**Department of Veterans Affairs (VA)**

**Home Telehealth Reporting Enhancements (HTRE) Phase 2**

**Integrated Home Telehealth Application (IHTA)**

**Build 1**

**Requirements Specification Document (RSD)**



**December 2016**

**Version 3.0**

**Revision History**

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Version** | **Description** | **Author** |
| 12/06/2016 | 3.0 | Updated document with the current contract information for HTRE Phase 2. | Celeste Perkins |
| 08/17/2016 | 2.1 | Updated the wording for requirement  704056 in the Functional Specifications section 2.6. | Kate Hula |
| 07/19/2016 | 2.0 | Removed third bullet from Functional Specifications section 2.6 related to removal of Care Coordinator and PSA roles. | Kristen Kriwox |
| 05/09/2016 | 1.9 | Updated Release Requirements according to project scope changes. | Kate Hula |
| 03/04/2016 | 1.8 | Added HTRE R2.5 Increment 4 functional requirements. Technical edit. | Kate Hula |
| 11/17/2015 | 1.7 | Updated RSD to new PMAS Template. Added HTRE R2.0 Increment 3 functional  requirements. Technical edit. | Kate Hula |
| 04/12/2015 | 1.6 | Technical edit. Added Signatures | Kate Hula |
| 04/10/2015 | 1.5 | Change ref to HTRE Release 2.0 to 1.5 | Erika Bower |
| 03/11/2015 | 1.4 | Updated for HTRE Release 2.0 | Kristen Kriwox |
| 02/25/2015 | 1.3 | Technical edit. Added Signatures | Kate Hula |
| 10/15/2014 | 1.2 | Approval draft | Diana Bradbery |
| 10/14/2014 | 1.1 | Incorporated changes per team review | Diana Bradbery |
| 10/03/2014 | 1.0 | Initial draft | Diana Bradbery |

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**1. Introduction**

This section will discuss the purpose and scope of this Requirements Specification Document

(RSD) document, and provide references to applicable supporting documentation.

**1.1. Purpose**

This RSD will document the non-functional requirements common to all of modules of the Integrated Home Telehealth Application (IHTA) being developed as part of the Home Telehealth Reporting Enhancements (HTRE) Phase 2 project.

The intended audience for this RSD includes representatives of the Veterans Health Administration (VHA) Patient Care Services (PCS) Office of Telehealth Services (OTS) Care Coordination Home Telehealth (HT) Program, the Department of Veterans Affairs (VA) Office of Information and Technology (OI&T), and the HTRE Phase 2 project team.

**1.2. Scope**

This RSD will only document non-functional requirements; there are no functional requirements for IHTA in Build 1.

Build 1 is being utilized to achieve the following for the IHTA application:

• VA 508 Conformance, bring supportive system software up to TRM Compliant levels and remediate ‘Critical’ security vulnerabilities found in VA Fortify security scans.

**1.3. References**

The following documents are referenced in this RSD:

• T4 Performance Work Statement, “Home Telehealth Reporting Enhancements”, Section

C, VA118-1014-0027 (dated September 8, 2014)

• Section 508 Compliance Standards from the Electronic and Information Technology

Accessibility Standards Final Rule (Federal Register 21 December 2000, 36 CFR Part

1194)

• NIST 800-53 Revision 3, Recommended Security Controls for Federal Information

Systems and Organizations

• VA Handbook 6500, Information Security Program

• VA Handbook 6102, Internet/Intranet Services

• HTRE System Design Document

• HTRE Disaster Recovery Plan

• IHTA Programming and User Interface Style Guide

• Agile Modeling v2. Accessed at:

<http://www.agilemodeling.com/practices.htm#ApplyModelingStandards>

• Lynch PJ, Horton S. Web Style Guide: Basic Design Principles for Creating Web Sites

3rd Edition. Online version located: <http://www.webstyleguide.com/index.html>

• Code Conventions for the Java™ Programming Language. Accessed at:

<http://java.sun.com/docs/codeconv/html/CodeConvTOC.doc.html>

• Java 2 Platform, Enterprise Edition (J2EE) Architecture Standard Website. Accessed at:

<http://java.sun.com/j2ee/overview.html>

• Health Level 7 (HL7) Standards Website. Accessed at: <http://www.hl7.com/>

**2. Overall Description**

The specifications contained in this RSD have been developed within a specific context. Telehealth provides a solution to meet the needs of Veterans for VA’s non-institutional care services. In 2005, the national Store and Forward Telehealth (SFT) network was developed to support screening for diabetic eye disease, and was expanded in 2010 to include teledermatology. With the fiscal year (FY) 2011-FY12 Telehealth Expansion Initiative, VA’s national Clinical Video Telehealth (CVT) network was formalized to deliver video-consultation services between VA Medical Centers (VAMC) and Community-Based Outpatient Clinics (CBOC) and deliver care into the home. Home Telehealth (HT) uses informatics, disease management and remote access technologies to support the care and case management of Veteran patients with chronic conditions, such as diabetes and heart disease, in their homes and local communities. Currently, the program supports 90,000 patients; this number is expected to continue to increase beyond fiscal year 2016.

HTRE Phase 2 puts medical devices in patient homes to improve the quality of care and standard of living for Veterans by reducing hospital admissions, clinic visits, and emergency room attendances. These medical devices are provided by third party vendors, under contract to Veterans Health Administration, who transmit data to its servers that are hosted in VA data centers. The HTRE Phase 2 program aims to serve the two to three percent of patients who use

30 percent of costs, and are frequent clinic attendees and require urgent hospital admissions. Development and delivery of the Web-based IHTA will improve care for patients with chronic conditions who benefit from more frequent monitoring, resulting in better health levels with fewer emergencies, happier patients, and lower costs.

**2.1. Accessibility Specifications**

IHTA will adhere to and implement the following standards for accessibility:

• Internet/Intranet Services Standards from the VA Handbook 6102

• Section 508 Compliance Standards from the Electronic and Information Technology

Accessibility Standards Final Rule (Federal Register 21 December 2000, 36 CFR Part

1194) IHTA is utilizing Build 1 to become VA 508 Conformant.

**2.2. Business Rules Specification**

Any applicable business rules will be documented in the IHTA user stories stored on the

Rational Team Concert (RTC); CCHT\_CM Project Area.

**2.3. Design Constraints Specification**

Design-constraints specifications will adhere to VA standards and will include, but not be limited to, the following:

• Only tools on the VA-Approved Tools List will be used for developing IHTA.

• An iterative development approach will be used.

• The IHTA architecture must comply with One-VA Enterprise Architecture.

• New features should be scalable to the new technical environment as the Veterans Health

Information Systems and Technology Architecture (VistA) transitions into VistA 2.0.

• Support Internet Explorer (IE) Versions 9 - 11 only.

• Section 508 Compliance Standards from the Electronic and Information Technology

Accessibility Standards Final Rule (Federal Register 21 December 2000, 36 CFR Part

1194)1

• Code Conventions for the JavaTM Programming Language2

• Java 8 Platform, Standard Edition 3

• Any messaging implemented to support IHTA will comply with applicable sections of the Health Level 7 (HL7) standard4

1 Electronic and Information Technology Accessibility Standards (Section 508). Accessed at: [http://www.access- board.gov/guidelines-and-standards/communications-and-it/about-the-section-508-standards/section-508-standards](http://www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-section-508-standards/section-508-standards)

2 Code Conventions for the Java™ Programming Language. Accessed at:

<http://java.sun.com/docs/codeconv/html/CodeConvTOC.doc.html>

3 Java 8 Platform, Standard Edition. Accessed at: [Java 8 Platform, Standard Edition](http://docs.oracle.com/javase/8/)

4 Health Level 7 (HL7) Standards Website. Accessed at: <http://www.hl7.com/>

**2.4. Disaster Recovery Specification**

For a description of the IHTA Disaster Recovery Specifications, refer to the *HTRE Phase 2*

*System Design Document* and the *HTRE Phase 2 Production Operations Manual* stored in the

HTRE TSPR.

**2.5. Documentation Specifications**

The HTRE Phase 2 team will adhere to Section 508 Compliance Standards5 regarding IHTA

documentation.

**2.6. Functional Specifications**

There are no functional requirements for IHTA in Build 1.

**2.7. Graphical User Interface (GUI) Specifications**

IHTA will adhere to Section 508 Compliance Standards for Graphical User Interface (GUI) specifications. IHTA will also adhere to specifications set forth by Agile Modeling’s *Apply Modeling Standards* 6 and the *Web Style Guide: Basic Design Principles for Creating Web Sites*.7 The user interface for IHTA will utilize common standards for navigation, site and page structure, page design, typography, editorial style, graphics, and multimedia.

