**HEC CRM Project**

System Design Document



Department of Veterans Affairs

**October 2015**

Version 0.1

Revision History

| Date | Version | Description | Author |
| --- | --- | --- | --- |
| 07/30/2015 | 0.1 | Initial Draft | PMO Support |
| 10/09/2015 | 0.2 | Document Update and Review | PMO Support |

Artifact Rationale

The System Design Document (SDD) is a dual-use document that provides the conceptual design as well as the as-built design. This document will be updated as the product is built, to reflect the as-built product. Per the Project Management Accountability System (PMAS) Guide, the SDD as a conceptual design is required prior to the Milestone 1 Review. (Sections 1, 2, 3, 4, 5, 7, 9 need to be populated, as applicable.) The as-built design for each delivery must be incorporated prior to the Milestone 2 Review. (The entire document needs to be populated or updated, as applicable.)

Instructions

| Activity | New Capability (1) | Feature Enhancement (2) |
| --- | --- | --- |
| **Field Deployment (A)** | Yes |  |
| **Cloud/Web Deployment (B)** | Yes |  |
| **Mobile Application (C)** | Yes |  |

Table of Contents

[1. Introduction 1](#_Toc432671344)

[1.1. Purpose of the SDD 1](#_Toc432671345)

[1.2. Identification 1](#_Toc432671346)

[1.3. Scope 2](#_Toc432671347)

[1.4. Constraining Policies, Directives and Procedures 3](#_Toc432671348)

[1.5. User Characteristics 3](#_Toc432671349)

[1.6. Relationship to Other Documents and Plans 4](#_Toc432671350)

[1.7. Definitions, Acronyms, and Abbreviations 4](#_Toc432671351)

[1.8. References 9](#_Toc432671352)

[2. Background 11](#_Toc432671353)

[2.1. Overview of the System 11](#_Toc432671354)

[2.2. Overview of the Business Process 12](#_Toc432671355)

[2.3. Business Benefits 17](#_Toc432671356)

[2.4. Assumptions and Constraints 18](#_Toc432671357)

[2.4.1. Design Assumptions 18](#_Toc432671358)

[2.4.2. Design Constraints 18](#_Toc432671359)

[2.4.3. Design Tradeoffs 18](#_Toc432671360)

[2.5. Overview of the Significant Requirements 19](#_Toc432671361)

[2.5.1. Overview of Significant Functional Requirements 19](#_Toc432671362)

[2.5.2. Overview of Functional Workload/Performance Requirements 19](#_Toc432671363)

[2.5.3. Overview of Operational Requirements 19](#_Toc432671364)

[2.5.4. Overview of the Technical Requirements 20](#_Toc432671365)

[2.5.5. Overview of the Security or Privacy Requirements 20](#_Toc432671366)

[2.5.6. Overview of System Criticality and High Availability Requirements 21](#_Toc432671367)

[2.5.7. Single Sign-on Requirement 21](#_Toc432671368)

[2.5.8. Requirement for Use of Enterprise Portals 23](#_Toc432671369)

[2.5.9. Special Device Requirements 23](#_Toc432671370)

[2.6. Legacy System Retirement 23](#_Toc432671371)

[2.7. Conceptual Application Design 23](#_Toc432671372)

[2.7.1. Application Context 23](#_Toc432671373)

[2.7.2. High-Level Application Design 24](#_Toc432671374)

[2.7.3. Application Locations 26](#_Toc432671375)

[2.8. Conceptual Data Design 26](#_Toc432671376)

[2.8.1. Project Conceptual Data Model 26](#_Toc432671377)

[2.8.2. Database Information 27](#_Toc432671378)

[2.8.3. User Interface Data Mapping 28](#_Toc432671379)

[2.9. Conceptual Infrastructure Design 28](#_Toc432671380)

[2.9.1. System Criticality and High Availability 28](#_Toc432671381)

[2.9.2. Special Technology 28](#_Toc432671382)

[2.9.3. Technology Locations 29](#_Toc432671383)

[2.9.4. Conceptual Infrastructure Diagram 30](#_Toc432671384)

[3. Conceptual Design 31](#_Toc432671385)

[3.1. Conceptual Application Design 31](#_Toc432671386)

[3.1.1. Application Context 32](#_Toc432671387)

[3.1.2. High-Level Application Design 40](#_Toc432671388)

[3.1.3. Application Locations 42](#_Toc432671389)

[3.2. CRM Solution Layers – Conceptual Design 42](#_Toc432671390)

[3.2.1. Solution Components 42](#_Toc432671391)

[3.2.2. Managed and Unmanaged Solutions 42](#_Toc432671392)

[3.3. CRM Core Components 47](#_Toc432671393)

[3.3.1. Enterprise Person Search 47](#_Toc432671394)

[3.3.2. CRM Call Center Framework 49](#_Toc432671395)

[3.4. Conceptual Data Design 50](#_Toc432671396)

[3.4.1. Project Conceptual Data Model 50](#_Toc432671397)

[3.4.2. Database Information 50](#_Toc432671398)

[3.5. Conceptual Infrastructure Design 50](#_Toc432671399)

[3.5.1. System Criticality and High Availability 51](#_Toc432671400)

[3.5.2. Special Technology 51](#_Toc432671401)

[3.5.3. Technology Locations 51](#_Toc432671402)

[3.5.4. Conceptual Infrastructure Diagram 51](#_Toc432671403)

[4. System Architecture 53](#_Toc432671404)

[4.1. Hardware Architecture 53](#_Toc432671405)

[4.2. Software Architecture 54](#_Toc432671406)

[4.3. Network Architecture 54](#_Toc432671407)

[4.4. Service Oriented Architecture / ESS 54](#_Toc432671408)

[4.5. Enterprise Architecture 54](#_Toc432671409)

