25.4.2. What Must be Included in an Update
When a voter registration record is updated at the BOE level, the BOE must also send an update to the SOS SWVRD. The update to the SOS SWVRD must contain the complete voter record, not just the changed data. If the BOE leaves any field blank, such fields will be set to “null” (blank) in the SOS SWVRD. For example, if the voter’s last name changes and the update being sent to the SWVRD contains only the last name, all other fields for that voter record will be cleared and stored as “null” in the SOS SWVRD. All BOE updates to the SOS SWVRD must contain the entire voter registration record.

25.4.3. Status Changes that Trigger an Update
If the voting status (ACTIVE, CONFIRMATION, DEAD, INCARCERATED, INCOMPETENT, or REMOVED) of a voter registration record is changed at the BOE-level, such change in status must be sent to the SOS SWVRD.

25.4.4. Duplicate Resolutions that Trigger an Update
When a BOE resolves a duplicate voter registration record (see section 26 on duplicate resolution) such resolution must be followed with either the BOE performing a merge or a voter registration update with the SOS SWVRD. The “merge” and/or the “update” must be sent to SOS within two business days of the duplicate resolution.

25.4.5. BMV Confirmation that Trigger an Update
The only way to change the BMV confirmation flag is by updating a voter registration record’s “identifying” information, such as name, date of birth, SSN/state-ID, BMV-ID or address, and sending it to the SOS SWVRD for confirmation. Thus any change to “identifying” information requires the BOE sending an update to the SWVRD.

26. Duplicate Resolution
HAVA requires that the Centralized Statewide Voter Registration Database (SWVRD) have a duplicate voter registration record detection and resolution process. In an effort to achieve this, the SOS SWVRD will systematically identify potential duplicate voter registration records based on the following specific predefined criteria:

Exact Match - First name, last name, date of birth, SSN (last 4 digits) and BMV ID
Potential Match-1 - First name, last name, and date of birth
Potential Match-2 - SSN (last 4 digits)
Potential Match-3 - BMV ID

When the SOS SWVRD identifies a potential duplicate voter registration record, the SOS SWVRD will systematically inform the BOE that has “ownership” of the voter registration records in question. Upon receipt of the notification, the BOE must begin the process of determining if the voter registration record is a duplicate or not. The BOE will use internal and/or SOS-established business processes to analyze and
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resolve the duplicate in an expeditious manner (one to five business days). The SOS will be monitoring the BOE’s resolution time and may take action if the BOE fails to resolve or delay completing the duplicate resolution as defined. Several example duplicate resolution scenarios are provided below. In the examples, the SOS assumes that the duplicate voter registration records are in multiple counties (BOEs). However, when potential duplicate voter registration records occur within the same county, the BOE will follow the same procedure except for simply substituting “existing voter” for BOE 01 and “new or updated voter” for BOE 02.

26.1. Exact Match
When one or more identifying voter registration records (first name, last name, date of birth, SSN (last 4 digits) and the BMV ID) match, the voter records are considered to be an “exact match” (same voter). In such cases, the SOS SWVRD will send notification messages to the appropriate BOEs. The notification from the SOS will contain the matching voter record state- ID along with setting the appropriate voter status to “DUP RESOLUTION.” Table DUP-1 provides a step-by-step example of an “exact match” duplicate resolution. Please read the table from left to right working your way down the table. For the purpose of maintaining data integrity, it is of the utmost importance that these steps are performed in the proper sequence.

<table>
<thead>
<tr>
<th>BOE 01</th>
<th>BOE 02</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOE 01 enters a voter registration record with county ID “13” and receives from the SOS SWVRD a state ID of “OH0010000001”</td>
<td>BOE 02 enters a voter registration record with county ID “37,” which has “exact match” values with BOE 01’s voter record “OH0010000001.”</td>
</tr>
<tr>
<td>BOE 01 receives a duplicate notification message from the SWVRD containing the matching data of the voter that was added by BOE 02. Both BOE 01 and BOE 02 each have a voter record with the state ID of “OH0010000001.”</td>
<td>BOE 02 receives a duplicate notification message from the SWVRD containing the state ID of “OH0010000001.” The voter status is set to “DUP RESOLUTION.” No new record is stored in the SWVRD for the BOE 02’s voter.</td>
</tr>
<tr>
<td>BOE 01 must investigate the duplicates. In doing so, BOE 01 determines that the voter no longer resides in their county.</td>
<td>BOE 02 investigates the duplicate status as well and determines that the voter has recently moved from BOE 01 to BOE 02.</td>
</tr>
</tbody>
</table>

