Test Plan for `ConMan`

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Contents

1 Introduction

1.1 Purpose of the Test Plan Document

The test plan document contains all information about various tests and how to implement various tests. The document's intended audience is the `ConMan` project manager, development team, and testing team.

2   Compatibility Testing

2.1   Test Risks / Issues

Due to the nature of `ConMan`, no risks will manifest during compatibility testing.

2.2   Items to be tested / not tested

All ASP.NET web forms (i.e. files ending in .aspx) shall be tested in both Mozilla Firefox and Google Chrome web browsers. No other web browsers will be used for compatibility testing as `ConMan` is built to work for Firefox and Chrome.

Tests:

- Item to Test: CMP-TEST-1
- Test Description: Test every web page in `ConMan` using Google Chrome
- Test Responsibility: Luis Retana

- Item to Test: CMP-TEST-2
- Test Description: Test every web page in `ConMan` using Mozilla Firefox
- Test Responsibility: Nick Otto

2.3   Test Approach(es)

CMP-TEST-1 and CMP-TEST-2:

- Prior to beginning tests, cookies must be enabled on both Firefox and Chrome to allow `ConMan` to function properly.

  Both tests must be performed at the same time and at the same location. The people responsible for each test shall perform the tests on computers that are next to each other. Also, both tests must be testing the same page at any given time. For example, if the people responsible for CMP-TEST-1 are testing the TeamPage.aspx web page in Chrome, the people responsible for CMP-TEST-2 should test TeampPage.aspx in Firefox.

  These approaches will aid testers in detecting discrepancies between the Firefox and Chrome representations of `ConMan`

2.4   Test Pass / Fail Criteria

CMP-TEST-1 and CMP-TEST-2:

- Both Firefox and Chrome browsers must display all user interface elements in accordance to how they are depicted in the Visual Studio Web Form Designer. This also means that there should be no differences in how the user interface is displayed in the two web browsers.

- All of the web pages' functions (e.g., creating a new user, updating a team, etc.) must function correctly.

- Intra-site navigation must correctly navigate to the desired screen.

2.5   Test Entry / Exit Criteria

Testing shall commence with every major and minor release of `ConMan`. Testing will cease when all pages are tested within Chrome and Firefox.

2.6   Test Deliverables

A report shall be delivered stating whether the tests passed or failed. If tests failed, a SCR (Software Change Request) shall be created to allow the development team to correct the issues. In addition, the report should include a list of any SCRs generated for tests.

2.7   Test Suspension / Resumption Criteria

Testing must be suspended if it is determined that the web browsers or computers used in testing are not functioning properly. Testing can resume once the web browsers and computers are determined to be fit for testing.

2.8   Test Environmental / Staffing / Training Needs

These tests require computers with Firefox and Chrome installed. These computers must have access to `ConMan` on the local machine or on a test server. People responsible for carrying out the tests must have knowledge of the user interface requirements and the functionality that must be supported for each web page.

3 Performance and Load Testing

3.1 Test Risks / Issues

Due to the nature of `ConMan`, no risks will manifest during performance and load testing. One issue is concerned with how to test the performance of `ConMan` under an average load (e.g., 30 simultaneous users) with a small development and testing team. To resolve this issue, performance and load testing will utilize "outside" participants (i.e., people that are not affiliated with the `ConMan` team) who will be instructed on how to carry out the tests.

The performance and load test will not be completed for the initial release of `ConMan` since the initial release only runs on a local-development machine.

3.2 Items to be Tested / Not Tested

Each page that performs queries and transactions with the `ConMan` database shall be tested.

Tests:

- Item to Test: PL-TEST-1

- Test Description: Test each database function while that same function is being executed by all other testers. Ensure the database action's total elapsed time is five seconds or less.

- Test Responsibility: Group of 30 "outside" testers

- Item to Test: PL-TEST-2

- Test Description: Test each database function while that same function is being executed by all other testers. Ensure the database action yields the expected results.