[5. Data Design 55](#_Toc432671410)

[5.1. DBMS Files 55](#_Toc432671411)

[5.2. Non-DBMS Files 55](#_Toc432671412)

[5.3. Data View 56](#_Toc432671413)

[6. Detailed Design 57](#_Toc432671414)

[6.1. Hardware Detailed Design 57](#_Toc432671415)

[6.2. Software Detailed Design 57](#_Toc432671416)

[6.2.1. Conceptual Design 57](#_Toc432671417)

[6.2.2. Specific Requirements 60](#_Toc432671418)

[6.3. Network Detailed Design 81](#_Toc432671419)

[6.4. Service Oriented Architecture / ESS Detailed Design 81](#_Toc432671420)

[6.4.1. Service Description for <Consumed Service Name> 81](#_Toc432671421)

[6.4.2. Service Design for <Provided Service Name> 81](#_Toc432671422)

[7. External System Interface Design 87](#_Toc432671423)

[7.1. Interface Architecture 87](#_Toc432671424)

[7.2. Interface Detailed Design 87](#_Toc432671425)

[8. Human-Machine Interface 89](#_Toc432671426)

[8.1. Interface Design Rules 89](#_Toc432671427)

[8.2. Inputs 89](#_Toc432671428)

[8.3. Outputs 89](#_Toc432671429)

[8.4. Navigation Hierarchy 89](#_Toc432671430)

[8.4.1. Screen [x.1] 89](#_Toc432671431)

[8.4.2. Screen [x.2] 89](#_Toc432671432)

[8.4.3. Screen [x.3] 89](#_Toc432671433)

[9. Security and Privacy 90](#_Toc432671434)

[9.1. Security 90](#_Toc432671435)

[9.2. Privacy 90](#_Toc432671436)

[A.1. RTM 92](#_Toc432671437)

[A.2. Packaging and Installation 92](#_Toc432671438)

[A.3. Design Metrics 92](#_Toc432671439)

[A.4. Acronym List and Glossary 92](#_Toc432671440)

[A.5. Required Technical Documents 92](#_Toc432671441)

[A.6. Attach Documents 92](#_Toc432671442)

# Introduction

The Health Eligibility Center (HEC) will determine Veterans’ eligibility for enrollment, provide eligibility and enrollment guidance to the nation’s VA medical centers (VAMC), and execute a host of complementary services in direct support of this mission.

The scope of this effort is to build and deploy a new HEC CRM system that will provide the following: integrated view of Veteran data using VA enterprise services, the ability to integrate to various systems, the ability of Warm Transfer calls, the ability to ID proof a Veteran, a workflow capability, the ability to capture and report on metrics, the ability to capture and categorize an interaction, a correspondence capability, an audit capability, the ability to capture and update notes, and flagging and alert capabilities.

## Purpose of the SDD

The purpose of this document is to describe, in sufficient detail, how the proposed system is to be constructed. The SDD translates the contents of the Requirement Specifications Document into a form in which the developers can create an actual system. It identifies the top-level system architecture, along with the hardware, software, communication, and interface components required to build the system.

## Identification

The scope of this SDD is the new HEC CRM system and software. Microsoft (MS) is the software supplier for the following COTS applications being utilized:

* MS Dynamics CRM 2015 (v7.0)
* MS CRM Sales Standard/Professional
* MS CRM Customer Service Standard/Professional
* MS CRM Suite Standard/Professional
* MS Dynamics CRM Software Development Kit (SDK)
* MS Dynamics CRM Customer Care Accelerator (CCA)
* MS Dynamics CRM Call Center Desktop (USD)
* MS Internet Explorer (v9)
* MS Windows 7
* MS Office Suite 2010
* MS Structured Query Language (SQL) Server 2008 R2
* MS Windows Server 2008 R2

The standards that apply to this design document, at a minimum, include:

* VA Handbook 6102 Internet/Intranet Web-site requirements
* VA Handbook 6500.3 Certification & Accreditation

## Scope

This document covers the overall high-level descriptions through the project perspectives, functions, characteristics, constraints, assumptions, and dependencies as outlined in Section 3. The specific requirements are detailed by the external interface requirements, classes, performance requirements, design constraints, software system attributes, and other requirements.

This project will entail implementation of a Customer Relationship Management (CRM) solution for the Health Eligibility Center (HEC). The HEC CRM solution will provide a highly capable case management solution that can improve work management, time management and data accuracy for EED, IVD, INF and other elements within the HEC.

**In Scope for this Project is**:

* Augment the rapid delivery of health enrollment services to Veterans
* Drive innovation by enabling the re-engineering and/or streamlining of HEC business processes
* Improve accuracy of data by leveraging common enterprise services
* Reduce duplicative activities by integrating case management capabilities with mission-critical systems used by HEC
  + Form a part of a larger VHA (and VA enterprise) platform that is Veteran-centric and places the Veteran customer at the center of all business functions
  + Adopt and/or create capabilities that can be found on the VA enterprise platform

Specific functionalities are listed below:

Table 1: Scope Inclusions

| Includes |
| --- |
| Provide the HEC user SSO ability in order to access and have real-time views to Veteran information through the integration of key applications/systems/databases |
| Enhance the HEC user’s work productivity through a cross-functional process and integrated system design that improves the speed to case management resolution   * Improve and enhance the overall workflow for the enrollment transactional process * Improve the intake, assignment, and tracking of enrollment applications regardless of submission channel (Mail/Fax/Phone/Electronic) |
| Enhance the HEC user’s work productivity through a cross-functional process and integrated system design that improves the speed to case management resolution |
| Improve and enhance the ability of contact representatives to maintain electronic notes/comments in a shared location |
| Improve the capture, resolution, and documentation process for inbound and outbound calls |
| Improve the ability to generate a variety of performance reporting and analytics at all levels (staff, supervisor, director) |
| Improve performance and administration capabilities in order to reduce downtime and costs |

