**TFS Mobile First**

Business Technology Solutions

**Automation Test Strategy and Plan**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Version- 0.1

**AUTOMATION TEST STRATEGY & PLAN APPROVAL**

Signing below indicates that you have read, understand and approve this Automation Test Strategy & Plan.

***Please Note: This section is only for the Automation Test Strategy & Plan Approval.***

**We, the undersigned, have reviewed the information in this Automation Test Strategy & Plan and agree to strategy and plan, as written.**

Table

|  |  |  |
| --- | --- | --- |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **QA Lead** -  Rajeshwari Gonwar | \_\_\_\_\_\_\_\_\_\_  Date | ❑Approve  ❑Conditional Approval – see attached  ❑Do Not Approve |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **Business Systems Analyst** –  *<TBD>* | \_\_\_\_\_\_\_\_\_\_  Date | ❑Approve  ❑Conditional Approval – see attached  ❑Do Not Approve |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **QA CoE**  -  Jim D Sears | \_\_\_\_\_\_\_\_\_\_  Date | ❑Approve  ❑Conditional Approval – see attached  ❑Do Not Approve |

**REVISIONS**

Document change history

Table

| Version | Date | Name | Details |
| --- | --- | --- | --- |
| 0.1 | 11/29/2017 | Mohamed Ibrahim | Initial version |
|  |  |  |  |

# 

# Reference Documents

Table

|  |  |
| --- | --- |
| Document Name | Location |
| **Toyota Automation Strategy** – Detailed explanation on processes surrounding tool selection, process design and benefits of Toyota’s automation framework built by Automation CoE | [http://tfskm.tfs.toyota.com/sites/TFS\_BTS\_QA - Strategy](http://tfskm.tfs.toyota.com/sites/TFS_BTS_QA/QA%20Knowledge%20Base/Forms/AllItems.aspx?RootFolder=%2Fsites%2FTFS%5FBTS%5FQA%2FQA%20Knowledge%20Base%2FQA%20Tools%20Info%20and%20Training%2FToyota%20Automation%20Framework%20%28TAF%29%202%2E0%2FStrategy&FolderCTID=0x012000742D6DDDBDCE324B856126B23339395D&View=%7b392B690B-AFAB-43BB-B2F7-EDAB39D600A3%7d) |
| **TAF Estimation Workbook** – Planning component development and ROI estimation | [http://tfskm.tfs.toyota.com/sites/TFS\_BTS\_QA - Estimation](http://tfskm.tfs.toyota.com/sites/TFS_BTS_QA/QA%20Knowledge%20Base/Forms/AllItems.aspx?RootFolder=%2Fsites%2FTFS%5FBTS%5FQA%2FQA%20Knowledge%20Base%2FQA%20Tools%20Info%20and%20Training%2FToyota%20Automation%20Framework%20%28TAF%29%202%2E0%2FEstimation&FolderCTID=0x012000742D6DDDBDCE324B856126B23339395D&View=%7b392B690B-AFAB-43BB-B2F7-EDAB39D600A3%7d) |
| **TAF Development Standards** – automation scripting standards | [http://tfskm.tfs.toyota.com/sites/TFS\_BTS\_QA - Development Standards](http://tfskm.tfs.toyota.com/sites/TFS_BTS_QA/QA%20Knowledge%20Base/Forms/AllItems.aspx?RootFolder=%2Fsites%2FTFS%5FBTS%5FQA%2FQA%20Knowledge%20Base%2FQA%20Tools%20Info%20and%20Training%2FToyota%20Automation%20Framework%20%28TAF%29%202%2E0%2FDevelopment%20Standards&FolderCTID=0x012000742D6DDDBDCE324B856126B23339395D&View=%7b392B690B-AFAB-43BB-B2F7-EDAB39D600A3%7d) |
| **TAF Data Management** – Utility for building data driven automation | [http://tfskm.tfs.toyota.com/sites/TFS\_BTS\_QA - Data Management](http://tfskm.tfs.toyota.com/sites/TFS_BTS_QA/QA%20Knowledge%20Base/Forms/AllItems.aspx?RootFolder=%2Fsites%2FTFS%5FBTS%5FQA%2FQA%20Knowledge%20Base%2FQA%20Tools%20Info%20and%20Training%2FToyota%20Automation%20Framework%20%28TAF%29%202%2E0%2FData%2FData%20Mgmt&FolderCTID=0x012000742D6DDDBDCE324B856126B23339395D&View=%7b392B690B-AFAB-43BB-B2F7-EDAB39D600A3%7d) |
| **ARTS Swim Lane** – Illustrates collaboration between automation and manual team. | [http://tfskm.tfs.toyota.com/sites/TFS\_BTS\_QA - ARTS Swim Lane](http://tfskm.tfs.toyota.com/sites/TFS_BTS_QA/QA%20Knowledge%20Base/Forms/AllItems.aspx?RootFolder=%2Fsites%2FTFS%5FBTS%5FQA%2FQA%20Knowledge%20Base%2FQA%20Tools%20Info%20and%20Training%2FToyota%20Automation%20Framework%20%28TAF%29%202%2E0%2FStrategy&FolderCTID=0x012000742D6DDDBDCE324B856126B23339395D&View=%7b392B690B-AFAB-43BB-B2F7-EDAB39D600A3%7d) |
|  |  |