- Test Responsibility: Group of 30 "outside" testers

3.3 Test Approach(s)

PL-TEST-1 and PL-TEST-2:

- Prior to testing, the testing team must gather 30 "outside" participants and teach them how to perform tests and how to judge whether `ConMan` passes or fails. During testing, a coordinator must instruct the testers to attempt to perform a specific action that requires communication with the `ConMan` database. Total elapsed time and result accuracy for each database action shall be recorded so that `ConMan`'s performance under expected user load can be judged as passing or failing.

3.4   Test Pass / Fail Criteria

PL-TEST-1:

- All database queries and transactions must have a total elapsed time of five seconds or less.

PL-TEST-2:

- All database queries and transactions must produce the expected results. For example, querying the database for all of a user's tasks should return all tasks assigned to the user and no tasks that are not assigned to the user.

3.5   Test Entry / Exit Criteria

Testing shall begin with every major change to the database schema and/or to database SELECT, INSERT, DELETE, and UPDATE commands. Testing finishes once all database actions have been tested.

3.6   Test Deliverables

A report shall be delivered stating whether the tests passed or failed. The report must also include information about which database action(s) failed and why it failed (e.g., query or transaction results were incorrect or total elapsed time was too long. If tests failed, a SCR (Software Change Request) shall be created to allow the development team to correct the issues. In addition, the report should include a list of any SCRs generated for tests.

3.7   Test Suspension / Resumption Criteria

Testing must be suspended if 30 "outside" testers are not available throughout the testing. Once a total of 30 testers are grouped together, testing may resume.

3.8   Test Environmental / Staffing / Training Needs

These tests require computers with Firefox and Chrome installed. These computers must have access to ConMan on the local machine or on a test server. People responsible for carrying out the tests must have knowledge of how to record that total elapsed time of a database action and how to judge whether or not the results of that action are correct or not.

4 Stress Testing

Currently we only support a single user of the `ConMan` application at any given time, since the web-server is provided by a local-development machine. For this reason, stress testing will not be conducted as part of the initial `ConMan` testing plan.

Future releases of `ConMan` will be deployed on an ASP.NET test server. At that time a more thorough stress test plan will be developed to ensure `ConMan` can handle multiple concurrent users. The new plan will include the same tests as in section 3, Performance and Load Testing. Stress testing will be achieved by ensure the system behaves properly with up to 1000 concurrent users.

5 System Testing

There is no need for system testing as `ConMan` is developed on top of the .NET framework and web browsers.

6 Conformance and Functional Testing

6.1 Test Risks / Issues

No risks or issues are associated with the execution of the functional tests.

6.2 Items to be Tested / Not Tested

The following items will be tested:

- Item to Test: FUN-TST1
- Test Description: Account creation
- Test Responsibility: Chris Yip

- Item to Test: FUN-TST2
- Test Description: Account login
- Test Responsibility: Chris Yip

- Item to Test: FUN-TST3
- Test Description: Team creation
- Test Responsibility: Chris Yip

- Item to Test: FUN-TST4
- Test Description: Add team members
- Test Responsibility: Chris Yip

- Item to Test: FUN-TST5
- Test Description: Add tasks
- Test Responsibility: Chris Yip

6.3 Test Approach(s)

For each of the test cases, a variety of correct and incorrect inputs will be given to ensure the system correctly handles those cases.

6.4 Testing Cases and Expected Results

6.4.1 Account Creation

Motivation: A user decides that `ConMan` sounds really cool and decides to give it a try. Unfortunately this user has difficulty typing. After navigating to the account creation page, the user tries to create an account.

Potential cases:

1. E-mail field is incorrectly entered.

   - Input: An invalid e-mail (a description of a valid e-mail will be determined later).
   - Output: An error message will be displayed to the user prompting them to enter a valid e-mail address.

2. Account creation fields are left blank.

   - Input: Any of the fields for first name, last name, e-mail, or password are left blank.
   - Output: An error message appears prompting the user to populate all of the fields.