## Constraining Policies, Directives and Procedures

The following standards and regulations apply to the design of this system:

* C.5 VAAR 852.219-10 VA NOTICE OF TOTAL SERVICE-DISABLED VETERAN-OWNED SMALL BUSINESS SET-ASIDE (DEC 2009)
* Federal Information Security Management Act (FISMA) of 2002
* Federal Information Processing Standard (FIPS) Pub 201, Personal Identity Verification for Federal Employees and Contractors, February 25, 2005
* VA Directive 6102, Internet/Intranet Services
* VA Handbook 6102, Internet/Intranet Services
* Electronic and Information Technology Accessibility Standards (36 CFR 1194)
* Office of Management and Budget (OMB) Circular A-130
* Sections 504 and 508 of the Rehabilitation Act (29 U.S.C. § 794d), as amended by the Workforce Investment Act of 1998 (P.L. 105-220), August 7, 1998
* VA Directive 6500, Information Security Program
* VA Handbook 6500.3, Certification and Accreditation
* VA Handbook 6500.5, Incorporating Security and Privacy into the System Development Life Cycle
* Office of Enterprise Development (OED) ProPath Process Methodology http://vaww.webdev.oed.oit.domain/process/propath/
* PMAS portal http://vaww.yourserver.domain/pmas/Pages/default.aspx
* Technical Reference Model (TRM)
* National Institute Standards and Technology (NIST) Special Publications
* VA Information Technology (IT) Program Management (VA Handbook 6062), no date
* VA Facility Directory http://www.appc1.domain/directory/guide/home.asp?isFlash=1
* VA Enterprise Architecture (EA) - The P/PMS Contractor shall ensure that all projects adhere to the one VA EA http://vaww.domain/oit/ea\_internal/EAS/index.asp#EA

## User Characteristics

The principal user base of the new HEC CRM system will be: HEC Program Support Clerks, HEC Enrollment Eligibility Division Legal and Administrative Specialist and HEC Income Verification Division Legal and Administrative Specialist, HEC Supervisors that distribute workload and handle escalated cases, HEC Compliance and Integrity Team.

These users will support the following groups within the HEC Eligibility Center: Pharmacy Customer Care (PCC), First Party Contact Center (FP), Health Benefits Contact Center (HB), Help Desk Support (HD), and Homeless.

## Relationship to Other Documents and Plans

The SDD supports the requirements defined within the HEC CRM Requirements Specification Document (RSD). It also relates to the following documents:

• HEC Project Charter

* HEC Business Requirements Document (BRD)
* HEC Requirements Specification Document

• HEC Risk Log

• HEC Acquisition Strategy

• HEC Risk Management Plan

• HEC Communications Plan

• HEC Project Management Plan

• HEC Configuration Management Plan (CMP)

## Definitions, Acronyms, and Abbreviations

**Definitions**

| Term | Meaning |
| --- | --- |
| Agile Methodology | A project management approach used typically for software development to help teams respond to the volatility of building software by implementing incremental, iterative work modulations. |
| Public Contact Representative (PCR) | Person at National Call Center (NCC) that answers calls and interfaces with caller to perform requested activities |
| PMAS | Project Management Accountability System (PMAS) is a performance-based project management discipline mandated by the Assistant Secretary Office of Information & Technology (ASOIT) for all product delivery projects. |
| ProPath | ProPath is designed to enhance and encourage standard, repeatable processes across an organization. ProPath document templates feed into PMAS. |
| CRM/UD Solution | The software/hardware application CRM/UD shall implement upon project completion. The CRM/UD Solution is a tangible deliverable. |

**Definitions - Taxonomy**

| **Term** | **Definition** |
| --- | --- |
| Eligibility | Eligibility refers to an individual's meeting the criteria for Veteran status to receive VA health care benefits. The VHA uses the active duty service, character of discharge, length of time in active duty service, and VA regulations to determine eligibility for veteran status for VHA. |
| Means Test | Financial Assessment |
| Preferred Facility | The preferred facility is a VAMC identified by the Veteran as the location of care at which the Veteran prefers to receive primary care. Normally, this is the facility closest to the Veteran's home, but it may be any VAMC. |
| Means Test/Financial Assessment | A financial assessment is a mechanism for identifying a Veteran's:   * eligibility for beneficiary travel; * copayment determination; and * ability to defray VA health care costs.   This is calculated by assessing the Veteran's previous calendar year's gross household income, plus net worth, minus VA allowable deductible expenses. |
| Caregiver | A caregiver is either a relative or individual residing full-time with the Veteran. |
| AOR Program | The Agent Orange Registry (AOR) Program is a group or network of Veterans who, based on the eligibility requirements and health examination, have been identified as having been exposed to Agent Orange during active duty. |
| Fugitive Felon | A fugitive felon is defined as a person who meets any of the following conditions:   * is fleeing to avoid custody or confinement after conviction for an offense which is a felony under the laws of the place from which the person is fleeing, or for an attempt to commit such an offense; * is fleeing to avoid prosecution for an offense which is a felony; or * violates a condition of probation or parole imposed for committing a felony under Federal or state law.   Note: This definition includes high misdemeanors under any state law that treats felony offenses as high misdemeanors. |
| Health Eligibility Center (HEC) Alert | The HEC Alert is a process that ensures that open communication to the HEC is available to all VAMCs in the network. |
| Hardship Determination | A Hardship Determination is an exemption from enrollment rejection, and inpatient and outpatient copays for a determined future period of time. |
| Copayment | A copayment is a specified dollar amount that certain Veterans must agree to pay as a condition of eligibility to receive VA health care benefits. |
| Caregiver Application Tracker (CAT) | The Caregiver Application Tracker (CAT) is an easy to use tool for VA staff to enter and track caregiver applications. It links the central eligibility team at HEC to facility Caregiver Support Coordinators (CSCs), and caregiver records to the HAC to process, as applicable, stipends and Civilian Health and Medical Program of the Department of Veterans Affairs (CHAMPVA) enrollments, if applicable. |
| Notice of Disagreement (NOD) | A notice of disagreement (NOD) is a written communication from a claimant or claimant's representative expressing dissatisfaction or disagreement with a decision, and a desire to contest the result. |
| Catastrophic Edit | A Catastrophic Edit (CE) occurs when changes have been made to a patient's electronic health record that results in the record being changed inappropriately to that of another patient, caused by, but not limited to, edits to patient identity data (e.g., SSN, date of birth, gender) and/or erroneous merging of two or more distinct patient records into a single record within VistA. |
| Congressional Correspondence | Correspondence sent or referred to VA by Members of Congress (U.S. House of Representatives or U.S. Senate) or their staff.  The correspondence requires a reply to the Representative or Senator, or in some cases, a direct reply to the constituent. |
| White House Correspondence | Correspondence sent to the VA by the President or VA Secretary. |
| Below the Means Test Threshold | Defined as those Veterans whose attributable income and net worth are such that they are unable to defray the expenses of care; therefore, they are not subject to copayment charges for hospital and outpatient medical services.  Within the VistA system, such Veterans are designated as "Means Test Copay Exempt." |
| Geographical Means Test Threshold (GMT) | “Above the means test and below the GMT threshold” is defined as those Veterans whose attributable income and net worth are such that they are able to defray the expense of care, but whose inpatient medical care copayments are reduced 80%.  Within the VistA system, these Veterans are identified as "GMT Copay Required." |
| Pension Threshold | “At or below the pension threshold" is defined as those Veterans whose attributable income and net worth are such that they are unable to defray the expenses of care; therefore, they are not subject to copayment charges and will receive free prescriptions and travel benefits. |

