CMS Manual System

Pub. 100-01 Medicare General Information, Eligibility, and Entitlement

Transmittal 6	Date: MAY 28, 2004

CHANGE REQUEST 3011

I. SUMMARY OF CHANGES: Implementation of the new CMS policy for testing quarterly releases of the Medicare shared systems and the CWF.

NEW/REVISED MATERIAL - EFFECTIVE DATE: August 1, 2004
*IMPLEMENTATION DATE: August 1, 2004 for testing the January 2005 release.

Disclaimer for manual changes only: The revision date and transmittal number apply to the red italicized material only. Any other material was previously published and remains unchanged. However, if this revision contains a table of contents, you will receive the new/revised information only, and not the entire table of contents.

II. CHANGES IN MANUAL INSTRUCTIONS: (*N/A if manual not updated.*)
   (**R = REVISED, N = NEW, D = DELETED** – (*Only One Per Row.*)

R/N/D	CHAPTER/SECTION/SUBSECTION/TITLE
R	7/Table of Contents
N	7/40/Shared System Maintainer and Medicare Contractor Responsibilities for System Releases
N	7/40.3/Shared System Testing Requirements for Maintainers, Beta Testers, and Contractors
N	7/40.3.1/Maintainers and Beta Testers – Required Levels of Testing
N	7/40.3.2/Minimum Testing Standards for Maintainers and Beta Testers
N	7/40.3.3/Testing Standards Applicable to all Beta Testers
N	7/40.3.4/Testing Requirements Applicable to the CWF Beta Tester
N	7/40.3.5/Contractor (User) Testing Requirements
N	7/40.3.6/Testing Requirements Applicable to all CWF Data Centers (Hosts)
N	7/40.3.7/Timeframe Requirements for all Testing Entities
N	7/40.3.8/Testing Documentation Requirements
N	7/40.3.9/Definitions
N	7/40.3.10/Test Care Specification Standard

III. FUNDING:

These instructions should be implemented within your current operating budget.

IV. ATTACHMENTS:

X	**Business Requirements**
X	**Manual Instruction**
	Confidential Requirements
	One-Time Notification

*Medicare contractors only

Business Requirements

Pub. 100-01	Transmittal: 6	Date: May 28, 2004	Change Request 3011

I. GENERAL INFORMATION

A. Background:

This transmittal replaces Change Request (CR) 1462. The purpose of this transmittal is to define the requirements for testing each quarterly release of the Medicare shared systems and the CWF. The transmittal also:

o Delineates the scope of testing for three entities: the shared system maintainer (SSM), the designated shared system Beta Tester, and the various Fiscal Intermediaries and Carriers who are users of the shared systems.

o Specifies the timeframe in which each of the three entities must complete their testing.

o Initiates the evolution to standardized test documentation and reporting requirements for each entity.

B. Policy:

In summary, the new Medicare shared systems testing policy:

o Assigns full responsibility to the Maintainers and Beta Testers for testing the shared systems' base functionality.

o Requires the users, including Fiscal Intermediaries, Carriers, and DMERCS, to fully test their local components and unique programming/coding only.

o Requires the users to also conduct a limited, end-to-end, operational test that incorporates the shared system release, integrated with their other claims processing components.

o Provides instructions for producing test cases and tracing test cases to Medicare business requirements. This will ensure that testing products are created in a consistent manner across all Beta test sites.

Medicare Contractors, including Fiscal Intermediaries, Carriers, and DMERCS, are no longer responsible for testing the shared systems' base functionality. This new policy results in a shift in the testing workload for the Medicare Contractors. Medicare Contractors are also free to perform additional testing at their discretion. The additional testing may include the validation of shared system base functionality.

C. Provider Education: None.

II. BUSINESS REQUIREMENTS

Requirement #	Requirements	Responsibility
3011.1	The Shared System Maintainer (SSM) and the designated shared system Beta testing Contractor (Beta Tester) shall fully test the quarterly release to ensure it is ready to be elevated to production.	SSM CWFM Beta Tester
3011.1.1	For any CMS mandate under test, the SSM and Beta Tester shall fully test all requirements specified in the Business Requirements section of the CR.	SSM CWFM Beta Tester
3011.1.2	The SSM and Beta Tester shall maintain a repository (i.e., TestDirector) of Test Requirements against which all test cases must be traced.	SSM CWFM Beta Tester
3011.1.3	The SSM and Beta Tester shall distinguish each Test Requirement with a unique Requirement Identifier. The Requirement Identifier must be a requirement number or qualifier preceded by the CMS CR number and SSM CR number, separated by dashes. Format of the Requirement Identifier: [*SSM CR No.*]-[*CMS CR No.*]-[*Requirement No.*] SSM CR No. - A number that identifies a CMS mandate or user change request under test. Free form text can also be used to identify changes not associated with maintainer CR numbers, e.g., "Regression" to indicate regression testing. Dashes not allowed within this number; they are reserved for separation between the individual numbers in the Requirement Identifier. CMS CR No. – A minimum 4-digit number that identifies the CMS CR associated with the maintainer CR number. If no CMS CR is associated with a maintainer CR, use "0000". Dashes not allowed within this number; they are reserved for separation between the individual numbers in the Requirement Identifier. Requirement No. – A number that uniquely identifies the requirement with the CR. The SSM and Beta Tester shall use the actual Requirement # in the Business Requirements section of the CMS PM, for any requirement originating from a CMS CR that follows the requirements template initiated on 4/16/2002. Dashes not allowed within this number; they are reserved for separation between the individual numbers in the Requirement Identifier.	SSM CWFM Beta Tester
3011.1.4	The SSM and Beta Tester shall prepare and execute a set of Test Cases that demonstrate the requirements for all change requests within the quarterly release were correctly implemented.	SSM CWFM Beta Tester