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| BOE 01 updates the status of the voter record in question to “REMOVED,” which indicates to the SWVRD that the voter registration record is no longer an eligible voter in BOE 01. BOE 01 now must inform BOE 02 that the “REMOVE” has been completed for “OH0010000001.” | BOE 02 updates the status of the voter record in question to “ACTIVE,” which indicates to the SWVRD that the voter registration record now resides in BOE 02. This clears the “DUP RESOLUTION” flag and updates the BOE identifier in the SWVRD giving “ownership” of the record to BOE 02. |

**NOTE:** No “merge” is performed on an “exact match” for duplicate resolution. In the above example, if BOE 02 performs the update before BOE 01 performs the “REMOVE,” BOE 02 will receive a message indicating that the voter registration record is not assigned to their county. BOE 02 must wait until BOE 01 has performed the “REMOVE” and informs BOE 02 that it may execute the voter status update of the voter registration record.

If during the duplicate resolution process it is determined that BOE 02 is the old (moved from county), then BOE 02 performs the “REMOVE” and BOE 01 performs the update allowing the voter registration record to be “ACTIVE” in BOE 01.

### 26.2. Potential Match

When one or more voter registration records match on some but not all of fields, the voter records are considered “potential” duplicate records. In these cases, the SOS SWVRD will send notification messages to the appropriate BOEs. The notification message will contain the matching voter records state IDs and will set the appropriate voter status to “DUP RESOLUTION.” Table DUP-2 provides a step-by-step example of a “potential” duplicate resolution. Please read the table from left to right working your way down the table. For the purpose of maintaining data integrity it is of the utmost importance that these steps are performed in the proper sequence.

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**Table DUP-2 (Duplicate Example-2)**

<table>
<thead>
<tr>
<th>BOE 01</th>
<th>BOE 02</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOE 01 enters a voter registration record with county ID “13” and receives from the SOS SWVRD a state ID of “OH0010000001.”</td>
<td>BOE 02 adds a new voter registration record with county ID “37,” which has some matching key values indicating a potential duplicate with voter record “OH0010000001” in BOE 01.</td>
</tr>
<tr>
<td>BOE 01 receives a duplicate notification message from the SWVRD containing data related to the voter record added in BOE 02. The state ID for the primary voter record in BOE 01 is “OH0010000001” and the state ID for the secondary voter record in BOE 02 is “OH0010000002.”</td>
<td>BOE 02 receives a duplicate notification message from the SWVRD containing the state ID of “OH0010000002” with a voter status of “DUP RESOLUTION.” The BOE 02 voter record is stored in the SWVRD. BOE 02 also receives notice of the BOE 01 potential duplicate.</td>
</tr>
<tr>
<td>BOE 01 investigates the potential duplicates and determines that the voter registration record no longer resides in their county.</td>
<td>BOE 02 investigates the potential duplicates and determines that the voter registration record has recently moved to BOE 02 from BOE 01.</td>
</tr>
<tr>
<td>BOE 01 must perform a “MERGE” of their voter record into the BOE 02 voter record. The state ID for BOE 02 “OH0010000002” is the voter ID and the state ID of BOE 01 “OH0010000001” is the “MERGE” ID.</td>
<td>Following BOE 01’s notification that the “merge” is complete, BOE 02 will update the voter status to “ACTIVE” indicating to the SWVRD that voter registration record now resides in BOE 02. The “DUP RESOLUTION” flag is also cleared.</td>
</tr>
</tbody>
</table>

In Table DUP-2, if BOE 02 performs the update before BOE 01 performs the merge, then both counties will most likely receive another duplicate message for the voter record. If this occurs, BOE 01 must perform the “merge”, and notify BOE 02 that the “merge” has been completed. BOE 02 must then perform their update.

In the event that a voter registration record was incorrectly entered with matching criteria with another voter registration record, the BOE with the incorrect information must correct their data, clear the SOS-assigned state ID; and then resend the voter registration record as a “new” voter registration record. The BOE with the correct voter registration record will only need to update the voter status to active. **However, updating the correct voter registration to active**
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may not occur until the incorrect voter record has been resolved. Alternatively, since the identification information for the incorrect voter record is the same as the correct voter record, the BOE with incorrect voter could mark their voter as removed and simply add a new voter record with the correct information.

26.3. Not a Duplicate

The table below, Table NOT DUP (Example-3), is the process to follow when it is determined that the records in question are not duplicates. Again, for clarification, the table flows from left-to-right and top-to-bottom.