Table of Contents

[Reference Documents 2](#_Toc499766169)

[1. Introduction 4](#_Toc499766170)

[1.1 Purpose 4](#_Toc499766171)

[2. Test objective & Scope 5](#_Toc499766172)

[2.1 Testing Approach 5](#_Toc499766173)

[2.2 Testing Scope 6](#_Toc499766174)

[2.2.1. TAF Estimation Tool 6](#_Toc499766175)

[2.2.2. Automation Targets and Productivity 6](#_Toc499766176)

[2.3 Out of Scope 7](#_Toc499766177)

[3. RISK 7](#_Toc499766178)

[3.1 Risk 7](#_Toc499766179)

[4. Resouces 8](#_Toc499766180)

[4.1 People 8](#_Toc499766181)

[4.2 Software 9](#_Toc499766182)

[4.3 Hardware 9](#_Toc499766183)

[4.4 Environment 10](#_Toc499766184)

[4.5 Architecture Definition for Application Under Test (AUT) 10](#_Toc499766185)

[4.6 DATA 11](#_Toc499766186)

[4.7 Schedule 12](#_Toc499766187)

[4.8 Test Execution Strategy and Progress 13](#_Toc499766188)

[5. Appendix 15](#_Toc499766189)

[5.1 Documents Reference 15](#_Toc499766190)

[5.2 TFS QA Tools 15](#_Toc499766191)

[5.3 Glossary of Terms 16](#_Toc499766192)

[6. Approvals 16](#_Toc499766193)

# Introduction

## Purpose

This document defines the automation activities and deliverables for automating test requirements and test cases for project-**“Mobile First”** for the mobile web and desktop web application(s) **TFS and LFS.**

**Important**: Do not modify the red content.

Enter responses into the tables provided. Do not modify font or table columns or rows.

The content of the document is as follows. [Do not modify Topics section]

**Topics** (items to consider when planning automation)

1. Testing Approach
   * High-level description of the project objectives per Statement of Work or Work Order and how they will be delivered
2. Scope
   * Tests that can be automated, cannot be automated and why such as non-system tests
3. Risk
   * Areas of Risk that effect design, development or delivery of automation code or testing
4. Resources
   * People, software, hardware, environment
5. Environment
   * Application environment, QC Domain/Project, access requests, software installs
6. Architecture definition for Application Under Test (AUT)
   * Definition, version, automation limitations, object recognition properties
   * automation proof of concept test case
   * See “Toyota Automation Strategy.docx” for guidance
7. Data
   * Data needs, data access, point of contact, approach, type
8. Schedule
   * MS Project or similar planning tool with timelines for automation code and test case delivery
   * QC Release and Cycle dates
9. Test Execution Strategy
   * Requirements, Test Cases, Test Sets, Environments
10. Reporting
    * Automation development progress report and purpose
11. Defect Management
    * Automated Defect creation and management using TAF and QC
12. Automation exceptions
    * Enhancements to TAF
    * Alternate automation solutions (Why, what, how, risk?, business justification)

# Test objective & Scope

Enter project data & details into provided tables. [Do not modify sections in red]

## Testing Approach

1. Please provide high-level description of the project objectives per Statement of Work or Work Order and how they will be delivered.