3011.1.4.1	The SSM and Beta Tester shall complete Test Case specifications that include specific input situations and the required results associated with a single test purpose. Each test case specification must include the following: - A unique Test Case Identifier (see 1.4.3); - The specific objective or purpose of the case; - A cross-reference to the requirement in which the test case is designed to validate; - Input specifications (i.e., a description of the input situation[s]); - Output specifications (i.e., a description of the required or expected results); and - Intercase dependencies - in instances where the test results of one test case may impact other test cases, the test case specification must identify the other test case(s) and describe the relationship(s).	SSM CWFM Beta Tester
3011.1.4.2	The SSM and Beta Tester shall trace Test Case specifications to the requirements contained within the release. The traceability between test cases and requirements must demonstrate that each discrete requirement within each CR has been tested and by which test case.	SSM CWFM Beta Tester
3011.1.4.3	The SSM and Beta tester shall conform to the CMS Test Case Identifier standard in the numbering of all Test Case specifications. The Test Case Identifier is comprised of the unique Requirement Identifier (see 1.3) followed by a number that uniquely qualifies the test case specification. The standard requires that all Test Cases be identified as follows: [*Requirement Identifier*]-[*Test Case Number*] The Test Case Number must uniquely qualify the test cases for each requirement. Dashes not allowed within the Test Case Number; they are reserved for separation between the individual numbers in the Test Case Identifier.	SSM CWFM Beta Tester
3011.1.4.4	The SSM and Beta Tester shall document and execute positive test cases to ensure that the system is fulfilling the requirements. One or more positive test cases are required for each requirement. As an example, if a program mandate effects a change for services beginning on July 1, a positive test case would include service dates in July or later and validate that the actual mandate was correctly implemented.	SSM CWFM Beta Tester
3011.1.4.5	The SSM and Beta Tester shall document and execute negative test cases to ensure that the system does not perform an incorrect action. As an example, if a program mandate effects a change for services beginning on July 1, a negative test case would ensure that implementing the mandate did	SSM CWFM Beta Tester

	not negatively impact claims with service dates prior to July 1.	
3011.1.4.6	The SSM and Beta Tester shall electronically document all Test Cases and the actual results for each test case by using the standard Test Case definition specified by CMS.	SSM CWFM Beta Tester
3011.1.5	The SSM and Beta Tester shall maintain a test log that provides a chronological record of each test cycle execution.	SSM CWFM Beta Tester
3011.1.6	The Beta Tester shall follow the procedures outlined in the Quarterly Release Test Management User Guide in order to complete the documentation of test runs and results.	Beta Tester
3011.1.7	The SSM and Beta Tester shall maintain a system-testing environment that replicates the production environment as closely as required to effectively test. .	SSM CWFM Beta Tester
3011.1.8	The SSM and Beta Tester shall perform interface testing.	SSM CWFM Beta Tester
3011.1.8.1	The SSM and Beta Tester shall validate that all output files are correctly created by the their system. The SSM and Beta Tester shall validate that their system can accept and correctly process all input files.	SSM CWFM Beta Tester
3011.1.8.2	The SSM and Beta Tester shall perform interface testing that includes full data exchanges (both ways) between the shared system and any principal claims processing adjudication or financial system. (e.g., the CWF and HIGLAS respectively).	SSM Beta Tester
3011.1.9	The SSM and Beta Tester shall execute a regression test for every quarterly release.	SSM CWFM Beta Tester
3011.1.10	The Beta Tester shall conduct performance testing to reasonably assure that the system provides acceptable response times, throughput rates, and processing windows and can accommodate production workloads.	Beta Tester
3011.2	Medicare Contractors shall fully test their local components and unique coding prior to production implementation. This testing is applicable for all local components and local coding modified since the previous quarterly release.	FI Carrier DMERC
3011.2.1	The Medicare Contractors shall complete an interface test between the Shared system and the local component(s) that support the processing of	FI Carrier DMERC

	their Medicare claims workloads.	
3011.2.2	Medicare Contractors shall fully test any system components they implement in addition to the base shared system.	FI Carrier DMERC
3011.2.3	Medicare Contractors shall fully test any: - Unique source code they implement within the shared system. - Non-base system components, coding, or programming they maintain and implement in addition to the shared system. This includes front-end components such as EDI entry and back-end components such as EDI outbound and printing (e.g., MSN generation). - Changes they make to user control files, facilities, and tables in order to implement new Medicare policy or business rules. -	FI Carrier DMERC
3011.2.4	A Medicare Contractor shall fully test any shared system functionality that was: - Developed by the shared system maintainer solely for them, or - Developed by the shared system maintainer under a special project in which they were the exclusive participant.	FI Carrier DMERC
3011.3.0	Medicare Contractors shall complete a limited end-to-end operational test.	FI Carrier DMERC
3011.3.1	The Medicare Contractor shall execute an operational test that ensures the software can complete batch cycles without system abends and produce the expected output. The test is limited in the number of test cases that are required, but must be an end-to-end test and exercise all claims processing components from initial claims entry through the generation of Beneficary and Provider reports. .	FI Carrier DMERC
3011.3.1.1	The Medicare Contractor's operational test shall include contiguous processing through all claims processing interfaces. Through contiguous processing, the interfaces between all key claims processing components must be exercised. These components include the front-end for claims receipt, translators, the shared system, the CWF, the financials, back-end EDI, Remittance generation, and Medicare Summary Notices (MSN) generation. The banking system's National Clearing House (NCH) transfer need not be included in the operational test.	FI Carrier DMERC
3011.3.1.2	The operational test shall include the most recent shared system release received prior to the initiation of the test. The Medicare Contractor shall	FI Carrier