**Acronyms**

| Term | Definition |
| --- | --- |
| A/O | Agent Orange |
| AOR | Agent Orange Registry |
| BIRLS | Beneficiary Identification and Records Locator System |
| BN | Business Need |
| BRD | Business Requirements Document |
| CAT | Caregiver Application Tracker |
| CHAMPVA | Civilian Health and Medical Program of the Department of Veterans Affairs |
| CBO | Chief Business Office |
| CID | Compliance and Integrity Division |
| CLEAR | Camp Lejeune Environmental Action Report |
| CORP DB | Corporate Database |
| CPAC | Consolidated Patient Account Center |
| CPRS | Computerized Patient Record System |
| CPA | Certified Public Accountant |
| CR | Contact Representative |
| CRM | Customer Relationship Management |
| CRMh | CRM Health |
| CSC | Caregiver Support Coordinators |
| Demobs | Demobilization |
| DMDC | Defense Manpower Data Center |
| DOB | Date of Birth |
| DOR | Declaration of Representatives |
| DPRIS | Defense Personnel Records Image Retrieval System |
| DVA | Dishonorable for VA Purposes |
| EDB | Enrollment Database |
| EDMS | Electronic Document Management System |
| EED | Enrollment Eligibility Division |
| eHMP | Electronic Health Management Platform |
| EHR | Electronic Health Record |
| ESR | Enrollment System Redesign |
| EU | Eligibility Update |
| HAC | Health Administration Center |
| HINQ | Hospital Inquiry System |
| FFP | Fugitive Felony Program |
| FTI | Federal Tax Information |
| HAC | Health Administration Center |
| HEC | Health Eligibility Center |
| HECMS | Health Eligibility Case Management System |
| ICN | Integration Control Number |
| IdM | Identity Management Team |
| IdM TK | Identity Management Toolkit |
| IHT | In-House Training |
| INF | Informatics Division |
| IT | Information Technology |
| ITE | Identity Trait Edits |
| IVD | Income Verification Division |
| IVM | Income Verification Matching |
| IVR | Interactive Voice Response |
| KB | Knowledge Base |
| LAS | Legal Administrative Specialist |
| MPI | Master Patient Index |
| MSDS | Military Service Data System |
| MVI | Master Veteran Index |
| NOD | Notice of Disagreement |
| OI&T | Office of Information and Technology |
| OLT | Online Transaction |
| OMPF | Official Military Personnel Folder |
| PDAT | MPI Patient Data Inquiry |
| POA | Power of Attorney |
| POC | Point of Contact |
| RAD | Release from Active Duty |
| RO | Regional Office |
| RFA | Request for Assistance |
| RTM | Requirements Traceability Matrix |
| SHARE | Safety, Health, and Return to Employment |
| SLA | Service Level Agreement |
| SME | Subject Matter Expert |
| SOC | Statement of Case |
| SOP | Standard Operating Procedures |
| SSA | Social Security Administration |
| SSN | Social Security Number |
| SSO | Single Sign-On |
| SSOC | Supplemental Statement Of Case |
| UAT | User Acceptance Testing |
| VA | Department of Veterans Affairs |
| VAMC | VA Medical Center |
| VBMS | Veterans Benefits Management System |
| VETS | VA Enterprise Terminology Services |
| VHA | Veterans Health Administration |
| VIERS | Veteran Identity/Eligibility Reporting System |
| VIS | Veteran Information System |
| VISN | Veterans Integrated Service Network |
| VistA | Veterans Health Information Systems and Technology Architecture |
| VRM | Veterans Relationship Management |
| VSO | Veteran Service Organization |
| WRAP | Workload Reporting and Productivity |

