

**APPENDIX E**

**WASHINGTON VOTER REGISTRATION SYSTEM (VRS)**

**SOFTWARE REQUIREMENT SPECIFICATIONS**

**January, 2007**

**Version 1.8**

**Prepared by:**

**Voter Registration Database Project Team**

**Washington State Voter Registration System (VRS)  
Software Requirement Specifications (SRS)**

**Table of Contents**

<b>1</b>	<b><u>Introduction</u></b> .....	5
1.1	Purpose.....	5
1.2	References.....	5
<b>2</b>	<b><u>Overall Description</u></b> .....	5
2.1	System Overview.....	5
2.2	Voter Registration Key Components .....	7
2.2.1	County EMS.....	7
2.2.2	OSOS VRDB.....	8
2.2.3	OSOS Web Interface.....	8
2.2.4	System Messaging and Queue Management.....	9
2.2.5	Other State Entities.....	10
2.2.6	Additional Requirements and Dependencies .....	10
2.3	Operating Environment.....	11
2.4	Design and Implementation Constraints.....	12
2.5	Standard Data Interchange Formats.....	12
2.6	VRDB System Architecture.....	13
<b>3</b>	<b><u>Interface Requirements</u></b> .....	14
3.1	Hardware Interfaces.....	14
3.2	Software Interfaces.....	14
3.3	Communications Interfaces.....	14
<b>4</b>	<b><u>System Requirements</u></b> .....	15
4.1	Data Cleansing and Migration.....	15
4.2	Disaster Recovery and Business Continuation.....	16
4.3	Security.....	16
4.4	Network Design and Standards.....	18
4.4.1	Data Communication Flow between EMS and VRS .....	19
4.5	Performance Requirements.....	19
4.5.1	Concurrent Users.....	19
4.5.2	Response Time.....	19
4.6	Validation and Verifications of Voter Registration Information.....	20
4.7	Verification of Driver’s License and Social Security Information... ..	20
4.8	Voter Felony Status Verification.....	20
4.9	Voter Death Status Verification.....	21
4.10	Processing Protected Registered Voters .....	21
4.11	Processing Registration After Registration Cut Off Date .....	21
4.12	Changes to Residential Address .....	21
4.13	Validations and Verifications of Voter Registration Information ... ..	23
4.14	Different Ways Registration is Received .....	23
4.15	New Voter Registration .....	23

**Washington State Voter Registration System (VRS)  
Software Requirement Specifications (SRS)**

**Table of Contents**

4.16	Updating Voter Registration .....	25
4.17	Resolving Duplicate Voter Registration .....	27
4.17.1	Within County Duplicates on Initial Load .....	28
4.17.2	Within County Duplicates which Bypass Verification .....	28
4.18	Voter Registration Pending Status .....	28
4.19	System Business Flow .....	30
4.20	Voter Transaction and Voting History Management .....	32
4.21	Performing OSOS Database Audits with EMS Database.....	32
4.22	Document Handling and Image Processing.....	33
4.23	Voter Registration Transactions .....	34
4.23.1	Voter Registration Data Sent to VRDB .....	34
4.23.2	Notifications Sent To EMS .....	36
4.23.3	Transaction Types and Codes .....	37
4.24	Transaction Identifier .....	40
4.25	Registration Identifier/State Voter ID.....	41
4.26	EMS Database Services .....	41
4.27	OSOS Database Services .....	41
4.28	Lookup of Voter Registration .....	41
4.29	System Reports .....	42
<b>5</b>	<b><u>Business Rules</u></b> .....	<b>43</b>
5.1	Inter-County Transfer.....	43
5.2	Felon List Process.....	44
5.3	Death List Process.....	45
5.4	Duplicate List Process.....	45
<b>6</b>	<b><u>Project Risks and Mitigation</u></b> .....	<b>46</b>
<b>7</b>	<b><u>Revisions</u></b> .....	<b>47</b>
<b>8</b>	<b><u>Glossary</u></b> .....	<b>49</b>
<b>10</b>	<b><u>Appendix</u></b> .....	<b>50</b>

**Table of Illustrations and Examples**

EMS/VRS Communication Flow.....	18
Resolving Duplicate Registration .....	25
Statewide Voter Registration Business Flow .....	30

# Washington State Voter Registration System (VRS) Software Requirement Specifications (SRS)

## 1 Introduction

### 1.1 Purpose

This document lays out the Software Requirements Specifications (SRS) for the development of Washington's statewide Voter Registration System (VRS). Section 303 of the Help America Voter Act (HAVA) requires states to implement a "single, uniform, official, centralized, interactive, computerized statewide voter registration list that is defined, maintained and administered at the state level". The list must contain the name and registration information of every legally registered voter in the state and assign a unique identifier to each voter in the state.

### 1.2 References

The system will be designed around Washington's election primary requirements and all applicable state laws.

## 2 Overall Description

### 2.1 System Overview

The statewide voter registration system is to be designed and developed in-house by a project team hired specifically for this project, assisted, and supervised by the Office of the Secretary of State (OSOS) staff. It will be a centrally administered database maintained and administered by the OSOS. The system will be implemented through a partnership between the counties, the County Technical Advisory Committee, project consultants, approved election management system (EMS) vendors, and OSOS.

VRS will support electronic transaction processing initiated by multiple locations throughout the state. Most functions will require near real-time access to voter registration records while other functions may be scheduled as batch processes. VRS must be capable of maintaining high levels of performance consistent with variation in demands for voter registration services.

The county election office will serve as the principal center for voter registration activity. County offices will be staffed with voter registration personnel at various levels from one or two support staff to 50 or more actively maintaining voter registration records and responding to inquiry requests. Further, voter registration activity will experience peak levels prior to local, state, or national elections and the book closing dates associated with these elections.

All communication between the OSOS centralized Voter Registration Database (VRDB) and county EMS will be handled using XML and transmitted between servers using Web services, certificates, and secured sockets layer (SSL).

This method of communication has several advantages. First, XML is an open standard and is intended for the communication of data. The universality of XML makes it a very attractive way to communicate information between programs. Programmers can use different operating systems and programming languages and have their software communicate with each other in an interoperable manner.

## **Washington State Voter Registration System (VRS)** **Software Requirement Specifications (SRS)**

Web services provides with ease a means of interoperating between different software applications, running on a variety of platforms and/or frameworks. The power of Web services, in addition to the interoperability and extensibility use of XML will allow a loosely coupled environment for complex operations. The use of SSL with certificates will provide an extra layer of security. Programs providing simple services can interact with each other in order to deliver sophisticated added-value services.

By using these open components for communication, OSOS can provide a reasonable bar for software vendors to hurdle in becoming compliant in the state of Washington and allow enhancements based on future HAVA and state requirements.

The counties will continue to carry out their election management functions – such as printing poll books, sending voter registration cards, mailing out absentee ballots, ballot layout, etc. – with the qualified EMS that the county has chosen. In several cases, the county will be able to keep using the system they already have.

### **Voter Registration Key Components**

The VRS will consist of 5 key components which include 39 county EMS, an OSOS VRDB, an OSOS web interface, message routing engine and outside state entities.

#### **2.2.1 County EMS**

The county EMS will manage election functions and ensure the validity of voter registration records within their county and be able to perform address validations for voters residing within their counties. Also the EMS will be able to provide precincts, districts, levy codes, etc., before sending XML data to the state database. In addition to having capabilities to send data to state system, the system must be able to accept state VRDB XML notification packages. The EMS will also provide functionality to query information received from state notifications to take appropriate actions if necessary to complete registration process.

The EMS will interface with VRS with the following functionality:

- Item 1 – Utilize the Specified Data Communication Protocols
- Item 2 – Generate Unique Transaction Numbers
- Item 3 – Acknowledge and Resend Transactions
- Item 4 – Generate Initial Load Packet to VRS (EMS\_VR\_INIT)
- Item 5 – Receive VRS XML Message Notifications (VRS\_VR\_MSG)
- Item 6 – Generate (EMS\_VR\_NEW) Packet to Add Voter
- Item 7 – Generate (EMS\_VR\_UPDT) Packet to Update Voter
- Item 8 – Generate Packet for Voter Record
- Item 9 – Generate (EMS\_GLOBAL\_UPDATE) Packet for Voter List
- Item 10 – Map Registration Source Codes to VRS Standards
- Item 11 – Enhancements to EMS Pending/Suspended File if Needed
- Item 12 – Queue EMS Transactions if VRS Not Available
- Item 13 – Update EMS Records with Checksums
- Item 14 – Poll Notifications from VRS on Configurable Interval
- Item 15 – Receive VRS Acknowledgements (VRS\_ACK)
- Item 16 – Generate (EMS\_VR\_AUDIT) Packet to Begin Data Base Audit
- Item 17 – Generate (VRS\_VR\_AUDR) Packet to Report Audit Status
- Item 18 – Generate (VRS\_VR\_GLOR) Packet to Report Global Update Status

## Washington State Voter Registration System (VRS) Software Requirement Specifications (SRS)

*For specific details regarding vendor interface, please refer to Vendor County Interface Requirements document.*

The county EMS will be required to pass a compliance test with the state in order connect to the state database. For specific details regarding the compliance test, please refer to the Vendor County Interface Compliance Test document.

### **2.2.2 OSOS VRDB**

The OSOS VRDB will accept voter registration from counties and maintain the statewide official copy of all voter registration records. The state database will serve as the repository and perform validations. The state record will be the official list and only identity and duplicate will be performed at point of entry into VRDB. All other validations such as decease, database audits and felony status will be done periodically. The OSOS VRDB will keep voter registration history and audit logs of all transaction sent and received.

For specific details regarding the OSOS VRDB functional requirements, please refer to the state VRS functional analysis and design document.

### **2.2.3 OSOS Web Interface**

The OSOS web interface will allow counties to manage possible duplicates and transfer between counties. The web interface will allow counties to search for voters in state database. Also, the OSOS web interface will provide a variety of state generated reports that the counties can run for various purposes. Listed below are more details on the OSOS web interface.

#### **Browse screen:**

- The interface shall allow County Auditor's to view the information in a query window as well as print hardcopy reports.
- The Office of the Secretary of State shall provide County Auditors with an electronic and/or hardcopy of the available information
- The interface shall allow county users a mechanism to flag invalid matches to prevent future comparison of the same data and from generating future notifications. System shall record user and transaction date and time and shall allow for user comment.
- Operator can find records using these fields - Last name, First Name, Middle Name, DOB, DOL#, Street Number, Street Name, City, Zip, State Voter ID (**Unique State Voter ID**), Voter Status, County, CountyID (**EMS Voter ID**) and SSN4.

