# HOA Management System Security Test Documentation

HOA\_MANAGEMENT\_SEC\_TP\_01

Version: 1.0 Last Updated: November 28, 2024

## Authentication Security Tests

### Test Category: Token Validation

Test ID: HOA-SEC-AUTH-001  
Priority: High  
Components: AuthContext.js, apiService.js

#### 1. Test Overview

* Purpose: Verify JWT token validation and handling
* Security Focus: Token integrity and authentication persistence
* Related Requirements: User authentication and session management

#### 2. Prerequisites

* Environment Setup: Development environment with browser and DevTools
* Test Account: Standard user (Ada.Nolcrest@coldmail.com)
* Tools Required: Chrome DevTools, Browser console

#### 3. Test Procedure

##### A. Valid Token Test

Test Steps:  
1. Log in with test credentials  
2. Locate token in Local Storage  
3. Document original token value  
4. Navigate to protected route (/dashboard)  
  
Expected Results:  
- Token present in Local Storage  
- Successfully access protected route  
- Token format matches JWT structure

##### B. Modified Token Tests

Test Steps:  
1. Copy original token  
2. Perform following modifications:  
 a. Change one character in middle  
 b. Delete last character  
 c. Add extra character  
 d. Replace token with modified version  
3. Refresh page after each modification  
  
Expected Results:  
- Immediate logout on detection  
- Redirect to login page  
- No access to protected routes   
- Error logged in console

### Test Category: Session Security

Test ID: HOA-SEC-AUTH-002

Priority: High

Components: AuthContext.js

#### 

#### 1. Test Overview

* Purpose: Session management and concurrent access validation
* Security Focus: Session integrity and timeout handling
* Related Requirements: Session management security

#### 2. Test Procedure

Test Steps:  
1. Login Testing:  
 - Log in with test account  
 - Verify session token created  
 - Check session timeout settings  
  
2. Session Timeout Testing:  
 - Let session remain idle  
 - Verify timeout behavior  
 - Test re-authentication process  
  
Expected Results:   
- Proper session creation  
- Correct timeout behavior  
- Secure re-authentication

### Test Category: Password Security

Test ID: HOA-SEC-AUTH-003

Priority: High

Components: Login.js, RegistrationModal.js

#### 1. Test Overview

* Purpose: Password security validation
* Security Focus: Password policies and storage
* Related Requirements: Password management

#### 2. Test Procedure

Test Steps:  
1. Password Rules Testing:  
 - Test minimum length  
 - Test complexity requirements   
 - Test password history  
 - Verify hashing implementation  
  
2. Password Change Testing:  
 - Test password update process  
 - Verify old password check  
 - Test password reuse rules  
  
3. Reset Process Testing:  
 - Test reset request flow  
 - Verify reset token security  
 - Test new password validation  
  
Expected Results:  
- Password rules enforced  
- Secure password updates  
- Safe reset process

### Test Category: Access Control

Test ID: HOA-SEC-AUTH-004  
Priority: High

Components: ProtectedRoute.js

#### 1. Test Overview

* Purpose: Route protection validation
* Security Focus: Access control enforcement
* Related Requirements: Role-based access control

#### 2. Test Procedure

Test Steps:  
1. Route Protection Testing:  
 - Test unauthenticated access  
 - Test unauthorized role access   
 - Verify redirect behavior  
 - Test deep link protection  
  
2. Role Validation Testing:   
 - Test board member routes  
 - Test resident routes  
 - Verify permission checks  
  
Expected Results:  
- Protected routes secured  
- Proper role enforcement  
- Correct access control

## 

## Data Security Tests

### Test Category: Input Validation (XSS Prevention)

Test ID: HOA-SEC-DATA-001  
Priority: High

Components: All Forms

#### 1. Test Overview

* Purpose: Cross-site scripting prevention
* Security Focus: Input sanitization
* Related Requirements: Form security

