System/Subsystem Specification (SSS)

Development Team

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# System/Subsystem Specification (SSS)

## 1. Scope

### 1.1 Identification

**SSS-001: System Identification** - The system **shall** be identified by the following information: - **System Name**: [Project Name] System - **System Identifier**: [PROJ-001] - **Version**: 1.0 - **Release**: Initial Release - **Classification**: [Unclassified/Classified Level]

### 1.2 System Overview

**SSS-002: System Purpose** - The system **shall** provide [primary system purpose and functionality] - The system **shall** support [key operational capabilities] - The system **shall** integrate with [existing systems or infrastructure]

**SSS-003: System History** - The system **shall** be developed as a [new system/upgrade to existing system] - The system **shall** replace [legacy system if applicable] - The system **shall** maintain compatibility with [existing interfaces]

**SSS-004: Stakeholder Identification** - **Project Sponsor**: [Organization Name] - **Acquirer**: [Contracting Organization] - **User**: [End User Organization] - **Developer**: [Development Organization] - **Support Agencies**: [Support Organizations]

### 1.3 Document Overview

**SSS-005: Document Purpose** - This document **shall** specify the system requirements for [system name] - This document **shall** serve as the basis for system design and development - This document **shall** support system testing and acceptance

## 2. Referenced Documents

### 2.1 Government Documents

**SSS-006: Military Standards** - MIL-STD-498: Software Development and Documentation - MIL-STD-961E: Defense and Program-Unique Specifications Format and Content

### 2.2 Commercial Standards

**SSS-007: Industry Standards** - IEEE 830: Software Requirements Specification - ISO/IEC 25010: Systems and software Quality Requirements and Evaluation

## 3. Requirements

### 3.1 Required States and Modes

**SSS-008: System States** - The system **shall** operate in the following states: - **Idle State**: System is powered on but not actively processing - **Ready State**: System is prepared to accept and process requests - **Active State**: System is actively processing user requests - **Maintenance State**: System is under maintenance or configuration - **Emergency State**: System is operating under emergency conditions

**SSS-009: System Modes** - The system **shall** support the following operational modes: - **Normal Mode**: Standard operational conditions - **Degraded Mode**: Reduced functionality due to component failure - **Training Mode**: System operation for training purposes - **Backup Mode**: Operation using backup systems or procedures

### 3.2 System Capability Requirements

#### 3.2.1 User Management Capability

**SSS-010: User Registration** - The system **shall** allow new users to register with valid credentials - The system **shall** validate user information before account creation - The system **shall** send confirmation emails upon successful registration

**SSS-011: User Authentication** - The system **shall** authenticate users using secure login procedures - The system **shall** implement multi-factor authentication - The system **shall** lock accounts after multiple failed login attempts

**SSS-012: User Authorization** - The system **shall** enforce role-based access control - The system **shall** restrict access based on user permissions - The system **shall** log all access attempts and actions

#### 3.2.2 Data Management Capability

**SSS-013: Data Storage** - The system **shall** store data in secure, encrypted databases - The system **shall** implement data backup and recovery procedures - The system **shall** maintain data integrity and consistency

**SSS-014: Data Processing** - The system **shall** process data according to business rules - The system **shall** validate data inputs and outputs - The system **shall** handle data errors gracefully

**SSS-015: Data Reporting** - The system **shall** generate standard and custom reports - The system **shall** support data export in multiple formats - The system **shall** provide real-time data analytics

### 3.3 System External Interface Requirements

#### 3.3.1 Interface Identification

**SSS-016: User Interface** - **Interface ID**: UI-001 - **Interface Type**: Web-based user interface - **Interfacing Entity**: End users - **Interface Characteristics**: Responsive design, accessibility compliant

**SSS-017: Database Interface** - **Interface ID**: DB-001 - **Interface Type**: Database connection - **Interfacing Entity**: Database management system - **Interface Characteristics**: Secure, high-performance connection