#### **Felon**

##### *Data available*

Name, DOB, State Voter ID, County Code, County Voter ID, SSN if available, felon source list Conviction date(s), all cause number(s) and all known address(es)

##### *Operator response*

Discharge papers, not correct person, felon

**Washington State Voter Registration System (VRS)  
Software Requirement Specifications (SRS)**

**Transfers**

*Data available*

Last name, First Name, DOB, Address, Gender, Status, County and State Voter ID.

New Record: DOL#+, SSN4, State Voter ID, County Code+, CountyID, date of registration, last voted date, signature

Previous Record: DOL#+, SSN4, State Voter ID+, County Code+, CountyID, date of registration, last voted date, signature

*Operator response*

Confirm same person, not same person

**Duplicates**

*Data available*

Last name, First Name, DOB, Address, Gender, Status, County and State Voter ID.

Matching Record1: DOL#, SSN4, State Voter ID, County Code+, CountyID, date of registration, last voted date, signature

Matching Record2: DOL#, SSN4, State Voter ID, County Code, CountyID, date of registration, last voted date, signature

*Operator response*

Confirm same person, not same person

**Deceased List**

*Data available*

Last name, First Name, DOB, State Voter ID, County Code, CountyID, SSN4 if available, last known address, death source list

*Operator response*

Not correct person, Not Deceased

**No Signatures List**

*Data available*

Date placed on list, Last name, First Name, Name Suffix, DOB, State Voter ID, County Code, CountyID, SSN4 if available, last known address

**2.2.4 System Messaging and Queue Management**

VRS will utilize high performance messaging technology for integrating disparate applications in a real time manner. This technology allows for a wide variety of applications to communicate asynchronously within a scalable and secure environment and avoids the costs of reconfiguring existing applications to maintain complex online transaction processing. Messages can be received and queued for processing by automated systems as received, and route messages to appropriate locations. EMS and OSOS VRDB will use standardized XML schema to send and receive XML messages. BizTalk 2004 messaging engine will be used to route XML messages accordingly. To ensure that queuing of messages is allowed, there will be an Enterprise BizTalk 2004 Edition at the state level. The county EMS interface will be programmed to ensure messages are sent from the county to VRDB successfully without being lost. Messages will be queued at the state for the EMS to retrieve on a determined interval. Intervals are to be a configurable option within the EMS interface, which can be established and adjusted by the County.

## **Washington State Voter Registration System (VRS)**

### **Software Requirement Specifications (SRS)**

#### **2.2.5 Other State Entities**

- Department of Licensing (DOL) will provide the complete current list of identification numbers listed on their system, along with picture and identification information.
- Washington State Patrol (WSP), Dept. of Corrections (DOC) and Administrative of Courts (AOC) will provide felony records for verification.
- Department of Health (DOH) will provide at scheduled times their most current listings of and death records.
- DOL will set up a mechanism whereby last 4 digits of SSN with registrant's name and DOB can be check against the SSA database.
- SSA Death Index will be used to verify deceased voters outside of Washington State.

#### **2.2.6 Additional Requirements and Dependencies**

- The state's VRS will interface with county EMS to provide a means to transmit XML messages that include scanned signature images. These images will be stored in the statewide voter registration database.
- Signature image clippings will be embedded within the voter registration XML registration message. TIFF images will be base64 encoded when sent within the XML file. Base64 encoding will be used to store image data within the XML message.
- The state wide VRS must also track its operations with a unique transaction identifier. This transaction identifier will be sent in the XML message and will be included in any registration, notifications or confirmation XML message. Both systems must have enough information associated with a transaction to be able to reproduce the XML in the case that the XML message needs to be resent or retrieved. In addition, it must be able to handle the same transaction arriving twice, and do the appropriate thing in all instances.
- To ensure both counties and state voter registration records match, the VRS will periodically perform database auditing between EMS databases and state VRDB using a checksum algorithm on key database fields and ensure the same number of registration are on both the county and state system. Any discrepancies will result in the voter record going through business processes to fix the record. Voting history (last voted date, precinct ID, levy code) will be transferred as part of the global update routine.
- Pursuant to HAVA requirements, the state VRDB will be the official state database of state's voter registration records.
- The county will be responsible for notifying voters when the information they provide is either incomplete or invalid. It will be the county's responsibility to attempt to obtain the necessary information to process the citizen's voter registration.
- The VRS, in conjunction with county EMS, will help ensure the accuracy of the state's official list of validly registered voters.
- The VRS will allow any election official to obtain or update registration information for voters within their jurisdiction.
- The VRS will identify potential duplicates within voter registration records.

## **Washington State Voter Registration System (VRS)** **Software Requirement Specifications (SRS)**

- The VRS will automatically assign a unique identifier for each registered voter.
- The state system will maintain an audit log of all transaction that occurs within the VRDB.
- The system will track voter registration activity at the state, county and precinct level. The system will allow counties to generate reports required by the National Voting Rights Act of 1993.
- Be protected by adequate technology security measures to prevent unauthorized access.
- Any messages/notifications to be sent to county EMS will be queued in VRS. County EMS will retrieve notifications on a determined interval.

### **2.2 Operating Environment**

The counties will be using one of the state approved EMS that will be either SQL Server 2000 based or Oracle 9i as the backend. The OSOS VRDB will be SQL Server 2000. Also it is recommended that the counties use Microsoft Explorer 6.0+ as the client side browser to access OSOS interface. Both County EMS and state VRDB must allow XML capabilities. Both systems must be able to store TIFF images within system.

The OSOS development, quality assurance, production, and fail over Web, SQL 2000 and BizTalk 2004 servers will be on a Windows 2003 Server platform. All servers will be current at all times with updated security patches and locked down to prevent security vulnerabilities.

### **2.4 Design and Implementation Constraints**

The county must choose from the 4 state approved EMS to interact with the state system. The approved EMS systems are as follows:

- DFM Associate's Election Information Management System.
- Diebold/Data Information Management Systems (DIMS), Dims-Net.
- Election Systems & Software PowerProfile (ES&S).
- VOTEC Corporation Election Management and Compliance System.

Each of the EMS must *currently* meet the memorandum of understanding (MOU) provided by the OSOS. The EMS must be able to:

- Accept a state generated voter identification number,
- Must be able to scan images and store images in TIFF format within the EMS itself,
- Must use one of industry standardized database SQL Server 2000 or Oracle,
- The EMS must be able to handle XML.
- Provide support for any HAVA related enhancements

The state VRDB system will be implemented using Microsoft tools and technologies. SQL Server 2000, BizTalk 2004, and Window 2003 server will be the platform. The OSOS interface will be programmed using VB.Net. C#.Net will be used for BizTalk 2004 development.

# Washington State Voter Registration System (VRS) Software Requirement Specifications (SRS)

## 2.5 Standard Data Interchange Formats

XML and web services will be used to transfer data to and from county systems using a secure encrypted method through the Inter Government Network (IGN). Transmission and access will use Secure Socket Layer (SSL) and digital certificate technologies.

ASCII flat text files will be used to transfer data from WSP, AOC, DOH and DOC to the VRDB. *Refer to data sharing and agreement document(s) for each state agency for additional information.*

Counties will use OSOS web interface to verify potential duplicates when a potential transfer is detected in the state system. Also counties will have access to view state registration records and view state generated reports on registration data.

## 2.6 VRDB System Architecture

The VRDB statewide system will include an EMS for each of the 39 counties and a statewide database that serves as a repository for all registered voter for the state of Washington. Once a registration is completed at the county level, the XML messages containing the registration information is sent via the Inter-Government Network (IGN) to a middle tier message routing mechanism BizTalk 2004.

BizTalk 2004 will be used by VRDB to integrate the 39 county EMS along with data from other state agencies. VRDB will host a web services server for the counties to send XML messages. BizTalk orchestration will process the data sent from the EMS by updating VRDB and send a proper response back to the EMS. Messages to be sent to the EMS will be queued at the state VRDB for the EMS to retrieve on a determined interval. To ensure flexible communications, the orchestration will be exposed as a web service for the EMS to use for new, updated voter registrations, and the initial data load. This design also ensures security because no system will have direct access to the back-end database.

The sent registration will either be an update or a new registration type. BizTalk will route the message to OSOS VRDB. The state VRDB will perform appropriate actions based on the message received and a notification will be sent back to the counties to perform the appropriate actions. A confirmation XML message may be required to send to OSOS VRDB based on notification. BizTalk 2004 will route the notification message back to the correct counties.

## 3 Interface Requirements

### 3.1 Hardware Interfaces

- County desktop scanners/feeders.
- County PCs.
- County Servers.
- County LAN.
- County printers.
- OSOS PCs.
- OSOS Servers.
- OSOS LAN.
- VRS ISP/WAN.

# Washington State Voter Registration System (VRS) Software Requirement Specifications (SRS)

## 3.2 Software Interfaces

- Commercial EMS systems using XML supported by vendor.
- EMS systems will be using either SQL Server 2000 or Oracle 9i.
- Message processing and routing using BizTalk 2004.
- OSOS VRDB using SQL Server 2000.
- OSOS Web Interface using ASP.Net and VB.Net.

## 3.3 Communication Interfaces

- TCP/IP.
- E-mail=Microsoft Exchange.
- Scanners connected to PC using parallel or USB ports.
- Web browser = Microsoft Explorer 6.0+.
- SQL and SOAP/HTTP adaptors for BizTalk 2004.

## 4 System Requirements

### 4.1 Data Cleansing and Migration

Each county will perform initial data cleansing within their EMS before sending the voter registration data to the state system. Once the initial data cleansing has been done at the county level, the OSOS will do an additional data cleansings and any transformation that need to take place for each county registration records to be inserted into state VRDB. Prior to any actual data migration to the state database, a mock/test data conversion will be done to verify data and ensure the real data migration is as accurate as possible. The state will also do a duplicate check within the county on initial load.

Each county will deploy to the state VRDB on an individual basis depending on the county deployment schedule. Each registration will be sent to VRDB using an automated process where the state voter id and will be returned back. During the initial load, the records will have identity verifications but the record will remain active if the identity check fails. The records will appear in a report for county to review. When all the county data has been loaded to VRDB, county staff will perform manual random samplings of the voter registrations to ensure data conversion was correct.