#### 2. Test Procedure

Test Steps:  
1. XSS Testing:  
 - Test script injection  
 - Test HTML injection  
 - Test attribute injection  
 - Test URL parameter injection  
  
2. Form Validation Testing:  
 - Test input sanitization  
 - Test output encoding  
 - Verify error handling  
  
Expected Results:  
- No script execution  
- Proper sanitization  
- Safe error messages

### Test Category: SQL Protection

Test ID: HOA-SEC-DATA-002  
Priority: High

Components: apiService.js

#### 1. Test Overview

* Purpose: SQL injection prevention
* Security Focus: Query security
* Related Requirements: Database security

#### 2. Test Procedure

Test Steps:  
1. Query Injection Testing:  
 - Test basic SQL injection  
 - Test UNION attacks  
 - Test boolean attacks  
 - Test batch queries  
  
2. Parameter Testing:  
 - Test parameter binding  
 - Test escape sequences  
 - Test special characters  
  
Expected Results:  
- No query manipulation  
- Safe parameter handling  
- Proper error responses

### Test Category: File Security

Test ID: HOA-SEC-DATA-003

Priority: High

Components: UploadDocumentModal.js

#### 1. Test Overview

* Purpose: File upload security
* Security Focus: File handling
* Related Requirements: Document security

#### 2. Test Procedure

Test Steps:  
1. Upload Testing:  
 - Test file types  
 - Test file sizes  
 - Test malicious files  
 - Verify storage security  
  
2. Download Testing:  
 - Test access control  
 - Test file paths  
 - Verify download security  
  
Expected Results:  
- Safe file handling  
- Proper validation  
- Secure storage

### Test Category: Data Privacy

Test ID: HOA-SEC-DATA-004

Priority: High

Components: All Components

#### 1. Test Overview

* Purpose: Data privacy validation
* Security Focus: Information protection
* Related Requirements: Privacy compliance

#### 2. Test Procedure

Test Steps:  
1. Data Protection:  
 - Test sensitive data handling  
 - Verify data masking  
 - Test access controls  
   
2. Privacy Controls:  
 - Test consent handling  
 - Test data retention  
 - Verify deletion process  
  
Expected Results:  
- Protected sensitive data  
- Proper privacy controls  
- Secure data lifecycle

## 

## API Security Tests

### Test Category: Request Security

Test ID: HOA-SEC-API-001

Priority: High

Components: apiService.js

#### 1. Test Overview

* Purpose: API request validation
* Security Focus: Request integrity
* Related Requirements: API security

#### 2. Prerequisites

* Environment Setup: Development environment
* Test Account: Standard and admin accounts
* Tools Required: Postman, Browser DevTools

#### 3. Test Procedure

##### A. Request Validation Testing

Test Steps:  
1. Header Validation:  
 - Test missing headers  
 - Test invalid Authorization header  
 - Test malformed headers  
 - Test custom header injection  
  
2. Parameter Validation:  
 - Test parameter tampering  
 - Test invalid parameters  
 - Test oversized parameters  
 - Test special characters  
  
3. Content Validation:  
 - Test invalid content types  
 - Test malformed JSON  
 - Test oversized payloads  
 - Test unexpected fields  
  
Expected Results:  
- Proper header validation  
- Parameter sanitization  
- Content verification  
- Appropriate error responses

### Test Category: Response Security

Test ID: HOA-SEC-API-002

Priority: High

Components: apiService.js

#### 1. Test Overview

* Purpose: API response security
* Security Focus: Response integrity
* Related Requirements: Data security

#### 2. Test Procedure

##### A. Response Testing

Test Steps:  
1. Header Security:  
 - Verify security headers  
 - Test CORS headers  
 - Check content security policy  
 - Validate cache controls  
  
2. Data Security:  
 - Test sensitive data exposure  
 - Verify data masking  
 - Check error responses  
 - Test response structure  
  