<table>
<thead>
<tr>
<th>Table NOT DUP (Example-3)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BOE 01</strong></td>
</tr>
<tr>
<td>BOE 01 enters a voter registration record with county ID “13” and receives from the SOS SWVRD a state ID of “OH0010000001.”</td>
</tr>
<tr>
<td>BOE 01 receives a duplicate notification message from the SWVRD containing data related to the voter record added by BOE 02. The state ID for the primary voter record in BOE 01 is “OH0010000001” and the state ID for the secondary voter record in BOE 02 is “OH0010000002.”</td>
</tr>
<tr>
<td>BOE 01 investigates and determines that their voter record is not a duplicate and the voter still resides in BOE 01 and is eligible to vote.</td>
</tr>
<tr>
<td>BOE 01 updates their voter registration record to “ACTIVE” and via its VRS performs an “exclude duplicates” transaction including the state ID of BOE 02 “OH0010000002.”</td>
</tr>
</tbody>
</table>

26.4. Duplicating with Removed, Ineligible or Deceased Voters

HAVA requires that voter registration record’s state IDs be permanent even if the voter moves out of state and then returns. Thus, the SOS SWVRD must track the voter registration record’s state ID until the voter is confirmed as deceased. Due to this requirement, a BOE may from time-to-time receive a potential duplicate message for a voter record that is not active. In cases where the voter is still on the books in another BOE as incarcerated, incompetent, or deceased, the duplicate procedure is then the same as in Table NOT DUP (Example-3).

If a potential duplicate occurs where the voter registration record is marked as removed in BOE 01 and the record still exists in the BOE 01 database, BOE 01 must update the
voter status to active. This will result in a duplicate notification message being sent to
the appropriate BOEs. After receiving the duplicate notification message, BOE 01
must perform the appropriate action on the voter record either a merge or an update.

If a potential duplicate occurs where the voter registration record is marked as removed
in BOE 01 and the record no longer exists in the BOE 01 database, the duplicate
resolution process has to be performed differently. The BOE that has the current record
must perform a merge. This is the opposite of how BOEs would normally process a
merge. A BOE may only merge another BOE’s voter registration record into one of its
voter registration records if the other BOE’s voter registration record has a status of
removed. The removed voter registration record may be identified in the message text
that is sent along with a duplicate notification message that ends with “current status of
REMOVED.” The BOE from which the voter registration record is removed does not
receive a duplicate notification message. Only the BOE that sent the new voter
registration record that triggered the duplicate will receive the duplicate notification
message. If the voter registration record is determined to be a duplicate with the
removed voter record, the BOE with the new voter registration record must merge the
removed voter ID into its voter-ID. In these cases, the BOE performing the merge
request will assign its state ID as the SOS VOTER ID and the other BOE’s state ID as
the BOE MERGE ID.

If the identified voter registration record is determined not to be a duplicate, the BOE
will follow the normal procedure of updating the voter registration record to active
status and include the state ID of the removed voter registration record in the
EXCLUDE DUPLICATES section.

26.5. Multiple Duplicate Scenario
Occasionally, a new or updated voter registration record will result in multiple potential
duplicates within one or more BOEs. There are two approaches to resolving potential
duplicates of this type, as described below.

26.5.1. Multiple Resolutions
If a BOE receives notification of two or more potential duplicates for a voter
registration record and the BOE is able to resolve two or more of them at once, the BOE
may do so by using either option listed below in section 27.5.1.1 & 27.5.1.2.

26.5.1.1. Voter is not a Duplicate
If the BOE identifies that voter registration record “A” is not a duplicate with voter
registration records “B,” “C,” etc., then the BOE may send the entire list of voter ID’s
to the SOS in a single “EXCLUDE DUPLICATES” transaction. This transaction will
result in all the voter registration records being added to the SWVRD and not flagged as
duplicate records.

26.5.1.2. Voter is a Duplicate
If the BOE identifies that the voter records are duplicates, the BOE will perform a
merge of their voter registration record into the other BOE’s voter record. There is no need to identify voter records in the “EXCLUDE DUPLICATES” transaction for voter records that are going to be merged.

In the event another voter registration record is going to be merged into a BOE’s voter registration record, that BOE needs to complete the merge before proceeding with the update of the voter state IDs that were identified as not being duplicates.

