

Office of Information

Testing Process



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Table of Contents

1.	Introduction	1
2.	Testing Process for Waterfall Applications	2
2.1.	Overview	2
2.2.	Stage One – Testing Within the Development Team	2
2.2.1.	Inputs	2
2.2.2.	Activities	2
2.2.3.	Quality Gates	5
2.3.	Stage Two – Testing Services	5
2.3.1.	Inputs	5
2.3.2.	Activities	5
2.3.3.	Quality Gates	6
2.4.	Stage Three – Field Testing	6
2.4.1.	Inputs	6
2.4.2.	Activities	7
2.4.3.	Quality Gates	8
2.5.	Stage Four – Final Review and Acceptance	8
2.5.1.	Inputs	8
2.5.2.	Activities	8
2.5.3.	Quality Gates	9
3.	Testing Process for IDL	10
3.1.	Overview	10
3.2.	Stage One – Testing Within the Development Team	10
3.2.1.	Inception Phase	11
3.2.2.	Elaboration Phase	12
3.2.3.	Construction Phase	14
3.3.	Stage Two – Testing Services	16
3.3.1.	Transition Phase	16
3.4.	Stage Three – Field Testing	17
3.4.1.	Transition Phase	17
3.5.	Stage Four – Final Review and Acceptance	19
4.	Messaging	21
5.	Security	22
5.1.	Security Certification	22
A.	Supporting Teams and Applications	23
A.1.	Testing Process Work Group	23
A.2.	Testing Services	23
A.3.	Software Engineering Process Group/Software Quality Assurance (SEPG/SQA)	23
A.4.	Rational Tools Technical Support Team	23
A.5.	Rational Test Tools User Group	24
A.6.	Rational Tools Training Team	24
B.	Glossary	25

Acronyms

Term	Definition
AAC	Austin Automation Center
CASE	Certification and Accreditation Security Engineering
CP	Capacity Planning
EMC	Enterprise Management Center
EVS	Enterprise VistA Support
HeV	HealthVet-VistA
IDL	Iterative Development Lifecycle
IV&V	Independent Verification and Validation
HSITES	Health Systems Implementation, Training, and Enterprise Support
MOU	Memorandum of Understanding
OI	Office of Information
PE	Performance Engineering
RTTUG	Rational Test Tools Users Group
RUP	Rational Unified Process
SAC	Standards and Conventions
SDLC	System Development Life Cycle
SEPG	Software Engineering Process Group
SQA	Software Quality Assurance
TS	Testing Services
TPWG	Testing Process Work Group
UAT	User Acceptance Test
XDE	Rational Rose XDE Developer; a complete visual design and development environment

1. Introduction

The Office of Information (OI) Testing Process is a high-level guide for performing software testing. The testing process supports both the Iterative Development Lifecycle (IDL) and Waterfall System Development Lifecycle (SDLC).

The Testing Process Work Group (TPWG), composed of representatives from Health Systems Design and Development (HSD&D), Health Systems Implementation, Training, and Enterprise Support (HSITES), and Enterprise Vista Support (EVS), has created this testing process. Veterans Affairs (VA) senior management has empowered the TPWG to design, develop and implement a testing process for the OI. The testing process defines the Stages of Testing, testing activities, test tools, and testing artifacts. Furthermore, the testing process specifies the inputs, testing activities and quality gates for each Stage of Testing regardless of life cycle. The TPWG collaborates with Testing Services (TS), EVS, Enterprise Management Center (EMC), HSITES, and other organizational groups to guide testing from conception through maintenance.

The Testing Requirements For Legacy Vista and Health_eVet establishes the framework for the OI Testing Process. The [Testing Requirements for Legacy and Health_eVet](#) specifies the four Stages of Testing and establishes the minimum set of testing requirements for both Legacy- Vista and Health_eVet-Vista (HeV). The **Stages of Testing** are:

- Stage One: Testing within the Development Team
- Stage Two: Testing Services
- Stage Three: Field Testing
- Stage Four: Final Review and Acceptance

It is worth noting that unit test, system test, integration test, and user acceptance test (UAT) are situated within Stage One. Testing Services, located within Stage Two, includes the following internal TS teams: Performance Engineering (PE), Independent Verification and Validation (IV&V), Test Center Infrastructure (formerly known as Test Lab) and Capacity Planning (CP). Field Testing essentially replaces Alpha and Beta Tests in Stage Three, while final acceptance, certification, and bundling of the software for full field deployment are addressed in Stage Four.