	initiate operational testing in a timely manner, as to ensure its completion and the reporting of any problems prior to production implementation.	DMERC
3011.3.1.3	The Medicare Contractor shall ensure its operational test: - Exercises all claims entry points not fully incorporated in the base system such as paper and EMC front-end components; - Includes all allowable standard electronic formats and versions; and - Includes a variety of claims types.	FI Carrier DMERC
3011.4.0	The SSM, Beta Tester, and Medicare Contractor shall operate under the specified testing timeframes for each quarterly release.	SSM CWFM Beta Tester FI Carrier DMERC
3011.4.1	The User testing period shall begin four weeks prior to production implementation.	FI Carrier DMERC
3011.4.2	The Beta testing period shall begin eight weeks prior to production implementation. The shared system Beta tester shall have an exclusive four-week testing timeframe prior to the initiation of user testing.	Beta Tester
3011.4.2.1	The Beta Tester shall complete a functional System Test and Regression Test before the shared system is released to the User community. Beta testing must also continue though the User testing period.	Beta Tester
3011.4.2.2	The FISS, MCS, VMS-DMERC, and VMS-B Beta Testers shall complete integrated testing with the CWF Beta Tester, using a common beneficiary data baseline, in the executions of test cases.	Beta Tester
3011.4.3	Exclusive CWFM and SSM testing shall continue until Beta Testing is initiated eight weeks prior to production implementation.	SSM CWFM
3011.4.3.1	The SSM shall complete a Unit Test (on all components), Integration Test, System Test, and Regression Test prior to distributing the shared system release to the designated Beta Tester.	SSM CWFM
3011.4.3.2	For all integration, system, and regression testing, the SSM will use the most recent version of any third party or CMS provided software components (i.e., Pricer, OCE, MCE, Grouper) they are provided. The SSM shall continue testing beyond the exclusive maintainer-testing window due to the late receipt of third party or CMS provided software components such as the Pricers and OCE.	SSM CWFM

3011.5.0	The SSM, Beta Tester, and Medicare Contractor shall maintain documentation that fully demonstrates the requirements of this transmittal were met for each quarterly release.	SSM CWFM Beta Tester FI Carrier DMERC
3011.5.1	The SSM, Beta Tester, and Medicare Contractor shall maintain the following test documentation to demonstrate full compliance with this transmittal: - Test Cases; - Test Log; - Test Status for the execution (run) of each test case (i.e., Not Run, Pass, Fail); - Actual Results for the run of each test case in which the actual results did not match the expected results; - An entry for each test run within the test log; and - Documented proof of each test run.	SSM CWFM Beta Tester FI Carrier DMERC
3011.5.2	The SSM, Beta Tester, and Medicare Contractor shall maintain all test documentation for the four quarterly releases prior to the current date. The documentation must be available for review by CMS (or its agent).	SSM CWFM Beta Tester FI Carrier DMERC
3011.5.3	The SSM shall communicate all confirmed software defects (problems) and fixes directly to CMS in writing through their CMS Maintenance Lead or other designee as specified by the CMS Project Officer. The SSM shall document all confirmed software defects (problems) and fixes within a CMS specified repository such as INFOMAN.	SSM CWFM
3011.5.4	The Beta Tester and Medicare Contractor shall document all software defects (problems) within the CMS specified repository such as INFOMAN.	Beta TesterFICarrier DMERC
3011.5.5	The Beta Tester shall document all software defects (problems) within the centralized CMS TestDirector repository.	Beta Tester
3011.5.6	The Medicare Contractor shall provide any testing documentation to its CMS regional office upon request.	FI Carrier DMERC

III. SUPPORTING INFORMATION AND POSSIBLE DESIGN CONSIDERATIONS

A. Other Instructions:

X-Ref Requirement #	Instructions

3011.1	Shared system maintainers shall plan and execute all essential levels of testing including unit testing, integration testing, system testing, and regression testing. Beta testers may initiate testing at the integration level, but are primarily dedicated to testing at the system level (including regression testing).
3011.1.4.1 – 3011.1.4.6	A Beta Tester may be placed under the full Quarterly Release Test Management (QRTM) process where at CMS' discretion, test case specifications are provided to the Beta Tester for CRs within the quarterly release. For any CR in which CMS or its agent provides the test case specifications, the Beta Tester will be relieved of the task of preparing test case specifications as outlined in requirements 1.4.1 through 1.4.6. The Beta Tester shall prepare all test data to meet the test case requirements, execute all test cases, and document the actual results for each test case.
3011.1.4.5	Unlike positive test cases, a negative test case may not be applicable to every requirement within a CR. Additionally, although due diligence might necessitate a negative test case, the need may be mitigated by an existing case in your regression test-set.
3011.1.5	Test Log requirements may be fulfilled by correctly using the TestDirector "run" feature as outlined in the Quarterly Release Test Management User Guide.
3011.1.7	CMS will provide all Beta Testers with a date simulation tool to facilitate executing test cases with future dates (service dates, admission dates) without turning off edits or altering effective dates in the test environment.
3011.1.8.2	The Beta Tester shall execute full data exchanges with HIGLAS when HIGLAS is implemented at Beta Tester's data center.
3011.2.0	Medicare Contractors may perform additional testing on the shared system or duplicate Beta testing tasks. At the discretion of their Regional Offices, Medicare Contractors may be required to separately document any testing they perform in addition to their mandated testing.
3011.2.4	An example would be a Carrier working with CMS on a special demonstration project. In this example the carrier shall fully test the shared system functional that was implemented for the demonstration project.
3011.3.0	The operational test does not require that test cases cover and be traced to the various functional requirements implemented within the shared system or the CWF.
3011.5.1	Electronic screen shots may be incorporated/attached into the

	results of TestDirector has proof of online results. Test Log requirements may be fulfilled by correctly using the TestDirector "run" feature as outlined in the Quarterly Release Test Management User Guide.

