Capita Children's Services

STATS

Autumn 2014 Release

Test Approach

Version .2

WIP

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This document and subsequent updates will be published on TFS with an updated link.

<http://simstfs/sites/SIMS7/SIMS7/Shared%20Documents/STATS%20Autumn%2014%20Test%20Approach%20v1.2-final.docx>

# Introduction

This Document sets out the System Test Approach and Strategy for the Statutory Returns Project for the delivery of the Capita SIMS Autumn 2014 release / program of work. The purpose of the document is to define the testing which will be considered during the Statutory Returns Testing for the Autumn 2014 release. This document is to be read in conjunction with the Analysis Artefacts linked to each EPIC within this project. See table below for tentative schedule of Autumn 2014 release.

|  |  |  |
| --- | --- | --- |
| **Sprint / Time box** | **Start:** | **End:** |
| **Foundations:** | 2nd June | 5th June |
| Sprint 1 | 6th June | 18th June |
| Sprint 2 | 19th June | 2nd July |
| Sprint 3 | 3rd July | 16th July |
| Sprint 4 | 17th July | 30th July |
| Sprint 5 ?? / Hardening | 31st July | 7th august |
| **Hardening:** | 8th August | 21st August |

# 

# Project Overview

The Statutory Returns Team within Capita Children Services (CSS) are responsible for testing the core modules within SIMS7 which changes are dictated by the Department for Education (DFE). The table below represents the known envisaged changes to the Statutory Returns (STATS) modules, delivery priority, story ID, description, MSCW priority, assigned BA’s and T-shirts estimations.

**NOTE**: SLASC, ISC & ASCIS are all covered within the ISC estimate.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Delivery Priority** | **Program Story ID** | **Description** | **MSCW** | **BA** | **T-Shirts** |
| 1 | 43863 | SCHOOL CENSUS SPRING 2015 | Must | Ruth | Large |
| 1 | 55119 | CTF 14 Autumn 2014 (England, Wales and NI) | Must | Carl | Medium |
| 1 | 55282 | Admissions Changes (Statutory) | Must | Yvonne | Small |
| 2 | 55283 | Course Management Autumn 2014 | Must | Ruth | Small |
| 1 | 55284 | ISB/CBDS Autumn 2014 (England, Wales and NI) | Must | Yvonne | Medium |
| 1 | 55303 | ISC Census 2015 (Members of the Independent Schools Council) | Must | Yvonne | Medium |
| 1 | 55171 | SLASC 2015 (Independent Schools in England) | Must | Yvonne |
| 1 | 55285 | ASCIS | Must | Yvonne |
| 1 | 55286 | PLASC 2015 (Wales) | Must | Jim | Medium |
| 1 | 40570 | School CES Census 2015 (Catholic England and Wales) | Must | Carl | Small |
| 2 | 55302 | CES XML to CSV Converter 2015 (Catholic England and Wales) | Must | Carl | Small |
| 3 | 55287 | School Merge FSM Data (Statutory) | Should | David S | Outstanding |

The primary intent of this document is to record the requirements, expectations and generate enough accurate data about the product/modules that will allow informed release decisions to be made by the project team and stakeholders. Other functions of this document are to inform the test and technical team on schedules, inter-dependencies, entry/exit criteria and associated risks. It is intended that this document will be iterative; growing as our experience and understanding of the modules under test grows. Therefore this document will be reviewed regularly, constantly being updated with feedback from testing the live product/modules.

## Project Methodology

## The STATS team have adopted an Agile/Kanban style of project delivery management, with development planned in an iterative and incremental manner. The lists of features under consideration for this release are “MoSCoW’d” in order to provide priority information. For the STATS Team there is only capacity for ‘Must’ stories.

**Beta Release**

**4 sprints**

**8 weeks**

**Acceptance Criteria**

**T-shirts; Story Maps**

## The current methodology starts with a series of foundation meetings, followed by grooming. The construction phase will be run across four sprints (each lasting two weeks) followed by a hardening phase of 2 weeks. During hardening no new features are developed or delivered and the focus is on P3/4 bug fixing (and associated re-testing) and regression and impact testing. Kindly refer to the entry and exit criteria (section 8 below) for further detail.

