For instructions on using this template, please see Notes to Author/Template Instructions on page 22. Notes on accessibility: This template has been tested and is best accessible with JAWS 11.0 or higher. For questions about using this template, please contact [CMS IT Governance](mailto:IT_Governance@cms.hhs.gov) ([IT\_Governance@cms.hhs.gov](mailto:IT_Governance@cms.hhs.gov)). To request changes to the template, please submit an [XLC Process Change Request](https://www.cms.gov/Research-Statistics-Data-and-Systems/CMS-Information-Technology/XLC/Downloads/XLCProcessChangeRequestCR.docx) (CR) (<https://www.cms.gov/Research-Statistics-Data-and-Systems/CMS-Information-Technology/XLC/Downloads/XLCProcessChangeRequestCR.docx>).

The CMS logo resides to the left of the following text:

Centers for Medicare & Medicaid Services
CMS eXpedited Life Cycle (XLC)

<Project Name/Acronym>

# Test Plan

Version X.X

MM/DD/YYYY

Document Number: <document’s configuration item control number>

Contract Number: <current contract number of company maintaining document>

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## Introduction

Instructions: Provide full identifying information for the automated system, application, or situation for which the Test Plan applies, including as applicable, identifications number(s), title(s)/name(s), abbreviation(s)/acronym(s), part number(s), version number(s), and release number(s). Summarize the purpose of the document, the scope of activities that resulted in its development, the intended audience for the document, and expected evolution of the document. Identify if this Test Plan covers all test functions for the project (i.e., main test plan for the project) or if it is only specific to a particular test phase(s) (e.g., Development Testing, Validation Testing, Implementation Testing, and/or Operational Testing) or a specific test function(s) (e.g., Section 508 Testing, Security Test & Evaluation (ST&E), etc.). Also describe any security or privacy considerations associated with use of the Test Plan.

## Overview

Instructions: Briefly describe the purpose and context for the system or situation, and summarize the history of its development. Include the high-level context diagram(s) for the system and subsystems previously provided in the High-Level Technical Design (HLTD) Concept/Alternatives, Requirements Document, and/or System Design Document (SDD), updated as necessary to reflect any changes that have been made based on more current information or understanding. If the high-level context diagram has been updated, identify the changes that were made and why.

### System/Situation Description

Instructions: Provide an overview of the processes that the system or situation is intended to support. If applicable, provide a general description of the type of data maintained and the operational sources and uses of those data. This information may be obtained from the SDD.

### System/Situation Organization

Instructions: Briefly describe the system or situation architecture and the major system/situation components essential to the testing. Describe hardware, software, and communications, as appropriate. Include any charts, diagrams, and/or graphics as necessary, with corresponding textual descriptions. This information may be obtained from the System Architecture section of the SDD.

## Assumptions/Constraints/Risks

### Assumptions

Instructions: If the testing approach/strategy is based upon any assumptions, list and describe them. For example, identify dependencies with other systems and the assumption that they will be ready to test when needed, assumptions regarding availability of defined test environments, etc.

### Constraints

Instructions: Describe any limitations or constraints that have a significant impact on the testing of the system, application, or situation. Such constraints may be imposed by any of the following (the list is not exhaustive):

* Hardware or software environment
* End-user environment
* Availability of resources
* Interoperability requirements
* Interface/protocol requirements
* Data repository and distribution requirements.

### Risks

Instructions: Identify and describe the potential problems or risk areas of the project and/or issues which may have an impact upon the testing effort. Some examples might include: system interfaces, highly complex software, system load issues, security, performance, and reliability. If any issues arise during the prescribed testing activities that lead to new risks, they should be documented in the project’s Risk Report.

If any issues arise during the project’s prescribed testing activities that lead to new risks, they will be documented in the project’s Risk Report.

## Testing Approach/Strategy

Instructions: Describe the overall approach that will be used to test all functions, features, and requirements of the automated system, application, or situation for which the Test Plan applies. As applicable to this Test Plan, describe the measures to be taken to ensure all aspects of the system are successfully tested and can be implemented. Document key aspects of the testing approach, such as content, methodology, prioritization, and progression of development, validation, implementation and operational testing activities to be performed during the corresponding lifecycle phases. Reference the Project Management Plan (PMP) / Development Approach Plan and Project Process Agreement (PPA), as appropriate.