3. An e-mail already in use has been entered.

   - Input: An e-mail already in the `ConMan` database.
   - Output: An error message prompting the user to either enter a different e-mail or log onto existing account.

4. All fields are correctly entered.

   - Input: A unique and correctly formatted e-mail address, and all other fields are populated.
   - Output: A user account is created and user re-directed to the `ConMan` home page.

6.4.2 Account Login

Motivation A returning user is trying to log in to her `ConMan` account.

Potential cases:

1. E-mail field is incorrectly entered.

   - Input: An improperly formatted e-mail.
   - Output: An error message prompts the user to check the formatting of her e-mail address.

2. E-mail is not contained in the `ConMan` database.

   - Input: A correctly formatted e-mail that is not associated with a user account.
   - Output: An error message that prompts the user that her information could not be validated.

3. The password and e-mail combination do not match.

   - Input: A correctly formatted e-mail that is not associated with the given password.
   - Output: An error message that prompts the user that her information could not be validated.

4. The password or e-mail fields are left blank.

   - Input: Either password or e-mail fields are left blank.
   - Output: An error message that prompts the user to fill all fields.

5. The password and e-mail combination are valid.

   - Input: A correctly formatted e-mail that miraculously matches the associated password entered by the user.
   - Output: A user account is created and user re-directed to the `ConMan` home page.

6.4.3 Create a new team

Motivation User Alice would like to create a new team, the "Task-buster Trio." She has two friends who make up the trio, user B and user C.

Potential cases:

1. Team e-mail field is incorrectly entered.

   - Input: An improperly formatted e-mail.
   - Output: An error message prompts Alice to check the formatting of her e-mail address.

2. The password or e-mail fields are left blank.

   - Input: Either password or e-mail fields are left blank.
   - Output: An error message that prompts the user to fill all fields.

3. The e-mail field is valid and all other entries are included.

   - Input: A correctly formatted e-mail and all other fields are entered. The given password and e-mail for the Task-buster Trio does not need to be the same as the e-mail or password combo for Alice.
   - Output: A new team is created and Alice is automatically added as the administrator. Alice can now switch between her team and personal contexts within the application.

6.4.4 Add team members

Motivation Now that Alice has created the "Task-buster Trio," she would like to add her two friends, Bob and Charlie

Potential cases:

1. E-mail field is incorrectly entered.

   - Input: An improperly formatted e-mail.
   - Output: An error message prompts Alice to check the formatting of the e-mail address.

2. The e-mail field is valid but no user with that e-mail is associated with a `ConMan` account.

   - Input: A correctly formatted e-mail with no corresponding account.
   - Output: An error message appears indicating that the e-mail is not found within the database.

3. The e-mail field is valid and all other entries are included.

   - Input: A correctly formatted e-mail and all other fields are entered.
   - Output: The users associated with the e-mail addresses (Bob and Charlie in this case) are added to the team member list.
     Bob and Charlie can now see the "Task-buster Trio" context within their `ConMan` accounts.

6.4.5   Add tasks

Motivation Alice cannot remember what she was supposed to do, except that she must add a task to her `ConMan` account. She opens the `ConMan` application and tries to add a task named "placeholder."

Potential cases:

1. Alice is in her basic context when she clicks "add task."

   (a) Alice leaves a required field blank.
       - Input: An task-creation entry with a blank required field.
       - Output: An error message prompts Alice to include all required fields.
   (b) The date manually entered by Alice was for some point in the past.
       - Input: A task creation request with an already expired due date.
       - Output: An error message appears telling her to pick a future date.
   (c) The e-mail field is valid and all other entries are included.
       - Input: A correctly formatted e-mail and all other fields are entered.
       - Output: A task that is only visible to Alice is created.

2. Alice is in her "Task-buster Trio" context when she clicks "add task."

   (a) Alice leaves a required field blank.
       - Input: An task-creation entry with a blank required field.
       - Output: An error message prompts Alice to include all required fields.
   (b) The date manually entered by Alice was for some point in the past.
       - Input: A task creation request with an already expired due date.
       - Output: An error message appears telling her to pick a future date.
   (c) The e-mail field is valid and all other entries are included.
       - Input: A correctly formatted e-mail and all other fields are entered.
       - Output: A task that is visible and editable to the Task-buster Trio members is created.