**Mobile First** **Website** QA project is an initiative to provide testing services for the Mobile First project, where TFS aims to develop a personalized, fully-responsive website (optimized for Mobile, Tablet and Desktop) with the business objective of increasing the percentage of customers with a highly satisfied website experience.

The testing services will be executed using Agile SDLC in 6 sprints.

Over all 6 sprints planned for this project. Every sprint 50-60% of tests cases executed manually will be automated for the following Modules/functionalities for TFS and LFS applications together.

* Home Page
* About Us
* Contact Us
* Customer protection
* Financing options
* Investor Relations
* PEWS (Payment Estimator Web Services)
* OCA (Online Credit Application)

The automation test cases will be executed on the following target platforms.

**Minimum Browser Support:**

* Internet Explorer 10.x – current
* Mozilla 38 or higher
* Chrome version 41 or higher
* Edge 14

**Mobile OS versions:**

* Android 4.1 (Jelly Bean) to most recent
* iOS 6.x to most recent

**Devices:**

* iPad (latest)
* Galaxy Tab (latest)
* iPhones 5S, 6, 7, 7Plus, 8 and x
* Galaxy S5, S6, S7, Latest version at the time of launch
* Galaxy Note 4, Latest version at the time of launch
* HTC One M8
* Nexus 6P & 5X/Pixel & Pixel XL

**Note: Following latest mobile devices are yet to be added in the perfecto cloud.**

* iPhoneX
* Pixel XL
* Samsung 8
* Galaxy Note 8

## Testing Scope

Scope is defined as what can be accomplished within the project timelines to adequately verify the application under test. Productivity is the daily progress of delivering in scope automated testing. Therefore, productivity is the measure of ***components*** and ***tests*** created daily by each resource. Development delivers code per level of effort (LOE) so automation is measured with Test Cases per day and Components per hour.

### TAF Estimation Tool

1. Attach the file for the Estimation Effort Tool to the Project Share Point. Template is located in SharePoint. See Table 3 “Reference Documents” in this document for the folder link.

| Estimation Model |
| --- |
|  |

1. Please enter the summary details from the workbook’s “Estimation” sheet tab.

| Total Components | Estimation LOE | Resource Count | Hours Per Component |
| --- | --- | --- | --- |
| 8 | 390 | 2 | 25 |

### Automation Targets and Productivity

1. Provide target count for automated test cases developed by day to track progress delivery for actual versus planned. Example: 4 tests / 8 hours worked then that would be 20 tests a week. For resources based work then that number would multiply for each Full Time resource working on the project. Productivity minimum should be 1 test / 8 hours or provide justification.

| Time Worked (Hours/Day/Week) | Project Start Date | Project End Date | Project Work Days | Automated Test Case Count Target  (Bullet b and c Target Count divided by Project Work Days Count) |
| --- | --- | --- | --- | --- |
| 8 hrs. /Day and 5 days/Week | NOV/20/2017 | MAR/31/2018 | 95 | 1.5 test scripts per day for once resources.  Targeted count is 296 test scripts for 2 resources |
| Project minimum Test Count will be 296 or 50% of manually executed tests. Whichever number is higher. | | | | |

New functionality testable Requirements targeted for automation is the “to do” for the automation effort. This is automation is within the release and is not post-release automation. Post-release automation is a separate effort. (See bullet 2)