Describe how the CMS Testing Framework will be applied to the project, and identify any deviations from the prescribed CMS Testing Framework. For example, will some unit and application integration testing be done, and then some more development, and so on? Is a prototype being built that will be usability tested before the releasable software is developed? Also include plans for testing related documentation (e.g., installation instructions, User Manual, Operations & Maintenance (O&M) Manual, Training Artifacts, etc.) and for conducting applicable readiness reviews. Also if applicable, describe how reuse will be applied to the testing effort to make testing more efficient and less costly.

The following is some boilerplate text regarding the readiness reviews that are generally conducted for the majority of projects, which may be modified as appropriate for the given project.

A Validation Readiness Review (VRR) is conducted after all development testing has been completed to affirm final agreement from all stakeholders that the <automated system/ application> is ready to begin validation testing. The VRR seeks to ensure that all prerequisites leading up to validation testing were met.

An Implementation Readiness Review (IRR) is conducted after all validation testing has been completed to affirm final agreement from all stakeholders that the <automated system/ application> is ready to begin implementation testing. During the IRR, all major findings, resolutions, and related test results from the completed validation testing are assessed. The IRR seeks to ensure that all prerequisites leading up to implementation testing were met.

An Operational Readiness Review (ORR) is conducted to present all major findings, resolutions, and related test results from all completed validation and implementation testing to all stakeholders and senior leadership to affirm final agreement that the <automated system/ application> is ready to move to the Production Environment (PROD) for operational testing. The ORR seeks to ensure that all prerequisites leading up to operational testing were met.

## Planned Tests

Instructions: As applicable to the scope of the Test Plan being prepared, describe the various types of testing (test functions) to be performed for the system, application or situation during the life cycle, taking into consideration the system development methodology that is being employed for the project (e.g., waterfall, prototyping, incremental, spiral, or rapid application development).

Reference the “CMS Testing Framework Overview” for the various test functions that should be considered for inclusion in the Test Plan for each of the main categories of tests (i.e., development testing, validation testing, implementation testing, and operational testing) prescribed in the Framework. Each test function should be described under a separate subsection heading and include a description of the purpose, approach, components, procedures, and techniques that will be used. Also include a statement of the extent of testing to be performed and the rationale for the extent selected, as well as metrics/assessment criteria, for each test function. A separate Test Plan may be prepared to address a specific testing function (e.g., a separate detailed ST&E Test Plan), and referenced in the main Test Plan).

The following is boilerplate text and sub-sections regarding the various test functions that are generally conducted for the majority of projects. This boilerplate text and sub-sections should be considered for inclusion in a main Test Plan, and may be modified as appropriate for the given project based on the scope of the specific Test Plan being prepared. Descriptions of the various test functions may be obtained from the “CMS Testing Framework Overview” and referenced or included in the Test Plan, as appropriate.

The following are the various test functions that will be performed for the <automated system/application> based on the main categories of testing prescribed in the CMS Testing Framework (i.e., development testing, validation testing, implementation testing, and operational testing).

### Development Testing

The following list presents the development test functions the team will perform for the <automated system/application>:

* <Development test function>

The results from development testing will be included in the Version Description Document (VDD) for the specific system build or release that is being transitioned into subsequent testing phases.

### Validation Testing

The following list presents the validation test functions the team will perform for the <automated system/application>:

* <Validation test function>

The results from validation testing will be documented in one or more corresponding Test Summary Reports (TSRs).

### Implementation Testing

The following list presents the implementation test functions the team will perform for the <automated system/application>:

* <Implementation test function>

The results from implementation testing will be documented in one or more corresponding TSRs.

### Operational Testing

The following list presents the operational test functions the team will perform for the <automated system/application>.

* <Operational test function>

The results from operational testing will be documented in one or more corresponding TSRs.

## Test Progression

Instructions: As applicable to this Test Plan, explain the planned sequence or progression of the prescribed tests. Identify existing dependencies that affect the conduct and progression of test activities. Also identify any regularly held meetings or reports that provide information on or that may affect testing (e.g., Change Control Board (CCB) meetings, status reports, etc.).

