



To succeed in business it is necessary to make others see things as you see them.

Security Testing for Benefits Screening & Management Project

Abstract

Beneficiary can come to know about for what benefits they are eligible through accessing the “Benefits Screening & Management” application and answering the questions on different categories. Beneficiaries were able to post their queries on web site and also search desired results. Application was available with bilingual languages – French and English, which would be helpful for every beneficiary to transfer contents from English to French and vice a versa. The objective of testing was to ensure that “Benefits Screening and Management” online application maintains security and secure details must not be accessed by any unauthorized user. Gateway testing team had successfully created modified, tested and maintained security for different versions of the application. Close loop of communication with client from Gateway team made all the releases successful within dead line.

Client Profile

The client is a provider of “Benefits Screening and Management Application” which enabled the older people, their caretakers and advisers to get familiar with the tools, resources and information required to take decisions on how to apply for benefit and non-benefit programs.

Business Need

Beneficiary can come to know about for what benefits they are eligible through accessing the “Benefits Screening & Management” application and answering the questions on different categories.

After answering all related questions, results were displayed based on the screening process and Beneficiary can be aware about the eligibility of particular benefits. Beneficiary can be able to print a report with the benefit details and associated information.

After submitting relevant answers for benefits, the system provides a unique reference number to the Beneficiary which will help them in future in case of any updation with their details.

Any new updation was informed to Beneficiary via email or through any other communication.

Beneficiaries were able to post their queries on web site and also search desired results.

Application was available with bilingual languages – French and English, which would be helpful for every beneficiary to transfer contents from English to French and vice a versa.

Challenges

The main challenges Gateway faced were:

- Client’s unavailability due to different Time Zones causes delay in getting information about typical requirements/configurations.
- Application was developed using .NET Nuke architecture and this architecture itself handles major vulnerabilities related to SQL Injection, team had to look mainly for very special cases apart from the typical ones as far as SQL Injections are concerned.
- Maintain closer loop of communication between Client and QA team.
- Server related issues at client’s end.
- Explore various tools, download and use them with the intent to find security vulnerabilities.
- Different behavior of same issue on different browsers.
- To write and execute the test cases in such a manner that no single security vulnerability was missed.

Gateway's Solution

The objective of testing was to ensure that "Benefits Screening and Management" online application maintains security and secure details must not be accessed by any unauthorized user.

Gateway was responsible for over all quality assurance (as far as security is concerned) of "Benefits Screening and Management" application which works for public benefits based on different criteria filled up by them in application.

The Testing Team size at Gateway was 3-members comprising of 1 QA Lead, 1 Sr. QA Engineer and 1 QA Engineer.

Gateway Testing team had also created a test plan enlisting the test strategy, security testing types/methodologies (under the current scope), tools to be used during whole security testing exercise and test schedules apart from details covering testing infrastructure and resource needed.

The application had to be tested against different platforms/environments – we had tested different security aspects for different combinations of Windows XP SP 2 and Windows Vista with Internet Explorer 6, Internet Explorer 7, Firefox 2.0, Safari 3.0 and Opera 9.24.

Team had verified different security aspects, few of them are - firewall settings, encryption-decryption algorithms, validations on client/server side, hidden fields/values, session/cookie management, crashes on server and scanned various ports on network.

Benefits

Gateway testing team had successfully created, modified, tested and maintained security for different versions of "Benefits Screening and Management Application" with expected functionalities. Close loop of communication with client from Gateway team made all the releases successful within dead line.

Technology

- .NET Nuke – 04.08.01
- SQL Server 2005
- Windows XP SP 2
- Internet Explorer 6.0/7.0, Firefox 2.0, Safari 3.0 and Opera 9.24
- SharePoint Portal (Bug Tracking)
- Accunetix WVS 5.0
- DoSHTTP 2.0
- Free Port Scanner
- John the Ripper
- Nmap Scanner

Industry

Social Security, Benefits screening management application



To maintain security, application was tested from the hacker's point of view so that application became more secure from unauthorized users/hackers, verified that the data stored in database is in encrypted format.

Test case execution had covered security testing and reported defects/issues as per severity in online issue tracking system – SharePoint Portal.

After resolution of reported issues, testing team had also performed multiple rounds of testing to verify that all the vulnerabilities found so far are really fixed or not.

To get nearly accurate results, security testing was done from the live environment where we were able to access the application using client's Server/IP.

Gateway QA team had also created an elaborative security test report that had covered test steps/methods and described vulnerabilities.

Team had executed following known techniques to test the overall security

- Brute Force
- Broken Access Control
- Broken Authentication and Session Management
- Buffer over flow
- Cookie Testing
- Content Spoofing
- Cross Site Scripting
- CRLF Injection
- Code Execution Method
- Denial of Service Attack
- Dictionary Attack
- Directory Traversal/File Execution Method
- DNS Poisoning
- Hidden Field Manipulation
- HTTP Response Splitting
- Injection Flow
- Information Leakage
- Insufficient Session
- Insecure Storage
- Improper Error Handling
- Java/Ajax Security
- Predictable Resource Location
- SQL Injection
- URL Redirection
- XPath Injection
- XSS Injection



Team had successfully completed the milestones by exploring various security testing tools and got success in finding vulnerabilities using most of the tools.

To maintain overall security of an application, team had followed below mentioned features.

- Documentation of Test Plan and Test Cases covering all the security aspects, worked on it after client's approval.
- Voice chat and use of GoToMeeting with client to understand typical configurations required for different scenarios of security testing.
- Maintain priorities suggested by client.
- Daily Status Reporting to Client at the end of each day covering test cases and time consumption for each testing activity during a day.
- Prepared a consolidated report after completion of whole security testing exercise and submitted to client as a final deliverable.

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Case Study