## Test Approach

## Grooming sessions are held post to foundations and prior to development and test of each story. This is to aid the common understanding of the requirements and to refine and agree the acceptance criteria. The acceptance criteria form the basis of the test session planning. Testing must not start unless Grooming has been completed and the tester has sufficient knowledge / confidence to write the Session Plan and test the story. Templates for all documents will be agreed upon by the testing team, this will ensure testing efforts are standardised through-out the life of the project and for future projects.

**Test tasks** should be created in Microsoft Team Foundation Server (TFS) before Test Execution of a story begins:

* Test Session Planning
* Test Plan Review
* Test Preparation
* Test Execution- All execution tasks (one per dataset being tested)
* Test Debrief x 2 (1 for tester, 1 for de-briefer)
* Retest – where bugs raised, re-testing required
* Show & Tell x 2

**Session Plans** are created by the testers post grooming. Test scenarios are created based on:

* Acceptance Criteria within stories (from Product Owner)
* Analyst Artefacts within Stories, where applicable (from Product Owner)
* Business Process Model (BPM), where applicable (from Product Owner)
* Impact Assessment Documents (from Dev)
* Exploratory Testing - these can be added during session plan creation or during test execution (from Tester / Dev / BA experience)

Session Plans are reviewed by Developer/BA to ensure correct approach / level of testing is utilised. Before test execution begins, validated code has been reviewed (Code Review) and tested (Unit Test) by Development. In the Kanban methodology this is done by handovers. The test execution task must be updated with documentation and evidence as test execution progresses. Checklists, diagrams, metrics, test scenarios and mind maps are all evidence of testing coverage and must be linked to the tasks in TFS with any supporting screen shots and log files. On completion of development, a handover ceremony will take place between the developer and tester taking the story.

When defects are raised the following tasks are to be added to the bug in TFS

* Rework task (to be assigned to the developer)
* Retest Task – including re-test estimate

NB

* All P1/2 defects need to be closed before a story can move to Debrief / Show & Tell.
* All P3/4 defects need to be triaged by a Product Owner before/during Show & Tell.

Debriefs must be conducted at the end of test execution, and the tasks in TFS updated accordingly. More sessions for review / show and tell maybe required after this debrief has been conducted [On occasion there may be agreement with the project to combine Debrief / Show & Tell. The approach is utilised when it is identified that the resources available for Debrief can add limited value to the process]. The approach is valid under the below conditions:

* Review of the Session Plan completed
* Single point of failure within the test team (tester testing is the only tester with knowledge of that area of the system)
* Product Owner agrees to extend Show & Tell coverage to include a review of the overall testing conducted
* Test Team Manager and Project Manager approve the approach

Once testers are happy that an acceptable level of confidence in the system has been achieved a Show & Tell is scheduled to the product owner and product vision by setting up a meeting. If all parties agree that quality and confidence in the software has been met, Product Owner can sign off / close the story.

# Test Coverage

## In Scope

The coverage planned for the Autumn 2014 release with regards to complete system testing will adopt a risk based testing approach. For STATS, this implies all must requirements will be verified and varied on the available datasets. But priority will be dictated by the points accumulated from the Kanban approach of project delivery. Overall, the key is to improve the quality of SIMS7 STATS modules functionality, especially in areas where development work will be done with possible effects to other areas. Testing will be conducted using structured manual tests run across a variety of supported environments and number of school type/regions. Adopted testing approach will include: Functional, Exploratory & Manual regression testing. The scope covers all features listed in section 3- project overview above.

## Out of Scope

The test team will not perform the following non-functional testing **in this** release,

* Security (including penetration) will not be tested
* Performance will not be tested - unless performance testing of stored procedures is identified
* Stress testing will not be tested

Statutory Returns is primarily driven by school regions and phases. Individual schools upload their data to the government website. It is however not possible to conduct extensive testing within the timescale /resources available. As a result scope of datasets to be tested will be identified within grooming sessions. As it is not possible to test every School Region, Phase and data collected. During grooming key school phases will be identified for testing while other school phase testing will be pushed back into the Hardening phase or out of scoped.

