Abstract

This document contains the performance test plan for modules “Calendars” and “Kids Academy”

Performance Test Plan

Telerik Academy Learning System

Document History and Approvals

1. Revision History

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| --- | --- | --- | --- |
| Revision # | Revision Date | **Description of Change** | **Author** |
| 1.0 | 10 Nov 2014 | Initial version | Team Fig |

1. Plan Approvals

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Contents

[1. Reference Documents 3](#_Toc403663954)

[2. Scope and Objectives 3](#_Toc403663955)

[3. Exclusions 3](#_Toc403663956)

[4. Test Strategy 4](#_Toc403663957)

[5. Test Process 5](#_Toc403663958)

[5.1. Test Deliverables 5](#_Toc403663959)

[5.2. Test Process Workflow 5](#_Toc403663960)

[5.3. Acceptance Criteria 5](#_Toc403663961)

[5.4. Metrics and Reports 6](#_Toc403663962)

[5.5. Schedule 6](#_Toc403663963)

[5.6. Risks and Assumptions 6](#_Toc403663964)

[5.7. Tools 6](#_Toc403663965)

[6. Test Environment Requirements 6](#_Toc403663966)

[6.1. Hardware 6](#_Toc403663967)

[6.2. Software 6](#_Toc403663968)

[7. List of Appendices 6](#_Toc403663969)

[8. Glossary 7](#_Toc403663970)

[APPENDIX 1 /Front-end/ 8](#_Toc403663971)

[APPENDIX 2 /Administration/ 9](#_Toc403663972)

# Reference Documents

|  |  |
| --- | --- |
| **Document Name** | **Details** |
| Test-Plan-Team-Fig.docx | Contains detailed Master Test Plan for all testing activities not related to performance |

# Scope and Objectives

The purpose of this document is to outline the performance testing activities intended for TALS. In general, the purposes of performance testing are:

* Verify TALS meets the performance standards established section 5.3. The following items will be measured for performance:
  + Calendars module
    - Calendar
    - Official holidays
    - Events
    - Rescheduled lectures
  + Kids Academy module
    - Schools
    - School types
    - Kids in schools
    - Contests
    - Entry tests
    - Candidates
    - Documents
  + Kids Academy registration form
  + Kids Teacher module
    - School
    - Kids in school
    - Documents
* Establish a baseline for performance that can be used to measure any changes made to TALS

# Exclusions

This test plan does not cover any functional or accuracy testing of TALS. See reference to the Master Test Plan in Section 1 for details on other types of testing activities.

# Test Strategy

Performance tests will only be executed using known, controlled database, in a secured test environment. TALS will be subject to performance testing by only one testing team at a time. The following test types will be involved:

|  |  |
| --- | --- |
| **Test Type** | **Details** |
| Performance Testing (web test) | A test to verify TALS’s performance is within expected time limits with one VU |
| Load Testing | A test to verify TALS’s performance is within expected time limits under expected number of concurrent VU |
| Endurance Testing | A long-running test to drive a continuous load on the web server for an extended period of time. The main purpose of this type of test is to ensure TALS can sustain acceptable levels of performance over an extended period of time without exhibiting degradation, such as might be caused by a memory leak |
| Stress Testing | A test to verify TALS’s robustness with more than the maximum expected number of administrator VU |
| Spike Testing | Tests will be implemented to verify TALS’s robustness when load is suddenly increased with a very large number of VU |

The following tests are intended to be performed:

1. **Performance web tests**

* A single-user performance test for each test scenario as outlined in Appendix 1 and Appendix 2

