# Software Requirements Specification (SRS) Template

**Project:** OTT Streaming Platform

**Version:** 1.0

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**Date:** 03-09-2025

**Status:** Model Answer / Approved

## Revision history

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| --- | --- | --- | --- | --- |
| Version | Date | Author | Change summary | Approval |
| 1.0 | 03-09-2025 | Prof. Anand MS | SRS with diagrams embedded |  |

## Approvals

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| Role | Name | Signature / Email | Date |
| Course Coordinator |  |  |  |

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## 1. Introduction

### 1.1 Purpose

This document specifies the software requirements for an OTT Streaming Platform. It defines functional and non-functional requirements, system interfaces, security objectives, and acceptance tests. The platform enables users to register/login, browse movies/series, watch trailers, and subscribe for premium content.

### 1.2 Scope

The OTT platform provides:

* User authentication and profile management
* Content browsing and search functionality
* Playback of trailers/sample videos
* Subscription management (free vs premium)
* Admin panel for uploading and managing content

Excluded: Real payment gateway integration, DRM, large-scale streaming optimization.

### 1.3 Audience

* Developers (frontend & backend)
* QA Engineers (testing requirements)
* System Administrators (deployment, maintenance)
* Course Evaluators (review project scope & quality)

### 1.4 Definitions

* **OTT** – Over-The-Top streaming service
* **UI** – User Interface
* **API** – Application Programming Interface
* **DBMS** – Database Management System
* **MVP** – Minimum Viable Product

## 2. Overall description

### 2.1 Product Perspective

The OTT platform is a web-based client-server application:

* Frontend (web UI)
* Backend (Flask/Django/Node.js APIs)
* Database (MySQL/PostgreSQL/MongoDB)

### 2.2 Major Product Functions

* Register/login/logout
* Browse/search content
* View movie details & watch trailers
* Subscription handling (Free/Premium)
* Admin can upload/manage movies

### 2.3 User Roles and Characteristics

* **Guest User:** Can only view limited movies/trailers
* **Registered User:** Can log in, maintain profile, view free content
* **Premium User:** Access all movies including premium content
* **Admin:** Upload/manage content and user subscriptions

### 2.4 Operating Environment

* Runs on modern browsers (Chrome, Firefox, Edge)
* Backend: Python Flask/Django or Node.js Express
* Database: MySQL/PostgreSQL or MongoDB

### 2.5 Constraints

* Limited dataset of movies for demonstration
* No actual payment gateway (simulated only)
* Basic security (hashed passwords, HTTPS optional)

## 3. External interface requirements

### 3.1 User Interfaces

* Login/Register Page
* Home Page (grid of movie posters)
* Movie Detail Page (description + video player)
* Admin Panel (upload/manage movies)

### 3.2 Hardware Interfaces

* Runs on PC, laptop, mobile (browser required)

### 3.3 Software Interfaces

* REST APIs between frontend & backend
* Database connections for users/movies

### 3.4 Communications

* HTTP/HTTPS for client-server communication

## 4. System features (detailed)

Each requirement below includes acceptance criteria and a reference test case. IDs follow ATM-F-###.

### 4.1 Authentication

Description: Covers all requirements related to user accounts and authentication. These are foundational requirements for any platform with personalized access.

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| --- | --- | --- | --- | --- | --- | --- |
| Req ID | Requirement | Type | Priority | Source/Stakeholder | Acceptance criteria / Test case ref | Comments / Dependencies |
| OTT-F-001 | The system shall allow new users to register with a unique email and a password. | Functional | High | User | AC-OTT-F-001: A new account is created upon successful submission of a unique email and valid password. Test: TC-Reg-01 | Requires database for user storage. |
| OTT-F-002 | The system shall authenticate registered users using their email and password. | Functional | High | User | AC-OTT-F-002: A valid email and password combination shall lead to a successful login and an authenticated user session. Test: TC-Auth-01 | Requires authentication module. |
| OTT-F-003 | The system shall provide a mechanism for users to reset their password via a registered email. | Functional | Medium | User | AC-OTT-F-003: An email with a password reset link is sent to the user's registered email. Test: TC-PassReset-01 | Requires an email service. |
| OTT-F-004 | The system shall allow logged-in users to view their profile details. | Functional | Medium | User | AC-OTT-F-004: The user's profile page displays their account information correctly. Test: TC-Profile-01 | Requires user data retrieval from the database |

### 4.2 Content browsing and discovery

Description: Focuses on the user-facing features for finding and viewing content.

