Revision History

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| --- | --- | --- | --- |
| **Date** | **Version** | **Description** | **Author** |
| 11/03/2014 | 1.0 | Initial version | A. Emre Ünal |
| 12/03/2014 | 1.1 | Add user requirement tests | Erdi Gültekin |
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# Introduction

## Document overview

This document is the software test plan of the TicTacToe game software development project. It contains the description of tests.

## Abbreviations

The TicTacToe game software project: “the game” or “the software”

The TicTacToe game software project’s GitHub repository page: “the repo”

## References

| # | Document Identifier | Document Title |
| --- | --- | --- |
| [R1] | SDPv1.2 | Software Development Plan of the TicTacToe game, version 1.2. |

## Conventions

JUnit test code implementation will follow the standard Java Programming Language code conventions, found on <http://goo.gl/srJN2t>.

# Tests preparations

This section contains tasks and recommendations before executing tests.

## Hardware preparation

The game requires nothing more than a functional machine for the local multiplayer mode testing.

For remote multiplayer mode testing, it is required to have a basic TCP/IP stack (which would require a network card) for 2 localhost instances.

## Software preparation

The client must have Java Runtime Environment v1.7, JUnit v4 and Eclipse v4.2 installed to run the game. To run local multiplayer mode tests, that’s all that is required.

To run remote multiplayer mode tests, a basic TCP/IP stack that supports localhost loop-back is required.

## Other test preparation

None.

## Safety, security and privacy precautions

None.

# Tests descriptions

**User Requirements Tests**

* **T-SRS-REQ-001 :** Verifies that the user can play a local game
* **T-SRS-REQ-002:** Verifies that the user can join a remote TicTacToe game
* **T-SRS-REQ-003:** Verifies that the TicTacToe game can host a network game

**System Requirements**

## Local Tests

Section name may be:

* or category of test xxx
* or some other logic to group tests

Describe each test with the pattern below.

For most of tests, only a subset of fields in the table is used, mark N/A (non applicable) the unused fields.

|  |  |  |
| --- | --- | --- |
| **Test ID** | **Some ID assigned according to the naming chosen convention** |  |
| Test description | A brief description of the test |  |
| Verified Requirement | SRS-REQ-001 | Verification method: I,A,D,T  See the explanations and examples on the next pages |
| Initial conditions | The state of software before test | You may reference a procedure or it may be the result of previous test |
| Tests inputs | Input data from any test tool, input files name and location | You may reference a procedure to use the test tool |
| Data collection actions | Recording and post processing of output data | You may reference a procedure to record data with a test tool |
| Tests outputs | Output data files names and location, logs … | Give unique name out output data files. |
| Assumptions and constraints | If any, may be limited access to a tool, license … |  |
| Expected results and criteria | List here the results of test | And the criteria to evaluate the result |
| **Test procedure** |  |  |
| **Step number** | **Operator actions** | **Expected result and evaluation criteria** |
| 1 | Start foo | Foo is started |

Verification Methods:

* Inspection (I): control or visual verification
  + Control of the physical implementation or the installation of a component. The control verifies that the implementation or the installation of a component is compliant with the requirements of diagrams.
  + Control of the documentation describing a component. The control verifies that the documentation is compliant with the requirements.
* Analysis (A): verification based upon analytical evidences
  + Verification of a functionality, performance or technical solution of a component by analyzing the data collected by tests in real conditions, by simulation of real conditions or by a analysis report.
  + Analysis of test data or of design data is used as appropriate to verify requirements.
  + The verification is based upon analytical evidences obtained by calculations, like modeling, simulation and forecasting.
  + Analysis is used when an acceptable level of confidence cannot be established by other methods or if analysis is the most cost-effective solution.
* Demonstration (D): verification of operational characteristics, without quantitative measurement
  + Verifying a requirement by demonstration implies that the required functionality specified by a requirement is complete.
  + Demonstration is used when quantitative measurement is not required for verification of the requirements
  + Demonstration includes the control of the technical solutions specified by the non-functional requirements.
* Test (T): verification of quantitative characteristics with quantitative measurement
  + Verifying a functionality, performance or technical solution of a component by executing testing scenarios in predefined, controlled and traceable testing conditions.
  + Tests require the use of special equipment, instrumentation, simulation techniques, or the application of established principles and procedures,
  + Data produced during tests is used to evaluate quantitative results and compare them with requirements.

