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Please note: Regardless of the audit category; BOEs must make every effort to reconcile errors within five business days or before BOE poll books are printed during an election cycle, whichever is sooner. All audit errors will be considered the result of BOE VRSS not sending the appropriate transaction, or BOE staff performing a process out of sequence or not performing a required process at all. Excessive audit findings (more than 0.01% of a BOE’s registered voters) over a four-month period may result in the BOE/vendor VRS losing its SOS compliant status.

16.3. Manual Audits
Periodically, the SOS may perform manual audits of BOE poll books against the SWVRD. These audits will require the BOE to provide a printout or electronic copy of one or more precinct poll books to the SOS for manual review and validation. If the SOS discovers that voter records are appearing on the printed poll book that are not in the SOS SWVRD, the poll book contains non-matching information from the SOS SWVRD, or the poll book has omissions that are listed in the SOS SWVRD, the BOE/vendor VRS may lose their SOS compliant status.

17. BMV Not Confirmed Results in Second Voter ID
(BMV confirmation is currently NOT being performed.)
If the SOS cannot confirm the voter record with the BMV and there are no potential duplicates for the voter, the SOS may send a second voter record ID to the BOE.

18. Initialization
BOE initializations are expected to run without interruption, until completion. Any BOE VRS activity (e.g. adding voters, changing voters, etc.) that occurs during the initialization process will be queued and sent to the SOS SWVRD once the BOE initialization has completed. However, the SOS will allow BOE transactions that are required to complete the initialization while in this phase. Key transaction restrictions are as follow:
- A BOE may not place its VRS in a “WAIT” during initialization;
- A BOE may send ONLY one initialization transaction. Any additional transactions must be sent after the BOE is active;
- No “heartbeat” transactions may be sent during initialization; and
- The SOS will accept only three transactions (registration update, voter initialization and registration list) during an initialization.

At the time they first connect to the SOS SWVRD, BOEs will load their voter list once. BOEs may facilitate this process by following in order the steps outlined below.

Step 1 - Manual Connectivity Check with SOS
The BOE must confirm that an FTP connection has been established with the SOS. The SOS will provide setup instructions that include a server IP address, an FTP username, and password, and a directory that the BOE must use to test the FTP login. Similarly, the BOE must provide the same
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information to the SOS. If the BOE and SOS successfully establish manual FTP connections and are able to transfer a sample 1-megabyte text (not an XML) file, the BOE will proceed to the next step.

Step 2 - Provide SOS with Voter Count
The BOE must provide the SOS with the total number of eligible voters for their BOE. This count will be used to confirm that all eligible voters for the BOE were successfully loaded into the SOS SWVRD.

Step 3 - Exchange of Connectivity Information with the SOS
The BOE begins the initialization process by sending the BOE INIT transaction. This provides the SOS with the FTP connection information that will be used to send transactions (data) to the BOE. The SOS will respond with their SOS INIT transaction. Once the SOS INIT transaction has been acknowledged, the BOE and SOS will have the connectivity information required to electronically communicate with each other.

Step 4 - Create Local Political Districts
The BOE must create the local/BOE maintained political districts. The SWVRD field names for the locally maintained district types include CNTYCRT, PRECINCT, TWP, and WARD. Once the SOS acknowledges receipt of the information, the BOE may proceed to the next step.

Step 5 - Send Voters
The BOEs will send a BOE voter registration initialization transaction to the SOS for each eligible voter. The number of voters sent must match the reported number from Step 2. The SOS will respond to each BOE INIT transaction with their SOS voter registration ID transaction, which assigns the voter record their unique state voter-ID. Then BOE responds with an acknowledgment transaction indicating they received the voter ID.

Step 6 - Confirm SOS Sync - Respond to SOS Audit Requests
The SOS will send an audit request transaction to the BOE for each precinct in the county. The BOE will respond with the corresponding audit transaction listing the state IDs per precinct. Once the SOS audit request has been completed, the BOE may proceed to the next step.