1. List all the testable requirements or functionality requiring automation. Select Y if they can be automated and N if they cannot be automated. (NOTE: New functionality only)

| Y/N | Requirement | Estimated Test Count | Target Automation Count | Target Automation % |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
| Y | Home Page | 32 | 16 | 50 |
| Y | About Us | 64 | 32 | 50 |
| Y | Contact Us | 16 | 8 | 50 |
| Y | Customer protection | 48 | 24 | 50 |
| Y | Financing options | 32 | 16 | 50 |
| Y | Investor Relations | 48 | 24 | 50 |
| Y | PEWS (Payment Estimator Web Services) | 160 | 80 | 50 |
| Y | OCA (Online Credit Application) | 192 | 96 | 50 |

1. List the application or functionality requiring automation. Select Y if they can be automated and N if they cannot be automated. (NOTE: Existing Test Cases only)

| Y/N | Functionality/Application | Existing Test Count | Target Automation Count | Target Automation % |
| --- | --- | --- | --- | --- |
|  | TOTALS | 592 | 296 | 50 |

## Out of Scope

1. List the requirements, functionality and why they cannot be automated, (list groups of requirements and functionality and NOT individual test cases.

(Repeat as needed)

| Reason why this group of tests can’t be automated | |
| --- | --- |
| Running test scripts in safari browser will be out of scope since we don’t have MAC machine available | |
| Requirement | Functionality |
| Running scripts in safari browser | All the modules |
|  |  |
|  |  |

# RISK

## Risk

1. Areas of risk that can effect design, development or delivery of automation code or testing

| Risk | Summary | Contact Person |
| --- | --- | --- |
| Environment and application down time | Environment and application down time can slow down the automation deliverables. | TFS Website Tech Support Team |
| Selenium Automation Framework | There will be on going changes in Selenium automation framework. Reusable components need to be changed accordingly. | Jim |
| Automation Object identification | TFS & LFS web application does not have unique identifiers (ID, name, Class) for most of the objects, so user has to create custom X-paths or CSS paths most of the time which consume much time. | Jim and TFS Website dev Team. |
| Perfecto Cloud | The Toyota Perfecto Cloud contains devices that are shared so dedicated device access will not always be possible thus tests cannot be executed as often. | Jim |
| Latest mobile devices are not in the perfecto cloud | Following latest mobile devices are yet be added in the perfecto cloud.   * iPhoneX * Pixel XL * Samsung 8 * Galaxy Note 8 | Rajeshwari and Jim |

| Mitigation steps | Summary |
| --- | --- |
| Change in the Functionality | Functional QA Team should take ownership of updating the functional TCs /sharing the needed Knowledge transition to Automation Team, once the regression suite is identified |
| Environment and application down time | TFS Website Tech Support Team will be communicated via mail or IM to make application up and running. |
| Selenium Automation Framework | Whenever the framework change happens, Jim will be coordinating with Hexaware automation team. Jim will be stabilizing selenium framework in one month time. Also Hexaware will be providing input to the framework stabilization. |
| Automation Object identification | Jim will request TFS Website dev Team to develop the application objects with unique identifiers like ID, name, Class etc.… |
| Perfecto Cloud | Devices will be reserved from Perfecto Cloud in advance using the reservation system. Cradles are limited to 10 devices at any given time so reservation is Key to testing on time and on schedule. |

# Resouces

Resources cover people, software and hardware and automation Proof of Concept. The objective of this section is to identify prior to project start the who, why and what so that automation can effectively start on time or if the SOW/Work Order doesn’t allow for this work prior to project start then this document will be important for when the team is allowed to start work on the project.

## People

1. Team members name, experience, role and location

| Resource Name | Experience  (Selenium) | Role  (Tester/Engineer/Lead) | Location (US,INDIA,BRAZIL)/  GMT Time Zone |
| --- | --- | --- | --- |
| Mohamed Ibrahim | 6+ Years | Automation test Architect | USA- PST |
| Palanivel Subbiah | 4+ Years | Automation test engineer | INDIA-IST |