## Feature Testing

### Features To Be Tested

Instructions: List and describe system functions/features that are to be tested. The table below provides an example that identifies features, software items, criticality to deployment success, testing priority, and notes. An explanation should be provided for the methodology used to define the criticality to deployment success and testing priority levels established for the given project.

Table 1 - Features to be Tested

| Feature | Software | Criticality to Deployment Success | Testing Priority | Notes |
| --- | --- | --- | --- | --- |
| <Feature> | <Software> | <Criticality to deployment success> | <Testing priority> | <Notes> |

### Features Not to Be Tested

Instructions: List and describe the system functions/features not planned to be tested and explain why. The table below provides an example that identifies features, software items, criticality to deployment success, testing priority, and notes. Generally, only identify non-critical functions/features with a designated low priority as features not to be tested due to resource or other identified constraints.

Table 2 - Features Not to be Tested

| Feature | Software | Criticality to Deployment Success | Testing Priority | Notes |
| --- | --- | --- | --- | --- |
| <Feature> | <Software> | <Criticality to deployment success> | <Testing priority> | <Notes> |

## Test Cases

Instructions: Describe the measures taken to document and prioritize test cases, the controls applied to them, and how/where they are stored (e.g., DOORS, CD, library, etc.). Generally, test cases are traditionally documented in a separate Test Case Specification that should be referenced within this section. A template for a Test Case Specification is available from the CMS Integrated IT Investment & System Life Cycle Framework website located at <https://www.cms.gov/Research-Statistics-Data-and-Systems/CMS-Information-Technology/XLC/Artifacts.html>.

## Defect Tracking & Reporting

Instructions: Describe the defect resolution process to be implemented during testing, including the operational definition and assignment of appropriate impact/severity levels. For example, identify if Test Incident Reports (TIRs) will be used to document unexpected results, problems, or defects that occur during the prescribed testing and their resolutions. For more information regarding TIRs, reference the TSR template that is available from the CMS eXpedited Life Cycle (XLC) website located at <https://www.cms.gov/Research-Statistics-Data-and-Systems/CMS-Information-Technology/XLC/index.html>. If multiple phases are involved, there may be a defect resolution meeting to keep track of the inter-dependencies. If any third party is involved in the verification, then their roles should also be included here.

## Test Environment

Instructions: Provide details and a graphical presentation of the environmental components required to test the system to include: hardware, software, communications, and any other resources used to configure the test environment(s), as well as any security considerations. If multiple test sites will be used, each test site should be explicitly identified and the test environment for each test site appropriately described. If multiple test sites use the same or similar test environments, they may be discussed together with the differences clearly identified. The test environment(s) should reflect the planned production environment as closely as possible. Also provide details where the test environment(s) does not mirror the production environment.

### Hardware

Instructions: Identify by name, number, and version, as applicable, all computer hardware, interfacing equipment, communications equipment, peripherals, etc. that will be required at each test site. Describe the purpose of each item, and state the period of usage and the number of each item needed.

Table 3 - Required Hardware for Testing

| Hardware Item | Purpose | Period of Usage | Number Needed | Issues |
| --- | --- | --- | --- | --- |
| <Hardware item> | <Purpose> | <Period of usage> | <Number needed> | <Issues> |

### Software

Instructions: Identify by name, number, and version, as applicable, all software items (e.g., operating systems, compilers, communications software, related applications software, databases, input files, code auditors, dynamic path analyzers, test drivers, pre-processors, test data generators, test control software, other special test software, post-processors, etc.) that will be required at each test site. Describe the purpose of each item, its media, and state the period of usage and the number of each item needed. Also identify the proprietary nature and any licensing issues associated with each item.

Table 4 - Required Software for Testing

| Software Item | Purpose | Media | Period of Usage | Number Needed | Issues |
| --- | --- | --- | --- | --- | --- |
| <Software item> | <Purpose> | <Media> | <Period of usage> | <Number needed> | <Issues> |

### Test Data

Instructions: Provide a detailed description of the test data to be used for the various testing activities. If real, personally identifiable data will be needed, a separate Data Use Agreement (DUA) must also be completed. If personally identifiable information (PII) will be used, identify how this test data will be protected and controlled.