6.5 Test Pass / Fail Criteria

The test will pass only if correctly formatted inputs are given. All other cases will display an error message to the user. The tests will fail if incorrect inputs are accepted by the system, or no error message is displayed.

6.6 Test Deliverables

A report shall be delivered stating whether the tests passed or failed. If tests failed, a SCR (Software Change Request) shall be created to allow the development team to correct the issues. In addition, the report should include a list of any SCRs generated for failed tests.

7   Security Testing

7.1   Test Risks / Issues

No risks or issues are associated with the execution of the security tests.

7.2   Items to be Tested / Not Tested

Each action that a user can perform in `ConMan` must be tested.

Tests:

- Item to Test: SEC-TEST-1
- Test Description: Attempt to access any page in `ConMan` without being signed-in
- Test Responsibility: Angel DeCastro

- Item to Test: SEC-TEST-2
- Test Description: Attempt to access any page in `ConMan` when signed-in
- Test Responsibility: Angel DeCastro

- Item to Test: SEC-TEST-3
- Test Description: Attempt to update or delete a team of which the user is not the administrator
- Test Responsibility: Chris Yip

- Item to Test: SEC-TEST-3
- Test Description: Attempt to create, update or delete a task associate with a team that the user does not have administrator privileges.
- Test Responsibility: Chris Yip

- Item to Test: SEC-TEST-4
- Test Description: Attempt to assign/unassign users from tasks associated a team that the user does not have administrator privileges.
- Test Responsibility: Luis Retana

- Item to Test: SEC-TEST-5
- Test Description: Attempt to create notes for tasks that the user does not have administrator rights
- Test Responsibility: Luis Retana

7.3 Test Approach(s)

For all tests, ensure cookies are enabled on the web browser used which must be either Firefox or Chrome.

SEC-TEST-1:

- Do not sign-in into `ConMan`. Attempt to navigate to every page within `ConMan` and record whether web application instead redirects the client to the `ConMan` sign-in/registration page or allows the client to navigate to the desired web page.

SEC-TEST-2:

- Sign-in into `ConMan`. Attempt to navigate to every page within `ConMan` and record whether web application allows the client to access the desired web page or not.

SEC-TEST-3, SEC-TEST-4, and SEC-TEST-5:

- Sign-in into `ConMan`. Navigate to the web page within `ConMan` that performs the action described in the test description. Record whether or not `ConMan` allows the action to be performed.

7.4 Test Pass / Fail Criteria

SEC-TEST-1:

- A client that is not signed-in should not be given access to any webpage in `ConMan`. Only the sign-in/registration page should be accessible.

  SEC-TEST-2:

- A client that is signed-in should be given access to any webpage in `ConMan`.

  SEC-TEST-3, SEC-TEST-4, and SEC-TEST-5:

- `ConMan` should not allow the user to perform the actions depicted in the test description if the user does not have the necessary administrator privileges. in `ConMan`.

7.5 Test Entry / Exit Criteria

Tests shall begin with every major and minor release of the systems. Security testing will also need to be used when user-authentication methods of been modified and/or when the user permissions model changes. Testing should terminate when each security test has been completed.

7.6 Test Deliverables

A report shall be delivered stating whether the tests passed or failed. If tests failed, a SCR (Software Change Request) shall be created to allow the development team to correct the issues. In addition, the report should include a list of any SCRs generated for failed tests.

7.7 Test Suspension / Resumption Criteria

There are no factors that would suspend security testing.

7.8 Test Environmental / Staffing / Training Needs

These tests require computers with Firefox and Chrome installed. These computers must have access to ConMan on the local machine or on a test server. People responsible for carrying out the tests must have knowledge of how to log into `ConMan` and how to navigate to and through every web page in `ConMan`.