## References

|  |  |  |  |
| --- | --- | --- | --- |
| **Document Title** | **Date of Last Version** | **Storage Location** | **Publishing Organization** |
| HEC Requirements Specification Document (RSD) |  |  | Engility Corp |
| HEC Requirements Traceability Matrix (RTM) |  |  | Engility Corp |
| HEC Deployment Plan and Checklists |  |  | Engility Corp |
| HEC Operations and Maintenance Plan |  |  | Engility Corp |
| HEC Project Management Plan (PMP) | 07/29/2015 |  | Engility Corp |
| HEC Lessons Learned Document |  |  | Engility Corp |
| HEC Communications Plan | 07/30/2015 |  | Engility Corp |
| HEC Business Requirements Document | 06/16/2015 |  | Engility Corp |
| HEC Project Charter | 07/30/2015 |  | Engility Corp |
| HEC IPT Charter | 07/30/2015 |  | Engility Corp |

# Background

## Overview of the System

The Veterans Health Administration’s (VHA) Health Eligibility Center (HEC) determines Veterans’ eligibility for enrollment, provides eligibility and enrollment guidance to the nation’s VA Medical Centers (VAMC), and executes a host of complementary services in direct support of this mission.

The HEC needs a CRM platform that better serves their mission and employees. This CRM platform should provide a highly capable case management solution that can improve work management, time management and data accuracy for EED, IVD, INF and other elements within the HEC.

**The Goals and Objectives of this Project are:**

* Integrate with Enrollment System, Enrollment Benefits Database (EBD), and other 3rd party applications;
* Provide HEC personnel with single sign-on capability;
* Replace manual data entry with automatic population of Veteran data;
* Furnish HEC personnel with automated letter generation;
* Permit HEC personnel to share and/or pool notes on Veteran records;
* Support the development of a common Health CRM platform (HAC/HEC)
* Allow HEC leadership and supervisors to generate improved reporting and stronger assessments of team and individual performances

**The Major Users of the System are:**

**Internal Users**

* HEC Service Center Agents
* HEC Service Center Supervisors
* HEC Service Center CRM Administrators