### Other Materials

Instructions: Identify and describe any other materials needed for the testing at the test site(s). These materials may include manuals or other forms of instruction. Identify the type and quantity of the materials, as applicable.

### Installation, Testing & Control

Instructions: Identify plans for establishing the test environment at each test site and testing each element prior to its use. Also describe how the test environment will be controlled and maintained. The schedule for establishing the test environment should be documented in the Project Schedule and referenced here as appropriate.

### Security

Instructions: Identify any security or privacy issues associated with the test environment, including any issues regarding PII not previously addressed in the section named Test Data.

## Test Deliverables

Instructions: Briefly describe the documents that are to be produced in support of and/or as output of the testing effort. For example, a Test-Case-to-Requirements Traceability Matrix should be included as part of a separate Test Case Specification document and referenced here. Other documents may include, but are not limited to, TIRs and TSR(s). Templates for a TIR and a TSR are available from the CMS Integrated IT Investment & System Life Cycle Framework website located at <https://www.cms.gov/Research-Statistics-Data-and-Systems/CMS-Information-Technology/XLC/Artifacts.html>.

### Test Case-to-Requirements Traceability Matrix

A Test Case-to-Requirements Traceability Matrix that maps all of the requirements contained within the Requirements Document to their corresponding test cases will be prepared and included in a separate Test Case Specification document.

### Test Incident Reports

Test Incident Reports will be used during the test process to identify, capture, track, and resolve unexpected results, problems, or defects identified during testing.

### Test Summary Report

A TSR will be prepared at the end of all testing to document the results of all tests this Test Plan (TP) prescribes.

## Test Schedule & Milestones

Instructions: List the milestone events and dates for the all testing activities, including each test site as appropriate.

Table 5 - Testing Milestones

| Date | Milestone |
| --- | --- |
| <MM/DD/YYYY> | <Milestone> |

## Test Roles & Responsibilities

Instructions: Identify the number, type, and skill level of the personnel that will be needed from each organization to participate in the testing activities during each of the prescribed tests at the designated test site(s), and describe the roles and responsibilities of each. Include the names of the individuals, if known.

Table 6 - Testing Personnel Requirements

| Skill Type | Skill Level | # Personnel | Assigned Staff | Length of Time Needed | Role |
| --- | --- | --- | --- | --- | --- |
| <Skill type> | <Skill level> | <#> | <First name last name> | <Length of time needed> | <Role> |

### Orientation Plan

Instructions: Describe any orientation and training to be given before and/or during the testing. This training may include user instruction, operator instruction, maintenance and control group instruction, and orientation briefings to test team personnel. If extensive training is anticipated, a separate Training Plan and Training Artifacts may be developed and referenced here.

Appendix A: Record of Changes

Instructions: Provide information on how the development and distribution of the Test Plan will be controlled and tracked. Use the table below to provide the version number, the date of the version, the author/owner of the version, and a brief description of the reason for creating the revised version.

Table 7 - Record of Changes

| Version Number | Date | Author/Owner | Description of Change |
| --- | --- | --- | --- |
| <X.X> | <MM/DD/YYYY> | CMS | <Description of Change> |
| <X.X> | <MM/DD/YYYY> | CMS | <Description of Change> |
| <X.X> | <MM/DD/YYYY> | CMS | <Description of Change> |

Appendix B: Acronyms

Instructions: Provide a list of acronyms and associated literal translations used within the document. List the acronyms in alphabetical order using a tabular format as depicted below.

Table 8 - Acronyms

| Acronym | Literal Translation |
| --- | --- |
| <Acronym> | <Literal Translation> |
| <Acronym> | <Literal Translation> |
| <Acronym> | <Literal Translation> |

Appendix C: Glossary

Instructions: Provide clear and concise definitions for terms used in this document that may be unfamiliar to readers of the document. Terms are to be listed in alphabetical order.