**SSS-018: API Interface** - **Interface ID**: API-001 - **Interface Type**: RESTful API - **Interfacing Entity**: External systems - **Interface Characteristics**: JSON format, authentication required

### 3.4 Security and Privacy Requirements

**SSS-019: Access Control** - The system **shall** implement role-based access control - The system **shall** enforce least privilege principles - The system **shall** require strong authentication

**SSS-020: Data Protection** - The system **shall** encrypt sensitive data at rest and in transit - The system **shall** implement data anonymization where required - The system **shall** comply with privacy regulations

**SSS-021: Audit and Monitoring** - The system **shall** log all security-relevant events - The system **shall** provide real-time security monitoring - The system **shall** support security incident response

### 3.5 System Quality Factors

**SSS-022: Reliability Requirements** - The system **shall** achieve 99.9% uptime - The system **shall** have mean time between failures of [X] hours - The system **shall** implement automatic error recovery

**SSS-023: Performance Requirements** - The system **shall** respond to user requests within [X] seconds - The system **shall** support [Y] concurrent users - The system **shall** process [Z] transactions per second

**SSS-024: Maintainability Requirements** - The system **shall** support modular design principles - The system **shall** provide comprehensive logging and monitoring - The system **shall** enable easy configuration changes

**SSS-025: Usability Requirements** - The system **shall** be learnable within [X] hours of training - The system **shall** support user productivity goals - The system **shall** provide helpful error messages and guidance

### 3.6 Design and Construction Constraints

**SSS-026: Architecture Constraints** - The system **shall** follow [specified architecture pattern] - The system **shall** use [specified design principles] - The system **shall** implement [specified coding standards]

**SSS-027: Technology Constraints** - The system **shall** use [specified programming languages] - The system **shall** implement [specified frameworks] - The system **shall** comply with [specified standards]

**SSS-028: Physical Constraints** - The system **shall** fit within [specified physical dimensions] - The system **shall** weigh no more than [X] pounds - The system **shall** operate within [specified power requirements]

## 4. Qualification Provisions

### 4.1 Qualification Methods

**SSS-029: Testing Methods** - **Demonstration**: User interface functionality, system integration - **Test**: Performance testing, security testing, load testing - **Analysis**: Code review, architecture analysis, risk assessment - **Inspection**: Documentation review, configuration verification

### 4.2 Qualification Requirements

**SSS-030: Test Coverage** - The system **shall** achieve [X]% code coverage - The system **shall** pass all unit and integration tests - The system **shall** complete system acceptance testing

**SSS-031: Performance Qualification** - The system **shall** meet all performance benchmarks - The system **shall** pass stress and load testing - The system **shall** demonstrate scalability requirements

## 5. Requirements Traceability

### 5.1 Traceability Matrix

| Requirement ID | Parent Requirement | Child Requirements | Status |
| --- | --- | --- | --- |
| SSS-001 | - | SSS-002, SSS-003, SSS-004 | Approved |
| SSS-010 | SSS-002 | SSS-011, SSS-012 | In Progress |
| SSS-013 | SSS-002 | SSS-014, SSS-015 | Approved |
| SSS-019 | SSS-002 | SSS-020, SSS-021 | Approved |

### 5.2 Change Management

**SSS-032: 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

## 6. Notes

### 6.1 Acronyms and Abbreviations

* **SSS**: System/Subsystem Specification
* **API**: Application Programming Interface
* **CPU**: Central Processing Unit
* **GB**: Gigabyte
* **JSON**: JavaScript Object Notation
* **RAM**: Random Access Memory
* **REST**: Representational State Transfer
* **WCAG**: Web Content Accessibility Guidelines

### 6.2 Definitions

* **System**: The complete software and hardware solution
* **Component**: A modular part of the system
* **Interface**: A boundary between system components
* **Requirement**: A condition or capability that must be met
* **Stakeholder**: Any person or organization affected by the system

### 6.3 Background Information

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