**The Participants in its Operation are:**

* HEC CRM Administrators

## Overview of the Business Process

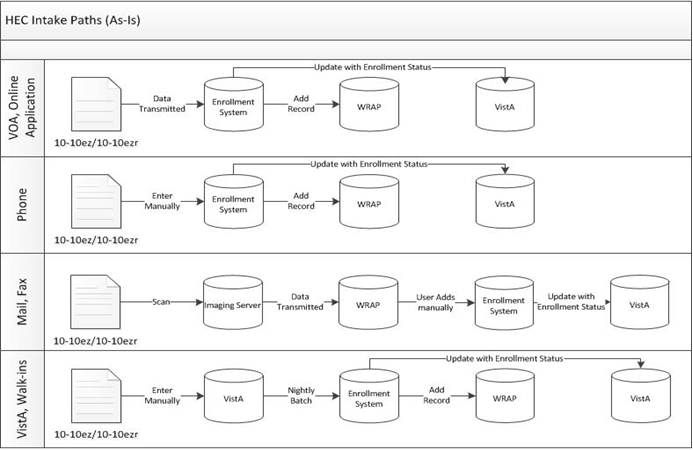
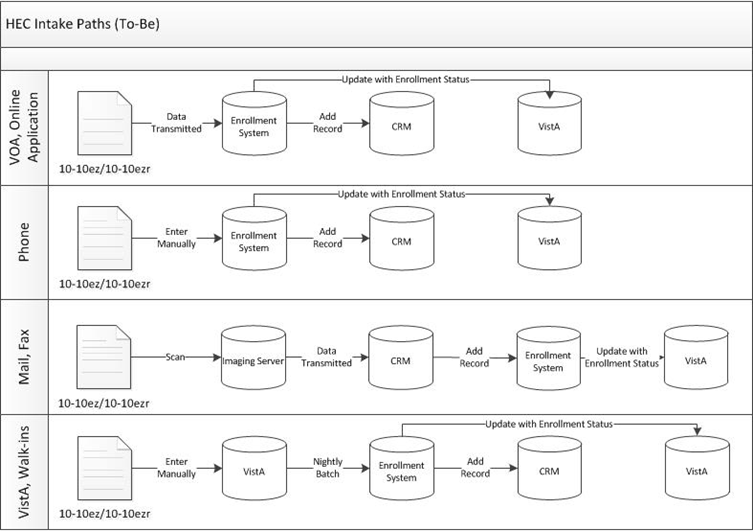
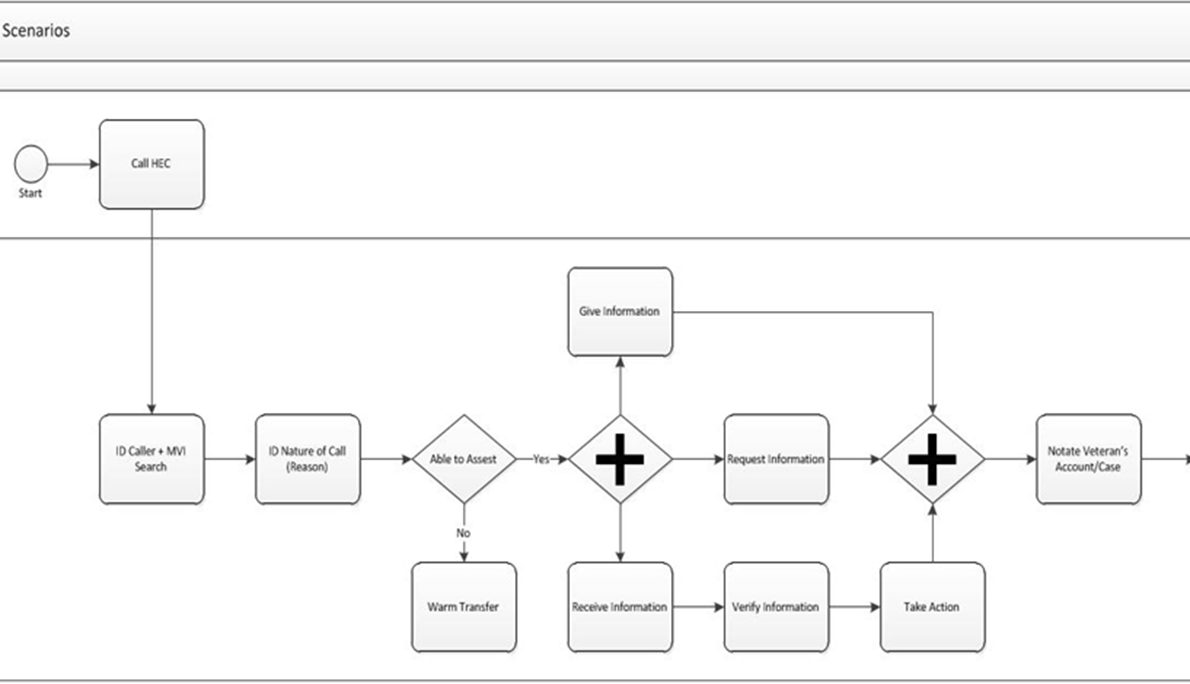
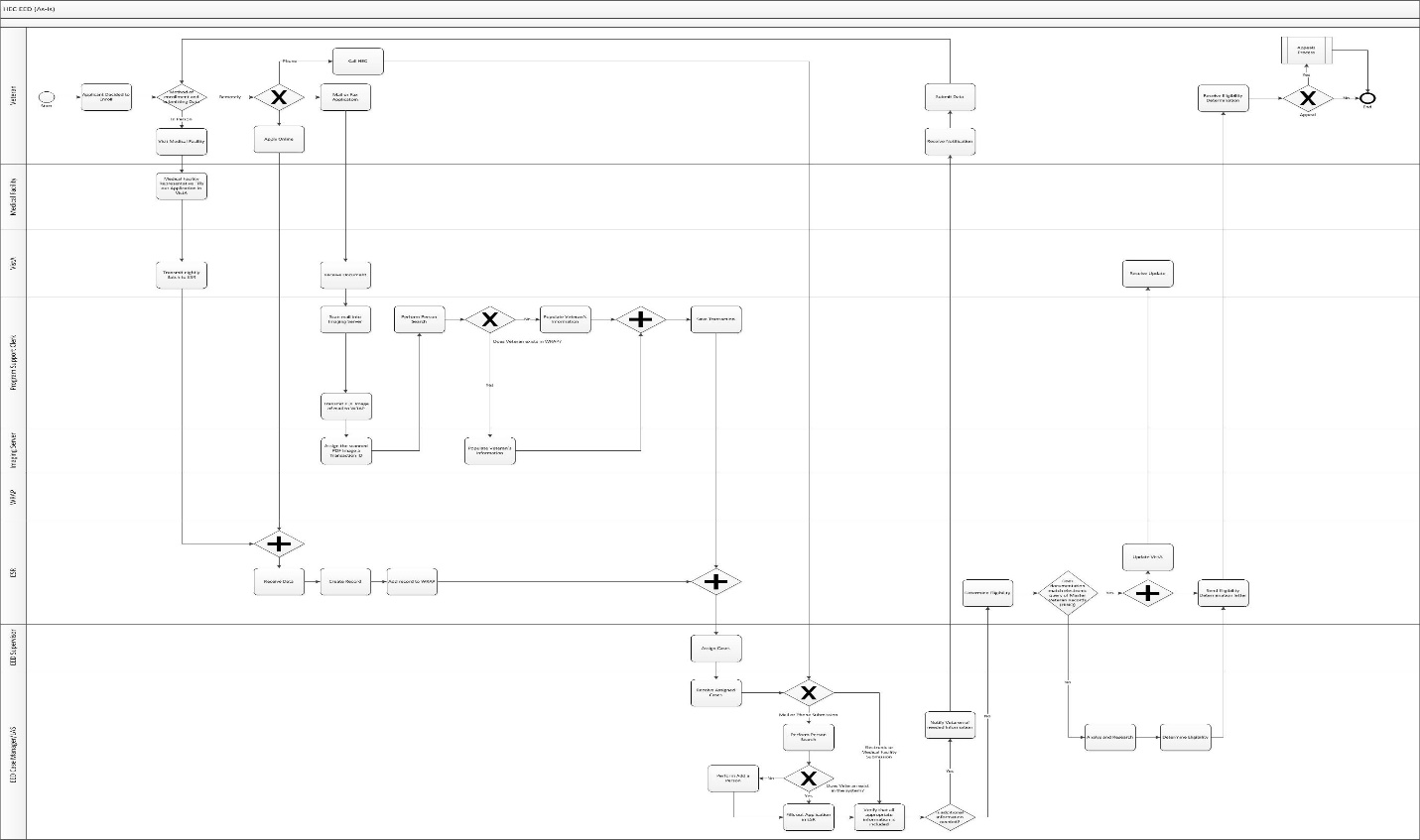