B. Design Considerations:

X-Ref Requirement #	Recommendation for Medicare System Requirements
3011.2.3	CMS strongly encourages the shared system user community to promote the standardization of their shared system, the centralization of table maintenance within the SSM, and the minimization of local variations and coding.

C. Interfaces:

D. Contractor Financial Reporting /Workload Impact:

E. Dependencies:

F. Testing Considerations:

IV. OTHER CHANGES

Citation	Change

SCHEDULE, CONTACTS, AND FUNDING

Effective Date: August 1, 2004 **Implementation Date:** August 1, 2004 for testing the January 2005 release. **Pre-Implementation Contact(s):** Scott Mueller, (410) 786-0480 **Post-Implementation Contact(s):** Scott Mueller, (410) 786-0480	**These instructions should be implemented within your current operating budget**

General Information, Eligibility, and Entitlement Manual

Chapter 7 - Contract Administrative Requirements

40 –Shared System Maintainer and Medicare Contractor Responsibilities for System Releases

A3-3600ff., A3-3800ff., B3-4000ff., B3-6000ff., (COB SOW - §4.8)

(Rev. 6, 05-28-04)

40.3 - Shared System Testing Requirements for Maintainers, Beta Testers, and Contractors

(Rev. 6, 05-28-04)

Medicare requires implementation of a limited number of shared systems that must be used by all FIs and carriers. This eliminates the need for each Medicare Contractor to repeat development of the basic system.

CMS requires that the shared system quarterly release be subjected to the complete testing life cycle prior to production release. The goal is to ensure that all changes function as intended and that the implementation of changes does not degrade or otherwise unintentionally affect existing system capability and function prior to implementation. This requires that the shared system be subjected to all levels and types of testing including unit testing, integration testing, systems testing, functional testing, interface testing, performance testing, regression testing, and operational testing. Definitions are provided in subsection 40.3.9.

The Shared System Maintainer and the Medicare Contractor each have specific roles in testing the shared system quarterly release. Additionally, CMS contracts with an FI, Carrier, DMERC, and CWF Host to act as a Beta tester for the FISS, MCS, VMS-B/DME, and CWF systems respectively.

This section identifies the testing responsibilities for each organization to ensure that each shared system quarterly release satisfies all CMS requirements. All organizations shall have processes in place to meet these requirements. Testing activities will generally begin 3 to 4 months in advance of the release date, particularly for shared system maintainers and the CWF maintainer.

40.3.1 – Maintainers and Beta Testers – Required Levels of Testing

(Rev. 6, 05-28-04)

Review subsection 40.3.9, Definitions, for a description of key testing terminology.

1. *Maintainers of a Shared System or the CWF shall plan and execute all the essential levels of testing. At a minimum this includes Unit testing, Integration testing, System testing, and Regression testing. Maintainers are also responsible for performing Interface Testing.*

2. *Beta testers may initiate testing at the integration level, but are primarily dedicated to testing at the system level, including regression testing. Beta testers are also responsible for performing Interface Testing, which includes full data exchanges between the Shared system, CWF, and other systems (e.g., HIGLAS when implemented).*

3. *Maintainers and Beta testers shall maintain a test environment that enables system-testing activities to replicate the production environment, as closely as required to effectively test. CMS provided all Beta testers with a date simulation tool to facilitate executing test cases with future dates (e.g., service dates, admission dates) without turning off edits or altering effective dates in the test environment.*

40.3.2 – Minimum Testing Standards for Maintainers and Beta Testers
(Rev. 6, 05-28-04)

1. *The Shared System Maintainer (SSM), the CWF Maintainer (CWFM), and the designated shared system Beta tester shall fully test the quarterly release to ensure it is ready to be elevated to production. For the quarterly release to be considered fully tested, all the requirements contained within the release must be tested. Maintainers and Beta testers must be able to demonstrate the degree to which each discrete requirement within a CR has been tested and by which test cases. It is therefore mandatory that the testers maintain traceability between test cases and the discrete requirements being implemented in the release. Additionally, for each CR or transmittal under test, the Maintainer and Beta tester must ensure that each discrete requirement specified in the **Business Requirements** section of any CR/transmittal has been fully tested.   The Maintainer and Beta tester shall specifically:*

   - *Maintain a repository of Test Requirements against which all test cases must be traced.*

   - *Prepare and execute a set of Test Cases that demonstrate the requirements were correctly implemented for all change requests within the quarterly release.*

   - *Maintain traceability between each Test Case and the requirement that the case was designed to test.*

2. *The Maintainer and Beta tester shall distinguish each Test Requirement with a unique Requirement Identifier. The Requirement Identifier must be a number or qualifier preceded by the CMS CR number and SSM CR number, separated by dashes. The format of the Requirement Identifier is: [SSM CR No.]-[CMS CR No.]-[Requirement No.], where:*

   - *SSM CR No. – is a number that identifies a CMS mandate or user change request under test. Free form text can also be used to identify changes not associated with maintainer CR numbers, e.g., "Regression" to indicate regression testing. Avoid spaces and use underscore symbol "_" instead. Dashes not allowed within this number; they are reserved for separation between the individual numbers in the Requirement Identifier.*

- *CMS CR No. – is a minimum 4-digit number that identifies the CMS CR associated with the maintainer CR number. If no CMS CR is associated with a maintainer CR, use "0000". Dashes are not allowed. Avoid spaces and use underscore symbol "_" instead. Dashes not allowed within this number; they are reserved for separation between the individual numbers in the Requirement Identifier.*

- *Requirement No. – is a number that uniquely identifies the requirement with the CR. For any requirement taken from the Business Requirements section of a CMS CR, use the actual number from the Requirement # column. Do not repeat the CMS CR number. Dashes not allowed within this number; they are reserved for separation between the individual numbers in the Requirement Identifier.*

  Example: Maintainer CR 22522 corresponds to CMS CR 2634. Business Requirement 2.8 was taken directly from CMS CR 2634.   The Requirement Identifier would be 22522-2634-2.8

3. *The Maintainer and the Beta tester shall complete Test Case specifications that include specific input situations and the expected results associated with a single test purpose. Each test case specification must include the following:*

- *A unique Test Case Identifier (which includes a cross-reference to the requirement in which the case is designed to test);*
- *The specific objective or purpose of the case;*
- *Input specifications (i.e., a description of the input situation[s]);*
- *Output specifications (i.e., a description of the expected results); and*
- *Intercase dependencies - in instances where the test results of one test case may impact other test cases, the test case specification must identify the other test case(s) and describe the relationship(s).*

  Refer to section 40.3.10, Test Case Specification Standard, for the specific format required to electronically maintain test cases.

