times undervoted must be entered for each race. The times overvoted will always be zero for races counted on AccuVote-TS units, and the times undervoted will always be zero for vote for one races.

Races with number to vote for greater than one should balance as follows. The times counted less the times blank voted and less the times overvoted should be equal to the sum of undervotes and all candidate totals, divided by the number to vote for.

3.8.1.5. Reconciliation

GEMS requires that all candidate totals balance with the times counted and race statistics for every race. Current candidate totals are displayed next to the Total field under the Race tab. The difference between the number of candidates expected, as determined by the times counted combined with race statistics, and the sum of candidate totals actually entered, is displayed next to the Check field. Note that reconciliation is not performed for weighted races.

Any race with candidate totals that do not balance with the times counted and race statistics is grayed out in the race list, and cause the OK button to be disabled. It is only possible to save manually entered results if the times counted combined with race statistics balance with candidate totals for all races in the combination.

Note that GEMS does not reconcile cards cast amounts with the times counted for each race. However, the cards cast value entered under the Cards tab may be used as a race’s Times Counted value if the ‘Use cards cast for race times counted’ flag is selected under the Cards tab. Each race is automatically assigned the sum of cards cast values of all cards on which the race occurs in the vote center or report precinct combination if this check box is selected.

Only the races that appear on the ballots in the combination selected are listed under the Races tab.

Once all results have been manually entered, the Election Summary should be printed for all manually tallied report precincts, and reconciliations performed between the report and the manual tally.
3.8.2. Manually entering election results

If results are to be manually entered by report precinct, expand the Default Precinct Category and Cumulative Report units report precinct categories under Report Precinct in the tree view; otherwise, if results are to be manually entered by vote center, expand all vote center categories in the tree view.

Right-click on either the report precinct or vote center for which results are to be manually entered and select Manual Entry in the pop-up menu. See Figures 3-24 and 3-25.

In the Dialog window that appears, select the combination for which election results are to be manually entered, and click on the OK button. See Figure 3-26.

![Figure 3-24: Default Precinct Category](image1)

![Figure 3-25: Activating manual entry](image2)
Conducting the Election

Under the Cards tab, enter the total number of cards cast for each ballot in the combination under the Cards tab. Select the ‘Use cards cast for race times counted’ check box if cards cast values are to be used for the race Times Counted values.

Click on the Race tab in order to enter candidate totals. Select each race and enter the corresponding candidate totals and race statistics under the Counter list. Observe the Total and Check values at the bottom of the window in order to verify that candidate totals and race statistics balance. See Figure 3-27.

Once all race results have been defined, click on the OK button in order to save results.

In order to manually enter results for another combination in the report precinct or vote center, manual entry must be re-activated in the same manner as before, but for a different combination.

Continue entering manual results for all report precincts and vote centers in the election as necessary.

Figure 3-26. Selecting a manual entry combination

Figure 3-27. Races tab in manual entry window
3.9. Exporting election results

Election results may be exported in GEMS to ASCII files using standard or customized formatting. In this manner, external applications may display and report election results generated by GEMS.

Pre-defined election results export formats include:

- Standard
- California
- Florida
- Minnesota
- South Carolina
- Wisconsin
- LA County
- DIMS
- BCWin

All export formats other than Standard pertain to specific jurisdictions only.

The GEMS entities that comprise the results export file may be identified with export Ids. Export Ids used for the Standard Export format may be updated at any time during the election management process. In the case of Standard, Minnesota, California and South Carolina Export formats, export Ids may also be defined at the point of exporting election results. Election results are exported once live results are loaded into the GEMS database, and exporting may take place while election results are being uploaded or central count is active.

3.9.1. Export Ids

3.9.1.1. Concepts

In order for fields to be identified in the exported card data and election results files, they may be tagged with export Ids. Export Ids may be defined for:

- regions
- languages
- voter groups
- counter groups
- districts
- report precincts
- base precincts
- races
- candidates
- headers
- vote centers
- vote center categories

Export Ids may be defined either in the Export Id Editor, or in the corresponding entity editors.
Export Ids should be defined with consistent and meaningful identifiers. These identifiers may be stipulated by local authorities. For example, an alphanumeric code representing the entity may precede the entity Id number, so that the export Id for race number 30 would be R30, and the export Id for vote center 100 VC100. Export Ids are alphanumeric.

### 3.9.1.2. Defining export Ids

This section describes the definition of export Ids in GEMS.

**Export Id Editor**

This section describes the definition of export Ids in GEMS using the Export Id Editor.

In order to access the Export Id Editor, select Election in the menu bar, Export Results in the drop down menu, then Edit Export in the cascading menu. See **Figure 3-28**.

![Figure 3-28. Activating the Export Id Editor](image)

The Export Id Editor is organized into the following tabs:

- Candidate
- Header
- Vote Center Category
- Vote Center
- Regions
- Language
- Voter Groups
- Counter Groups
- District
- Report Precincts
- Base Unit
- Race

Export Id definitions made in the Export Id Editor will be reflected in the respective entity editor, and vice versa. For example, if the export Id of a race is defined in the Export Id Editor, it will also appear in the Race Editor. If a race’s export Id is defined in the Race Editor, it will also appear for the race in the Export Id Editor. See **Figure 3-29**.
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**Figure 3-29. Export Id Editor**

<table>
<thead>
<tr>
<th>Candidate</th>
<th>Header</th>
<th>Vote Center Category</th>
<th>Vote Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>Candidate</td>
<td>Region</td>
<td>Language</td>
<td>Voter Groups</td>
</tr>
<tr>
<td>District</td>
<td>Report Precincts</td>
<td>Base Unit</td>
<td>Race</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Label</th>
<th>VGroup</th>
<th>ExportId</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
<td>PRECISION</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>UNITED STATES SENATOR</td>
</tr>
<tr>
<td>20</td>
<td></td>
<td>US REPRESENTATIVE</td>
</tr>
<tr>
<td>30</td>
<td></td>
<td>STATE SENATOR</td>
</tr>
<tr>
<td>40</td>
<td></td>
<td>MEMBER OF ST ASSEMBLY</td>
</tr>
<tr>
<td>50</td>
<td></td>
<td>BOARD OF ED-TA1 E2</td>
</tr>
<tr>
<td>65</td>
<td></td>
<td>BOARD OF ED-TA5</td>
</tr>
<tr>
<td>80</td>
<td></td>
<td>LASSEN COLLEGE-TA1</td>
</tr>
<tr>
<td>100</td>
<td></td>
<td>LASSEN COLLEGE-TA4</td>
</tr>
<tr>
<td>110</td>
<td></td>
<td>LASSEN COLLEGE-TA6</td>
</tr>
<tr>
<td>130</td>
<td></td>
<td>BIG VALLEY JT UNF-TA1</td>
</tr>
<tr>
<td>140</td>
<td></td>
<td>BIG VALLEY JT UNF-TA2</td>
</tr>
<tr>
<td>150</td>
<td></td>
<td>BIG VALLEY JT UNF-TA3</td>
</tr>
<tr>
<td>160</td>
<td></td>
<td>FT SAGE JT UNF-TA2 E2</td>
</tr>
<tr>
<td>170</td>
<td></td>
<td>LASSEN HIGHLAND T1 E2</td>
</tr>
</tbody>
</table>

### Candidate

Click on the Candidate tab in order to enter export Ids for candidates. Candidates are listed with candidate Id and export Id, by race. Enter export Ids in the ExportId column for the candidates listed in the corresponding Candidate column.

### Header

Click on the Header tab in order to enter export Ids for headers. Enter export Ids in the ExportId column for the headers listed in the corresponding Label column.

### Vote Center Category

Click on the Vote Center Category tab in order to enter export Ids for vote center categories. Enter export Ids in the ExportId column for the vote center category listed in the corresponding Label column.

### Vote Center

Click on the Vote Center tab in order to enter export Ids for vote centers. Vote centers are listed with export Ids and voter center categories, and are ordered by vote center category. Enter export Ids in the ExportId column for the voter centers listed in the corresponding Label column.

### Regions

Click on the Regions tab in order to enter export Ids for regions. Enter export Ids in the ExportId column for the regions listed in the corresponding Label column.

### Language

Click on the Language tab in order to enter export Ids for languages. Enter export Ids in the ExportId column for the languages listed in the corresponding Label column.
Voter Groups
Click on the Voter Groups tab in order to enter export Ids for voter groups. Enter export Ids in the ExportId column for the voter groups listed in the corresponding Label column.

Counter Groups
Click on the Counter Groups tab in order to enter export Ids for counter groups. Enter export Ids in the ExportId column for the counter groups listed in the corresponding Label column.

District
Click on the District tab in order to enter export Ids for districts. Enter export Ids in the ExportId column for the districts listed in the corresponding Label column.

Report precincts
Click on the Report Precincts tab in order to enter export Ids for report precincts. Enter export Ids in the ExportId column for the report precincts listed in the corresponding Label column.

Base Unit
Click on the Base Unit tab in order to enter export Ids for base precincts. Enter export Ids in the ExportId column for the base precincts listed in the corresponding Label column.

Race
Click on the Race tab in order to enter export Ids for races. Enter export Ids in the ExportId column for the races listed in the corresponding Label column.

Editors

Districts
In order to define export Ids for districts, expand all district categories within District in the tree view, as well as all districts within each district category. Double-click on each district, enter the export Id in the Export field, and click on the OK button. See Figure 3-30.

![Figure 3-30. Defining export Id in the District Editor](image)

Report precincts
In order to define export Ids for report precincts, expand Default Precinct Category within Report Precinct in the tree view. Double-click on each report precinct, enter an export Id in the Export field in the Report Precinct Editor and click on the OK button. In order to define the export Ids for cumulative report precincts, expand Cumulative Reportunits and perform the same activity with all cumulative report precincts. See Figure 3-31.
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Figure 3-31. Defining export Id in the Report Precinct Editor

Base precincts

In order to define export Ids for base precincts, expand Base Precinct in the tree view and for each base precinct, double-click on the base precinct in order to activate the Base Precinct Editor, enter the export Id in the Export field, and click on the OK button. See Figure 3-32.

Figure 3-32. Defining export Id in the Base Precinct Editor

Races and candidates

In order to define export Ids for races and candidates, expand Race in the tree view, double-click on each race and proceed as follows. Enter the race export Id in the Export field under the Race tab. Under the Candidates tab, select each candidate listed in the Label column and enter an export Id in the Export field. Once you have finished, click on the OK button. See Figures 3-33 and 3-34.
Headers

In order to define export IDs for headers, expand Header in the tree view, double-click on each header, and enter the export ID in the Export field in each header. See Figure 3-35.

Counter groups and vote center categories

In order to define export IDs for counter groups and vote center categories, click on Setup in the menu bar, then Counter Groups in the drop down menu. For every counter group defined in the Label column, enter an export ID in the Export field. Click on the Edit button in the Vote Center Category group box, enter an export ID in the VCenterCat window if it has not already been defined, and click on the OK button. When all counter group and vote center category export values have been defined, click on the OK button in the Counter Group Editor. See Figures 3-36 and 3-37.
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Figure 3-36. Defining counter group export Id in the Counter Group Editor

Vote center

In order to define export Ids for vote centers, expand all vote center categories within Vote Center in the tree view, and for each vote center, enter the vote center export Id into the Export field, and click on the OK button in order to save results. See Figure 3-38.

Regions

In order to define export Ids for regions, click on Setup in the menu bar, then Regions in the drop-down menu. In the Regions editor, select each region defined in the Label column and enter the export Id in the Export field. Once all region export Ids have been defined, click on the OK button in order to save results. See Figure 3-39.
In order to define export IDs for languages, click on Setup in the menu bar, then Language in the drop-down menu. In the Language editor, select each language defined in the Label column and enter the export ID in the Export field. Once all region export IDs have been defined, click on the OK button in order to save results. See Figure 3-40.

Voter groups

In order to define export IDs for voter groups, click on Setup in the menu bar, then Voter Groups in the drop down menu. In the Voter Group Editor, select every voter group defined under the Parties tab and enter the export ID in the Export field. Select each voter group defined under the Absentee/NonAbsentee tab and enter the export ID in the Export field. Click on the OK button once all voter group export IDs have been defined. See Figure 3-41.
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Figure 3-41. Defining export IDs in the Voter Group Editor

3.9.2. Standard export

3.9.2.1. Concepts

The Standard Export format may be either customized or used in its default configuration for exporting election results. The Standard Export format records are formatted according to the information provided in the section Standard Export format file composition and the fields used to compose the Standard format are described in the section Edit Standard Results Export Format fields.

The following activities are offering using the Standard Export format:

- exporting election results
- modifying the Standard Export format
- creating customized export formats based on the Standard Export format
- deleting customized export formats

Default Standard Export format

The default Standard Export format contains summary election results only, delimited with blanks, with quote strings encasing alphanumeric text. Results are exported for the default ‘All Races’ reporting set, with all candidate statistics and export fields selected.

The Standard Export format file contains the following records:

1. Two race statistics records, including the:
   a. number of precincts running in the election
   b. number of precincts reporting

2. For every race:
   a. number of precincts race is running in
   b. number of precincts in which race is reporting
   c. total number of registered voters in precincts in which race is running
   d. times race is counted
   e. total blank votes
   f. total overvotes
g. total undervotes  
  h. write-ins  
  i. candidate counts for every candidate in race

All available fields are included in each record in the default Standard Export format. The Standard Export format is updated or new export formats are created in the Edit Standard Results Export Formats window, accessible from the Standard Export Formats window activated for the Standard Export format.

**Standard Export format file composition**

Election results are exported in the Standard Export format in order of county Id, report precinct Id, race Id, race voter group 1 Id, race voter group 2 Id, candidate Id, candidate voter group, and counter group Id. The default fields included in the Standard export format appear in the following order. Only the fields that have been selected to be exported are included in the export file.

- County Id
- Report Precinct Id
- Report Precinct Label  
- Report Precinct Export Id
- Race Id
- Race Label
- Race Export Id
- Race Voter Group 1 Id
- Race Voter Group 1 Label
- Race Voter Group 1 Export Id
- Race Voter Group 2 Id
- Race Voter Group 2 Label
- Race Voter Group 2 Export Id
- Candidate Id
- Candidate Label
- Candidate Voter Group Id
- Candidate Voter Group Label
- Candidate Voter Group Export Id
- Counter Group Id
- Counter Group Label
- Counter Group Export Id
- Count

**Edit Standard Results Export Format fields**

*Label*

The export format name appears in the Label field (but does not appear in the results export file). The default label is ‘Standard Export’.
**County Code**

A code corresponding to the jurisdiction name is entered in the County Code field, and appears in the first column in every record in the export file. By default, this field is blank.

**Field Delimiter**

The Field Delimiter is by default set to blank and may be set to any other character or group of characters, which then appear between fields in the export file.

**Quote Strings**

Alphanumeric text is by default encapsulated in double quotes – de-selecting the Quote Strings check box will cause text fields to appear without quotes.

**Export Results For**

The check boxes in the Export Results For group box determine the reporting level and content in the export results file.

Election Summary: Summary election results are included if the Election Summary check box is selected.

Individual Precincts: Election results are included for every report precinct in the jurisdiction if the Individual Precincts check box is selected. Either one of the Election Summary or Individual Precincts check boxes must be selected, otherwise no results records will appear.

Precincts Counted: Only report precincts which have reported election results will be included in the export file if the Precincts Counted check box is selected. Only report precincts corresponding to vote centers marked as closed in the Vote Center Editor are reported if the Closed check box is selected, and only the results of these precincts are included in the summary records. If no precincts have been closed, the results file will be empty.

Counter Group Detail: Election results are exported by counter group if the Counter Group Detail check box is selected. This option is only meaningful if multiple counter groups are defined to the same vote center category. Results are included in a counter group summary record only if this check box is not selected, otherwise, counter group detail records are provided, followed by the counter group summary record. The counter group summary record contains 999999 in the counter group Id field, and ‘Total’ in the counter group label field.

Use Only Polling Counter For Precincts Reporting: The total number of polling report precincts only will be used for the number of precincts reporting if this check box is selected, otherwise, the total number of polling as well as cumulative report precincts will be used.

**Reporting set**

Election results are exported for the group of races defined in the reporting set selected in the Reporting Set drop-down list. The default reporting set selected is ‘All Races’. Reporting sets are created in the Reporting Sets window. For more information on reporting sets, refer to the section 2.3.11 Reporting Sets.

**Candidate options**

Export format records may be created for some combination of the following:

- candidate totals
- write-ins
- times counted
- times blank voted
- times overvoted
- number of undervotes by race
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- number of report precincts counted
- total number of report precincts
- registered voters by report precinct

Each candidate option selected creates an additional record for the race in the export results file, except for the precincts counted and closed records, which occur prior to any of the records for a report precinct.

Candidate option records are identified with special codes in the Candidate Id and Label fields. Times counted records are identified by 999999, times blank voted by 999998, times overvoted by 999997 and times undervoted by 999996.

The precinct statistic records occur at the beginning of each report precinct and are identified by 999999 in the Race Id field, 'Race Statistics' in the Race Label field and 999999 in the Candidate Id field in case of precincts counted and 999998 in case of precincts closed. The race export Id, voter group 1 and 2 fields, candidate voter group label, candidate export Id and counter group fields are not applicable.

Export Ids may be defined for each of the candidate options, and appear in the Candidate Export Id field in the export results file. The candidate totals records will use the candidate export Id defined in the Race Editor.

By default, all candidate options are selected.

**Fields**

The default Standard export format includes all of the fields listed in section *Standard Export format file composition*. The Standard results export file may be customized to include all or a subset of these fields. Fields may be issued either in numeric or alphanumeric format; alphanumeric text that contains non-numeric characters will not convert to numeric.

Each field is defined with a Width value, which by default is 0. A field exported with default width appears with no leading digits if it is numeric, and with no trailing characters if it is alphanumeric. A field will appear with the default length in any record where the actual length exceeds the value assigned to the Width column in the Edit Standard Results Export Format window. If the Width column is assigned a value that exceeds the actual length of a field in the export file, it is appended with either leading zeros if it is numeric, or trailing characters if it is alphanumeric.

3.9.2.2. **Exporting election results using the Standard Export format**

Exporting using the default Standard Export format

Select Election in the menu bar, Export Results in the drop down menu, and Export Results in the cascading menu. Select the Standard Export format in the Export Results window and click on the OK button. See Figures 3-42 and Figure 3-43.

![Figure 3-42. Activating Export Results window](image)
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Figure 3-43. Selecting Standard Export format in Export Results window
Select Standard Export in the Standard Export Formats window and click on OK. See Figure 3-44.

Figure 3-44. Standard Export Formats window
Select the folder that the export file is to be placed in the Save As window, then click on Save. See Figure 3-45.

Figure 3-45. Determine folder location for Standard results export file
The progress window shown in Figure 3-46 indicates that the Standard results export file is being created.

![Standard Export](image)

**Figure 3-46. Standard results export file creation progress window**

**Creating a new export format**

In order to create a new export format based on the Standard Export format, select Election in the menu bar, Export Results in the drop down menu, and Export Results in the cascading menu. Select the Standard Export format in the Export Results window and click on the OK button. In the Standard Export Formats window, select Standard Export and click on the New button.

The Edit Standard Results Export Formats window appears with the default Standard Export format settings. Change settings as necessary in this window, using a unique identifier in the Label field, then click on the OK button in order to save results. See Figures 3-47 and 3-48.
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Figure 3-47. Defining new export format in Edit Standard Results Export Format window

Figure 3-48. Standard Export Formats window with new export format

Updating the Standard Export format

In order to revise the Standard or a customized export format, select Election in the menu bar, Export Results in the drop down menu, and Export Results in the cascading menu. Select the Standard Export format in the Export Results window and click on the OK button. In the Standard Export Formats window,
select Standard Export or the format to be updated, and click on the Edit button. Revise the format as necessary in the Edit Standard Results Export Format and click on the OK button.

**Deleting an export format**

In order to delete a custom export format, select Election in the menu bar, Export Results in the drop down menu, and Export Results in the cascading menu. Select the Standard Export format in the Export Results window and click on the OK button. In the Standard Export Formats window, select the export format to delete, and click on the Delete button. See Figure 3-49.

![Figure 3-49. Deleting customized export format](image)

**Exporting election results**

In order to export election results, select the Standard Export or a customized export format in the Export Formats window, and click on the OK button. Select the folder location where the results file is to be saved in the Save As window, and click on the Save button.

### 3.9.3. California Export

#### 3.9.3.1. Concepts

The California Export is intended to be used by counties in the state of California only. The California Secretary of State provides a list of races and candidates to each county in the form of a template file, into which the county enters election results for the races included, and returns the file to the Secretary of State. This process is performed in GEMS by means of the California export process.

The California Export file may be issued as one of the following reports, as required by the Secretary of State’s office:

- REGL; regular election night report.
- FINL; final election night report.
- UPDT; post-election night update.
- SOVF; Statement of Vote report submission.
- SSOV; Supplemental SOV report.

The format of these reports vary according to the template file provided. The template provided by the Secretary of State’s office should be identical for all reports except the SSOV, and the template used for producing the SSOV report should be unique. The templates vary only in terms of the records provided, and is transparent to the GEMS user performing the California export. The format of the template file may be provided by the California Secretary of State’s office.
The template file includes all races for which the Secretary of State requires results, although not all races in an election necessarily report results to the Secretary of State’s office.

Prior to performing the California export function, the county may verify that:

- every race in the template file matches the correct race in GEMS
- every race’s district in the template file matches the correct race district in GEMS
- candidate names and IDs for every race in the template file are correctly matched in GEMS

If the county is certain that all of the pertinent components of the template file match the GEMS database, the export may be performed without prior manual verification or correction. However, it is recommended that the county verify all correspondences between the template file and GEMS database prior to exporting.

Note that linkages are not created with GEMS write-in candidates.

Once the template file has been properly configured, the file is assigned a report code, results are exported to the template file, and the file is returned to the Secretary of State’s office with election results.

California Export functions are driven from the California State Export window. The California Secretary of State’s template file should be loaded on the GEMS computer prior to results exporting.

### 3.9.3.2. Exporting election results

**Initiating the California results export**

Select Election in the menu bar, Export Results in the drop-down menu, then Export Results in the cascading menu. Select California Export in the Export Results window and click on the OK button. See Figure 3-50.

![Figure 3-50. Selecting California Export format](image)

In the Open window, select the folder in which the California Secretary of State template is located, select the template file, and click on the Open button. See Figure 3-51.
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Editing the Secretary of State template file

In the California State Export window, click on the Edit XRef button in order to verify and optionally modify linkages between races and candidates defined in the California Secretary of State template and GEMS races and candidates. See Figures 3-52 and 3-53.

![Figure 3-51. Open California Secretary of State template file](image)

![Figure 3-52. California State Export window](image)
The display area at the top of the California Export Edit window contains the columns Race Id, Race Name, GEMS Race and GEMS District. The Race Id and Race Name columns are taken from the template file, and the GEMS Race and GEMS District columns are provided by the GEMS database. All GEMS districts are listed in the District drop-down list, and all GEMS races are listed in the Race drop-down list.

The display area on the lower left-hand side of the window lists the candidate names and Ids corresponding to the race selected in the Race Id column, as provided by the template file. The lower right-hand display contains the corresponding GEMS candidate names and Ids.

1. For each race displayed in the Race Id column, observe the corresponding GEMS Race column value. If this value is not correct, select the correct GEMS race label from the Race drop-down list.

2. Observe the corresponding GEMS District column value. If this value is not correct, select the correct GEMS district label from the District drop-down list.

3. For each candidate in the race:
   a. Verify the Cand Name and Cand Id taken from the template file against the GEMS Candidate Id and GEMS Candidate Name fields.
   b. If no GEMS candidate has been assigned, select the correct candidate from the Cand Name column in the bottom, right-hand panel of the California Export Edit window, then click on the Link button.
   c. If the GEMS candidate Id or name are incorrect, click on the Unlink button, then select the correct candidate from the Cand Name column in the bottom, right-hand panel of the
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California Export Edit window, and click on the Link button. GEMS candidates that unlinked from the template candidate are returned to the list in the bottom, right-hand pane.

Note that write-in candidates defined in GEMS will not be linked.

Exporting election results

Once all races have been configured, click on the OK button in the California Export Edit window in order to save the updated template file and return to the California State Export window. Select the report type for which the export is to be performed from the Report Type drop-down list, then click on the Export button. See Figure 3-54.

Figure 3-54. Selecting the Report Type

Select the folder for the California results export file in the Save As window shown in Figure 3-55, assign the correct name to the file, then click on the Save button. The progress bar shown in Figure 3-56 appears as the export file is created. Once the export is complete, the file may be sent to the Secretary of State’s office.

Figure 3-55. Selecting folder location for California results export file

Figure 3-56. California results export file creation progress bar
3.9.4. Florida Export

3.9.4.1. Concepts

The Florida Export format contains summary election results only, delimited with blanks, with quote strings encasing alphanumeric text. The Florida Export format file contains the following records:

1. Two race statistics records, including the:
   - number of precincts running in the election
   - number of precincts reporting

2. For every race:
   - number of precincts race is running in
   - number of precincts in which race is reporting
   - times race is counted
   - total blank votes
   - total overvotes
   - total undervotes
   - candidate counts for every candidate in race

Florida Export format file composition

Election results are exported in the Florida Export format in order of race Id, race voter group 1 Id, candidate Id, and candidate voter group. Florida Export file records contain the following fields:

1. Summary record Id (999999)
2. Summary record label (‘Election Total’)
3. Report Precinct Export Id
4. Race Id
5. Race Label
6. Race Voter Group 1 Label
7. Candidate Id
8. Candidate Label
9. Candidate Voter Group Label
10. Count

3.9.4.2. Exporting election results

In order to export election results using the Florida Export format, select Election in the menu bar, Export Results in the drop down menu, and Export Results in the cascading menu. Select the Florida Export format in the Export Results window and click on the OK button. See Figure 3-57
Determine the folder location of the Florida results export file in the Save As window shown in Figure 3-58 and click on the Save button.

The progress window shown in Figure 3-59 indicates that the Florida results export file is being created.

3.9.5. Minnesota Export

The Minnesota Export format may be customized before being used to export election results, and Minnesota-formatted precinct statistics may also be configured in the export process. These functions are available in the Minnesota Results window.
3.9.5.1. Concepts

Minnesota Export format

The Minnesota export format contains individual precinct results for counted precincts only, delimited with blanks and alphanumeric text encased in quote strings. Results are exported for the default All Races reporting set, with candidate totals and write-ins but no race statistics, and county Id, precinct export Id, race export Id, candidate voter group export Id and count fields only.

The Minnesota Export format is updated in the Edit Minnesota Results Export Format window accessed from the Minnesota Results Export window.

The Minnesota Export format may be either customized or used in its default configuration for exporting election results.

Default Minnesota Export format

The default Minnesota Export format contains results by report precinct only, delimited with blanks, with quote strings encasing alphanumeric text, for report precincts that have been counted. Results are exported for the default 'All Races' reporting set, with all candidate statistics and export fields selected. Polling precincts only are used for the precincts reporting statistic.

The Minnesota Export format file contains the following records:

1. Two race statistics records, including the:
   a. number of precincts running in the election
   b. number of precincts reporting

2. For every race:
   a. write-ins
   b. candidate counts for every candidate in race

Each record in the default Minnesota Results Export file contains the following fields only:

1. County Id
2. Report precinct export Id
3. Race export Id
4. Candidate voter group export Id
5. Candidate count

Minnesota Export format file composition

Any of the records or fields available in the Standard Export format may also be included in the Minnesota Export format. Refer to section 3.9.2 Standard export for more information on the Standard Export format.

Minnesota precinct statistics

Minnesota-formatted precinct statistics are defined and exported from the Minnesota Edit Precinct Statistics window. This window includes the following information, by report precinct:

- export Id
- registered voters
- election day registered voters
- number of signatures
- regular absentee ballots
• Federal absentee ballots
• Presidential absentee ballots
• total ballots

The following fields are defined prior to completing Minnesota Precinct Statistics so as to automatically appear in the Minnesota Edit Precinct Statistics window:

- export Ids are defined in the Report Precinct editor or in the Export Id Editor
- registered voters are defined in the Voter Registration window
- the number of regular absentee ballots counted for each report precinct is returned from uploaded memory cards (database must be configured with the non-cumulative Absentee counter group set to the Polling Vote Center vote center category)
- the number of total ballots counted for each report precinct is returned from uploaded memory cards

Once election results have been uploaded, the jurisdiction must enter the following information into the Minnesota Edit Precinct Statistics window:

- election day registered voters  (number of persons registering at the polling place on election day)
- number of signatures (number of signatures on each polling place roster)
- Federal absentee  (number of absentee ballots cast where, under state law, the voters are only allowed to vote in Federal level races)
- Presidential absentee  (number of absentee ballots cast where, under state law, the voters are only allowed to vote in the Presidential race)

The number of regular, Federal and Presidential absentee ballots must add up to the total number of absentee ballots at each report precinct.

Once this additional information has been defined, the statistics may be exported.

**Formats**

Minnesota Precinct Statistics are composed with the following format:

<table>
<thead>
<tr>
<th>Field</th>
<th>Format</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>County Id</td>
<td>2</td>
<td>characters</td>
</tr>
<tr>
<td>Precinct Id</td>
<td>4</td>
<td>characters</td>
</tr>
<tr>
<td>Race Id</td>
<td>4</td>
<td>values are 0001 – 0007</td>
</tr>
<tr>
<td>Party Id</td>
<td>2</td>
<td>always 0</td>
</tr>
<tr>
<td>Candidate Id</td>
<td>2</td>
<td>always 0</td>
</tr>
<tr>
<td>Votes Cast</td>
<td>4</td>
<td>characters</td>
</tr>
</tbody>
</table>

The county code is added manually into the precinct statistics file by the jurisdiction.

The Race Id values are as follows:
Conducting the Election

- 0001 = number of registered voters
- 0002 = election day registered voters
- 0003 = number of signatures
- 0004 = regular absentee ballots
- 0005 = Federal Absentee ballots
- 0006 = Presidential Absentee ballots
- 0007 = total ballots

3.9.5.2. Using the Minnesota Export format

Exporting results

Select Election in the menu bar, Export Results in the drop down menu and Export Results in the cascading menu. Select Minnesota Export in the Export Results window and click on the OK button. See Figures 3-60 to 3-62.

![Figure 3-60. Activating Export Results window](image)

![Figure 3-61. Selecting Minnesota Export format](image)
Click on the Edit Format button in the Minnesota Results Export window in order to activate the Edit Minnesota Results Export Format window. Revise the format as necessary and click on the OK button in order to save results. See **Figure 3-63**.

![Edit Minnesota Results Export Format](image)

**Figure 3-63. Edit Minnesota Results Export Format**

Click on the Export Results button in the Minnesota Results Export window in order to export election results. Select the folder destination to save the results file in the Save As window, and click on the Save button. See **Figures 3-64 through 3-66**.
Once the Minnesota results export file has been created, click on the Close button in the Minnesota Results Export window, as shown in Figure 3-67.
Exporting Minnesota Precinct Statistics

Select Election in the menu bar, Export Results in the drop down menu and Export Results in the cascading menu. Select Minnesota Export in the Export Results window, click on the OK button, then click on the Export Statistics button in the Minnesota Results Export window, as shown in Figure 3-68.

Figure 3-68. Export Minnesota export statistics

In the MN Edit Precinct Stats window, enter election day registered voters, number of signatures and Federal and Presidential Absentees according to the available information, then click on the Export button. See Figure 3-69.
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Select the folder destination to save the Minnesota Precinct Statistics file in the Save As window, and click on the Save button. See Figure 3-70.

Once the precinct statistics file has been created, click on the OK button in the MN Edit Precinct Stats window in order to save results. Click on the Close button in the Minnesota Results Export window, as shown in Figure 3-71.
3.9.6. South Carolina

3.9.6.1. Concepts

The South Carolina Export format is used in the state of South Carolina and includes candidate totals for each race, by report precinct, and includes a flag indicating whether a candidate is a winner, the candidate name, party affiliation, the office, district and seat, the election type, the county code and the report precinct code.

South Carolina export information is comprised from Export Id information defined for political parties, races, candidates and report precincts. Export Id information for parties and report precincts may be defined in the individual editors, the Export Id Editor, or the South Carolina Export window.

Export codes used for parties are assigned by the South Carolina Secretary of State’s office. Furthermore, each race is defined with Office, District and Seat codes, also supplied by the Secretary of State’s office.

Candidate names are divided into last name, first name, middle initial and suffix, such as Sr. The entire candidate name must be defined in the Race Editor in upper case, with no embedded punctuation, last name last. Defined in this manner, GEMS will automatically extract the first, and last names, as well as middle initials. These extracted values may be further edited in the South Carolina Export window.

Write-in candidate names are defined as ‘WRITE-IN’. The parties assigned to a question with Yes and No answers are defined as ‘F’ and ‘O’, respectively.

Exported election results are assigned a county code, provided by the Secretary of State’s office, as well as the election type, either Normal, Runoff or Recount.

At election close, results are exported twice; unofficial results are exported no later than the morning after the election, and final results are exported once all totals have been certified, and include challenged, curbside, fail safe, fail safe challenge and absentee results.

Formats

The South Carolina Export file assumes the following format:

<table>
<thead>
<tr>
<th>Field</th>
<th># Bytes</th>
<th>Data Type</th>
<th>Edit Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winner</td>
<td>01</td>
<td>Char</td>
<td>Y or N</td>
</tr>
<tr>
<td>Last Name</td>
<td>20</td>
<td>Char</td>
<td>Required, no periods, upper case</td>
</tr>
<tr>
<td>First Name</td>
<td>15</td>
<td>Char</td>
<td>no periods, upper case</td>
</tr>
<tr>
<td>MI</td>
<td>01</td>
<td>Char</td>
<td></td>
</tr>
</tbody>
</table>
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Suffix 03 Char
Party 01 Char From state table
Office Code 02 Numeric From state table, right justify, leading zeros
District Code 03 Numeric From state table, right justify, leading zeros
Seat 02 Numeric 00 – 99
Runoff/Recount 01 Char R=Runoff; C=Recount
County Code 02 Numeric From state table, right justify, leading zeros; 01 - 46
Precinct Code 03 Numeric 750 = Absentee
850 = Fail Safe
900 = Curbside
950 = Fail Safe Challenge
998 = Unofficial County Totals
999 = County Total
right justify; leading zeros
Precinct Total 06 Numeric right justify, leading zeros
Filler 20 Char spaces

3.9.6.2. Exporting results

Select Election in the menu bar, Export Results in the drop-down menu, then Export Results in the cascading menu. Select South Carolina Export in the Export Results window and click on the OK button. See Figure 3-72.

![Export Results](image)

**Figure 3-72. Selecting South Carolina Export format**

In the South Carolina Export window, click on the Edit Export ID’s button in order to customize the export IDs required for South Carolina exporting. See Figure 3-73.
Observe the parties and corresponding export IDs listed under the Party tab in Figure 3-74. Revise party export IDs as necessary, then click on the Race tab to continue.