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| Req ID | Requirement (shall...) | Type | Priority | Source/Stakeholder | Acceptance criteria / Test case ref | Comments / Dependencies |
| OTT-F-005 | The system shall allow logged-in users to update their profile information. | Functional | Low | User | AC-OTT-F-005: User details are successfully updated in the database after form submission. Test: TC-Profile-02 | Requires form validation. |
| OTT-F-006 | The system shall display a list of all available video content. | Functional | High | User | AC-OTT-F-006: The homepage or a dedicated browsing page shows all available video titles and thumbnails. Test: TC-Browse-01 | Requires content database retrieval. |
| OTT-F-007 | The system shall display content categorized by genre (e.g., Action, Comedy) | Functional | High | User | AC-OTT-F-007: Users can filter or browse content by selecting a specific genre. Test: TC-Browse-02 | Requires content metadata |
| OTT-F-008 | The system shall allow users to search for content by its title. | Functional | High | User | AC-OTT-F-008: A search query for a title returns all matching results. Test: TC-Search-01 | Requires search functionality. |

### 4.3 Video Playback

Description: Contains the core functionality for streaming media.

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| Req ID | Requirement (shall...) | Type | Priority | Source/Stakeholder | Acceptance criteria / Test case ref | Comments / Dependencies |
| OTT-F-009 | The system shall allow users to stream a selected video. | Functional | High | User | AC-OTT-F-009: Clicking a video's thumbnail initiates a successful video stream. Test: TC-Stream-01 | Requires video player and streaming service. |
| OTT-F-010 | The video player shall have standard controls such as play, pause, and seek. | Functional | High | User | AC-OTT-F-010: The video player UI displays working controls for playback management. Test: TC-Stream-02 | Dependent on the video player library. |
| OTT-F-011 | The system shall provide a secure login for administrators. | Functional | High | Administrator | AC-OTT-F-011: Only users with admin privileges can access the admin dashboard. Test: TC-AdminAuth-01 | Requires role-based access control. |

### 4.4 Administrative Functions

Description: This group is dedicated to the features for an administrator to manage the platform's content.

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| Req ID | Requirement (shall...) | Type | Priority | Source/Stakeholder | Acceptance criteria / Test case ref | Comments / Dependencies |
| OTT-F-012 | The system shall allow an administrator to add new video content with a title, description, and genre. | Functional | High | Administrator | AC-OTT-F-012: New content is successfully added to the database and appears on the user-facing site. Test: TC-Admin-01 | Requires an admin content form. |
| OTT-F-013 | The system shall allow an administrator to update the details of existing content. | Functional | Medium | Administrator | AC-OTT-F-013: Changes to content details are saved and reflected on the user-facing site. Test: TC-Admin-02 | Requires an edit form and database update function. |
| OTT-F-014 | The system shall allow an administrator to delete content. | Functional | High | Administrator | AC-OTT-F-014: Deleted content no longer appears on the user-facing site. Test: TC-Admin-03 | Requires a delete function and confirmation. |

### 4.5 Content Management

Description: Contains the remaining requirements related to content and admin functions.

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| Req ID | Requirement (shall...) | Type | Priority | Source/Stakeholder | Acceptance criteria / Test case ref | Comments / Dependencies |
| OTT-F-015 | The system shall ensure that only available content is displayed to users. | Functional | High | User/Admin | AC-OTT-F-015: Content marked as "unavailable" by an admin does not appear in search or browsing results. Test: TC-Availability-01 | Requires a status flag for content items. |