4. *All Test Cases must contain a unique Test Case Identifier. The CMS standard for the Test Case Identifier is the Requirement Identifier, followed by a number that uniquely qualifies the test case specification, separated by a dash.*

  The format of the Test Case Identifier is: [Requirement Identifier]-[Test Case Number], where:

- *Requirement Identifier – is the actual identifier of the requirement being testing by the case.*

- *Test Case Number – is a number that uniquely qualifies the test case. This is generally a sequential number. This is necessary since more that one test case is often needed to test*

a single requirement.   Dashes not allowed within this number; they are reserved for separation between the individual numbers in the Test Case Identifier.

Example: Two test cases were developed to test the implementation of Requirement 22522-2634-2.8 (see example above). The unique Test Case Identifier for the two test cases would be 22522-2634-2.8-01 and 22522-2634-2.8-02.

5. *The Maintainer and the Beta tester shall document and execute **both** positive and negative test cases to ensure the requirements of the release are correctly implemented.*

   - *Positive test cases are required to ensure that the system is directly fulfilling the requirements as specified. One or more positive test cases are required for each requirement. As an example, if a program mandate effects a change for services beginning on July 1, a positive test case would include service dates in July or later and validate that the actual mandate was correctly implemented.*

   - *Negative test cases test cases are required to ensure that the system does not perform an incorrect action. As an example, if a program mandate effects a change for services beginning on July 1, a negative test case would ensure that implementing the mandate did not negatively impact claims with service dates prior to July 1. Unlike positive test cases, a negative test case may not be applicable to every requirement within a CR. Additionally, although due diligence might necessitate a negative test case, the need may be mitigated by an existing case in your regression test set.*

6. *The Maintainer and Beta tester shall document all test cases and the actual results for each test case electronically. Each test case and the associated results must be stored in a test management repository (i.e., TestDirector) and must at a minimum contain the data elements outlined in the CMS Test Case specification standard. See subsection 40.3.10 for the Test Case specification standard.*

7. *The Maintainer and Beta tester shall maintain a test log that provides a record of each test execution. Test Log requirements may be fulfilled by correctly using the TestDirector "run" feature as outlined in the Quarterly Release Test Management User Guide.*

8. *The Maintainer and Beta tester shall execute a full regression test set on their system for every quarterly release. Each testing entity shall perform regression testing within their designated testing window as outlined in subsection 40.3.7, Timeframe Requirements.*

9. *The Maintainer and Beta Tester shall perform interface testing.*

   - *The Maintainer and Beta Tester shall validate that <u>all</u> output files are correctly created by the their system. The SSM and Beta Tester shall validate that their system can accept and correctly process <u>all</u> input files.*

   - *The Shared System Maintainer and Beta Tester shall perform interface testing that includes full data exchanges (both ways) between the shared system and any principal*

claims processing adjudication or financial system. (e.g., the CWF and HIGLAS respectively). The Beta tester is required to perform data exchanges with HIGLAS after HIGLAS is implemented at Beta tester's data center.

▪ *The Shared System Maintainer and Beta tester shall complete an integrated system test with the CWF. Each Maintainer and Beta tester shall coordinate the maintenance of test data baselines, such as beneficiary data, with the CWF Beta tester.*

40.3.3 – Testing Standards Applicable to all Beta Testers
(Rev. 6, 05-28-04)

1. *The FISS, MCS, VMS-DMERC, and VMS-B Beta testers shall complete integrated testing with the CWF Beta tester, using coordinated beneficiary data, in the execution of their test cases. All test cases involving CWF functionality (related to claims adjudication) must be executed in an integrated test with the CWF. This requires full data exchanges between testing entities including:*

   • *Satellite files being sent from the shared systems to the CWF Beta tester; and*

   • *Response files being sent from the CWF to the shared system Beta testers.*

2. *Each Beta tester shall:*

   • *Utilize the standard CMS Test Management tool and repository to documents all test cases and results.*

   • *Follow the procedures outlined in the Quarterly Release Test Management User Guide in order to complete the documentation of test runs and results.*

3. *The Beta tester shall review all Maintainer release documentation for completeness, accuracy, and usability. Any questions, problems, or issues with the documentation shall be forwarded to both the Maintainer and CMS.*

4. *The Beta Tester shall conduct performance testing to reasonably assure that the system provides acceptable response times, throughput rates, and processing windows and can accommodate production workloads.*

5. *The CMS testing requirements outlined in section 40.3 may require the Beta tester to test a specific type of bill, specialty, or claim situation for which they do not possess the required level of expertise. In these instances, the Beta tester must partner with a Medicare Contractor that possesses both the expertise and capabilities to test the specialty or claim type. As an example, should a Beta tester not have the operational capability or expertise to process Home Health claims, they are expected to partner with an RHHI to complete the required HHA testing. Ultimately, the Beta tester is responsible for ensuring all test cases*

are exercised. Any partnerships that are established to complete the testing requirements, shall be arranged and managed by the Beta tester.