Define the Office, District, and Seat values for every race in the election under the Race tab as shown in Figure 3-75. Click on the Candidates tab to continue.

Verify that the last and first names, as well as middle initials and suffixes are defined correctly. Revise any components of candidate names as necessary, as shown in Figure 3-76.
Figure 3-76. South Carolina Export – Candidates tab

Click on the Precincts tab, and define any outstanding export Ids in the ExportId column. See Figure 3-77.

Figure 3-77. South Carolina Export – Precincts tab

Once all export details have been defined in the South Carolina Export window, click on the OK button in order to save results.

In the South Carolina Export window, enter the county code in the County Code field, select either the Normal, Runoff or Recount radio buttons, depending on the type of election, and click on the Export Results button in order to export results. See Figure 3-78.

Figure 3-78. Exporting results in South Carolina export format

Select a folder location for the South Carolina Export results file in the Save As window, and click on the Save button. See Figure 3-79.
3.9.7. Wisconsin export

3.9.7.1. Concepts

Election results are organized in the Wisconsin Export format by race, and within each race, by report precinct. One line is assigned to race results for each report precinct. Race results are separated by two carriage returns, and candidate totals are comma-delimited. In particular:

Precinct label, candidate totals, candidate totals, etc., for as many candidates as there candidates defined for the race. Note that the races are not explicitly identified in the results export file, and are sequenced in order of race Id.

3.9.7.2. Exporting results

Select Election in the menu bar, Export Results in the drop-down menu, then Export Results in the cascading menu. Select Wisconsin Export in the Export Results window and click on the OK button. See Figure 3-80.

Select a folder location for the Wisconsin results export file in the Save As window, and click on Save. See Figure 3-81.
3.9.8. LA County Export

3.9.8.1. Concepts
The LA County Export is used in Los Angeles County, California, only. The LA County Export format is not provided here, but may be obtained from Los Angeles County.

3.9.8.2. Exporting election results
Select Election in the menu bar, Export Results in the drop-down menu, then Export Results in the cascading menu. Select LA County Export in the Export Results window and click on the OK button. See Figure 3-82.

Select a folder location for the LA County Export file in the Save As window, and click on the Save button. See Figure 3-83.
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The progress bar displayed in Figure 3-84 is displayed as the LA County Export file is built.

Figure 3-83. Select folder destination for LA County results export

Figure 3-84. LA County results export progress bar

3.9.9. DIMS export

3.9.9.1. Concepts

The DIMS Export is used in order to incorporate election results into the DIMS system.

3.9.9.2. Exporting election results

Select Election in the menu bar, Export Results in the drop-down menu, then Export Results in the cascading menu. Select DIMS Export in the Export Results window and click on the OK button. See Figure 3-85.
3.9.10. BCWin export

3.9.10.1. Concepts

The BCWin Export is used to export election results to the DFM application. The BCWin results export file contains candidate counts for all ballot images.

The BCWin Import file contains two distinct record definition and numerous sub-record definitions. Each record is ASCII text terminated by a carriage return newline byte pair. Each file is required to start with a ‘Header Record’ that specifies the file format, version, data source, agency, election and date of creation. Subsequent ‘Data Records’ contain the ballot counting data.

Header Record

Each import file contain one and only one ‘Header Record’ as the first record in the file. The header record format is as follows:
Sequence	identifier	version
<tab>source	agency	election
date	time<cr><nl>

- **sequence** must be the character 0 (zero).
- **identifier** must be the text string IMPORT without quotes, case is not relevant.
- **version** is an integer as defined in the title of this document
- **source** is text string identifying the company and product that generated the data
- **agency** is a text string identifying the county or other jurisdiction that the data was generated for
- **election** is a text string identifying the election this data applies to
- **date** is the date the subsequent data was generated
- **time** is the time the subsequent data was generated

Only the **identifier** and **version** data elements are currently edited. All other items are for auditing purposes and are not edited. Select text strings that are meaningful to your organization and client agency. Following is an example Header Record:

```
0<tab>IMPORT<tab>1<tab>GEMS AccuVote-TS<tab>Sacramento County<tab>2002 Nov Gen<tab>11/6/2002<tab>14:07:33<cr><nl>
```

In the above example, replace <tab> with the decimal ASCII value 9, <cr> with the decimal ASCII value 13 and <nl> with the decimal ASCII value 10. The line break in the above example is due to margin restriction in this document and is not to be duplicated in the import data.

### Data Record

Data Records adhere to a generic format as follows:

sequence	transaction	election	precinct	type	data<cr><nl>

1. **Sequence** is an integer value used to sort the import file into its original sequence if required. The first data record should start with 1 (one) and increment by at least one in each subsequent record in the file. The maximum value for this integer is 999999999.

2. **Transaction** is an integer value used for auditing purposes. This value is unused at this time and may be set to any integer value between zero and 999999999.

3. **Election** is an integer value assigned by the agency for each election.

4. **Precinct** is a consolidated precinct or voting precinct or reporting precinct as defined by the agency.

5. **Type** is an integer value that identifies the function of the record and the format of the following data.

   Acceptable **type** values are as follows:
   - Start of a new precinct - ADD. This precinct has not been applied to the summary file yet.
   - Start of new precinct - UPDATE. This precinct has been previously applied to the summary results file. The following ballots are to be added to the existing totals.
   - Start of new precinct – REPLACE. This precinct has been previously applied to the summary results file. The following ballots are to replace the existing totals.

6. **Ballot Data**.

7. **End of precinct**.

**Data** is text data. This field is empty for **Type 90** records. For **Type 10, 11, and 12** records, the data field must contain the string ‘pickup=1’ without quotes. The number following the pickup field will always be one unless otherwise specified by the agency. For **Type 50** records, the first 4 characters are the ballot id.
that defines the following voting positions. This must be a four (4) character long field with values between 0001 and 9999.

The following 1024 characters consist of the 0 (zero) or 1 (one) character and define a vote for the corresponding voting position. Fewer than 1024 characters are allowed where appropriate. If the ballot that is imported only supports 400 voting positions, the data text only needs to be 404 characters long; four characters for the id and 400 characters for the voting data.

3.9.10.2. Export election results

Select Election in the menu bar, Export Results in the drop-down menu, then Export Results in the cascading menu. Select BCWin Export in the Export Results window and click on the OK button. See Figure 3-87.

![Figure 3-87. Selecting BCWin Export format](image)

In the BCWin Export window, click on the Browse button, select a folder location for the BCWin results export file in the Save As window, then click on the Save button. Enter an election number in the BCWin Export window, then click on the OK button. See Figure 3-88.

![Figure 3-88. Configuring BCWin results export](image)
4. Election Close

Closing the election consists of the following activities:

- performing a post-election Logic and Accuracy Test
- performing a recount, if and where necessary
- auditing and archiving the election

The post-election Logic and Accuracy Test may be designed and implemented using the suggested Logic and Accuracy Test described in section 2.14 Pre-Election Logic and Accuracy Test.

4.1. Recount

An election recount is usually performed for a subset of races in the election only. The election database is backed up, configured for recount, vote centers are re-programmed onto a new set of memory cards and ballots re-processed. Memory cards are uploaded, and election results reports will only contain the results of recounted ballots, excluding the results of all other races.

4.1.1. Backing up the election

Before performing the recount, a backup copy must be made of the election database with full election results, since the recount will clear the database of all election results and tally new results only for the recount races. The backup database name should be qualified with descriptive text indicating that the database is to be used for recounting.

The active database is closed once the backup is complete, and the newly created backup is reloaded.

4.1.2. Changing the election status

In the Recount database, select Setup in the menu bar, then Election in the drop-down menu in order to activate the Election Options window. Set the Election Status to Card Printed under the Election Info tab. Click on the OK button. See Figure 4-1.

![Figure 4-1. Changing the election status](image)

Click on the No button in the confirmation message shown in Figure 4-2.

![Figure 4-2. Clearing election results confirmation message](image)

Click on the Yes button in the memory card re-programming confirmation message shown in Figure 4-3.
4.1.3. Adding a recount reporting set

A recount is configured in terms of a recount reporting set. This reporting set is defined with only the races in the election that are to be recounted.

Click on Election in the menu bar, then Reporting Sets in the drop-down menu. Click on the Add button in the Reporting Sets window. In the Reporting Set Properties window, enter Recount in the Label field, select the recount races in the B column, and click on the OK button. Click on the OK button in the Reporting Sets window. See Figure 4-4.

Any endorsement or preference race that may affect the outcome of the recount race is included in the recount reporting set.

4.1.4. Configuring the election for recount

- Click on Setup in the menu bar, then Election in the drop-down menu. In the Election Options window, click on the Recount tab, select the Set for Recount check box, and select the reporting set ‘Recount’ from the Recount Reporting Set drop down list. Click on the OK button. See Figure 4-5.
4.1.5. Setting the election to 'Set for Election'

Click on Setup in the menu bar, and Election in the drop-down menu. Set the election status to Set for Election under the Election Info tab in the Election Options window. Click on the No button in the memory card re-programming prompt.

4.1.6. Printing zero Election Summary report

The Precinct Summary report is now printed in order to demonstrate that the election is clear of results. Select GEMS in the menu bar, then Election Summary Report. In the Election Summary Report window, select the 'Recount' reporting set from the Reporting Set drop-down list, enter 'Recount Zero Summary Report' in the Report field, and click on the Print button. See Figure 4-6.

4.1.7. Determining Recount Vote Centers

In order to determine the vote centers the recount races are active in, either select each race in the tree view, click on the Vote Center tab, and observe which vote centers the race occurs in, or print the Races with Vote Centers report, and observe the vote centers in which the recount races occur.

4.1.8. Programming Memory Cards

Assemble and program AccuVote-OS memory cards for every recount vote center/machine combination. Click on the AccuVote-OS Server-v1 icon, and in the AccuVote-OS Server-v1 console, select the vote centers to re-program under the Vote Centers tab and click on the Queue button. See Figure 4-7.
Program all recount memory cards. Ensure that labels are attached to memory cards, and set each memory card to Election Mode.

4.1.9. Recounting ballots

Group all ballots to be recounted by vote center/machine combination. The number of machines used for each vote center may be varied for the convenience of the recount, as this does not affect report precinct or counter group association of results.

In order to expedite processing, ballots may be recounted using AccuFeeds, provided they are available. To accomplish the recount, set memory cards to AccuFeed usage and install AccuFeeds. AccuVote-OS units will print Election Zero reports with or without AccuFeeds installed.

All ballots in the vote center are re-counted, including those cards that do not contain the recount race.

Once all ballots have been recounted, upload election results to the AccuVote-OS Server-v1 console. Once election results have been uploaded, click on the Close button in the console.

4.1.10. Uploading election results

Once all ballots have been recounted, upload election results to the AccuVote-OS Server-v1 console. Once election results have been uploaded, click on the Close button in the console.
4.1.11. Election Results

Once all ballots have been recounted, the Election Summary Report is printed for the recount race(s) by selecting GEMS in the menu bar, then Election Summary Report in the drop-down menu. In the Election Summary Report window, select the ‘Recount’ reporting set from the Reporting Set drop-down window, enter ‘Recount Election Summary Report’ in the Report field, and click on the Print button.

The user can also print a Summary of Votes Casts report (SOVC). The SOVC report provides a breakdown of election results by report precinct. In order to print the report, select GEMS in the menu bar, and Statement of Votes Cast in the drop-down menu. Select the ‘Recount’ reporting set in the Reporting Set drop-down list and enter ‘Recount SOVC Report’ in the Statement of Votes Cast window. Click on the Print button.

The Election Summary and SOVC reports may be printed for all races in the election, but only the recounted races will contain results. In order to print complete results listings by precinct, either use the AccuVote-OS report tapes (print All Precinct Totals reports in the case of multi-precinct vote centers) or print the Election Summary report in GEMS on a precinct-by-precinct basis. The Races with Reporting Precincts report may be used in order to determine the report precincts each recount race occurs in when selecting precincts in the Print Summary Report window.

Print the Cards Cast report in order to determine the recounted cards cast by report precinct. This report is useful if any of the recount report precincts accept more than one card style. In order to print the report, click on GEMS in the menu bar, select Cards Cast Report in the drop-down menu, enter ‘Recount Cards Cast Report’ in the Report field, and click on the Print button in the Cards Cast window.

4.2. Audit and Archive

Procedures involved in the auditing and archiving of election materials are described, including the composition, viewing, printing and archiving of audit logs, as well as the archiving of the election database and election results reports.

4.2.1. Audit materials

The following is a recommended list of materials that may be included in the audit and archive procedure at the conclusion of the election lifecycle. This list may vary according to the jurisdiction’s audit requirements.

1. Memory cards
2. AccuVote-OS voted ballots
3. AccuVote-TS ballot images
4. AccuVote-OS and AccuVote-TS Zero Total and Election Results reports
5. GEMS final election results reports
6. Results import files
7. Results export files
8. GEMS zero Election Summary report
9. Database backups
10. Administrative reports
11. External election materials
12. AccuVote-OS final ballot proofs
13. AccuVote-OS Server-v1 and AccuVote-TS Server-v2 logs
14. Central Count log
15. Poster log
16. Region Server log
17. Audit log
18. Database import/export files

4.2.2. Assembling audit materials

This section describes the procedures required to assemble audit materials. All audit materials generated for the election should then be archived as required.

4.2.2.1. Memory cards

All AccuVote-OS and AccuVote-TS memory cards used in the election are archived.

4.2.2.2. AccuVote-OS voted ballots

All voted AccuVote-OS ballots are included in the election archive.

4.2.2.3. AccuVote-TS ballot images

Optional AccuVote-TS ballots images may be printed and archived in GEMS. These images are captured in the View Ballots window.

Select GEMS in the menu bar, and View Ballot in the drop-down menu. Select every AccuVote-TS vote center/machine combination listed at the top of the View Ballots window, then select the ballot in the lower panel of the window, and click on the Print button in order to print the ballot.

4.2.2.4. AccuVote-OS and AccuVote-TS Zero Total and Election Results reports

All AccuVote-OS and AccuVote-TS Zero Total and Election Results reports should be archived. Full Totals reports should be printed for memory cards with multiple precincts.

4.2.2.5. GEMS final election results reports

Final GEMS election results reports may be printed once all results have been incorporated into GEMS, including the results of all:

- memory cards
- absentee ballots
- hand-counted ballots
- challenged ballots
- regional results

Final election results reports may include the Election Summary report, the Statement of Votes Cast and the Cards Cast report.

In order to print the final Election Summary report, select GEMS in the menu bar, Election Summary Report in the drop-down menu, enter ‘Final Election Summary Report’ in the Report field, and click on the Print button.

In order to print the final Statement of Votes Cast report, select GEMS in the menu bar, Statement of Votes Cast in the drop-down menu, enter ‘Final Statement of Votes Cast’ in the Report field, and click on the Print button.

In order to print the final Cards Cast report, select GEMS in the menu bar, Cards Cast in the drop-down menu, enter ‘Final Cards Cast Report’ in the Report field, and click on the Print button.
4.2.2.6. Results import files

If election results counted using non-Diebold Election Systems, Inc. voting devices were introduced into the GEMS database, these files should also be archived. These files will have been used to perform either of the IMARK or BRC results import procedures.

4.2.2.7. Results export files

Any election results export files generated from the GEMS database should also be included in the election audit materials.

Click on Election in the menu bar, Export Results in the drop-down menu, then Export Results in the cascading menu. Select the export format from the Export Results window and proceed.

In case of the California results export, include the California Secretary of State’s export template. In case of the Minnesota export, include the Minnesota export statistics.

4.2.2.8. GEMS Zero Election Summary report

Prior to election close, a zero Election Summary report is printed in GEMS, indicating that counters are zero prior to uploading results. This report is printed after all counters have been cleared.

4.2.2.9. Database backups

Assemble all database backups performed at critical points in the election development lifecycle, including the backup of the database with final election results.

In order to back up a database, click on Election in the menu bar, then Backup in the drop-down menu. In the Save As window, change the folder location only if the database backup file is not to be placed in the default GEMS Backup folder, assign the correct backup name in the File name field and click on the Save button. See Figures 4-8 and 4-9.

Figure 4-8. Making a backup
4.2.2.10. Administrative reports

All administrative reports used as benchmarks in the election development lifecycle should be retained in the election archive. Reports should bear the signatures of the election administrator, as well as any other authorizing officials.

In order to print administrative reports, select GEMS in the menu bar and Pre Election Reports in the drop-down list. Select the desired reports to be printed in the Reports list, and click on the Print button. See Figure 4-10.

4.2.2.11. External election materials

All materials used in the election development lifecycle outside of the documents provided by the Diebold Election Systems GEMS software and voting devices should be archived. These materials include documentation of jurisdictional information as well as ballot content information.
4.2.2.12. **AccuVote-OS final ballot proofs**

The final proofs verified before sending AccuVote-OS ballot artwork to the printer should be signed by the election administrator and any other authorizing officials, and included in the election archive.

4.2.2.13. **AccuVote-OS and AccuVote-TS Server logs**

Once all memory cards have been uploaded, the AccuVote-OS and AccuVote-TS Server logs may be printed and retained in archive.

Click on the AccuVote-OS Server-v1 icon, then click on the Log tab in the AccuVote-OS Server-v1 window. Click on the Print button, configure print properties as necessary in the Print window, click on the OK button in the Print window, then once the log has printed, click on the Close button in the console. See Figure 4-11.

![AccuVote-OS Server-v1 Log tab](image)

Click on the AccuVote-TS Server-v2 icon, then click on the Log tab in the AccuVote-TS Server-v2 window. Click on the Print button, configure print properties as necessary in the Print window, click on the OK button in the Print window, then once the log has printed, click on the Close button in the console.

4.2.2.14. **Central Count log**

If ballots were counted using Central Count, the Central Count log may be printed and added to the election archive.

Click on GEMS in the menu bar, then Central Count in the drop-down menu. Click on the Log tab in the Central Count console. Click on the Print button, configure print properties as necessary in the Print window, click on the OK button in the Print window, then once the log has printed, click on the Close button in the console.

4.2.2.15. **Poster log**

The Poster log is added to election archive materials.
Click on GEMS in the menu bar, then Poster in the drop-down menu. In the Poster window, click on the Print button in order to print the report.

4.2.2.16. **Region Server log**

If regional processing was employed in the election, print the Region Server log by selecting GEMS in the menu bar and Regional Results in the drop-down menu in order to activate the Region Server console. Click on the Log tab, click on the Print button, configure print properties as necessary in the Print window, click on the OK button, then once the log has printed, click on Close in order to close the Region Server console.

4.2.2.17. **Audit log**

The GEMS Audit log contains a complete record of all transactions that have occurred in the election, ordered by date and time. Select GEMS in the menu bar, then Audit Log in the drop-down menu. In the Audit Log window, click on the Print button in order to print the Audit log.

Configure print parameters in the Print window as necessary and click on the OK button. Once the Audit Log has been printed, click on the OK button in order to close the Audit Log window. See Figure 4-12.

Printing the Audit Log is also posted to the Audit Log.

![Audit Log](image)

**Figure 4-12. Audit Log**

4.2.2.18. **Database import/export files**

Include any electronic files imported into the GEMS database containing architectural information, including jurisdictional definition and race/candidate information. These files include the:

- Standard Import file
• LA Import file
• Voter Registration Import file
• Rich Text Import file
• Audio import files

4.2.3. Dynamic audit transaction printing

It is possible to configure the GEMS computer to dynamically print every audit transaction in addition to posting to the Audit Log. Configuring the GEMS PC for dynamic audit transaction printing is described in the section Dynamic audit transaction printing in the GEMS System Administrator’s Guide.
5. Appendix A: Glossary

This section contains a comprehensive glossary of terms used with GEMS, in alphabetical order. Voting device references are universal to both the AccuVote-OS and AccuVote-TS, unless otherwise indicated.

**Absentee**: The ballots, voting equipment and tally logic pertaining to absentee voting.

**Absentee Count Card**: A control card that places the AccuVote-OS into absentee count mode, so that all subsequent ballots are counted and tallied as absentee. The election programmed to the memory card must be configured with a non-cumulative absentee counter group to the Polling Vote Center vote center category.

**Absentee/NonAbsentee**: Voter groups defined under the Absentee/NonAbsentee tab in the Voter Group Editor, commonly Polling and Absentee, for purposes of differentiating polling and absentee ballots.

**AccuVote Ender Card**: A control card that electronically locks the AccuVote-OS unit, so that no further ballots may be counted. In Election Mode, an Election Results report is automatically printed once this card has been fed. This card is also used as a delimited card in Central Count.

**AccuVote Server**: A console used for either programming memory cards or uploading election results.

**AccuVote-OS**: Diebold Election Systems' marksense, paper ballot-based voting device.

**AccuVote-TS**: Diebold Election Systems’ electronic touch screen voting device.

**Additive**: A straight party tally rule which counts only candidate selections if candidate and straight party selections cause an overvote, otherwise both are counted.

**Administrator**: Logon user Id with full access privileges.

**Appear Options**: Appear options determine the frequency with which a header occurs on a ballot; either once per card, once per side or once per column.

**Audio**: A set of functions relating to the recording, playback, formatting and import of sound files for races, candidates, headers and voter groups for the Visually Impaired Ballot Stations (VIBS).

**Audit Log**: An audit record of all audit transactions in the election. Audit logs are available for the entire GEMS database as well as the AccuVote-OS Server 1, AccuVote-TS Server 2, Central Count, Regional Results, and Poster consoles.

**Auto Absentee**: A feature which allows the simultaneous counting of ballots on the AccuVote-OS unit from polling and absentee counter groups at the polls.

**Back**: The back face of a ballot.

**Backup**: A copy of an election database in condensed gbf format, used for auditing, archiving and electronic database transfer.

**Ballot**: A Ballot refers to a rotated ballot style. A single card comprises all language variants for the card.

**Ballot Artwork**: Ballots and ballot-related information in any medium, be it paper or electronic format. A single ballot style comprises all language variants for the ballot style.

**Ballot Audit**: A function allowing the review of ballots uploaded from AccuVote-TS units.

**Ballot Id**: The number assigned to a ballot.

**Ballot Rotation**: A set of race rotations comprising a ballot.

**Ballot Serial Number**: A unique serial number identifying a voted AccuVote-TS ballot.

**Ballot Style**: A unique collection of races.

**Ballot Text**: Race, candidate, header or voter group information as it appears on the ballot.
Appendix A: Glossary

**Ballots Cast**: The number of ballots cast in a tally, distinct from the number of votes cast.

**Base Precinct**: Fundamental geographical building block of an election. Ballots cast in a base precinct are tallied to a report precinct; districts comprise base precincts.

**BCWin Export**: The BCWin Export represents a format by which election results may be exported to an ASCII file.

**Blank Voted**: A ballot on which a voter has made no selections.

**BRC Results**: Results may be imported from BRC voting devices into the GEMS database using the Import BRC Results function.

**Button**: An object on the GEMS user interface which is clicked in order to activate a function described thereupon.

**California Export**: The California Export represents a format by which election results may be exported to an ASCII file.

**Candidate**: An individual running for office, which voters have the opportunity to vote for on a ballot.

**Candidate Endorsement**: The political party endorsing a candidate.

**Candidate Grid Layout**: A set of options affecting the appearance of candidates on AccuVote-OS ballots, and defined either in Race Options or the Race Editor. Candidate Grid Layout include the definition of whether candidates are to appear either by row or column, and either in a continuous manner, or according to a fixed position.

**Candidate Horizontal Line**: A horizontal line dividing candidates on AccuVote-OS ballots.

**Candidate Spacing**: Refers to the number of lines interleaving candidates printed on AccuVote-OS ballots; no lines interleave candidates in single candidate spacing, one line interleaves candidates that are double-spaced, and so on.

**Candidate Type**: The designation of the candidate in a race; may be one of Candidate, Write-in, Registered Write-in or Header.

**Candidate Vertical Line**: A vertical line dividing candidates in multi-column races on AccuVote-OS ballots.

**Card**: A rotated, physical document containing a unique set of races. One or more cards comprise a single card style. A single card comprises all language variants for the card.

**Card Footer**: A header that appears at the bottom of every ballot.

**Card Header**: A header that appears at the top of every ballot.

**Card Info**: Election and ballot card information may be exported from the GEMS database by means of the Export Card Info function.

**Card Manager**: Device used for creating voter access cards used for voting on the AccuVote-TS – device has been renamed to ‘Voter Card Encoder’.

**Card Style**: A physical document that is contained within a ballot style; a ballot style may contain one or more card styles. A single card style comprises all language variants for the card style.

**Card Identification Marks**: Rectangular marks spaced at ¼” intervals lining the bottom of the AccuVote-OS ballot, containing information uniquely identifying the ballot, such as election date, type, card number, and precinct identifier.

**Card Template**: A set of parameters that identify the physical form the AccuVote-OS ballot assumes, consisting of length, number of columns per side and orientation.

**Cards Cast**: A statistic referring to the number of ballot cards cast in an election.
Central Count: An assembly which counts and dynamically tallies AccuVote-OS ballots to the host computer; designed for batch processing of ballots in large quantities.

Challenge Board: The GEMS function used to review challenged or provisional AccuVote-TS ballots.

Challenged Ballot: A ballot corresponding to a voter whose right to vote at a polling location has been challenged.

Closed primary: A primary election in which voters vote on ballots containing only races corresponding to their political party as well as any non-partisan races in the election.

Color: The provision, definition and management of color on AccuVote-OS and AccuVote-TS ballots.

Column: The vertical column into which races are located on the ballot. Also, the vertical column into which candidates are arranged in a race. Ballot columns apply to both AccuVote-OS and AccuVote-TS ballots, whereas race columns apply to AccuVote-OS ballots only. A race column on an AccuVote-OS ballot corresponds to vertically adjacent Diagnostic and Card Id marks on a portrait ballot and vertically adjacent timing marks on a landscape ballot.

Combined: Straight party tally rule allowing both straight party choices as well as candidate selections to be counted if the number to vote for is not exceeded, otherwise, race results are discarded. Also, write-in tally rule allowing both candidate and write-in choices to be counted if the number to vote for is not exceeded, otherwise race results are discarded.

Contest: A selection of candidates for an office, a set of responses to a question or an opportunity to select a political party in order to configure a controlling race.

Controlling Race: A race which exercises counting and tallying control over other races; includes Endorsement, Preference, Recall and Shadow.

Copy: The number of times a memory card has been programmed without ballot layout having changed.

Count Method: The voting device used to count and tally ballots; includes AccuVote-OS, AccuVote-TS, Central Count and Manual Entry (no voting device).

Counter Group Detail: Election results are generated by counter group within report precinct.

Counter Groups: Counter groups provide a means for separately classifying ballot counting and election results reporting activities.

Cross-Endorsement: The endorsement of a candidate by more than one political party.

Crossover: Candidate selections in races with multiple party endorsements in an open primary election.

Cumulative: A counter group for which results are summarized to one or more report precincts.

Cumulative Reportunits: Report precincts to which election results are tallied in a cumulative counter group.

Current Layout: The currently displayed card template in the Ballot Options window.

Deck: A set of ballots processed in Central Count, delimited by Batch Header or Batch Start cards.

Default Precinct Category: The default report precinct category in which polling report precincts are defined and to which polling results are tallied.

Delimiter: A special character that determines the separation of data fields in import or export files.

Diagnostic Marks: The black boxes set at ¼” intervals across the width of both the top front and back of AccuVote-OS portrait ballots. On landscape ballots, these marks occur along the height of the ballot.

DIMS Export: The DIMS Export represents a format by which election results may be exported to an ASCII file.

District: The physical area of a jurisdiction which defines the area in which a race is valid. Districts are defined in terms of base precincts.
**District Category**: Districts representing a similar class of office belong to the same district category.

**Download**: The programming of election and ballot information to memory cards.

**Edit Certification**: An concluding section of the Statement of Votes Cast report, which may optionally contain a summary of races and candidate results in text format.

**Election Status**: A controlling flag set by the user, which is set according to the stage in the election lifecycle, determining the functionality of GEMS.

**Election Summary report**: A report summarizing election results by race, across the entire jurisdiction, presented according to customization criteria.

**Eligible District**: A district to which at least one race in the election is defined.

**Endorsement**: The linkage of a political party to either a candidate or race.

**Exclusive**: A straight party tally rule allowing straight party choices to be selected only if no candidate selections have been made in an office.

**Export**: The composition of election and election results information into an ASCII file format.

**Export Ids**: Identifiers associated with GEMS entities, designed to uniquely identify election data in export files.

**Export Results**: The act of exporting election results.

**Face**: A side of an AccuVote-OS ballot, either front or back.

**Filter**: The reporting set for which a vote center tallies results.

**First Ballot Count**: FBC, or First Ballot Count, represents the number of times a memory card has been set to Election Mode and uploaded results.

**Fixed**: Candidates assume a fixed race or column position on the AccuVote-OS ballot, according to endorsing voter group.

**Florida Export**: The Florida Export represents a format by which election results may be exported to an ASCII file.

**Flow**: Candidates scroll in the race on the AccuVote-OS ballot in the order of the art sequence number.

**Force Re-Layout**: The selection of this flag forces GEMS to re-lay out ballot artwork upon re-generation.

**Front**: The front face of a ballot card.

**Full Grid**: A full grid of lines is drawn in the unoccupied portions of races on AccuVote-OS ballots with multiple candidate rows and columns.

**Fully Marked**: A ballot with every oval marked.

**Grid**: A ¼” grid mapped onto the AccuVote-OS ballot, used as a tool for detailed measurements in ballot development.

**Grouping Options**: Header options determining the column or side a header and linked races are to occupy on the ballot.

**Header**: Non-race text information appearing on the ballot.

**Horizontal Extend**: A horizontal line extending to both race boundaries, used on AccuVote-OS ballots.

**Host Computer**: The GEMS computer, interfacing with GEMS clients and voting devices.

**Id**: A number used to uniquely identify and position every entity in GEMS.

**Import**: The process of introducing election and election results information into a GEMS database.

**IMARK Results**: Results may be imported from IMARK voting devices into the GEMS database using the Import IMARK Results function.
**JResult Client**: The Java-based software client that interfaces with GEMS in order to supply election results.

**Kansas**: The Kansas rotation rule assigns candidate rotations by matching a running voter registration tally against the voter registration amounts totaled for the district, averaged by the number of candidates.

**King County**: The King County rotation rule cause candidates to be rotated when cumulative voter registration amounts exceed a specified limit.

**LA Export**: The LA Export represents a format by which election results may be exported to an ASCII file.

**Landscape**: The orientation of an AccuVote-OS ballot in which the width is longer than the height.

**Language**: Race, candidate, header and voter group text may be configured on ballots with one or more languages.

**Layout**: The unique position of voting ovals and race and heading text on ballot artwork.

**Layout Count**: The number of card templates in an election; used with AccuVote-OS ballots.

**Locale Id**: The code that matches language-based race text to operational text on the AccuVote-TS ballot.

**Machine**: The instance of memory card in a vote center.

**Machine Id**: Id number of memory card, used to uniquely identify memory card to its corresponding vote center.

**Margins**: The amount of space defined to AccuVote-OS ballot artwork as buffer between race, candidate and header boundaries and corresponding text, between voting ovals and candidate text, as well as between ballot boundaries and race and header boxes.

**Memory Card**: The medium utilized by the AccuVote-OS and AccuVote-TS voting devices to which election and ballot information are programmed, and to which election results are tallied.

**Minimum Candidate Row/Column**: The minimum number of rows or columns in which candidates are to be laid out in a race on the AccuVote-OS ballot.

**Minnesota**: The Minnesota rotation rule assigns candidate rotations to precincts in decreasing order of voter registration total.

**Minnesota Export**: The Minnesota Export represents a format by which election results may be exported to an ASCII file.

**Minnesota Export Statistics**: The Minnesota Export Statistics include statistics according used to perform the Minnesota Export.

**Monitor Script**: A JResult Client configuration, defined in terms Monitor Script Properties, in turn defined in terms of sets of reporting sets and precincts or districts.

**Monitor Script Properties**: Monitor Scripts are defined in terms of Monitor Script Properties, which are in turn defined in terms of sets of reporting sets and precincts or districts.

**Non-cumulative**: Election results in a non-cumulative counter group are tallied to the corresponding polling report precincts. The default Polling counter group is non-cumulative.

**Not counted**: A race on the ballot which is not to be counted is flagged as Not Counted.

**Number to Vote For**: The number of candidates, responses or parties that a voter may select in a race without incurring an overvote.

**One Click Vote**: The ability to make a new selection on the AccuVote-TS ballot without re-selecting the current candidate selection.

**Open primary**: A primary election in which all partisan and non-partisan races occur on the same ballot. Open primary elections are only supported by the AccuVote-OS, and not by the AccuVote-TS.
Override: A write-in rule which selects both candidate and write-in choices if no overvote is incurred, otherwise, only write-in selections are counted.

Overvote: The candidate selection exceeds a race’s number to vote for.

Overvoted Race: A race that has been overvoted.

Page Style: Page Style refers to the AccuVote-OS ballot length.

Party: A political party, defined as a voter group, used to endorse candidates and races.


Percentage of Ballots: The percentage of AccuVote-OS ballots that are assigned to counter groups or absentee/non-absentee voter groups.

Pima County: The Pima County rotation rule assigns candidate rotations in repeating increasing and decreasing rotation cycles, matched against precincts in decreasing order of voter registration amounts.

Placement Option: A set of header options determining the placement of the header on the AccuVote-OS ballot.

Play All Candidates: This check box is set in the AccuVote-TS Options window, and affects the behavior of the audio ballot on the AccuVote-TS. If this check box has been selected, the audio voter must listen to every remaining candidate in a race, irrespective of whether the number to vote for has been voted.

Pollworker Audio: This check box is set in the AccuVote-TS Options window, and affects the behavior of the audio ballot on the AccuVote-TS. An audible tone is played on the AccuVote-TS audio ballot prior to voting, and following ballot casting if this check box has been selected.

Port: The interface between the computer and an external device, such as a printer, AccuVote-TS unit, or AccuVote-OS unit, by means of which information can be transferred.

Portrait: The orientation of ballot in which the height is longer than the width.

Poster: The Poster is a function that monitors the consolidation of uploaded results into the GEMS database.

PPP: PPP represents the network service provider user Id.

Precinct: An administrative unit in a jurisdiction in which people vote and for which election results are reported. In GEMS, expressed either as a base precinct, a geographical unit in which voters vote, or a report precinct, to which election results are reported.

Precinct by Voter Registration: The Precinct by Voter Registration rotation rule rotates candidates by precinct in decreasing order of report precinct voter registration totals.

Precinct Ids: Identifiers that link AccuVote-OS ballots to a unique report precinct; may be either precinct number or precinct sequence.

Precinct Numbers: The number of a report precinct, as printed on ballots.

Precinct Reporting: The reporting of election results by report precinct.

Preference: A write-in tally rule which replaces ‘No Preference’ candidates with write-in selections if candidate selections combined with write-ins exceed the number to vote for.

Programming memory cards: The act of transferring election and ballot information to memory cards.

