
CMS Manual System

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

Department of Health & Human Services (DHHS)
Centers for Medicare & Medicaid Services (CMS)

Transmittal 25

Date: JULY 15, 2005

CHANGE REQUEST 3493

SUBJECT: Next Generation Desktop (NGD) Testing Requirements

I. SUMMARY OF CHANGES: This instruction provides guidance on NGD testing responsibility in accordance with testing instruction and requirements provided in Transmittal 6, Pub. 100-01, Chapter 7, Section 40.3, **CR 3011 - Implementation of the new CMS policy for testing quarterly releases of the Medicare shared systems and the CWF.** This manualization adds a new section for NGD testing requirements and updates the maintainer definition. NGD specific information is available in Pub. 100-09, Medicare Contractor Beneficiary and Provider Communications Manual, Chapter 2, Section 20, Subsection 20.1.10.

NEW/REVISED MATERIAL - EFFECTIVE DATE*: August 15, 2005

IMPLEMENTATION DATE: August 15, 2005

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/ 40.3.9/ Definitions
N	7/ 40.3.11/ NGD Maintainer Requirements

III. FUNDING: No additional funding will be provided by CMS; contractor activities are to be carried out within their FY 2005 operating budgets.

IV. ATTACHMENTS:

<input checked="" type="checkbox"/>	Business Requirements
<input checked="" type="checkbox"/>	Manual Instruction
<input type="checkbox"/>	Confidential Requirements
<input type="checkbox"/>	One-Time Notification
<input type="checkbox"/>	Recurring Update Notification

*Unless otherwise specified, the effective date is the date of service.

Attachment - Business Requirements

Pub. 100-01	Transmittal: 25	Date: July 15, 2005	Change Request 3493
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SUBJECT: Next Generation Desktop (NGD) Testing Requirements

I. GENERAL INFORMATION

A. Background:

This instruction provides guidance on Next Generation Desktop testing responsibility in accordance with testing instruction and requirements provided in **CR 3011 - Implementation of the new CMS policy for testing quarterly releases of the Medicare shared systems and the CWF**. The goal of combined systems testing efforts is to ensure that all changes function as intended and that the implementation of the changes does not degrade or otherwise unintentionally affect existing system capability and function prior to implementation. All organizations shall have processes in place to meet the requirements of this instruction with the testing activities as part of the ongoing deployment and systems maintenance process of NGD.

B. Policy:

Next Generation Desktop Development Process

The Next Generation Desktop (NGD) provides contractors' beneficiary customer service departments a single call center application that will be used by Medicare Customer Service Representatives (CSRs) to answer inquiries and perform operations on behalf of CMS beneficiaries and the American public.

The approach to designing, developing, testing and deploying the NGD is to partition the system into releases of ever increasing CMS-required business functionality. Each release will proceed through the System Development Life Cycle (SDLC) phases and will undergo the testing outlined in this instruction.

The NGD is designed to pull customer service-needed information into a common desktop application. As such, the NGD requires data exchange with CMS shared systems (VMS, CWF, FISS, MCS) and standard systems (EDB/MBD, MBR, GHP/MMCS). *Note: NGD may integrate with additional systems as future releases are developed.*

The external systems integration layer of the Next Generation Desktop application provides a common integration point for existing back-end data systems. As a result, the Next Generation Desktop may require additional modifications when changes are made to the shared systems.

Because NGD integrates with the shared systems, periodic changes will be made as a result of the shared systems quarterly release process.

C. Provider Education: None.

II. BUSINESS REQUIREMENTS

"Shall" denotes a mandatory requirement

"Should" denotes an optional requirement

Requirement Number	Requirements	Responsibility ("X" indicates the columns that apply)								
		F I	R H H I	C a r r i e r	D M E R C	Shared System Maintainers				Other
F I S S	M C S					V M S	C W F			
3493.1	The NGD Maintainer shall update NGD as a part of either a service pack or a patch to the system.									NGD Maintainer
3493.1.1	The NGD Maintainer shall perform the various activities associated with changes to the NGD (i.e., unit and system testing) and shall adhere to a quarterly release process for NGD-related updates and defect correction.									NGD Maintainer
3493.2	The NGD Maintainer shall plan and execute all the essential levels of testing which at a minimum includes Unit testing, Integration testing, System testing, Interface testing, and Regression testing.									NGD Maintainer
3493.3	The NGD Maintainer shall fully test the quarterly release to ensure it is ready to be elevated to production.									NGD Maintainer
3493.4	The NGD User testing period shall begin 2 weeks prior to production implementation.	x	x	x	x					
3493.5	NGD Beta testers shall have an exclusive 2 week testing timeframe prior to the initiation of user testing.									NGD Beta testers
3493.5.1	The NGD Beta tester shall complete a functional System Test and Regression Test before the system is released to the User Community and must also continue through the User testing period.									NGD Beta testers