Release Verification Testing (RVT), User Acceptance Testing (UAT), Change Requests (CR’s) and Barriers to Release (BTR’s) are not part of this Test Approach as they fall outside the remit of system testing. Testing will be manual with no plan for Automation for this release.

## Datasets to be used

Masked Datasets will be utilised, where possible. If masked datasets are deemed inappropriate for testing, Training dataset will be utilised. For Autumn ‘14 Release dispensation may be required if there is a requirement to utilise live datasets for Department of Education Northern Ireland (DENI) testing. Below is the current combination of regions / school types available within Live production. International combinations have not been included.

|  |  |  |  |
| --- | --- | --- | --- |
| **School Type** | **England** | **Wales** | **NI** |
| **Nursery** | X | X | X |
| **Primary** | X | X | X |
| **Middle (Primary)** | X |  |  |
| **Middle (Secondary)** | X | X |  |
| **Secondary** | X | X | X |
| **Special** | X | X | X |
| **PRU** | X | X |  |
| **All-Through** | X |  |  |
| **Academies (various)** | X |  |  |

We do not currently have an a full complement of datasets and as such some testing cannot take place. For example, we do not currently have a English PRU, English Middle, any school type with Multiple Timetables.

In addition to the above, within each dataset there will be requirements for specific data to be present. Previously the responsibility of promoting datasets and updating with the relevant data (such as promoting students, inputting attendance codes, admissions etc) was conducted by a team of on-shore testers within the STATS team, who have now left the company. This has left a skills shortage within the team. Specifics of dataset requirements will be finalised during grooming. As it is not possible to test every School Region, Phase and data collected. During grooming key school phases will be identified for testing while other school phase testing will be pushed back into the Hardening phase. As we do not currently have datasets from each of the regions/school types there are, on occasions, conditions that we cannot test. During grooming the possible options regarding datasets will be discussed/agreed, in order to minimise risk.

## Environments to be used

Great effort is being made to improve the test environments to be utilised for this release. The plan is to move all off-shore testers to the use of VMWare on their local desktops. Training as well, as support to the team, will be required with this approach. Although planned for this release it may not be adopted if it proves impossible or difficult to achieve within the planned time-framed. This will leave the team to revert back to their current approach, which is testing SIMS on their local machines.

Below is a table detailing the current (at time of writing) specs of the testers PC.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Description** | **Tester 1** | **Tester 2** | **Tester 3** | **Tester 4** | **Tester 5** |
| **Operating System** | Windows 7 | Windows 7 | Windows 7 | Windows 7 | Windows 7 |
| **DB version** | SQL 2008 R2 | SQL 2008 R2 | SQL 2008 R2 | SQL 2008 R2 | SQL 2008 R2 |
| **Internet Browser** | IE 8 | IE 9 | IE 9 | IE 8 | IE 9 |
| **Version of Office** | MS Office 2007 | MS Office 2010 | MS Office 2010 | MS Office 2007 | MS Office 2010 |
| **VMWare on desktop?** | Yes | No | No | Yes | Yes |

The below table is a list of the VMWare Environments Available.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **O/S** | **Sql 2008** | **Sql 2008 R2** | **Sql 2012** | **Office** | **PDF 9 & above** | **Space ( GB)** | **RAM to Allocate** | **Browser** |
| **Windows 7 - 64 bit** | x | Yes | Yes | 2010 | Yes | 100 | 4 | IE10, Mozilla, Chrome |
| **Windows 8 - 64 Bit** | x | x | yes | 2013 | Yes | 100 | 5 | IE10, Mozilla, Chrome |
| **Windows7 - 32 bit** | yes | yes | x | 2007 | Yes | 100 | 4 | IE9/10, Mozilla, Chrome |  |
| **Windows 7 - 64 bit** | x | Yes | Yes | 2007 | Yes | 100 | 4 | IE10, Mozilla, Chrome |  |
| **Windows 8 - 32 Bit** | x | yes | x | 2007 | Yes | 100 | 5 | IE10, Mozilla, Chrome |  |
| **Windows 8 - 64 Bit** | x | x | yes | 2010 | Yes | 100 | 5 | IE10, Mozilla, Chrome |  |
| **Windows 2008 server** | x | yes | x | 2007 | Yes | 100 | 6 | IE9, Mozilla, Chrome |  |
| **Windows 2008R2 server** | x | x | yes | 2010 | Yes | 100 | 6 | IE10, Mozilla, Chrome |  |
| **Windows 8 - 64 Bit** | x | x | yes | 2013 | Yes | 100 | 5 | IE10, Mozilla, Chrome |  |
|  |  |  |  |  |  |  |  |  |  |