Protocol: A set of parameters governing the communication and transfer of information between the host computer and the AccuVote-OS and AccuVote-TS voting devices.

Question: A race posing a question to which a voter may select either a positive or negative response.
**Race Id:** The numeric identifier that uniquely identifies a race in GEMS, and that determines the order of races on the ballot.

**Race Keys:** This check box is set in the AccuVote-TS Options window, and affects the behavior of the audio ballot on the AccuVote-TS. If Race Keys has been selected, the audio voter may jump forward to the next race, or backward to the previous race, at any candidate position.

**Race Line:** A line that divides race text from candidates on the AccuVote-OS ballot.

**Race Options:** A set of options that govern the default appearance of races, candidates, headers and voter groups on the ballot.

**Race Type:** Race Type determines the functionality of a race in an election; may be one of Candidate, Question, Recall, Recalled, Endorsement, Preference, Shadow and Shadowed.

**Race Width:** The amount of horizontal area occupied by a race on an AccuVote-OS ballot, expressed as a multiple of column width.

**Recall:** A race posing a question concerning the recall of an incumbent, to which a voter may select a positive response.

**Recalled:** A race offering the voter a choice of one or more candidates in response to the positive selection in an affiliated recall race.

**Recount:** The configuration of an election for recounting one or more races, involving programming selected memory cards and uploading and reporting results for a recount reporting set.

**Reject Settings:** A set of parameters which include conditions under which the AccuVote-OS returns ballots.

**Region:** An area within a jurisdiction which internally manages the consolidation of election results before being consolidated to the GEMS host computer.

**Region Server:** The console used to receive regional results in GEMS at election central.

**Regional Results:** The election results derived from a jurisdiction’s region.

**Registered voters:** Voters registered to vote in a jurisdiction.

**Report File:** A file configuring voting device, reports which are programmed to memory cards.

**Report Precinct:** Election results are tallied to report precincts.

**Report Precinct Category:** The report precinct category is a class of report precinct and may be either one of Default Precinct Category or Cumulative Reportunits. Election results are tallied non-cumulatively to report precincts defined in Default Precinct Category, and are tallied cumulatively to report precincts in Cumulative Reportunits.

**Reporting Set:** A set of races in the election used to report election results and configure monitor scripts.

**Reset Election:** The act of clearing election results in a GEMS database.

**Report Setting:** The definition of a grouping of reporting options which may be used in either the Election Summary or Statement of Votes Cast reports.

**Resetting Artwork:** Removing all ballot artwork from a GEMS database.

**Results Server:** The console which creates election results files on a continuous basis for JResult Client.

**Rich Text:** Ballot text is composed using the *rich text format* in GEMS. Rich text may be exported and imported by means of the Rich Text Export and Rich Text Import functions, for purposes of delivering the ballot text corresponding to all races, candidates, headers, and voter groups to a translation agency for translation, then incorporating the translated text into database.

**Rotation:** The candidate rotation rule determines the order candidates are to appear on ballots.
**Rotation District**: The district upon which a race rotates by if the race is defined with district rotation.

**Row**: A voting line on the AccuVote-OS ballot, corresponding to horizontally adjacent timing marks on a portrait ballot or horizontally adjacent Diagnostic and Card Id marks on a landscape ballot.

**Row/Column**: A selection of either row or race column.

**Scale**: The increasing or decreasing of an image from nominal size.

**Scale %**: The scaling value applied to the AccuVote-TS image.

**Score Marks**: Horizontal marks that are incorporated into AccuVote-OS ballot artwork, acting as a guidance for placing folds on absentee ballots.

**Send Regional Results**: The console used to send regional results from the regional election centers.

**Sequence numbers**: A number which identifies an AccuVote-OS ballot to a vote center, based on the relationship between the vote center and the report precinct to which the ballot tallies results.

**Server**: A machine or program which provides service to related machines or programs.

**Shadow**: A race type which allows for the reporting of election results for varying voter groups or districts.

**Shadowed**: A race type which reports election results for a voter group or district other than that of the controlling Shadow race.

**Shift Box**: Headers, race boxes and race text on AccuVote-OS ballots are shifted according the amounts entered in the Shift Box group box.

**Slate**: An affiliation of candidates by common platform within a political party.

**South Carolina Export**: The South Carolina Export represents a format by which election results may be exported to an ASCII file.

**Standard Export**: The Standard Export represents a format by which election results may be exported to an ASCII file.

**Start Rotation**: The rotation number assigned to a rotation district over which a race rotates.

**Statement of Votes Cast**: A report containing election results by race and precinct, according to specific customization criteria.

**Straight Party**: A party selected in a straight party or endorsement race automatically counts candidates endorsed by the party in all straight party-votable races, subject to the straight party tally rule defined for the election.

**Supplemental**: The Supplemental straight party tally rule counts candidates from the top of the candidate list in addition to candidate selections until the number to vote for is satisfied.

**Tally Settings**: Tally rules used for counting straight party and write-in choices.

**Thick Left/Right**: A 1/8” thick race boundary line printed opposite voting ovals on the AccuVote-OS ballot.

**Thick Top**: A 1/8” thick race boundary printed on top of races and headers on AccuVote-OS ballots.

**Timeout**: The amount of time allowed for a transmission is exceeded, and the transmission is cancelled.

**Timing Marks**: Small black boxes set at ¼” intervals on the sides of the AccuVote-OS ballot in portrait mode, and along the top and bottom of the ballot in landscape mode.

**TS Text**: Sets of files containing multi-language operational instructions which are programmed to the AccuVote-TS.

**Undervoted Race**: A race with less candidates selected than the number to vote for; not applicable to a vote for 1 race.
Upload: The process of transferring election results from AccuVote-OS and AccuVote-TS units to the GEMS host computer.

User: The name which identifies an operator to a GEMS database.

VCProgrammer: Program used to create voter access cards; may either run on stand-alone basis, or interface with the jurisdiction’s voter registration system.

VIBS: The Visually Impaired Ballot Station feature of the AccuVote-TS, used by visually impaired voters to vote audio ballots.

Vote Center: A physical polling location, containing one or more voting devices. The results of ballots cast at a vote center are tallied to report precincts to which the vote center has been defined.

Vote Center Category: Vote centers are organized into vote center categories; a vote center category may include up to two counter groups.

Vote Flag: Flags that are defined under AccuVote-TS Options, affecting the performance of the AccuVote-TS unit.

Voted Ballots: A ballot which has been marked by the voter.

Voter Card Encoder: Device used to create voter access cards to be used for voting on AccuVote-TS; previously named ‘Card Manager’.

Voter Card Info: Voter card information may be exported from the GEMS database, and is used as input to VCProgrammer for the creation of voter access cards.

Voter Groups: A mechanism for classifying voters by party affiliation or absentee/non-absentee voting behavior. Voter groups are defined either under the Parties or Absentee/NonAbsentee tabs in the Voter Group Editor, or the equivalent VGroup1 or VGroup 2 classes elsewhere in GEMS.

Voter Registration: A process managing the number of voters registered in a jurisdiction, defined by base precinct, and optionally by voter group in a primary election.

Votes Cast: The number of votes cast in a tally, distinct from the number of ballots cast.

Voting Device: A Diebold Election Systems ballot counting device; either an AccuVote-OS or AccuVote-TS.

Voting Mark: The mark on a ballot created by the voter’s selection of preferred candidate.

Voting Oval: The oval on the AccuVote-OS ballot into which the voting mark is placed.

Warn Undervotes: This check box is set in the AccuVote-TS Options window, and affects the behavior of the audio ballot on the AccuVote-TS. If this check box has been selected, the audio voter is warned that exiting the race will cause an undervote, if less candidates have been selected than the number to vote for.

Winners: The number of candidates scoring the highest results, corresponding to the number to vote for.

Wisconsin Export: The Wisconsin Export represents a format by which election results may be exported to an ASCII file.

Wrap Label: An option to scroll the candidate name outside the bounds allocated to the voter group.

Write-In: A candidate position without a pre-assigned name, into which the voter may write a candidate of choice.

Write-in Lines: The lines available to the voter on the AccuVote-OS ballot for writing a write-in candidate name.
6. Appendix B: Election Status

This appendix provides detailed information on the workings of the GEMS election status flags.

The election status in GEMS locates the election in the election development cycle as well as provide a user-determined control mechanism in this development cycle. There are four statuses:

- No status
- Cards Laid Out
- Cards Printed
- Set for Election

Only subsets of functions in GEMS are available under any particular election status. Full functionality in defining and updating jurisdictional and ballot content-related information is available when no election status has yet been set. Once the Cards Laid Out status is set, any tasks that may lead to card layouts changing such as ballot content or jurisdictional information may no longer be performed. Setting the Cards Printed status further prohibits the operator from access to any functions that may change the look of the printed image of the ballot in addition to any of the functions to which access has been denied when the election status is set to Cards Laid Out.

Once the status is set to Set for Election, any functions that may change election setup as well as those when the status is Cards Printed are also prohibited. Access to functions that allow memory card programming, central counting, receiving and reporting of election results are now enabled.

6.1. Setting the election status

In order to set the election status, select Setup in the menu bar, click on Election in the drop-down menu, and ensure that the Election Info tab is selected in the Election Options window. Select the appropriate election status in the Election Status group box. See Figure 6-1.

In order to select an advanced election status, simply select the check box to the right of the current status. All prior check boxes will automatically be selected and disabled. By selecting a status check box that is currently selected, the status will revert to the prior election status check box. When reverting to an earlier status, it is necessary to de-select statuses one by one.

![Figure 6-1. Election Status group box](image)

If information in the database has changed that affects the layout of ballots, the election status boxes are disabled and cannot be set until ballot artwork has been generated. At the outset of election configuration, ballot artwork must be first generated before an election status may be set. The election status is also disabled if any of the AccuVote-OS Server 1, AccuVote-TS Server 2, Central Count, Results Server, Region Server, or Poster consoles are active.

When setting the election status to Set for Election, the operator must confirm the following message: “Once set, only Admin users can exit Election Mode. Continue?” Press the Yes button in order to continue, press No button if you do not want to continue. See Figure 6-2.

![Figure 6-2. Confirmation message](image)
6.2. Resetting the Election Status

Caution must be exercised in re-setting the election status. In the ballot development stages or earlier, the election status is not critical. However, once ballot artwork has been finalized and has been delivered to be printed, setting the election status to Cards Printed is critical in assuring that no activity may accidentally be performed that will change ballot layout or content. Furthermore, once memory cards have been programmed, it is essential that the status not be re-set from Set for Election, as GEMS will no longer recognize the current version(s) of memory cards programmed, unless memory cards have been programmed specifically for test purposes.

Databases should be backed up upon being set to a particular election status as well as once memory cards have been programmed in order to provide a recourse in case of erroneous re-setting of the election status in conjunction with performing activities that compromise data integrity. Note that re-setting the election status does not automatically compromise the integrity of ballot artwork, it only facilitates access to functions that allow ballot artwork to be changed.

When the election status is reset from Set for Election, the operator must confirm the following message: “WARNING: This will clear all the election results. Okay to proceed?” Press the Yes button to continue, press No button to not continue. See Figure 6-3. Note that only users with administrative privileges can reset the election status – if the operator does not have these privileges, the status check boxes are disabled.

It is not possible to reset the election status from ‘Set for Election’ in databases accessed with a non-Host region user id.

6.2.1. Functionality

GEMS functions that are available in each election mode are listed for both the menu bar and editors. All functions accessible from drop-down menus or cascading menus are implied for every menu bar entry provided unless otherwise stated. A floating entry is located in the menu bar between View and Artwork, and is described in the following section.

6.2.2. Menu bar access

GEMS menu bar functionality (other than floating menu bar entries) is described in Table 6-1.
### Table 6-1. GEMS Menu Bar Functionality

<table>
<thead>
<tr>
<th>Election Status</th>
<th>Election</th>
<th>Setup</th>
<th>View</th>
<th>Artwork</th>
<th>GEMS</th>
<th>Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>No status</td>
<td>all except Export &amp; Export Results within Export Results</td>
<td>all</td>
<td>all</td>
<td>all</td>
<td>Pre Election Reports, Voter Registration, Audit Log only</td>
<td>all</td>
</tr>
<tr>
<td>Cards Laid Out</td>
<td>all except Export and Export Results within Export Results</td>
<td>all</td>
<td>all</td>
<td></td>
<td>Pre Election Reports, Voter Registration, Audit Log only</td>
<td>all</td>
</tr>
<tr>
<td>Cards Printed</td>
<td>all except Export Voter Card Info within Export and Export Results within Export Results</td>
<td>all</td>
<td>all</td>
<td></td>
<td>Print Artwork only</td>
<td>all</td>
</tr>
<tr>
<td>Set for Election</td>
<td>all except Standard Import and LA Import within Import</td>
<td>all</td>
<td>all</td>
<td></td>
<td>Print Artwork only</td>
<td>all</td>
</tr>
</tbody>
</table>

#### 6.3. Editors

All editors accessible from Setup in the menu bar as well as either the tree or list view are present in the following list, as well as a description of the fields and functions available in the editor for the election status. All editors accessible from the menu bar are fully functional when they are enabled (see Table 6-2, Table 6-3, Table 6-4 and Table 6-5).

##### 6.3.1. No status
<table>
<thead>
<tr>
<th>Editor</th>
<th>Description</th>
<th>Editor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Election Options</td>
<td>all</td>
<td>Reporting Sets</td>
<td>all</td>
</tr>
<tr>
<td>User Modification</td>
<td>all</td>
<td>Monitor Scripts</td>
<td>all</td>
</tr>
<tr>
<td>Regions</td>
<td>all</td>
<td>District Editor</td>
<td>all</td>
</tr>
<tr>
<td>Language</td>
<td>all</td>
<td>Report Precinct Editor</td>
<td>all</td>
</tr>
<tr>
<td>Voter Group Editor</td>
<td>all</td>
<td>Base Precinct Editor</td>
<td>all</td>
</tr>
<tr>
<td>Counter Group Editor</td>
<td>all</td>
<td>Race Editor</td>
<td>all</td>
</tr>
<tr>
<td>Ballot Options</td>
<td>all</td>
<td>Header Editor</td>
<td>all</td>
</tr>
<tr>
<td>Race Options</td>
<td>all</td>
<td>Ballot Editor</td>
<td>all</td>
</tr>
<tr>
<td>AccuVote-OS Options</td>
<td>all</td>
<td>Card Editor</td>
<td>all</td>
</tr>
<tr>
<td>AccuVote-TS Options</td>
<td>all</td>
<td>Vote Center Editor</td>
<td>all</td>
</tr>
</tbody>
</table>

Table 6-2. No Status Editors

6.3.2. Cards Laid Out
<table>
<thead>
<tr>
<th>Editor</th>
<th>Description</th>
<th>Editor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Election Options</td>
<td>all</td>
<td>Reporting Sets</td>
<td>all</td>
</tr>
<tr>
<td>User Modification</td>
<td>all</td>
<td>Monitor Scripts</td>
<td>all</td>
</tr>
<tr>
<td>Regions</td>
<td>all</td>
<td>District Editor</td>
<td>Rotation District and Start Rotation # disabled; no deletion</td>
</tr>
<tr>
<td>Language</td>
<td>all</td>
<td>Report Precinct Editor</td>
<td>all</td>
</tr>
<tr>
<td>Voter Group Editor</td>
<td>all</td>
<td>Base Precinct Editor</td>
<td>no deletion; cannot change precinct-district relationships</td>
</tr>
<tr>
<td>Counter Group Editor</td>
<td>all</td>
<td>Race Editor</td>
<td>no addition or deletion; cannot change Type, District, Race Id, Force Re-Layout; Rotation Options, Size Options, Candidate Grid Layout, Candidate Block Options, Voter Groups or Controlling Races group boxes; or Art Seq., Report Seq. or Endorse; no candidate deletion</td>
</tr>
<tr>
<td>Ballot Options</td>
<td>all except Card Templates, Force Re-Layout, Oval Justification, and Box Margins and Shift Box group boxes</td>
<td>Header Editor</td>
<td>no addition or deletion; cannot change Header Id, Force Re-Layout; Placement Options, Type, Link to Race IDs, Voter Groups, Grouping Options group boxes; AccuVote-OS and Width fields</td>
</tr>
<tr>
<td>Race Options</td>
<td>all</td>
<td>Ballot Editor</td>
<td>cannot save, cut, paste, create new card, delete card, change orientation, size or drag</td>
</tr>
<tr>
<td>AccuVote-OS Options</td>
<td>all</td>
<td>Card Editor</td>
<td>cannot save, cut, paste, change orientation, size or drag</td>
</tr>
<tr>
<td>AccuVote-TS Options</td>
<td>all</td>
<td>Vote Center Editor</td>
<td>all</td>
</tr>
</tbody>
</table>

Table 6-3. Cards Laid Out Editors

6.3.3. Cards Printed
Table 6-4. Cards Printed Editors

<table>
<thead>
<tr>
<th>Editor</th>
<th>Description</th>
<th>Editor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Election Options</td>
<td>all except Election Date/Time and EID</td>
<td>Reporting Sets</td>
<td>all</td>
</tr>
<tr>
<td>User Modification Regions</td>
<td>all</td>
<td>Monitor Scripts</td>
<td>all</td>
</tr>
<tr>
<td>Language</td>
<td>all</td>
<td>District Editor</td>
<td>Rotation District and Start Rotation # disabled; no deletion</td>
</tr>
<tr>
<td>Voter Group Editor</td>
<td>all except Color, Separate Ballot and Rotate Ballots</td>
<td>Base Precinct Editor</td>
<td>no deletion; cannot change precinct-district relationships</td>
</tr>
<tr>
<td>Counter Group Editor</td>
<td>all</td>
<td>Race Editor</td>
<td>no addition or deletion; cannot change Type, District, Race Id, Force Re-Layout or race text; nothing under Options tab except Include On check boxes and Race and Candidates colors; or Art Seq., Report Seq., Endorse or candidate text; no candidate deletion</td>
</tr>
<tr>
<td>Ballot Options</td>
<td>none</td>
<td>Header Editor</td>
<td>no addition or deletion; cannot change Header Id, Force Re-Layout or header text; nothing under Options tab except Color and AccuVote-TS check box</td>
</tr>
<tr>
<td>Race Options</td>
<td>all</td>
<td>Ballot Editor</td>
<td>cannot save, cut, paste, create new card, delete card, change orientation, size or drag</td>
</tr>
<tr>
<td>AccuVote-OS Options</td>
<td>all</td>
<td>Card Editor</td>
<td>cannot save, cut, paste, change orientation, size or drag</td>
</tr>
<tr>
<td>AccuVote-TS Options</td>
<td>all</td>
<td>Vote Center Editor</td>
<td>all</td>
</tr>
</tbody>
</table>

6.3.4. Set for Election
<table>
<thead>
<tr>
<th>Editor</th>
<th>Description</th>
<th>Editor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Election Options</td>
<td>Election Status only</td>
<td>Reporting Sets</td>
<td>all</td>
</tr>
<tr>
<td>User Modification</td>
<td>all</td>
<td>Monitor Scripts</td>
<td>all</td>
</tr>
<tr>
<td>Regions</td>
<td>all except deletion</td>
<td>District Editor</td>
<td>Rotation District and Start Rotation # disabled; no deletion</td>
</tr>
<tr>
<td>Language</td>
<td>all</td>
<td>Report Precinct Editor</td>
<td>no addition or deletion; cannot change Id</td>
</tr>
<tr>
<td>Voter Group Editor</td>
<td>Export Id only</td>
<td>Base Precinct Editor</td>
<td>no addition or deletion; cannot change precinct-district relationships</td>
</tr>
<tr>
<td>Counter Group Editor</td>
<td>Short, Export and Percent Ballots only</td>
<td>Race Editor</td>
<td>no addition or deletion; cannot change Type, District, Race Id, Vote For, Force Re-Layout or race text; nothing under Options tab except Race and Candidates colors and Include On group box; or Art Seq., Report Seq., Type, Endorse, candidate text, or Audio; no candidate deletion</td>
</tr>
<tr>
<td>Ballot Options</td>
<td>none</td>
<td>Header Editor</td>
<td>no addition or deletion; cannot change Header Id, Force Re-Layout or header text; nothing under Options tab except Color</td>
</tr>
<tr>
<td>Race Options</td>
<td>Race and Candidates colors, Header color and Endorsement Default Settings only</td>
<td>Ballot Editor</td>
<td>cannot save, cut, paste, create new card, delete card, change orientation, size or drag</td>
</tr>
<tr>
<td>AccuVote-OS Options</td>
<td>Auto Absentee Only</td>
<td>Card Editor</td>
<td>cannot save, cut, paste, change orientation, size or drag</td>
</tr>
<tr>
<td>AccuVote-TS Options</td>
<td>none</td>
<td>Vote Center Editor</td>
<td>Label, No. Mem Cards, Export, Calc. Size, Closed, UL Phone #, Notes Only</td>
</tr>
</tbody>
</table>

Table 6-5. Set for Election Editors

6.4. Floating Menu Bar Entries

The menu bar contains floating entries that appear according to tree or list view selections. These include District, Report Precinct, Base Precinct, Races, Headers, Ballots, BallotRots, and Vote Center. Each entry comprises drop-down menus that vary according to the Election Status.

6.4.1. No Election Status

The following floating entries and applicable drop-down menu entries appear in the menu bar if the election status has not been set.
6.4.1.1. Districts

Districts appear in the menu bar if District, a district category or district child are selected. If District is selected, only the New District entry appears in the drop-down menu, allowing the creation of a new district. If a district category or district child is selected, the drop-down menu includes the Add, Edit, and Delete District functions as well as Add Child District. Note that as many levels of child districts may be defined as required, although creating an excessively deep district hierarchy should be avoided.

6.4.1.2. Report Precinct

Report Precinct appears in the menu bar if a report precinct category or report precinct have been selected. If a report precinct category has been selected—either Default Precinct Category or Cumulative Reportunits—you may only create a report precinct using the New Report Precinct function. If a report precinct is selected in the Default Precinct Category, the drop-down menu contains Add, Edit, and Delete Report Precinct functions, as well as Add Base Precinct.

If a report precinct is selected in Cumulative Reportunits, only the Add, Edit, and Delete Report Precinct functions are listed. Base precincts may only be added to polling report precincts.

6.4.1.3. Base Precinct

Selecting a base precinct causes the Base Precinct entry to be displayed in the menu bar. The Base Precinct drop-down menu includes the Edit and Delete Base Precinct functions.

6.4.1.4. Races

Races appear in the menu bar if either Race or a particular race is selected. New Race is the only function present in the drop-down menu if Race is selected; Add, Edit, and Delete Race are present in the drop-down list if a race is selected.

6.4.1.5. Headers

Headers appear in the menu bar if either Header or a particular header is selected. New Header is the only function present in the drop-down menu if Header is selected; Add, Edit, and Delete Header are present in the drop-down list if a header is selected.

6.4.1.6. Ballots

Ballots are present in the menu bar if a ballot style is selected. The only option possible is Edit Ballot.

6.4.1.7. BallotRots

BallotRots is present in the menu bar if a ballot, card style or card is selected. If a ballot is selected, the drop-down menu contains Edit BallotRot. If a card style is selected, the drop-down menu contains Edit Card. If a card is selected, the drop-down menu contains Edit CardRot.

6.4.1.8. Vote Centers

Vote Centers are displayed in the menu bar if a vote center category, such as Polling Vote Center is selected. The drop-down menu contains New Vote Center.

6.4.1.9. Vote Center

Vote Center is displayed in the menu bar if a vote center is selected. The drop-down menu includes Add Vote Center, Edit Vote Center and Delete Vote Center.
6.4.2. Cards Laid Out

The following floating entries and applicable drop-down menu entries appear in the menu bar if the election status is set to 'Cards Laid Out.'

6.4.2.1. Districts

Districts appear in the menu bar if District, a district category or district child are selected. If District is selected, only the New District entry appears in the drop-down menu, allowing the creation of a new district. If a district category or district child is selected, the drop-down menu includes the Add, Edit, and Delete District functions as well as Add Child District. Note that as many levels of child districts may be defined as required, although creating an excessively deep district hierarchy should be avoided.

6.4.2.2. Report Precinct

Report Precinct appears in the menu bar if a report precinct category or report precinct have been selected. If a report precinct category has been selected—either Default Precinct Category or Cumulative Reportunits—you may only create a report precinct using the New Report Precinct function. If a report precinct is selected in the Default Precinct Category, the drop-down menu contains Add, Edit, and Delete Report Precinct functions, as well as Add Base Precinct.

If a report precinct is selected in Cumulative Reportunits, only the Add, Edit, and Delete Report Precinct functions are listed. Base precincts may only be added to polling report precincts.

6.4.2.3. Base Precinct

Selecting a base precinct causes the Base Precinct entry to be displayed in the menu bar. The Base Precinct drop-down menu includes the Edit and Delete Base Precinct functions.

6.4.2.4. Races

Races appear in the menu bar if either Race or a particular race is selected. New Race is the only function present in the drop-down menu if Race is selected; Add, Edit, and Delete Race are present in the drop-down list if a race is selected.

6.4.2.5. Headers

Headers appear in the menu bar if either Header or a particular header is selected. New Header is the only function present in the drop-down menu if Header is selected; Add, Edit, and Delete Header are present in the drop-down list if a header is selected.

6.4.2.6. Ballots

Ballots are present in the menu bar if a ballot style is selected. The only option possible is Edit Ballot.

6.4.2.7. BallotRots

BallotRots is present in the menu bar if a ballot, card style or card is selected. If a ballot is selected, the drop-down menu contains Edit BallotRot. If a card style is selected, the drop-down menu contains Edit Card. If a card is selected, the drop-down menu contains Edit CardRot.

6.4.2.8. Vote Centers

Vote Centers are displayed in the menu bar if a vote center category, such as Polling Vote Center is selected. The drop-down menu contains New Vote Center.
6.4.2.9. Vote Center

Vote Center is displayed in the menu bar if a vote center is selected. The drop-down menu includes Add Vote Center, Edit Vote Center and Delete Vote Center.

6.4.3. Cards Printed

The following floating entries appear in the menu bar including corresponding drop-down menu entries if the election status is set to ‘Cards Printed.

6.4.3.1. Districts

Districts appear in the menu bar if a district category or district child is selected. If a district category or district child is selected, the drop-down menu includes the Add and Edit District functions as well as Add Child District.

6.4.3.2. Report Precinct

Report Precinct appears in the menu bar if a report precinct or the Cumulative Reportunits report precinct category have been selected. If Cumulative Reportunits has been selected, you may only create a report precinct using the New Report Precinct function. The Report Precinct drop-down list includes Edit Report Precinct only if a report precinct is selected in either report precinct category.

6.4.3.3. Base Precinct

Selecting a base precinct causes the Base Precinct entry to be displayed in the menu bar. The Base Precinct drop-down menu only includes Edit Base Precinct.

6.4.3.4. Races

Races appear in the menu bar only if a particular race is selected. The Race drop-down list includes Edit Race only.

6.4.3.5. Headers

Headers appear in the menu bar only if a particular header is selected. The Headers drop-down list includes Edit Header only.

6.4.3.6. Ballots

Ballots appear in the menu bar if a ballot style is selected. The only option possible is Edit Ballot.

6.4.3.7. BallotRots

BallotRots is present in the menu bar if a ballot, card style or card is selected. If a ballot is selected, the drop-down menu contains Edit BallotRot. If a card style is selected, the drop-down menu contains Edit Card. If a card is selected, the drop-down menu contains Edit CardRot.

6.4.3.8. Vote Center

Vote Center is displayed in the menu bar if a vote center is selected. The drop-down menu includes Edit Vote Center only.

6.4.4. Set for Election

The following floating entries appear in the menu bar including corresponding drop-down menu entries if the election status is set to ‘Set for Election.’
6.4.4.1. Districts

Districts appear in the menu bar if a district category or district child is selected. If a district category or district child is selected, the drop-down menu includes Edit District as well as Add Child District.

6.4.4.2. Report Precinct

Report Precinct appears in the menu bar if a report precinct or the Cumulative Reportunits report precinct category have been selected. If Cumulative Reportunits has been selected, you may only create a report precinct using the New Report Precinct function. If a report precinct is selected in either report precinct category, the Report Precinct drop-down list includes Edit Report Precinct and Manual Entry.

6.4.4.3. Base Precinct

Selecting a base precinct causes Base Precinct to be displayed in the menu bar. The Base Precinct drop-down menu only includes Edit Base Precinct.

6.4.4.4. Races

Races appear in the menu bar if a race is selected. The Race drop-down list includes Edit Race only.

6.4.4.5. Headers

Headers appear in the menu bar if a header is selected. The Headers drop-down list includes Edit Header only.

6.4.4.6. Ballots

Ballots appear in the menu bar if a ballot style is selected. The only option possible is Edit Ballot.

6.4.4.7. BallotRots

BallotRots is present in the menu bar if a ballot, card style or card is selected. If a ballot is selected, the drop-down menu contains Edit BallotRot. If a card style is selected, the drop-down menu contains Edit Card. If a card is selected, the drop-down menu contains Edit CardRot.

6.4.4.8. Vote Center

Vote Center is displayed in the menu bar if a vote center is selected. The drop-down menu includes Edit Vote Center and Manual Entry.
7. Appendix C: Rotation Rules

This appendix describes all of the candidate rotation rules supported by GEMS as well as providing examples of each. The smallest geographical unit candidates rotate over is the report precinct. A report precinct with more than one base precinct receives the same candidate rotation in all base precincts.

Generating ballots creates ballot styles and card styles. The Generate Ballot Rotation function then creates both ballots and cards.

Rotations are numbered from 0 onward. Rotation 0 refers to candidates listed in ascending ID order. The first candidate in rotation 0 is placed at the bottom of the candidate list in rotation 1, the first candidate in rotation 1 is placed at the bottom of the candidate list in rotation 2, and so on.

Example

Betty Baxter, Bob Wood, Janet Foley and Dick Jackson are running for the office of State Senator and are entered in the database in this order.

<table>
<thead>
<tr>
<th>Rotation</th>
<th>Ordered candidates</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Betty Baxter, Bob Wood, Janet Foley, Dick Jackson</td>
</tr>
<tr>
<td>1</td>
<td>Bob Wood, Janet Foley, Dick Jackson, Betty Baxter</td>
</tr>
<tr>
<td>2</td>
<td>Janet Foley, Dick Jackson, Betty Baxter, Bob Wood</td>
</tr>
<tr>
<td>3</td>
<td>Dick Jackson, Betty Baxter, Bob Wood, Janet Foley</td>
</tr>
</tbody>
</table>

7.1. Precinct Rotation

Precinct rotation rotates the order of candidates at precinct boundaries. The first candidate is moved to the bottom of the candidate list in order to create the next precinct rotation. Once all candidates have been enumerated rotation starts again with the original candidate list. The number of unique precinct rotations is the lesser of the number of candidates in the race and the number of precincts the race runs in.

Example

Betty Baxter and Bob Wood are running for the office of State Senator, which occurs in report precincts Ford, Baker, Grant and Maxwell. Candidates are rotated as follows:

<table>
<thead>
<tr>
<th>Report Precinct</th>
<th>Rot</th>
<th>Ordered Candidates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ford</td>
<td>0</td>
<td>Betty Baxter, Bob Wood</td>
</tr>
<tr>
<td>Baker</td>
<td>1</td>
<td>Bob Wood, Betty Baxter</td>
</tr>
<tr>
<td>Grant</td>
<td>0</td>
<td>Betty Baxter, Bob Wood</td>
</tr>
<tr>
<td>Maxwell</td>
<td>1</td>
<td>Bob Wood, Betty Baxter</td>
</tr>
</tbody>
</table>

Example

In another example, Betty Baxter, Bob Wood, Janet Foley and Dick Jackson are running for the office of State Senator in the precincts Ford and Baker. Candidates are then rotated

<table>
<thead>
<tr>
<th>Report Precinct</th>
<th>Rot</th>
<th>Ordered Candidates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ford</td>
<td></td>
<td>Betty Baxter, Bob Wood</td>
</tr>
<tr>
<td>Baker</td>
<td></td>
<td>Bob Wood, Betty Baxter</td>
</tr>
</tbody>
</table>
7.2. Precinct by Voter Registration

Candidates are rotated by precinct in decreasing order of report precinct voter registration totals. A report precinct's voter registration total comprises the voter registration amounts of all base precincts in which the race is valid as well as voter groups in the report precinct. The number of rotations is the lesser of the number of candidates and the number of applicable precincts.

**Example**

The same candidates are running for the office of State Senator as in the second example in section 7.1 Precinct Rotation, except in the report precincts Ford, Baker, Grant and Maxwell, which contain voter registration totals 1300, 1200, 1100 and 1100, respectively. Precinct rotations by voter registration are as follows:

<table>
<thead>
<tr>
<th>Report Precinct</th>
<th>Voter Registration</th>
<th>Rot</th>
<th>Ordered Candidates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ford</td>
<td>1300</td>
<td>0</td>
<td>Betty Baxter, Bob Wood, Janet Foley, Dick Jackson</td>
</tr>
<tr>
<td>Baker</td>
<td>1200</td>
<td>1</td>
<td>Bob Wood, Janet Foley, Dick Jackson, Betty Baxter</td>
</tr>
<tr>
<td>Grant</td>
<td>1100</td>
<td>2</td>
<td>Janet Foley, Dick Jackson, Betty Baxter, Bob Wood</td>
</tr>
<tr>
<td>Maxwell</td>
<td>1000</td>
<td>3</td>
<td>Dick Jackson, Betty Baxter, Bob Wood, Janet Foley</td>
</tr>
</tbody>
</table>

**Example**

The voter registration amounts in the prior example are now Ford 1300, Baker 1500, Grant 1200 and Maxwell 1700.

<table>
<thead>
<tr>
<th>Report Precinct</th>
<th>Voter Registration</th>
<th>Rot</th>
<th>Ordered Candidates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ford</td>
<td>1300</td>
<td>0</td>
<td>Betty Baxter, Bob Wood, Janet Foley, Dick Jackson</td>
</tr>
<tr>
<td>Baker</td>
<td>1500</td>
<td>1</td>
<td>Bob Wood, Janet Foley, Dick Jackson, Betty Baxter</td>
</tr>
<tr>
<td>Grant</td>
<td>1200</td>
<td>2</td>
<td>Janet Foley, Dick Jackson, Betty Baxter, Bob Wood</td>
</tr>
<tr>
<td>Maxwell</td>
<td>1700</td>
<td>3</td>
<td>Dick Jackson, Betty Baxter, Bob Wood, Janet Foley</td>
</tr>
</tbody>
</table>
Appendix C: Rotation Rules

**Example**

Four candidates are running for the board of School District 1 in precincts Ford, Baker, Grant and Maxwell. The report precincts contain the same numbers of registered voters as in Example 4, but only 900 registered voters in Ford and 600 in Baker may vote for this office.