Step 7 - Adding Missing Voters during Initialization
The BOEs may determine that voter records were missed during the initialization process. In such cases, the BOE will send these records to the SOS using their INIT transaction mentioned in Step 5. However, after a BOE has gone active, the BOE must send voter records using the BOE new voter registration transaction. Voter records sent to the SOS SWVRD via the BOE INIT transaction must be acknowledged before a BOE can proceed.
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Step 8 – Decision to Move Board VRS to ACTIVE status
The SOS will consider all open issues that a BOE has. If a BOE has an unacceptable number of open issues (>1% of voters in their county), the SOS Director of Elections, may elect to back-out the BOE initialization load and direct the BOE to resolve the issues. If the SOS decides to move forward with initialization, the BOE will be placed in an active status. However, any remaining open issues must be resolved even though the BOE has an active status. In this case, any “missing” voter records must be sent using the BOE registration transaction for “new” voter records and not the BOE voter registration initialization transaction.

Step 9 – Normal operations begin
The SOS will send the BOE an e-mail indicating that the BOE is now ACTIVE and may begin operations. One of the first transactions that the BOE will receive from the SOS is a “heartbeat” transaction, which verifies that the BOE system is online and operating. Once the BOE is active, the SOS will no longer accept or respond BOE voter registration initialization transactions and will begin responding to all other BOE transactions that were prohibited during the initialization phase.

19. Election Request/Voting History
The SOS requires that each BOE provide the list of voters that participated in an SOS identified election. The SOS SWVRD and BOE VRS processes used to identify such elections for which results are required are as follows:

- The SOS will periodically send out an e-mail identifying the elections for which results will be required. If an election is not on this list, the BOE should not submit those results to the SOS;
- Before sending any transactions with election results the BOE must make certain that their VRS is set to use the election name and unique ID identified in the SOS e-mail. This may be accomplished by the BOE via its VRS requesting the election information from the SOS. The SOS SWVRD will respond with a transaction delivering the correct ID; and
- Once the BOE VRS has the unique election ID, the BOE must send via their VRS the appropriate election information for each voter record that voted in requested election. Please note: In the case of a primary election, the voter’s party affiliation needs to be sent as well.

20. Location Statistics
Occasionally, the SOS will request that BOEs provide location registration statistics. The SOS SWVRD and BOE VRS processes that will be used to identify such registration location statistics are as follows:
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Step 1 – SOS Requests Location Statistics
The SOS will periodically send out an e-mail requesting voter registration location statistics for a specific date range.

Step 2 – Board VRS Provides Location Statistics
BOEs upon receiving the email request will follow their VRS process to send the location statistics for each calendar month that is within the date range requested in the SOS e-mail.

21. Communication Issues

The SOS SWVRD employs a systematic message check to verify that electronic communications are operational between the SOS SWVRD and all BOE VRSs.

21.1. Heartbeat Hold

The electronic message check in the SOS SWVRD is referred to as the “heartbeat.” The heartbeat is an electronic single that bounces back and forth between the SOS and all BOEs. The SOS expects that a BOE will respond to the SOS heartbeat whenever one is sent. If for some reason a BOE fails to respond within a predefined timeframe, another heartbeat signal is sent. If three consecutive heartbeats are sent without a BOE response, the SOS will indicate that the BOE VRS is non-responsive and place a “hold” status on the BOE. When a BOE VRS is placed on hold, no transactions will be transmitted to that BOE until the hold is released. Once the SOS receives a transaction from the BOE, this signals the SOS SWVRD to release the “hold” and resume normal activity for that BOE.

A BOE VRSs may fail to respond to a heartbeat for the following reasons:

- The BOE FTP Server is Down (non-operational): If a BOE VRS FTP server is down (non-operational) or was not successfully started, the SOS will be unable to transfer the heartbeat successfully to the BOE;
- The BOE VRS Software has a Problem: If the BOE VRS software fails or is not running properly, it may not be able to respond to the heartbeat; or
- There is a Network Problem: Network, power and equipment failures may impact the FTP communication between the SOS SWVRD and a BOE VRSs.

