Existing Product Intake Program (EPIP)

Patch PSB\*3.0\*100

Test Evaluation



Department of Veterans Affairs

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Version 1.0

Revision History

**Note**: The revision history cycle begins once changes or enhancements are requested after the Communications Plan has been baselined.

| Date | Version | Description | Author |
| --- | --- | --- | --- |
| 10/27/2017 | 1.0 | Initial document. | EPIP Project Team |

Artifact Rationale

The test evaluation document is the primary output of the test and evaluation process, an integral part of the systems engineering process, which identifies levels of performance and assists the developer in correcting deficiencies.

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# Test Evaluation Introduction

The purpose of this Test Evaluation is to:

* Identify the testing approach used.
* Present a summary analysis of the key test results from the remediation of this intake for review and assessment by designated stakeholders.
* Provide a general statement of the quality of the system under test.
* Make recommendations for future testing efforts.

## Test Evaluation Scope

The scope of this Test Evaluation is to verify the functionality of the Patch PSB\*3.0\*100 code modification, as determined by Functional, Component Integration/System, and Regression testing. Testing activities followed the specifications outlined in the following Master Test Plan**: PSB\*3.0\*100** **Master Test Plan** (included in Appendix A).

## Test Architecture

Following are the EPIP test accounts used by the Leidos Development and SQA Testing teams to test PSB\*3.0\*100.

|  |  |
| --- | --- |
| **Development Test Accounts**  (For Unit Testing) | **SQA Test Accounts**  (For Functional, Regression, and Component Integration and System Testing) |
| VistAS1 ( alternate name: D1S1) | VistAG1 (alternate name: D1G1) |
| VistAS2 (alternate name: D1S2) – for CPRS GUI testing only | VistAG2 (alternate name: D1G2) – for CPRS GUI testing only |

## Test Environment/Configuration

The EPIP test accounts are maintained by the EPIP System Administrator, who installs all VA-released patches as soon as they are nationally released. All EPIP test accounts are cloned from existing VA Enterprise Testing Services (ETS) test accounts. The Computerized Patient Record System (CPRS) Graphical User Interface (GUI) executable is configured for each VistA instance utilizing a unique Internet Protocol (IP) address to connect to the VistA applications. Any updates to the CPRS GUI executable are handled by the EPIP System Administrator.

All EPIP Test Engineers and Developers who have the proper credentials can access the test accounts. The VA Austin Information Technology Center (AITC) support team resets passwords and sets up new access credentials on an as-needed basis.

## Installation Process

As soon as the remediation process is complete and the patch is available for testing, a KIDS build is created in the Development account and then sent to FORUM for final packaging. The patch is then submitted to the VA SQA Lead’s Mailman account for installation.

An EPIP Developer or Test Engineer utilizes the KIDS Installation process to extract the build from the patch and install the build into a test account. The individual who installs the patch verifies the routine checksums and also checks for errors during the installation process. If the patch is successfully installed without any errors, then the EPIP Test team proceeds with Functional, Regression, and Component Integration and System testing. If defects are found, then the Development team works to find a resolution and creates new versions of the patch until all defects are resolved.

# Test Data

The SQA Testing team utilizes the test data in the designated test accounts (D1G1, D1G2).

The test data is encrypted following the standards set forth by the VA Office of Information & Technology (OI&T). All Personally Identifiable Information (PII) and Protected Health Information (PHI) is scrubbed and is not available to the Test Engineers.

All testing is executed using encrypted test patients available from any of the EPIP test accounts. Examples of encrypted test patients:

AAAHURMMX, XPHY

BADHB, HAADXS

FDHUX, YHI J

All tests were executed manually by EPIP Test Engineers.

# Issues

No issues were encountered during testing of PSB\*3.0\*100.

| **Title** | **Issue Description** | **Type** | **Severity** |
| --- | --- | --- | --- |
| N/A | N/A | N/A | N/A |

# Test Execution Log

The Test Execution Log records the execution of test scripts and documents the test results for each test script.

The SQA Testing team utilizes the Rational Quality Management (QM) tool for all testing activities. All test documents are stored in the EPIP repository, including the Master Test Plan, Test Suites, Test Cases, and Test Scripts. Test execution is performed, and test results recorded, in Rational QM. The Test Engineer adds the test results to the Test Execution records to indicate whether testing achieved Pass or Fail status.