1. **Load tests**

Load tests are set up with 15 seconds warm-up, and 100% new users

* A load test for each test scenario in Appendix 2 with 25 administrator VU in the timespan of 10 minutes (starting with 5 VU, and adding 10 more every 10 seconds)
* A load test for each test scenario in Appendix 2 with 50 administrator VU in the timespan of 10 minutes (starting with 10 VU, and adding 10 more every 10 seconds)
* A load test for each test scenario in Appendix 2 with 100 administrator VU in the timespan of 10 minutes (starting with 10 VU, and adding 10 more every 10 seconds)
* A load test consisting of all test scenarios in Appendix 2 with 25 administrator VU in the timespan of 10 minutes (starting with 5 VU, and adding 10 more every 10 seconds)
* A load test consisting of all test scenarios in Appendix 2 with 50 administrator VU in the timespan of 10 minutes (starting with 10 VU, and adding 10 more every 10 seconds)
* A load test consisting of all test scenarios in Appendix 2 with 100 administrator VU in the timespan of 10 minutes (starting with 10 VU, and adding 10 more every 10 seconds)
* A load test with test scenario 1 in Appendix 1 with 100 end VU in the timespan of 10 minutes (starting with 10 VU, and adding 10 more every 10 seconds)
* A load test with test scenario 1 in Appendix 1 with 200 end VU in the timespan of 10 minutes (starting with 10 VU, and adding 10 more every 10 seconds)
* A load test with test scenario 1 in Appendix 1 with 300 end VU in the timespan of 10 minutes (starting with 10 VU, and adding 10 more every 10 seconds)
* A load test with the test scenario 2 in Appendix 1 with 100 end VU in the timespan of 10 minutes (starting with 10 VU, and adding 10 more every 10 seconds)
* A load test with test scenario 2 in Appendix 1 with 200 end VU in the timespan of 10 minutes (starting with 10 VU, and adding 10 more every 10 seconds)
* A load test with test scenario 2 in Appendix 1 with 300 end VU in the timespan of 10 minutes (starting with 10 VU, and adding 10 more every 10 seconds)

1. **Stress tests**

Load tests are set up with 15 seconds warm-up, and 100% new users

* + A stress test consisting of all test scenarios in Appendix 2 with 120 administrator VU evenly distributed between test scenarios in the timespan of 5 min (starting with 10 VU, and adding 10 more every 10 seconds)
* A stress test with the test scenario 2 in Appendix 1 with 350 end VU in the timespan of 10 min (starting with 10 VU, and adding 10 more every 10 seconds)

1. **Endurance tests**

Load tests are set up with 15 seconds warm-up, and 100% new users

* + An endurance test with the test scenario 2 in Appendix 1 with 150 end VU in the timespan of 2 hours (starting with 10 VU, and adding 10 more every 10 seconds)

1. **Spike tests**
   * A spike test with the test scenario 2 in Appendix 1 with 300 end VU in the timespan of 5 minutes (starting with 10 VU, and adding 10 more every 10 seconds until number of VU reaches 100, and then instantly adding 200 more VU)

# Test Process

## Test Deliverables

* Performance Test Plan
* Test scenarios
* Test execution reports
* Test closure report

## Test Process Workflow

1. Test environment identification
2. Performance acceptance criteria identification
3. Test design
4. Test implementation
5. Test execution
6. Results analysis, retesting and reporting

## Acceptance Criteria

* The worst response time must be lower than 3 seconds for front-end pages with up to 300 end VU
* The worst response time must be lower than 1 second for admin pages with up to 100 administrator VU
* The maximum number of acceptable server errors, non HTTP-200 status codes on client requests, will be less than 2% of all client requests

## Metrics

* Average response time
* Worst response time
* HTTP errors

## Schedule

See Schedule section in the Master Test Plan referenced in Reference Documents section

## Risks and Assumptions

|  |  |  |  |
| --- | --- | --- | --- |
| **Risk** | **Prob.** | **Impact** | **Mitigation Plan** |
| ENVIRONMENT  Test environment crash due to concurrent testing done by other teams | Medium | High | Coordination between testing teams about testing schedule. |
| TEST RESULTS  Misleading test results due to unknown concurrent testing done by other teams | Medium | High | Coordination between testing teams about testing schedule. |

## Tools

|  |  |
| --- | --- |
| Activity | Tool |
| Project Management | * Telerik TeamPulse * Microsoft Office |
| Test Management | * Microsoft Test Manager * Microsoft Visual Studio Online |
| Performance Testing | * Microsoft Visual Studio |
| Test Reporting | * Microsoft SQL Server Management Studio * Microsoft Office |

# Test Environment Requirements

The test environment is accessible on the following address: <http://test.telerikacademy.com/>

## Hardware

* Intel (R) Xeon (R) CPU @ 3.10GHz Quad Core
* RAM 8GB
* HDD 100GB

## Software

* Windows Server 2008 R2
* IIS7
* MS SQL Server 2008 R2

# TEST aGENT

## Hardware

* Intel Quad Core i7-4700HQ 2.4GHz
* RAM 8GB
* SSD 240GB

## Software

* Windows 7 Professional
* Microsoft Visual Studio 2013
* Microsoft Office 2013
* Microsoft SQL Express Server 2014