Examples of tests methods:

Inspection:

* Verify that the color of background is blue,
* Verify that the user manual has the CE mark on its cover
* Verify that the PC has 4Gb memory
* Verify that firmware version on electronic card is 1.0.1

Demonstration

* Verify that when the user closes the window, a confirmation message appears
* Verify that the file is saved in the output directory
* Verify that the result is shown
* Verify that if a value is out of range, a warning is displayed

Analysis:

* Verify that the statistical distribution of results of xxx algorithm is a Gaussian with mean=x and stdev=y, when input data are blah blah
* Verify that the linear regression of results of xxx algorithm is a line for which value is 1 on the y-axis, at zero on the x-axis,

Test:

* Verify that a file of 1Gb is processed in less than 3s
* Verify that the response time of the server is 15ms with 20 simultaneous requests

Examples of tests:

Inspection

|  |  |  |
| --- | --- | --- |
| **Test ID** | **T-SRS-REQ-001** |  |
| Test desc. | Verifies that the user can play a local game |  |
| Verif. Req. | SRS-REQ-001, | Demonstration |
| Init. Cond. | TicTacToe game is started and idle |  |
| Tests inputs | N/A |  |
| Data collection | N/A |  |
| Tests outputs | N/A |  |
| Assum & constr | N/A |  |
| Expected results and criteria | Game can be playable in local machine with local players. | If game is be playable, then test is successful. If not, test is failed. |
| **Test procedure** |  |  |
| **Step number** | **Operator actions** | **Expected result and eval crit** |
| 1 | Operator starts local game | Local game is started |
| 2 | Operator plays the local game | Game is playable |
| 3 | Operator finishes the game | Game finishes and result is shown in the game windows |

|  |  |  |
| --- | --- | --- |
| **Test ID** | **T-SRS-REQ-002** |  |
| Test desc. | Verifies that the user can join a remote TicTacToe game |  |
| Verif. Req. | SRS-REQ-002, | Demonstration |
| Init. Cond. | TicTacToe game is started and idle |  |
| Tests inputs | N/A |  |
| Data collection | N/A |  |
| Tests outputs | N/A |  |
| Assum & constr | N/A |  |
| Expected results and criteria | The user can join a game through the network, to play with a remote opponent. | If user can join a game through network and finish the game, test is successful. Otherwise test is failed. |
| **Test procedure** |  |  |
| **Step number** | **Operator actions** | **Expected result and eval crit** |
| 1 | Operator selects a remote game to join | Remote game is started |
| 2 | Operator plays the remote game | The game is playable |
| 3 | Operator finishes the game | Game finishes and result is shown in the game windows. |

|  |  |  |
| --- | --- | --- |
| **Test ID** | **T-SRS-REQ-003** |  |
| Test desc. | Verifies that the TicTacToe game can host a network game |  |
| Verif. Req. | SRS-REQ-003, | Demonstration |
| Init. Cond. | TicTacToe game is started and idle |  |
| Tests inputs | N/A |  |
| Data collection | N/A |  |
| Tests outputs | N/A |  |
| Assum & constr | N/A |  |
| Expected results and criteria | User can host a network game and play with a remote opponent. | If user can host the game and play with opponent, test is successful. Otherwise it is failed. |
| **Test procedure** |  |  |
| **Step number** | **Operator actions** | **Expected result and eval crit** |
| 1 | Operator creates a network game and an opponent connects from a remote computer | Network game is started and opponent is connected |
| 2 | Operator play the game | The game is playable |
| 3 | Operator finishes the game | Game finishes and result is shown in the game windows. |