Requirement Number	Requirements	Responsibility (“X” indicates the columns that apply)								
		F I	R H I	C a r r i e r	D M E R C	Shared System Maintainers				Other
		F I S S	M C S	V M S	C W F					
3493.6	Exclusive NGD Maintainer testing shall continue until Beta testing is initiated 4 weeks prior to production implementation.									NGD Maintainer
3493.6.1	The NGD Maintainer 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.									NGD Maintainer
3493.7	The NGD Maintainer shall maintain documentation that fully demonstrates the requirements of this transmittal were met for each quarterly release.									NGD Maintainer
3493.7.1	<p>At a minimum, the NGD Maintainer shall maintain the following test documentation to demonstrate full compliance:</p> <ul style="list-style-type: none"> • 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. 									NGD Maintainer

Requirement Number	Requirements	Responsibility (“X” indicates the columns that apply)								
		F I	R H I	C a r r i e r	D M E R C	Shared System Maintainers				Other
F I S S	M C S					V M S	C W F			
3493.8	<p>The NGD Maintainer shall:</p> <ul style="list-style-type: none"> 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 and ClearQuest (for NGD-related issues). 									NGD Maintainer
3493.9	<p>The SSM and NGD Maintainer 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.</p>									Shared System and NGD Maintainer

III. SUPPORTING INFORMATION AND POSSIBLE DESIGN CONSIDERATIONS

A. Other Instructions:

X-Ref Requirement #	Instructions

B. Design Considerations:

X-Ref Requirement #	Recommendation for Medicare System Requirements

C. Interfaces: N/A

D. Contractor Financial Reporting /Workload Impact: N/A

E. Dependencies: N/A

F. Testing Considerations: See above.

IV. SCHEDULE, CONTACTS, AND FUNDING

Effective Date*: August 15, 2005 Implementation Date: August 15, 2005 Pre-Implementation Contact(s): Stephanie Bojanowski at (215) 861-4319 or SBojanowski@cms.hhs.gov Post-Implementation Contact(s): Stephanie Bojanowski at (215) 861-4319 or SBojanowski@cms.hhs.gov	Medicare Contractors shall implement these instructions within their current operating budgets.
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***Unless otherwise specified, the effective date is the date of service.**

VI. ATTACHMENT: Sections 40.3.1, 40.3.2, 40.3.7, and 40.3.8

In Pub. 100-01, Chapter 7 – Contract Administrative Requirements, Sections 40.3.1, 40.3.2, 40.3.7, and 40.3.8 are referred to in the new section 40.3.11 called “NGD Maintainer Requirements” as the exceptions for NGD. These sections are included for reference purposes only.

General Information, Eligibility, and Entitlement Manual

Chapter 7 - Contract Administrative Requirements

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(Rev. 25, 07-15-05)

40.3.9 – Definitions

40.3.11 –NGD Maintainer Requirements

40.3.9 – Definitions

(Rev. 25, Issued: 07-15-05, Effective: 08-15-05, Implementation: 08-15-05)

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 that 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, VMS-DME, *or NGD*) 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).

40.3.11 - Next Generation Desktop (NGD) Maintainer Requirements

(Rev. 25, Issued: 07-15-05, Effective: 08-15-05, Implementation: 08-15-05)

CMS is continuing to fully deploy the Next Generation Desktop (NGD) to the contractors' beneficiary customer service departments. The NGD is a single call center application that will be used by Medicare Customer Service Representatives (CSRs) to answer inquiries and perform operations on behalf of CMS beneficiaries and the American public.

The NGD is designed to pull customer service-needed information into a common desktop application. As such, the NGD requires data exchange with CMS shared systems (VMS, CWF, FISS, MCS) and standard systems (EDB/MBD, MBR, GHP/MMCS). Note: NGD may integrate with additional systems as future releases are developed.

Because NGD integrates with the shared systems, periodic changes will be made as a result of the shared systems quarterly release process. The NGD maintainer will be required to update NGD as part of either a service pack or a patch to the system. The NGD maintainer will be required to perform the various activities associated with changes to the NGD (i.e., unit and system testing). In addition to the shared systems quarterly release schedule, the NGD will adhere to a separate quarterly release process for NGD-specific updates and defect correction.