County staff will verify that all EMS transactions are consistent with transactions with VRDB the next day. Any significant failures can result in switching back to original EMS until the situations are addressed. After the county is operational with VRDB, statewide duplicate checks can occur with other counties that are connected to the VRDB. Listed below are more details about the data migration process.

- **Intake of County Files**
  - At least one trial run (mock run) prior to implementation of beta counties. Ideally with all counties using state-approved system, the run includes:

## **Washington State Voter Registration System (VRS) Software Requirement Specifications (SRS)**

- Counties continue normal operations using existing system.
- Test of XML schematics will be done against existing initiative DB.
- Test of address standardization using CASS-certified software.
- State flags any potential more recent duplicate registrations in another county.
- Process of implementing a new beta county
  - Beta county system will queue new registrations and updates when added to the county file during this process.
  - County will transmit complete list of county registrations and voter registration information with signatures to state system. Includes active and inactive records.
  - State will assign State Voter IDs to all county voter registration records.
  - Manual Q&A process.
  - State will flag any potential duplicate registrations in another county.
  - Manual Q&A process.
  - County EMS will update county records with State Voter ID as necessary. OSOS will provide a report of invalid DL# for county to update EMS if desired.
  - Manual Q&A process.
  - Queued transactions will be sent from the EMS and processed by the state.
  - Manual Q&A process.
  - Sync process will be conducted to update state system to ensure that the state has been updated with changes that occurred to county files during this process.
  - Manual Q&A process.
  - County will be cleared to resume normal operations using beta system.

### **4.2 Disaster Recovery and Business Continuation**

The integrity and reliance of VRS is necessary for effective election administration. Any delays in processing voting registrations prior to establish cutoff dates will have serious consequences for those wishing to vote and for the jurisdictions conducting the election. It is, therefore, essential that Washington voter registration system function smoothly and continuously with 24x7 availability.

Likewise, the interfaces and data feeds that support processing of voter registration records must be of equal reliability and responsiveness. If VRS is not available, counties can continue to input data into the EMS. Those transactions will be queued until VRS becomes available. The transactions will be sent to VRS for processing.

To ensure availability, there will be fail over servers located at different locations; these servers will be ready to be brought online within minutes of failure of main servers. Also the production servers will use a third party software Marathon for data replications. Two physical servers run in the background to simulate one server. If one server was down for any reason, VRS will still be available because the other server will continue processing.

### **4.3 Security**

- The system will provide adequate technological security measures to prevent unauthorized access to the system and the computerized voter list.

**Washington State Voter Registration System (VRS)**  
**Software Requirement Specifications (SRS)**

- All users must input a unique username and password in order to access the system. The password shall not be stored in the system's cache requiring the user to enter a password each time they enter the system. In addition, the OSOS web application shall timeout after 30 minutes of non use.
- Data will be encrypted when it is transmitted via the Internet. Minimum = Secure Socket Layer (SSL) using 128 bit cipher.
- Extensive encryption will be used to prevent unauthenticated access to state voter registration system. In addition, the OSOS servers will be located behind a firewall and a de-militarized zone (DMV)
- Signature images are protected from public disclosure.
- Only execute rights granted to store procedures within VRDB all other denied.
- User authentication.
- Transaction logging.
- Transaction reporting.
- Secure client.
- Server firewalls.
- Intrusion detection and reporting.
- Documented policies.
- Physical security and role-based security at all levels.
- Before system is put into a production environment, an internal and external security audit will be performed to ensure system meets all industry security standards.
- Web services will use XML digital signatures and IPSec to ensure the identity of the county transmitting data to VRDB.
- For maximum security, only port 443 will be open on the state private network.

A multi-tiered system providing separate environments for development, user testing and production will be in placed.

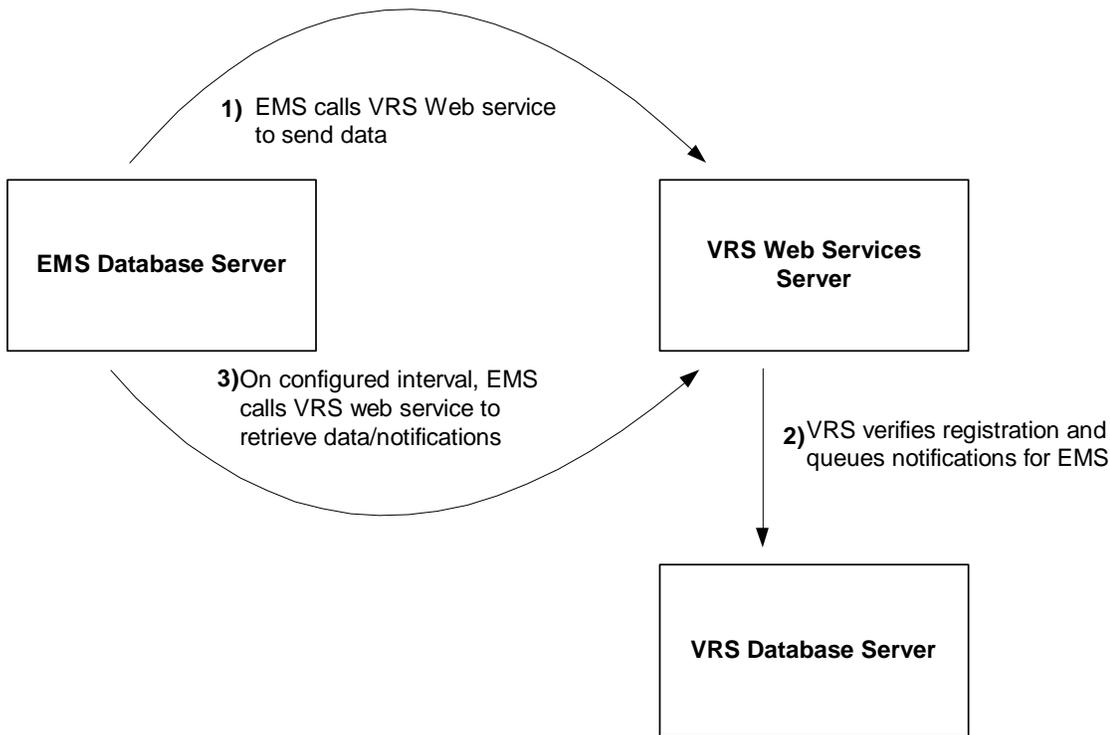
The system must have the capability to prevent and log unauthorized attempts to penetrate the system and unauthorized procedures by authorized users.

All connections between systems components including desktop workstation must be on a secured network and have encryption of data.

# Washington State Voter Registration System (VRS) Software Requirement Specifications (SRS)

## 4.4 Network Design and Standards

### 4.4.1 Data communication flow between the EMS and VRS.



## 4.5 Performance Requirements

### 4.5.1 Concurrent Users:

- 300 users from 39 county offices + the Secretary of State office + State Agency

### 4.5.2 Response Times:

- Identifying duplicate voter in the state system at point of entry
- Identifying voter identity in the state system at point of entry with DOL record.
- Sending Notification back to counties within a reasonable time.
- Able to complete adding or updating a single new registration for applicant to the state system in reasonable time and allow counties to continue to add or update additional registrations without having to wait for previous process to complete.

## **Washington State Voter Registration System (VRS) Software Requirement Specifications (SRS)**

### **4.6 Validations and Verifications of Voter Registration Information**

HAVA requires that Washington VRS must perform verifications on all new registering voters to ensure voter registration status and information is valid.

- The system must ensure that all required information from voter registration form is collected and stored in database.
- The residential address will be verified at the county level and will assign precincts, districts, levy codes and etc.
- Voter's Driver license and/or last 4 digit of SSN, signature and voter information will be transmitted to state VRS for verification.
- System will ensure that voter is not registered in more then one location
- System will perform verifications on voter status. Verifications include duplicate, felony, and deceased status.

### **4.7 Verification of Driver's License and Social Security Information**

HAVA directs the state Department of Licensing be used to verify the accuracy of the information provided on applications for voter registration. In addition, the Department of Licensing must provide with U.S. Social Security a means to verify voter information with last 4 digits of SSN.

The VRS will do a comparison of voter registration information with the information contained in the state voter registration database. Where a driver's license number is not provided as part of the voter registration, voter registration record will be compared with last 4 SSN for possible matches and complete the voter registration.

*Currently the SSN4 verification process will have up to a 24hr delay.*

### **4.8 Verification of Voter Felony Status**

Anyone that is convicted of a felony and has not had their rights restored shall be ineligible to vote. In order to check for felony status on a voter, the state VRDB system will do a reference check with Washington State Patrol felony, Dept. of Corrections, and Administrative of Courts records. Voter records will be checked periodically at scheduled time to ensure that convicted felon are flagged in the state VRDB. The record would be flagged as pending until determination is made to cancel or reactivate the record.

Counties will receive periodically at scheduled times a list of felons via OSOS web interface identifying potential voters with felony status or at anytime the state system for flagged felon records. Counties will have a period to time to review the felon record. After the review time is over, the state will send out notices to the voters notifying them that their registration will be cancelled if not appealed with a period of time.

## **Washington State Voter Registration System (VRS)** **Software Requirement Specifications (SRS)**

However, if election administration officials receive documentation showing that the felony is in error, VRS will provide a mechanism for preventing future comparison of the same data from generating additional notices. Please see 5.2 Felon List Process for specific business rules.

### **4.9 Verification of Voter Death Status**

In order to check for deceased status on a voter, the state VRDB system will do a reference check with Department of Health for decease records. Decease records will also be verified against the Social Security Death Index that will include out-of-state records. Voter records will be checked periodically at schedule times to ensure that a deceased person is flag and set to cancel in the state VRDB system.

Counties can run OSOS reports on voter status and use the OSOS web interface to identify potential voters with death status. However, if election administration officials determine a decease record to be invalid, the VRS should provide a mechanism for preventing future comparison of the same data from generating additional notices. Please see 5.3 Death List Process for specific business rules.

### **4.10 Processing Protected Registered Voters**

The business procedures for Address Confidentiality Program (ACP) voters will remain the same with counties processing the records. The records will be locked in a secure location. The records will not be stored in the EMS or OSOS VRDB.

### **4.11 Processing Registration after the registration cut off date**

If a registration is receive after the registration cut off date, the county can still continue to enter registration information into county local EMS. The registration process will be incomplete and is in a pending status until registration is sent to the state to be verified and given a voter id. The registrant record must be clearly flagged in county local system to prevent printing of poll books, absentee ballots, sending registration cards, etc.