3. Status Code Testing:  
 - Test success responses  
 - Test error responses  
 - Verify authorization failures  
 - Check timeout handling  
  
Expected Results:  
- Secure headers present  
- No sensitive data exposed  
- Proper error handling  
- Correct status codes

### Test Category: Error Security

Test ID: HOA-SEC-API-003 Priority: High Components: apiService.js

#### 1. Test Overview

* Purpose: Error handling security
* Security Focus: Error message safety
* Related Requirements: Security information exposure

#### 2. Test Procedure

##### A. Error Handling Tests

Test Steps:  
1. Error Response Testing:  
 - Test validation errors  
 - Test system errors  
 - Test authentication errors  
 - Test authorization errors  
  
2. Message Security:  
 - Verify error message content  
 - Test stack trace exposure  
 - Check sensitive info leakage  
 - Test error logging  
  
3. Recovery Testing:  
 - Test error recovery flows  
 - Verify state consistency  
 - Check cleanup procedures  
 - Test transaction rollback  
  
Expected Results:  
- Safe error messages  
- No sensitive info exposed  
- Proper error logging  
- Clean error recovery

### Test Category: Rate Limiting

Test ID: HOA-SEC-API-004 Priority: High Components: apiService.js

#### 1. Test Overview

* Purpose: Rate limit implementation
* Security Focus: Request throttling
* Related Requirements: DOS prevention

#### 2. Test Procedure

##### A. Rate Limit Testing

Test Steps:  
1. Threshold Testing:  
 - Test rate limit thresholds  
 - Verify limit windows  
 - Test limit reset  
 - Check limit notifications  
  
2. Bypass Testing:  
 - Test multiple IPs  
 - Test distributed requests  
 - Check header spoofing  
 - Test user switching  
  
3. Recovery Testing:  
 - Test limit expiration  
 - Verify limit reset  
 - Check blocking duration  
 - Test unblock process  
  
Expected Results:  
- Proper rate enforcement  
- Bypass prevention  
- Clear limit messaging  
- Correct recovery behavior

## 

## Test Status Matrix

| Test ID | Status | Last Executed | Pass/Fail | Notes |
| --- | --- | --- | --- | --- |
| HOA-SEC-AUTH-001 | Testing Complete | 11/30/2024 | PASS | Auth Token Tests |
| HOA-SEC-AUTH-002 | Testing Complete | 11/30/2024 | PASS | Session Tests |
| HOA-SEC-AUTH-003 | Testing Complete | 11/30/2024 | PASS | Password Tests |
| HOA-SEC-AUTH-004 | Testing Complete | 11/30/2024 | PASS | Access Control |
| HOA-SEC-DATA-001 | Testing Complete | 11/30/2024 | PASS | XSS Tests |
| HOA-SEC-DATA-002 | Testing Complete | 11/30/2024 | PASS | SQL Tests |
| HOA-SEC-DATA-003 | Testing Complete | 11/30/2024 | PASS | File Tests |
| HOA-SEC-DATA-004 | Testing Complete | 11/30/2024 | PASS | Privacy Tests |
| HOA-SEC-API-001 | Testing Complete | 11/30/2024 | PASS | Request Tests |
| HOA-SEC-API-002 | Testing Complete | 11/30/2024 | PASS | Response Tests |
| HOA-SEC-API-003 | Testing Complete | 11/30/2024 | PASS | Error Tests |
| HOA-SEC-API-004 | Testing Complete | 11/30/2024 | PASS | Rate Limit Tests |

## Execution Timeline

* Start Date: November 30, 2024
* Authentication Tests: November 30
* Data Security Tests: November 30
* API Security Tests: November 30
* Documentation & Review: November 30
* Completion Date: November 30, 2024

## Approval Section

| Role | Name | Date | Signature |
| --- | --- | --- | --- |
| Developer/Tester | Justin Pike | \_\_\_\_\_\_\_\_\_\_ | \_\_\_\_\_\_\_\_\_\_ |