40.3.4 – Testing Requirements Applicable to the CWF Beta Tester

(Rev. 6, 05-28-04)

The CWF Beta tester shall act as a test host and exchange data with entities testing the FISS, MCS, VMS-DMERC, and VMS-B shared systems. The testing entities include all shared system maintainers _and_ the shared system Beta testers.

40.3.5 – Contractor (User) Testing Requirements

(Rev. 6, 05-28-04)

Medicare Contractors are not mandated to prepare and execute test cases that cover Medicare business requirements implemented within the base system in shared system and CWF quarterly releases. Maintainers and Beta testers are fully responsible for testing the base functionality. The Medicare Contactors (users) shall first test their local/unique components and coding, and secondly conduct a limited, end-to-end, operational test.

1. Contractors shall fully test their local components and unique coding prior to production implementation of the quarterly release. This testing is applicable for all local components and local coding modified since the previous quarterly release.

   A. Contractors shall test any system components they maintain and implement to support claims processing in addition to the base system. This includes front-end and back-end components such as those for EDI entry and translation, EDI outbound processing, and printing (e.g., MSN generation).

   B. Contractors shall test any unique source code they implement within the shared system.

   C. Contractors shall test changes they make to user control files, facilities, and tables in order to implement _new_ Medicare policy or business rules.

   D. A Medicare Contractor shall fully test any shared system functionality that was:
      - Developed by the shared system maintainer solely for them, or
      - Developed by the shared system maintainer under a special project in which they were the exclusive participant.

      An example would be a Carrier working with CMS on a special demonstration project. In this example the carrier shall fully test the shared system functional that was implemented for the demonstration project.

2. *Contractors shall complete a limited end-to-end operational test that incorporates the shared system release, integrated with their other claims processing components. These components include the front-end for claims receipt, translators, the CWF, the financials, and back-end EDI and report generation. The test must ensure that processing is contiguous from claims entry, to claims adjudication, and ultimately remittance and Medicare Summary Notice generation. Through contiguous processing, the interfaces between all key claims processing components must be exercised. The banking system interfaces such as National Clearing House (NCH) transfers need not be exercised. The test is limited in the number of test cases that are required, since maintainers and Beta testers are testing the base functionality of the shared system.*

    A. *Contractors shall ensure that the integrated systems software can complete cycles without system abends and produce the expected output. The Medicare Contractor shall ensure their operational test:*

        - *Exercises all claims entry points not fully incorporated in the base system such as paper and EMC front-end components;*
        - *Includes all allowable standard electronic formats and versions;*
        - *Includes a variety of claims types; and*
        - *Includes all components that support their claims workload and interfaces to the shared system.*

    B. *The operational test shall include the most recent shared system release received prior to the initiation of the test. The Medicare Contractor shall initiate the test as required to ensure its completion and the reporting of any problem prior to production implementation.*

3. *CMS strongly encourages the shared system user community to promote:*

    - *Standardizing their shared system nationally,*
    - *Centralizing any table maintenance that implements national Medicare policy at the system maintainer level, and*
    - *Minimizing local variations and coding.*

4. *Medicare Contractors may perform additional testing on the shared system or duplicate Beta testing tasks as time permits. At the discretion of their Regional Offices, Medicare Contractors may be required to separately document any testing they perform in addition to their mandated testing.*
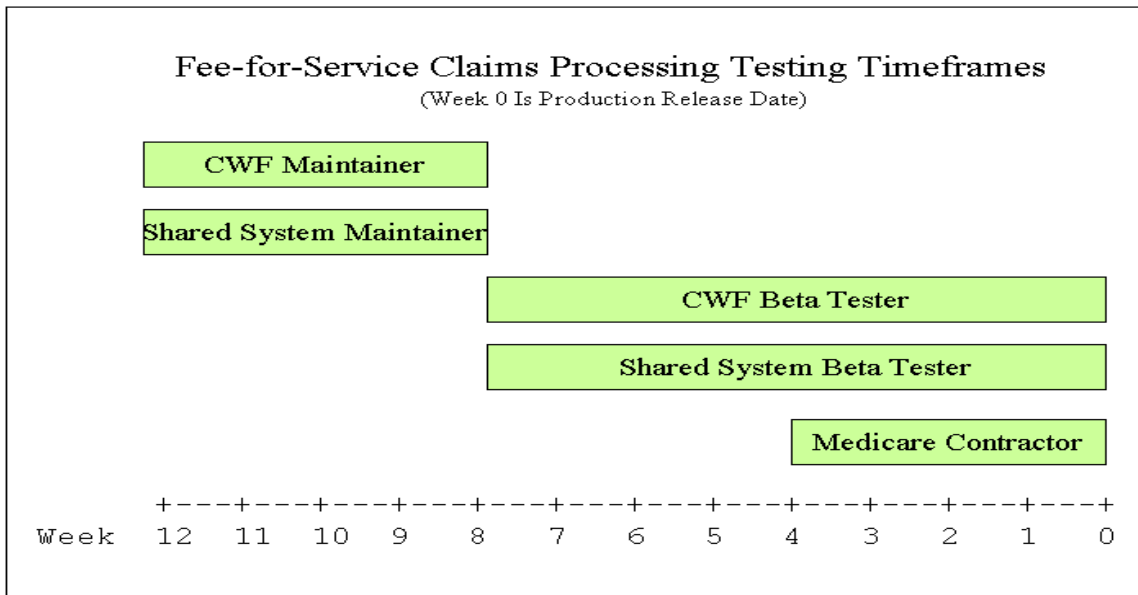
40.3.6 – Testing Requirements Applicable to all CWF Data Centers (Hosts)
(Rev. 6, 05-28-04)

Each CWF data center or CWF sector host shall:
- *Forward all satellite software and documentation to the satellites (contractors) to which they serve as the primary production host;*
- *Install the CWF quarterly release software in a designated test region;*
- *Make the designated test region available their satellites (users) for testing;*
- *Coordinate test data, such as beneficiary data, with the user testers;*
- *Process all satellite files submitted by the users and return all corresponding reply files generated for users;*
- *Report release problems to the CWF Maintainer and CMS; and*
- *Verify with CMS that each of its satellites submitted at least one test file during user testing.*