The NGD maintainer shall follow all of the requirements identified in Section 40.3 for the shared system maintainers except as indicated below:

1. Section 40.3.1 Maintainers and Beta Testers –Required Levels of Testing, #3 is not applicable to NGD Beta testers.

2. Section 40.3.2 (#2) Minimum Testing Standards for Maintainers and Beta Testers, for NGD naming conventions, the NGD Maintainer should refer to the NGD test Plan.

3. Section 40.3.2 (#4) Minimum Testing Standards for Maintainers and Beta Testers, for NGD test case identifiers, the NGD maintainer should refer to the NGD System Test Plan.

4. Section 40.3.7 Timeframe Requirements for Testing Entities – NGD testing timeframes are as follows:

- The NGD User testing period shall begin 2 weeks prior to production implementation.*
- The NGD Beta testing period shall begin 4 weeks prior to production implementation. The NDG Beta testers shall have an exclusive 2 week testing timeframe prior to the initiation of user testing.
 - The Beta tester shall complete a functional System Test and Regression Test before the system is released to the User community.*
 - Beta testing must also continue through the User testing period.**
- Exclusive NGD System Maintainer testing shall continue until Beta testing is initiated 4 weeks prior to production implementation. The NGD Maintainer*

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.

5. Section 40.3.8 Testing Documentation Requirements(#2) For NGD, documentation of all software defects (problems) should be through ClearQuest.

Attachment: Sections 40.3.1, 40.3.2, 40.3.7, and 40.3.8

40.3.1 – Maintainers and Beta Testers – Required Levels of Testing

(Rev. 25, Issued: 07-15-05, Effective: 08-15-05, Implementation: 08-15-05)

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. 25, Issued: 07-15-05, Effective: 08-15-05, Implementation: 08-15-05)

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 than 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.

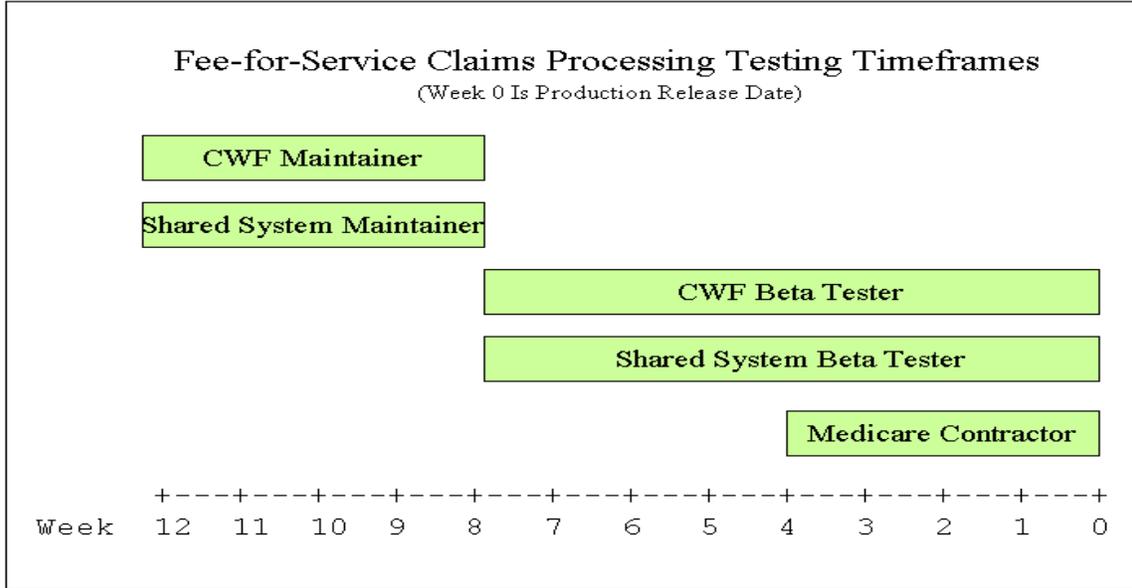
5. The Maintainer and the Beta tester shall document and execute **both** positive and negative test cases to ensure the requirements of the release are correctly implemented.
 - Positive test cases are required to ensure that the system is directly fulfilling the requirements as specified. One or more 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 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 all output files are correctly created by their system. The SSM and Beta Tester shall validate that their system can accept and correctly process all 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.

40.3.7 – Timeframe Requirements for all Testing Entities

(Rev. 25, Issued: 07-15-05, Effective: 08-15-05, Implementation: 08-15-05)

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



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 CWF and SSM testing shall continue until Beta testing is initiated eight weeks prior to production implementation. The SSM and CWF 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. 25, Issued: 07-15-05, Effective: 08-15-05, Implementation: 08-15-05)

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 actual results did not match the expected 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.