The purpose of software testing is to:

- Exercise or simulate the application or system with the intent of verifying quality
- Establish confidence that the application or system only does what it is supposed to do
- Analyze the application or system with the intent of discovering test incidents
- Evaluate the attributes of the application or system and assess whether they achieve the required or acceptable results
- Mitigate risks associated with test execution and the deployment of the application and system

2. Testing Process for Waterfall Applications

2.1. Overview

Currently, Legacy VistA applications use the Waterfall SDLC. If a project in environment chooses the IDL for development, then refer to [Section 3](#) of this document for the list of test activities that need to be performed.

The testing process for Waterfall applications specifies the process inputs, test activities, and quality gates for the testing of Legacy VistA applications that follow the Waterfall SDLC. The Waterfall Testing Process Cookbook (yet to be published) will provide detailed instructions on how these test activities are performed.

2.2. Stage One – Testing Within the Development Team

Formerly known as “internal testing”, Stage One of Testing encompasses unit testing, system testing, integration testing, and UAT. The Waterfall Testing Process Cookbook lists all the types of test that can be utilized to execute tests. Testing Services does require that unit testing, system testing, integration testing, and UAT be performed prior to entering into the Stage Two of Testing.

2.2.1. Inputs

The inputs for the Stage One of Testing - Testing Within the Development Team are:

- Project Management Plan (PMP)
- Requirements, including:
 - Product Requirements Document (PRD)
 - Initial Requirements Analysis (IRA)
 - Software Requirements Specification (SRS)
 - Use Cases (UC)
 - Supplemental Specifications (SS)
- Software Design Document (SDD)
- Packman message/ Kernel Installation Distribution System (KIDS) Build
- Installation Instructions

2.2.2. Activities

The activities for the Stage One of Testing - Testing Within the Development Team are:

1. Establish the Test Team

- Define roles and responsibilities

2. Request Access to Groups and Systems

- Obtain access to all required systems and groups
- Ensure that identified project team members obtain the access to required systems and tools

- 3. Submit Testing Services Request (TSR) Form**
 - See the [Testing Services SOP 192-356 Testing Services Testing Process](#)
- 4. Create the Project in IBM-Rational Test Manager**
 - Submit a service request to the Rational Tools Technical Support Team to create a project in IBM® Rational® Test Manager
 - Ensure that test team members have access to IBM-Rational tools
 - Ensure that IBM-Rational Test Manager is integrated with the other IBM-Rational tools
- 5. Analyze Requirements for Testability**
 - Analyze requirements to ensure that they are clear, concise, unambiguous, and testable
 - Testable requirements are those that permit the creation of test cases and the Execution of tests
- 6. Identify the Release Deliverables**
 - The project team reviews the [Package/Patch Completion Transition Document](#) and identifies any unique requirements
- 7. Perform Risk Assessment for Test Execution**
 - Risks associated with test execution are identified, documented, monitored, mitigated, and tracked to closure
- 8. Create the Master Test Plan**
 - The Master Test Plan governs the planning and control of the overall testing effort.
 - Contact the Certification and Accreditation Security Engineering (CASE) Team
 - Plan for static and dynamic analysis
- 9. Obtain Sign-off for Master Test Plan**
- 10. Create Test Cases in IBM-Rational Test Manager**
- 11. Plan for Messaging Testing**
 - For more information here, contact the Messaging Team
- 12. Contact the Release Manager**
 - Discuss expectations and the [Package/Patch Completion Transition Document](#)
- 13. Establish Success Criteria for Memorandum of Understanding (MOU)**
 - See [SOP 192-111 Preparation of Test Site Memorandum of Understanding](#)
- 14. Perform Thin Client Testing, if required**
 - Perform thin-client testing in Test Center Infrastructure (formerly known as Test Lab), if required
- 15. Perform Unit Testing**
 - Unit testing is performed by the development team

16. Execute the Test Plan

- Execute the test plan means run the tests identified in the test plan, record the results, document any test incidents, and report the findings.

17. Perform User Acceptance Test

- The development team, Quality Assurance (QA) test analysts, and users coordinate the UAT
- UAT may be coordinated with Testing Services when the Test Center Infrastructure is used

18. Create Final Test Incident Report

- See the [Final Test Incident Report](#)

19. Conduct Review of Final Test Incident Report

- Review with project manager, development team, and release manager prior to sending to Test Sites for Field Testing

20. Ensure Code Conforms to Standards and Conventions (SAC)

21. Complete Patch Review Process Checklist

- See the [SOP 192-104 Package/Patch Review](#)
- Complete the appropriate sections according to the SDLC phase and package/patch version

22. Review Release Package

- Final Release Package includes:
 - Final build
 - Installation documentation
 - Help files
 - Release notes
 - User documentation

23. Complete Testing Services Entrance Criteria

- [Testing Services Entrance Criteria](#)

24. Complete MOUs and select Three Test Sites

- One integrated, one large, and one medium test site is required

25. Make Go/No Go Decision Prior to Field Testing

- The SQA test analysts report the test results that serve as input for the decision
- The Project Manager, QA Manager, stakeholders, and SQA test analysts collectively make the decision to proceed or not

2.2.3. Quality Gates

A quality gate is an exit criterion that must be completed before a project can proceed to the next Stage of Testing. Some quality gates may be started in Stage One of Testing but are listed in the Testing Stage in which they are completed.