The Test Execution records for PSB\*3.0\*100 are included in the EPIP Patch PSB\*3.0\*100 Master Test Plan. The Master Test Plan is available in Appendix A.

# Test Defect Log

The Test Defect Log is a tool for recording, analyzing, tracking, and documenting the closure of defects. It specifies the screen, field, behavior or result that occurred, and the IEEE-defined Severity Level. It includes enough information for the developer to find and re-create the defect. The Defect Log is available in Appendix B.

# Test Results Summary

SQA testing for Test version 1 started in the Dev1 Gold1 test environment on April 27, 2017. Test version 1 was installed in the test environment after Unit testing in Dev1 Silver1 was completed. Upon completion of Integration testing (Component Integration and System Testing, Functional Testing, and Regression Testing), one (1) defect was found and reported. This defect (514016) stated that by setting the parameter switch to OFF, it was not possible to revert to the original state before the patch was installed.

Test version 2 was created to address defect 514016, and was submitted to SQA for testing. Test version 2 was installed in the Dev1 Gold1 test environment after Unit Testing in Dev1 Silver1 was completed on May 9, 2017. Upon completion of Integration testing (Component Integration and System Testing, Functional Testing, and Regression Testing) one (1) defect was found and reported. This defect (590911) stated that customer stakeholders required further clarification on handling multidivisional and single-division sites.

Test version 3 was created to address defect 590911, and was submitted to SQA for testing. Test version 3 was installed in the Dev1 Gold1 test environment after Unit testing in Dev1 Silver1 was completed on September 21, 2017. Upon completion of Integration testing (Component Integration and System Testing, Functional Testing, and Regression Testing), two (2) defects were found and reported. Defect 594124 stated that the division filter allowed all users to view the report. Defect 595295 stated that the report header displayed twice.

Test version 4 was created to address defects 594124 and 595295, and was submitted to SQA for testing. Test version 4 was installed in the Dev1 Gold1 test environment after Unit testing in Dev1 Silver1 was completed on September 27, 2017. Upon completion of Integration testing (Component Integration and System Testing, Functional Testing, and Regression Testing), one (1) defect was found and reported. Defect 601423 stated that a multidivisional user who chose one division was unable to select a different single division at the site.

Test version 5 was created to address defect 601423, and was submitted to SQA for testing. Test version 5 was installed in the Dev1 Gold1 test environment after Unit testing in Dev1 Silver1 was completed on October 10, 2017. Upon completion of Integration testing (Component Integration and System Testing, Functional Testing, and Regression Testing) on October 12, 2017, zero (0) defects were found and reported

## Defect Severity and Priority Levels

A defect is defined as a flaw in a component or system that can cause the component or system to fail to perform its required function, e.g., an incorrect statement or data definition. A defect, if encountered during execution, may cause a failure of the component or system.

Defects are categorized according to severity and priority levels. The test analyst assigns the severity, while the development manager assigns the priority for repair. For more information, see Defect Severity and Priority Definition in this Test Evaluation.

## Total Defects by Severity Level

The Defect Log in Appendix B displays the defects encountered while testing this patch, and the severity level of each.

## Breakdown of Test Results

Testing was completed on October 12, 2017. All test results were recorded in Rational QM. Detailed results are available in the EPIP Patch PSB\*3.0\*100 Master Test Plan (see Appendix A).

## Performance Testing

Performance testing was not conducted.

# Test Coverage

The EPIP Patch PSB\*3.0\*100 Master Test Plan contains details on test coverage (see   
Appendix A).

## Requirements Covered

The requirements for PSB\*3.0\*100 are stored in the Rational Requirements Management (RM) application. The test cases stored in Rational Quality Management (QM) are used to validate that the requirements have been addressed, providing full traceability. The user stories stored in Rational Configuration Management (CM) are linked to the requirements in RM and test cases in QM.

The following links provide access to the various Bar Code Medication Administration (BCMA)repositories in the Rational toolkit.

* BCMA (RM) – Go to **Artifacts**, then **Browse Artifacts**. Locate the EPIP folder at the left side of the page and expand it to display patch folders. Each patch folder contains the requirements for the patch number shown in the folder name.