21.1.1. Troubleshooting Communication Issues

- BOEs need to determine if their FTP server is down (non-operational), as this may be causing the issue. BOEs should have vendor provided documentation on to how to check the status of the FTP server. If the BOE FTP server is down, the BOE should use the vendor-specified procedure to restart it. If communication resumes, the issue is usually resolved.
- If the FTP server is operational, determine if the BOE VRS software is operating. Again, each BOE should have vendor-specified methods to determine if the software is operational. If the BOE determines that the vendor’s software is non-operational, the BOE should follow the vendor
restart process. If communication resumes, the issue is usually resolved.

- If the BOE’s FTP server is running and the BOE VRS appears to be operating normally, the BOE must contact the SOS assistance via e-mail at: swvrd@sos.state.oh.us.

21.2. Unresponsiveness Metric
The SOS SWVRD tracks the number of times a BOE VRS is placed on hold. If the SOS finds a BOE is repeatedly being placed on hold without just cause, the SOS may elect to move to decertify that BOE/vendor VRS.

21.3. County Hold
Upon discovery that a BOE VRS is not responding to SOS initiated heartbeats, the SOS may place the BOE VRS on hold. A BOE is never to place the SOS SWVRD on hold. If a BOE VRS does not receive a response from the SOS, the BOE VRS must continue resending their transaction until the SOS SWVRD successfully responds. If a BOE VRS places the SOS SWVRD on hold this may result in that BOE VRS being continuously out of communication.

22. Planned Downtime-Wait
On occasion, it may become necessary for the SOS or a BOE to perform system maintenance. If such maintenance might affect the ability of the SOS or the BOE to respond to or initiate transactions, the maintenance process must include a step that informs the SOS or the BOE that no transaction may be sent until further notice.

22.1. BOE VRS Maintenance
When a BOE knows that it will be performing maintenance that will disable or compromise the ability to participate actively (sending and receiving transactions), the BOE must place their VRS in a wait state. This may be accomplished by the BOE initiating a “wait” within their VRS by setting the wait status field to “Y.” Once the SOS receives and acknowledges the BOE’s “wait” status, the SOS SWVRD will stop sending transactions to that BOE. In order to release the “wait” the BOE VRS must initiate another “wait” transaction with the wait status field set to "N." Please note: A BOE may go on “wait” if the SOS already has the BOE on “wait.”

22.2. SOS Maintenance
When the SOS knows that it will be performing maintenance that will disable or compromise the ability to participate actively (sending and receiving transactions), the SOS will place itself in a “wait” state. The SOS may accomplish this by sending the BOE VRS a “wait” transaction. The BOE VRS will acknowledge the “wait” and queue their transactions to be sent later. In order to release the “wait” the SOS will send another “wait” transaction to the BOE, which will remove the wait status.
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22.3. Wait Policy
At times, the SOS may use non-standard work hours to perform "audits" and other SWVRD tasks. If a BOE places themselves in a "wait" state this will interfere with SOS and BOE electronic communications. Thus, BOEs are not to be in wait status when maintenance activity is being performed. BOEs placing themselves in wait status at the close of business each day, will impact non-standard working hours system activity, which is considered a misuse of the "wait" transaction.

The SOS SWVRD will track how frequently a BOE VRS goes on "wait." If the SOS determines that a BOE VRS is going on "wait" too often, the SOS will inform the BOE and request that they alter their approach to using the "wait." After such notification, if the SOS notices no significant change on the part of the BOE, the SOS may elect to start the decertification process with the BOE/vendor VRS.

23. Communication Changes
Periodically, it may become necessary for the SOS or a BOE to alter their electronic communication parameters.

