

*Tested by Security Innovation Program*



## Web Application Criteria



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## 1.0 Executive Summary

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### *About Security Innovation*

Security Innovation is the leading independent provider of risk analysis, risk mitigation and education services to mid-size and Fortune 500 companies. Global technology vendors and enterprise IT organizations such as IBM, Sony, Microsoft, ING, Symantec, Visa, SAP and GE rely on our expertise to understand the security risks in their software systems and facilitate the software and process change necessary to mitigate them.

The company has developed unparalleled expertise in the most dominant and demanding computing platforms & development environments. This practical experience gained through deep assessment of the world's most robust software applications combined with research on pressing security issues continues to position the company at the apex of the application security market.

### *About the "Tested by Security Innovation" Program*

The "Tested by Security Innovation" Program helps software development companies establish a security baseline for their products and provide their customers with the confidence they need to deploy them. All applications are subject to a battery of tests that assess the integrity of critical security features and focus on key areas such as proper authentication, strong input/output validation, clear separation of roles, restricted data access, etc. Products awarded the "Tested by Security Innovation" logo withstood these rigorous tests conducted by the company's expert security engineers and meet the Program's security requirements for design, process and test coverage.

## 2.0 Tested by Security Innovation – Web Application Criteria - Introduction

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The Tested by Security Innovation Web Application Criteria document describes test criteria that web applications have to meet in order to be issued the Tested by Security Innovation seal.

Unless noted otherwise, the candidate web application must only meet the requirements that appear in this document.

### Scope of Assessment

Our assessment focuses on the immediate application under test and its environment. Items out of scope for this assessment include, but are not limited to, the following:

- ▣ Backend systems
- ▣ Physical security of the <<Customer name>> site, servers, firewall configuration etc.
- ▣ Effectiveness of failover or redundant systems, power protection, etc.
- ▣ Protection from insider threats from employees or others with physical or electronic access
- ▣ Review of internal IT security policy
- ▣ Social engineering, industrial espionage, etc.
- ▣ Review of documentation or requirements for compliance with laws, standards or certification programs

### 3.0 Tested by Security Innovation – Web Application Criteria – Authentication

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SUMMARY: Verify that the authentication mechanism is not subject to attacks aimed at bypassing it.

- A1. User cannot elevate privileges with malformed input
- A2. User identity is verified before resetting/changing a password
- A3. Predefined passwords are unique and require reset
- A4. Only administrators can add, modify or delete user ID's
- A5. Lockouts are enforced with a limited duration
- A6. Strong passwords are enforced
- A7. Password renewal is enforced
- A8. Error pages do not give away usernames
- A9. SSL/TLS is used when transmitting credentials

### 4.0 Tested by Security Innovation – Web Application Criteria – Authorization

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SUMMARY: Verify that the authorization mechanism is not subject to attacks aimed at bypassing it.

- U1. Server-side authorization checks are performed for each server resource that is accessed
- U2. Security decisions are not based on client-side validation

### 5.0 Tested by Security Innovation – Web Application Criteria – Cryptography

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SUMMARY: Verify that cryptography is well implemented.

- C1. Industry standard cryptographic methods are used
- C2. Sufficient key length is used

### 6.0 Tested by Security Innovation – Web Application Criteria – Data Access

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SUMMARY: Verify that strong data access controls are in place.

- D1. Connection strings conform to the least privilege principle
- D2. The application protects data from malicious modification
- D3. The application protects data from being disclosed to unauthorized users

### 7.0 Tested by Security Innovation – Web Application Criteria – Error Handling

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SUMMARY: Verify error messages do not reveal confidential information

- E1. Error messages don't contain internal application details

## 8.0 Tested by Security Innovation – Web Application Criteria – Input and Data Validation

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SUMMARY: Verify Input/Output is validated properly and securely

- I1. All user input is validated for type, length, format and range
- I2. All input is properly encoded before being echoed back to the user
- I3. User supplied filename and path input is filtered
- I4. Client side validation is not relied upon

## 9.0 Tested by Security Innovation – Web Application Criteria– Logging

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SUMMARY: Verify that logging is performed and is not subject to attacks aimed at altering the logging functionality.

- L1. The application restrict users from interacting directly with the logging framework
- L2. The application must be protected against attacks aimed at deceiving the logging framework into attributing actions to other users.
- L3. The application must be protected against attacks aimed at modifying the behavior of the logging functionality via abnormal input.
- L4. The application is protected against Denial of Service attacks performed using repeated actions to fill server log files
- L5. The application logs enough appropriate data to detect and deconstruct an attack against the system
- L6. Logs do not contain sensitive data
- L7. The logging framework is appropriately protected to prevent logs from being stolen or modified

## 10.0 Tested by Security Innovation – Web Application Criteria – Sensitive Data

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SUMMARY: Verify sensitive data is stored and encrypted properly.

- S1. Sensitive data is stored with great care
- S2. Sensitive data is encrypted before being sent on the network

## 11.0 Tested by Security Innovation – Web Application Criteria – Session Management

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SUMMARY: Verify tokens are formatted and sent securely.

- M1. Authentication tokens are transmitted over a secure connection
- M2. Authentication tokens are not predictable