26.5.2. Single Resolutions
If a BOE receives a duplicate notification message from the SOS regarding two or more potential duplicate voter registration records, the BOE may choose to work and resolve one duplicate at a time. Therefore, if voter registration record “A” is identified as a potential duplicate with voter record “B,” “C,” etc., when the BOE updates voter record “A” indicating it is not a duplicate with voter record “B” the BOE will receive a new duplicate notification message indicating that voter “C,” etc., are potential duplicates. Each potential duplicate may be processed individually and the SOS will send a duplicate notification message for any remaining potential duplicates. Once a voter registration record is updated to active, the “DUP RESOLUTION” status for that particular voter record will be cleared even if it was the only duplicate to be resolved. The SOS SWVRD resets the “DUP RESOLUTION” flag if there are any remaining potential duplicate records. (See vendor diagram in Appendix D).

26.5.3. Within County Duplicates
During a BOE “initialization process,” it is possible for a BOE to receive two duplicate messages per voter registration record, provided there are duplicate voter records within the BOE. The first message will result from the first voter registration records and the second from the second (duplicate) voter registration record sent in the transaction. This possibility may only happen during BOE initialization. Should this occur only one of the duplicate voter registration records needs to be resolved.

Please note: In all cases in which potential duplicate voter registration records involve more than one BOE, the BOEs involved must work together to resolve the potential duplicate voter records. Otherwise, the BOEs and SOS SWVRD are at risk of having serious data integrity issues within their respective databases. Such issues may also have a negative impact on the production and printing of accurate poll books and voter registration record management.
## VI. APPENDIX A – Overview of Duplicate Handling Procedures

### BOARD DUPLICATE HANDLING PROCEDURES

<table>
<thead>
<tr>
<th>Type of Duplicate</th>
<th>Matching Fields</th>
<th>Actions to Verify</th>
<th>Actions to Resolve if not a Duplicate</th>
<th>Actions to Resolve if you Have the Old Registration</th>
<th>Actions to Resolve if you Have the Current Registration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EXACT MATCH</strong></td>
<td>SSN, BMV, LAST NAME, FIRST NAME, BIRTHDAY</td>
<td>Check registration dates. The latest date should be current registration. This is all the BOE needs to do to verify duplicate</td>
<td>Shouldn’t happen, if it does, clear the state ID and correct bad information before submitting voter as a new registration.</td>
<td>Update voter status to “REMOVED” and notify other BOE that this has been completed.</td>
<td>After other BOE has updated their voter status to REMOVED you may update your voter status to “ACTIVE.”</td>
</tr>
<tr>
<td><strong>POTENTIAL MATCH</strong></td>
<td>SSN</td>
<td>Check to see if one or more birthdays are defaulted. If non-default birthdays do not match, correct SSN. If they are not the same person, one BOE has to have the SSN wrong. If a birthday is defaulted, then check name and as a final check review signatures for match.</td>
<td>If not a duplicate, correct the SSN that was entered incorrectly and the duplicate with this voter should go away. Other BOE should update after the SSN corrected.</td>
<td>Merge voter into other the BOE’s voter record and notify the other BOE once the merge has been completed.</td>
<td>After other BOE has completed the merge, update your voter status to “ACTIVE.”</td>
</tr>
<tr>
<td></td>
<td>BMV</td>
<td>Check to see if one or more birthdays are defaulted. If non-default birthdays do not match, correct the BMV number. If they are not the same person, one county has to have the BMV wrong. If a birthday is defaulted, then check name and as a final check review signatures for a match.</td>
<td>If not a duplicate, correct the BMV that was entered incorrectly and the duplicate with this voter should go away.</td>
<td>Merge voter into other the BOE’s voter record and notify the other BOE once the merge has been completed.</td>
<td>After the other BOE has completed the merge, update your voter status to “ACTIVE.”</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>SSN, BIRTHDAY</th>
<th>Check the last and first names for possible typos. If none, verify that SSN is correct and then, if necessary, review signatures. If they are not the same person, one BOE has to have the SSN wrong.</th>
<th>If not a duplicate, correct the SSN that was entered incorrectly and the duplicate with this voter should go away. Other BOE should update after SSN corrected.</th>
<th>Merge voter into the other BOE's voter record and notify the other BOE when the merge has been completed.</th>
<th>After the other BOE has completed their merge, update your voter status to &quot;ACTIVE.&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMV, BIRTHDAY</td>
<td>Check last and first names for possible typos. If none, verify that BMV is correct and then, if necessary, review signatures. If they are not the same person, one BOE has to have the BMV wrong.</td>
<td>If not a duplicate, correct the BMV that was entered incorrectly and the duplicate with this voter should go away. Other BOE should update after BMV is corrected.</td>
<td>Merge voter into the other BOE's voter record and notify the other BOE that the merge has been completed.</td>
<td>After other BOE has completed their merge you may update your voter status to &quot;ACTIVE.&quot;</td>
</tr>
<tr>
<td>SSN, LAST NAME, BIRTHDAY</td>
<td>Check name for possible typos or differences. If none, verify the SSN is correct and then, if necessary, review signatures for a match. If they are not the same person, one BOE has to have the SSN wrong.</td>
<td>If not a duplicate, correct the SSN that was entered incorrectly and the duplicate with this voter should go away. Other BOE should update after the SSN is corrected.</td>
<td>Merge voter into the other BOE's voter record and notify the other BOE that the merge has been completed.</td>
<td>After other BOE has completed their merge you may update your voter status to &quot;ACTIVE.&quot;</td>
</tr>
<tr>
<td>BMV, LAST NAME, BIRTHDAY</td>
<td>Check name for possible typos or differences. If none, verify the BMV is correct and then, if necessary, review signatures for a match. If they are not the same person, one BOE has to have the BMV wrong.</td>
<td>If not a duplicate, correct the BMV that was entered incorrectly and the duplicate with this voter should go away. The other BOE should update after the BMV is corrected.</td>
<td>Merge voter into the other BOE's voter record and notify the other BOE that the merge has been completed.</td>
<td>After other BOE has completed their merge you may update your voter status to &quot;ACTIVE.&quot;</td>
</tr>
<tr>
<td>LAST NAME, BIRTHDAY</td>
<td>Perform standard procedures for verifying person, including checking signatures, etc.</td>
<td>Add voter to NOT DUPLICATES list and update.</td>
<td>Merge voter into other BOE's voter record and notify the other BOE that the merge has been completed.</td>
<td>After the other BOE completes the merge update your voter status to &quot;ACTIVE.&quot;</td>
</tr>
</tbody>
</table>
The following is a model of how vendor software could handle duplicate resolutions in their systems. The tables shown are samples and are not intended to define how the vendor’s table should be configured.