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# RAID

## Risks

Known risks to quality which were identified during Foundations, together with the mitigating actions are presented in the table below. There will also be a high level analysis of risks with regards to testing STATS core modules, this analysis will be based on past experiences from testers, business analyst, software architects and project managers. This will help guide how STATS tests will be prioritized.

| Risk | Impact | Mitigation |
| --- | --- | --- |
| New Test Co-ordinator (on-shore) | Medium- domain knowledge | Off-site training arranged; weekly virtual meetings with off-shore teams; daily interrogation via TFS |
| Developing knowledge by Off-shore Test team | Medium- domain knowledge transfer | Inter-team workshops/grooming on areas of SIMS requiring more understanding |
| Dataset availability | High | As we do not currently have all datasets required for testing all changes for the release. Where there are gaps in the required data test with work with Dev & BA’s to understand the changes in more detail to understand the individual risk of not completing specific testing.  Product Managers will endeavour to source required datasets as required. |
| Late changes from the DfE | High | Late Checking Waver |
| BA’s time for show & tell limited | Medium | Early schedule and bookings for BA time |
| Late scope change/addition | Medium | PM, BA decisions based on impact of risk analysis |

## Assumptions

The following high-level assumptions have been made,

* Impact Assessments relating the changes have been accurately assessed by the Business Analyst and Development teams.
* All issues/defects/bugs identified during the process will be addressed in timely manner by the team members as per the Product Owner's feedback.
* Any risks or issues likely to impact system testing will be managed using the Project Risk Log.
* Any potential changes in scope will be managed using the Change Control Log.
* All projects supporting documentation has been made available on TFS.

## Testing Constraints

Although all efforts will be taken to ensure testing tasks within the sprints are completed timely, there might be failures due to following constraints,

* Escalated issues requiring test/re-test
* Dataset availability – it might not be possible to obtain all the required datasets (Region / School Type combination) from Live.
* Dataset masking process – It has been identified that the masking process invalidates data (such as exams) rendering it invalid for test purposes. Where it is identified that Masked datasets are unsuitable testing will be conducted on training datasets.

# Test Objectives

There are several objectives for system testing:

* To ensure that the listed stories in Release Backlog are delivered without compromising other or existing functionality
* To ensure that no high-risk functionality has been compromised
* To ensure the features delivered are fit for purpose
* To ensure the acceptance criteria are met and cannot be broken
* To ensure sufficient test coverage of school types (not possible to test all) and identify gaps.

The process that the tester must follow is as follows:

* Foundations
* Grooming Acceptance criteria. Testing must not start unless this has been completed and the tester has sufficient knowledge / confidence to test the story. All testers will attend all grooming sessions.
* In line with Kanban testers will pick up the next highest priority story from the Dev Complete queue. The story priorities are determined by business analyst
* Tester will be responsible for the creation/management of their own tasks in TFS.
* Tester must include the story number as the 1st part of the title for an task they create
* Session plans are to be written based on Acceptance criteria and the Impact document (produced by Dev)
* Sessions plans to be reviewed by the developer/BA
* Test and record testing (including bug management)
* Test Debrief
* Show and Tell
* Sign off

## Test Types

In order to achieve these objectives the following types of testing will be carried out:

* Functional Testing using exploratory testing methods
* Manual non-functional testing e.g. usability of new screens
* Regression testing of the new functionality
* Regression testing of impacted areas

# Test Improvements

Leveraging on the gains from Summer 2014 release, the off-shore team have become more matured, experienced and confident with testing SIMS modules. Positive and gradual improvements will also be achieved by the addition of the new test coordinator, who has been discussing with the off-shore and on-shore teams with regards to improvements, alignments and consistency with test efforts and processes. Lessons learnt will also be sourced from the overall STATS team, i.e PM's, BA's, SA's and TM's, as they are more knowledgeable and can advise so that efforts will not be duplicated across tasks and activities.