## Software

1. Software required to complete automated testing including automation tools and Application Under Test (AUT), or software such as [HP QC, HP UFT, MySQL ODBC Driver]

| Software Name | Purpose | Where/How to acquire tool or acquire access (IE Sec1) |
| --- | --- | --- |
| Selenium and Perfecto | To Automate the Test cases | Please find the run book here <http://tfskm.tfs.toyota.com/sites/DELIVERY/enterpriseapps/interactive/web/Consumer%20Web%20Application/Mobile%20First/Automation/Automation%20Runbook> |
| MYSQL Workbench | To Maintain the Test Data | Automation CoE |
| HP-ALM  <https://tfsqualitycenter12.tfs.toyota.com/qcbin/start_a.jsp> | Over all test management | SNOW Request under Software Services |
| JIRA  <https://id.atlassian.com/login?continue=https%3A%2F%2Ftfsjira.atlassian.net%2Flogin%3FredirectCount%3D1%26dest-url%3D%252Fprojects%252FCMF%253FselectedItem%253Dcom.atlassian.jira.jira-projects-plugin%253Arelease-page%2526status%253Dunreleased> | Overall Project management for Agile project and defect management | JIRA admin- Phartheeb Tk <phartheeb.tk@toyota.com> |

## Hardware

1. Hardware required to complete automated testing including laptops, VM (Virtual Machine) or VDI (Virtual Desktop), Server(s), memory upgrade, RSA (Security tokens).

| Hardware | Purpose | How to acquire hardware |
| --- | --- | --- |
| Windows7,64 bit with 16 GB RAM, 100 GB hard disk memory | Automation Development | Please find the run book here <http://tfskm.tfs.toyota.com/sites/DELIVERY/enterpriseapps/interactive/web/Consumer%20Web%20Application/Mobile%20First/Automation/Automation%20Runbook> |
|  |  |  |

## Environment

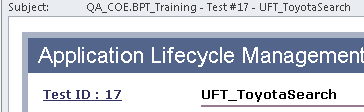
1. Environment access requests for Test environment (AUT) and WEBSITE\_MOBILE/CP2557\_Mobile\_First.

| Resource Name | Experience  Selenium and perfecto | QC Role | Toyota Email |
| --- | --- | --- | --- |
| Mohamed Ibrahim | 6+ Years | Automation test Architect | [Mohamed.AbdulKader@toyota.com](mailto:Mohamed.AbdulKader@toyota.com) |
| Palanivel Subbiah | 4+ Years | Automation test engineer | [palanivel.subbiah@toyota.com](mailto:palanivel.subbiah@toyota.com) |

## Architecture Definition for Application Under Test (AUT)

Architecture Definition contains the technical details to automate an application. The “Toyota Automation Strategy.docx” provides the automation CoE standards and the complete guide to automation at Toyota. Based on that document, please provide the snapshot technical details for automating your AUT.

1. Automated Test Proof of Concept, refer to “Toyota Automation Strategy.docx” for details. Please provide information to the location and execution of the POC test.
2. Insert a hyper link for TestName to the QC test. This Link Example was created by sending the test case via email from QC. From the ALM/QC Test Plan, right click on a test and send via email. See email snippet below. The link that was copied from the email.



testdirector:tfsqualitycenter11.tfs.toyota.com:443/qcbin,QA\_COE,BPT\_Training,[AnyUser];test:17

1. Provide the Test Case details.

| QC Domain | QC Project | Path  (Subject\CoE Automation\TESTS\POC\_AppName | Test Name |
| --- | --- | --- | --- |
| **TBD** | **TBD** |  |  |

1. HP UFT Add-ins like WebKit2.0, Java, etc. FYI-Use as few Add-ins as possible when using HP UFT.

| HP UFT Add-ins (one per line) (Web, Java, etc.) |
| --- |
|  |
|  |
|  |
|  |

1. Please review and identify new “Object Properties” to enable effective object recognition by identifying the default properties that work best for your AUT.
2. **NOTE**: Not all AUT will need to modify the default properties that HP UFT uses for “Object Recognition” so this section may not apply to your project.

| Object Type  (I.E.WebElement) | Default Properties  (I.E Name) | New Properties  (I.E. HTMLID) |
| --- | --- | --- |
|  |  |  |
|  |  |  |

## DATA

Data needs vary by project and identifying data sources ahead of time and how that data is organized influences test automation success.