### **4.12 Changes to Residential Address**

Changes to a voter's residential address can have a multitude of effects on voting eligibility. A change in address resulting in a change of residence from one county to another would result in an update to the voter registration record. All prior data related to the voter will be preserved by VRDB and available for access from counties. The voter ID number would remain the same with all voting history and contact history associated with voter.

## **Washington State Voter Registration System (VRS)** **Software Requirement Specifications (SRS)**

### **4.13 Validations and Verifications of Voter Registration Information**

HAVA requires VRS to authenticate the information provided by the voter and to maintain accurate voter registration status.

- The system must confirm that all required information was entered into the system and store that information.
- The county is still responsible for verifying the registrant's street address, assigning the correct district, precinct, and levy codes according to that address.
- The county EMS will transmit to the VRS the voter's driver's license information and/or the last four digits of their social security number.
- System will ensure that voter is not registered in more than once at multiple locations.
- System will perform verifications on voter status.

### **4.14 Different ways registration is received**

- Person registers in person at the county election office.
- Person fills out a voter registration-by-mail form and mails it to OSOS.
- Registration information is electronically sent to county from OSOS.
- Voter mails registration form to county election office.
- Voter registers while at the Department of Licensing. DOL mails form to the county or OSOS which eventually gets sent to the appropriate county.
- Registration form is sent from a county to appropriate county; this rarely happens but usually occurs when OSOS mistakenly sent registration form to the wrong county.

### **4.15 New Voter Registration**

A XML package of transaction type *NEW* is sent to the state VRDB if the voter is not found in the County EMS. The state VRDB will do an additional check to make sure that the voter is not found in the state VRDB. If the registration is of a new type and the voter is not found in the state system then a unique state identification will be assigned to the voter. And a new transaction log is created for that voter in the state system. Once the state system inserts the new registration, the state system will send a notification the county notifying the county the insert has been successfully inserted into the state VRDB. The state system will set the voter to an active status if all minimum requirements are met. Any references to messages sent to the county EMS indicates a message queued at the state for EMS to retrieve.

1. When a voter registration is received at the county, the county will scan the registration form and store the TIFF image within the EMS. In addition, the county will be required to enter into the EMS the voter registration information using the county EMS.

**Washington State Voter Registration System (VRS)**  
**Software Requirement Specifications (SRS)**

- a. The county EMS will verify that there are no existing registrations for this person within the county EMS database.
  - i. If a match is found, instead of adding a new voter registration into the EMS, the registration will be an update rather than being a new registration. **Refer to section 4.16 Updating Voter Registration.**
2. At the time of data entry, the registrant's residential address information will be:
  - a. Validated against EMS street segment file.
  - b. Retrieve levy code and precinct assigned to that address
3. Once the EMS completes the registration process and data has been validated locally at the county level, an automated process within the EMS will be triggered to send a XML package containing registration information along with the signature image clipping and a transaction id to the OSOS VRDB.
  - a. Once received, the OSOS VRDB will check for duplicates in the statewide database.  
If duplicate(s) found– **Refer to section 4.17 Resolving Duplicate Voter Registration**
    - i. In addition, the OSOS VRDB will validate registrant's identity by matching either the DOL information, or by SSN4 if identity check cannot be determine though DOL records.
    - ii. Match DOL # to DOL db
      1. No matching DOL # on DOL db or the name returned from DOL db doesn't match registrants name and DOB. See '**Invalid Authentication Provided**'.
    - iii. Match SSN # to SSN db
      1. No matching SSN # on SSN db or the name returned from SSN db doesn't match registrants name and DOB. See '**Invalid Authentication Provided**'.
  - b. Assign a voter registration status to the registrant's record
  - c. Assign State ID number
4. Send an OSOS XML notification back to all appropriate counties containing transaction, notification, voter id, voter status and any relevant voter information needed.
5. Local EMS shall update the local database with the state voter ID Number, current voter status, update the transaction log, and any relevant voter information.

**Exceptions (Action steps)**

- a. '**Invalid Authentication Provided**'
  - i. A XML notification message is sent back to the county EMS.
  - ii. County worker will be able to view all or filter notifications that require actions by running EMS reporting module to view OSOS sent notifications for all transactions sent to OSOS VRDB.
  - iii. If reports show that actions is required for registrant(s)
    1. County will need to take the appropriate action to obtain the information to authenticate the unverifiable voter.
    2. Once determined county will resend as an Update to state VRDB to update record or confirm that voter information is correct.
    3. If County is unable to obtain the necessary information to properly register the voter, the county will delete (remove) the record as per existing state law.

The state will do an additional confirmation on all required fields sent to OSOS VRDB as a precautionary step.

**Washington State Voter Registration System (VRS)**  
**Software Requirement Specifications (SRS)**

#### **4.16 Updating Voter Registration**

A XML package of transaction type Update is sent to the state VRDB if the voter is already present in the county EMS or if the state VRDB performs a search and determines that the voter is already registered in Washington state. If a state search finds that the voter already exists in the state system, the state VRDB will send a notification to the gaining and losing counties to take appropriate actions to synchronize all systems.

1. When a county receives a registration and it is determined that the registrant already exists within the local EMS, the county will need to update the voter registration record in the EMS.
  - i. If an update to registrant name is done, the signature will need to be rescanned.
  - ii. If the resident address has changed
    - a. Re-validate address against Street segment
    - b. Retrieve levy code and precinct assigned to that address
  - iii. Update any other voter registration information
2. Once update to local EMS is completed, the county will update the state system by transmitting an XML message along with signature image clipping, state voter id and a transaction id to the state. The signature will be sent to VRDB as part of any update to the voter record. This will ensure VRDB has the latest signature at all times.
  - i. Validate the DOL #, if no DOL # provided then validate the SSN (only applies to name, driver license, SSN4 updates)
    1. Match DOL # to DOL db (if status is pending)
      - a. No matching DOL # on DOL db or the name returned from DOL db doesn't match registrant's name and DOB. See '**Invalid Authentication Provided**'. Record will remain active.
    2. Match SSN # to SSN db (if status is pending)
      - a. No matching SSN # on SSN db or the name returned from SSN db doesn't match registrant's name and DOB. See '**Invalid Authentication Provided**'. Record will remain active.
  - ii. Update records in State VR db.
  - iii. OSOS VRDB will send a XML notification back to all appropriate counties containing transaction, notification, voter id and any relevant voter information needed.
  - iv. Local EMS shall update the local database with the state voter ID Number, current voter status, update the transaction log, and any relevant voter information.

#### **Exceptions (Action steps)**

- b. '**Invalid Authentication Provided**'
  - i. A XML notification message is sent back to the county EMS.
  - ii. County worker will be able to view all or filter notifications that require actions by running EMS reporting module to view OSOS sent notifications for all transactions sent to OSOS VRDB.
  - iii. If reports show that actions are required for registrant(s)
    1. County will need to take appropriate action to determine the unverifiable voter.
    2. Once determined county will resend as an Update to state VRDB to update record or confirm that voter information is correct.

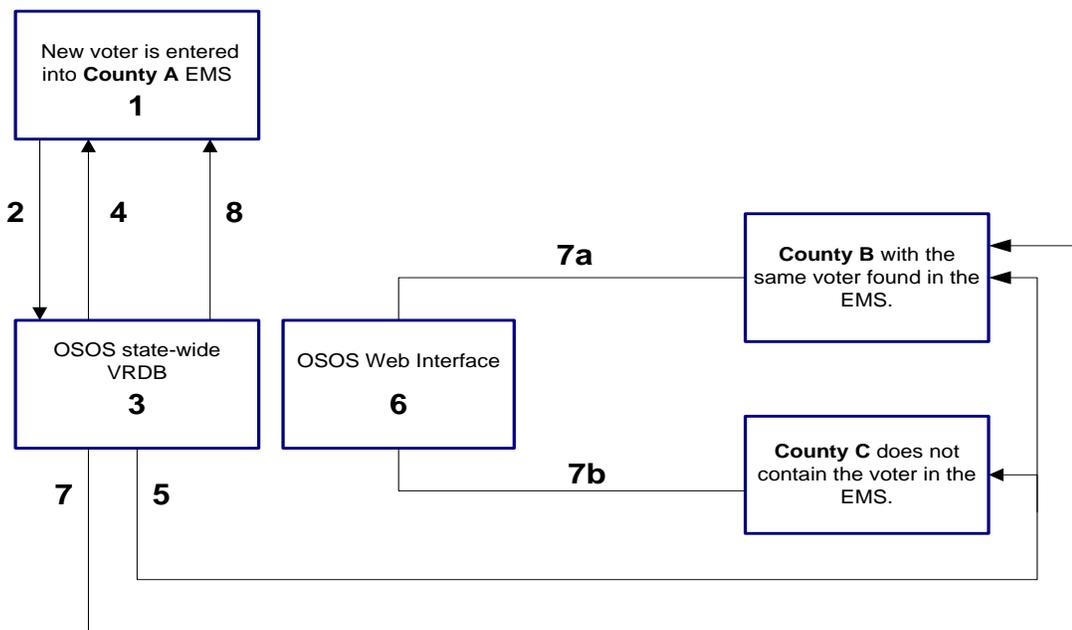
## Washington State Voter Registration System (VRS) Software Requirement Specifications (SRS)

The state will do an additional confirmation on all required fields sent to OSOS VRDB as a precautionary step. A cancellation, transfer, or status change (active can only change to cancel or an inactive can change to cancel or active) will also be considered updates to the state database. These types of updates will follow the same updating process but will not require state to perform validating when updating state database.

### 4.17 Resolving Duplicate Voter Registration

Part of the charter of HAVA is the statewide detection and elimination of duplicate registrations. To this end, the state's central voter database will identify potential duplicate registrations based on the following criteria: last name, first name, DOB.

Any duplicate that is detected by the state system will be treated as a potential match, the counties will be responsible for verifying if the record is a duplicate or not.



