Software Requirements Specification (SRS)

Development Team

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1. Scope

1.1 Identification

SRS-001: Software Identification - The software **shall** be identified by the following information: - **Software Name**: [Software Name] - **Software Identifier**: [SW-001] - **Version**: 1.0 - **Release**: Initial Release - **Classification**: [Unclassified/Classified Level]

1.2 Software Overview

SRS-002: Software Purpose - The software **shall** provide [primary software functionality] - The software **shall** support [key operational capabilities] - The software **shall** integrate with [existing systems or infrastructure]

SRS-003: Software Context - The software **shall** be part of the [system name] system - The software **shall** interface with [other software components] - The software **shall** run on [specified hardware platform]

1.3 Document Overview

SRS-004: Document Purpose - This document **shall** specify the software requirements for [software name] - This document **shall** serve as the basis for software design and development - This document **shall** support software testing and acceptance

2. Referenced Documents

2.1 Government Documents

SRS-005: Military Standards - MIL-STD-498: Software Development and Documentation - MIL-STD-961E: Defense and Program-Unique Specifications Format and Content

2.2 Project Documents

SRS-006: System Documents - System/Subsystem Specification (SSS) - Interface Requirements Specification (IRS) - Software Design Document (SDD)

3. Requirements

3.1 Functional Requirements

3.1.1 User Interface Functions **SRS-007: User Authentication** - The software **shall** authenticate users using username and password - The software **shall** support multi-factor authentication - The software **shall** lock accounts after 5 failed login attempts - The software **shall** provide password reset functionality

SRS-008: User Authorization - The software **shall** enforce role-based access control - The software **shall** restrict access based on user permissions - The software **shall** log all access attempts and actions - The software **shall** provide session management

SRS-009: User Interface - The software **shall** provide a web-based user interface - The software **shall** support responsive design for multiple devices - The software **shall** comply with WCAG 2.1 AA accessibility standards - The software **shall** provide context-sensitive help

3.1.2 Data Management Functions **SRS-010: Data Input** - The software **shall** accept data input through web forms - The software **shall** validate all input data - The software **shall** provide error messages for invalid input - The software **shall** support file upload functionality

SRS-011: Data Processing - The software **shall** process data according to business rules - The software **shall** perform data calculations and transformations - The software **shall** handle data errors gracefully - The software **shall** support batch processing operations

SRS-012: Data Output - The software **shall** generate reports in multiple formats (PDF, Excel, CSV) - The software **shall** provide real-time data display - The software **shall** support data export functionality - The software **shall** generate system notifications

3.1.3 Communication Functions **SRS-013: Internal Communication** - The software **shall** communicate with database systems - The software **shall** support inter-process communication - The software **shall** handle communication failures gracefully - The software **shall** implement message queuing

SRS-014: External Communication - The software **shall** provide RESTful API endpoints - The software **shall** support email notifications - The software **shall** integrate with external systems - The software **shall** implement secure communication protocols

3.2 External Interface Requirements

3.2.1 User Interfaces **SRS-015: Web Interface** - **Interface ID**: WEB-UI-001 - **Interface Type**: Web-based user interface - **Interfacing Entity**: End users - **Interface Characteristics**: HTML5, CSS3, JavaScript, responsive design

SRS-016: Mobile Interface - **Interface ID**: MOBILE-UI-001 - **Interface Type**: Mobile-responsive web interface - **Interfacing Entity**: Mobile device users - **Interface Characteristics**: Touch-friendly, responsive design

3.2.2 Hardware Interfaces **SRS-017: Server Hardware** - **Interface ID**: HW-SERVER-001 - **Interface Type**: Server hardware interface - **Interfacing Entity**: Server hardware - **Interface Characteristics**: Standard server hardware interfaces

3.2.3 Software Interfaces **SRS-018: Database Interface** - **Interface ID**: DB-INT-001 - **Interface Type**: Database connection interface - **Interfacing Entity**: Database management system - **Interface Characteristics**: SQL, connection pooling, transaction management

SRS-019: API Interface - **Interface ID**: API-INT-001 - **Interface Type**: RESTful API interface - **Interfacing Entity**: External systems - **Interface Characteristics**: JSON format, HTTP/HTTPS, authentication

3.3 Performance Requirements

SRS-020: Response Time - The software **shall** respond to user requests within 3 seconds - The software **shall** process database queries within 1 second - The software **shall** generate reports within 30 seconds - The software **shall** handle concurrent user sessions