The quality gates for Stage One of Testing - Testing Within the Development Team are:

- Testing Services Request (TSR) form
- Requirements Analysis
- Test Risk Assessment
- Master Test Plan
- Sign-off for Master Test Plan
- Test Cases
- Success Criteria for MOU
- Final Test Incident Report
- Patch Review Process Checklist
- Go/No Go Decision
- [Testing Services Entrance Criteria](#) artifacts

NOTE: For some Legacy VistA packages/patches, promotion to Stage Two – Testing Services may not always be required.

2.3. Stage Two – Testing Services

2.3.1. Inputs

The inputs for Stage Two of Testing - Testing Services are:

- Testing Services Request (TSR) form
- [Testing Services Entrance Criteria](#)
- Test Risk Assessment
- Master Test Plan
- Test Cases
- Final Test Incident Report
- Patch Review Process Checklist

2.3.2. Activities

The activities for Stage Two of Testing - Testing Services are:

1. Hold Focus Meeting with Testing Services

2. Ensure the Successful Installation of Build

- Independent Verification and Validation (IV&V) verifies the build installation

3. Perform Smoke Test to Verify Build Installation

- Project Team performs a smoke test on the build installed in the Test Lab

4. Perform Independent Functional Testing

- IV&V performs the independent functional testing

5. Conduct Performance Testing

- - IV&V conducts the performance testing

6. Perform Database testing, if applicable

- - IV&V performs the database testing

7. Track Test Findings for each Type of Test

8. Provide Testing Services Report

- IV&V furnishes the Testing Services Report

2.3.3. Quality Gates

The quality gates for Stage Two of Testing - Testing Services are:

- Go/No Go Decision
- Testing Services Approval for Field Testing
- Testing Services Report

2.4. Stage Three – Field Testing

2.4.1. Inputs

The inputs for Stage Three of Testing – Field Testing are:

- Go/No Meeting Decision
- Testing Services Approval for Field Testing
- Testing Services Report
- Test Risk Assessment
- MOU for each Test Site
- Build for Operations and Support Teams
- Build for Test Sites
- Master Test Plan
- System and user documentation
- Test Incident Tracking Message

- Test Incident Tracking Tool

2.4.2. Activities

The activities for Stage Three of Testing – Field Testing are:

- 1. Hold Kick Off Meeting for Field Testing**
- 2. Obtain Test Site Sign-off for MOU**
- 3. Ensure that Test Sites Install to Their Test Accounts First**
- 4. Ensure that Test Risk Assessment Is Complete**
- 5. Create Patch Tracking Message**
- 6. Test Application for Two Weeks at Three Test Sites**
 - The minimum requirement is three test sites: one integrated, one large and one medium test site
 - Test any subsequent iteration for one week in a production account
 - Obtain a waiver if these requirements can not be met
 - For more information, see “Test Sites” at <http://vista.med.va.gov/sepg/TPWG.asp>
- 7. Track Test Results During Test Execution**
- 8. Set up Test Team Test Incident Triage Meetings**
- 9. Review Field Testing Test Results**
 - With project manager, development team, and the release manager
- 10. Conduct Go/No Go Meeting Prior to Promotion to Stage Four**
- 11. Obtain the Field Test Certification Message**
 - Each test site supplies the certification message via Patch tracking Message
 - The development team obtains the certification from each test site
- 12. Obtain the Certification for Field Deployment**
 - Testing Services supplies the Certification for Field Deployment
 - The development team obtains the Certification for Field Deployment
- 13. Update FORUM Patch Message**
 - With all appropriate information for QA Manager review

2.4.3. Quality Gates

The quality gates for Stage Three of Testing – Field Testing are:

- Test Site Sign-off
- Test Risk Assessment
- Test Results from Field Testing
- Final Build
- Field Test Certification Message
- Certification for Field Deployment

2.5. Stage Four – Final Review and Acceptance

2.5.1. Inputs

The inputs for Stage Four of Testing – Final Review and Acceptance are:

- Test Site Certification message
- Final Release Package for National Release Manager, including:
 - Final build
 - Installation documentation
 - Help files
 - Release notes
 - User documentation

2.5.2. Activities

The activities for Stage Four of Testing – Final Review and Acceptance are:

- 1. Verify Final Software Build**

- 2. Complete the Final Patch Review Process Checklist**
 - Complete the checklist for all components
 - [SOP 192-104 Package/Patch Review](#)
- 3. Create Final Patch Review Process Checklist for M Components**
 - [SOP 192-104 Package/Patch Review](#)
- 4. Send Transition Document and Patch Review Process Checklist to QA Manager**
 - [Package/Patch Completion Transition Document](#)
- 5. Complete the Approval for Release Process**
 - [Approval for Release](#)
- 6. Send Completed Product in FORUM to EVS**

7. Forward Completed Transition Package to Release Manager

- Documentation may include, but is not limited to, technical manuals, user documentation, training materials, integration agreements, Testing Services Certification, and the Testing Services Test Report

2.5.3. Quality Gates

The Quality Gates for Stage Four of Testing – Final Review and Acceptance are:

- Patch Review Process Checklist
- Transition Package for Release Manager
- Testing Services Certification
- Approval by Project Manager and QA Manager
- [Approval for Release](#)

3. Testing Process for IDL

3.1. Overview

The OI Testing Process for the IDL details the steps that need to occur for a product to move from unit testing to full release. Though the testing process does specify generic testing activities, it also identifies other related activities that support test planning, test preparation, test execution, and test reporting. Development teams working on Health_eVet projects or Legacy VistA projects also following the IDL need to pass the Quality Gates of each Stage of Testing in order to be released into full production.

The **Stages of Testing** are:

- Stage One: Testing within the Development Team
- Stage Two: Testing Services, which includes;
 - Performance Engineering (PE)
 - Independent Verification and Validation (IV&V),
 - Test Center Infrastructure (formerly known as Test Lab)
 - Capacity Planning (CP)
- Stage Three: Field Testing
- Stage Four: Final Review and Acceptance

The IDL Testing Process Cookbook will provide detailed instructions on how these test activities are performed.

The IDL is based upon the Rational Unified Process (RUP). IDL serves as the lifecycle for all HSD&D re-engineering projects or projects that interface with re-engineering. IDL is divided into four phases:

- Inception Phase
- Elaboration Phase
- Construction Phase
- Transition Phase

IDL develops and tests code iteratively. An iteration is a defined span of time during a project. The end of an iteration is typically marked by a major project milestone. In an iteration, the code or build has to meet a certain quality standard to satisfy the milestone. The quality standard is defined by the success criteria and test cases that must pass.

3.2. Stage One – Testing Within the Development Team

Stage One – Testing Within the Development Team, formerly known as “internal testing”, encompasses unit testing, system testing, integration testing, and user acceptance testing (UAT). The IDL Testing Process Cookbook lists all the types of test that can be utilized to execute tests. Testing Services requires that unit testing, system testing, integration testing and UAT be performed prior to entering into the second Stage of Testing.

3.2.1. Inception Phase

3.2.1.1. Inputs

The inputs for the Inception phase are:

- Vision
- Requirements, supplemental specifications
- Use Case Model, Use Cases
- Software Development Plan (SDP)
- Development Case (DC)
- Project Management Plan, if a hybrid project
- Architecture
- Design Model
- Data Model

3.2.1.2. Activities:

The testing activities for the Inception Phase are:

1. Create the Project in IBM-Rational Test Manager

- Submit a Service Request to the Rational Tools Technical Support Team to create a Project in IBM-Rational Test Manager
- Ensure that test team members have access to IBM Rational Tools
- Ensure that IBM-Rational Test Manager is integrated with the other IBM-Rational Tools

2. Create the Master Test Plan

- The Master Test Plan governs the planning and control of the overall testing effort.
- The Master Test Plan is an artifact/document created and maintained Independent of IBM-Rational Test Manager, whereas the Iteration Test Plan is created and maintained inside IBM-Rational Test Manager.

3. Establish the Test Team

- Define roles and responsibilities
- Start test team meetings

4. Submit Testing Services Request (TSR) Form

- For the Testing Services Testing Process SOP 192-356, see [Testing Services SOP 192-356 Testing Services Testing Process](#)

5. Request Access to Groups and Systems

- Obtain access to all required systems and groups
- Ensure that identified project team members obtain the access to required systems and tools

6. Outline IBM-Rational Test Manager Structure

7. Analyze the Requirements for Testability

- Analyze requirements to ensure that they are clear, concise, unambiguous, and testable
- Testable requirements are those that permit the creation of test cases and the execution of tests

8. Identify Release Deliverables

- The project team reviews the [Package/Patch Completion Transition Document](#) and identifies any unique requirements

3.2.1.3. Quality Gates

A quality gate is an exit criterion that must be completed before a project can proceed to the next Stage of Testing. Some quality gates may be started in Stage One of Testing but are listed in the Testing Stage in which they are completed and signed off.