1. Identify the point of contact (POC) or person(s) that will be the source for your data needs or the repository that will be used to source accurate test data. Please indicate if the source data requires scrubbing if sourced from Production.

| POC | Repository (Source data) | Scrubbing Required |
| --- | --- | --- |
| Rajeshwari Gonwar <rajeshwari.gonwar@toyota.com> | Application test data | NA |

Please identify all the types of data needs that apply to this project by entering Y or N for each data type in the table below. Use one table row for each data source.

1. POC – Point of Contact; person giving or receiving data that is responsible for said data
2. Generate/Consume - the automation tests will generate data for other systems or will consume data from upstream systems or both.
3. Non-destructive ***OR*** Destructive data – test data used by automation will be destructive or non-destructive. Tests executed using destructive test data will not be able to re-run because the data is no longer valid after the test run. Examples include expiring order numbers or limited quantity data. Destructive data has to be regenerated for future test runs.
4. Time sensitive data; Test input data is only available for a short time or was just created within the last 24 hours.
5. Date/time input data; test input data is date specific such as yesterday’s date, day of the week data or data based on a date relative to the date and time the test is run.
6. Output/Input data; output from one process will feed the next process in the SAME test.

| POC | Generate/  Consume/Both | (Non-)  Destructive | Time  Sensitive | Date/Time Input | Output/Input |
| --- | --- | --- | --- | --- | --- |
| Rajeshwari Gonwar <rajeshwari.gonwar@toyota.com> | Y | Y | Y | Y | NA |

## Schedule

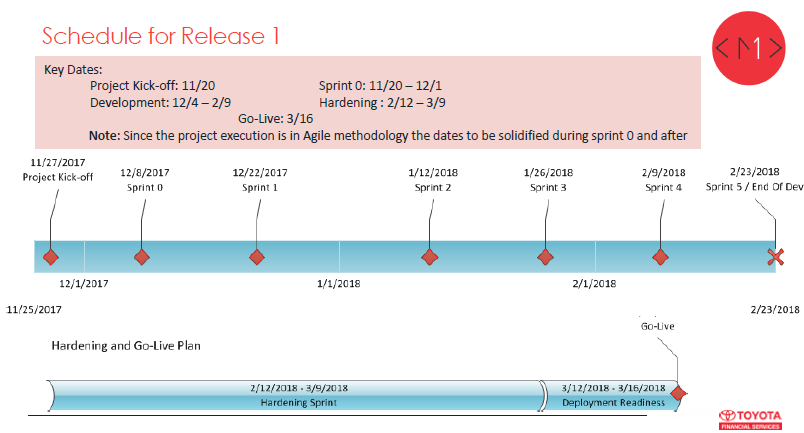
The delivery schedule is important to measure progress and success for Planned versus Actual. The QC Release and Cycle dates will be populated to drive proper reporting for requirement coverage versus test automation for automatic reporting from QC.

1. Optional - A secondary tool is provided to accurately track progress in the form of a MS Project or similar planning tool. Please use hyper link to directly connect file to this document. Please do not use the date/time value in file name so that the link is not severed.

| Tool | Share Drive /SharePoint Location | FileName |
| --- | --- | --- |
| MS-Sharepoint | <https://ishare.tfs.toyota.com/sites/pmo/projects/CP2557/default.aspx?RootFolder=%2Fsites%2Fpmo%2Fprojects%2FCP2557%2FProject%20Documentation%2FSOW%20Deliverables%2FD2%5FDetailed%20Test%20Schedule%28Key%20Deliverable%29&FolderCTID=0x0120008AB77B1F7132974096380B1D7C2B9388&View=%7B0E0DE619%2D83EE%2D41FB%2D9FCF%2D071B5EC5280F%7D> |  |
|  |  |  |

1. Enter HP Release dates and Cycle dates that will be entered into HP ALM/QC Management Module. The Release Start date is before any cycles and the Release End date is after all cycle End dates. Multiple Cycles can be entered by name. Repeat as needed for multiple Cycles.