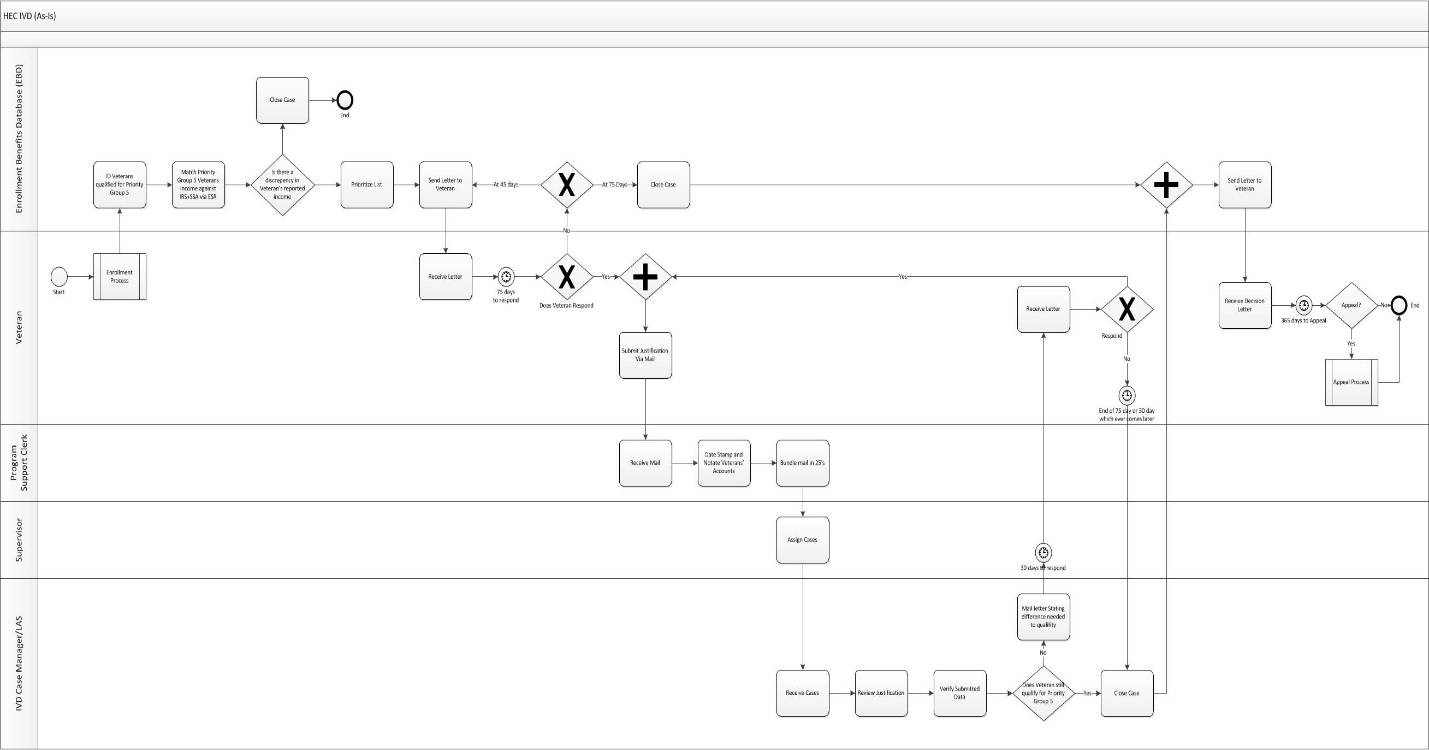
Figure 1: Intake Paths (As-is)