40.3.7 – Timeframe Requirements for all Testing Entities
(Rev. 6, 05-28-04)

The SSM, CWFM, Beta tester, and Medicare Contractor shall operate under the testing timeframes shown below for each quarterly release:

Fee-for-Service Claims Processing Testing Timeframes
(Week 0 Is Production Release Date)

1. *The Medicare **Contractor** or **User** testing period shall begin four weeks prior to production implementation.*

2. The **Beta** testing period shall begin eight weeks prior to production implementation. The CWF and shared system Beta testers shall have an exclusive four-week testing timeframe prior to the initiation of user testing.
   - The Beta tester shall complete a functional System Test and Regression Test before the shared system is released to the User community.
   - Beta testing must also continue through the User testing period. The Beta tester may initiate performance testing during the user testing period.

3. Exclusive CWFM and SSM testing shall continue until Beta testing is initiated eight weeks prior to production implementation. The SSM and CWFM shall complete a Unit Test (on all components), Integration Test, System Test, and Regression Test prior to distributing the shared system release to the designated Beta tester. For all integration, system, and regression testing, the SSM shall use the most recent version of any third party or CMS provided software components (e.g., Pricer, OCE, MCE, Grouper) they are provided. The SSM shall continue testing beyond the exclusive maintainer-testing window due to the late receipt of some third party or CMS provided software components such as the Pricers and OCE.

40.3.8 – Testing Documentation Requirements

(Rev. 6, 05-28-04)

1. The SSM, Beta tester, and Medicare Contractor shall maintain documentation that fully demonstrates the requirements of this transmittal were met for each quarterly release. At a minimum the SSM, Beta tester, and Medicare Contractor shall maintain the following test documentation to demonstrate full compliance:

   - Test Requirement and Test Case repository with traceability;
   - Test Log;
   - Test Status for the execution (run) of each test case (i.e., Pass, Fail, Not Run);
   - Actual Results for the run of each test case in which the <u>actual</u> results did not match the <u>expected</u> results; and
   - Documented proof of each test run, i.e., screen shots, scheduler job logs, etc.

2. The SSM, Beta tester, and Medicare Contractor shall:

   - Maintain all test documentation for the four quarterly releases prior to the current release under test. The documentation must be available for review by CMS (or its agent).

   - Document all software defects (problems) within the CMS specified repository such as INFOMAN.

3. The SSM shall communicate all confirmed software defects (problems) and fixes directly to CMS in writing through their CMS Maintenance Lead or other designee as specified by the CMS Project Officer.

4. The Medicare Contractor shall provide any testing documentation to their CMS regional office upon request.

Additional requirements for selected shared system and CWF maintainers, Beta test sites, and CWF hosts may be contained in these organizations' individual contracts. Electronic screen shots may be incorporated/attached into the results of TestDirector has proof of online results. Test Log requirements may be fulfilled by correctly using the TestDirector "run" feature as outlined in the Quarterly Release Test Management User Guide.

40.3.9 – Definitions

(Rev. 6, 05-28-04)

These definitions are provided to ensure common understanding.

Base System - The FISS, MCS, VMS, or CWF system, which is routinely released by the Shared System Maintainer (i.e., Ark-FISS, EDS, ViPS) to their respective user community prior to any user customization. This includes all components released by the Maintainer, including but not limited to the claim adjudication subsystem, the financial subsystems, and other integrated components (i.e, Pricer, OCE, MCE, Grouper).

Functional Testing – Testing to ensure that the functional requirements have been met.

Integration Testing – Testing combinations of interacting software components the make up parts of a system.

Interface Testing – Testing conducted to evaluate whether subsystems or systems pass data and control to one another correctly.

Local Components – A Local Component as referenced in section 40.3 is any component or module that supports Medicare claims processing, but is not part of the Base System.

Maintainer – The Maintainer is an entity to which CMS directly contracts to maintain a Medicare claim processing shared system (FISS, MCS, or VMS-DME) or the Common Working File (CWF) system. The Maintainer, as referenced in section 40.3, does **not** refer to an entity to which a Medicare Contractor (Carrier, Fiscal Intermediary, or DME Regional Contractor) subcontracts to operate their data center or perform other claim processing support activities.

Operational Testing – Testing conducted to evaluate a system in its operational environment. Testing to ensure that the aggregate operational systems and their interfaces can be operated securely with the instructions provided.

Performance Testing – Testing that applies heavy transaction and processing loads to the system to ensure that response times, throughput rates, and processing windows remain acceptable and can accommodate production workloads.

Regression Testing – Testing conducted on a system or components to verify that modifications have not caused unintended effects and that the system or components still complies with its requirements.

Regression Test Set – A set of selectable test cases designed to exercise a system over its functional capabilities and assure that it still works properly after changes have been applied.

Requirement Identifier – A unique number assigned to each requirement comprised of the Shared System Maintainer CR Number, the CMS CR Number, and an alphanumeric element to uniquely qualify each requirement.   For testing purposes CMS requires that each Test Case Identifier incorporate the Requirement Identifier to which it is traced.

Stress Testing – Testing that applies a steadily increasing load to the system until it reaches the point where performance degrades to unacceptable levels.

System Testing – Testing to discover any incorrect implementation of the requirements or incompatibilities in the software/hardware environment. System testing includes functional testing, performance testing, and operational testing.

Test Case Specification – A description of an input situation and of the required results associated with a specific test objective or purpose.

Test Case Identifier – A unique identifier assigned to each test case.

Test Log – A chronological record of relevant detail about the execution of tests. Relevant details include run date, run time, test status, and actual results.