Application knowledge:

* Self-training during Foundations, based on which work they will pick up.
* Support Net training documents – currently testers are not sourcing Support Net for training docs, as most off-shore testers do not have access. Test management is working to address the access issue.
* Past Stories in TFS

Test environment:

* it has been identified that all the STATS Testers are currently building test environment on the local machines. This is not seen as best practice and should be avoided as it significantly reduces the team’s ability to conduct Technical Roadmap Testing.
* Roll out Lab Manager / VM’s to the testers and provide training.

Test Data / Datasets:

* Discuss during foundations to start the thought process
* Work with release team to devise a training strategy for understanding dataset requirements/limitations.

Regression testing:

* It is envisaged that the Regression Test Approach will feed into the cross training plan from Core to STATS and could also assist with the Automation approach.
* Introduce Regression Spreadsheet
* Look to introduce ‘How To’ guides providing information on how to run and what to check – given that we run the same returns these guides will accompany the Regression Spreadsheet.

Test Documentation:

* Session Plans – to be reviewed with respect to the method of population and how they can be refined to feed into cross training / regression pack.

# Entry and Exit Criteria

## Entry Criteria (for session plan)

The following entry criteria must be met in order to commence Session plan preparation:

* The user story and any supporting documentation provide sufficient detail to allow the preparation of session plans.
* Acceptance criteria are clear and comprehensive, covering the main and alternate scenarios that allow the story to deliver the identified business value.
* Product owner has provided sufficient impact analysis that testing will cover the system and not just the localised change.
* All story information has been groomed and story pointed.

## Entry Criteria (for session execution)

The following entry criteria must be met in order to commence test execution:

* All changes to the module have been coded, reviewed and unit tested
* Test environments are prepared and build applied
* Handover received from the Developer
* Session plan preparation has been done and reviewed by appropriate audience, at a minimum of the developer who has developed the story
* Test data has been sourced and prepared as required
* System impacts have been identified by developer and communicated
* Story meets **development** definition of done

## Exit Criteria (for session execution)

The following exit criteria must be met to exit test execution:

* All acceptance Criteria Met
* Story meets test definition of done
* All P1/2 bugs resolved
* All planned testing completed – where testing cannot be completed the risk of not completing has been assessed/accepted by the project.

## Exit Criteria (construction phase)

The following exit criteria must be met to exit the construction phase:

* All committed stories have achieved their definition of done
* Construction audit has been successfully conducted
* There is a plan for risks and gaps identified in the construction audit to be mitigated.

## Exit Criteria (hardening)

The following exit criteria must be met to exit the hardening phase:

* 100% of planned regression testing has been executed.
* P3 and P4 defects are resolved, or deferred by Product Owner
* An action plan for dealing with any deferred defects has been agreed.
* Test debrief has been conducted and documented
* The End of Test Report has been written and approved.
* Any known issues have been reported to the RVT and UAT teams.

## Test Deliverables

The below mentioned deliverables are required from the test:

* Test Approach (this document)
* Session Plans
* Session Executions/Logs
* Defects List
* Session Debriefs
* End of Test Report
* Regression Test Pack (new for Autumn 14 Release – not yet defined)
* All the deliverable items will be subject to a review process, either peer review or formal inspection.
* All test documentation will be stored in share point.

# Test Management

## Staffing Needs

The staffing levels are determined by Programme in advance of the release. For the Autumn Release there will be 9 testers. If additional test resources are required the Developers / BA’s may be requested to undertake testing to meet the shortfall.