| HP Domain | HP Project | Cycle Name | Release Start | Cycle Start | Cycle End | Release End |
| --- | --- | --- | --- | --- | --- | --- |
| **TBD** |  |  |  |  |  |  |
| **TBD** |  |  |  |  |  |  |
| **TBD** |  |  |  |  |  |  |
| **TBD** |  |  |  |  |  |  |
| **TBD** |  |  |  |  |  |  |
| **TBD** |  |  |  |  |  |  |
| **TBD** |  |  |  |  |  |  |



## Test Execution Strategy and Progress

Progress is measured and managed from the QA Dashboard, an MS Excel workbook that links directly to HP ALM/QC. The QA Dashboard will track a variety of testing information for manual and automated testing including script reliability (Pass vs. Fail over time), test count, test run duration (performance speed) and defect count to name a few.

1. The HP Management Module Release and Cycle dates will be linked to HP Requirements and Test Sets to support the QA Dashboard monitoring.
2. The QA Dashboard will include weekly reviews of automation components and UFT ACTIONS and associated code changes. Weekly status will be derived automatically based on QC Test Status and Component status as set in QC by the developer or lead. All components will be assigned to track responsibility.
3. Test execution reporting will be based on QA Template Dashboard and not manually created.
4. Daily test execution will demonstrate automated test competency along with Defects generated during execution so progress will be measured by the test results captured in the QA Template Dashboard.
5. Please refer to the file references table for the location of the QA Template Dashboard.
6. Technical peer code review will occur weekly with QA Automation Lead and team for ½ to 1 hour every week.
7. Major milestones such as demos for stakeholders will be conducted per SOW or Work Order to satisfy external or third party interests.

# Appendix

## Documents Reference

Table

| Document Name | Path to document Location |
| --- | --- |
|  |  |

## TFS QA Tools

The Primary sets of testing tools identified for automation as part of this initiative are:

**Selenium**: It is an open source automated testing tool for web applications across different browsers and platforms. It aims to provide a friendly API that's easy to explore and understand, which will help to make your tests easier to read and maintain. It also provides a test domain-specific language to write tests in a number of popular programming languages, including C#, Groovy, Java, Perl, PHP, Python, Ruby and Scala.

**HP ALM Quality Center:**  HP **Quality Center** is a component tool of the **HP Application Lifecycle Management** software solution set. The Quality Center tool serves as TFS central repository for entire roster of test assets. With this test management product project team can document test requirements, build and execute test plans and scenarios (both tests and automated test scripts), and report and track defects, all from one interface.

**JIRA:** The basic use of this tool is to track issues, and bugs related to your software and[Mobile](http://www.guru99.com/mobile-testing.html)apps. It is also used for project management. The JIRA dashboard consists of many useful functions and features which make handling of issues easy.

**Perfecto Mobile Cloud:** Mobile device testing add-in (UFT Mobile by Perfecto) works with the Perfecto Cloud (mobile device handset lab) to test real devices. Devices can be reserved and accessed by any remote user with credentialed access to the Cloud. QA CoE manages devices, access and can contact Perfecto on behalf of users to resolve technical issues. HP UFT scripting with Perfecto add-in (UFT Mobile) is the technology the drives the automated testing with the mobile handset.

## Glossary of Terms

The following is a Glossary of Terms that will be referenced throughout this document, and the definitions of the terms:

Table

Note: Not all acronyms may be used in this document and are here for education.

|  |  |
| --- | --- |
| **TERM/ACRONYM** | **DEFINITION** |
| App Dev | Application Development |
| AUT | Application Under Test |
| Component | A reusable test asset for automated testing or manually testing. |
| DOM | Document Object Model, which is a cross-platform and language- independent convention for representing and interacting with objects in HTML, XHTML and XML documents. |
| ALM QC | HP Application Lifecycle Management Quality Center |
| SME | Subject Matter Expert |
| SQA | Software Quality Analyst |
| Test Case | The test case document contains all of the necessary descriptive details and a detailed list of steps (and the expected results of those steps) required to execute the test manually. |
| Automated Test | A test executed by an automated testing tool instead of manually. |
| TFS | TOYOTA FINANCIAL SERVICES |
| LFS | LEXUS FINANCIAL SERVICES |

# Approvals