# List of Appendices

* Appendix 1 – Front-end test scenarios
* Appendix 2 – Administration test scenarios

# Glossary

|  |  |
| --- | --- |
| **Abbreviation** | **Meaning** |
| TALS | Telerik Academy Learning System |
| VU | Virtual users |

# APPENDIX 1 /Front-end/

1. **View calendar**

**Module**: Calendars

**User role:** Standard user

**Steps**:

1. Log in
2. Click Calendar
3. Log out
4. **Register user at Kids Academy**

**Module**: Registration form

**Steps**:

1. Navigate to Kids Academy registration form
2. Choose city
3. Register valid user

# APPENDIX 2 /Administration/

1. **View calendar**

**Module**: Calendars

**User role:** Administrator

**Steps**:

1. Log in
2. Click *Administration* link
3. Click *Calendar* link
4. Log out
5. **Create official holiday**

**Module**: Calendars

**User role:** Administrator

**Steps**:

1. Log in
2. Click *Administration* link
3. Click *Official Holidays* link
4. Click *Create Holiday button*
5. Enter date
6. Click *Update* button
7. Log out
8. **Create event**

**Module**: Calendars

**User role:** Administrator

**Steps**:

1. Log in
2. Click *Administration* link
3. Click *Events* link
4. Click *Add Event* button
5. Enter Course/User/Description/Training room/Start date/End date
6. Click *Update* button
7. Log out
8. **Reschedule lecture**

**Module**: Calendars

**User role:** Administrator

**Steps**:

1. Log in
2. Click *Administration* link
3. Click *Rescheduled Lectures* link
4. Click *Reschedule* button
5. Enter Course/Start date/Rescheduled to date/Rescheduled to hall
6. Click *Update* button
7. Log out
8. **View schools**

**Module**: Kids Academy

**User role:** Kids Admin

**Steps**:

1. Log in
2. Click *Administration* link
3. Click *Schools* link
4. Log out
5. **Create new school type**

**Module**: Kids Academy

**User role:** Kids Admin

**Steps**:

1. Log in
2. Click *Administration* link
3. Click *School Types* link
4. Click *Create* button
5. Enter School type ID/Name
6. Click *Update* button
7. Log out
8. **Register kids in schools**

**Module**: Kids Academy

**User role:** Kids Admin

**Steps**:

1. Log in
2. Click *Administration* link
3. Click *Kids In Schools* link
4. Click Register existing user button
5. Enter Username/email/group/parent first name/parent last name/parent email/parent mobile phone
6. Click Add button
7. Log out
8. **Create new contest**

**Module**: Kids Academy

**User role:** Kids Admin

**Steps**:

1. Log in
2. Click *Administration* link
3. Click *Contests* link
4. Click *Add Contest* button
5. Enter BGCoder ID/Contest Name/Is official/Start date/End date/Active until
6. Click *Update* button
7. Log out
8. **Create entry tests**

**Module**: Kids Academy

**User role:** Kids Admin

**Steps**:

1. Log in
2. Click *Administration* link
3. Click *Entry Tests* link
4. Click *Add New Entry Test* button
5. Enter Choose Configuration/Start date/End date/City/Training room/Contestants limit
6. Click *Update* button
7. Log out
8. **View candidates**

**Module**: Kids Academy

**User role:** Kids Admin

**Steps**:

1. Log in
2. Click *Administration* link
3. Click *Candidates* link
4. Log out
5. **Upload document**

**Module**: Kids Academy

**User role:** Kids Admin + Kids Teacher

**Steps**:

1. Log in
2. Click *Administration* link
3. Click *Documents* link
4. Click *Add File* button
5. Enter Choose Kids School/Document type/Document name/Choose file
6. Click *Add* button
7. Log out
8. **Register schools in Kids schools administration**

**Module**: Kids Teacher

**User role:** Kids Teacher

**Steps**:

1. Log in
2. Click *Teacher*  link
3. Click Teacher school link
4. Click Register existing user button
5. Enter Username/email/parent first name/parent last name/parent email/parent mobile phone
6. Click Add button
7. Log out