1. **County A EMS** meets all conditions before sending XML package to OSOS VRDB.
  - New voter registration is complete
  - Registration is validated locally
2. **County A EMS** transmits new XML voter registration to the state to be verified and stored within the state OSOS VRDB.
3. OSOS VRDB verifies voter's identity but determines that there are possible duplicates within the state database.
4. A OSOS XML notification is sent to the county that is registering new voter (**County A**) that there are possible duplicate(s) within the state database. The new voter registration will be in pending status, and
5. A OSOS XML notification is also sent at the same time to all effected counties (**county B** and **county C**) that the registrant may also be currently registered at.
6. The county that is registering new voter (**county A**) will use OSOS web interface to compare county registrant's information with the county submitting new registrant. The information to be compared will consist of:

**Washington State Voter Registration System (VRS)  
Software Requirement Specifications (SRS)**

- First Name,
- Last Name,
- Gender,
- DOB,
- Signature image

- 7a. **County A** determines that the information matches, **County A** will confirm that the registration is a match on the OSOS state web interface.
- 7b. **County A** determines that the information does not match; **County A** will confirm that the registration is not a match on the OSOS state web interface.
7. OSOS VRDB will send a XML package to cancel registration in **County B EMS** along with a notice that registration record has been cancelled.
8. OSOS VRDB will send a XML notification (**County A**) that the registration was either an update to the state system or a new registration. Depending on the type of registration, a newly generated voter is kept or a previous state voter id is to be associated with the registration. The voter registration record will be set to an Active status.

**4.17.1 Within County Duplicates on Initial Load**

When loading initial data it is possible, if there are duplicates within the county, that each of those voters will receive two duplicate transactions, one from the first voter’s initial transaction and one from the second voter’s initial transaction. This only happens during initialization and only one of the duplicates needs to be resolved.

**4.17.2 Within County Duplicates which Bypass Verifications**

In county duplicates that passed duplicate verifications will be handled with OSOS periodic data checks against the entire statewide database.

**4.18 Voter Registration Pending Status**

Shown below are various scenarios that show the status of registration at various stages of each of the scenarios.

**County EMS adds a new Voter.**

<u>System</u>	<u>Type</u>	<u>Status</u>	<u>Comments</u>
EMS	NEW	ACTIVE	
(XML transfer)			
VRDB	NEW	ACTIVE	Passes Identity check and Duplicate check
(XML transfer)			
EMS	NEW	ACTIVE	State returns a new state voter Id

**County adds a new voter state cannot validate identity**

<u>System</u>	<u>Type</u>	<u>Status</u>	<u>Comments</u>
EMS	NEW	ACTIVE	
(XML transfer)			
VRDB	NEW	PEND	Failed identity check

**Washington State Voter Registration System (VRS)  
Software Requirement Specifications (SRS)**

(XML transfer)			
EMS	NEW	PEND	County will need to follow up on this voter registration.

**County updates a voter record**

<u>System</u>	<u>Type</u>	<u>Status</u>	<u>Comments</u>
EMS	UPDATE	ACTIVE	Will be pending if initially tried to add as a new voter into state system and failed.
(XML transfer)			
VRDB	UPDATE	ACTIVE	Passes Identity check and Duplicate check
(XML transfer)			
EMS	NEW / UPDATE	ACTIVE	Will be NEW if initially a new insert, state could not validate identity.

**County adds new registration, but duplicate found in state system**

<u>System</u>	<u>Type</u>	<u>Status</u>	<u>Comments</u>
EMS1	NEW	ACTIVE	
(XML transfer)			
VRDB	NEW	PEND	Duplicate(s) identified
(XML transfer)			
EMS1, EMS2..EMS(n)		PEND – Potential Transfer	EMS would as a business process run EMS reports to generated state pending notices. Only EMS1 is in a pending status, EMS2..EMS(n) current status is not affected.
OSOS Interface		PEND – Potential Transfer	EMS2..EMS(n) will authenticate to a OSOS web interface, counties can determine if registration is a duplicate or not, by comparing voter info, and digital signature image. County will check Yes/ No. Only EMS1 is in a pending status, EMS2..EMS(n) current status is not affected.
VRDB	UPDATE	PEND	
(XML transfer)			
EMS1	NEW	ACTIVE	XML notification sent to EMS notifying county of a successful updated to state database. A previous state voter id is used
EMS(n)	CANCEL	CANCEL	A XML package sent to the EMS county that no longer contains the voter to cancel registration in that county.

**Washington State Voter Registration System (VRS)**  
**Software Requirement Specifications (SRS)**

**4.19 System Business Flow**

- **Case person registered by:**

- Walk-In/In Person**

- Person fills out the voter registration forms and submits the form at the county elections office.

- Office**

- Person fills out the voter registration forms and submits the form at the county elections office.
    - Voter registration form is turned in by a third party at county elections office.

- SOS Mail-In**

- Person fills out the voter registration forms and sends form to OSOS, OSOS forwards registration form to the county elections office.

- DMV**

- Person fills out the voter registration forms at DMV, DMV forwards form to OSOS and then to the county elections office.

- County Mail-In**

- Person fills out the voter registration forms and sends form directly to the county elections office.

- DMV Electronic**

- Person registers though DMV, DMV sends electronic version to OSOS, OSOS send electronic form to the elections office.

- The election worker scans the registration form and enters information in the Election Management System.
- EMS will complete registration process by performing duplicate check within the system and completed the precinct information
- EMS will determine if the registration is new, an update, incomplete or invalid within the system.

- **If registration is new or an update then**

- If the information provided is complete and can be validated by the county system**

- The EMS system will generate voter registration data in an XML format to be sent to SOS VRDB.

- Else**

- The EMS will pend the voter registration until validated or completed. If needed, contact or notification will be sent to voter to provide necessary information.
    - Once completed, the EMS system will generate voter registration data in an XML format to be sent to SOS VRDB.

- SOS VRDB will process voter registration. Duplicate and identity checks will be performed at point of entry.
- SOS VRDB will determine if the registration is a new, update, transfer or an invalid / pending voter.
- **If voter is not found in state database and can be validated then**
  - Add the voter to the VRDB system as a NEW voter.

**Washington State Voter Registration System (VRS)**  
**Software Requirement Specifications (SRS)**

- Generate a unique state voter identification number.

**Else if voter is found in state database and of the same county and can be validated then**

- Update the voter information within the VRDB system and mark as an UPDATE.

• **Else if voter is found in state database and not of the same county and can be validated then**

- Update the voter information with the VRDB system and marked as a TRANSFER.

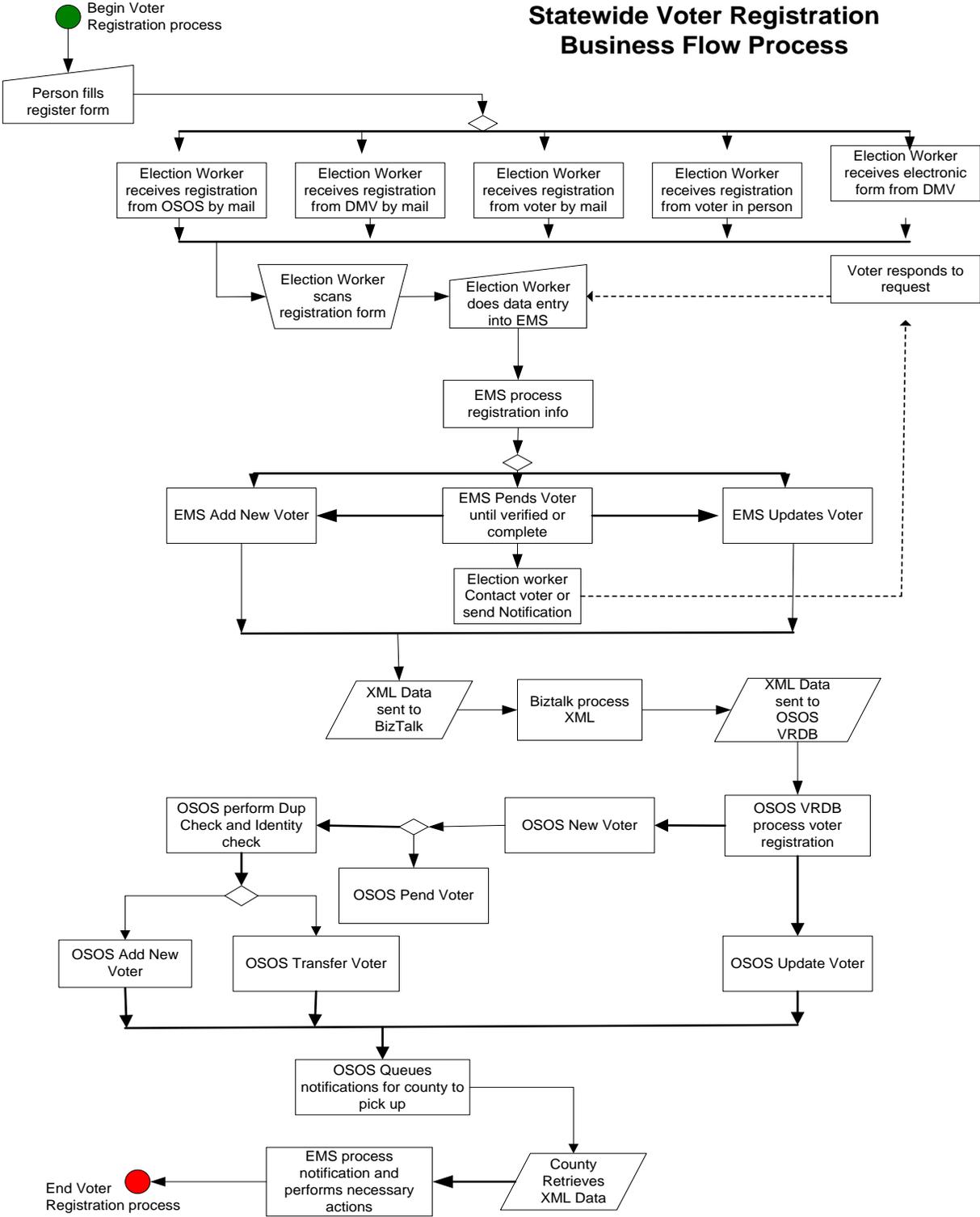
**Else**

- Insert voter registration into system and mark as a PENDING status, for a new registration.

• County EMS will retrieve XML notification(s) from the OSOS outbound queue to complete the registration process.

# Washington State Voter Registration System (VRS)

## Software Requirement Specifications (SRS)



**Washington State Voter Registration System (VRS)**  
**Software Requirement Specifications (SRS)**

**4.20 Voter Transaction and Voting History Management**

The statewide voter registration system will maintain an audit history of all transaction that takes place within the OSOS VRDB for auditing purposes. It will associate a time, date, who requested the transaction and the type of transaction that occurred.