<table>
<thead>
<tr>
<th>Report Precinct</th>
<th>Base Precinct</th>
<th>Voter Registration</th>
<th>Voter Reg. Total</th>
<th>Rot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ford</td>
<td>Ford School 1</td>
<td>900</td>
<td>1300</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Ford School 2</td>
<td>400</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baker</td>
<td>Baker School 1</td>
<td>600</td>
<td>1200</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Baker School 2</td>
<td>600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grant</td>
<td>Grant</td>
<td>1100</td>
<td>1100</td>
<td>0</td>
</tr>
<tr>
<td>Maxwell</td>
<td>Maxwell</td>
<td>1100</td>
<td>1100</td>
<td>1</td>
</tr>
</tbody>
</table>

While the total voters registered in report precincts Ford and Baker exceed those of Grant and Maxwell, there are in fact less voters eligible to vote on the race in these precincts. The same principle applies to all rotation rules based on voter registration.

7.3. **District Rotation**

Districts are used in order to rotate candidates as well as determining the geographical scope of races. A candidate list rotated by district changes with every district in a category. The number of district rotations is the lesser of the number of candidates and the number of applicable districts.

**Example**

John Smith, Jane Doe and Jim Black are running for the office of U.S. Senator, which is rotated over the three State Assembly districts. Candidates for the U.S. Senate race appear in the order of John Smith, Jane Doe and Jim Black in the precincts comprising State Assembly district 31; Jane Doe, Jim Black and John Smith in the precincts of State Assembly district 32 and Jim Black, John Smith and Jane Doe in the precincts comprising State Assembly district 33.

7.4. **Kansas rotation**

Kansas rotation distributes rotations according to the distribution of voter registration amounts in a race's district. Rather than assign a new rotation to each precinct, the number of precincts each rotation occurs is weighed by the voter registration amounts in those precincts. Voter registration amounts for all precincts in the race's district are totaled and divided by the number of candidates in the race. Precincts are arranged in increasing order by voter registration, and the multiple of the total averaged by candidate closest to the running registration total determines the rotation number.

It may not be possible to assign all rotations to precincts where differences between voter registration amounts tend to be exaggerated. GEMS completes all rotation assignments by attempting to minimize the largest deviations between precinct voter registration totals and candidate averages. Commonly, the number of Kansas rotations generated will be the lesser of the number of applicable precincts and the number of candidates.

**Example**

Four candidates are running for State Senator in the same precincts as in the first example in section 7.2 Precinct by Voter Registration, except that Kansas rotation applies and each precinct has exactly 1200 registered voters. The candidate average is \((1200 + 1200 + 1200 + 1200)/4 = 1200\).
Appendix C: Rotation Rules

## Report Precinct Voter Registration Cumulative Voter Registration Candidate Multiple (1200 x) Rotation

<table>
<thead>
<tr>
<th>Precinct</th>
<th>Voter Registration</th>
<th>Cumulative Voter Registration</th>
<th>Candidate Multiple</th>
<th>Rotation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ford</td>
<td>1200</td>
<td>1200</td>
<td>1 = 1200</td>
<td>0</td>
</tr>
<tr>
<td>Baker</td>
<td>1200</td>
<td>2400</td>
<td>2 = 2400</td>
<td>1</td>
</tr>
<tr>
<td>Grant</td>
<td>1200</td>
<td>3600</td>
<td>3 = 3600</td>
<td>2</td>
</tr>
<tr>
<td>Maxwell</td>
<td>1200</td>
<td>2800</td>
<td>4 = 4800</td>
<td>3</td>
</tr>
</tbody>
</table>

Since the cumulative voter registration total in precinct Ford is 1200 and equal to the first multiple of the candidate average, Ford is assigned the first rotation. The cumulative total in Baker is 2400 and is equal to the second multiple of the candidate average, so Baker is assigned rotation 2. The cumulative total in Grant is 3600 and is equal to the third multiple of the candidate average and Grant is assigned rotation 3. Similarly, Maxwell is assigned rotation 4.

### Example

Four candidates are running for the office of State Senator in the same precincts as in the second example in this section, as well as the precincts Johnson, Tulane, Fargo and Rogers, which also have 1200 registered voters each. The candidate average is now \((8 \times 1200)/4 = 2400\).

<table>
<thead>
<tr>
<th>Report precinct</th>
<th>Voter registration</th>
<th>Cumulative Voter Reg.</th>
<th>Candidate multiple (2400 x)</th>
<th>Rot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ford</td>
<td>1200</td>
<td>1200</td>
<td>1 = 2400</td>
<td>0</td>
</tr>
<tr>
<td>Baker</td>
<td>1200</td>
<td>2400</td>
<td>1 = 2400</td>
<td>0</td>
</tr>
<tr>
<td>Grant</td>
<td>1200</td>
<td>3600</td>
<td>2 = 4800</td>
<td>1</td>
</tr>
<tr>
<td>Maxwell</td>
<td>1200</td>
<td>4800</td>
<td>2 = 4800</td>
<td>1</td>
</tr>
<tr>
<td>Johnson</td>
<td>1200</td>
<td>6000</td>
<td>3 = 7200</td>
<td>2</td>
</tr>
<tr>
<td>Tulane</td>
<td>1200</td>
<td>7200</td>
<td>3 = 7200</td>
<td>2</td>
</tr>
<tr>
<td>Fargo</td>
<td>1200</td>
<td>8400</td>
<td>4 = 9600</td>
<td>3</td>
</tr>
<tr>
<td>Rogers</td>
<td>1200</td>
<td>9600</td>
<td>4 = 9600</td>
<td>3</td>
</tr>
</tbody>
</table>

The cumulative precinct total in Ford is 1200, less than the first multiple of the candidate average, and the precinct is assigned the first rotation. In Baker, the cumulative precinct total is 2400, equal to the first multiple of the candidate average, and the precinct is again assigned the first rotation. In Grant, the cumulative precinct total is 3600, which is half way between the first and second candidate multiple, so Grant is assigned the second rotation. In this manner all four rotations are distributed across all eight precincts.

### 7.5. Minnesota rotation

Minnesota rotation assigns candidate rotations to precincts in decreasing order of voter registration total. A running voter registration total is kept for each rotation. If the race is active in more precincts than there are rotations, every remaining precinct is assigned the rotation with the lowest cumulative voter registration total. The number of Minnesota rotations generated for a race is the lesser of the number of precincts and the number of candidates.
Appendix C: Rotation Rules

**Example**

Four candidates are running for the office of State Senator in precincts Ford, Baker, Grant and Maxwell, which hold 1300, 1500, 1200 and 1700 registered voters, respectively. According to Minnesota rotation, precincts are assigned rotations in decreasing order of registered voters.

<table>
<thead>
<tr>
<th>Report Precinct</th>
<th>Voter registration</th>
<th>Rot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ford</td>
<td>1300</td>
<td>2</td>
</tr>
<tr>
<td>Baker</td>
<td>1500</td>
<td>1</td>
</tr>
<tr>
<td>Grant</td>
<td>1200</td>
<td>3</td>
</tr>
<tr>
<td>Maxwell</td>
<td>1700</td>
<td>0</td>
</tr>
</tbody>
</table>

**Example**

Now the office of State Senator is being held in precincts Wilson, Jordan, Tyler and Hardy with 1100, 1600, 1900 and 1400 registered voters, respectively. Arranged in decreasing order of voter registration:

<table>
<thead>
<tr>
<th>Report Precinct</th>
<th>Voter registration</th>
<th>Rot</th>
<th>Running Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tyler</td>
<td>1900</td>
<td>0</td>
<td>1900</td>
</tr>
<tr>
<td>Maxwell</td>
<td>1700</td>
<td>1</td>
<td>1700</td>
</tr>
<tr>
<td>Jordan</td>
<td>1600</td>
<td>2</td>
<td>1600</td>
</tr>
<tr>
<td>Baker</td>
<td>1500</td>
<td>3</td>
<td>1500</td>
</tr>
</tbody>
</table>

The four candidate rotations are assigned in succession to the precincts with the highest voter registration amounts, in decreasing order.

<table>
<thead>
<tr>
<th>Report Precinct</th>
<th>Voter registration</th>
<th>Rot</th>
<th>Running Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardy</td>
<td>1400</td>
<td>3</td>
<td>2900</td>
</tr>
<tr>
<td>Ford</td>
<td>1300</td>
<td>2</td>
<td>2900</td>
</tr>
<tr>
<td>Grant</td>
<td>1200</td>
<td>1</td>
<td>2900</td>
</tr>
<tr>
<td>Wilson</td>
<td>1100</td>
<td>0</td>
<td>3000</td>
</tr>
</tbody>
</table>

Every remaining precinct is assigned the candidate rotation with lowest amount of cumulative registered voters. The next precinct in decreasing order of voter registration is Hardy, with 1400 registered voters. Rotation 3 has the lowest cumulative registered voters (1500) and is therefore assigned to Hardy. Ford is next and is assigned the rotation following 3 with the least number of registered voters (1600). Grant and Wilson are assigned rotations in a similar manner.

7.6. Pima County

Report precincts listed in decreasing order of voter registration are assigned from 0 to the last rotation, then the last rotation to rotation 0, again rotation 0 to the last rotation, and so on. The number of Pima rotations generated for a race is the lesser of the number of precincts and the number of candidates.

**Example**

Four candidates are running for the office of State Senator in the same precincts as in the first example in section 7.5 Minnesota rotation as well as in precincts Johnson, Tulane, Fargo and Rogers, with voter registration amounts 1800, 2100, 1250 and 1450, respectively. Pima County rotation is effected as follows:
Appendix C: Rotation Rules

Report  Voter  Rot
precinct  registration
Tulane   2100  0
Tyler    1900  1
Johnson  1800  2
Maxwell  1700  3
Jordan   1600  3
Baker    1500  2
Rogers   1450  1
Hardy   1400  0
Ford     1300  0
Fargo    1250  1
Grant    1200  2
Wilson   1100  3

7.7. King County

Candidates are rotated when the accumulated voter registration amounts of base precincts listed in Polling vote center category order exceed a specified limit. Not all rotations are necessarily enumerated using this rule – the number of King rotations generated will be between 1 and the lesser of the number of candidates and the number of precincts.

**Example**

Report precincts Ford, Baker, Grant and Maxwell contain 1300, 1500, 1200 and 1700 registered voters, respectively. Each report precinct corresponds to one base precinct and is contained in a vote center of the same name. King County rotation is applied with a 1000-voter cutoff to the four candidates running for the office of State Senator as follows:

<table>
<thead>
<tr>
<th>Base Precinct</th>
<th>Report Precinct</th>
<th>Vote Center</th>
<th>Registered Voters</th>
<th>Rotation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ford</td>
<td>Ford</td>
<td>Ford</td>
<td>1300</td>
<td>0</td>
</tr>
<tr>
<td>Baker</td>
<td>Baker</td>
<td>Baker</td>
<td>1500</td>
<td>1</td>
</tr>
<tr>
<td>Grant</td>
<td>Grant</td>
<td>Grant</td>
<td>1200</td>
<td>2</td>
</tr>
<tr>
<td>Maxwell</td>
<td>Maxwell</td>
<td>Maxwell</td>
<td>1700</td>
<td>3</td>
</tr>
</tbody>
</table>

**Example**

King County rotation is applied to the candidates in the first example in this section, with a 3000-voter cutoff.

<table>
<thead>
<tr>
<th>Base Precinct</th>
<th>Report Precinct</th>
<th>Vote Center</th>
<th>Registered Voters</th>
<th>Rotation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ford</td>
<td>Ford</td>
<td>Ford</td>
<td>1300</td>
<td>0</td>
</tr>
<tr>
<td>Baker</td>
<td>Baker</td>
<td>Baker</td>
<td>1500</td>
<td>0</td>
</tr>
<tr>
<td>Grant</td>
<td>Grant</td>
<td>Grant</td>
<td>1200</td>
<td>1</td>
</tr>
<tr>
<td>Maxwell</td>
<td>Maxwell</td>
<td>Maxwell</td>
<td>1700</td>
<td>1</td>
</tr>
</tbody>
</table>

Only two out of four possible rotations are employed in this case. Rotation 0 is applied to the first base precinct in the list. Since the cumulative voter registration amount in Baker is 2800 and does not exceed
to rotation cutoff of 3000, Baker is also assigned rotation 0. Grant's cumulative voter registration amount of 4000 exceeds the cutoff and Grant is assigned rotation 1. Since Maxwell's cumulative voter registration is 2900 (including Grant) and does not exceed the 3000 cutoff, it is also assigned rotation 1. Even though four precincts are present with four possible rotations, only two rotations are assigned.

7.8. Voter group

Each rotation rule may extend to rotate candidates by voter group. Rather than rotating over the entire candidate list, candidates are only rotated within their voter group, that is, the endorsing political party. Voter group rotation is only applicable to races with a number to vote for greater than 1, since races with a number to vote for equal to 1 may have no more than one candidate endorsed by a political party. Unaffiliated candidates are rotated separately.

Note that cross-endorsed candidates are rotated by voter group only if they appear on the ballot once for every endorsing party.

**Example**

Voters in precincts Ford and Baker may select up to three candidates running for the office of City Council, which is rotated by precinct within voter group.

<table>
<thead>
<tr>
<th>Candidate list</th>
<th>Voter group</th>
<th>Rotation 0</th>
<th>Rotation 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Betty Baxter</td>
<td>Democrat</td>
<td>Betty Baxter</td>
<td>Ted White</td>
</tr>
<tr>
<td>Bob Wood</td>
<td>Republican</td>
<td>Bob Wood</td>
<td>Dick Jackson</td>
</tr>
<tr>
<td>Janet Foley</td>
<td></td>
<td>Janet Foley</td>
<td>Harry Knight</td>
</tr>
<tr>
<td>Dick Jackson</td>
<td>Republican</td>
<td>Dick Jackson</td>
<td>Bob Wood</td>
</tr>
<tr>
<td>Ted White</td>
<td>Democrat</td>
<td>Ted White</td>
<td>Betty Baxter</td>
</tr>
<tr>
<td>Harry Knight</td>
<td></td>
<td>Harry Knight</td>
<td>Janet Foley</td>
</tr>
</tbody>
</table>

The total number of rotations is the lesser of the number of precincts and the lowest common denominator of the number of candidates corresponding to each voter group.

**Example**

Voters in precincts Ford, Baker, Grant, Maxwell, Washington and Jefferson may select up to three candidates running for the office of City Council, rotated by precinct within voter group.

<table>
<thead>
<tr>
<th>Candidate list</th>
<th>Voter group</th>
<th>Rotation 0</th>
<th>Rotation 1</th>
<th>Rotation 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Betty Baxter</td>
<td>Democrat</td>
<td>Betty Baxter</td>
<td>Bob Wood</td>
<td>Betty Baxter</td>
</tr>
<tr>
<td>Bob Wood</td>
<td>Democrat</td>
<td>Bob Wood</td>
<td>Betty Baxter</td>
<td>Bob Wood</td>
</tr>
<tr>
<td>Janet Foley</td>
<td>Republican</td>
<td>Janet Foley</td>
<td>Dick Jackson</td>
<td>Ted White</td>
</tr>
<tr>
<td>Dick Jackson</td>
<td>Republican</td>
<td>Dick Jackson</td>
<td>Ted White</td>
<td>Janet Foley</td>
</tr>
<tr>
<td>Ted White</td>
<td>Republican</td>
<td>Ted White</td>
<td>Janet Foley</td>
<td>Dick Jackson</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rotation 3</th>
<th>Rotation 4</th>
<th>Rotation 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Maxwell)</td>
<td>(Washington)</td>
<td>(Jefferson)</td>
</tr>
<tr>
<td>Bob Wood</td>
<td>Betty Baxter</td>
<td>Bob Wood</td>
</tr>
<tr>
<td>Betty Baxter</td>
<td>Bob Wood</td>
<td>Betty Baxter</td>
</tr>
</tbody>
</table>
Candidates are repeatedly rotated within their voter group until all unique combinations have been generated. In this example there are two Democrat candidates and three Republican candidates. Since the lowest common denominator of two and three is six and there are six precincts, exactly six rotations are created.

7.9. Assigning rotations

Rotation rules are assigned by race in the Race Editor. Rotation may be applied to the candidates of any race type, although conventionally rotation is only used for candidacy races. Each race in an election may be rotated, and with any rotation rule.

In order to set the rotation rule for a race, select the race in the race list and either

- double-click the mouse
- select Races in the menu bar and Edit Race in the drop-down menu or
- right-click the mouse and select Edit Race in the pop-up menu

In the Race Editor, click on the Options tab, click on the Type drop-down list in the Rotation Options group box.

7.10. Assigning district rotations

The district rotation option only appears in the Race Editor if at least one district is defined as rotation district. The district category over which a race is rotated must be defined as rotation district. The rotation order may be defined by district if the race is to be rotated other than in the order districts are defined in.

Expand the district list in the tree view, select the district to be used as rotation district and either:

- double-click the mouse
- select Districts in the menu bar and Edit District in the drop-down menu or
- right-click the mouse and select Edit District in the pop-up menu

Select the Rotation District check box in the District Editor. If no rotation district has previously been defined, District will now appear as an option in the Rotation Type drop-down list in the Race Editor.

If candidates are to be rotated by district in an order other than in which districts have been defined, each district within the rotation category may be assigned a rotation sequence. Expand the category in the tree view, select the first district in the list and either:

- double-click the mouse
- select Districts in the menu bar and Edit District in the drop-down menu or
- right-click the mouse and select Edit District in the pop-up menu

Enter the rotation number that is to be assigned to this district in the Start Rotation # field and click on the OK button. Proceed in the same manner with all remaining rotation districts in the category.
7.11. Changing rotation specifications

Rotation specifications may be changed only when no election status has been set. If any election status has been set all rotation-related fields are disabled. Once the election status has been set to 'Cards Laid Out' the Generate Ballot Artwork function is disabled but Generate Ballot Rotations remains enabled.

The Rotation District check box of a rotation district category may not be de-selected if at least one race rotates over the district category. The category may not be deleted as long as the Rotation District check box is selected.

7.12. Terminology

A ballot style is a unique collection of races used by one or more precincts in an election. A ballot style gives rise to as many rotated ballots as necessary to satisfy rotation requirements in the applicable precincts. A card style is the number of physical documents necessary to contain a ballot style, and a card is a rotated card style.

Example

Betty Baxter, Bob Wood and Janet Foley are running for the office of State Senator in an election taking place in three precincts.

<table>
<thead>
<tr>
<th>Ballot style 1</th>
<th>Ballot 1 (Ford)</th>
<th>Ballot 2 (Baker)</th>
<th>Ballot 3 (Grant)</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Senator</td>
<td>State Senator</td>
<td>State Senator</td>
<td>State Senator</td>
</tr>
<tr>
<td>Betty Baxter</td>
<td>Betty Baxter</td>
<td>Bob Wood</td>
<td>Janet Foley</td>
</tr>
<tr>
<td>Bob Wood</td>
<td>Bob Wood</td>
<td>Janet Foley</td>
<td>Betty Baxter</td>
</tr>
<tr>
<td>Janet Foley</td>
<td>Janet Foley</td>
<td>Betty Baxter</td>
<td>Bob Wood</td>
</tr>
</tbody>
</table>

Ballot style 1 corresponds to ballots 1, 2 and 3, which all contain the same race. Each ballot represents a unique race rotation of ballot style 1.

7.13. Rotating ballots

Ballot artwork generation creates ballot styles and card styles. In order to rotate ballots, either:

- click on the Generate Ballot Rotations icon
- select Artwork in the menu bar and click on Generate Ballot Rotations

Once ballot rotations have been generated, Ballot and Card in the tree view will list all ballot and card rotations generated. Note that ballots may be modified in the Ballot Editor, but any change made apply to all ballots in the style.

Every time a candidate rotation rule is changed or removed from a race ballot rotations must be re-generated. It is not necessary to re-generate ballot artwork. Once ballot artwork has been re-generated, however, ballot rotations must be re-generated afterwards. If no rotations are present in an election, there will be a one-to-one correspondence between ballot styles and ballots, and card styles and cards.

7.14. Voter groups

Polling and absentee voter groups may be defined under the Absentee/NonAbsentee tab in the Voter Group Editor in order to create distinct ballots for polling and absentee voters. Both polling and absentee voter group ballots may be rotated, or either one or the other. Even if a race is defined with a rotation rule its candidates will not be rotated in the ballots of a non-rotational voter group.
Appendix C: Rotation Rules

Example

An election is held in three precincts for the office of State Senator and Precinct Committee Officer in which voters may vote both on election day as well as absentee. Three candidates are running for the office of State Senator, which is to be rotated on polling ballots and not rotated on absentee ballots. Two candidates are running for Precinct Committee Office, which is not rotated in either voter class. Polling voters may vote on both offices while absentee voters may vote on the office of State Senator only.

Two voter groups are defined in the Voter Group Editor, Polling and Absentee. The Rotate Ballots check box is selected for the Polling but not for the Absentee voter group. The race for State Senator is defined with Group Two set to <N.P.> under the Options tab in the Race Editor and the race for Precinct Committee Officer defined with Group Two set to Polling.

Generating ballot artwork will yield two ballot styles, one polling and one absentee. Generating ballot rotations will yield four ballots, three ballots for the polling ballot style (one for each rotation) and one ballot for the absentee ballot style (not rotated).

7.15. Verifying rotations

Once ballot artwork and ballot rotations have been generated, rotations should be verified. Due to the complexity of the verification proceed ensure that all trivial ballot artwork proofing activities have been successfully performed beforehand.

Create a polling rotation spreadsheet of rotating races and precincts, provided that polling races are rotated. Place precincts in the left-most column and all rotating races with the number of candidates along the top of the schedule. If a voter registration-based rotation rule is employed for any race, insert a column with voter registration amounts to the right of the precinct column. If a race employs district rotation insert a column to the left of the race column with the rotation district the precinct falls within. In each precinct/race cell place the expected rotation number where applicable.

Insert a Card column to the right of the precinct column. If the election is a closed primary, order rotating races by political party and insert a column with the political party before the corresponding partisan races.

Create an absentee rotation spreadsheet of rotating races and precincts as in step 1 if rotation applies to absentee ballots only. If both polling and absentee ballots are rotated, or if absentee ballots are not rotated, this step is unnecessary.

Expand Card in the tree view, select the first card in the list and click on the Race tab. If any race occurs on the card that does not occur in the voter group, continue with the next card. All races on the ballot are listed under this tab as well as the respective race rotation under the Race column heading. Search the spreadsheet for all precincts with the race rotation combination and enter the card number in the corresponding Card column entry. In case of a closed primary, place the card number in the corresponding party column (the partisan voter group is listed under the Parties column).

Select every subsequent card in the list and perform the same matching activity.

A card with only race rotations 0 may be used either as an initial rotation ballot, or may be used for a non-rotation voter group. For example, if polling ballots are rotated and absentee ballots not, a card with all 0 rotations may be used both for an initial rotation and as an absentee.

All precincts on the schedule should be accounted for in the rotation voter group. If any precinct (precinct/party in case of a closed primary) has not been accounted for, step through the entire card list in the tree view, observing both races and rotations in the list view in order to locate the missing card. If the card cannot be found, verify that the races and candidate rotations are correct for the precinct and retry.

Expand the precinct list in the respective report precinct category (Default Precinct Category, Cumulative Reportunits). Select each report precinct in the list, click on the Card tab and verify against the manual spreadsheet that the correct cards are defined in GEMS for the report precinct.
7.16. Voter Registration

If any of the voter registration-based rotation rules is employed, i.e. precinct rotation by voter registration, Kansas, Minnesota, Pima or King, ensure that voter registration amounts are current before proceeding with final ballot rotation and proofing. Once the election status has been set to ‘Cards Printed’ it is no longer possible to generate ballot rotations. Changing voter registration amounts and then re-generating ballot rotations will change ballot configuration, which under no circumstances should occur once ballot artwork has been sent to the printer.

7.17. Reports

The following pre-election reports provide rotation information:

**Ballots with Races**
Each ballot is listed in order of ballot number, ballot style number, and for each race on the ballot the race ID, the total number of rotations and the race label.

**Race Report**
Every race is listed in order of race ID, race label, race type, whether or not candidates are rotated, district, voter group 1, voter group 2, endorsement and preference races (if applicable), the number to vote for and the number of candidates.

**Race Rotation with Precinct Detail by Vote Center**
Every race is listed in order of race ID, with the race label and endorsing voter group, and for each rotation within the race the rotation number, all vote centers with the vote center ID, the vote center label, the base precinct ID, base precinct label and voter registration amount, with a voter registration total for each race rotation.

**Race Rotation with Precinct Detail**
Every race is listed in order of race ID, with the race label and endorsing voter group, and for each rotation within the race the base precinct ID, base precinct label and voter registration amount, with a voter registration total for each race rotation.

**Race Rotation with Cards**
Every race in the election is listed in the report in order of race ID with the race label and all rotation/card combinations.

**Race Rotation Summary**
Every race is listed in order of race ID with the race label and voter group, and for each race every rotation with total registered voters.
8. Appendix D: GEMS menu entries

This appendix details the components of all entries in the GEMS menu bar.

8.1. Main Menu

There is a floating menu bar entry between View and Artwork, which depends on the item selected in the tree view. The menu bar consists of the following entries: Election, Setup, View, Artwork, GEMS, and Help, as well as other entries, depending on what you have selected in either the tree view or list view. For example, in Figure 8-1, you will see Districts listed because District is selected in the tree view. Functions listed in menu bar drop-down menus are also available in the toolbar as well as pop-up menus.

![Figure 8-1. GEMS window with selection made in tree view](image)

8.1.1. Election

Election allows you to open a new window like the main GEMS window already open. See Figure 8-2 for a screen shot of the Election pull down menu.

Backup allows you to create backups, which should be performed as standard procedure, for instance after finishing ballot artwork. You may specify the directory where the backup database file resides. To activate a backup database, you must load the database in the initial Connect to Database dialog box.

Export Results allows you to edit export IDs and export results. Export Results allows you to edit export IDs for the purpose of sharing results information with other elections applications, which the jurisdiction may be using. The export ID field contains the identifying code of the item in question as it is identified in the other application. Importing allows you to bring database information into GEMS from other elections applications.

![Figure 8-2. Election drop-down menu](image)
8.1.2. Setup

Setup contains the following menu entries: Election, Users, Regions, Language, Voter Groups, Counter Groups, Ballot Options, Race Options, AccuVote-OS Options, AccuVote-TS Options, Reporting Sets, Monitor Scripts. All setup options in the election are confined to these items. Brief descriptions are given below. Figure 8-3 provides a screen capture of the GEMS options under Setup.

Note. Setup is the key to GEMS use. When setting up an election, you need to go through Setup in sequential order from top to bottom and for each of the drop-down menu items, you need to accept the default values or update/modify the options.

Figure 8-3. Setup drop-down menu

8.1.2.1. Users

Individual users are defined according to security requirements, with administrator or other privileges. Users are also defined for regional processing, where a unique user is defined for each region.

8.1.2.2. Regions

In case of regional election management, election results may be transmitted to a regional station and forwarded to the host computer. A region and user ID are defined for each of these regional stations.

8.1.2.3. Language

Races, candidates, and headers may be associated with more than one language.

8.1.2.4. Race Options

Here you may define default information for races and candidates, as they are to appear on ballots. In any case, when creating individual races and candidates you may override these defaults, but when you define either, these default values will appear.

8.1.2.5. Voter Groups

Voter classification by voter group allows for partisan endorsement of candidates and races. Voter groups are used to create separated ballots, such as in a closed primary, as well as track voter registration statistics.
8.1.2.6. **Counter Groups**

Ballot counting and election results reporting is arranged by counter group. Distinct counter groups are defined for ballots that are either counted in the cumulative results or for which results are reported separately. For example, absentee ballots are processed in an absentee counter group to be counted separately from polling ballots.

8.1.2.7. **Ballot Options**

Ballot Options comprise ballot layout and formatting options. These include Card length, number of columns per side, ballot numbering, header, race and candidate margins, oval justification, box margins, endorsing party labeling and write-in text placement.

8.1.2.8. **AccuVote-OS Options**

AccuVote-OS processing parameters are defined in the AccuVote-OS Options window. These include the AccuBasic download file, Supervisor Password, display message time, AccuVote-OS version, ballot box sorting options, ballot return parameters, ballot return override printing parameters as well as straight party and write-in tally rules.

8.1.2.9. **AccuVote-TS Options**

AccuVote-TS parameters are defined in the AccuVote-TS Options window. These include the definition of the Header, Footer and Vote Box size, the number of ballot columns and ballot scaling factor, definition of button height, position and type, as well as VIBS, voting and drawing flags.

8.1.2.10. **Reporting Sets**

The Reporting Sets window is used to defined race subsets for the purpose of customizing Precinct/Election and Statement of Votes Cast reports.

8.1.2.11. **Monitor Scripts**

Parameters are customized for JResult Client election results reporting in the Monitor Scripts window. Reports are tailored by counter group, district, report precinct and race set.

See section 2.13 JResult Client for more information on JResult Client.

8.1.3. **View**

Various display options are provided under the View menu bar entry. The Toolbar and Status bar may be disabled, although in practice they should always be enabled. The Refresh option sets the GEMS window to display the most currently defined information. All items in the list view may be selected using the Select All option. See Figure 8-4.

![Figure 8-4. View drop-down menu](image)

8.1.4. **Artwork**

The Artwork menu bar entry contains all ballot artwork-related functions. See Figure 8-5.
8.1.4.1. **Generate Ballots**

After all jurisdictional, race, candidate, and header information has been defined, ballot artwork is created using the Generate Ballots function. Generate Ballots causes all ballot artwork to be re-generated as a result of potential changes made to either jurisdictional, race, candidate, or header information. However, artwork may also be re-generated by selecting individual ballot styles for editing.

8.1.4.2. **Generate Ballot Rotations**

When ballot artwork has been generated, ballot rotations are created using the Generate Ballot Rotations function. Generate Ballot Rotations creates a ballot for each rotation for every ballot style. All ballot rotations must be re-generated even if changes have been made that affect only some rotations.

8.1.4.3. **Re-Generate Sequence Numbers**

Sequence numbers are assigned to ballots according to the report precinct/vote center within which combinations the ballots fall. Successive changes to ballot artwork or report precinct/vote center relationships may cause the sequence numbers of ballots within vote centers to become discontinuous. The Re-Generate Sequence Numbers function renumbers continuously, starting at 1, within each vote center.

8.1.4.4. **Print Artwork**

The Print Artwork function is used to print ballot artwork when ballot artwork and ballot rotations have been generated.

8.1.4.5. **Reset Artwork**

Successive changes to ballot artwork may cause artwork to be numbered in a discontinuous fashion. The Reset Artwork function causes all ballot artwork to be deleted, so that subsequent ballot artwork generation will create ballot styles continuously numbered from 1 and ballot rotation generation will create ballots numbered continuously from 1.
8.1.5. GEMS Menu

The GEMS menu entry comprises administrative and election results reports printing, ballot production, memory cards programming, ballot processing and results viewing functions. See Figure 8-6.

8.1.5.1. Print Pre-Election Reports

Administrative reports may be printed at any point during the GEMS election management process.

8.1.5.2. Election Summary Report

The Election Summary report is one of the two basic election results reports printed once election results have been transmitted to the host computer. The Election Summary report may be printed for a selection of districts or precincts, by counter group, race reporting set, as well as being tailored to include results reporting statistics, results percentages and candidate sorting options.

8.1.5.3. Statement of Votes Cast Report

The SOVC (Statement of Votes Cast) report is one of the two basic election results reports printed once election results have been transmitted to the host computer. The SOVC report may be printed by district, race reporting set and counter group, as well as being tailored to include results reporting statistics and results percentages.

8.1.5.4. Cards Cast Report

The Cards Cast report includes the number of ballots cast in the election by report precinct, customized by district and counter group.
Appendix D: GEMS menu entries

8.1.5.5. Ballot Text Report

The Ballot Text report contains all race, candidate, header and voter group text as it appears on the ballot, listed in order of Id, beginning with voter groups, then headers, and finishing with races and candidates. The report is printed from the Ballot Text Report window, accessible from the GEMS menu bar. The window allows the specification of print destination as well as print options, the language the ballot text is to be printed for, as well as the option to preview the report.

8.1.5.6. Reset Election

This function allows election results to be set to zero in the database.

8.1.5.7. AccuVote-OS Server v1

Once ballot artwork has been printed and report precinct/vote center assignments set, memory cards are programmed using the AccuVote-OS Server-1 console.

8.1.5.8. AccuVote-TS Server v2

Once ballot artwork has been printed and report precinct/vote center assignments set, memory cards are programmed using the AccuVote-TS Server-v2 console.

8.1.5.9. Voter Registration

Voter registration amounts are recorded at any time during the election management process by base precinct and political party.

8.1.5.10. Results Server

The Results Server program must be activated to view election results using JResult Client.

8.1.5.11. Central Count

The Central Count window is activated to run central count.

8.1.5.12. Poster

Election results transmitted to the host computer - regardless of whether they are polling, central, or AccuVote-TS - are first written to a poster file, which a poster program updates to the election database. The Poster function provides a status log for this poster function.

8.1.5.13. Regional Results

Regional Results is used to administer incoming and outgoing regional polling transmissions of election results. It is also used as an AccuVote-TS upload console.

8.1.5.14. View Ballots

The View Ballots function allow AccuVote-TS ballots to be viewed and printed, by memory card.

8.1.5.15. Challenge Board

Challenge or provisional AccuVote-TS ballots are processed on the Challenge Board. Challenge ballot processing involves either accepting or rejecting challenge ballots.
8.1.5.16. Audit Log

Audit logs are a list of all entries made to the database from beginning to present time, listed chronologically and may be printed.
Ballots counted in Central Count mode are processed using Central Count AccuVote-OS units dynamically linked to the GEMS host computer. Ballot identification information is passed from the AccuVote-OS to the host computer, a ballot mask is retrieved from the host and matched against the processed ballot image. Candidate selections are transferred back to the GEMS host, and posted to the database on a batch basis.

Central Count is ideal for counting large amounts of absentee ballots in batch mode.

Ballots are centrally counted by vote center. If multiple vote centers are counted in an election, these vote centers must be counted in sequence.

9.1. Central Count console

Central Count is driven from the GEMS Central Count console. This console is divided into three tabs: Machines, Decks and Log. The Machines tab displays all machines that are currently actively counting ballots in Central Count mode, and includes the deck number, the Central Count AccuVote-OS IP number, the machine status and the current ballot count in the deck. Only machines are displayed that are actively counting ballots.

The Decks tab displays the numbers of all ballot decks that have been counted, the completion time and the total deck count.

The Log records all batch start and end transactions, as well as any batch processing error conditions that have arisen.

Disabling the Central Count console does not clear any of the decks counted and recorded under the Decks tab. Centrally counted ballot decks may be deleted either by selecting the decks under the Decks tab, and clicking on the Delete button, or by resetting election results.

Central Count may run simultaneously with AccuVote-OS Server-v1 and AccuVote-TS Server-v2 consoles.

9.2. Batches

Ballots are counted in batches, preceded by either the Batch Start cards or Batch Header cards. GEMS assigns batch numbers to batches using Batch Start cards, incrementing the number assigned to the last batch processed. Batch Header cards, on the other hand, represent pre-assigned batch numbers, and determine the batch number assigned by GEMS.