<https://dns/rm/web#action=com.ibm.rdm.web.pages.showFoundationProjectDashboard&projectURI=https%3A%2F%2Fcdns%2Frm%2Fprocess%2Fproject-areas%2F_bw5xkH9pEeaGzLAkkVCH9g&vvc.configuration=https%3A%2F%2FDNS%2Frm%2Fcm%2Fstream%2F_cYZPYH9pEea>

* BCMA (QM) – Go to **Planning**, then **Browse Test Plans**, and then search for the Master Test Plan you need. The Master Test Plan and test cases are linked to requirements.

<https://DNS/qm/web/console/BCMA%20(QM)#action=com.ibm.rqm.planning.home.actionDispatcher&subAction=viewUserHome>

* BCMA (CM) – Go to **Plans**, then **All Plans**, and then search for the Sprint Plan you need. The user stories in each Plan are linked to requirements and test cases.

<https://dns/ccm/web/projects/BCMA%20(CM)#action=com.ibm.team.dashboard.viewDashboard>

## Section 508 Compliance Coverage

Section 508 test results will be reported to VA in the following documents:

* EPIP\_VASection508\_Compliance\_Test\_Results\_PSB\_3.0\_100
* EPIP\_VASection508\_Conformance\_Validation\_Statement\_PSB\_3.0\_100
* EPIP\_VASection508\_Self-Certification\_Document\_(PSB\_3.0\_100)
* EPIP\_VASection508\_Verifiable\_Objective\_Evidence\_PSB\_3.0\_100

# Suggested Actions

Leidos recommends moving this patch to IOC testing.

# Defect Severity and Priority Definitions

The classification of defects within a system examines both the severity and priority of the defect.

Severity is a measure of how great the impact is on the user’s ability to complete the documented actions within the system.

Priority determines the speed with which a given defect must be repaired.

Defect classification may be determined either because testing is delayed by a failure in the system or because a cumbersome workaround prevents a user from completing the assigned tasks. Both severity and priority measures must be recorded when scheduling defect resolution tasks.

## Defect Severity Level

The following subsections identify the defect severity levels.

### Severity Level 1 – Critical

Institute of Electrical and Electronics Engineers (IEEE) definition: The defect results in the failure of the complete software system, of a subsystem, or of a software unit (program or module) within the system.

* Any defect that compromises patient safety or system security. Examples of system security defects include breach of confidentiality requirements of the Privacy Act, the Health Insurance Portability and Accountability Act (HIPAA), or Federal Tax Information guidelines.
* Loss of system functionality critical to user operations with no suitable workaround, i.e., there is no way to achieve the expected results using the application.
* System crash or hang that prevents further testing or operation of the complete application or a section of the application.
* Any defect that causes corruption of data from a result of the system (as opposed to user error).
* Any defect in which inappropriate transmissions are consistently generated or appropriate transmissions of HL7 messages fail to be generated.
* Loss of functionality resulting in erroneous eligibility/enrollment determinations or communications not being sent.

### Severity Level 2 - High

IEEE definition: The defect results in the failure of the complete software system, of a subsystem, or of a software unit (program or module) within the system. There is no way to make the failed component(s) function. However, there are acceptable processing alternatives which will yield the desired result.

* A major defect in the functionality that does not result in corruption of data.
* A major defect in the functionality resulting in a failure of all or part of the application, where:
* The expected results can temporarily be achieved by alternate means. The customer indicates the work around is acceptable for the short term.
* Any defect that does not conform to Section 508 standards.
* Any defect that results in inaccurate or missing requirements.
* Any defect that results in invalid authentication or authentication of an invalid end user.

### Severity Level 3 - Medium

IEEE definition: The defect does not result in a failure, but causes the system to produce incorrect, incomplete, or inconsistent results, or the defect impairs the systems usability.

* Minor functionality is not working as intended and a workaround exists but is not suitable for long term use
* The inability of a valid user to access the system consistent with granted privileges
* Typographical or grammatical errors in the application, including installation guides, user guides, training manuals, and design documents
* Any defect producing cryptic, incorrect, or inappropriate error messages
* Any defect that results from the use of non-standard data terminology in the application or documentation, as defined by the Department of Veterans Affairs
* Cosmetic issues that are important to the integrity of the product, but do not result in data entry and or data quality problems.