Voting history (last voted date) will be transferred as part of the global update process between the EMS and VRDB.

**4.21 Performing OSOS VRDB Database Audits with EMS Database**

To ensure that the state database and the county database are synchronized the system will incorporate a check sum solution. The county EMS and OSOS VRDB will generate a standardize check sum algorithm to ensure that all key data fields match and also make sure that the number of registered voter matches also. The comparisons will be done periodically during off peak hours. The system will compare the check sum value associate with each registered voter by using the state voter identification value and the check sum value. If the voter registration record does not match then the appropriate actions will need to take place.

Below are voter registration fields that could change because of registration updates or because of user data entry errors. These fields will be hashed using an industry established hashing algorithm (MD5) to derive a unique 32-character check sum value. All fields in the table below **must be concatenated in order:** all columns top to bottom, Jurisdiction fields, Address fields, Voter Contact fields and Voter Info fields. **All dates must be in “yyyy-mm-dd” format.**

<b>Jurisdiction fields:</b>	<b>Address fields:</b>	<b>Voter Contact fields:</b>	<b>Voter Info fields:</b>
<ul style="list-style-type: none"> <li>• Legislative district</li> <li>• Congressional district</li> </ul>	<ul style="list-style-type: none"> <li>• Reg. street pre direction</li> <li>• Reg. street number</li> <li>• Reg. street fraction</li> <li>• Reg. street name</li> <li>• Reg. street type</li> <li>• Reg. street direction</li> <li>• Reg. unit number</li> <li>• Reg. city</li> <li>• Reg. zip code</li> <li>• Reg. County</li> </ul>	<ul style="list-style-type: none"> <li>• Mailing address 1</li> <li>• Mailing address 2</li> <li>• Mailing address 3</li> <li>• Mailing address 4</li> <li>• Mailing zip code</li> <li>• Mailing country</li> <li>• Phone number</li> <li>• Email address</li> </ul>	<ul style="list-style-type: none"> <li>• Voter title</li> <li>• First name</li> <li>• Middle name</li> <li>• Last name</li> <li>• Name prefix</li> <li>• Name suffix</li> <li>• DOB</li> <li>• Gender</li> <li>• SSN4</li> <li>• Driver license number</li> <li>• Military</li> <li>• Absentee type</li> <li>• Absentee date</li> <li>• Registration date</li> <li>• Registration method</li> <li>• Status code</li> </ul>

Documentation on MD5 hashing and encryption can be found at: <http://www.ietf.org/rfc/rfc1321.txt>  
Code snippet can be found in [Appendix A](#).

**Washington State Voter Registration System (VRS)  
Software Requirement Specifications (SRS)**

**4.22 Document Handling and Image Processing**

Counties will be required to send Voter registration scanned images / Signatures to OSOS VRDB. The images are to be scanned and saved in a TIFF format. The images will be saved within the EMS and OSOS VRDB.

**4.23 Voter Registration Transactions**

Below is the data that is sent and receive between the Voter Registration System. *For a more detailed description on the type and constraints of data being transmitted refer to the VoterRegistration.xsd and the EMSNotification.xsd*

**4.23.1 Voter Registration Data Sent to OSOS VRDB**

Element	Data Type	Max Length	Sample	Required	Remarks
<b>TransmitInfo</b>	Parent tag				
TransmitID	Char	19	THIL200503040000001	Yes	
TransmitType	Char	2	IL	Yes	IL for initial load
TransmitDateTime	DateTime		2005-04-04T11:20:00.0000000-07:00	Yes	
CountyWorker	Char	50	Ssam	No	Send to VRS if available
EMSEntryDate	DateTime		2005-04-04T11:20:00.0000000-07:00	Yes	
CountyEMSID	Char	50	987655	No	
<b>VoterRegistrationInfo</b>	Parent tag				
RegistrationDate	Date		2005-02-01	Yes	
RegistrationMethod	Char	2	MI	Yes	Map codes to VRS standards
OtherIDProvided	Number	1	1	Yes	Flag
OtherIDDescription	Char	255	Electric Bill	No	
<b>VoterStatusInfo</b>	Parent tag				
Military	Number	1	0	Yes	0=No 1= Military Domestic 2=Military Overseas 3=National Guard/Reserves

**Washington State Voter Registration System (VRS)**  
**Software Requirement Specifications (SRS)**

					4=Overseas US citizen
StatusCode	Char	1	A	Yes	A=Active I=Inactive
AbsenteeType	Char	1	N	Yes	
AbsenteeDate	Date		2005-02-10	Yes	
<b>VoterAddress</b>	Parent tag				
<b>RegisteredAddress</b>	Parent tag				
RegStreetPreDirection	Char	2	N	No	
RegStreetNumber	Char	10	300	Yes	
RegStreetFraction	Char	10		No	
RegStreetName	Char	50	Pine	Yes	
RegStreetType	Char	20	ST	Yes	
RegUnitType	Char	10		No	
RegStreetDirection	Char	4	SE	No	
RegUnitNumber	Char	10		No	
RegCity	Char	40	Olympia	Yes	
RegState	Char	50	WA	Yes	
RegZipCode	Char	5	98513	Yes	
RegZipCode4	Char	4	2000	No	
RegCounty	Char	2	TH	Yes	
<b>SeasonalAddress</b>	Parent tag				
MailingAddress1	Char	100	400 Tree LN	No	Standard address
MailingAddress2	Char	100		No	City and state combined
MailingAddress3	Char	100		No	
MailingAddress4	Char	100		No	
MailingZipCode	Char	10	98501-3000	No	Contains plus four
MailingCountry	Char	50	USA	No	
StartDate	Date		2005-06-01	Yes	
EndDate	Date		2005-08-01	Yes	
<b>MailingAddress</b>	Parent tag				
MailingAddress1	Char	100	PO Box 10	No	Standard address
MailingAddress2	Char	100		No	City and state combined
MailingAddress3	Char	100		No	
MailingAddress4	Char	100		No	
MailingZipCode	Char	10	98522	No	Contains plus four
MailingCountry	Char	50	USA	No	

**Washington State Voter Registration System (VRS)  
Software Requirement Specifications (SRS)**

<b>VoterInfo</b>	Parent tag				
StateVRDBID	Char	14	55543	No	Not available in EMS for new registration
VoterTitle	Char	5	Ms	No	
NamePrefix	Char	10		No	
FirstName	Char	50	Patsy	No	
MiddleName	Char	26	Linda	No	
LastName	Char	50	Jones	No	
NameSuffix	Char	10		No	
Gender	Char	1	F	Yes	
BirthDate	Date		1970-09-13	Yes	
SSN4	Char	4	7777	No	
DriverLicenseNum	Char	12	PAT**S*1010L	No	
<b>VoterContactInfo</b>	Parent tag				
PhoneNumber	Char	14	360-999-6544	No	
EmailAddress	Char	100	<a href="mailto:patsy@yahoo.com">patsy@yahoo.com</a>	No	
<b>Jurisdiction</b>	Parent tag				
LevyCode	Number		1	No	
PrecintID	Number		1	No	
LegislativeDistrict	Number		3456	No	
CongressionalDistrict	Number		7845	No	
<b>TIFFImage</b>	Parent tag				
Signature	Char		Base64 encode of image	No	Records with signatures should be encoded prior to sending to VRS

**Washington State Voter Registration System (VRS)  
Software Requirement Specifications (SRS)**

**4.23.2 Notification Sent to County EMS**

Element	Data Type	Sample	Required	Remarks
<b>Notifications</b>	Parent Tag			
TransmitID	Char	00IL200503040000011	Yes	VRS generated transactions begin with 00
NotificationType	Char	S1	Yes	EMS should take returned code and process
NotificationMsg	Char	Successful – New	Yes	
NotificationDateTime	Date	2005-04-04T11:20:00.0000000-07:00	Yes	
CorrespondingTransmitID	Char	THIL200503040000001	yes	Will be all zeros when VRS initiates transaction
CorrespondingTransmitType	Char	IL	No	
CorrespondingCountyEMSID	Char	987655	no	
CorrespondingCountyWorker	Char	Ssam	No	
<b>StateGeneratedInfo</b>	Parent tag			
StateVRDBID	Char	22	Yes	
RegistrantStatusCode	Char	A	Yes	Status code of voter in VRS
<b>RegistrantInfo</b>	Parent tag			
FirstName	Char	Patsy	No	
MiddleName	Char	Linda	No	
LastName	Char	Jones	No	
NameSuffix	Char		No	
BirthDate	Date	1970-09-13	Yes	
SSN4	Char	7777	No	
DOLNum	Char	PAT**S*1010L	No	
RegCounty	Char	TH	Yes	

**4.23.3 Transaction Types and Codes**

Code	Name	Description
	<b>Transmit Type</b>	
NW	New	New voter registration
UD	Update	Update to an existing voter registration
IL	Initial Load	Initial load into VRDB

**Washington State Voter Registration System (VRS)**  
**Software Requirement Specifications (SRS)**

AU	Data Audit	Data Audit between EMS and VRDB
WU	Web Update	Updated on the web.
GU	Global Update	Global update of registration
	<b>Notification Type</b>	
S1	Successful – New	Successfully added to VRDB and registration status is set to Active
S2	Successful – Update	Successfully added to VRDB and registration status is set to Active
S3	Successful – Cancel	Successful cancellation of registration record in VRDB. Registration status set to Cancelled.
S5	Successful – Merge	Successful merge of a duplicate registration record.
S6	Successful – Felon Cancellation	Successful cancellation of a registered voter that was determined to be a felon.
S7	Successful – Decease Cancellation	Successful cancellation of a registered voter that was determined to be deceased.
S8	Successful – Transfer Cancellation	
F1	Failure – Invalid Data Format	Failed, data provided is wrong format
F2	Failure – Internal Processing Failure	Failed
F3	Failure – Non Existent Voter	A voter specified from EMS does not exist in VRS
P1	State Pending – Invalid Authentication	Registration is in a pending status because voter information does not match DOL or SSN record.
P2	State Pending – Cannot Verify	Registration is in a pending status because state database cannot verify identity.
P3	State Pending – Potential Transfer	Registration is in a pending status because state database identified a potential transfer of registration.
P4	State Pending – Missing Required Data	Registration is in a pending status because of missing data
P5	State Pending – Possible Felony	Registration is in pending status because state identified voter as a possible felon.
	<b>Voter Status</b>	
A	Active	Registrant status is an active voter
I	Inactive	Registrant voting privileges inactive
IM	Inactive – Mailer Returned	
C	Cancelled	Registrant voting privileges cancelled