## 5. Non-functional requirements (detailed)

NFRs below are measurable and tied to test plans. IDs ATM-NF-###.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Req ID | Requirement | Category | Priority | Acceptance criteria / Measurement |
| OTT-NF-001 | The overall video loading time (from clicking play to playback start) shall be ≤ 5 seconds for 90% of requests under normal network conditions. | Performance | High | 90th percentile of video load times is ≤ 5s in performance testing. Test: TC-Perf-01 |
| OTT-NF-002 | The system shall provide a monthly uptime of 99.9%, excluding scheduled maintenance windows. | Reliability | High | Uptime monitoring reports show ≥ 99.9% availability over a one-month period. Test: Ops reports. |
| OTT-NF-003 | The system shall be intuitive and provide clear navigation, allowing new users to find and start a video within 30 seconds of landing on the homepage. | Usability | Medium | User testing with five new users shows an average time to first playback of ≤ 30 seconds. Test: TC-UX-01 |
| OTT-NF-004 | The system shall handle a minimum of 10 concurrent users streaming content without significant degradation in performance (e.g., buffering). | Scalability | Medium | Load testing demonstrates that 10 concurrent streams maintain a buffering rate of less than 1% of total playback time. Test: TC-Scale-01 |
| OTT-NF-005 | Load testing demonstrates that 10 concurrent streams maintain a buffering rate of less than 1% of total playback time. Test: TC-Scale-01 | Maintainability | Low | A code review confirms that at least 80% of all functions and complex code blocks have clear, descriptive comments. Test: TC-Maint-01 |

## 5.1. Security

## 5.1.1 Security Objectives

* **SO-1: Data Confidentiality**: This objective is to ensure that all user data, especially sensitive information like passwords, is stored securely and is protected from unauthorized access or disclosure.
* **SO-2: Access Control**: This objective is to ensure that access to administrative functions and sensitive system operations is strictly limited to authenticated and authorized administrators only.

## 5.1.2 Security Requirements

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Req ID | Requirement (shall...) | Type | Priority | Acceptance criteria / Test case ref |
| OTT-SR-001 | The system shall use secure **hashing algorithms** (e.g., bcrypt) to store user passwords. | Security | High | Passwords in the database are stored as hashed values, not plaintext. Test: TC-Sec-01 |
| OTT-SR-002 | All communication between the client and server shall be encrypted using **TLS 1.2+**. | Security | High | Network traffic is encrypted and cannot be read by a third party. Test: TC-Sec-02 |
| OTT-SR-003 | The system shall implement a mechanism to prevent **brute-force attacks** on the login page (e.g., locking an account after 5 failed login attempts). | Security | High | After 5 consecutive failed login attempts, the user account is temporarily locked for 15 minutes. Test: TC-Sec-03 |
| OTT-SR-004 | User sessions shall be managed using a secure method like **JWT (JSON Web Tokens)**. | Security | Medium | A valid JWT is required to access any authenticated API endpoint. Test: TC-Sec-04 |
| OTT-SR-005 | The system shall sanitize all user inputs to prevent **SQL injection** and **cross-site scripting (XSS)** attacks. | Security | High | Malicious scripts and SQL queries entered into text fields are rendered harmless or rejected. Test: TC-Sec-05 |

## 6. Quality attributes & Acceptance tests

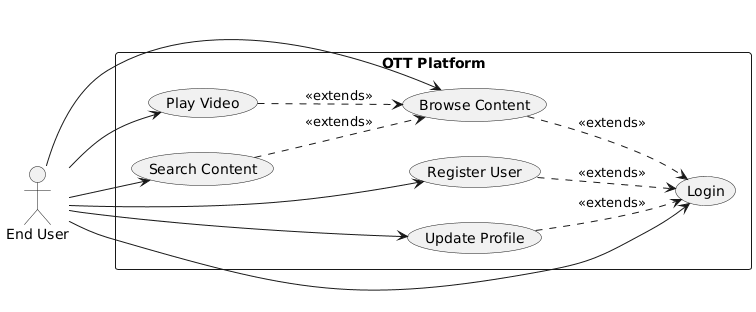
**Exit criteria for acceptance:** All **high-priority functional requirements** are implemented and verified, with no critical failures of non-functional requirements (NFRs). Additionally, the Requirements Traceability Matrix (RTM) must show that all test cases have passed.