SRS-021: Throughput - The software **shall** support 1000 concurrent users - The software **shall** process 1000 transactions per minute - The software **shall** handle 100 MB file uploads - The software **shall** support 10,000 database records

SRS-022: Resource Utilization - The software **shall** use no more than 80% of available CPU - The software **shall** use no more than 70% of available memory - The software **shall** use no more than 60% of available disk space - The software **shall** maintain performance under load

3.4 Design Constraints

SRS-023: Architecture Constraints - The software **shall** follow microservices architecture - The software **shall** use containerization technology - The software **shall** implement cloud-native design principles - The software **shall** support horizontal scaling

SRS-024: Technology Constraints - The software **shall** be developed using [specified programming language] - The software **shall** use [specified framework] - The software **shall** run on [specified operating system] - The software **shall** use [specified database system]

SRS-025: Standards Constraints - The software **shall** comply with coding standards - The software **shall** follow security best practices - The software **shall** implement error handling standards - The software **shall** use standard data formats

3.5 Software System Attributes

3.5.1 Reliability **SRS-026: Fault Tolerance** - The software **shall** handle system failures gracefully - The software **shall** implement automatic error recovery - The software **shall** provide data backup and recovery - The software **shall** maintain data integrity

SRS-027: Availability - The software **shall** achieve 99.9% uptime - The software **shall** support 24/7 operation - The software **shall** provide maintenance windows - The software **shall** implement failover mechanisms

3.5.2 Security **SRS-028: Access Control** - The software **shall** implement secure authentication - The software **shall** enforce authorization policies - The software **shall** encrypt sensitive data - The software **shall** log security events

SRS-029: Data Protection - The software **shall** protect data in transit and at rest - The software **shall** implement data backup procedures - The software **shall** support data recovery - The software **shall** comply with privacy regulations

3.5.3 Maintainability **SRS-030: Modularity** - The software **shall** use modular design principles - The software **shall** support component replacement - The software **shall** provide configuration management - The software **shall** support version control

SRS-031: Documentation - The software **shall** include comprehensive documentation - The software **shall** provide API documentation - The software **shall** include user manuals - The software **shall** maintain design documentation

3.5.4 Portability **SRS-032: Platform Independence** - The software **shall** run on multiple operating systems - The software **shall** support different database systems - The software **shall** work with various web browsers - The software **shall** support cloud deployment

4. Qualification Provisions

4.1 Qualification Methods

SRS-033: Testing Methods - **Unit Testing**: Individual component testing - **Integration Testing**: Component interaction testing - **System Testing**: End-to-end system testing - **User Acceptance Testing**: User validation testing

4.2 Qualification Requirements

SRS-034: Test Coverage - The software **shall** achieve 90% code coverage - The software **shall** pass all automated tests - The software **shall** complete performance testing - The software **shall** pass security testing

5. Requirements Traceability

5.1 Traceability Matrix

Requirement ID	Parent Requirement	Child Requirements	Status
SRS-001	-	SRS-002, SRS-003, SRS-004	Approved
SRS-007	SRS-002	SRS-008, SRS-009	In Progress
SRS-010	SRS-002	SRS-011, SRS-012	Approved
SRS-026	SRS-002	SRS-027, SRS-028	Approved

5.2 Change Management

SRS-035: Change Control - All requirement changes **shall** be documented in change requests - Changes **shall** be reviewed by technical and business stakeholders - Changes **shall** be tested before implementation - Changes **shall** be communicated to all stakeholders

6. Notes

6.1 Acronyms and Abbreviations

- **SRS**: Software Requirements Specification
- **API**: Application Programming Interface
- **CSS**: Cascading Style Sheets
- **HTML**: HyperText Markup Language
- **JSON**: JavaScript Object Notation
- **REST**: Representational State Transfer
- **SQL**: Structured Query Language
- **WCAG**: Web Content Accessibility Guidelines

6.2 Definitions

- **Software**: The computer programs and associated documentation

- **Component**: A modular part of the software
- **Interface**: A boundary between software components
- **Requirement**: A condition or capability that must be met
- **Stakeholder**: Any person or organization affected by the software

6.3 Background Information

This Software Requirements Specification follows MIL-STD-498 guidelines and provides a comprehensive framework for software development. The requirements are structured to support traceability, testing, and validation throughout the development lifecycle.