23.1. BOE Password, FTP Directory, or Contact E-mail Changes
Understanding that passwords, directory, or contact e-mail address may change from time to time, when such a change is required, the BOE using their VRS process will send the SOS SWVRD the updated information in a new "INIT" transaction. For best results, the BOE should send the "INIT" transaction to the SOS first and wait for SOS acknowledgment before updating the data on the BOE server. This also gives the SOS an opportunity to report any errors before the change is applied at the BOE end.

23.2. BOE IP Address Change
A BOE may NOT change its SOS-assigned FTP server IP address. If new hardware is required, the new hardware must be assigned the old IP address.

23.3. SOS FTP Password or Directory Change
Similar to BOE communication changes, SOS configuration changes need to be communicated to the BOEs. Such communication occurs by the SOS sending the BOE an "INIT" transaction. When an "INIT" transaction is received by the BOE, the BOE VRS must acknowledge it using the newly specified parameters.

23.4. SOS IP Address Change
The SOS will not change its FTP server address. If new hardware is required, the new hardware will be assigned the old IP address.
24. VRS Software Changes/Re-compliance

24.1. VRS Software Changes – Re-compliance
The SOS requires that BOE/vendor VRS pass a compliance test prior to granting authorization for use by the BOEs. This test verifies that the vendor’s communication software and VRS operate in a manner that is consistent with the SOS specifications. Once a vendor has passed compliance testing, the SOS will issue a provisional compliance certificate that will be valid for 30 days of operations. If no problems are encountered during this 30 day period, an official permanent compliance certificate will be issued, stating the BOE may use the version of the VRS software and communication software that passed compliance testing. However, two conditions may arise causing a vendor to have their compliance certification revoked. In this event, the BOE/vendor VRS will be subject to additional compliance testing. The two conditions causing a VRS to become noncompliant are described in the following two sections.

24.1.1. Software Changes
Changes to the communication software or the VRS, if the communication software is integrated into the BOE VRS, require the vendor to pass a compliance test prior to making the new version generally available to BOEs. VRS vendors may release beta versions of their software in one or more BOEs to verify that the software is working correctly prior to compliance testing and general release. However, a new version will not be considered compliant until it passes administered compliance testing in the SOS sandbox (test environment).

A compliance test is always administered in its entirety and any detected errors will be noted. A compliance test will not terminate until the testing cycle is complete unless the system is incapable of proceeding due to an error.

If a VRS vendor fails compliance testing (is not able to perform all of the predefined operations), the VRS vendor must reschedule an additional test in the SOS sandbox. Vendors must schedule the use of the sandbox with the SOS’ IT Division to test VRS functionality. Once the vendor demonstrates that previously detected errors have been corrected, they need to reschedule with the SOS for their next compliance test. A follow-up test may be rescheduled no sooner than two days after the completion of the previously administered test which failed.

24.1.2. Consistent Failure to Meet System Performance Requirements
The SOS has defined a number of response and performance criteria that VRS vendors must meet in order to maintain their compliant status. If a vendor’s software repeatedly fails to meet these standards, the SOS may withdraw the VRS vendor’s compliant status. In this event, the VRS vendor must make improvements to their VRS performance, which will require the VRS to pass another compliance test. A vendor’s VRS may be used provisionally for no more than six months after a compliant status is withdrawn. If the VRS vendor fails to produce software that can consistently meet the
performance standards in that period, the BOE must replace the software with a VRS product that is considered SOS compliant.

If a BOE consistently fails to meet the response and performance criteria using a vendor VRS that meets such criteria in other BOEs, the BOE in question must address and resolve this sub-performance issue with the VRS vendor or switch to another SOS-compliant VRS.