The quality gates for the Inception Phase are:

- Project created in IBM-Rational Test Manager, RequisitePro, ClearQuest, etc.
- Test team list and roles
- Master Test Plan
- Testing Services Request (TSR) form
- Release Package (begun)

3.2.2. Elaboration Phase

3.2.2.1. Inputs

The inputs for the Elaboration phase are:

- Project created in IBM-Rational Test Manager, RequisitePro, ClearQuest, etc.
- Test team list and roles
- Master Test Plan
- TSR form
- Release Package (begun)
- Prototype

3.2.2.2. Activities

The testing activities for the Elaboration Phase are:

1. Perform Risk Assessment for Test Execution

- Risk associated with test execution are identified, documented, monitored, mitigated, and tracked to closure
- Test execution risks tie directly into the IDL Test Plan template and “risk based” testing. See Section 3.2 in the [IDL Test Plan](#).

2. Analyze Rose Models, if applicable

3. Start Designing Tests

- Use Test Strategy to create Test Design
- Create steps/activities for test cases
- See IDL Testing Process Cookbook for list of test types

4. Establish Success Criteria for MOUs

- See [SOP 192-111 Preparation of Test Site Memorandum of Understanding](#)

5. Verify that Test Coverage Has Begun

- Prepare for the mapping of test cases from IBM-Rational Test Manager to RequisitePro, ClearQuest, and models in XDE and Rose.

6. Review Release Package

7. Complete the Testing Services Entrance Criteria artifacts

- [Testing Services Entrance Criteria](#)

8. Perform Smoke Test on the Prototype

- Smoke Testing is a type of testing that ensures that an application or system is stable enough to enter testing in the currently active test phase. It is usually a subset of the overall set of tests, preferably automated, that touches parts of the system in at least a cursory way.

3.2.2.3. Quality Gates

The quality gates for the Elaboration Phase are:

- Test risk assessment
- Requirements analysis results
- Test Results from model testing
- Master test plan
- Test design, updated
- Test coverage, verified

- Testing Services Package
- Release Package

3.2.3. Construction Phase

3.2.3.1. Inputs

The inputs for the Construction phase are:

- Unit test results
- Construction or Iteration Plan
- Test risk assessment
- Requirements analysis results
- Test Results from model testing
- Master test plan
- Test design, updated
- Test coverage, verified
- Prototype test results
- [Testing Services Entrance Criteria](#) artifacts
- Release Package

3.2.3.2. Activities

The testing activities for the Construction Phase are:

1. Create the Iteration Test Plan

- The Iteration Test Plan governs the planning and control of testing within the iteration.
- The IDL Testing Process Cookbook provides a complete listing of test types that are performed during the iteration's testing.

2. Execute the Iteration Test Plan

- Execute the test plan means run the tests identified in the test plan, record the results, document any test incidents, and report the findings.

3. Perform Prototype UAT

- Involve a subset of users in the iterative testing of prototype, screen captures, and new features

4. Set Up Project Team Triage Meetings

5. Perform UAT

- The development team, QA test analysts, and users coordinate the user acceptance testing.
- UAT is completed prior to entering Stage Two – Testing Services Testing.

6. Create Test Evaluation Summary

- The [Test Evaluation Summary](#) presents an analysis of the key test results and key measures for review and assessment by designated stakeholders.

7. Ensure Readiness for Field Testing

- Ensure the MOU for each test site is complete
- Ensure that the project has obtain three test sites for Field Testing: one Integrated, one large and one medium
- For more information, see “Test Sites” at <http://vista.med.va.gov/sepg/TPWG.asp>

8. Conduct Go/No Go Meeting for Software Release

- Make the Project Team Go/No-Go decision

3.2.3.3. Quality Gates

The quality gates for the Construction Phase are:

- Project Team Go/No-Go Decision
- Test Evaluation Summary
- Release Package, including:
 - Release Notes
 - Installation Guide
 - User Guide
 - Build, both KIDS and Java
- Testing Services Package, including:
 - Test Results
 - Testing documentation
 - Release Package
 - Data mapping for data migration
 - Database migration strategy
 - Requirements
 - Points of Contact
 - Project Team Software Quality Certification
 - See [Testing Services SOP 192-356 Testing Services Testing Process](#)

NOTE: The project Software Quality Assurance Group completes the Testing Services Package and submits the Testing Services Package through the Testing Services Request System.