Assume that you have voter record “A” in BOE 01. A partial view of that voter’s record might look like this:

**Voter Table**

<table>
<thead>
<tr>
<th>State Voter ID</th>
<th>Voter Status</th>
<th>Dup_Resolution_flag</th>
<th>BMV Confirmation_flag</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>ACTIVE</td>
<td>N</td>
<td>Y</td>
</tr>
</tbody>
</table>

This record shows that the voter is ACTIVE, no duplicates have been identified, and that he or she is confirmed with the BMV.

Then assume that a number of duplicate notification messages arrive for this voter. Each message (transaction) should be acknowledged once the software determines that the primary voter ID exists in the BOE. This is an automatic acknowledgement and does not involve the BOE staff. In addition, the “DUP RESOLUTION” flag for the primary voter should be set and the information about the duplicates stored in a separate table under the primary voter ID as the key. In this case, we might expect the tables to look like this after receiving and processing the transactions:

**Voter Table**

<table>
<thead>
<tr>
<th>State Voter ID</th>
<th>Voter Status</th>
<th>Dup_Resolution_flag</th>
<th>BMV Confirmation_flag</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>ACTIVE</td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>

**Duplicate Table**

<table>
<thead>
<tr>
<th>Primary_id</th>
<th>Dup_id</th>
<th>County_co</th>
<th>Boc_id</th>
<th>Reg_da</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>02</td>
<td>Xxx</td>
<td>03/27/89</td>
</tr>
<tr>
<td>A</td>
<td>B</td>
<td>02</td>
<td>Xxx</td>
<td>03/27/89</td>
</tr>
<tr>
<td>A</td>
<td>C</td>
<td>01</td>
<td>Yyy</td>
<td>02/15/93</td>
</tr>
<tr>
<td>A</td>
<td>D</td>
<td>05</td>
<td>Zzz</td>
<td>06/07/03</td>
</tr>
</tbody>
</table>

The vendor can choose to store the repeated notifications or simply not insert rows that match all the fields of an existing row. If the BOE staff sees the list of duplicate voters sorted by the DUP ID field, it should be obvious if the same ID shows up more than once. This is not a problem and it will save time.

After working on this duplicate, there are only three possible outcomes:

1. Voter “A” is the same as another voter and your BOE registration is the older, out-of-date registration. (Whether in the same county or not.)
2. Voter “A” is the same as another voter and your BOE registration is the newer, more current registration. (Whether in the same county or not.)
3. Voter “A” is not the same as another voter. (Whether in the same county or not.)