**Steps for a BOE converting to a new vendor VRS after the BOE has previously gone “live” with another vendor’s VRS**

A. A new VRS vendor converts old vendor data to their format preserving all SOS and BOE IDs, and region names;
B. The BOE must edit and correct data - following rules for Social Security number, political districts and name and address conventions and proper use of the private address flag;
C. The SOS sends unacknowledged SOS voter registration IDs to the BOE;
D. The BOE VRS processes and acknowledges all transactions sent in step “B”;
E. The SOS releases any pending VR DUPLICATE transactions;
F. The BOE sends update transactions for all voter record changes made since the date specified by the SOS for voter records that have a state ID. The BOE will process all acknowledgement provided from the SOS SWVRD;
G. The BOE will send voter registration new transaction for all voter records that do not have a SOS issued state-ID;
H. The SOS will issue a detail audit for every voter record in the BOE. All audit issues must be resolved by the BOE before moving forward;
I. The SOS will verify that the BOE meets the SOS-provided data cleaning standards (e.g. proper use of address, district, and name suffix fields). If issues are found, the BOE must resolve them before moving forward; and
J. Sign off by the SOS, BOE and VRS vendor.

**25. Change Notification**

**25.1. Communicating Changes to the SOS Database**

Any changes made to BOE registered voter records must be communicated to the SOS SWVRD within two business days. The actual language in HAVA Section 303 (a) (1) (B) (VI) is: “All voter registration information obtained by any local election official in the State shall be electronically entered into the computerized list on an expedited basis at the time the information is provided to the local official.” Therefore, all VRSs, in order to be compliant with HAVA, must send to the SOS SWVRD any change made to the voter registration record immediately after being entered or modified in the BOE VRS database. Voter registration record changes made at the BOE level may not be accumulated and communicated on a daily or weekly basis. Again, for emphasis, BOE VRSs must send electronically any changes (e.g. new registration, modified voter, merged voter, removed voter, etc.) to the SOS SWVRD in an expeditious within two business days.
25.2. New Voters
Once a new voter record has been stored in a BOE VRS database; the BOE VRS must send the new voter record to the SOS SWVRD within two business days, which will enable the record to be stored in the SOS SWVRD. The BOE unique key for the voter record must be included in the BOE transmission. The SOS will use the BOE-provided unique key to acknowledge receipt of the new registration record. The value of this key may be changed later if the voter record is found to be a duplicate. After SOS processing, duplicate checking and storing the voter registration record the SOS will send the BOE the state ID number assigned to that voter record. The BOE must acknowledge receipt of the SOS-issued state-ID and may not send any additional transactions for the voter registration record until the BOE confirms acknowledgement of the state-ID.

25.3. In-process Flag
When a BOE VRS sends a new voter registration record to the SWVRD the voter record will be flagged as “in process” which does not affect the voting status. “IN PROCESS” means that no additional changes may be made to this voter record and communicated to the SOS SWVRD until the SOS issues a state ID to the BOE for the new voter registration record. If any information was omitted or changed while the status of the voter registration record is in the “in process,” the BOE must “update” the voter record in their VRS, which will send an update transaction to the SOS for that voter registration record. Please note: BOEs may not issue the “update” until the SOS issues the BOE the state ID for a voter registration record.

25.4. Changes to Voters
Anytime a BOE updates a voter registration record, its VRS must initiate a corresponding update and send it the SOS SWVRD. The sections below indicate which voter registration record changes are tracked within the SOS SWVRD. All BOE VRS updates to voter registration record must be communicated to the SOS SWVRD within two business days. If a BOE makes two or more changes to a voter registration record within a few minutes of each other, it is only necessary for the BOE to send the final values of each voter record (e.g. a BOE performs a name change with a typo and then immediately corrects the typo). If the first change has not been sent before the second change occurs; only the second or current values for the voter record are required to be sent to the SOS.