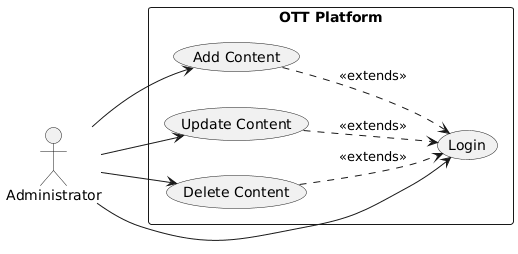
**Acceptance test suites:** The test suites will need to be changed from the ATM's functions to your OTT platform's features. This will include:

* **User Management** (Registration, Login, Profile)
* **Content Browsing** (Search, Filtering)
* **Video Playback**
* **Administrative Functions** (Content Management)
* **Performance**
* **Security**

## 7. System models and diagrams

## 7.1 UML Use-Case diagram





## 8. Requirements Traceability Matrix (RTM)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Req ID | Requirement short | Section ref / Design Spec | Module | Test case(s) | Status (N/P/A) | Comments |
| OTT-F-001 | User Registration | 4.1 / DS-User-01 | AuthModule | TC-Reg-01 | N | Requires email validation. |
| OTT-F-002 | User Login | 4.1 / DS-Auth-01 | AuthModule | TC-Auth-01 | N | Dependent on user data storage. |
| OTT-F-003 | Password Reset | 4.1 / DS-Pass-01 | AuthModule | TC-PassReset-01 | N | Requires email service integration. |
| OTT-F-004 | View Profile | 4.1 / DS-User-02 | UserModule | TC-Profile-01 | N |  |
| OTT-F-005 | Content Browsing | 4.2 / DS-Browse-01 | ContentModule | TC-Browse-01 | N |  |
| OTT-F-006 | Content Categories | 4.2 / DS-Browse-02 | ContentModule | TC-Browse-02 | N | Requires content metadata |
| OTT-F-007 | Search by Title | 4.2 / DS-Search-01 | ContentModule | TC-Search-01 | N |  |
| OTT-F-008 | Update Profile | 4.1 / DS-User-03 | UserModule | TC-Profile-02 | N |  |
| OTT-F-009 | Video Playback | 4.3 / DS-Playback-01 | PlaybackModule | TC-Stream-01 | N | Dependent on streaming service. |
| OTT-F-010 | Playback Controls | 4.3 / DS-Playback-02 | PlaybackModule | TC-Stream-02 | N |  |
| OTT-F-011 | Admin Login | 4.4 / DS-Admin-01 | AdminModule | TC-AdminAuth-01 | N | Requires role-based access |
| OTT-F-012 | Add Content | 4.4 / DS-Admin-02 | AdminModule | TC-Admin-01 | N |  |
| OTT-F-013 | Update Content | 4.4 / DS-Admin-03 | AdminModule | TC-Admin-02 | N |  |
| OTT-F-014 | Delete Content | 4.4 / DS-Admin-04 | AdminModule | TC-Admin-03 | N |  |
| OTT-F-015 | Content Avail. Check | 4.4 / DS-Admin-05 | AdminModule | TC-Availability-01 | N |  |
| OTT-NF-001 | Video Load Time | 5 / DS-Perf-01 | PlaybackModule | TC-Perf-01 | N | Load testing required. |
| OTT-NF-002 | System Uptime | 5 / DS-Ops-01 | Operations | TC-Uptime-01 | N | Requires system monitoring. |
| OTT-NF-003 | Usability | 5 / DS-UX-01 | WebUI | TC-UX-01 | N | User testing required. |
| OTT-NF-004 | Scalability | 5 / DS-Scale-01 | PlaybackModule | TC-Scale-01 | N | Load testing required. |
| OTT-NF-005 | Maintainability | 5 / DS-Maint-01 | All Modules | TC-CodeReview-01 | N | Code review process. |
| OTT-SR-001 | Secure Password Hash | 5.1.2 / DS-Sec-01 | AuthModule | TC-Sec-01 | N |  |
| OTT-SR-002 | TLS 1.2+ for all connections | 5.1.2 / DS-Sec-02 | All Modules | TC-Sec-02 | N |  |