**Washington State Voter Registration System (VRS)**  
**Software Requirement Specifications (SRS)**

CF	Cancelled – Felony	
CD	Cancelled – Duplicate	
CS	Cancelled – Deceased	
CT	Cancelled – Transfer	
P	State Pending	Generic pending status
PDUPL	State Pending – Possible Transfer	State identified a possible transfer.
PMDTA	State Pending – missing information	Data sent to the state is incomplete
PFELN	State Pending – Possible felon	State identified a possible felon.
PDETH	State Pending – Possible Deceased	State identified a possible deceased voter.
PNVAL	State Pending- Need to Process Validation	Record is waiting to be validated.
	<b>Registration Method</b>	
MI	Mail In	Registrant mails in registration card
MV	Motor Vehicle	Registration register at DMV
WI	Walk In	Registration registers at election office
FC	Federal Card	
AB	Agency Based	
OT	Other	
RD	Registration Drive	
UN	Unknown	Registration method not specified
	<b>Absentee Type</b>	
P	Permanent	Permanent absentee voter
T	Temporary	Absentee with specific time frame
N	Not Absentee	Vote in person
U	Unknown	Absentee undetermined
V	Vote By Mail	Voter is assigned to a vote by mail precinct or all elections within County are conducted on a Vote By Mail basis.
	<b>County Code</b>	
AD	Adams	Adams County
AS	Asotin	Asotin County
BE	Benton	Benton County
CH	Chelan	Chelan County
CM	Clallam	Clallam County
CR	Clark	Clark County
CU	Columbia	Columbia County
CZ	Cowlitz	Cowlitz County
DG	Douglas	Douglas County

**Washington State Voter Registration System (VRS)  
Software Requirement Specifications (SRS)**

FE	Ferry	Ferry County
FR	Franklin	Franklin County
GA	Garfield	Garfield County
GR	Grant	Grant County
GY	Grays Harbor	Grays Harbor County
IS	Island	Island County
JE	Jefferson	Jefferson County
KI	King	King County
KP	Kitsap	Kitsap County
KS	Kittitas	Kittitas County
KT	Klickitat	Klickitat County
LE	Lewis	Lewis County
LI	Lincoln	Lincoln County
MA	Mason	Mason County
OK	Okanogan	Okanogan County
PA	Pacific	Pacific County
PE	Pend Oreille	Pend Oreille County
PI	Pierce	Pierce County
SJ	San Juan	San Juan County
SK	Skagit	Skagit County
SM	Skamania	Skamania County
SN	Snohomish	Snohomish County
SP	Spokane	Spokane County
ST	Stevens	Stevens County
TH	Thurston	Thurston County
WK	Wahkiakum	Wahkiakum County
WL	Walla Walla	Walla Walla County
WM	Whatcom	Whatcom County
WT	Whitman	Whitman County
YA	Yakima	Yakima County

**4.24 Transaction Identifier**

When a XML package is sent from the county, the EMS will be required to generate a transaction identifier that will be used with the transaction. The county EMS and state VRDB will store this transaction identifier in the database.

The format of the transaction identifier is as follows:

- 1<sup>st</sup> (2) = CountyCode
- 2<sup>nd</sup> (2) = TransactionType
- 3<sup>rd</sup> (8) = Date
- 4<sup>th</sup> (7) = Sequence Number

## **Washington State Voter Registration System (VRS)** **Software Requirement Specifications (SRS)**

Sample: THNW200503140000001

Transactions generated from VRS will follow the same format except the county code will be replaced with "00".

### **4.25 Registration Identifiers**

The county EMS will maintain and generate a county registration identifier that the state VRDB will store in the database also. In addition the county EMS will be required to maintain a state generated a 14 character unique state voter identifier for registered voters which will be the official voter registration identifier for the voter. The state voter id will be a simple sequential number.

County EMS will continue to use the county registration identifier to reference the voter records within the system and use the state voter registration identifier to reference voter registrations found on the state database.

### **4.26 EMS Database Services**

The county EMS will continue to perform and maintain all other functions outside of voter registration. County EMS will be required to send Voter Registration XML packages to OSOS VRDB for new registrations and registration updates. In addition county EMS will also be required to provide to the state updates to voter history and status.

### **4.27 OSOS Database Services**

The statewide VRDB is a central repository database that other OSOS system will use to validate and perform verifications against relating to voter registration. The OSOS VRDB will also serve as a central repository of all voters in state of Washington which counties may run reports against.

The state database will also check for any duplicates and also check felony and deceased status. In addition the state system will also generate and assign unique state voter identification for all new registration.

The state system will contain history of all voter transactions that is one of HAVA requirements.

### **4.28 Lookup of Voter Registration**

The voter registration system will also provide additional components within the OSOS web interface to query state voter information also the state web interface will provide various reports of state voter registration records. Its main function currently will be to allow counties to view state voter registration records and to run state created ad hoc reports against statewide records.

## Washington State Voter Registration System (VRS) Software Requirement Specifications (SRS)

### 4.29 System Reports

The statewide database system will be capable of providing a variety of reports detailing activity, status and current view of voter registration, voter history. Such reports are listed but not limited to:

- Active Voters
- Inactive Voters
- Pending Voters
- Voter Status (felony, deceased, cancelled)
- Registrants detail report
- NVRA status reports
- Transaction logs
- Voting Method

**Washington State Voter Registration System (VRS)**  
**Software Requirement Specifications (SRS)**

## **5 Business Rules (Updated)**

### **System overview**

- County EMS system will place the voter record in pending status (pending State Authentication) for new registrations once it determines that all necessary information has been entered and validated at the county level. Changes to voter id fields (Name, DOB, DL#/SSN) will be validated as part of a list maintenance process.
- State system will notify the county EMS to update the status once the record has been authenticated.
- County staff will review pending reports/screens daily to resolve records that couldn't be authenticated by the state system.

Updates to fields other than voter id fields will be accepted by the state system without any authentication processes.

### **5.1 Inter-County Transfer**

- This is an exception to the normal process of a new registration. The state system determines that there appears to be a match of a new registration (First Name, Last Name, Date of Birth) to an existing registration in another county.
- The state system notifies the new county (TO county) system to update the pending status of the new registration to pending "Possible Transfer".
- The state system prepares a report/screen for the new county (TO county) that matches the records and signatures from both counties.
- The new county (TO county) may review the report/screen on the state system and confirm the transfer by comparing the signatures.
- Once the transfer is confirmed or denied, the state system will notify the new county (TO county) EMS system to activate the voter record.
  - If the transfer is confirmed:
    - the state system will notify the county EMS to activate the voter record with the State Voter ID number from the previous registration (FROM county).
    - The state system will also notify the previous county EMS (FROM county) system to cancel their record.
  - If the transfer is denied:
    - the state system will assign a new State Voter ID to the voter
    - the state system will notify the new county EMS (TO county) to activate the voter with the new State Voter ID.
- If the confirmed transfer occurs after poll books were printed and/or absentee ballots issued:
  - The new county (TO county) will ensure that the absentee ballot is held or the poll ballot is cast provisionally.
  - The new county (TO county) will verify that the voter has not voted in the previous county (FROM county) prior to opening the returned ballot.

**Washington State Voter Registration System (VRS)**  
**Software Requirement Specifications (SRS)**

**5.2 Felon List Process (Updated)**

- Note: This process should be applied to felony cancellations at the state level as well as local felony cancellations.
- County identifies potential match from a felony conviction notice from the County Clerk.  
Or
- State system matches VR list to felon list (Last name, first name, date of birth) provided from WSP.
  - State system immediately creates list of matching names/DOB for web interface.
  - State system will not include names on the matched list who have previously demonstrated that the match is in error or demonstrated that their rights were restored. (Will need to check that the most recent conviction date is not after the person has demonstrated that rights were restored.)
  - State system removes names from list that show certificates of discharge for all causes against them on AOC database.
- All matched records shall immediately be marked Pending – Potential Felon in the state and local databases.
  - Voters in this status will not appear in the poll books or be sent absentee ballots. If a ballot has already been issued, the local system should flag the ballot upon return.
- In the case of a local match, the local system will immediately generate a notice to the voter.
- In the case of a state match,
  - State system will add to list of invalid matches for future checks against felon lists, if:
    - State finds records for felons that indicate a certificate of discharge was issued on all cause(s) in SCOMIS
    - State finds a pardon was issued on all cause(s) in the Clemency Board database for Governor’s Pardons.
    - County finds certificates of discharge for all causes in the County Clerk records
  - After a period of review to be determined by WAC Committee, the state system will generate a notice to the voter.
- The notice will tell the voter their registration is suspended and will be cancelled in thirty calendar days for a state cancellation or ten calendar days for a local cancellation unless the voter documents an error.
- If there is no response from the voter within thirty calendar days from state notification or ten calendar days from the local notification, the state system will change the voter status to “Cancelled – Felony Conviction” in both the state and local database.
- County users will use the state web interface to flag invalid matches and persons with documentation of restored rights from the state cancellations.
  - State system will add to list of invalid matches for future checks against felon lists.

## Washington State Voter Registration System (VRS) Software Requirement Specifications (SRS)

### 5.3 Deceased List Process

- State system matches VR list to deceased list (Last name, first name, date of birth) provided from SSA, and/or DOH.
- State system will not include names on the matched list where the county has previously indicated that the match is in error. Will need to check that the date of death is not after the notification that the match was in error.
- State system prepares web interface that allows county users to check the matches, and:
  - Flag invalid matches so they do not appear on future lists
  - Remove invalid matches from the list
  - Cancel the registration record immediately in the case of valid matches.
- After a period of time (TBD by WAC committee), state system will automatically update county systems with cancellations for all deceased list matches not processed by the county.

### 5.4 Duplicate List Process

- State system creates list of potential duplicate registrations.
- State system will not include names on the matched list where the county has previously indicated that the match is in error.
- State system prepares web interface that allows county users to compare matches, and:
  - Flag invalid matches so they do not appear on future lists
  - Remove invalid matches from the duplicate list
  - Indicate which record should be kept active and which should be removed in the case of valid duplicates.
  - Cancel the invalid record immediately.
- After a period of time (TBD by WAC committee), state system will update records not processed by the county:
  - Merge duplicate registrations by consolidating the registration with the older date of registration into the record of the more recent registration.
  - Automatically update county systems with cancellations for the registrations with the older date of registration.