25.4.1. What BOE Changes Trigger an Update
Table 25.4.1.1 below identifies the fields in the voter registration record that if changed require the BOE to update the SOS SWVRD.
<table>
<thead>
<tr>
<th>XML Tag Name</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boe_voter_id</td>
<td>Unique identifier in the BOE VRS database one per voter</td>
</tr>
<tr>
<td>Last name</td>
<td>Last name - voter record</td>
</tr>
<tr>
<td>First name</td>
<td>First name - voter record</td>
</tr>
<tr>
<td>Middle name</td>
<td>Middle name - voter record</td>
</tr>
<tr>
<td>Name_suffix</td>
<td>Suffix (e.g. JR, SR, III) - voter record</td>
</tr>
<tr>
<td>Birth_da</td>
<td>Date of birth - voter record (1-1-1800) if unknown</td>
</tr>
<tr>
<td>Registration_da</td>
<td>Date registered - voter record (1-1-1900) if unknown</td>
</tr>
<tr>
<td>Registration_type</td>
<td>MAILIN or OTHER</td>
</tr>
<tr>
<td>Voter_status</td>
<td>Active, confirmation, dead, incarcerated, incompetent, or removed</td>
</tr>
<tr>
<td>Bmv_id</td>
<td>Drivers license or state ID number - voter record</td>
</tr>
<tr>
<td>SSN</td>
<td>Social Security number - voter record</td>
</tr>
<tr>
<td>SSN4</td>
<td>Social Security number (last 4 digits) - voter record</td>
</tr>
<tr>
<td>Phone</td>
<td>Phone number - voter record</td>
</tr>
<tr>
<td>Birth_city</td>
<td>Birth city - voter record</td>
</tr>
<tr>
<td>Birth_state</td>
<td>Birth state - voter record</td>
</tr>
<tr>
<td>Birth_country</td>
<td>Birth country - voter record</td>
</tr>
<tr>
<td>House_number</td>
<td>Address number (only) of residence or mailing address</td>
</tr>
<tr>
<td>Secondary_indicator</td>
<td>Multi-family designation of residence or mailing address</td>
</tr>
<tr>
<td>Street_name</td>
<td>Name (only) of the street of residence or mailing address</td>
</tr>
<tr>
<td>Street_description</td>
<td>Pre-defined legal list value (e.g. ST, RD) of residence or mailing address</td>
</tr>
<tr>
<td>Pre_street_direction</td>
<td>Compass direction prefix (e.g. NW, SW) of street name of residence or mailing address</td>
</tr>
<tr>
<td>Post_street_direction</td>
<td>Compass direction suffix (e.g. SE, NW) in street name of residence or mailing address</td>
</tr>
<tr>
<td>Secondary_address</td>
<td>Line two address information of residence or mailing address</td>
</tr>
<tr>
<td>Secondary_address_range</td>
<td>Number / letter for multi-family dwelling of residence or mailing address (e.g. Apartment B would simply be “B”)</td>
</tr>
<tr>
<td>City</td>
<td>City name in residence or mailing address</td>
</tr>
<tr>
<td>State</td>
<td>State name in residence or mailing address</td>
</tr>
<tr>
<td>Zip_co</td>
<td>Five digit ZIP code in residence or mailing address</td>
</tr>
<tr>
<td>Zip_co4</td>
<td>Additional four digits of nine digit ZIP code in residence or mailing address</td>
</tr>
<tr>
<td>Country</td>
<td>Country if not U.S. in residence or mailing address</td>
</tr>
<tr>
<td>Country_postal_code</td>
<td>Country postal code if other than U.S. address</td>
</tr>
<tr>
<td>Geo_co</td>
<td>Longitude and latitude values if they are tracked by the board VRS in residence or mailing address</td>
</tr>
<tr>
<td>Voting_regions</td>
<td>Political regions for the voter that are tracked by the SOS if only the political regions are changing for a voter, the BOE will send a BOE register voter</td>
</tr>
<tr>
<td>Exclude_duplicates</td>
<td>If the list of potential duplicates for a voter that were confirmed later change, this needs to be updated to the SOS</td>
</tr>
</tbody>
</table>