HTRE Phase 2 developed the *IHTA Programming and User Interface Style Guide,* utilizing Agile Modeling and the Web Style Guide references listed above. All specifications will be outlined in this document.

**2.8. Multi-divisional Specifications**

This section is not applicable to IHTA.

5 508 Compliance Standards from the Electronic and Information Technology Accessibility Standards Final Rule (Federal

Register 21 December 2000, 36 CFR Part 1194)

6 Agile Modeling v2. *Apply Modeling Standards*. Accessed at:

<http://www.agilemodeling.com/practices.htm#ApplyModelingStandards>

7 Lynch PJ, Horton S. *Web Style Guide: Basic Design Principles for Creating Web Sites* 3rd Edition. Online version located:

<http://www.webstyleguide.com/index.html>

**2.9. Performance Specifications Integrated Home Telehealth Application (IHTA):** Total Users: 200

Total Concurrent Users: 5-10

The business requirements for the production performance test of IHTA will be the following:

• Home Page to download in less than 5 seconds

• Login response times within 4 seconds

• Support 5-10 concurrent users under normal conditions

• Request to access an external link should take less than 3 seconds

• Searches on QIR, will take less than 3 seconds

• Creating the initial shells of a QIR will take less than 2 seconds

• Exporting a list of QIRs will take less than 3 seconds

• Generating HT aggregate reports takes a maximum of 1 minute.

For load testing, the response time of each IHTA transaction will be identified while the system is not under any load. This will help assess the load test results by illustrating which transactions degrade most significantly as load increases. The test results will provide a reference for comparison against test results for future releases. This allows determining if application changes (hardware, software, configuration, etc.) have impacted the performance of a transaction. It will also confirm that the scripts and application are working without error prior to starting a load

test.

**2.10. Quality Attributes Specification**

IHTA Java source code, including, but not limited to, file names, file organization, indentation, comments, declarations, statements, white spaces, and programming practices, will adhere to the Sun Java Coding standard.8 For more information, reference the *IHTA Programming and User Interface Style Guide*.

**2.11. Reliability Specifications**

No reliability specifications for IHTA have been defined at this time. When defined, they will be added to this RSD in a future update.

**2.12. Scope Integration**

All computer systems and sub-systems of the HTRE Phase 2 project must incorporate adequate safeguards for the security of information processed by them. Before a system or sub-system becomes operational, it must undergo a security Certification and Accreditation (C&A) process that results in an Authority to Operate (ATO) or Interim Authority to Operate (IATO).

8 Code Conventions for the Java™ Programming Language. Accessed at:

<http://java.sun.com/docs/codeconv/html/CodeConvTOC.doc.html>

According to Office of Management and Budget (OMB) and the Clinger-Cohen Act of 1996, security must be a consideration throughout the System Development Lifecycle (SDLC). This section describes the security specifications that must be included in the development of IHTA. This section will be used as a starting point for security planning.

• **Access Control** (National Institute of Standards and Technology [NIST] SP 800-53**9**).

Access control for IHTA is provided agency-wide by OTS. Local, regional, and national IHTA administrators will determine and maintain access controls at the system level for IHTA. This control is managed at the VA level.

• **Authorization**. IHTA enforces assigned authorizations for controlling access to the system in accordance with applicable policy. For VA users, IHTA uses the existing VHA Enterprise Lightweight Directory Access Protocol (LDAP) domain for authentication storage. For non-VA users, IHTA will utilize the IHTA database tables to store authorization information, such as credentials and successful and failed logon attempts. The administrative IHTA screens are provided for administrative users to assign authorizations to IHTA users with different roles and permissions.

• **Registration**. The IHTA registration screens capture a user’s VA network ID to store it in the IHTA database table.

• **Registration Approval**. The registration approval process for IHTA is performed by its administrator or a system administrator. The screens of the registration approval process capture and store IHTA database information about user roles, groups, and permissions related to specific application modules of IHTA.

• **Identification and Authentication** (NIST SP 800-53). IHTA uniquely identifies and authenticates VA users using the VA Enterprise LDAP.