## Training Needs

* Knowledge transfer training conducted during Foundations phase.
* VMWare Training is required - previously all Technical Roadmap testing was conducted by On-Shore testers utilising VMWare. Currently no off-shore STATS testers utilises VMWare and have all identify training is required.
* On-going self-training and familiarisation.

## Tool & Licencing Requirements

* To enhance communication between the onshore and offshore team, we will be using Lync tool to liaise and share information.
* TFS and share point will be used as the repository for all information on this project
* VMWare – this will be new for the Off-Shore Test Team

## Progress

Each tester is expected to monitor their own progress and achievement against the estimates and story points provided and to provide information regarding these according to the project methodology. Testers on the project will update their assigned tasks and record their time in TFS; where necessary extra tasks will be created by the testers to quantify time spent on other work items that will impact their project tasks.

## Metrics

Metrics to be utilised to measure quality of the software are still be devised/agreed. In the interim the STATS team work closely together to ensure quality and identify gaps in testing, before stories are closed. For the Autumn 14 release the Development Team will be developing Impact documents for all stories.

It is hoped that the statistics gathered during the Autumn 14 Release will assist in understanding future direction for the Test Team.

# Defect Management

All defects and issues must be raised and recorded in TFS. The decision on whether a bug needs to be fixed lies with the Product Owner. Severity 1 and Severity 2 bugs must be fixed as per the stories Definition of Done. Severity 3 and Severity 4 bugs may be prioritised for future sprints/hardening or added to the project backlog. All bugs must include the following information:

* Title- brief description [Add “Existing” To the Title if the bug is Existing]
* Description/Menu Route
* Steps to Replicate
* Build found
* Blocked: Y/N
* Screen Shots and Logs attached
* Source
* Severity

# Document Approval

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Title/ Responsibility | Approval Signature | Approval Date |
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| **Steve Gray** | Test Architect |  |  |
| **Mike Robinson** | Solution Architect |  |  |

# Appendix- Best Practise, EPIC & Product Risk’s

**Test Approach for each Area-** **Statutory Returns**

* Changes to the data within the reports (including dates)
* Returns are developed at school type level. Testing therefore needs to cover school types on a risk based approach.
* Some Stat Returns are complex in the development approach. 1 report may serve multiple school types. A change to one school type within a region has the potential to impact all school types within that region.

**Test Data consideration-** General

* Stats return testing requires testing within correct academic year / date. This is to say that all testing will require datasets that have been progressed to the correct date in the future, with all supporting test data being created (i.e. timetables, attendance marks, exclusions, SEN’s, FSM’s etc.)
* Datasets are not available for all schools types with all required data present.
* A mixture of masked datasets and training datasets are utilised to provide as much coverage as possible.

**Masked Data Sets**- The Data Masking process does destroy key data for Returns and as such the data fails validation. Possible option is to use Training dataset. Examples: errors identified when running Attendance Collection report against a masked junior school dataset:

1071 validation rules failed: 840 Errors & 231 queries

Errors / Queries fell within the following categories:

* UPN missing
* Pupil actual year group not a recognised value
* NC Year Actual must be present
* Estab is out of range
* UPN invalid
* Sessions possible must equal the sum of codes ……
* File uploaded with a pupil/s outside of mandatory school age
* Code X has been included for a pupil who is of mandatory school age
* Invalid survey reference date
* Please check: former UPN invalid
* Please check: pupil aged 5 or over shown as part-time
* Please check: sessions Possible is not between 60 – 400

**Data Transfer**

CTF – State maintained Schools

2 schools phase – move students from primary to secondary

England – England

Wales to Wales

England to Wales

Wales to England

NI to NI

ATF – Independent Schools

England to England

**Curriculum –** regression testing / enhancements

Course Manager

Ties in heavily with Census, DENI and PLASC

Putting courses in from 1/2 years and tracking STATS Returns

**Exams Organiser**

Government changes + Product Manager changes

**Pupil Performance** (Assessment)

Predominantly file input changes with minimal development

**Attendance**

Covered in Stats Returns