3.3. Stage Two – Testing Services

3.3.1. Transition Phase

3.3.1.1. Inputs

The inputs for the Transition phase are:

- [Testing Services Entrance Criteria](#) artifacts
- Release Package
- Master Test Plan and Iteration Test Plan
- Test Design and Test Cases
- Test results
- Test Evaluation Summary
- Design model
- Requirements, Use Case Model, Use Cases
- Data mapping for data migration
- Database migration strategy
- Points of Contacts
- Performance/Load testing results
- Access to raw data generated by Capacity Planning
- Project Team Software Quality Certification
- See [Testing Services SOP 192-356 Testing Services Testing Process](#)

3.3.1.2. Activities

- The testing activities for the Transition Phase are:

1. Hold Focus Meeting with Testing Services

- Testing Services, project team, and HSITES gather to verify the scope of the testing and the activities to be performed

2. Ensure Successful Installation of Build

- IV&V verifies the build installation

3. Conduct Smoke to Verify Correct Installation

- The project team performs a smoke test on the build installed in the Test Lab
- The project team coordinates the smoke test with the TS personnel

4. Perform Independent Functional Testing

- IV&V performs the independent functional testing

5. Conduct Performance Testing

- IV&V conducts the performance testing

6. Perform Database Integrity Testing, if applicable

- IV&V conducts database integrity testing

7. Track Findings for Each Type of Test

8. Conduct Test Incident Tracking/Reporting Call

- The Test Incident Tracking Reporting Call is a regularly scheduled meeting to discuss the findings and status of test execution.

9. Provide Testing Services Report and Approval for Field Testing

- IV&V furnishes the Testing Services Report

10. Conduct Review Meeting with Test Center

- Gather Testing Services, project team, stakeholders, HSITES and field test site representatives to review the findings

3.3.1.3. Quality Gates

The quality gates for the Transition Phase are:

- Testing Services Approval for Field Test
- Testing Services Report

3.4. Stage Three – Field Testing

3.4.1. Transition Phase

In the IDL, Field Testing takes place in each iteration of the Transition Phase. Before proceeding to the production environment, the Development Team ensures that the Test Sites conduct proper testing in their test accounts. The goals of Field Testing are:

- To measure and enhance the portability of the software in varied environments with limited deployment
- To ensure the application has no adverse impacts on workflow
- To ensure a rigorous testing of the applications prior to a national deployment

With Health_eVet deployments, there are two main entities, the medical centers themselves and the location where the application is installed for both centrally and non-centrally located applications. Centrally-located applications are supported by the EMC or Austin Automation Center (ACC). Therefore the HeV Operations and AAC must be included early for testing to be successful. For non-centrally located applications the process still needs to be determined.

3.4.1.1. Inputs

The inputs for Stage Three of Testing - Field Testing, are:

- Go/No-Go Meeting Decision
- Testing Services Certification
- Testing Services Report
- Test Risk Assessment
- MOU for each Test Site
- Build for Operations and Support Teams
- Build for Test Sites
- Master Test Plan
- System and user documentation
- Test Incident Tracking Message
- Test Incident Tracking Tool

3.4.1.2. Activities

The activities for Stage Three of Testing - Field Testing, are:

1. Hold Kick Off meeting with Test Sites

2. Ensure that Test Sites sign-off on MOUs

3. Test Application for Six Weeks at Three Test Sites

- The minimum requirement is three test sites: one integrated, one large, and one medium test site test any subsequent iteration for one week in a production account obtain a waiver if these requirements can not be met for more information, see “Test Sites” at <http://vista.med.va.gov/sepg/TPWG.asp>

NOTE: Recommend that test sites install the application in their test accounts prior to installation in the production accounts.

4. Ensure that application installs at the EMC and the M code at the Test Sites

5. Send Testing Artifacts to the Test Sites

6. Review the Build and Documentation

- System and user documentation is reviewed

7. Verify Application Installs/Runs Successfully at the Test Sites

- The application must run correctly for a minimum of six weeks

8. Create Issue/Test Incident Tracking Process

9. Report Test Incidents Discovered During Field Testing

10. Ensure that Test Risk Assessment is Complete

11. Obtain the Field Test Certification Message

- Each test site supplies the certification message
- The development team obtains the certification from each test site

12. Obtain the Certification for Field Deployment

- Testing Services supplies the Certification for Field Deployment
- The development team obtains the Certification for Field Deployment

13. Conduct Release Readiness Meeting

- Gather the project team, stakeholders, HSITES, field test site representatives, and Testing Services to review the findings
- When warranted, Testing Services delivers the Certification for National Deployment

3.4.1.3. Quality Gates

The quality for Stage Three of Testing - Field Testing, are:

- Release Readiness Decision
- Completion of Field Testing
- Satisfaction of Three Test Site, Six Week Requirement
- User documentation updated/edited
- Field Test Certification Message
- Certification for Field Deployment

3.5. Stage Four – Final Review and Acceptance

3.5.1.1. Inputs

The inputs for Stage Four of Testing - Final Review and Acceptance are:

- Test Site Certification message
- Final Release Package for National Release Manager, including:
 - Final build
 - Installation documentation
 - Help files
 - Release notes

- User documentation

3.5.1.2. Activities

The activities for Stage Four of Testing - Final Review and Acceptance, are:

- 1. Verify Final Software Build**
- 2. Complete the Final Patch Review Process Checklist for HeV**
 - Complete the checklist for all components: [SOP 192-104 Package/Patch Review](#)
- 3. Create Final Patch Review Process Checklist for Legacy VistA Components**
 - [SOP 192-104 Package/Patch Review](#)
- 4. Send Transition Document and Patch Review Process Checklist to QA Manager**
 - [Package/Patch Completion Transition Document](#)
- 5. Complete the Approval for Release Process**
 - [Approval for Release](#)
- 6. Send Completed Product to Release Manager**
- 7. Forward Completed Transition Package to Release Manager**
 - Documentation may include, but is not limited to, technical manuals, user documentation, training materials, integration agreements, Testing Services Certification, and Testing Services Test Report
 - See [Package/Patch Completion Transition Document](#)

3.5.1.3. Quality Gates

The quality for Stage Four of Testing - Final Review and Acceptance are:

- Patch Review Process Checklist for HeV, completed
- Patch Review Process Checklist for VistA Legacy, completed
- Approval for Release
 - Testing Services Certification
 - Approval by Project Manager and QA Manager
 - [Approval for Release](#)

4. Messaging

This space is intentionally left blank. The Messaging Group will provide the text at a later date.

5. Security

Security is an increasingly important area of focus within OI. Ensuring the security of VistA and HealthVet-VistA software applications and systems has become a requirement for all development efforts; testing has a role in fulfilling this requirement.

In order to assess security relevant aspects of a project, the following items should be reviewed with assistance from the Certification & Accreditation Security Engineering (CASE) Team:

- What are the security relevant aspects of the application/system concerning Confidentiality, Integrity and/or Availability?
 - **Confidentiality:** Ensuring information is accessible only to those authorized to have access.
 - **Integrity:** The condition that exists when data is unchanged from its source and has not been accidentally or maliciously modified, altered, or destroyed.
 - **Availability:** Ensuring timely and reliable access to and use of information.
- How does auditing work in the application (e.g., logging and reviewing of application/system's transactions)?
- What type of data does the application/system process (e.g., patient, financial, etc.)?
- Does the application require encryption of data (e.g., transmission of sensitive data)?
- Does the application/system interface with other applications (e.g., VistA, COTS, GOTS, etc.)?
 - Through remote logon
 - Using remote procedure calls
 - By sharing data files
 - Other
- Identify those interfaces.
- Does the application/system perform access controls (e.g., restrict user accesses within the application)?

5.1. Security Certification

The security considerations listed above are addressed through a security relevance review conducted with a CASE Team Engineer. This review will be used to determine if an application/system requires certification/recertification. The intention is to ensure security is addressed and considered in OI development processes.

While security certification for new OI software applications/systems will likely require a full certification, modifications to existing VistA and HealthVet VistA software (through patch releases and version upgrades) should be reviewed to determine if certification/recertification is necessary.

For further guidance contact the CASE team via Outlook at [VHA OI SDD CASE Services](#) or the project Security Engineer, if one has been assigned to your Development Team.

A. Supporting Teams and Applications

A.1. Testing Process Work Group

HSD&D senior management has empowered the Testing Process Work Group (TPWG) to design, develop and implement a testing process for the Office of Information (OI). The testing process defines the Stages of Testing, testing activities, test tools, and testing artifacts. Furthermore, the testing process specifies the inputs, testing activities and quality gates for each Stage of Testing regardless of life cycle. The TPWG collaborates with Testing Services, EVS, EMC, HSITES, and other organizational groups to guide testing from conception through maintenance.

For more information on the TPWG, please visit the Web site at <http://vista.med.va.gov/sep/TPWG.asp> or contact the TPWG via email at VHA OI TEST Process Workgroup.

A.2. Testing Services

Testing Services is comprised of the following internal teams: Performance Engineering (PE), Independent Verification and Validation (IV&V), Test Center Infrastructure (formerly known as Test Lab) and Capacity Planning (CP).

The Testing Services Testing Process, SOP 192-356, provides all the necessary guidance for project teams to request testing services, execute testing, and receive certification.

Link to SOP 192-356: SEPG/SQA Web site

http://vista.med.va.gov/sep/lib/Standard%20Operating%20Procedures/192-356_Testing_Services_Testing_Process.doc

For more information on the Testing Services, please visit their Web site or contact them via email: <http://vista.med.va.gov/testing-services/>

A.3. Software Engineering Process Group/Software Quality Assurance (SEPG/SQA)

HSD&D established the SEPG/SQA to identify, evaluate, select, document, maintain, execute, and make available a set of "process assets" to support HSD&D software development activities.