HTRE Phase 2 will use the formal, documented policies, and procedures (i.e., VA Directive and Handbook 6500, Security Accreditation Package and Security Management and Reporting Tool [SMART] database) provided by Office of Cyber and Information Security (OCIS) that govern the security requirements set forth by NIST and VA, and must ensure their effective implementation. Please refer to the Home Telehealth SMART Inventory Checklist.

**2.13. Security Specifications**

Build 1 is being utilized to bring IHTA supportive software, namely Java, to TRM acceptable versions. Java 8 is being implemented in IHTA in Build 1.

Build 1 is also being utilized to remediate any ‘Critical’ security vulnerabilities found from resulting VA Fortify scans on IHTA.

9 National Institute of Standards and Technology Special Publication 800-53 Revision 2, Recommended Security Controls for

Federal Information Systems, December 2007.

**2.14. System Features**

There are no functional requirements for IHTA for Build 1.

**2.14.1. Features for Each IHTA Module**

There are no functional requirements for IHTA for Build 1.

**2.14.2. Application-Wide Features**

The general features and functional requirements in the following sections apply across the application.

**2.14.2.1. Maintaining Data Integrity in a Multi-User Environment**

As a Web-based application, IHTA allows users to share data in a multi-user environment. Data is stored in database tables on a database server (Microsoft SQL Server). In a multi-user environment, more than one person may work with the same record at the same time. Since other users can change or even delete the same data that another user is trying to edit, users may occasionally conflict with others as they work. IHTA keeps track of the status of records as users edit them, and makes sure a user is using the latest data. When two or more people try to edit the same record, IHTA will display a suitable error message to assist with resolving the conflict.

**2.14.2.2. Preventing Loss of User-Entered Data**

IHTA will display a standard dialog box for all user actions that may result in the loss of user- entered data. The dialog box will provide the user with the option to either continue or discontinue the action, clearly specifying that data loss will occur if the user chooses to continue. The user must confirm the action before continuing to a new IHTA window.

**2.15. Usability Specifications**

Usability specifications for IHTA have not yet been defined. When defined, they will be added to this RSD in a future update.

**3. Purchased Components**

See Table 1 for the purchased software components for IHTA.

**Table 1: Purchased Software Components**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Software Category** | **Product** | **Total License s Needed** | **FY16**  **Purchase** | **FY17**  **Purchase** | **FY18**  **Purchase and Beyond** |
| UI Design Tool | Adobe Flex Builder | 2 | X | X | X |
| On-Line Help | Adobe Robohelp 10 | 1 | X | X | X |
| 508 Compliant Test | JAWS | 3 | X | X | X |
| Server Operating  System | Red Hat Linux  (Dev/SQA) | 8 | X | X | X |
| Server Operating  System | Red Hat Linux  (Production) | 8 | X | X | X |

**4. Estimation**

Refer to the *HTRE Phase 2 Project Management Plan* for estimation information.

**Project Software Functional Size and Size-Based Effort and Duration**

**Estimate**

**Application**

**Figure 1: Cumulative Probability (“S-curve”) Chart**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Item** | **A** | **B** | **C** | **D** | **E** | **Total** |
| **Counted Function**  **Points** | TBD |  |  |  |  |  |
| **Estimated Scope**  **Growth** | TBD |  |  |  |  |  |
| **Estimated Size at**  **Release** | TBD |  |  |  |  |  |

**Table 2: Size Based Effort Estimates**

|  |  |  |
| --- | --- | --- |
| **Size-Based Effort Estimates** | **Labor Hours** | **Probability** |
| **Low-Effort Estimate – With indicated probability, project will consume no more than:** | TBD |  |
| **High-Effort Estimate – With indicated probability, project will consume no more than:** | TBD |  |

**Table 3: Size Based Duration Estimates**

|  |  |  |
| --- | --- | --- |
| **Size-Based Duration Estimates** | **Work Days** | **Probability** |
| **Low-Duration Estimate – With indicated probability, project will consume no more than:** | TBD |  |
| **High-Duration Estimate -- With indicated probability, project will consume no more than:** | TBD |  |

**5. Approval Signatures**

REVIEW DATE: December 12, 2016

SCRIBE: Celeste Perkins

Signed:

Ellen Hans, Integrated Project Team (IPT) Chair & IT Program Manager Date Catherine Buck, Business Sponsor Date David Komraus, HTRE Phase 2 Project Manager Date

HTRE Phase 2 Build 1

Requirements Specification Document (RSD) 10 December 2016