### Severity Level 4 - Low

IEEE definition: The defect does not cause a failure, does not impair usability, and the desired processing results are easily obtained by working around the defect.

* Minor loss of, or defect in the functionality where a long term use exists
* Low-level cosmetic issues.

## Priority Classifications

The following subsections identify the appropriate actions for defects at each priority level, per definitions of IEEE.

### Priority 1 - Resolve Immediately

Further development and/or testing cannot occur until the defect has been repaired. The system cannot be used until the repair has been affected.

### Priority 2 - Give High Attention

The defect must be resolved as soon as possible because it is impairing development and/or testing activities. System use will be severely affected until the defect is fixed.

### Priority 3 - Normal Queue

The defect should be resolved in the normal course of development activities. It can wait until a new build or version is created.

### Priority 4 - Low Priority

The defect is an irritant that should be repaired, but can be repaired after more serious defects have been fixed.

# Optional Tables, Charts, and Graphs

None.

# Document Approval Signatures

Signed: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Program/Project Manager Date

Signed: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Business Sponsor Representative Date

Signed: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Test Lead Date

Appendix A - Test Execution Log

The Test Execution Records for PSB\*3.0\*100 are included in the EPIP Patch PSB\*3.0\*100 Master Test Plan.



Appendix B – Defect Log

Five (5) defects were found during testing of versions 1-5. The defects have been resolved.

| **Defect ID** | **Affected Screen** | **Affected Field** | **Observed Behavior** | **Severity** | **Description** |
| --- | --- | --- | --- | --- | --- |
| N/A | N/A | N/A | N/A | N/A | No defects were found during Unit Testing of version 1.0. |
| N/A | N/A | N/A | N/A | N/A | No defects were found during Component Integration/System Testing of version 1.0. |
| N/A | N/A | N/A | N/A | N/A | No defects were found during Regression Testing of version 1.0. |
| 514016 | N/A | N/A | Turning the switch to off, tester was unable to revert to the original state before the patch was installed. | Critical | One (1) defect was found during Functional Testing of version 1.0. |
| N/A | N/A | N/A | N/A | N/A | No defects were found during Unit Testing of version 2.0. |
| N/A | N/A | N/A | N/A | N/A | No defects were found during Component Integration/System Testing of version 2.0. |
| N/A | N/A | N/A | N/A | N/A | No defects were found during Regression Testing of version 2.0. |
| 590911 | N/A | N/A | Clarification needed for PSB\*3.0\*100 on handling Single and Multi-divisional sites. | Critical | One (1) defect was found during Functional Testing of version 2.0. |
| N/A | N/A | N/A | N/A | N/A | No defects were found during Unit Testing of version 3.0. |
| N/A | N/A | N/A | N/A | N/A | No defects were found during Component Integration/System Testing of version 3.0. |
| N/A | N/A | N/A | N/A | N/A | No defects were found during Regression Testing of version 3.0. |
| 594124 | N/A | N/A | Division filter allowing all users to view report. | Critical | Two (2) defects were found during Functional Testing of version 3.0. |
| 595295 | N/A | N/A | Report header displayed twice when running the Missing Dose Report. | Medium |
| N/A | N/A | N/A | N/A | N/A | No defects were found during Unit Testing of version 4.0. |
| N/A | N/A | N/A | N/A | N/A | No defects were found during Component Integration/System Testing of version 4.0. |
| N/A | N/A | N/A | N/A | N/A | No defects were found during Regression Testing of version 4.0. |
| 601423 | N/A | N/A | Multidivisional user choosing one division unable to select a different single division. | Critical | One (1) defect was found during Functional Testing of version 4.0. |
| N/A | N/A | N/A | N/A | N/A | No defects were found during Unit Testing of version 5.0. |
| N/A | N/A | N/A | N/A | N/A | No defects were found during Component Integration/System Testing of version 5.0. |
| N/A | N/A | N/A | N/A | N/A | No defects were found during Regression Testing of version 5.0. |
| N/A | N/A | N/A | N/A | N/A | No defects were found during Functional Testing of version 5.0. |