It is not possible to open a second batch within an active batch, nor is it possible to assign a batch number which has already been used. Batches may be deleted from GEMS but those batch numbers are not reassigned by GEMS.

The AccuVote Ender card is used to end a batch, at which point the batch is committed to the GEMS database. If the counting of a batch is interrupted (i.e. the connection to the host computer is lost) the contents of the deck are also lost.

Batch cards should be kept with each batch after processing for auditing purposes. If varying sized ballots are featured in an election, these ballots should be batched separately, as the infeed tray extensions and outfeed tray handles must be set to correspond to ballot length. Batches should generally contain more than 100 ballots.

9.3. Configuration

Central Count may be configured either:
• in a network configuration with both the GEMS host computer and an intelligent port server
  connected to the network
• with AccuVote-OS units directly connected to an NT host
• with a modem connection to an internet service provider, where the GEMS host is connected to
  the Internet

Central Count may be implemented with the AccuVote-OS voting device only.

9.4. **Before running central count**

Before running Central Count:

1. Central Count equipment must be installed.
2. All vote centers to be centrally counted should be defined with Count Method Central Count.
3. Database must be set to Set for Election.
4. Ballot envelopes are opened and ballots pre-processed.
5. Ballots should be divided into appropriately sized batches.
6. Each ballot deck is assigned either a Batch Start or Batch Header card.
7. Determine sequence of central count vote centers to upload, if multiple vote centers are being
   counted.

9.5. **Activating Central Count in GEMS**

Activate the Central Count console. Select GEMS in the menu bar, then Central Count in the drop-down
menu. See **Figure 9-1**.

![Figure 9-1. Selecting Central Count](image)

Under the Machines tab, click on the Select button and select the vote center for which central count is to
be activated in the Select Vote Center window. Only vote centers with Count Method Central Count
appear in the Select Vote Center list. If the All Vote Centers check box is selected, then all AccuVote-OS
vote centers in the election are displayed in the list. Click on the OK button. See **Figure 9-2**.
Click on the Start button under the Machines tab in order to start Central Count. Ensure that Central Count AccuVote-OS units have also been started. The Opening Central Count progress box is displayed as GEMS prepares for central count. See Figure 9-3.

Figure 9-3. Opening Central Count
9.6. Running Central Count

Once the console has been readied, the Start button is disabled and the Stop button is enabled.

Note that the Central Count console is modeless, that is, it may be accessed at the same time as the GEMS main window or any of the AccuVote Server consoles. The election status cannot be changed as long as the console is active.

As ballots are being centrally counted, monitor Central Count units in order to verify that equipment idle time is minimized. Review the Log occasionally, ensuring that any error messages that may arise have been properly accounted for.

Any decks that have been counted in previous Central Count sessions are listed under the Decks tab only once Central Count has been activated for the vote center under the Machines tab.

9.7. Completing central count

9.7.1. Reconciliations

Ensure that all ballot decks are listed under the Decks tab. Verify that all ballot deck counts correspond to the deck counts logged under the Decks tab. If any deck numbers do not correspond, the decks should be re-processed.

Under the Decks tab, click on the deck whose count does not correspond to the actual number of ballots, and click on the Delete button. Recount the ballot deck, using the same Batch Header or Start card.

9.7.2. Log

Once central counting has been completed, the Central Count Log should be saved and printed. Click on the Log tab, then click on the Save As button. Assign a file name to the Central Count log as well as a folder location, then click on the Save button in the Save As window.

Click on the Print button in order to print the Central Count log. Assign printer options as necessary, then click on the OK button in the Print window. The Central Count log should be incorporated into the election archive.

9.7.3. Closing the console

In order to close the Central Count console, click on the Machines tab, then on the Stop button. Once Central Count has been stopped, click on the Close button. Do not click on the Close button without having stopped the central count session for the vote center.

9.8. Deliverables

Verify election results by printing election results reports, either the Election Summary report or the Statement of Votes Cast.

Central Count status reports may be printed as ballots are being centrally counted. Click on GEMS, then Pre-Election Reports in the drop-down menu.

Central Count Status Report by Deck

Select Central Count Status Report by Deck and click on Print. This report contains a list of decks in order of deck Id number, as well as deck completion time and date and ballot count, by region and vote center.
Central Count Status Report by Time

Select Central Count Status Report by Time and click on Print. This report contains a list of decks in order of deck completion date and time, as well as deck Id number and ballot count, by region and vote center.
10. Appendix F: Hardware and Software Interfaces

All hardware and software products used in tandem with GEMS, either produced by Diebold Election Systems or third party is listed in this appendix.

For communication interfaces between the system computers, the COM ports on the Personal Computers (PCs) are used to transmit election results to the host computer. Where regions are used in the election process, they are used to transmit results to the regional computers that then transmit regional election totals to the host computer. The Digicard can be used to enable more ports. The ports used for communication with the host computer are RS-232 serial interfaces. The Digicard, if required, is installed in the host or regional PCs and the system shipped to the user will contain this and all the modems already configured. See Appendix M: Modem Configuration of this document for technical details on Modem settings.

10.1. Software Required with GEMS

All software that could be required with GEMS is listed in Table 10-1 including information on relevant versions/release levels, packages are provided with GEMS and which ones are not and why they are required (what functionality causes them to be required).
<table>
<thead>
<tr>
<th>Software Package</th>
<th>Version/Release</th>
<th>Package Provided or Not Provided</th>
<th>Why Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows NT</td>
<td>4.0</td>
<td>Not provided. It must be installed separately, prior to GEMS</td>
<td>It is the operating system that GEMS runs on.</td>
</tr>
<tr>
<td>Service Pack 5 for Windows NT</td>
<td>5</td>
<td>Provided. Service Pack 5 for Windows NT is installed either from GEMS install CD or may be downloaded from Microsoft web site.</td>
<td>It allows the proper operation of operating system with GEMS.</td>
</tr>
<tr>
<td>MS Internet Explorer</td>
<td>5.0</td>
<td>Provided. It may be installed from GEMS CD or downloaded from Microsoft web site.</td>
<td>Internet Explorer provides libraries required by GEMS.</td>
</tr>
<tr>
<td>MDAC (Microsoft Data Access Component)</td>
<td>2.0</td>
<td>Provided. It is contained in GEMS installation CD.</td>
<td>MDAC is a driver that allows database access.</td>
</tr>
<tr>
<td>JResult Client</td>
<td>0</td>
<td>Provided. It is contained in GEMS installation CD.</td>
<td>JResult Client is a Java-based software package used to display election results on client PCs. Note that GEMS and JResult Client run on separate machines.</td>
</tr>
<tr>
<td>MS Windows</td>
<td>95 or 98</td>
<td>Not provided. Must be installed separately, prior to installation of JResult Client.</td>
<td>It is the operating system that JResult Client machine run on.</td>
</tr>
<tr>
<td>Adobe Acrobat</td>
<td>4.0</td>
<td>Not Provided. Must be installed separately.</td>
<td>Adobe Acrobat is installed with an Acrobat PDFWriter printer, which prints to file in pdf format.</td>
</tr>
<tr>
<td>Microsoft Virtual Machine</td>
<td>5.0</td>
<td>Provided. It may be installed from GEMS CD or downloaded from Microsoft web site.</td>
<td>MS Virtual Machine install Java viewer used to run JResult Client.</td>
</tr>
</tbody>
</table>

Table 10-1. Software Required with GEMS
11. Appendix G: Firmware Release Log

AccuBasic report files are used to configure AccuVote-OS report contents and printing in precinct count mode. These report files are not applicable to central count. Memory cards are programmed with the AccuBasic report file specified in the AccuVote-OS Options window. Only one AccuBasic report file may be defined in an election. The files are kept in the ABasic folder in the GEMS folder.

To select an AccuBasic report file, select Setup in the menu bar and AccuVote-OS Options in the drop-down list. Click on the Reports drop-down list in the AccuVote-OS group box under the AccuVote-OS Settings tab.

The following are all the AccuBasic report files available in GEMS for both 1.94 and 1.95 firmware. 1.94 report files are prefixed with 194 and 1.95 report files are prefixed with 195.

<table>
<thead>
<tr>
<th>Format</th>
<th>Report file</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.95 Anoka</td>
<td>195anoka.abo</td>
<td>The AccuBasic Source file for Anoka County, Minnesota (for 1.95 firmware only). In election mode this report produces a short precinct totals report for default election results and offers to print short reports with summaries and precinct breakdowns until powered off. In pre-election and post-election modes it will print all combinations of long and short reports. Candidates are printed in the order that they appear on the first ballot card containing the race. Precinct headings print the new precinct name string.</td>
</tr>
<tr>
<td>1.94 California</td>
<td>194usca.abo</td>
<td>The AccuBasic Source file for the state of California. In election mode this report file produces a cards cast report for the default zero totals and election results and offers to print short reports with summaries and precinct breakdowns until powered off. All results reports include cards cast with party codes for closed primary ballots. In pre-election and post-election modes it will print all combinations of long and short reports.</td>
</tr>
<tr>
<td>1.94 Cambridge</td>
<td>194uscp.abo</td>
<td>The standard AccuBasic Source file for Cambridge’s Preference voting in the United States. In election mode this produces a short precinct totals report for the default election results and offers to print short reports with summaries and precinct breakdowns until powered off. In pre-election and post-election modes it will print all combinations of long and short reports. The candidate counts are not printed since they are always zero for Cambridge Preference.</td>
</tr>
<tr>
<td>1.94 Canadian</td>
<td>194can.abo</td>
<td>The standard AccuBasic Source file for Canada. In election mode this produces a short precinct totals report for the default election results and offers to print short reports with summaries and precinct breakdowns until powered off. In pre-election and post-election modes it will print all combinations of long and short reports.</td>
</tr>
<tr>
<td>1.94 demo</td>
<td>194demo.abo</td>
<td>The standard AccuBasic Source file for the demonstrations. In election mode this produces a short summary report for the default election results and offers to print short reports with summaries and precinct breakdowns until powered off. In pre-election and post-election modes it will print all combinations of short reports.</td>
</tr>
</tbody>
</table>
Appendix G: Firmware Release Log

1.94 French 194fr.abo The standard AccuBasic Source file for the French Canada. Reports are printed in French. In election mode this produces a short precinct totals report for the default election results and offers to print short reports with summaries and precinct breakdowns until powered off. In pre-election and post-election modes it will print all combinations of long and short reports. NOTE: This does not handle cross-endorsed candidates.

1.94 Georgia 194usga.abo The standard AccuBasic Source file for the state of Georgia. In election mode this produces a short precinct totals report for the default election results and offers to print short reports with summaries and precinct breakdowns until powered off. All results reports include cards cast with party codes for closed primary ballots. In pre-election and post-election modes it will print all combinations of long and short reports.

1.94 Illinois 194usil.abo The AccuBasic Source file for the State of Illinois. In election mode this produces a short precinct totals report for the default election results and then offers to print short precinct breakdowns. In the election end and post-election modes it offers to repeat this until powered off. In pre-election mode it will print these or a summary. In pre and post election modes, it offers to print long versions of the reports. For Illinois we include blank votes in the undervotes.

1.94 Jefferson 194usjc.abo This AccuBasic file is used by Jefferson County, Kentucky. This version is based on the 194us.abo as of Jan. 6, 1998 but is modified to suppress the printing of straight party races. In election mode this produces a short precinct totals report for the default election results and then offers to print short precinct breakdowns. In the election end and post-election modes it offers to repeat this until powered off. In pre-election mode it will print these or a summary. In pre and post election modes, it offers to print long versions of the reports. For Illinois we include blank votes in the undervotes.

1.94 Massachusetts 194usma.abo The standard AccuBasic Source file for the states of Massachusetts, New Hampshire, Maine, Connecticut, and Rhode Island which reports all non-used votes as blank votes and prints a ballot summary after the race summary. In election mode a short precinct totals report is produced for the default election results and short reports may be printed with summaries and precinct breakdowns until powered off. In pre-election and post-election modes it will print all combinations of long and short reports.

1.94 Minnesota 194usmn.abo The AccuBasic Source file for the state of Minnesota. In election mode this produces a short precinct totals report for the default election results and offers to print short reports with summaries and precinct breakdowns until powered off. In pre-election and post-election modes it will print all combinations of long and short reports.

1.94 US 194us.abo The standard AccuBasic Source file for the United States. In election mode this produces a short precinct totals report for the default election results and offers to print short reports with summaries and precinct breakdowns until powered off. In pre-election and post-election modes it will print all combinations of long and short reports.
1.94 US 5 decimals  194us5d.abo The standard AccuBasic source file for the United States with 5 digits allowed for all counters. In election mode this produces a short precinct totals report for the default election results and offers to print short reports with summaries and precinct breakdowns until powered off. In pre-election and post-election modes it will print all combinations of long and short reports.

1.94 US Summary  194ussm.abo AccuBasic Source file for summary-only election night results. In election mode this produces a short summary totals report for the election results and then offers to print short reports with summaries and precinct breakdowns until powered off. In pre-election and post-election modes it will print all combinations of long and short reports.

1.94 Vermont  194usvm.abo The standard AccuBasic Source file for the state of Vermont which reports blank votes as undervotes, prints ballot summary after race summary and always reports write-in ballots in summary. In election mode this produces a short precinct totals report with an optional summary report for the default election results and offers to print short reports with summaries and precinct breakdowns until powered off. In pre-election and post-election modes it will print all combinations of long and short reports.

1.94 Virginia  194usva.abo The standard AccuBasic source file for the state of Virginia. In election mode this produces a long precinct totals report with an optional summary report for the default election results and offers to print short reports with summaries and precinct breakdowns until powered off. In pre-election and post-election modes it will print all combinations of long and short reports.

1.94 Wisconsin  194uswi.abo The AccuBasic Source file for the state of Wisconsin. This is based on 194us.abo but prints RPT UNIT instead of PRECINCT and prints SCATTERING instead of WRITE-INS for the race results.

1.95 Wisconsin  195uswi.abo The AccuBasic Source file for the state of Wisconsin (for 1.95 firmware only). This is based on 194us.abo but prints RPT UNIT instead of PRECINCT and prints SCATTERING instead of WRITE-INS for the race results. It also prints the vote center name on the label.
12. Appendix H: Error Messages

This appendix contains a list of all possible error messages generated by the GEMS software.

12.1. GEMS Specific Error Messages

Faulty operator input is prevented at the point of input. The following table lists the Category of Error, Error Message(s), meaning of error message and possible resolution.
<table>
<thead>
<tr>
<th>Category of Error</th>
<th>Error Message</th>
<th>Meaning of Error Message</th>
<th>Resolution Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defining new database</td>
<td>Invalid Logon Information</td>
<td>Incorrect password was entered</td>
<td>Enter correct password</td>
</tr>
<tr>
<td>Opening database</td>
<td>User Verification Failed</td>
<td>Incorrect password was entered</td>
<td>Enter correct password</td>
</tr>
<tr>
<td>Open/Upgrade</td>
<td>Upgrade Database Failed</td>
<td>GEMS was unable to upgrade the database to the current release.</td>
<td>Contact Diebold Election Systems.</td>
</tr>
<tr>
<td>Open/Upgrade</td>
<td>Database version newer than the release of GEMS</td>
<td>The database version being opened is newer than the GEMS release. Upgrade GEMS.</td>
<td>Activate the database with the appropriate version of GEMS software. Contact Diebold Election Systems for assistance if necessary.</td>
</tr>
<tr>
<td>Open/Upgrade</td>
<td>Error in creating the database with this DBMS. The DBMS driver may be damaged.</td>
<td>An error occurred at the ODBC layer while creating a new database. Reinstall MDAC.</td>
<td>Contact Diebold Election Systems for assistance if necessary.</td>
</tr>
<tr>
<td>Open/Upgrade</td>
<td>An election with the same identifier is already open</td>
<td>An attempt has been made to open a GEMS database with an election Id identical to a database that is already open.</td>
<td>Close the open database with the conflicting election Id. Changing the election Id of either database will allow both to be opened simultaneously. Unset cards laid out and proceed.</td>
</tr>
<tr>
<td>Import</td>
<td>Election status is set to Cards Laid Out. Cannot [action] where [action] is one of add or delete baseunits, add/delete districts with races to/from baseunits, add/delete races to/from districts, add races, or add/delete candidates to/from races.</td>
<td>Modifications to the database that would affect the layout of cards are disallowed when cards laid out is set. Unset cards laid out.</td>
<td>Ensure that all export Id’s defined are unique.</td>
</tr>
<tr>
<td>Import</td>
<td>Duplicate [element] export=Id’s where [element] is one of baseunit, reportunit, reportunitcat, 20 reportunit, region, vcenter cat, vcenter, vgroup, race, candidate, or candvgroup.</td>
<td>A duplicate export ID was found. Correct input data.</td>
<td>Ensure that all export Id’s defined are unique.</td>
</tr>
<tr>
<td>Import</td>
<td>SET FOR ELECTION.</td>
<td>Import is not allowed after</td>
<td>Reset the election</td>
</tr>
<tr>
<td>Category of Error</td>
<td>Error Message</td>
<td>Meaning of Error Message</td>
<td>Resolution Steps</td>
</tr>
<tr>
<td>-------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Import</td>
<td>Cannot import.</td>
<td>set for election.</td>
<td>Ensure that the import is being performed on a clean database. Perform a backup of the database if it is not a new one.</td>
</tr>
<tr>
<td></td>
<td>Warning: Import will update the contents of this election with that from the import file selected. Do you wish to make a backup first?</td>
<td>The Standard or LA Import process selected will overwrite any existing jurisdictional and ballot content information.</td>
<td>Ensure that a 3 character Tag value is defined with each voter group. Select the ‘Separate Ballot’ check box for all of the voter groups required under the Parties tab in the Voter Group Editor.</td>
</tr>
<tr>
<td>Voter groups</td>
<td>Please enter at least 1 character</td>
<td>An attempt has been made to define a voter group with no Tag.</td>
<td>Ensure that a 3 character Tag value is defined with each voter group. Select the ‘Separate Ballot’ check box for all of the voter groups required under the Parties tab in the Voter Group Editor.</td>
</tr>
<tr>
<td>Voter groups</td>
<td>There are no voter groups with separate ballot set.</td>
<td>At least one voter group must be selected to have a separate ballot.</td>
<td>Ensure that a 3 character Tag value is defined with each voter group. Select the ‘Separate Ballot’ check box for all of the voter groups required under the Parties tab in the Voter Group Editor.</td>
</tr>
<tr>
<td>Voter groups</td>
<td>Voter Group is used by some races and/or candidates. Cannot delete.</td>
<td>Scenario 1: Deletion of voter group is attempted for which registration amounts have been defined. Scenario 2: Deletion of a voter group endorsing at least one race is attempted. Scenario 2: Deletion of a voter group endorsing at least one candidate is attempted.</td>
<td>Scenario 1: Set all registration amounts for voter group to zero in Voter Registration window, then delete voter group in Voter Group Editor. Scenario 2: Set all Voter Group 1 or Voter Group 2 values in Race Editor for races endorsed by voter group to &lt;NP&gt;, then delete voter group. Scenario 3: Set every candidate endorsed by party to &lt;NP&gt;, then delete voter group.</td>
</tr>
<tr>
<td>Counter groups</td>
<td>Too many counter groups for VCenter x.</td>
<td>An attempt has been made to define a counter group to vote center category x, when two counter groups have already been defined to vote center category x.</td>
<td>Ensure that election architecture is configured with no more than two counter groups per vote center category. Create a</td>
</tr>
<tr>
<td>Category of Error</td>
<td>Error Message</td>
<td>Meaning of Error Message</td>
<td>Resolution Steps</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------</td>
</tr>
<tr>
<td>Language</td>
<td>Ballot text in the removed languages will be lost. Continue?</td>
<td>Attempting to delete a language will cause all race, candidate, header, and voter group ballot text corresponding to that language to be lost.</td>
<td>Click on Yes to delete all ballot text corresponding to the language, if this is what is intended.</td>
</tr>
<tr>
<td>Districts</td>
<td>Cannot delete rotation district</td>
<td>Attempt has been made to delete district over which a race rotates</td>
<td>Remove district rotation from all races, then delete district</td>
</tr>
<tr>
<td>Districts</td>
<td>Cannot delete special district</td>
<td>Attempt has been made to delete Unassigned district</td>
<td>Do not delete unassigned district</td>
</tr>
<tr>
<td>Report precincts</td>
<td>Duplicate report precinct Id</td>
<td>Attempt was made to assign a non-unique Id number to a report precinct</td>
<td>Report precinct Id numbers must be unique.</td>
</tr>
<tr>
<td>Linking districts and base precincts</td>
<td>District x already in Precinct y</td>
<td>An attempt has been made to drag precinct y onto district x, where district x already contains precinct y.</td>
<td>It is not necessary to perform the linkage, as it exists already.</td>
</tr>
<tr>
<td>Linking districts and base precincts</td>
<td>Replace sibling in district x already in precinct y</td>
<td>Attempt has been made to drag precinct y onto district x, where precinct y already occurs in another district in the district category</td>
<td>Either do not drag precinct onto district as requested, or replace district/precinct linkage.</td>
</tr>
<tr>
<td>Vote center</td>
<td>The changes you requested to the table were not successful ...</td>
<td>Attempt was made to assign a non-unique Id number to a vote center</td>
<td>Vote center Id numbers must be unique.</td>
</tr>
<tr>
<td>Linking vote centers and report precincts</td>
<td>The report precinct x is not counted in vote center category y'</td>
<td>This occurs when attempting to drag either a polling report precinct onto a cumulative voter center, or drag a cumulative report precinct onto a polling vote center.</td>
<td>Drag polling report precincts onto polling voter centers only, and drag cumulative report precincts onto cumulative vote centers only.</td>
</tr>
<tr>
<td>Linking vote centers and report precincts</td>
<td>The report precinct x has more than one vote center in vote center category of vote center y, therefore cannot determine which one to move from.</td>
<td>An attempt has been made to drag a report precinct currently linked to more than one vote center, to a yet unrelated vote center. GEMS is not clear</td>
<td>Either unlink the report precinct from all related vote centers in the vote center category except one, then</td>
</tr>
<tr>
<td>Category of Error</td>
<td>Error Message</td>
<td>Meaning of Error Message</td>
<td>Resolution Steps</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>--------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Linking vote centers and report precincts</td>
<td>Cannot remove report precinct x from vote center y. This would leave the report precinct with no vote center to count it.</td>
<td>Attempt has been made to delete a report precinct from a vote center, where the report precinct is not linked to any other vote center in the vote center category.</td>
<td>Either refrain from removing the report precinct from the vote center, or link the report precinct to another vote center in the vote center category prior to deletion.</td>
</tr>
<tr>
<td>Race</td>
<td>The changes you requested to the table were not successful ...</td>
<td>Attempt was made to assign a non-unique Id number to a race</td>
<td>Race Id numbers must be unique.</td>
</tr>
<tr>
<td>Race</td>
<td>Recalled Race linked to this race – Cannot Delete.</td>
<td>An attempt has been made to delete a Recall race without previously deleting the corresponding Recalled race.</td>
<td>Delete the Recalled race before the Recall race.</td>
</tr>
<tr>
<td>Race</td>
<td>Shadowed Race linked to this race – Cannot Delete.</td>
<td>An attempt has been made to delete a Shadow race without previously deleting the corresponding Shadowed race.</td>
<td>Delete either both races simultaneously, or delete the Shadowed race before the Shadow race.</td>
</tr>
<tr>
<td>Race</td>
<td>Cannot endorse this race since there is at least one voter group that endorses x candidates but the voter can only vote for y candidates.</td>
<td>An attempt is made to make a race straight party votable, where the race is defined with more candidates endorsed by the same party (x) than the number to vote for (y).</td>
<td>Either correct endorsements in the race so that the number of candidates endorsed by one party does not exceed the number to vote for, or do not make the race straight party votable.</td>
</tr>
<tr>
<td>Headers</td>
<td>Please enter an integer</td>
<td>Attempt was made to enter a blank in the Link to Race Ids fields in the Header</td>
<td>Enter positive values in order to link a header to .</td>
</tr>
<tr>
<td>Category of Error</td>
<td>Error Message</td>
<td>Meaning of Error Message</td>
<td>Resolution Steps</td>
</tr>
<tr>
<td>-------------------</td>
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</tr>
<tr>
<td>Editor</td>
<td>Editor</td>
<td>races, otherwise define negative or zero values in order for the header to not appear automatically on ballots.</td>
<td></td>
</tr>
<tr>
<td>Audio</td>
<td>The audio file is too big</td>
<td>The formatting options specified for the audio file are too resource-intensive.</td>
<td>Select less demanding formatting options for the audio file and retry.</td>
</tr>
<tr>
<td>Ballot artwork</td>
<td>The changes will affect ballots. Continue?</td>
<td>An attempt has been made to save changes, where the changes made will affect ballot layout.</td>
<td>If this is intended, click on Yes to continue, other click on No in order for ballot artwork to not change.</td>
</tr>
<tr>
<td>Ballot artwork</td>
<td>Couldn’t lay out all the ballots</td>
<td>GEMS is unable to generate ballot artwork. Probably causes include not being able to fit a single race in one ballot column.</td>
<td>Either increase the amount of space available by increasing the ballot length or the column width allocated to the race, or reduce the amount of space required by reducing the Candidate Spacing or using a multi-row/column format.</td>
</tr>
<tr>
<td>Ballot artwork</td>
<td>There are overlapped elements. Save anyway?</td>
<td>Ballot artwork has been customized in either the Ballot or Card Editors, so that overlap has occurred between one or more races.</td>
<td>Ensure that all ballot artwork customizations occur so that the entirety of every race and header are visible.</td>
</tr>
<tr>
<td>Ballot artwork</td>
<td>Cannot Save With Unplaced Races</td>
<td>An attempt was made to save ballot artwork in either the Ballot or Card Editor, with one or more races cut from the ballot.</td>
<td>Ensure that changes are not intended to ballot artwork in either Ballot or Card Editors that leave artwork without races. In order to remove races from ballot artwork, re-assign districts as necessary.</td>
</tr>
<tr>
<td>Category of Error</td>
<td>Error Message</td>
<td>Meaning of Error Message</td>
<td>Resolution Steps</td>
</tr>
<tr>
<td>----------------------</td>
<td>---------------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Download/Upload</td>
<td>No Language Selected For Download</td>
<td>Download of a vote center is attempted for which no languages have been defined.</td>
<td>In the Language Editor, define at least one language for the vote center’s count method.</td>
</tr>
<tr>
<td>Upload/Upload</td>
<td>Wrong Download Version</td>
<td>The memory card being uploaded is programmed, but the download version does not match the database.</td>
<td>The results of the memory card’s long results tape must be manually entered into GEMS.</td>
</tr>
<tr>
<td>Download/Upload</td>
<td>Download/Upload open – Okay to Close?</td>
<td>An attempt is made to close GEMS while either the AccuVote-OS Server 1 or AccuVote-TS Server 2 console is still active.</td>
<td>Either click on Yes in order to close either console, then close GEMS, or click on No in order to return to GEMS.</td>
</tr>
<tr>
<td>Logging</td>
<td>Error in decoding Log File.</td>
<td>An external log file is corrupt. Contact vendor.</td>
<td>Contact Diebold Election Systems for assistance if necessary.</td>
</tr>
<tr>
<td>Central Count</td>
<td>Central Count Started. Okay to close?</td>
<td>The Central Count console has been started, and not yet stopped, yet an attempt has been made to close the console.</td>
<td>Click on the Yes button in order to stop and close the Central Count console, otherwise click on No in order to continue processing.</td>
</tr>
<tr>
<td>Central Count</td>
<td>Central Count Open. Okay to close?</td>
<td>An attempt has been made to close GEMS while the Central Count console is active.</td>
<td>Click on the Yes button in order to stop and close the Central Count console, then close GEMS, otherwise click on No in order to continue processing.</td>
</tr>
<tr>
<td>Manual entry</td>
<td>Race Counts Inconsistent</td>
<td>Race times counted do not balance against candidate counts and race statistics.</td>
<td>Ensure that candidate counts and race statistics balance against times counted values.</td>
</tr>
<tr>
<td>Manual entry</td>
<td>No counters available to modify</td>
<td>Vote center does not tally to any report precincts, or no cards are valid in report</td>
<td>Ensure that correct report precinct or vote center has</td>
</tr>
<tr>
<td>Category of Error</td>
<td>Error Message</td>
<td>Meaning of Error Message</td>
<td>Resolution Steps</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>--------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Manual entry</td>
<td>No cards, exiting</td>
<td>Manual entry has been attempted on a report precinct that contains no cards.</td>
<td>Ensure that every report precinct is configured with at least one base precinct as well as at least one card in the election architecture.</td>
</tr>
<tr>
<td>Election results reports</td>
<td>Please enter at least 1 characters.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Election results reports</td>
<td>Cannot fit all the counter groups selected on a single page. You must select less counters or use a larger page.</td>
<td>Likely that landscape page layout will solve this problem.</td>
<td>Contact Diebold Election Systems for assistance if necessary.</td>
</tr>
<tr>
<td>Election results export</td>
<td>Please enter an integer between 1 and 99</td>
<td>No county code defined when attempting to perform the South Carolina export</td>
<td>Enter a county code prior to performing the results export.</td>
</tr>
<tr>
<td>Election results export</td>
<td>Invalid information for …</td>
<td>Incorrect export information is defined to the South Carolina export</td>
<td>Ensure that all export information is correctly defined prior to performing the South Carolina export</td>
</tr>
<tr>
<td>JResult Client</td>
<td>Monitor Results Server is still running – Okay to close?</td>
<td>An attempt is made to close GEMS while Results Server is still active.</td>
<td>Either click on OK in order to close Results Server, then close GEMS, or click on No in order to return to GEMS.</td>
</tr>
</tbody>
</table>

Table 12-1: GEMS error messages

12.2. Allowable Values, Limits, and Field Lengths

GEMS software is designed to not have any fixed limits. However, there are some architectural limits and limits imposed by the AccuVote-TS.

12.2.1. Architectural limits

Text fields: 253 characters
Integer fields: 32 bits, or -2147483648 to 2147483647
12.2.2. **External (AVOS) Limits**

Voter group short label: 1-3 characters.
Candidate label: 20 characters.
AccuVote-OS password: 4 digits
## 12.3. Problem resolution

<table>
<thead>
<tr>
<th>Category of Error</th>
<th>Error Message(s)</th>
<th>Meaning and Resolution</th>
<th>Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Checks</td>
<td>Internal Error</td>
<td>An internal database or system consistency check failed.</td>
<td>Contact Diebold Election Systems for assistance if necessary.</td>
</tr>
<tr>
<td>Printing</td>
<td>Print Job Error</td>
<td>An error occurred in sending the job to the print spool.</td>
<td>This is not appropriate to the GEMS User’s Guide.</td>
</tr>
<tr>
<td>Central Count</td>
<td>Protocol Error</td>
<td>An unknown message was sent from the Central Count client to GEMS.</td>
<td>Ensure that central count has been properly configured.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Upgrade central count software.</td>
<td>Contact Diebold Election Systems for assistance if necessary.</td>
</tr>
<tr>
<td>Central Count</td>
<td>Bad Encode Mask</td>
<td>The ballot image could not be decoded.</td>
<td>Re-feed the ballot or contact the vendor if the problem persists.</td>
</tr>
<tr>
<td>Counter Group Dialog</td>
<td>Too many counters for Vcenter.</td>
<td></td>
<td>Create a unique vote center category for all but two of the counter groups per vote center</td>
</tr>
<tr>
<td>Download/Upload</td>
<td>AV Data Error</td>
<td>Data sent from the AVOS is not recognized by GEMS.</td>
<td>Retry operation and contact Diebold Election Systems if problem persists.</td>
</tr>
<tr>
<td>Download/Upload</td>
<td>Wrong Revision</td>
<td>The AVOS firmware revision does not match the revision selected in the AV setup dialog.</td>
<td>Define Version field under AccuVote-OS Settings tab in the AccuVote-OS Options.</td>
</tr>
<tr>
<td>Download/Upload</td>
<td>AV Password Error</td>
<td>The AVOS password does not match the password selected in the AV setup dialog.</td>
<td>Change the Password field under the AccuVote-OS Settings tab in the AccuVote-OS Options window accordingly.</td>
</tr>
<tr>
<td>Download/Upload</td>
<td>Already Uploaded</td>
<td>The results from this memory card have already been uploaded.</td>
<td>Observe that the vote center under the Vote Centers</td>
</tr>
<tr>
<td>Category of Error</td>
<td>Error Message(s)</td>
<td>Meaning and Resolution</td>
<td>Resolution</td>
</tr>
<tr>
<td>-------------------</td>
<td>------------------</td>
<td>------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>Download/Upload</td>
<td>Not Programmed</td>
<td>The memory card being uploaded is not programmed.</td>
<td>Contact Diebold Election Systems.</td>
</tr>
</tbody>
</table>

Table 12-2: GEMS error messages
13. Appendix I: Selected Election Scenarios

This appendix presents four simple election scenarios for the novice GEMS user to practice election configuration with. Each example outlines the necessary steps in jurisdiction and ballot content definition. For sake of simplicity, transferring results from ballot counting devices and election results reporting and exporting are not discussed in these examples.

Election scenarios are as follows:

1. Basic General Election
2. Advanced General Election
3. Basic Open Primary Election
4. AccuVote-TS Closed Primary Election

13.1. Basic General Election

13.1.1. Outline

A general election is implemented for the AccuVote-OS with races for Mayor of Fargo, and District 14 and District 15 State Assembly. The city of Fargo consists of precincts Wilson and Jackson – residents in both precincts vote for Mayor, residents of Wilson vote for District 14 State Assembly only and residents of Jackson vote for District 15 State Assembly. All races are vote for 1.

13.1.2. Creating the database

Activate the GEMS application (see Figure 14-1), and click on the New button in the Connect to Database window. Enter ‘Basic General Election’ in the Database Name field, with matching password in both the Password and Confirm Password fields and click on the OK button. Ensure that passwords are entered in the case with which they were defined. See Figure 13-2.
13.1.3. Defining voter groups

Click on Setup in the menu bar and Voter Groups in the drop-down menu (see Figure 13-3), then in the Voter Group Editor click on the New button under the Parties tab (see Figure 13-4). Enter Republican in the Label field, REP in the Short field and click on the New button again. Now enter Democrat in the Label field and DEM in the Short field and click on OK.
13.1.4. Defining districts

Select District in the tree view and click on the New Record button (See Figure 13-5). Enter State Assembly in the Label field and click on the OK button (See Figure 13-6).

Right-click on district category State Assembly and click on Add Sub-District in the pop-up menu (See Figure 13-7). In the District Editor, enter 'District 14 State Assembly' in the Label field and click on the Add button. Enter 'District 15 State Assembly' in the Label field of the next subdistrict and click on the OK button. See Figure 13-8.
13.1.5. Defining report precincts

Expand Report Precinct in the tree view, select Default Precinct Category and click on the New Record button. See Figure 3-9. Enter ‘Wilson’ in the Label field of the Report Precinct Editor and click on the Add button. Enter ‘Jackson’ in the Label field of the next report precinct and click on OK. See Figure 13-10.
13.1.6. Linking districts and precincts

Ensure that all districts are expanded in the tree view, and select Base Precinct in order to display base precincts in the list view.