Test Requirement - A specific requirement that is under test and to which one or more test cases are traced. Test requirements may be derived from various types of requirements i.e., business functional requirements, performance requirements etc. Note: Any well-written requirement that is "testable" may be considered a Test Requirement. Any requirement contained in the Business Requirements section of a CR or transmittal, also constitutes a test requirement.

Test Set – A collection of test cases that have a common usage.

Unit Testing – The testing of individual units (i.e., software components, modules) or groups of related units. It is the lowest level of testing and is usually performed by programmers. Unit testing may be both functional (requirements oriented) and structural (i.e. logic oriented, code coverage oriented).

40.3.10 - Test Case Specification Standard

(Rev. 6, 05-28-04)

Purpose: This standard establishes a controlled outline for the contents and presentation of a Test Case Specification used by the standard system maintainers and the Beta testing contractors.

Applicability: This standard is applicable to all Test Case Specifications developed by the standard system maintainers and the Beta testing contractors.

Data Element	Description	Allowable Values or Format	Comments
Test Case Specification Identifier	Multi-part indicator that uniquely identifies the test case specification.	See Test Case Specification Identifier Standard.	
Test Purpose	A free form field that captures the intent of the test and identifies any key components of the test, e.g., specific codes.	See attached example.	
Input Specification	A free form field that captures critical information used to exercise the system functionality. Information could be grouped into the following topics: • Claim Data Requirements • Claims History • Beneficiary Information • Provider Information	See attached example.	
Intercase Dependencies (Predecessor Transaction Identifier)	The test case specification identifier of the transaction that must be entered into and processed by the system prior to processing the transaction described by the test case specification.	See Test Case Specification Identifier Standard.	
Output Specification	A free form declarative statement that identifies the expected results from performing all the steps, as a collection, within the test.		
Test Type	A one-character indicator to identify whether the test is positive or negative.	P = Positive Test N = Negative Test	TestDirector Plan Tab (Required

Originator	*A one-character indicator to identify the originating entity (designer) of the test case.*	*B = Beta* *C = CMS/QRTM* *M = Maintainer*	*User Defined Fields)*
Test Status	*Summary indicator for a test case.*	*PS = Passed* *FA= Failed* *NR = Not Run* *IN = Incomplete* *ID = Invalid Data* *IC = Invalid Case*	*Required Test Execution (Run) Elements*
Test Results	*Free form declarative statement of actual results for a test case when the actual results do not match the expected results.*		

Optional Information: Industry best practices demonstrate that additional granularity may be necessary to document discrete key test actions that should be executed and documented. These items are referred to as test steps. A test case specification may have one or more test steps. When documenting test steps, the following standard applies:

Step Number	*Unique identifier for each test step.*	*"Step n"* *Where "n" is a sequential counter for each step starting at 1.* *There is at least one test step in each test case specification, but usually contains multiple test steps.*	*Optional Test Case Elements*
Step Description	*A free form declarative statement that identifies the action taken to perform the test. The step description statement usually begins with a verb.*		
Expected Step Results	*A free form declarative statement that identifies the expected results from performing the associated step description.*		

Example #1

Test Case Identifier	4393-2342-12.1-001
Test Purpose	To confirm that the FI claims processing systems accept, process and assign a reason code to Hospital claims with services denied based on a Local Medical Review Policy (LMRP) submitted on Type of Bill (TOB) 141 (Hospital other or referred diagnostic services; admit through discharge), generating Medicare Summary Notice (MSN) message 15.20 (The following policies were used when we made this decision) auto-filling LMRP identification (ID) number L481 (Breast Imaging; Mammography/Breast Echography [Sonography]/Breast) associated with the edit for each fully denied service.

Input Specification	Claims History	Mammography service previously rendered and paid ≤ 11 months
	Beneficiary Information	Beneficiary has elected English as primary language. Female Age: ≥ 40
	Provider Information	Provider Number Range: XX0001 - XX0999
	Claim Data Requirements	TOB: 141 (Hospital other or referred diagnostic services; admit through discharge) Revenue Code #1: 403 (Other imaging services; screening mammography) Units #1: 1 HCPCS Code #1: 76091 (Mammography; bilateral) Revenue Code #2: 403 (Other imaging services; screening mammography) Units #2: 1 HCPCS Code #2: 76092 (Screening mammography; bilateral [two view film study of each breast]) Diagnosis Code: V76.12 (Other screening mammography)

Intercase Dependencies	None
Output Specification	Claim will be assigned a reason code indicating services denied based on LMRP ID# L481, generating MSN message 15.20.
Test Type	P
Originator	C
Test Status	PS
Test Results	Claim was assigned appropriate reason code

Example #2

	Test Case Identifier	*4419-2825-5.2-001*
	Test Purpose	*To confirm that the FI claims processing systems accept, process, and assign reason code 30 (Payment adjusted because the patient has not met the required eligibility, spend down, waiting or residency requirements) to Inpatient Hospital claims submitted on Type of bill (TOB) 111 (Hospital Inpatient Part A; admit through discharge) with Dates of Service (DOS) on 01/01/2004 when a beneficiary is not lawfully present in the United States.*
Input Specification	*Claims History*	*None*
	Beneficiary Information	*Beneficiary must be unlawfully present in United States.* *Beneficiary elected English as primary language*
	Provider Information	*Provider Number Range = XX0001-XX0999*
	Claim Data Requirements	*TOB = 111* *DOS = 01/01/2004*
	Intercase Dependencies	*None*
	Output Specification	*Claim will be assigned reason code 30 indicating beneficiary is not lawfully present in the United States, generating MSN message 5.7 (Medicare payment may not be made for the item or service because on the date of service, you were not lawfully present in the United States).*
	Test Type	*P*
	Originator	*C*
	Test Status	*PS*
	Test Results	*Claim was assigned appropriate reason code*