For information about SEPG/SQA, review the Web site at <http://vista.med.va.gov/sep/index.asp>. You can also e-mail us via our Outlook mail group [VHA OI SDD SEPG/SQA](mailto:VHA_OI_SDD_SEPG_SQA).

A.4. Rational Tools Technical Support Team

The Rational Tools Technical Support Team implements the IBM-Rational Tool Suite across the Office of Information (OI). The implementation will integrate these products to support OI's use of standard methodology in order to create HealthVet-VistA service-oriented architecture as well as ongoing maintenance and enhancement of the M VistA application suite. This project will enable an enterprise level of Change Management, Configuration Management, Requirements Management, Test Management, and Risk Management. The Rational Tools Technical Support Team works individually with each team or committee to support use of the toolset for their service-oriented, development-oriented, or committee-oriented workload profiles and provides server administration, license administration, and end user support of all IBM-Rational tool related requests and issues."

For more information on the Rational Tools Technical Team, visit their Web site or contact them via email: Web site: <http://vista.med.va.gov/tools/> or email: [VHA OI Rational Tools Team](mailto:VHA_OI_Rational_Tools_Team).

A.5. Rational Test Tools User Group

The Rational Test Tools User Group (RTTUG) is a group of testing practitioners proficient in testing and the use of Rational Test Tools. RTTUG works in collaboration with the Rational Tools Technical Support Team to ensure the creating, implementing and maintaining a standard set of associated elements to be used in HSD&D's implementation of IBM-Rational Test Tools for use by all project teams.

For more information on the Rational Test Tools User Group, contact them via email: “**VHA OI SDD RTTUG**”

A.6. Rational Tools Training Team

Rational Tools Training Team is a part of the overall SEPG/SQA team. The purpose of the team is to provide training and mentoring for the Rational tools used in the software development lifecycle. The training will demonstrate the software engineering processes and standards mandated by Health Systems Design and Development.

Web sites related to the Rational Tools Training Team are as follows:

http://vista.med.va.gov/sepg/training/training_form.asp

http://vista.med.va.gov/sepg/training/training_reports.asp

http://vista.med.va.gov/sepg/ClearQuest_ClearCase.asp

<http://vista.med.va.gov/sepg/ReqPro.asp>

<http://vista.med.va.gov/sepg/TestMgr.asp>

For more information on the Rational Tools Training Team and their course offerings please contact them via email: [VHA OI SDD RATIONAL TOOLS TRAINING TEAM](mailto:VHA_OI_SDD_RATIONAL_TOOLS_TRAINING_TEAM).

B. Glossary

For a complete list of test terms, please see the IDL Glossary at http://vista.med.va.gov/sepg_lib/idl/IDLGlossary.pdf

Term	Definition
Activity	An element of work performed during the course of a project. Activities can be subdivided into tasks.
Defect	A deviation discovered in the field.
Input	Anything that motivates test execution, i.e., requirements, Testing Services Request (TSR) form, test data, test report, etc.
Iteration Test Plan	A plan governs the planning and control of testing within the iteration.
Master Test Plan	(1) A plan governs the planning and control of the overall testing; effort; and (2) a document that describes the scope, approach, resources, and schedule for testing activities. It identifies the items to be tested, features to be tested, testing tasks to be performed, the personnel responsible for each task, and the risk associated with the plan (IEEE).
Quality gate	An exit criterion that must be completed before a project can proceed to the next Stage of Testing.
Rational Test Plan	
Stage of Testing	A collection of logically related testing activities, usually culminating in the completion of a major deliverable.
Testability	The ability to appropriately test an application or system. Testability criteria may be employed to determine that an application or system is testable.
Test asset	A test artifact developed or used by the test team, i.e., Use Cases, Test Data, Requirements, and Test cases.
Test case	(1) A specific condition being executed within a system under test. A test case includes test setup steps, input data, user interaction, expected and actual results, and type of test or technique being used; (2) Documentation specifying inputs, predicted results, and a set of execution conditions for a test item (IEEE).
Test coverage	A term used generically to refer to how the extent of testing should be or has been measured.
Test design	(1) Documentation specifying the details of a test approach for software features or a combination of software features and identifying the associated tests (IEEE); and (2) the process of defining the test conditions, test case and test techniques for each Stage of testing.
Test incident	A deviation discovered during test execution.
Test strategy	(1) A description of the overall approach to testing. The test strategy specifies the Stages of Testing, entrance criteria, completion or acceptance criteria, techniques to ensure traceability, and constraints of testing; and (2) a section of the Master Test Plan