Select base precinct Wilson in the list view and drag it onto District 14 State Assembly in the tree view. Select base precinct Jackson in the list view and drag it onto District 15 State Assembly in the tree view. See Figure 13-11.

13.1.7. Defining races

Select Race in the tree view and click on the New Record button. See Figure 13-12. Enter ‘State Assembly District 14’ in the Label field and set District to District 14 State Assembly. Highlight the ballot text at the bottom of the Race Editor, set the text to 12 point Arial bold centered. Add a second line containing ‘Vote for One’, and click on the Candidates tab. See Figure 13-13.
Appendix I: Selected Election Scenarios

Figure 13-13. Defining the Race

Under the Candidates tab, click on the New button, enter ‘John Doe’ into the Label field and set the Endorse drop-down list to Republican. See example in Figure 14-14. Click again on the New button, enter ‘Jane Doe’ into the Label field and set Endorse to Democrat. Click on the Add button.

Figure 13-14: Defining candidates

Now enter ‘State Assembly District 15’ in the Label field and set District to District 15 State Assembly. Highlight the ballot text at the bottom of the Race Editor, set the text to 12 point Arial bold centered. Add a second line containing ‘Vote for One’. Click on the Candidates tab.

Under the Candidates tab, click on the New button, enter ‘Bob Smith’ into the Label field and set the Endorse drop-down list to Republican. Click again on the New button, enter ‘Josh Black’ into the Label field and set Endorse to Democrat. Click on the Add button.

Finally, enter ‘Mayor’ in the Label field and set District to Jurisdiction Wide. Highlight the ballot text at the bottom of the Race Editor, set the text to 12 point Arial bold centered. Add a second line containing ‘Vote for One’. Click on the Candidates tab.
Under the Candidates tab, click on the New button, enter 'Bill Smith' into the Label field and set the Endorse drop-down list to Republican. Click again on the New button, enter 'Wendy Doe' into the Label field and set Endorse to Democrat. Click on the OK button.

13.1.8. Defining headers

Select Header in the tree view and click on the New Record button. Enter ‘Election Title’ in the Label field, and in the ballot text window, enter ‘Basic General Election’, setting the text to 16 point Arial bold centered, and click on the Options tab. See Figure 13-15. In the Link to Race IDs group box, set From Id to 10 and To Id to 20, and Width to 3. Click on the OK button. See Figure 13-16.

13.1.9. Generating ballot artwork

Click on the Generate Ballots icon in order to create ballots. See Figure 13-17 and Figure 13-18.
13.1.10. Reviewing ballot artwork

Expand Vote Center and Polling Vote Center in the tree view. Select vote center Wilson in the tree view, click on the Card tab, and double-click on Card 1. See Figure 13-19. Card 1 is now displayed in the Card Editor. After reviewing card 1, click on Ballot in the menu bar, and then Close in the drop-down menu. See Figure 13-20 and Figure 13-21.
Select vote center Jackson in the tree view, and then double click on card 2 in the list view. Review card 2, then once you have finished, select Ballot in the Card Editor menu bar and click on Close. You have now completed the configuration of a basic general election.

13.2. Advanced General Election

13.2.1. Outline

A second general election is to be implemented using the AccuVote-OS, but with more advanced concepts.

A general election is held for the races of Mayor of Fargo and District 14 and District 15 State Assembly. Residents in all precincts vote for Mayor, while residents of Wilson and Jackson vote for District 14 State Assembly and residents of Jackson, Lincoln and Monroe vote for District 15 State Assembly. Election day voters from precincts Wilson and Jackson vote at polling place Wilson while election day voters from precincts Lincoln and Monroe vote at polling place Lincoln. Absentee ballots are cast at a separate absentee precinct.

The results of polling ballots are returned to the precincts, whereas absentee results are reported cumulatively for the entire jurisdiction. Candidates in the race for Mayor are rotated by precinct, while the State Assembly candidates are not rotated. All races are vote for 1.
Ballots are to be printed on 11” stock, with three columns, and identified to the AccuVote-OS by precinct sequence numbers. Candidates are double-spaced, voting ovals are printed to the right of candidates, and party text separated from the oval by ¼”. Each race is printed with a line dividing the text from the candidates. A ballot header is printed across the top of the ballot and underneath voter instructions with gray shading. State Assembly races are preceded with the shaded header ‘State’ and the race for Mayor with the header ‘Local’ in similar format.

13.2.2. Creating the database

Activate the GEMS application, and click on the New button in the Connect to Database window. Enter ‘Advanced General Election’ in the Database Name field, with matching password in both the Password and Confirm Password fields and click on the OK button.

13.2.3. Defining voter groups

Click on Setup in the menu bar and Voter Groups in the drop-down menu, then in the Voter Group Editor click on the New button under the Parties tab. Enter Republican in the Label field, REP in the Short field and click on the New button again. Now enter Democrat in the Label field and DEM in the Short field and click on OK.

13.2.4. Defining counter groups

Click on Setup in the menu bar and Counter Groups in the drop-down menu. See Figure 13-22. In the Counter Group Editor, click on the New button in the bottom left-hand corner of the window, and in the Label field, enter Absentee, click on the Cumulative Results Only check box and de-select the Pct Ids check box. Click on the New button in the Vote Center Category group box and click on OK in the VCenterCat window. Back in the Counter Group Editor, click on the OK button. See Figure 13-23.

Figure 13-22. Accessing the Counter Group Editor
13.2.5. Defining ballot options

Select Setup in the menu bar and Ballot Options in the drop-down menu. Under the Card Definitions tab, set Page Style to 11 inch and Precinct Identifier on Card to Precinct Sequence. See Figure 13-24.
Under the Margins tab, set all fields to 4 except for the Top and Bottom candidate margins fields, which should be set to 2. See Figure 13-25.

Finally, click on the Oval/Box tab, and in the Oval Justification group box, set Horz to Right and Margin to 1. Click on the OK button. See Figure 13-26.
13.2.6. Defining race options

Click on Setup in the menu bar and Race Options in the drop-down menu. Under the Race Default Settings tab, select the Race Line check box in the Draw Options group box, set Candidate Spacing to 2 in the Size Options check box, set the font size to 12, click on the Bold and Center justification icons and select the Candidate Default Settings tab. See Figure 13-27.

Under the Candidate Default Settings tab, set the font to Arial Narrow 11 point bold. Under the Header Default Settings tab, select 12 in the font size drop-down list, click on the Bold and Center justify icons followed by OK. See Figure 13-28.
13.2.7. Defining districts

Select District in the tree view and click on the New Record button. Enter State Assembly in the Label field and click on the OK button.

Right-click on district category State Assembly and click on Add Sub-District in the pop-up menu. In the District Editor, enter 'District 14 State Assembly' in the Label field and click on the Add button. Enter 'District 15 State Assembly' in the Label field of the next subdistrict and click on the OK button.
13.2.8. Defining report precincts

Expand Report Precinct in the tree view, select Default Precinct Category and click on the New Record button. Enter ‘Wilson’ in the Label field of the Report Precinct Editor and click on the Add button. Next enter ‘Jackson’ in the Label field and click on Add, then add ‘Lincoln’, and upon adding ‘Monroe’ click on OK.

13.2.9. Linking precincts and districts

Ensure that all districts are expanded in the tree view, and select Base Precinct in order to display base precincts in the list view.

Select base precincts Wilson and Jackson in the list view and drag them onto District 14 State Assembly in the tree view. Select base precincts Lincoln and Monroe in the list view and drag them onto District 15 State Assembly in the tree view.

Now select Cumulative Reportunits under Report Precinct and click on the New Record button. Enter Absentee in the Label field and click on the OK button. See Figure 13-29 and Figure 13-30.

![Figure 13-29. Adding an absentee precinct](image)

![Figure 13-30. Defining an absentee precinct](image)

Select Base Precinct in the tree view, select all base precincts in the list view and drag them onto the cumulative report precinct Absentee. See Figure 14-31.
13.2.10. Maintaining vote centers

Expand Vote Center as well as Polling Vote Center in the tree view. Select vote center Jackson in the tree view and drag report precinct Jackson displayed under the Report Precinct tab in the list view onto vote center Wilson in the tree view. See Figure 14-32 and Figure 14-33. Next, select vote center Monroe in the tree view and drag report precinct Monroe from the list view onto vote center Lincoln in the tree view.
Select Polling Vote Center in the tree view, select vote centers Jackson and Monroe in the list view, and click on the Delete Record icon. Click the Yes button in the deletion confirmation message that appears. See Figure 13-34 and Figure 3-35.
Click on the Absentee vote center category in the tree view and click on the New Record button. Enter Absentee in the Label field of the Vote Center Editor and click on the OK button.

Select Cumulative Reportunits in the tree view and drag report precinct Absentee onto vote center Absentee in the Absentee vote center category in the tree view. See **Figure 14-36**.

![Figure 13-36. Linking Absentee precinct to Absentee vote center](image)

13.2.11. Defining races

Select Race in the tree view and click on the New Record button. Enter ‘State Assembly District 14’ in the Label field and set District to District 14 State Assembly. Add the line ‘Vote for One’ to the ballot text and click on the Candidates tab.

Under the Candidates tab, click on the New button, enter ‘John Doe’ into the Label field and set the Endorse drop-down list to Republican. Click again on the New button, enter ‘Jane Doe’ into the Label field and set Endorse to Democrat. Click on the Add button.

Now enter ‘State Assembly District 15’ in the Label field and set District to District 15 State Assembly. Add the line ‘Vote for One’ to the ballot text field and click on the Candidates tab.

Under the Candidates tab, click on the New button, enter ‘Bob Smith’ into the Label field and set the Endorse drop-down list to Republican. Click again on the New button, enter ‘Josh Black’ into the Label field and set Endorse to Democrat. Click on the Add button.

Finally, enter ‘Mayor’ in the Label field and set District to Jurisdiction Wide. Add the line ‘Vote for One’ to the ballot text and click on the Options tab. Under the Options tab, set Type to Precinct in the Rotation Options group box and click on the Candidates tab. See **Figure 13-37**.
Appendix I: Selected Election Scenarios

Under the Candidates tab, click on the New button, enter ‘Bill Smith’ into the Label field and set the Endorse drop-down list to Republican. Click on the New button, enter ‘Wendy Doe’ into the Label field and set Endorse to Democrat. In the same manner define the candidates ‘Jack White’ and ‘Linda Best’, without endorsements. Click on the OK button.

13.2.12. Defining headers

Select Header in the tree view and click on the New Record button. Enter ‘Election Title’ in the Label field, and in the ballot text window, enter ‘Advanced General Election’, set the text to 16-point font size, and click on the Options tab. In the Link to Race IDs group box, set From Id to 10 and To Id to 20, and Width to 3. Click on the Add button.

Enter ‘Instructions to vote’ in the Label field of the new header under the Text tab, and in the ballot text window, enter ‘Instructions to vote: completely fill in the oval to the right of the candidate of your choice, like this’. Insert the cursor at the end of the text, click on the New Object button, and select the ‘Filled Oval’ file in the Images folder and click on the Open button. See Figure 13-38 and Figure 13-39.

Instructions to vote: completely fill in the oval to the right of the candidate of your choice, like this

Figure 13-38. Inserting Filled Oval into header
Click on the Options tab. Select the Shaded check box in the Draw Options group box and click on the Add button.

Enter ‘State’ in the Label field of the next header as well as in the ballot text field. Under the Options tab, select the Shaded check box in the Draw Options group box, enter 10 and 20 in the From Id and To Id fields, set Width to 1 and click on the Add button.

Enter ‘Local’ in the Label and ballot text fields under the Text tab, and under the Options tab, select the Shaded check box in the Draw Options group box, enter 30 in the From Id and To Id fields, and click on the OK button.

13.2.13. Generating ballot artwork

Click on the Generate Ballots icon in order to create ballot artwork, then click on the Generate Ballot Rotations icon in order to create ballot rotations. See Figure 13-40 and Figure 13-41.
13.2.14. Reviewing ballot artwork

Now expand Vote Center and Polling Vote Center in the tree view. Select vote center Wilson in the tree view, click on the Card tab in the list view, and double-click on Card 1 in order to display the ballot in the Card Editor. After reviewing card 1, click on Ballot in the menu bar, then Close in the drop-down menu. See Figure 13-42.

![Advanced General Election](image)

**Figure 13-42. Card 1**

Double click on card 3 in the list view, still within vote center Wilson. Review the ballot, select Ballot in the Card Editor menu bar and click on Close. In the same manner, preview cards 2 and 4 in vote center Lincoln.

You will observe the two cards in Wilson contain the district 14 State Assembly office while the two cards in Lincoln contain the district 15 State Assembly office. Each card contains the Mayoral rotation corresponding to the precinct.

Finally, select the Absentee vote center in the tree view and observe that all four cards are present.

You have now completed the configuration of the advanced general election.

13.3. Basic Open Primary Election

13.3.1. Outline

The following example illustrates the implementation of a simple open primary for the AccuVote-OS. Note than open primaries are not supported by the AccuVote-TS unit.

An open primary election is held in the city of Fargo for the offices of Republican and Democrat Mayor. Fargo consists of two precincts, Wilson and Jackson. Republican voters vote on the Republican race for Mayor, and Democrat voters vote on the Democrat race for Mayor. Voters may select write-in candidates as an alternative to candidates on the ballot. All races are vote for one. No absentee voting takes place in this election. Voters vote at their precincts, and election results are reported by precinct.
Ballots are to be printed on 11” stock, with three columns, and identified by precinct sequence numbers. Candidates are double-spaced, voting ovals are printed to the left of candidates, and party text separated from the oval by ¼”. A ballot header is printed across the top of the ballot and underneath voter instructions with grey shading. Write-in ballots are to be separated in the ballot box, and ballot counting units programmed to return blank and overvoted ballots.

13.3.2. Creating the database

Activate the GEMS application, and click on the New button in the Connect to Database window. Enter ‘Basic Open Primary Election’ in the Database Name field, with matching password in both the Password and Confirm Password fields and click on the OK button.

13.3.3. Creating voter groups

Click on Setup in the menu bar and Voter Groups in the drop-down menu, then in the Voter Group Editor click on the New button under the Parties tab. Enter Republican in the Label field, REP in the Short field and click on the New button again. Now enter Democrat in the Label field and DEM in the Short field and click on OK.

13.3.4. Defining ballot options

Select Setup in the menu bar and Ballot Options in the drop-down menu. Under the Card Definitions tab, set Page Style to 11 inch and Precinct Identifier on Card to Precinct Sequence. Under the Margins tab, set all fields to 4 except for the Top and Bottom candidate margins fields, which should be set to 2. Finally, click on the Oval/Box tab, and in the Oval Justification group box, set Margin to 1. Click on the OK button.

13.3.5. Defining race options

Click on Setup in the menu bar and Race Options in the drop-down menu. Under the Race Default Settings tab, set Candidate Spacing to 2 in the Size Options check box, set the font size to 12, click on the Bold and Center justification icons and select the Candidate Default Settings tab.

Under the Candidate Default Settings tab, set the font to Arial Narrow 11 point bold. Under the Header Default Settings tab, select 12 in the font size drop-down list, click on the Bold and Center justify icons followed by OK.

13.3.6. Defining AccuVote-OS Options

Select Setup in the menu bar and AccuVote-OS Options in the drop-down list. See Figure 13-43. Select the Write-In Votes check box in the Sorting Ballot With group box under the AccuVote-OS Settings tab. See Figure 13-44.
Click on the Reject Settings tab, select the Overvoted Races and Blank Voted Ballots check boxes in the Return Ballots With group box and click on the OK button. See Figure 13-45.
13.3.7. **Defining precincts**

Expand Report Precinct in the tree view, select Default Precinct Category and click on the New Record button. Enter ‘Wilson’ in the Label field of the Report Precinct Editor and click on the Add button. Next enter ‘Jackson’ in the Label field and click on the OK button.

13.3.8. **Defining races**

Select Race in the tree view and click on the New Record button. Enter ‘Republican Mayor’ in the Label field and set the District to Jurisdiction Wide. Add the line ‘Vote for One’ to the ballot text and click on the Options tab. Select Republican in the Group One drop-down list in the Voter Groups group box, and click on the Candidates tab. See **Figure 13-46**.

![Figure 13-46. Setting the race’s endorsing party](image)

Under the Candidates tab, click on the New button, enter ‘John Doe’ in the Label field, click on the New button and enter ‘Jane Doe’ into the Label field. Again click on the New button, select Write-in in the Type field and delete the write-in ballot text. Click on the Add button. See **Figure 13-47**.

![Figure 13-47](image)
Figure 13-47. Defining a write-in candidate

Enter ‘Democrat Mayor’ in the Label field and set the District to Jurisdiction Wide. Add the line ‘Vote for One’ to the ballot text and click on the Options tab. Select Democrat in the Group One drop-down list in the Voter Groups group box, and click on the Candidates tab.

Under the Candidates tab, click on the New button, enter ‘Bob Smith’ in the Label field, click on the New button again and enter Josh Black in the Label field. Click on the New button, select Write-in in the Type field and delete the write-in ballot text. Now click on the OK button.

13.3.9. Defining headers

Select Header in the tree view and click on the New Record button. Enter ‘Election Title’ in the Label field, and in the ballot text window, enter ‘Basic Open Primary Election’, set the text to 16 point font size, and click on the Options tab. In the Link to Race IDs group box, set From Id to 10 and To Id to 20, and Width to 3. Click on the Add button.

Enter ‘Instructions to vote’ in the Label field of the new header under the Text tab, and in the ballot text window, enter ‘Instructions to vote: completely fill in the oval to the left of the candidate of your choice, like this’. Insert the cursor at the end of the text, click on the New Object button, select the ‘Filled Oval’ file in the Images folder and click on the Open button.

Click on the Options tab. Select the Shaded check box in the Draw Options group box, enter 10 and 20 in the From Id and To Id fields, and click on the OK button.

13.3.10. Generating ballot artwork

Click on the Generate Ballots icon in order to create ballot artwork.

13.3.11. Reviewing ballot artwork

Expand Vote Center and Polling Vote Center in the tree view. Select vote center Wilson in the tree view, click on the Card tab in the list view, and double-click on Card 1 in order to display the ballot in the Card
Editor. After reviewing card 1, click on Ballot in the menu bar, then Close in the drop-down menu. Select vote center Jackson and observe that the same card is assigned to the vote center. See Figure 13-48.

![Figure 13-48. Card 1](image)

You have now completed the configuration of a basic open primary election.

13.4. AccuVote-TS Closed Primary Election

13.4.1. Outline

The following example illustrates the implementation of a closed primary for the AccuVote-TS.

A closed primary election is held for the offices of State Assembly, Precinct Committee as well as a bond issue. Republican and Democrat voters only vote on the corresponding State Assembly and Precinct Committee offices, whereas all voters vote on the bond issue. Election day voters vote on all offices, while absentee voters vote only on the State Assembly race and bond issue. All races are vote for one and are to be displayed in two columns.

Voters vote at their corresponding precincts, which are Wilson, Jackson, Lincoln and Monroe. Both election day and absentee results are returned to the precincts. Both polling and absentee voters vote using the AccuVote-TS.

13.4.2. Creating the database

Activate the GEMS application, and click on the New button in the Connect to Database window. Enter 'Closed Primary Election' in the Database Name field, with matching password in both the Password and Confirm Password fields and click on the OK button.

13.4.3. Creating voter groups in such a way so as to eliminate

Click on Setup in the menu bar and Voter Groups in the drop-down menu, then in the Voter Group Editor click on the New button under the Parties tab. Enter Republican in the Label field, REP in the Short field, click on the Separate Ballot check box and click on the New button again. Now enter Democrat in the Label field, DEM in the Short field and click on the Separate Ballot check box. See Figure 13-49. Now click on the Absentee/NonAbsentee tab.
Appendix I: Selected Election Scenarios

Figure 13-49. Defining voter groups in a closed primary
Click on New, enter Polling in Label field and PLL in Short. Again click on New, enter Absentee in Label and ABS in Short. Click on the OK button. See Figure 13-50.

Figure 13-50. Defining Polling and Absentee voter groups

13.4.4. Defining counter groups
Click on Setup in the menu bar and Counter Groups in the drop-down menu. In the Counter Group Editor, select the Polling counter group and select Polling in the VGroup2 drop-down list.

Click on the New button in the bottom left-hand corner of the window, enter Absentee in the Label field and set the VGroup2 field to Absentee. See Figure 13-51. Click on the New button in the Vote Center Category group box and click on OK in the VCenterCat window, then click on the OK button in the Counter Group Editor.
13.4.5. Defining race options

Click on Setup in the menu bar and Race Options in the drop-down menu. Under the Race Default Settings tab, set the font size to 12, click on the Bold and Center justification icons and select the Candidate Default Settings tab.

Under the Candidate Default Settings tab, set the font to Arial Narrow 11 point bold. Under the Header Default Settings tab, select 12 in the font size drop-down list, click on the Bold and Center justify icons followed by OK.

13.4.6. Defining AccuVote-TS Options

Select Setup in the menu bar and AccuVote-TS Options in the drop-down list. Set No. Columns to 2 and Scale % to 75 in the Layout group box and click on OK. See Figure 13-52.
13.4.7. Defining precincts

Expand Report Precinct in the tree view, select Default Precinct Category and click on the New Record button. Enter Wilson in the Label field of the Report Precinct Editor and click on the Add button. Repeat this activity for Jackson, Lincoln and Monroe, and click on the OK button.

13.4.8. Defining vote centers

Expand Vote Center and Polling Vote Center in the tree view. Double-click on vote center Wilson, set Count Method to AccuVote-TS and click on the OK button. See Figure 13-53. In the same manner, set the Count Method to AccuVote-TS in vote centers Jackson, Lincoln and Monroe.

Select the Absentee vote center category and click on the New Record icon. Enter Absentee in the Label field of the Vote Center Editor, set Count Method to AccuVote-TS and click on the OK button. Select Default Precinct Category within Report Precinct in the tree view, select all of the polling report precincts in the list view and drag them onto the Absentee vote center in the tree view.
13.4.9. **Defining races**

Select Race in the tree view and click on the New Record button. Enter ‘Republican State Assembly’ in the Label field and set the District to Jurisdiction Wide. Add the line ‘Vote for One’ to the ballot text and click on the Options tab. Select Republican in the Group One drop-down list in the Voter Groups group box, and click on the Candidates tab.

Under the Candidates tab, click on the New button, enter ‘John Doe’ in the Label field, click on the New button and enter ‘Jane Doe’ into the Label field. Click on the Add button.

Enter ‘Democrat State Assembly’ in the Label field and set the District to Jurisdiction Wide. Add the line ‘Vote for One’ to the ballot text and click on the Options tab. Select Democrat in the Group One drop-down list in the Voter Groups group box, and click on the Candidates tab.

Under the Candidates tab, click on the New button, enter ‘Bill Smith’ in the Label field, click on the New button and enter ‘Josh Black’ into the Label field. Click on the Add button.

Now enter ‘Bond Issue’ in the Label field, set Type to Question and set the District to Jurisdiction Wide. Add the line ‘Select either Yes or No’ after ‘Bond Issue’ and enter ‘Do you approve the issuance of $1,000,000 in bonds over the course of three years for the purpose of funding local schools?’ as body of the question text in Arial 10 point font. Click on the Add button.

Enter ‘Republican Precinct Committee’ in the Label field and set the District to Jurisdiction Wide. Add the line ‘Vote for One’ to the ballot text and click on the Options tab. Select Republican in the Group One drop-down list and Polling in the Group Two list in the Voter Groups group box, and click on the Candidates tab. See **Figure 13-54**.
Under the Candidates tab, click on the New button, enter ‘Betty White’ in the Label field, click on the New button and enter ‘Jack Brooks’ into the Label field. Click on the Add button.

Enter ‘Democrat Precinct Committee’ in the Label field and set the District to Jurisdiction Wide. Add the line ‘Vote for One’ to the ballot text and click on the Options tab. Select Democrat in the Group One drop-down list and Polling in the Group Two list in the Voter Groups group box. Click on the Candidates tab.

Under the Candidates tab, click on the New button, enter ‘John O’Brien’ in the Label field, click on the New button and enter ‘Nancy Ford’ into the Label field. Click on the OK button.

13.4.10. Generating ballot artwork

Click on the Generate Ballots icon in order to create ballot artwork.

13.4.11. Programming AccuVote-TS

Click on Setup in the menu bar, then Election, and in the Election Options window set the election status to Set for Election. Click on OK. Click on GEMS in the menu bar, then AccuVote-TS Server-v2. In the AccuVote-TS Server–v2, click on the Vote Centers tab. Observe that the four polling and one absentee vote center are present in the console.

Select vote center Wilson and click on the Queue button. Configure the AccuVote-TS for downloading, download and compile the database and preview the ballot.

13.4.12. Reviewing ballot artwork

The Democrat and Republican ballots appear on the AccuVote-TS as follows (See Figure 13-55 and Figure 13-56).
### Democrat State Assembly
**Vote for One**

- Bill Smith
- Josh Black

### Bond Issue
**Select either Yes or No**

Do you approve the issuance of $1,000,000 in bonds over the course of three years for the purpose of funding local schools?

- YES
- NO

### Democrat Precinct Committee
**Vote for One**

- John O’Brien
- Nancy Ford

---

**Figure 13-55. Democrat ballot**
Appendix I: Selected Election Scenarios

Figure 13-56. Republican ballot

You have now completed the configuration of an AccuVote-TS closed primary election.
14. **Appendix J: Security Procedures**

This appendix describes the security considerations involved in the access, installation and operation of GEMS.

### 14.1. Access Security Levels in GEMS

There are two access security levels in GEMS:

1. **Administrator/Supervisor**—Administrator/Supervisor access security is unlimited.
2. The GEMS Administrator/Supervisor can view and change all passwords.
3. **Non-Administrator**—Non-administrators have these access security limitations. They are prevented from:
   - Changing database Election Status after database status is at Set for Election
   - Resetting an Election (Clearing vote counters)

### 14.2. GEMS Security

Operating procedures for maintaining the security of the software are as follows:

1. Only install the software on a secure Windows NT system.
2. Only provide access to the Windows NT system for authorized users.
3. Keep the Windows NT system in a secure location.

Security for the system is provided at two levels:

1. The first is the Windows NT login system that requires a valid user id and it’s associated password.
2. GEMS software provides the second level of security itself. GEMS software maintains a list of authorized users and their passwords, which are encrypted. To gain access to a GEMS election the user must first enter their user id and their password

### 14.3. Operations Security

#### 14.3.1. Supervisor Functions

Supervisor functions include memory card duplication and several other features that affect the memory card state. These functions are exclusively available to the Election Administrator and must be accessed using a password.

1. **Pre-Election Mode**

The following Supervisor Functions are available in Pre-Election Mode:

- Changing setup parameters
- Duplicating the memory card
- Clearing the memory card
- Election Mode
The following Supervisor Functions are available in Election Mode:

- Changing setup parameters
- Duplicating the memory card
- Resetting the memory card to pre-election mode
- Clearing the memory card
- Post-Election Mode

The following Supervisor Functions are available in Post-Election Mode:

- Changing setup parameters
- Duplicating the memory card
- Resuming counting ballots
- Resetting the memory card to pre-election mode
- Clearing the memory card

### 14.3.2. Memory Cards Operations Security

Certain memory card functions may only be performed with the entry of a Supervisor password. These include:

- Accessing Supervisor Functions in any Election Mode
- Clearing a memory card in Election or Post-Election Modes
- Resetting a memory card to Pre-Election Mode
15. Appendix K: System Acquisition, Installation And Verification

Means of acquiring GEMS, GEMS and JResult Client installation and readiness testing are detailed in this section.

15.1. System Acquisition

The acquisition of the GEMS software is the responsibility of the office of the Vice President of Sales, Diebold Election Systems. Contact:

Vice-President of Sales
Diebold Election Systems
1611 Wilmeth Road
McKinney, Texas 75069
(972) 542-6000
(800) 433-8683

15.2. Installation

The following sections describe the installation of GEMS, GEMS installation files, upgrading GEMS as well as JResult Client installation.

15.2.1. GEMS Installation Procedure

The following procedure describes the installation of GEMS. This activity is the responsibility of Diebold Election Systems – jurisdictions are not commonly responsible for this activity. GEMS software installation should be performed with the approval and oversight of Diebold Election Systems only. The version of GEMS installed should be in accordance with Diebold Election Systems, local and state requirements.

GEMS should only be installed on Windows NT machines configured according to the Diebold Election Systems’ requirements.

1. Log on to machine intended for GEMS installation as Administrator or with another ID, with Administrator privileges.
2. Insert CD-R into CD-R drive.
3. Activate Windows NT Explorer. Ensure that no other application is active at the time of installation.
4. Click on CD-R drive in Windows NT Explorer.
5. A number of files are present on the CD. These include:
   - Readme.rtf; a file containing a general description of GEMS as characterized by version, in Rich Text Format.
   - Install.rtf; a text file describing installation considerations in Rich Text Format.
   - Setup.exe; the installation program
6. Double-click on Setup.exe to initiate the GEMS installation program. See Figure 15-1.
1. A message box appears as in Figure 15-2.

![Figure 15-2. Initial installation screen](image)

2. Click on OK in the Install window. See Figure 15-3.

![Figure 15-3.](image)
3. Enter a password in the Password prompt if it appears. See Figure 15-4.

4. Click on Next in the Welcome window. See Figure 15-5.

5. Read the contents of the Software License Agreement window before clicking on the Yes button to continue. See Figure 15-6.
6. Assign an installation folder other than the default displayed by clicking on the Browse button in the Choose Destination Location window if necessary. However, GEMS should be installed in the default installation folder. Click on the Next button to continue. See Figure 15-7.

7. In the Select Components window, the following three components are available for installation:

- Program Files
- Crystal Report Files
- Result Monitor Files

All three components are selected by default and should be installed. Click on the Next button to continue. See Figure 15-8.
8. Now a message box is shown titled ‘Setup Complete.’ You have the option of starting GEMS at this point, from the installation application. If you wish to start the program, click on the checkbox to continue directly to GEMS.

15.2.2. Upgrading GEMS

Upgrading of GEMS should occur in accordance with Diebold Election Systems as well as local and state requirements. This activity is the responsibility of the Diebold Election Systems, although GEMS upgrading may be performed with the approval and oversight of Diebold Election Systems.

There are several methods for accessing a new version of GEMS. Commonly, a software upgrade may be procured from the Diebold Election Systems ftp site, although it is also possible to re-install the software. Consult with Diebold Election Systems as to whether an upgrade is sufficient or a full re-install is required.

The software may be downloaded from the Diebold Election Systems corporate ftp site as follows.

First, access the Internet. In the internet browser address line, type ftp://ftp.gesn.com/pub/GEMSfix and press the Enter key. Save this location as a bookmark. Locate and click on the GEMS release you wish to upgrade to. In the message box that appears, select the Save to Disk option, and assign as download location the GEMS folder location on your GEMS host. If the GEMS host computer is not connected to the internet, download the upgrade zip file to diskette, and copy the file from diskette into the GEMS folder on the election host.

In the GEMS folder, unzip the GEMS upgrade file using the password provided by your Diebold Election Systems representative. The zip file will contain the files GEMS.exe and readme.rtf, which should both replace existing files in the GEMS folder.

Verify that GEMS is now configured for the upgraded version by activating a GEMS database and clicking on Help in the GEMS menu bar, then About Help in the drop-down list.

If an upgrade occurs across a second level GEMS version, for example, 1-11 to 1-17, an upgrade message will be displayed the first time a database is accessed with the upgraded version. Once the database has been upgraded, it will not be possible to access the database with the original version. To this end, the database should be backed up before upgrading, and the database backup name qualified with the original GEMS version. For example, ‘General Election 1-11-8’.
15.2.3. **GEMS Directories**

The following directories are contained within the GEMS installation directory (by default, C:\Program Files\GEMS):

**ABasic**
All report files with unique customizations of AccuVote-OS reports. For example, 194us.abo is the most commonly used report file format in the United States. See the section Appendix G: Firmware Release Log.

**Backup**
This directory is created the first time a database is backed up and is the default folder location for all GEMS backup databases.

**Data**
This folder contains further folders corresponding to each database election ID, which, in turn contains ballot images as well as download, election results, and poster logs. AccuVote Server logs are stored in the Log folder, and poster files are stored in the Poster folder within the election Id folder within the GEMS/Data folder. It is essential that neither these files, nor the folders containing these files are removed prior to election close.

**hlp**
Contains GEMS help files.

**Images**
Directory of images available for ballot artwork, such as filled ovals used on ballot headers as part of “Instructions to Voters.”

**JResult Client**
Appears only if JResult Client has been selected in installation.

**LocalDB**
Contains all current election databases.

**Reports**
Contains report files.

**TS Text**
Multi-language AccuVote-TS operational text files.

15.2.4. **Installing JResult Client**

The following are instructions for installing JResult Client. JResult Client must be installed on all PCs assigned for JResult Client election results display, and should be performed by technically qualified staff only, approved by Diebold Election Systems. JResult Client may be installed on the Windows 95, 98, NT, and Windows 2000 operating systems.

Prior to installing JResult Client, a PC must be installed with Internet Explorer 5.01 or higher, and Microsoft Virtual Machine, in that order.

Install JResult Client from the GEMS CD onto the intended machine using a procedure similar to the procedure described in the section 15.2.1 GEMS installation procedure, ensuring that JResult Client has been selected for installation.

Alternatively, if JResult Client is already installed on the GEMS host computer, zip up the JResult Client folder within GEMS, copy it to diskette, copy it to the intended machine and unzip the JResult Client zip file into the Program Files folder.

Locate the file JResultClient.class in the JResult Client folder, double-click on the file and observe the Open With Dialog Box. See Figure 15-9.
Figure 15-9. Locating the JResultClient.class file

Ensure that the ‘Always use this program to open this file’ check box is selected, otherwise this process will be repeated every time JResult Client is launched. Click on the Other button in order to continue. See Figure 15-10.

Figure 15-10. Open With window

In the Open With window, determine the location of the jview.exe program. It is located in the C/Winnt on Windows NT machines and in the C/Windows folder on Windows 95 and 98 machines. See Figure 15-11.
Once jview.exe has been located, press the Open button to continue. Now press the OK button in the Open With window. See Figure 15-12.

A shortcut should be created from JResult Client to the desktop in order to facilitate launching of the program. In Windows Explorer, right-click on the JResultClient.class file, and click on Create Shortcut in the popup menu. Minimize all other applications on the machine other than Windows Explorer, shape the Windows Explorer window so that the desktop as well as the JResultClient.class shortcut are both visible, and drag the shortcut onto the desktop.