**Washington State Voter Registration System (VRS)  
Software Requirement Specifications (SRS)**

## 6 Project Risks and Mitigation

No.	Risk	Mitigation	Severity	Mitigated
1	Project does not meet January 2006 federal mandate.	Keep project scope small. Ensure minimal changes to business processes. Make sure resources are properly allocated. Strong communication by all stakeholders.	High	In Process
2	Stakeholders are not empowered to influence the direction of the project.	Establish VRDB Task Force/Steering Committee with members from all stakeholders- state, counties, vendors, and other state agencies. Meet regularly to discuss project direction.	High	Yes
3	Counties do not have adequate resources to convert to state approved election management system (EMS) vendor.	State will contract with each EMS vendor to help with programming costs.	High	Yes
4	Data integrity from data conversion does not match.	Establish lead quality assurance tester at each county who works with state voter registration staff to verify records transferred to the state database. Use checksum values to assist in comparison.	High	Yes
5	VRDB system is secure, but still vulnerable to cyber attacks	Have an independent security audit. Also there will be secure programming and database techniques, use of VPN, SSL, complex passwords on secure servers, separated network with multiple firewalls	High	In Process
6	EMS vendors state interface programming lags on project timeline	State will help EMS vendors will programming costs. State will have monthly meetings will all EMS vendor together and individual EMS vendor conference calls every two weeks.	High	Yes
7	Because the project uses new technologies, state staff resources may not be adequate throughout the duration of the project.	From RFQQ process, hire additional technical consultants to provide additional technical expertise.	Medium	Yes
8	Project implementation saturates Inter-Governmental Network (IGN)	State will work with DIS and Qwest to upgrade sections of IGN for newer equipment and increased bandwidth.	Medium	In Process
9	VRDB system does not perform adequately during peak election times.	Perform stress testing prior to implementation. All hardware purchased is over specifications to anticipate peak usage.	Medium	Yes
10	VRDB system is not available an extended time because of network or server failure, natural disaster, fire, etc.	All VRDB servers are redundant so that the system stays available if one server is down. Establish mirror site in opposite side of the state with replicated data that can be brought online within 30 minutes.	Low	Yes
11	Small counties do not have adequate technology support for VRDB	OSOS will hire a permanent network support position in Cheney, Washington to provide support to VRDB and small counties. Help counties develop a consortium to use shared IT resources.	Medium	In Process

**Washington State Voter Registration System (VRS)**  
**Software Requirement Specifications (SRS)**

## **7 Revisions**

**April 11, 2005**

### 2.2.3 OSOS Web Interface

- Added additional fields to browse screen

### 3.1 Hardware Interfaces

- Removed OSOS high capacity scanner. County will continue to perform scanning functions.

### 4.1 Data Cleansing and Migration

- During beta county mock migration.
- OSOS will provide a report of invalid DL# for county to update EMS if desired.
- Removed checksum during initial load. Checksum will be verified during database auditing process after the initial load completes.
- Clarified that identity checks will be performed, but the status of the voter will not change.

### 4.3 Security

- The password shall not be stored in the system's cache requiring the user to enter a password each time they enter the system. In addition, the OSOS web application shall timeout after 30 minutes of non use.
- For maximum security, only port 80 will be open on the state private network.

### 4.14 Different ways registration is received

- For in person registrations, ID still needs to be verified.

### 4.19 System Business Flow

- Added clarifications.

### 4.28 Lookup of Voter Registration

- Clarified that registrations and updates will not be made in OSOS web interface.

### 4.4 Network Design and Standards

## Washington State Voter Registration System (VRS) Software Requirement Specifications (SRS)

- Added network diagram.

### 5 Business Rules

- Updated business rules.

### **April 26, 2005**

#### 4.23.3 Transaction Types and Codes

- Added new codes to Notification Type and Voter Status.

#### 4.21 Synchronizing EMS with OSOS VRDB

- Removed 'Active date' and changed 'Res' to 'Reg'.

### **April 27, 2005**

#### 4.21 Synchronizing EMS with OSOS VRDB

- Clarified field order and date lay out “yyyy-mm-dd”

### **April 28, 2005**

#### 4.1 Data Cleansing and Migration

- Intake of County Files
  - Clarified that we will not be adding DOL# to county records.

#### 4.10 Processing Protected Registered Voters

- Removed some text to clarify what is really happening.

### **June 27, 2005**

#### Attachment C

- Updated system architecture.

## Washington State Voter Registration System (VRS) Software Requirement Specifications (SRS)

### 2.2.1 County EMS

- Updated the Items.

### November 9, 2005

### 2.2.1 County EMS

- Updated the Items.

### 2.2.3 OSOS Web Interface

- Removed were it said 'Operator can sort' line
- Changed 'Death List' to 'Deceased List'

### 2.2.6 Additional Requirements and Dependencies

- Removed line that said 'County can override Pending'
- Clarified what data is transferred as part of the global update

### 4.1 Intake of County Files

- Clarified what is really happening

### 4.10 Processing Protected Registered Voters

- Add that they won't be kept in the OSOS VRDB

### 4.17 Resolving Duplicate Voter Registration

- Clarified that only the new county can resolve the duplicate

### 4.18 Voter Registration Pending Status

- Clarified that the EMS will not send a 'Pending' record only 'Active'

### 4.23.1 Voter Registration Data Sent to OSOS VRDB

- Clarified what we are really doing and requiring

### 4.23.3 Transaction Types and Codes

## **Washington State Voter Registration System (VRS)**

### **Software Requirement Specifications (SRS)**

- Added 'GU' for global update
- Removed 'R2'
- Changed 'AC – Administrative Change' to 'OT – Other'
- Removed Transaction Type list because we don't use it.

#### 4.29 System Reports

- Removed 'Under 18' because the county will not send to the state until they are of age.

#### 5.1 Inter-County Transfer

- Clarified the process, only the new county can resolve

### **January, 2007**

#### 5.2 Team Review

- Added bookmarks to document headings
- Removed PVFYI and PAUTH Voter Status Codes

**Washington State Voter Registration System (VRS)**  
**Software Requirement Specifications (SRS)**

<b>Glossary</b>	<b>Definition</b>
AOC	State agency, Administrative of Courts
DMV	State agency, Department Motor Vehicle
DMZ	Demilitarize Zone
DOH	State agency, Department of Health
DOL	State agency, Department of Licensing
DOC	State agency, Department of Correction
EMS	Commercial Election Management System software
HAVA	Help America Voter Act
IGN	Washington State Inter Government Network
ISP	Internet Service Provider
LAN	Local Area Network
MOU	Memorandum Of Understanding
NVRA	National Voter Rights Act
OSOS	Office Secretary Of State
SOW	Statement of Work
SSA	Social Security Agency
SSN	Social Security Number
SSL	Secure Socket Layer
SQL	Structured Query Language
VPN	Virtual Private Network
VRDB	Voter Registration Database
VRS	Voter Registration System
WAN	Wide Area Network
WSP	State agency, Washington State Patrol
XML	Extensible Markup Language
XML Schema	Standard template for XML data

# Washington State Voter Registration System (VRS) Software Requirement Specifications (SRS)

## Appendix A

```
sb.Append(VoterRegistration.Jurisdiction.LegislativeDistrict);
sb.Append(VoterRegistration.Jurisdiction.CongressionalDistrict);
sb.Append(VoterRegistration.VoterAddress.RegisteredAddress.RegStreetPreDirection);
sb.Append(VoterRegistration.VoterAddress.RegisteredAddress.RegStreetNumber);
sb.Append(VoterRegistration.VoterAddress.RegisteredAddress.RegStreetFraction);
sb.Append(VoterRegistration.VoterAddress.RegisteredAddress.RegStreetName);
sb.Append(VoterRegistration.VoterAddress.RegisteredAddress.RegStreetType);
sb.Append(VoterRegistration.VoterAddress.RegisteredAddress.RegStreetDirection);
sb.Append(VoterRegistration.VoterAddress.RegisteredAddress.RegUnitNumber);
sb.Append(VoterRegistration.VoterAddress.RegisteredAddress.RegCity);
sb.Append(VoterRegistration.VoterAddress.RegisteredAddress.RegZipCode);
sb.Append(VoterRegistration.VoterAddress.RegisteredAddress.RegCounty);
sb.Append(VoterRegistration.VoterAddress.MailingAddress.MailingAddress1);
sb.Append(VoterRegistration.VoterAddress.MailingAddress.MailingAddress2);
sb.Append(VoterRegistration.VoterAddress.MailingAddress.MailingAddress3);
sb.Append(VoterRegistration.VoterAddress.MailingAddress.MailingAddress4);
sb.Append(VoterRegistration.VoterAddress.MailingAddress.MailingZipCode);
sb.Append(VoterRegistration.VoterAddress.MailingAddress.MailingCountry);
sb.Append(VoterRegistration.VoterContactInfo.PhoneNumber);
sb.Append(VoterRegistration.VoterContactInfo.EmailAddress);
sb.Append(VoterRegistration.VoterInfo.VoterTitle);
sb.Append(VoterRegistration.VoterInfo.FirstName);
sb.Append(VoterRegistration.VoterInfo.MiddleName);
sb.Append(VoterRegistration.VoterInfo.LastName);
sb.Append(VoterRegistration.VoterInfo.NamePrefix);
sb.Append(VoterRegistration.VoterInfo.NameSuffix);
sb.Append(VoterRegistration.VoterInfo.Birthdate.ToString("yyyy-MM-dd"));
sb.Append(VoterRegistration.VoterInfo.Gender.ToString());
sb.Append(VoterRegistration.VoterInfo.SSN4);
sb.Append(VoterRegistration.VoterInfo.DriverLicenseNum);
sb.Append(VoterRegistration.VoterStatusInfo.Military);
sb.Append(VoterRegistration.VoterStatusInfo.AbsenteeType);
sb.Append(VoterRegistration.VoterStatusInfo.AbsenteeDate.ToString("yyyy-MM-dd"));
sb.Append(VoterRegistration.VoterRegistrationInfo.RegistrationDate.ToString("yyyy-MM-dd"));
sb.Append(VoterRegistration.VoterRegistrationInfo.RegistrationMethod.ToString());
sb.Append(VoterRegistration.VoterStatusInfo.StatusCode.ToString());
```