Table 9 - Glossary

| Term | Acronym | Definition |
| --- | --- | --- |
| <Term> | <Acronym> | <Definition> |
| <Term> | <Acronym> | <Definition> |
| <Term> | <Acronym> | <Definition> |

Appendix D: Referenced Documents

Instructions: Summarize the relationship of this document to other relevant documents. Provide identifying information for all documents used to arrive at and/or referenced within this document (e.g., related and/or companion documents, prerequisite documents, relevant technical documentation, etc.).

Table 10 - Referenced Documents

| Document Name | Document Location and/or URL | Issuance Date |
| --- | --- | --- |
| <Document Name> | <Document Location and/or URL> | <MM/DD/YYYY> |
| <Document Name> | <Document Location and/or URL> | <MM/DD/YYYY> |
| <Document Name> | <Document Location and/or URL> | <MM/DD/YYYY> |

Appendix E: Approvals

The undersigned acknowledge that they have reviewed the Test Plan and agree with the information presented within this document. Changes to this Test Plan will be coordinated with, and approved by, the undersigned, or their designated representatives.

Instructions: List the individuals whose signatures are desired. Examples of such individuals are Business Owner, Project Manager (if identified), and any appropriate stakeholders. Add additional lines for signature as necessary.

Table 11 - Approvals

| Document Approved By | Date Approved |
| --- | --- |
| Name: <Name>, <Job Title> - <Company> | Date |
| Name: <Name>, <Job Title> - <Company> | Date |
| Name: <Name>, <Job Title> - <Company> | Date |
| Name: <Name>, <Job Title> - <Company> | Date |

Appendix F: Additional Appendices

Instructions: Utilize additional appendices to facilitate ease of use and maintenance of the document.

Appendix G: Notes to the Author/Template Instructions

This document is a template for creating a Test Plan for a given investment or project. The final document should be delivered in an electronically searchable format. The Test Plan should stand on its own with all elements explained and acronyms spelled out for reader/reviewers, including reviewers outside CMS who may not be familiar with CMS projects and investments.

This template includes instructions, boilerplate text, and fields. The developer should note that:

* Each section provides instructions or describes the intent, assumptions, and context for content included in that section. Instructional text appears in blue italicized font throughout this template.
* Instructional text in each section should be replaced with information specific to the particular investment.
* Some text and tables are provided as boilerplate examples of wording and formats that may be used or modified as appropriate.

When using this template, follow these steps:

1. Table captions and descriptions are to be placed left-aligned, above the table.
2. Modify any boilerplate text, as appropriate, to your specific investment.
3. Do not delete any headings. If the heading is not applicable to the investment, enter “Not Applicable” under the heading.
4. All documents must be compliant with Section 508 requirements.
5. Figure captions and descriptions are to be placed left-aligned, below the figure. All figures must have an associated tag providing appropriate alternative text for Section 508 compliance.
6. Delete this “Notes to the Author/Template Instructions” page and all instructions to the author before finalizing the initial draft of the document.

Appendix H: XLC Template Revision History

The following table records information regarding changes made to the XLC template over time. This table is for use by the XLC Steering Committee only. To provide information about the controlling and tracking of this artifact, please refer to the Record of Changes section of this document.

This XLC Template Revision History pertains only to this template. Delete this XLC Template Revision History heading and table when creating a new document based on this template.

Table 12 - XLC Template Revision History

| Version Number | Date | Author/Owner | Description of Change |
| --- | --- | --- | --- |
| 1.0 | 08/25/2008 | ESD Deliverables Workgroup | Baseline version |
| 2.0 | 08/18/2014 | Celia Shaunessy, XLC Steering Committee | Changes made per CR 14-012 |
| 2.1 | 02/02/2015 | Surya Potu, CMS/OEI/DPPIG | Updated CMS logo |
| 3.0 | 06/15/2016 | CMS | * Updated template style sheet for Section 508 compliance * Added instructional text to all blank cells in tables * Removed double spaces from text * Fixed broken hyperlinks in instructional text * Added Acronym column to Table 9 - Glossary * Reformatted Table 11 - Approvals in Appendix E: Approvals for Section 508 compliance * Changed location of Appendix F: Additional Appendices so that it resides below Appendix E: Approvals and is no longer the last appendix in the template * Added instructional text to Appendix H: XLC Template Revision History instructing authors to delete this appendix when creating a new document based on this template |