See Figure 15-13.
15.3. Readiness Testing

Diebold Election Systems performs software and installation readiness testing before shipping machines installed with GEMS. A test database is loaded and all functionality is checked, including adding districts, adding report and base precincts, adding races and headers, generating ballot artwork, printing reports and artwork, programming memory cards, uploading results and printing election results reports.

Customer readiness testing involves successfully implementing one of the elections described in Appendix I: Selected Election Scenarios.
16. Appendix L: Technical Support

This appendix explains the support tools that are available to the GEMS user, the process for submitting problem reports and requests for changes, as well as Diebold Election Systems’ telephone support procedures.

16.1. Accessing Help

GEMS support is provided either by means of the GEMS online Help facility, the GEMS User’s Guide, a the Project Manager assigned to a jurisdiction, or the Service Bureau Help Line.

16.1.1. Online Help

The most immediate support tool for the GEMS user in need of assistance is GEMS online Help, which is available for every window in GEMS. Online Help is activated either by clicking on the Help button or the F1 key in any GEMS Editor, as shown in Figure 16-1. Online Help provides detailed information on every field displayed in the corresponding window.

![Figure 16-1: Help button in the District Editor](image)

16.1.2. GEMS User’s Guide

The GEMS User’s Guide is considered the ultimate resource for GEMS, and should be consulted before proceeding with further investigations if the required information could not be provided by means of Online Help.

The GEMS User’s Guide provides detailed information on:

- software concepts
- implementation procedures
- GEMS fields
- election procedures using GEMS
- election lifecycle management
- quality control
- benchmarks
16.1.3. Project Manager

If the GEMS online and print documentation does not provide the information or solution required, the jurisdiction should contact the Project Manager responsible for the jurisdiction.

16.1.4. ESG Help Line

The Service Bureau Help Line, staffed by Customer Support Specialists during regular business hours (Central Standard Time), is designed to serve as a central point of contact when the Project Manager is not available. (Please see the section entitled 16.4 Telephone Support Procedures for specifics).

16.2. Solving problems

Diebold Election Systems has implemented standard procedures for use by customers in reporting system problems. Anomalies are quickly categorized and prioritized by the company so as to respond and react in the shortest amount of time possible. In general terms, anomalies are classified in one of three categories:

1. Hardware, referring to voting equipment, PCs, voter card management devices, and any other appliances provided by Diebold Election Systems as election management solutions, as well as device firmware.
2. Software, referring to GEMS and system software, but not including firmware.
3. Operational, which may include procedural solutions to perceived system problems.

The user should attempt to reproduce and document any erroneous conditions that have been experienced, as well as ascertain that the behavior experienced is in face non-standard, before proceeding to contact Diebold Election Systems for resolution.

Diebold Election Systems will endeavor to resolve any issues reported in as timely a manner as possible, depending on available resources, and depending on contractual obligations.

16.2.1. Hardware

Hardware problems are to be documented and reported to the Project Manager or Service Bureau Help Line for resolution. If a problem exists with the host computer system the jurisdiction may be advised to contact the hardware manufacturer for service, provided the jurisdiction did not procure the computer from Diebold Election Systems.

The client should attempt to recreate the problem at hand, documenting:

- the nature of the unexpected response
- the response that should have been expected
- the sequence of steps that led to the erroneous result
- the version number of the physical device as well as device firmware
- sample election results reports, providing the problem pertains to the outcome of ballots counted and should provide, where applicable,
  - the GEMS backup database
  - AccuVote-OS sample ballots
  - memory cards
  - AccuVote-TS voter access cards
16.2.2. Software

It is important to be exact in identifying software problems - it is not sufficient to simply report that “the system does not work” or “that a command did not execute” - the user must provide sufficient information in order for the company’s staff to replicate the problem. Without sufficient information, the problem cannot be positively identified and corrected in a timely manner, especially if it is being handled from a remote location such as the Service Bureau Help Line.

The client should document:

- the nature of the unexpected response
- the response that should have been expected
- the sequence of prompts which led to the erroneous result
- the full version number of the software used
- any screen images that may assist in isolating the problem
- a backup of the database in which the problem occurred
- any other conditions pertaining to the occurrence of the problem

16.2.3. Operational

Often questions arise over perceived hardware or software problems which may, in fact, be resolved with procedural solutions. Again, documenting and replicating the problem is critical to resolving the issue quickly. The company’s Service Bureau Help Line or Project Manager responsible for the jurisdiction provide two points of contact for the user.

16.3. Requesting changes

Clients may also identify and report changes required to standard hardware, software or firmware functionality. These changes are reported to either the designated Project Manager or Service Bureau Help Line. Initially, these ‘Request for Change’ (RCR) applications are reviewed in order to determine whether system-independent operating procedures may be changed in order to alleviate these requirements.

RCR submissions must contain:

- A subject line that contains a synopsis of the request.
- The name of the jurisdiction requesting the change.
- The current hardware, software or firmware version used.
- The motivation for the request – why it is needed.
- A detailed description of the change or enhancement.
- The date the request is needed.

A separate submission should be issued for each unique change required. The description of the change required should be precise in explaining how the change is to take effect. Diebold Election Systems will endeavor to implement changes requested in as timely a manner as possible, depending on available resources, and according to contractual obligations.

16.4. Telephone support procedures

This section describes the procedures followed by the Service Bureau Help Line in handling calls received from customers. In order to track calls effectively, the Service Bureau maintains a daily log of all
telephone calls received. A description of the problem, time of the call, and name of jurisdiction and caller are logged. These logs are used to insure that customer problems are prioritized and handled as quickly as possible.

Calls received usually fall into one of seven general categories. How a call is handled is determined by the nature of the call. Some problems can be resolved by the Project Manager, while others must be dealt with by the technical staff. The seven general categories into which calls fall are described below:

16.4.1. Questions

Company representatives answer general questions about products at the time of the initial call, if possible. If the answer requires research, the user is called back as soon as an appropriate response is known. In most cases, questions are answered on the same day that the call is received, and often at the time of the initial call for service.

16.4.2. Isolated Incidents

Infrequently, isolated incidents are reported where a program does not function as it was designed. When a user calls to report such an incident, the incident is logged and the user is asked to call back if the incident recurs.

16.4.3. Operational problems resolved by procedural solutions

Questions often arise over perceived hardware or software problems which may be resolved with procedural solutions. Often, the user may require the assistance of a Diebold Election Systems representative in order to determine that a procedural solution is appropriate.

16.4.4. Operational problems requiring programming change

Problems of this type can only be resolved by making a programming change. These problems are referred to the company’s technical staff within the Research and Development Unit, who relay the projected solution and solution implementation time to the client.

16.4.5. Critical problems requiring immediate attention

A problem that renders the system inoperable requires immediate attention. The appropriate staff is advised as soon as a problem of this nature is reported. Project and technical staff work together on the problem until it is resolved.

16.4.6. Problems associated with installation of new software/hardware

Installation of new hardware, software or firmware sometimes causes unexpected problems. These problems are dealt with as soon as they are reported. The Project Manager is responsible for the successful installation of the new software and hardware, and may refer to technical staff for further support.

16.4.7. Requested Change Reports

A jurisdiction may also require software changes to be implemented in order to be able to meet their local requirements. Such a request is categorized as an Requested Change Report (RCR), and is documented by the company representative and referred to technical staff for consideration. RCRs are also referred to the company’s user community via a customer survey to further qualify the request for possible action.
The configuration of modems used in AccuVote-OS and AccuVote-TS results uploading is described in this appendix.

This section addresses the setup procedures for U.S. Robotics Sportster 33600 Fax Settings (GEMS). Make sure your dip switches on the back of your modem are set as follows: 3 and 8 down, the rest up.

Launch HyperTerminal: “Start” button > Programs > Accessories > HyperTerminal.

Choose new Connection, give it a name, you will then be given an option screen that has information on the modem you wish to use to dial out.

Change the bottom drop-down from “your modem” to the COM port your modem is on. Press the ok button.

Next screen will be your baud rate communication. Choose 9600 from the first drop-down menu. Press the Ok Button.

You will then have a blank screen with the word =Connected or disconnected on the bottom left-hand corner of the screen. Hit enter twice then type in “ati4” this will give you the internal setting for your modem. If you still see nothing, you have to turn “Echo on” Hit enter a couple times then type “ate1” you will not see anything written to the screen.

Hit enter after this command then type “ati4” then enter and you should see your modem settings appear.

The following settings should be displayed by the modem:

```
B0 E1 F1 M1 Q0 V1 X4 Y0
BAUD3D2400 PARITY3DN WORDLEN D8
DIAL3DTONE ON HOOK
&A3 &B1 &C1 &D2 &G0 &H1 &I0 &K1
&M4 &N0 &P0 &R2 &S0 &T5 &U0 &Y1

S00 D001 S01 D000 S02 D043 S03 D013 S04 D010 S05 D008 S06 D002
S07 D060 S08 D002 S09 D006 S10 D014 S11 D070 S12 D050 S13 D000
S15 D000 S16 D000 S18 D000 S19 D000 S21 D010 S22 D017 S23 D019
S25 D005 S27 D000 S28 D008 S29 D020 S30 D000 S31 D128 S32 D002
S33 D000 S34 D000 S35 D000 S36 D014 S38 D000 S39 D000 S41 D000
S42 D000

LAST DIALED #: OK
```

If any of these settings do not correspond, they should be changed by entering at changes &w. For example, at B0 &A1 S0 D01 will set Bn to B0, &An to &A1 and S0 to 1.
### Appendix N: System Limits

The limits inherent in GEMS are described in this appendix.

All records in the GEMS database are identified by a 32 bit key, so that common system limits are expressed by the limits of this field. The limits are $2^{32} - 1$ in case fields are not signed, that is, positive only, otherwise, if a field may have positive or negative values, fields limits may range from $-2^{31}$ to $(2^{32} - 1)$. The system is also limited by physical memory and storage.

GEMS is a single-user system, so that only one user may use a database at once. As many different users may access the same database, but not simultaneously. A database may be copied and backed up as often as required.

The following are GEMS field and system limits.

<table>
<thead>
<tr>
<th>Field</th>
<th>Location</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short</td>
<td>Voter Group Editor</td>
<td>3 characters, alphanumeric</td>
</tr>
<tr>
<td>Layout Count</td>
<td>Ballot Options</td>
<td>2 – 16, depending # blocks</td>
</tr>
<tr>
<td>Number of Columns</td>
<td>Ballot Options</td>
<td>10 Front, Back</td>
</tr>
<tr>
<td>Header Margins</td>
<td>Ballot Options</td>
<td>0 – 36</td>
</tr>
<tr>
<td>Race Margins</td>
<td>Ballot Options</td>
<td>0 - 36</td>
</tr>
<tr>
<td>Candidate Margins</td>
<td>Ballot Options</td>
<td>-36 - 36</td>
</tr>
<tr>
<td>Oval Justification Margin</td>
<td>Ballot Options</td>
<td>0 – 6</td>
</tr>
<tr>
<td>Box Margins</td>
<td>Ballot Options</td>
<td>0 – 18</td>
</tr>
<tr>
<td>Vertical Shift Box</td>
<td>Ballot Options</td>
<td>0 – 18</td>
</tr>
<tr>
<td>Horizontal Shift Box</td>
<td>Ballot Options</td>
<td>-18 to 18</td>
</tr>
<tr>
<td>Endorsement Label Width</td>
<td>Ballot Options</td>
<td>0 to 576</td>
</tr>
<tr>
<td>Display Message Time</td>
<td>AccuVote-OS Options</td>
<td>0 – 60</td>
</tr>
<tr>
<td>Password</td>
<td>AccuVote-OS Options</td>
<td>0 - 9999</td>
</tr>
<tr>
<td>Report Precinct Id</td>
<td>Report Precinct Editor</td>
<td>0 – 999,999,999</td>
</tr>
<tr>
<td>Update Every</td>
<td>Results Server</td>
<td>1 - 15</td>
</tr>
<tr>
<td>Vote For</td>
<td>Race Editor</td>
<td>1 - 250</td>
</tr>
<tr>
<td>Candidate Space</td>
<td>Race Editor</td>
<td>1 – 8</td>
</tr>
<tr>
<td>Candidate Block Options Width</td>
<td>Race Editor</td>
<td>2 – 69</td>
</tr>
<tr>
<td>No. Mem Cards</td>
<td>Vote Center Editor</td>
<td>0 - 99</td>
</tr>
<tr>
<td>number of counter groups to vote center category</td>
<td>Counter Group Editor</td>
<td>1 - 2</td>
</tr>
<tr>
<td>number of voter groups to AccuVote-OS download file</td>
<td>Voter Group Editor</td>
<td>32</td>
</tr>
</tbody>
</table>

Table 18-1. System Limits
19. Appendix O: System Environment

This appendix describes the systems environment that GEMS is used in, either as stand-alone server, on the host computer in central count, or in regional processing configurations.

19.1. Description of Systems Environment

The general systems environment for the operation of GEMS in an election (Absentee/early voting or Election Day voting) includes the functionality to prepare, count (at the host and regional sites), and report an election. The preparation of an election includes the ability to enter the election data, layout and print the ballots, and program the media for the counting devices. The counting of an election at the host includes the ability to receive the results from the counting devices, to count the ballots centrally, to receive the results from a regional system also running GEMS, and to enter results manually. Regional counting of an election includes the ability to receive results from the counting devices and to enter results manually. Reporting the election results includes the ability to produce summary reports, statement of votes cast reports, and data for Internet displaying.

19.1.1. Central Computer/Host Computer

The GEMS host computer is used to run the GEMS software, and is configured by Diebold Election Systems, Inc. according one of three possible sizes, Small, Medium, or Large. As the names suggest, Small configurations are issued to smaller jurisdictions with less processing requirements, Medium configurations are issued to medium sized jurisdictions, and so on. The GEMS server may run either Windows NT, Windows 2000, or Windows XP.

19.1.1.1. Small

- Dell Power Edge 500 SC Pentium III 1.13 GHz
- 1 GB SDRAM, 4x266MB DIMMS
- 20 GB 7.2 KRPM IDE Hard disk
- Onboard Network Interface Connector
- Video card capable of 1024x768 resolution
- Internal Tape Backup Unit, 20/40 GB
- 48X CD-ROM (for software installation)
- Standard Windows Keyboard
- 3.5" 1.44 MB floppy drive
- Mouse
- Monitor compatible with video card (minimum 17" min.)
- Laser Printer
- Additional hardware required to support modem transfers—Modem (must be compatible with Microsoft Windows NT and have a minimum speed of 9600 baud).
- Postscript printer
- Multi-port serial port for the necessary number of ports (Digiboard), or an Ethernet card and terminal server
- Un-interruptible Power Supply
19.1.1.2. Medium

- Dell Power Edge 2500 Pentium III 1.13 GHz
- 1 GB SDRAM, 133 MHz, 4x266MB DIMMS
- 3 x 18 GB 10 KRPM Ultra 160 SCSI Hard disk
- PERC3, DC, 128MB hard drive controller, 1 internal and 1 internal channel
- Intel Pro 100S Onboard Network Interface Connector
- Video card capable of 1024x768 resolution
- Internal Tape Backup Unit, 20/40 GB
- 24X IDE CD-ROM (for software installation)
- Standard Windows Keyboard
- 3.5" 1.44 MB floppy drive
- Mouse
- Monitor compatible with video card (minimum 17" min.)
- Laser Printer
- Additional hardware required to support modem transfers—Modem (must be compatible with Microsoft Windows NT and have a minimum speed of 9600 baud).
- Postscript printer
- Multi-port serial port for the necessary number of ports (Digiboard), or an Ethernet card and terminal server
- Un-interruptible Power Supply

19.1.1.3. Large

- Dell Power Edge 4600 1.8 GHz/512K, Xeon
- second processor 1.8 GHz/512K, Xeon Poweredge 4600
- 1 GB DDR SDRAM, 4x266MB DIMMS
- 4 x 18 GB 10 KRPM Ultra 160 SCSI Hard disk
- PERC3, DC, 128MB hard drive controller, 1 internal and 1 internal channel
- Intel Pro 100S Onboard Network Interface Connector with IPSEC network adapter
- Video card capable of 1024x768 resolution
- Internal Tape Backup Unit, 20/40 GB
- 24X IDE CD-ROM (for software installation)
- Standard Windows Keyboard
- 3.5" 1.44 MB floppy drive
- Mouse, 1.3A Wheel
- Monitor compatible with video card (minimum 17" min.)
- Laser Printer
- Additional hardware required to support modem transfers—Modem (must be compatible with Microsoft Windows NT and have a minimum speed of 9600 baud).
- Postscript printer
- Multi-port serial port for the necessary number of ports (Digiboard), or an Ethernet card and terminal server
- Un-interruptible Power Supply

See Figure 19-1 for an overview diagram of the GEMS central site configuration.
19.1.2. Regions and Regional Computer Setup

Regions are created only in election environments in which the AccuVote-OS units do not upload directly to the designated Host computer system. It allows very large election jurisdictions to have GEMS running on multiple computers throughout jurisdiction. These Regional computers program Vote Centers for their region and receive upload from those same Vote Centers. They are subordinate to the Host computer system. The Host computer receives uploads from the Regional computers. The Host computer is used to create the original database in which the Regions are created. The user must create the Regions, create the Users associated with them, and designate which Vote Centers the Regions will program. This is accomplished in the database residing on the Host computer.

Note: The user needs to log on as Administrator.

Figure 19-2 provides a diagram of the GEMS Regional Upload Configuration.

![GEMS Regional Upload Configuration Diagram]

Figure 19-2. GEMS Regional Upload Configuration
20. Appendix P: Administrative Reports

The following table is a complete list of GEMS reports. All reports are listed in Table 20-1, as well as with a brief description of the report contents and fields, with an appropriate example.

All reports contain header information which includes the election title, the jurisdiction in which the election takes place and the title of the report, centered on the report page. The date, time and page number of report are included in the upper right hand corner of the header.

GEMS Pre-Election reports are printed by selecting GEMS in the menu bar, then Pre-Election Reports in the drop-down menu.
<table>
<thead>
<tr>
<th>GEMS REPORT</th>
<th>DESCRIPTION OF REPORT</th>
</tr>
</thead>
<tbody>
<tr>
<td>AccuVote-OS Status by Upload Time Report</td>
<td>Upload Status information for every AccuVote-OS vote center by time.</td>
</tr>
<tr>
<td>AccuVote-OS Status Report</td>
<td>Upload Status information for every AccuVote-OS vote center.</td>
</tr>
<tr>
<td>AccuVote-TS Floppy Status Report</td>
<td>Upload Status information for every AccuVote-TS vote center.</td>
</tr>
<tr>
<td>AccuVote-TS Status Report</td>
<td>Upload Status information for every AccuVote-TS vote center.</td>
</tr>
<tr>
<td>AccuVote-TS Write-In Race Summary Report</td>
<td>Write-in candidate counts for each race.</td>
</tr>
<tr>
<td>AccuVote-TS Write-In Report</td>
<td>Races with write-ins, as well as additional vote center, report precinct and counter group information.</td>
</tr>
<tr>
<td>AccuVote-TS Write-In Summary Report</td>
<td>Ballot and write-in candidate counts, as well as vote center, report precinct, counter group and race information.</td>
</tr>
<tr>
<td>Back Plates with Cards</td>
<td>Provides information on all of the cards and related card styles created for an election, by back plate.</td>
</tr>
<tr>
<td>Ballot Order Report</td>
<td>Provides information on all cards in the election for the purpose of preparing a ballot order.</td>
</tr>
<tr>
<td>Ballot Styles with Ballots</td>
<td>Provides information on all of the ballots and related ballot styles created for an election.</td>
</tr>
<tr>
<td>Ballot Styles with Base Precincts</td>
<td>Reports all base precincts within each ballot style.</td>
</tr>
<tr>
<td>Ballot Styles with Card Styles</td>
<td>Reports all card styles for each ballot style in the election.</td>
</tr>
<tr>
<td>Ballot Styles with Districts</td>
<td>Reports all districts for each ballot style in the election.</td>
</tr>
<tr>
<td>Ballot Styles with Races</td>
<td>Reports races by ballot style and card style.</td>
</tr>
<tr>
<td>Ballots with Base Precincts</td>
<td>Reports base precincts for each ballot in the election.</td>
</tr>
<tr>
<td>Ballots with Cards</td>
<td>Reports all cards for each ballot.</td>
</tr>
<tr>
<td>Ballots with Races</td>
<td>Reports all races for each ballot.</td>
</tr>
<tr>
<td>Ballots with Report Precincts</td>
<td>Reports all report precincts for each ballot.</td>
</tr>
<tr>
<td>Base Precincts with Cards</td>
<td>Reports all cards within each base precinct.</td>
</tr>
<tr>
<td>Base Precincts with Districts</td>
<td>Reports all districts for each base precinct.</td>
</tr>
<tr>
<td>Base Precincts with Races</td>
<td>Reports all races valid in each base precinct.</td>
</tr>
<tr>
<td>Card Quantity by Card</td>
<td>Reports card quantities by card/Precinct ID.</td>
</tr>
<tr>
<td>Card Quantity by Card with Parties</td>
<td>Reports card quantities by card/Precinct ID, with voter group information.</td>
</tr>
<tr>
<td>Card Quantity by VCenter ID</td>
<td>Reports card quantities by vote center.</td>
</tr>
<tr>
<td>Card Quantity by VCenter ID with Parties</td>
<td>Reports card quantities by vote center, with voter group information.</td>
</tr>
<tr>
<td>GEMS REPORT</td>
<td>DESCRIPTION OF REPORT</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>-----------------------------------------------------------</td>
</tr>
<tr>
<td>Card Quantity by VCenter Name</td>
<td>Reports card quantities by vote center.</td>
</tr>
<tr>
<td>Card Quantity by VCenter Name with Parties</td>
<td>Reports card quantities by vote center, with voter group information.</td>
</tr>
<tr>
<td>Card Styles with Cards</td>
<td>All cards valid for each card style.</td>
</tr>
<tr>
<td>Card Styles with Headers and Races</td>
<td>All races and headers are listed within each card style.</td>
</tr>
<tr>
<td>Cards Artwork Report</td>
<td>Cards with front and back plate Ids and sequence #’s.</td>
</tr>
<tr>
<td>Cards Cast by Vote Center</td>
<td>Cards cast by report precinct and vote center.</td>
</tr>
<tr>
<td>Cards with Base Precincts</td>
<td>All base precincts for each card.</td>
</tr>
<tr>
<td>Cards with Plates</td>
<td>Cards with front and back plate Ids.</td>
</tr>
<tr>
<td>Cards with Races</td>
<td>All races for each card.</td>
</tr>
<tr>
<td>Cards with Reporting Precincts</td>
<td>Cards listed with reporting precincts.</td>
</tr>
<tr>
<td>Central Count Status Report by Deck</td>
<td>Central count deck information, by region, vote center and deck Id.</td>
</tr>
<tr>
<td>Central Count Status Report by Time</td>
<td>Central count deck information, by region, vote center and upload time.</td>
</tr>
<tr>
<td>Challenge Voter</td>
<td>All accepted and posted challenge ballots are listed.</td>
</tr>
<tr>
<td>Districts with Base Precincts</td>
<td>All base precincts within each district.</td>
</tr>
<tr>
<td>Districts with Races</td>
<td>Races valid within each district.</td>
</tr>
<tr>
<td>Districts with Subdistricts</td>
<td>All subdistricts defined for each district.</td>
</tr>
<tr>
<td>Front Plates with Cards</td>
<td>Front plates with cards and styles.</td>
</tr>
<tr>
<td>Header Report</td>
<td>All headers in the election are listed.</td>
</tr>
<tr>
<td>Memory Card Status Report</td>
<td>Status information for every AccuVote-OS memory card.</td>
</tr>
<tr>
<td>Precinct Header Card IDs</td>
<td>The Precinct Header Card Id number corresponding to every report precinct.</td>
</tr>
<tr>
<td>Race Report</td>
<td>Race information for every race in the election.</td>
</tr>
<tr>
<td>Race Rotation Summary</td>
<td>All rotating races, with registered voters for each rotation.</td>
</tr>
<tr>
<td>Race Rotation with Cards</td>
<td>Rotated cards, listed by race.</td>
</tr>
<tr>
<td>Race Rotation with Precinct Detail</td>
<td>Registered voters by race, rotation and base precinct.</td>
</tr>
<tr>
<td>GEMS REPORT</td>
<td>DESCRIPTION OF REPORT</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Race Rotation with Precinct Detail by VCenter</td>
<td>Registered voters by race, rotation, vote center and base precinct.</td>
</tr>
<tr>
<td>Race Summary</td>
<td>Lists candidate information for all races in the election.</td>
</tr>
<tr>
<td>Races with Ballot Styles</td>
<td>All ballot styles for every race.</td>
</tr>
<tr>
<td>Races with Candidates</td>
<td>All candidates for each race.</td>
</tr>
<tr>
<td>Races with Card Styles</td>
<td>All card styles for every race.</td>
</tr>
<tr>
<td>Races with Reporting Precincts</td>
<td>All report precincts for every race.</td>
</tr>
<tr>
<td>Races with Vote Centers</td>
<td>All vote centers for each race.</td>
</tr>
<tr>
<td>Reporting Precinct Status Report</td>
<td>Status of report precincts by region and vote center.</td>
</tr>
<tr>
<td>Reporting Precincts with Ballots</td>
<td>Ballots and ballot styles valid in every reporting precinct</td>
</tr>
<tr>
<td>Reporting Precincts with Base Precincts (ID)</td>
<td>Base precincts within report precincts, by report precinct and base precinct Id.</td>
</tr>
<tr>
<td>Reporting Precincts with Base Precincts (Label)</td>
<td>Base precincts within report precincts, by report precinct Id and base precinct label.</td>
</tr>
<tr>
<td>Reporting Precincts with Cards</td>
<td>Cards and card styles within each reporting precinct.</td>
</tr>
<tr>
<td>Reporting Precincts with Races</td>
<td>All races valid within each reporting precinct.</td>
</tr>
<tr>
<td>Reporting Precincts With Splits/Combined</td>
<td>All base precincts within each report precinct, ordered by report precinct and base</td>
</tr>
<tr>
<td>Precincts By ID</td>
<td>precinct Id.</td>
</tr>
<tr>
<td>Report Precincts With Splits/Combined Precincts</td>
<td>All base precincts within each report precinct, ordered by report precinct Id and base</td>
</tr>
<tr>
<td>by Label</td>
<td>precinct Label.</td>
</tr>
<tr>
<td>Reporting Precincts with Vote Centers</td>
<td>Vote centers associated with each report precinct.</td>
</tr>
<tr>
<td>Vote Center Status Report</td>
<td>Counter group and download info for every vote center.</td>
</tr>
<tr>
<td>Vote Centers with Cards by ID</td>
<td>All cards valid within each vote center, by ID</td>
</tr>
<tr>
<td>Vote Centers with Cards by Label</td>
<td>All cards valid within each vote center, by label.</td>
</tr>
<tr>
<td>Vote Centers with Races</td>
<td>All races within each vote center.</td>
</tr>
<tr>
<td>Vote Centers with Reporting Precincts by ID</td>
<td>All reporting precincts within each vote center, by vote center Id.</td>
</tr>
<tr>
<td>Vote Centers with Reporting Precincts by Label</td>
<td>All reporting precincts within each vote center, by vote center label.</td>
</tr>
<tr>
<td>Voter Group Report</td>
<td>All voter groups defined in election.</td>
</tr>
<tr>
<td>Voter Registration Report</td>
<td>Lists registered voters by voter group and base precinct.</td>
</tr>
</tbody>
</table>

Table 20-1. GEMS Pre-Election Reports summary
20.1. AccuVote-OS Status By Upload Time Report

The AccuVote-OS Status by Upload Time Report provides upload information for all AccuVote-OS vote centers, ordered by region Id and upload date and time. The report contains the Region Id, Region Export Id, Region Label, Upload Date and Time, Vote Center Id, Vote Center Export Id, Vote Center Label, Machine Id and Upload Status.

<table>
<thead>
<tr>
<th>Id</th>
<th>Report ID</th>
<th>Region</th>
<th>Upload Time</th>
<th>El Report ID</th>
<th>Vote Center</th>
<th>Machine Id</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td>Heat</td>
<td>20011109 20:11:52</td>
<td>50</td>
<td>AccuVote-OS</td>
<td>9</td>
<td>Uploaded</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>20011109 20:11:52</td>
<td>4</td>
<td>VGI MUSKOGEE</td>
<td>9</td>
<td>Uploaded</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td>20011109 20:11:52</td>
<td>3</td>
<td>VGI MUSKOGEE</td>
<td>9</td>
<td>Uploaded</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>20011109 20:11:52</td>
<td>2</td>
<td>VGI MUSKOGEE</td>
<td>9</td>
<td>Uploaded</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td>20011109 20:11:52</td>
<td>1</td>
<td>VGI MUSKOGEE</td>
<td>9</td>
<td>Uploaded</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td>20011109 20:11:52</td>
<td>0</td>
<td>VGI MUSKOGEE</td>
<td>9</td>
<td>Uploaded</td>
</tr>
</tbody>
</table>

20.2. AccuVote-OS Status Report

The AccuVote-OS Status report provides upload information for all AccuVote-OS vote centers, ordered by region Id and vote center label. The report contains the Region Id, Region Export Id, Region Label, Vote Center Id, Vote Center Export Id, Vote Center Label, Machine Id, Upload Status and Upload Date and Time.

20.3. AccuVote-TS Floppy Status Report

The AccuVote-TS Floppy Status Report provides upload information for all AccuVote-TS vote centers, by region Id and vote center Id. The report includes the Region Id, Region Label, Vote Center Id, Vote Center Label, Machine Id, Memory Card Status ('Not Programmed' or 'Programmed'), the Download Copy, First Ballot Count, Upload Time and Card Count.
20.4. AccuVote-TS Status Report

The AccuVote-TS Status Report provides upload information on all AccuVote-TS vote centers, ordered by region Id and vote center Id. The report contains the Region Id, the Region Export Id, the Region Label, the Vote Center Id, Vote Center Export Id, Vote Center Label, Machine Id, Upload Status ('Not Uploaded' or 'Uploaded') and the Upload Time.

<table>
<thead>
<tr>
<th>Id Region</th>
<th>Id Vote Center</th>
<th>Machine</th>
<th>Memory Card Status</th>
<th>Printed Copy</th>
<th>First Ballot Count</th>
<th>Upload Status</th>
<th>Upload Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Host</td>
<td>700 ARGENTI</td>
<td>1</td>
<td>Programmed</td>
<td>0</td>
<td>1</td>
<td>Not Uploaded</td>
<td>2001/04/22 17:38:05.0</td>
</tr>
<tr>
<td></td>
<td>700 ARGENTI</td>
<td>1</td>
<td>Programmed</td>
<td>0</td>
<td>1</td>
<td>Not Uploaded</td>
<td>2001/04/22 17:43:09.6</td>
</tr>
<tr>
<td>860 PI @ OFFICE</td>
<td>1 Not Programmed</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2001/04/22 17:33:08.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>860 PI @ PRECINCT</td>
<td>1 Not Programmed</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2001/04/22 17:33:08.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>910 CHALLENGE</td>
<td>1 Not Programmed</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2001/04/22 17:33:08.6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

20.5. AccuVote-TS Write-In Race Summary Report

The AccuVote-TS Write-in Race Summary Report lists all races in the election with AccuVote-TS write-in candidate counts, ordered by race and write-in candidate. The report contains the race label, write-in candidate label, write-in candidate count, and ballot serial number.
20.6. AccuVote-TS Write-In Report

The AccuVote-TS Write-In Report lists all races in the election with AccuVote-TS write-in candidates, ballot serial numbers, and vote center, report precinct and counter group information, ordered by race Id and write-in candidate name. The report contains the Race Id, Race Label, Write-In Candidate Label, Ballot Serial Number (provided by the AccuVote-TS unit), Vote Center Id, Vote Center Label, Machine Id, Report Precinct Id, Report Precinct Label, Counter Group Id and Counter Group Label.

### BEAUFORT COUNTY GENERAL ELECTION

AccuVote-TS Write-In Report

<table>
<thead>
<tr>
<th>TS Race</th>
<th>Write-In</th>
<th>Ballot SN</th>
<th>Vote Center</th>
<th>Write</th>
<th>Report Unit</th>
<th>Counter Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>00 LEG ISD 1</td>
<td>AL BURGER</td>
<td>20292</td>
<td>102 ABSEY</td>
<td>1</td>
<td>20292</td>
<td>20 ABSEY</td>
</tr>
<tr>
<td></td>
<td>BART FRANSON</td>
<td>200130</td>
<td>102 ABSEY</td>
<td>1</td>
<td>200130</td>
<td>20 ABSEY</td>
</tr>
<tr>
<td></td>
<td>VIR JACKSON</td>
<td>200430</td>
<td>102 ABSEY</td>
<td>0</td>
<td>200430</td>
<td>20 ABSEY</td>
</tr>
<tr>
<td></td>
<td>ERIC WALTERS</td>
<td>200540</td>
<td>102 ABSEY</td>
<td>0</td>
<td>200540</td>
<td>20 ABSEY</td>
</tr>
<tr>
<td></td>
<td>FRANK SLOAN</td>
<td>200650</td>
<td>102 ABSEY</td>
<td>1</td>
<td>200650</td>
<td>20 ABSEY</td>
</tr>
<tr>
<td></td>
<td>MARK LINDQUIST</td>
<td>200760</td>
<td>102 SBQ OFFICE</td>
<td>0</td>
<td>200760</td>
<td>20 SBQ OFFICE</td>
</tr>
<tr>
<td>00 STATE SEN DIST 1</td>
<td>DICK WOODS</td>
<td>200870</td>
<td>102 ABSEY</td>
<td>0</td>
<td>200870</td>
<td>20 ABSEY</td>
</tr>
<tr>
<td></td>
<td>HARRY EDWARDS</td>
<td>200980</td>
<td>102 ABSEY</td>
<td>0</td>
<td>200980</td>
<td>20 ABSEY</td>
</tr>
<tr>
<td></td>
<td>PAT WILKES</td>
<td>201090</td>
<td>102 SBQ OFFICE</td>
<td>0</td>
<td>201090</td>
<td>20 SBQ OFFICE</td>
</tr>
<tr>
<td>00 STATE HOUSE DIST 1</td>
<td>DIANE ORCHARD</td>
<td>201100</td>
<td>102 SBQ OFFICE</td>
<td>0</td>
<td>201100</td>
<td>20 SBQ OFFICE</td>
</tr>
<tr>
<td>00 STATE HOUSE DIST 1</td>
<td>JAKO FISHER</td>
<td>201210</td>
<td>102 SBQ OFFICE</td>
<td>0</td>
<td>201210</td>
<td>20 SBQ OFFICE</td>
</tr>
</tbody>
</table>

20.7. AccuVote-TS Write-In Summary Report

The AccuVote-TS Write-In Summary Report lists all voted AccuVote-TS ballots with write-in candidates and counts, and includes vote center, report precinct, counter group and race information for each ballot. Ballots are listed in randomized order, but write-in candidates are listed in alphabetical order for each ballot. The report contains the Ballot Serial Number (provided by the AccuVote-TS), Write-In Candidate Label, Write-In Candidate Count, Vote Center Label, Report Precinct Label, Counter Group Short Name and Race Label.
20.8. Back Plates With Cards

The Back Plates with Cards report lists all AccuVote-OS back plates with card and card style numbers, ordered by plate number and card number. The report contains the Plate Number, Card Number and Card Style Number.

<table>
<thead>
<tr>
<th>Plate ID</th>
<th>Card Style</th>
<th>Plate ID</th>
<th>Card Style</th>
<th>Plate ID</th>
<th>Card Style</th>
<th>Plate ID</th>
<th>Card Style</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

20.9. Ballot Order Report

The Ballot Order Report lists all cards in the election. Every card is listed with every report precinct in which the card is used, including the report precinct Id, export value, report precinct label, voter group 1, and voter group 2.
20.10. Ballot Styles With Ballots

The Ballot Styles With Ballots report provides information on all of the ballots and related ballot styles created for an election, ordered by ballot style and ballot, and includes party and absentee/nonabsentee voter group affiliation of every ballot style. The report contains the Ballot Style Number and the Ballot Number.

20.11. Ballot Styles With Base Precincts

The Ballot Styles With Base Precincts report lists all base precincts for each ballot style in the election, in order of ballot style and base precinct Id. The report contains the Ballot Style Number, Base Precinct Id and Base Precinct Label.
20.12. **Ballot Styles With Card Styles**

The Ballot Styles With Card Styles report lists all ballot styles in the election with corresponding card styles, party, and absentee/nonabsentee voter group, ordered by ballot style and card style.

<table>
<thead>
<tr>
<th>Ballot Style</th>
<th>Card Style</th>
<th>Party</th>
<th>Absentee/Nonabsentee</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>DEM</td>
<td>N/A</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>REP</td>
<td>N/A</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>DEM</td>
<td>N/A</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>REP</td>
<td>N/A</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>DEM</td>
<td>N/A</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>REP</td>
<td>N/A</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>DEM</td>
<td>N/A</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>REP</td>
<td>N/A</td>
</tr>
<tr>
<td>9</td>
<td>9</td>
<td>DEM</td>
<td>N/A</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
<td>REP</td>
<td>N/A</td>
</tr>
<tr>
<td>11</td>
<td>11</td>
<td>DEM</td>
<td>N/A</td>
</tr>
<tr>
<td>12</td>
<td>12</td>
<td>REP</td>
<td>N/A</td>
</tr>
<tr>
<td>13</td>
<td>13</td>
<td>DEM</td>
<td>N/A</td>
</tr>
</tbody>
</table>

20.13. **Ballot Styles With Districts**

The Ballot Styles With Districts report lists all districts for each ballot style in the election, ordered by ballot style number and district Id number. The report contains the Ballot Style, District Id number, District Export Id and District Label.

The Ballot Styles With Races report lists all races within each ballot style, by card style. The report is ordered by ballot style, card style, and race Id, and contains the Ballot Style, Card Style, Race Id, Race Export Id and Race Label.

<table>
<thead>
<tr>
<th>Ballot Style</th>
<th>Card Style</th>
<th>Id</th>
<th>Export Id</th>
<th>Race</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>30</td>
<td>00000000</td>
<td>PRES/VICE PRES</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>30</td>
<td>10000000</td>
<td>PREP/JC DIST 2</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>51</td>
<td>10000000</td>
<td>STATE SEN DIST 46</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>55</td>
<td>10000000</td>
<td>JUDGE OF COURT</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>205</td>
<td>54000000</td>
<td>SCHOOL BOARD DIST 11</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>301</td>
<td>72000000</td>
<td>AMENDMENT 2</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>302</td>
<td>80000000</td>
<td>BEAUFORT MAYOR</td>
</tr>
</tbody>
</table>

20.15. Ballots With Base Precincts

The Ballots With Base Precincts report lists base precincts by ballot and ballot style, in order of ballot and base precinct Id. The report contains the Ballot Number, Ballot Style Number, Base Precinct Id and Base Precinct Label.
20.16. **Ballots With Cards**

The Ballots with Cards report lists all cards for each ballot, ordered by ballot and card. The report contains the ballot number, ballot style, card number, card style, party, and absentee/nonabsentee voter group associated with the ballot.

<table>
<thead>
<tr>
<th>Ballot</th>
<th>Style</th>
<th>Card</th>
<th>Card Style</th>
<th>Party</th>
<th>Absentee/Non absentee</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>DEM</td>
<td>HP</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>REP</td>
<td>HP</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>DEM</td>
<td>HP</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>REP</td>
<td>HP</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>DEM</td>
<td>HP</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>REP</td>
<td>HP</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>DEM</td>
<td>HP</td>
</tr>
<tr>
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<td>8</td>
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<td>8</td>
<td>REP</td>
<td>HP</td>
</tr>
<tr>
<td>9</td>
<td>9</td>
<td>27</td>
<td>27</td>
<td>DEM</td>
<td>HP</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
<td>28</td>
<td>28</td>
<td>REP</td>
<td>HP</td>
</tr>
</tbody>
</table>

20.17. **Ballots With Races**

The Ballots with Races report lists all races for each ballot in the election, and includes race rotation and export information, in order of ballot and race Id. The report contains the Ballot Number, Ballot Style Number, Card Rotation Number, Race Id, Race Rotation Number, Race Export Id and Race Label.
20.18. Ballots With Report precincts

The Ballots with Report Precincts report lists all report precincts for each ballot, and includes base precinct and voter group information, ordered by ballot and report precinct Id. The report contains the Ballot Number, Ballot Style Number, Ballot Voter Group 1 Label, Ballot Voter Group 2 Label, Report Precinct Id, Report Precinct Label, Base Precinct Id and Base Precinct Label.

### Presidential General 2000

#### Ballots With Report Precincts

<table>
<thead>
<tr>
<th>Ballot</th>
<th>Style</th>
<th>VGroup1</th>
<th>VGroup2</th>
<th>Id</th>
<th>Report Precinct/ Base Precinct</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td></td>
<td>CKP</td>
<td>110</td>
<td>CP2 110-01</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>111</td>
<td>CP2 111-12</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td></td>
<td>CKP</td>
<td>110</td>
<td>CP2 110</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>111</td>
<td>CP2 111-12</td>
</tr>
</tbody>
</table>

20.19. Base Precincts With Cards

The Base Precincts with Cards report lists all cards valid in each base precinct, and includes card style, ballot and voter group information for every base precinct/card combination. The report contains the Base Precinct Id, Base Precinct Export Id, Base Precinct Label, Card Number, Card Style Number, Ballot Number, Parties Label, Absentee/NonAbsentee Label and Ballot Length.
20.20. Base Precincts With Districts

The Base Precincts with Districts report lists all districts for each base precinct in the jurisdiction, ordered by base precinct Id and district Id. The report contains the Base Precinct Id, Base Precinct Label, District Id and District Label.

<table>
<thead>
<tr>
<th>Base Precinct</th>
<th>District</th>
<th>Id</th>
<th>District</th>
<th>Id</th>
<th>District</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-10</td>
<td>1</td>
<td>120</td>
<td>US REP IN CONG DIST 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>230</td>
<td>590</td>
<td>STATE HOUSE DIST 14</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>680</td>
<td></td>
<td>CITY COUNCIL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-20</td>
<td>3</td>
<td>120</td>
<td>US REP IN CONG DIST 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>600</td>
<td></td>
<td>CITY COUNCIL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-30</td>
<td>1</td>
<td>120</td>
<td>US REP IN CONG DIST 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>610</td>
<td></td>
<td>CITY COUNCIL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-10</td>
<td>2</td>
<td>120</td>
<td>US REP IN CONG DIST 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>330</td>
<td>690</td>
<td>STATE HOUSE DIST 11</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>630</td>
<td></td>
<td>CITY COUNCIL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-20</td>
<td>1</td>
<td>120</td>
<td>US REP IN CONG DIST 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>620</td>
<td></td>
<td>CITY COUNCIL</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

20.21. Base Precincts With Races

The Base Precincts with Races report lists all races valid in every base precinct, in order of base precinct Id and race Id. The report contains the Base Precinct Id, Base Precinct Label, Race Id and Race Label.
20.22. Card Quantity By Card

The Card Quantity by Card report lists the number of cards for each card/report precinct combination, region, vote center, report precinct, base precinct and voter group 2 combination, subtotaled by region, card/precinct Id combination as well as by card, and ordered by card number, card/report precinct id, region Id, vote center Id, report precinct Id and base precinct Id. The report contains the Card Number, Card Report precinct Id, Region Id, Region Label, Vote Center Id, Vote Center Label, Report Precinct Id, Report Precinct Label, Base Precinct Id, Base Precinct Label, Card Voter Group 2, Registered Voters and Number of Cards.

20.23. Card Quantity By Card With Parties

The Card Quantity by Card With Parties report lists the number of cards for each card/report precinct combination, region, vote center, report precinct, base precinct and voter group 1 and 2 combination, subtotaled by region, card/precinct Id combination as well as by card, and ordered by card number, card/report precinct id, region Id, vote center Id, report precinct Id and base precinct Id. The report contains the Card Number, Card Report Precinct Id, Region Id, Region Label, Vote Center Id, Vote Center Label, Report Precinct Id, Report Precinct Label, Base Precinct Id, Base Precinct Label, Card Voter Group 1, Card Voter Group 2, Registered Voters and Number of Cards.
20.24. Card Quantity By VCenter Id

The Card Quantity by VCenter Id report lists the number of cards for every region, vote center, card, report precinct and base precinct combination, in order of region Id, vote center Id, card number, card report precinct Id, report precinct Id and base precinct Id. The report is subtotaled by report precinct, card and vote center. The report contains the Region Id, Region Label, Vote Center Id, Vote Center Label, Card Number, Card Report Precinct Id, Report Precinct Id, Base Precinct Label, Card Voter Group 2, Registered Voters and Number of Cards.

20.25. Card Quantity By VCenter Id With Parties

The Card Quantity by VCenter Id report lists the number of cards for every region, vote center, card, report precinct, base precinct and voter group combination, in order of region Id, vote center Id, card number, card report precinct Id, report precinct Id and voter group 1. The report is subtotaled by report precinct, card and vote center. The report contains the Region Id, Region Label, Vote Center Id, Vote Center Label, Card Number, Card Report Precinct Id, Report Precinct Id, Report Precinct Label, Base Precinct Label, Card Voter Group 2, Registered Voters and Number of Cards.
Appendix P: Administrative Reports

20.26. Card Quantity By VCenter Name

The Card Quantity by VCenter Name report lists the number of cards for every region, vote center, card, card report precinct, base precinct and voter group 2 combination, in order of region Id, vote center Id, card number, card report precinct Id, report precinct Id and base precinct Id. The report is subtotaled by report precinct, card and vote center. The report contains the Region Id, Region Label, Vote Center Id, Vote Center Label, Card Number, Card Report Precinct Id, Report Precinct Id, Report Precinct Label, Base Precinct Id, Base Precinct Label, Card Voter Group 2, Registered Voters and Number of Cards.

20.27. Card Quantity By VCenter name With Parties

The Card Quantity by VCenter Name with Parties report lists the number of cards for every region, vote center, card, card report precinct, base precinct and voter group 1 and 2 combination, in order of region Id, vote center Id, card number, card report precinct Id, report precinct Id, base precinct Id and voter group 1. The report is subtotaled by report precinct, card and vote center. The report contains the Region Id, Region Label, Vote Center Id, Vote Center Label, Card Number, Card Report Precinct Id, Report Precinct Id, Report Precinct Label, Base Precinct Id, Base Precinct Label, Card Voter Group 1, Card Voter Group 2, Registered Voters and Number of Cards.
20.28. Card Styles With Cards

The Card Styles with Cards report lists all cards for each card style in the election, ordered by card style and card. The report contains the card style, card, party, and absentee/nonabsentee voter group for every card style.

20.29. Card Styles With Headers and Races

The Card Styles with Headers and Races report lists all headers and races for each ballot style. Headers and races are grouped separately. The report is ordered by card style number and header and race Id numbers. The report contains the Card Style Number, Header Id, Header Export Id, Header Label, Race Id, Race Export Id and Race Label.
### 20.30. Cards Artwork Report

The Cards Artwork report lists every front plate, back plate and sequence number combination for every card in the election, in order of card number and sequence number. The report contains the Card Number, Front Plate Number, Back Plate Number and Sequence Number.

<table>
<thead>
<tr>
<th>Card Style</th>
<th>Report Id</th>
<th>Header/Race</th>
<th>Card Number</th>
<th>Front Plate Number</th>
<th>Back Plate Number</th>
<th>Sequence Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>38</td>
<td>OFFICIAL BALLOT</td>
<td>OFFICIAL BALLOT</td>
<td>38</td>
<td>38</td>
<td>38</td>
</tr>
<tr>
<td>2</td>
<td>40</td>
<td>AMENDMENT 3</td>
<td>AMENDMENT 3</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>3</td>
<td>51</td>
<td>SHERIFF</td>
<td>SHERIFF</td>
<td>51</td>
<td>51</td>
<td>51</td>
</tr>
<tr>
<td>4</td>
<td>52</td>
<td>VOTER GUIDE</td>
<td>VOTER GUIDE</td>
<td>52</td>
<td>52</td>
<td>52</td>
</tr>
</tbody>
</table>

### 20.31. Cards Cast By Vote Center

The Cards Cast by Vote Center report lists the cards cast for every report precinct within every vote center, in order of vote center Id and report precinct Id. The report contains the Vote Center Id, Vote Center Export Id, Vote Center Label, Report Precinct Id, Report Precinct Export Id, Report Precinct Label, Card Number and Card Count.
### 20.32. Cards With Base Precincts

The Cards with Base Precincts report lists all base precincts for each card in the election, ordered by card number and base precinct Id. The report contains the Card Number, Card Style Number, Base Precinct Id, Base Precinct Export Id and Base Precinct Label.

#### BEAUFORT COUNTY GENERAL ELECTION

#### Cards With Base Precincts

<table>
<thead>
<tr>
<th>Card</th>
<th>Style</th>
<th>Id</th>
<th>Export Id</th>
<th>Base Precinct</th>
<th>Id</th>
<th>Export Id</th>
<th>Base Precinct</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>10-10</td>
<td>BEAUFORT 1A</td>
<td>309-0</td>
<td>MOSSY OAK 1A</td>
<td>310-10</td>
<td>MOSSY OAK 2 - 10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20-20</td>
<td>BEAUFORT 2 - 20</td>
<td>40-20</td>
<td>BEAUFORT 1 - 20</td>
<td>40-10</td>
<td>MOSSY OAK 3 - 10</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>20-10</td>
<td>BEAUFORT 1B - 10</td>
<td>50-20</td>
<td>BEAUFORT 1 - 20</td>
<td>50-10</td>
<td>BEAUFORT 3 - 10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30-10</td>
<td>BEAUFORT 1 - 10</td>
<td>60-10</td>
<td>BEAUFORT 2 - 10</td>
<td>60-10</td>
<td>BEAUFORT 3 - 10</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>31-1</td>
<td>BLUFFTON 1A</td>
<td>129-0</td>
<td>DAUPHIN</td>
<td>220-0</td>
<td>BLUFFTON 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>379-1</td>
<td>BLUFFTON 4 - 10</td>
<td>659-0</td>
<td>BLUFFTON 1B</td>
<td>659-0</td>
<td>BLUFFTON 3</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>60-10</td>
<td>BURTON 1A - 10</td>
<td>99-0</td>
<td>BURTON 1B</td>
<td>99-10</td>
<td>BURTON 3 - 10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>501-0</td>
<td>BURTON 2 - 10</td>
<td>1300-20</td>
<td>HARBOR CITY 1 - 10</td>
<td>100-10</td>
<td>BURTON 3 - 10</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>80-10</td>
<td>BURTON 2A - 10</td>
<td>359-0</td>
<td>BLUFFTON 3A</td>
<td>350-10</td>
<td>SUN CITY 1 - 10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>608-0</td>
<td>SUN CITY 2</td>
<td>608-0</td>
<td>SUN CITY 3</td>
<td>608-20</td>
<td>BLUFFTON 2 - 20</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>108-0</td>
<td>CHEROKEE</td>
<td>640-20</td>
<td>SUN CITY 3 - 20</td>
<td>640-20</td>
<td>SUN CITY 3 - 20</td>
</tr>
</tbody>
</table>

### 20.33. Cards With Plates

The Cards With Plates report lists the card style, and front and back plate for every card, ordered by card number. The report contains the Card Number, Card Style Number, Front Plate Number and Back Plate Number.
Appendix P: Administrative Reports

20.34. Cards With Races

The Cards with Races report lists all races for each card, in order of card number and race Id. The report contains the Card Number, Card Style Number, Race Id, Race Export Id and Race Label.

BEAUFORT COUNTY GENERAL ELECTION

20.35. Cards With Reporting Precincts

The Cards with Reporting Precincts report lists all report precincts for every card in the election, in order of card number and report precinct Id. The report contains the Card Number, Report Precinct Id, Report Precinct Export Id, Report Precinct Label, Card Voter Group 1, Card Voter Group 2, Number of Cards and Total Cards.
20.36. Central Count Status Report By Deck

The Central Count Status Report by Deck report lists all centrally counted decks in order of region Id, vote center Id and deck Id, and includes the deck upload time and deck card count. The report contains the Region Id, Region Label, Vote Center Id, Vote Center Export Id, Vote Center Label, Deck Id, Upload Time and Card Count.

**November General Election 2000**

**El Paso County Texas**

Central Count Status Report by Deck

<table>
<thead>
<tr>
<th>Id</th>
<th>Region</th>
<th>Id Export Id</th>
<th>Vote Center</th>
<th>Deck M</th>
<th>Upload Time</th>
<th>Card Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>North</td>
<td>10</td>
<td>Paper</td>
<td>1</td>
<td>2000-11-06 20:30:48:00</td>
<td>500</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>2000-11-06 20:40:54:00</td>
<td>500</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td>2000-11-06 20:56:24:00</td>
<td>500</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
<td>2000-11-06 21:30:10:00</td>
<td>500</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
<td>2000-11-07 01:26:31:00</td>
<td>500</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6</td>
<td>2000-11-07 01:42:42:00</td>
<td>260</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7</td>
<td>2000-11-07 21:30:10:00</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8</td>
<td>2000-11-07 21:30:10:00</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9</td>
<td>2000-11-07 23:32:10:00</td>
<td>14</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>10</td>
<td>2000-11-07 23:32:10:00</td>
<td>3</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>11</td>
<td>2000-11-07 23:32:10:00</td>
<td>23</td>
</tr>
</tbody>
</table>

20.37. Central Count Status Report By Time

The Central Count Status Report by Time lists all centrally counted decks in order region Id, vote center Id and deck upload time, and includes the deck Id and card count. The report includes the Region Id, Region Label, Vote Center Id, Vote Center Export Id, Vote Center Label, Deck Id, Deck Upload Time and Card Count.
20.38. Challenge Voter

The Challenge Voter report lists all challenged ballots that have been reviewed and posted in the Challenge Board. Ballots are listed randomly by ballot serial number. Challenge ballots need not be accepted in order to be listed in this report. The report includes Voter Information, Ballot Serial Number, Vote Center, Accepted (indicating whether the ballot has been accepted), and the Counter Batch.

20.39. Districts With Base Precincts

The Districts with Base Precincts report lists all base precincts in each district, in order of district Id and base precinct Id. The report contains the District Id, District Label, Base Precinct Id, Base Precinct Export Id and Base Precinct Label.
20.40. Districts With Races

The Districts with Races report lists all races valid within each district, in order of district Id and race Id. The report includes the District Id, District Label, Race Id, Race Export Id and Race Label.

20.41. Districts With SubDistricts

The Districts with SubDistricts report lists all districts within district categories, in order of district Id. The report contains the District Id and District Label.
20.42. Front Plates With Cards

The Front Plates with Cards report lists all cards and card styles corresponding to each front plate, in order of plate Id and card number. The report includes the Plate Id, Card Number and Card Style Number.

<table>
<thead>
<tr>
<th>BEAUFORT COUNTY GENERAL ELECTION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Front Plates With Cards</td>
<td>--</td>
</tr>
<tr>
<td>Plate Id</td>
<td>Card</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>6</td>
</tr>
</tbody>
</table>

20.43. Header Report

The Header Report lists all headers in order Header Id. The report includes the Header Id, Header Export Id and Header Label.

<table>
<thead>
<tr>
<th>BEAUFORT COUNTY GENERAL ELECTION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Header Report</td>
<td>--</td>
</tr>
<tr>
<td>Header Id</td>
<td>Header</td>
</tr>
<tr>
<td>10</td>
<td>OFFICIAL BALLOT</td>
</tr>
<tr>
<td>30</td>
<td>INSTRUCTIONS TO VOTER</td>
</tr>
<tr>
<td>50</td>
<td>STRAIGHT PARTY INS.</td>
</tr>
<tr>
<td>40</td>
<td>PRES. VICE PRES.</td>
</tr>
<tr>
<td>60</td>
<td>AMENDMENT</td>
</tr>
<tr>
<td>70</td>
<td>VOTE BOTH SIDES</td>
</tr>
<tr>
<td>80</td>
<td>SIGNATURE</td>
</tr>
</tbody>
</table>

20.44. Manual Entry Status Report

The Manual Entry Status Report lists all vote centers with manually entered results in order of region Id and vote center Id. The report contains the Region Id, Region Export Id, Region Label, Vote Center Id, Vote Center Export Id, Vote Center Label and Upload Time.

<table>
<thead>
<tr>
<th>BEAUFORT COUNTY GENERAL ELECTION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual Entry Status Report</td>
<td>--</td>
</tr>
<tr>
<td>Header Id</td>
<td>Region</td>
</tr>
</tbody>
</table>

20.45. Memory Card Status Report

The Memory Card Status Report lists all AccuVote-OS vote center/machine Id combinations by machine Id, vote center Id and region Id, and includes programming and upload information. The report contains the Region Id, Region Label, Vote Center Id, Vote Center Label, Machine Id, Memory Card Status, Download Copy, First Ballot Count, Upload Time and Card Count.
20.46. Precinct Header Card IDs

The Precinct Header Card IDs report lists the Precinct Header Card Id numbers for every report precinct, in order of report precinct Id. The report contains the Report Precinct Id, the Report Precinct Export Id and Report Precinct Label.

BEAUFORT COUNTY GENERAL ELECTION

20.47. Race Report

The Race Report lists every race in the election, with corresponding race information, ordered by race Id. The report contains the race Id, race label, race type, race rotation (either 'Yes' or 'No', indicating whether the race is rotated), the race district label, race voter group 1, race voter group 2, endorsement race Id, controlling race Id, number to vote for, and number of candidates.
20.48. Race Rotation Summary

The Race Rotation Summary lists all rotations with corresponding registered voters for every rotating race in the election, in order of race Id and rotation number. The report contains the Race Id, Race Label, Race Voter Group 1, Rotation Number and Total Registered Voters (for the rotation).

**Wyandotte County, K.S. Primary Election-02-27-01**

<table>
<thead>
<tr>
<th>Race Id</th>
<th>Race Label</th>
<th>Type</th>
<th>Rotation</th>
<th>Total Voters</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>CHIEF EXECUTIVE/MAYOR</td>
<td>N/A</td>
<td>0</td>
<td>11,442</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>1,211</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>1,211</td>
</tr>
<tr>
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<td>3</td>
<td>1,211</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4</td>
<td>1,211</td>
</tr>
<tr>
<td></td>
<td><strong>GRAND TOTAL</strong></td>
<td></td>
<td></td>
<td><strong>38,837</strong></td>
</tr>
<tr>
<td>40</td>
<td>SENATE COMMISSIONER</td>
<td>W/O</td>
<td>0</td>
<td>2,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>1,900</td>
</tr>
</tbody>
</table>

20.49. Race Rotation With Cards

The Race Rotation with Cards report lists all rotated cards for every race in the election, in order of race Id. The report contains the race Id, race label, race rotation, card number, card style, as well as party and absentee/nonabsentee voter group.
20.50. Race Rotation With Precinct Detail

The Race Rotation With Precinct Detail report lists registered voters by race, rotation and base precinct, in order of race Id, Rotation Number and Precinct Id. The report contains the Race Id, Race Label, Race Voter Group 1, Rotation Number, Precinct Id (Report Precinct Number combined with Base Precinct Number), Base Precinct Label and Total Registered Voters.

<table>
<thead>
<tr>
<th>Race Id</th>
<th>Race Label</th>
<th>V Group</th>
<th>Rotation</th>
<th>Precinct Id</th>
<th>Base Precinct Label</th>
<th>Total Voters</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>General Election/Minority</td>
<td>HP</td>
<td>0</td>
<td>180.10-1</td>
<td>1 - 1</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>180.10-1</td>
<td>1 - 2</td>
<td>244</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>180.10-1</td>
<td>1 - 3</td>
<td>155</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>180.10-1</td>
<td>1 - 4</td>
<td>304</td>
</tr>
<tr>
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<td></td>
<td></td>
<td>0</td>
<td>180.10-1</td>
<td>1 - 5</td>
<td>292</td>
</tr>
<tr>
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<td></td>
<td></td>
<td>1</td>
<td>280.10-1</td>
<td>2 - 1</td>
<td>241</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>280.10-1</td>
<td>2 - 2</td>
<td>221</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>280.10-1</td>
<td>2 - 3</td>
<td>203</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>280.10-1</td>
<td>2 - 4</td>
<td>331</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>280.10-1</td>
<td>2 - 5</td>
<td>266</td>
</tr>
</tbody>
</table>

20.51. Race Rotation With Precinct Detail By VCenter

The Race Rotation With Precinct Detail By VCenter report lists registered voters by race, rotation, vote center and base precinct, in order of race Id, Rotation Number, Vote Center Id and Precinct Id. The report contains the Race Id, Race Label, Race Voter Group 1, Rotation Number, Vote Center Id, Vote Center Label, Precinct Id (Report Precinct Id combined with the Base Precinct Id), Base Precinct Label and Total Registered Voters.
20.52. Race Summary

The Race Summary Report lists candidates and candidate information for each race in the election, in order of race Id and candidate Id. The report contains the Race Id, Race Label, Race Type, Race Rotation (either 'Yes' or 'No'), Race District, Vote For, Candidate Id, Candidate Label, Candidate Type, Candidate Id and Candidate Voter Group.

20.53. Races With Ballot Styles

The Races With Ballot Styles report lists all ballot styles for every race in the election. The report contains the race Id, race label, ballot style, as well as party and absentee/nonabsentee voter group for every race.
20.54. Races With Candidates

The Races with Candidates report lists all candidates for every race, is ordered by race Id and candidate Id, and includes candidate type and voter group information. The report contains the Race Id, Race Label, Candidate Id, Candidate Label, Candidate Type, Candidate Voter Group Id and Candidate Voter Group Label.

20.55. Races With Card Styles

The Races with Card Styles report lists all card styles for every race, in order of race Id and card style number. The report contains the race Id, race label, card style, as well as party and absentee/nonabsentee voter group.
20.56. Races With Reporting Precincts

The Races with Reporting Precincts report lists all report precincts for every race in the election, in order of race Id and report precinct Id. The report contains the Race Id, Race Label, Report Precinct Id and Report Precinct Label.

Presidential General 2000
Lassen County, Ca

20.57. Races With Vote Centers

The Races With Vote Centers report lists all vote centers that a race occurs in, in order of race Id and vote center Id. The report contains the Race Id, Race Label, Region Id, Region Label, Vote Center Id and Vote Center Label.
20.58. Reporting Precinct Status Report

The Reporting Precinct Status Report lists all report precincts by region and vote center, in order of region Id, vote center Id and report precinct Id, and includes report precinct, counter group and vote center information. The report includes the Region Id, Region Label, Vote Center Id, Vote Center Label, Counter Group 1 (the first counter group associated with the vote center), Counter Group 2 (the second counter group associated with the vote center, if any), Vote Center Download Version, Vote Center Number of Memory Card, Report Precinct Id and Report Precinct Label.

20.59. Reporting Precincts With Ballots

The Reporting Precincts with Ballots report lists all ballots for every report precinct, in order of report precinct Id, base precinct Id and ballot number, with base precinct and voter group information. The report contains the Report Precinct Id, Report Precinct Label, Base Precinct Id, Base Precinct Label, Ballot Number, Ballot Style Number, Ballot Voter Group 1 and Ballot Voter Group 2.
20.60. **Reporting Precincts With Base Precincts (ID)**

The Reporting Precincts With Base Precincts (ID) report lists all base precincts within every report precinct, in order of report precinct Id and base precinct Id. The report contains the Report Precinct Id, Report Precinct Label, Base Precinct Id and Base Precinct Label.

20.61. **Reporting Precincts With Base Precincts (Label)**

The Reporting Precincts With Base Precincts (Label) report lists all base precincts within every report precinct, in order of report precinct Id and base precinct Label. The report contains the Report Precinct Id, Report Precinct Label, Base Precinct Id and Base Precinct Label.

20.62. **Reporting Precincts With Cards**

The Reporting Precincts With Cards report lists all cards in each report precinct, in order of report precinct Id, base precinct Id and card number, and includes voter group information. The report contains the Report Precinct Id, Report Precinct Label, Base Precinct Id, Base Precinct Label, Card Number, Card Style Number, Card Voter Group 1 and Card Voter Group 2.
### 20.63. Reporting Precincts With Races

The Reporting Precincts With Races report lists all races for every report precinct, in order of report precinct Id and race Id. The report contains the Report Precinct Id, Report Precinct Label, Race Id and Race Label.

#### Presidential General 2000

#### Lassen County, Ca

#### Reporting Precincts With Races

<table>
<thead>
<tr>
<th>Id</th>
<th>Report Precinct</th>
<th>Id</th>
<th>Race</th>
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<td>CP1 110-01</td>
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<tr>
<td>18</td>
<td>UNITED STATES SENATOR</td>
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</tr>
<tr>
<td>20</td>
<td>U.S. REPRESENTATIVE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>STATE SENATOR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>MEMBER OF HOUSE OF REPRESENTATIVE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>Lassen College 01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>Westwood Unified (FT)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>70</td>
<td>Lassen Ward 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>Prop 35 Veterans Bond Act</td>
<td></td>
<td></td>
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<table>
<thead>
<tr>
<th>Id</th>
<th>Report Precinct</th>
<th>Id</th>
<th>Race</th>
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<tbody>
<tr>
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</tr>
<tr>
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<td>50</td>
<td>Lassen College 01</td>
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<td>Westwood Unified (FT)</td>
<td></td>
<td></td>
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<tr>
<td>70</td>
<td>Lassen Ward 2</td>
<td></td>
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</tr>
<tr>
<td>80</td>
<td>Prop 35 Veterans Bond Act</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 20.64. Reporting Precincts With Splits/Combined Precincts By ID

The Reporting Precincts With Splits/Combined Precincts By ID report lists all base precincts for each report precinct, in order of report precinct Id and base precinct Id. The report contains the Report Precinct Id, Report Precinct Label, Base Precinct Id and Base Precinct Label.
20.65. Reporting Precincts With Splits/Combined Precincts By Label

The Reporting Precincts With Splits/Combined Precincts By Label report lists all base precincts for each report precinct, in order of report precinct Id and base precinct Label. The report contains the Report Precinct Id, Report Precinct Label, Base Precinct Id and Base Precinct Label.

20.66. Reporting Precincts With Vote Center

The Reporting Precincts With Vote Center report lists all vote centers in each report precinct, by report precinct Id, region Id and vote center Id. The report contains the Report Precinct Id, Report Precinct Label, Region Id, Region Label, Vote Center Id and Vote Center Label.

20.67. Vote Center Status Report

The Vote Center Status Report lists all vote centers by region, ordered by region Id, with vote center information. The report contains the Region Id, Region Label, Vote Center Id, Vote Center Label, Vote Center Category, Counter Group 1 (the first counter group in the vote center), Counter Group 2 (the
second counter group in the vote center, if any), Vote Center Download Version and Vote Center # Memory Card.

### 20.68. Vote Centers With Cards By ID

The Vote Centers With Cards By ID report lists all cards in the election by region, vote center, report precinct and base precinct, in order of region Id, vote center Id, report precinct Id, base precinct Id and card number, and includes sequence and voter group information. The report contains the Region Id, Region Label, Vote Center Id, Vote Center Label, Report Precinct Id, Report Precinct Label, Base Precinct Id, Base Precinct Label, Ballot Number, Card Number, Sequence Number, Card Voter Group 1 and Card Voter Group 2.

### 20.69. Vote Centers With Cards By Label

The Vote Centers With Cards By Label report lists all cards in the election by region, vote center, report precinct and base precinct, in order of region Id, vote center label, report precinct Id, base precinct Id and card number, and includes sequence and voter group information. The report contains the Region Id, Region Label, Vote Center Id, Vote Center Label, Report Precinct Id, Report Precinct Label, Base Precinct Id, Base Precinct Label, Ballot Number, Card Number, Sequence Number, Card Voter Group 1 and Card Voter Group 2.
20.70. Vote Centers With Races

The Vote Centers With Races report lists all races in each vote center in the election, by region Id, vote center Id and race Id. The report contains the Region Id, Region Label, Vote Center Id, Vote Center Label, Race Id and Race Label.

20.71. Vote centers With Reporting Precincts By ID

The Vote Centers With Reporting Precincts by ID report lists all report precincts for every vote center, in order of region Id, vote center Id and report precinct Id. The report contains the Region Id, Region Label, Vote Center Id, Vote Center Label, Report Precinct Id, Report Precinct Label, and Sequence Number.
20.72. Vote Centers With Reporting Precincts By Label

The Vote Centers With Reporting Precincts by Label report lists all report precincts for every vote center, in order of region Id, vote center label and report precinct Id. The report contains the Region Id, Region Label, Vote Center Id, Vote Center Label, Report Precinct Id, Report Precinct Label, and Sequence Number.

20.73. Voter Group Report

The Voter Group Report lists all voter groups defined in the election, in order of voter group Id. The report contains the Voter Group Id, Voter Group Label, Voter Group Short Label, Separate Ballot ('Y' or 'N'), Track Registration ('Y' or 'N') and Percentage of Ballots (only applicable to Absentee/NonAbsentee voter groups).
### 20.74. Voter Registration

The Voter Registration report lists the number of registered voters defined for every base precinct, divided by voter group, where applicable.

#### Table: Voter Group Report

<table>
<thead>
<tr>
<th>11</th>
<th>Vote Group</th>
<th>Label</th>
<th>Separate Ballot</th>
<th>Track Registration</th>
<th>% Reg</th>
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<tbody>
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<td>NAD</td>
<td>V</td>
<td>V</td>
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#### Table: Voter Registration

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<tr>
<th>&lt;NAD&gt;</th>
<th>Total</th>
</tr>
</thead>
<tbody>
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<td>383</td>
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<tr>
<td>111 201 1121</td>
<td>680</td>
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<td>117 201 115</td>
<td>776</td>
</tr>
<tr>
<td>218 201 110</td>
<td>340</td>
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