***Figure 2:* Intake Paths (To-be)**

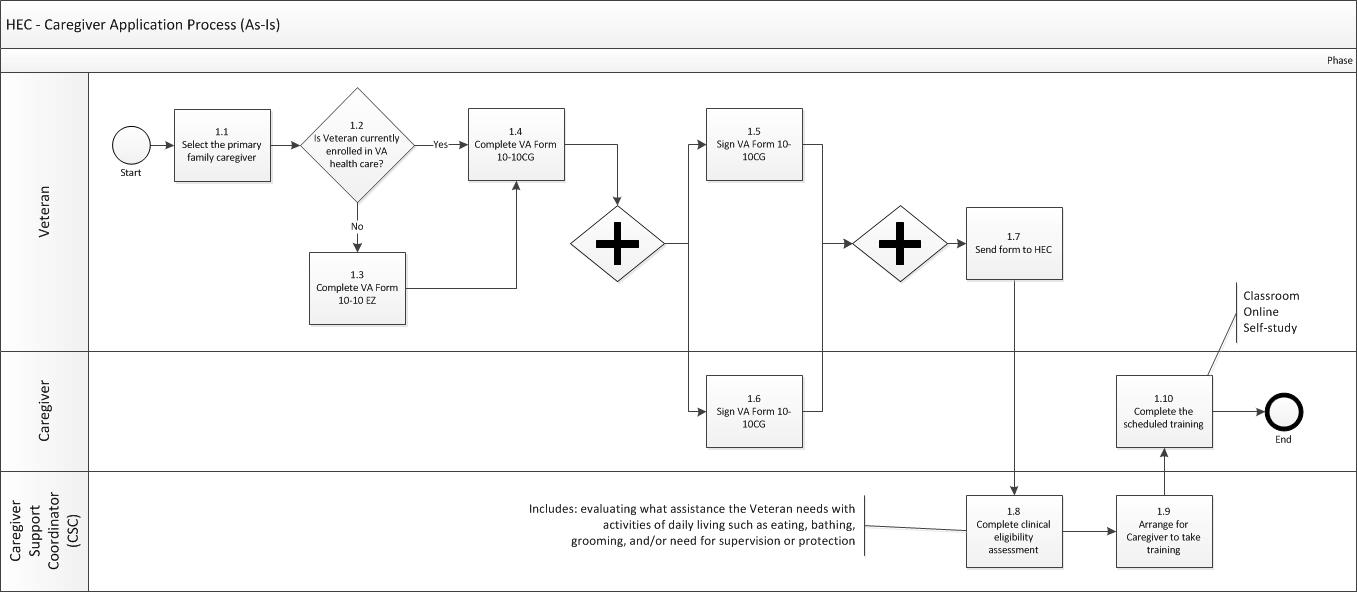
**Figure 3: Call Scenarios**



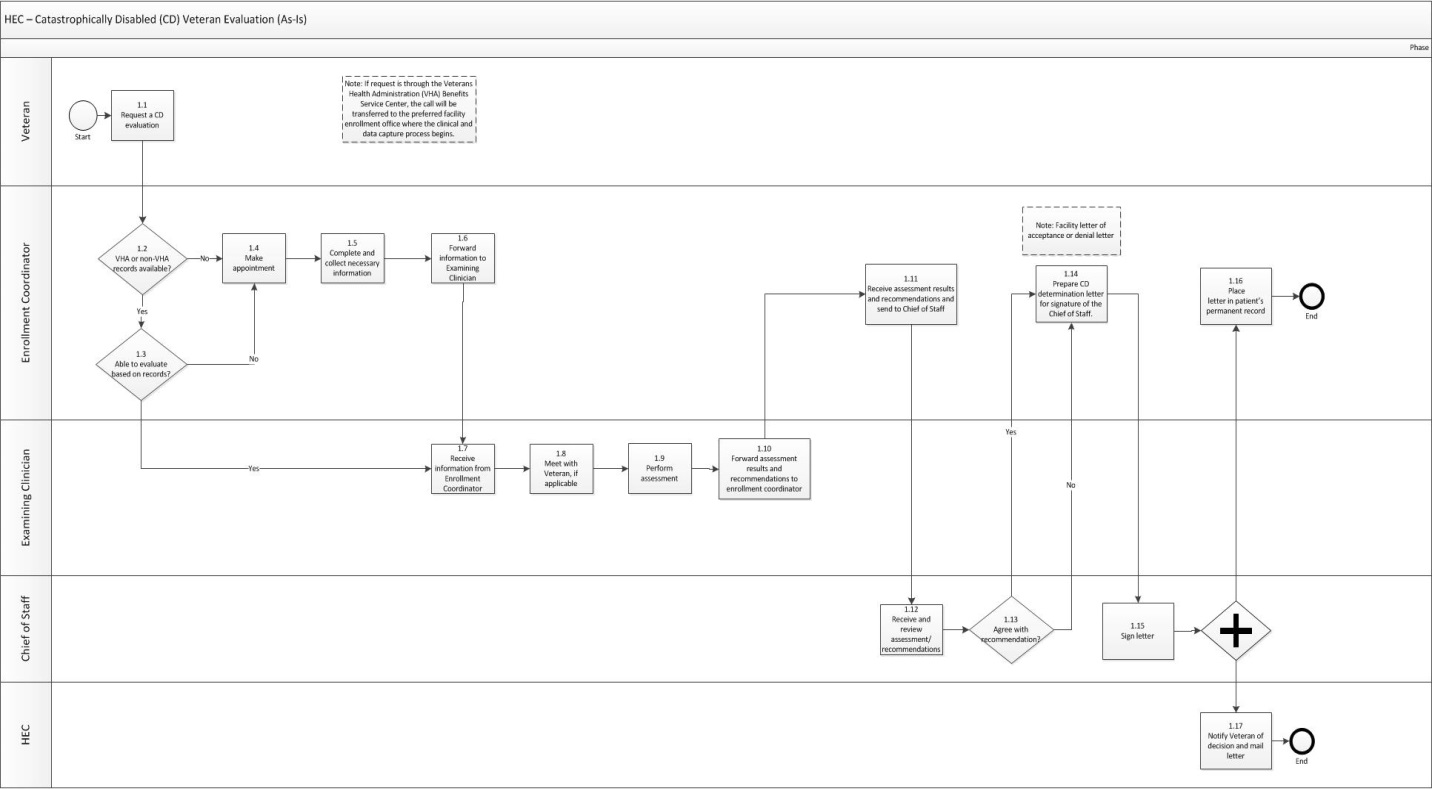
***Figure 4:* Enrollment Eligibility Division (As-is)**



***Figure 5*: Income Verification Division (As-is)**



***Figure 6*: Caregiver Application Process (As-is)**



***Figure 7*: Catastrophically Disabled Veteran Evaluation (As-is)**

Table 3: Business Process

| Business Process ID | Business Process Name | Type | Owner | Description |
| --- | --- | --- | --- | --- |
| 1 | First Party | Existing | HEC | First Party contact center handles questions around eligibility. The following are common types of calls are received by the First Party Call Center: insurance inquires |
| 2 | Health Benefits In-bound | Existing | HEC | Provides out-bound calls around correspondences to “Welcome to the VA”, which provides provides newly enrolled Veterans a warm introduction by phone to VA health benefits, My HealtheVet and eBenefits resources, information about obtaining an ID card and other Veteran programs. |
| 3 | Health Benefits Out-bound Call | Existing | HEC | Receives calls around correspondences to “Welcome to the VA”, which provides provides newly enrolled Veterans a warm introduction by phone to VA health benefits, My HealtheVet and eBenefits resources, information about obtaining an ID card and other Veteran programs. |
| 4 | Help Desk | Existing | HEC | Provides tier 1 support for My HealtheVet, eBenefits, and VA Mobile Applications through phone and email correspondence. |
| 5 | Pharmacy Customer Care | Existing | HEC | Resolve Veterans’ pharmacy concerns and issues (such as order refills, track medications, status of medication, out of medication, medication renewal requests, expired medication, identify medications, wrong medications sent/received etc.), and if necessary, the center will be able to seamlessly connect the Veteran to appropriate clinical support. |

## Business Benefits

The benefits of the HEC CRM solution with the Microsoft Dynamics CRM 2015 solution are as follows:

Improve the Veteran Experience by:

* Create an integrated CRM Call Center Solution with access to VA domain data using existing and new VA web-services and VA Service Oriented Architecture (SOA).
* Providing Accurate and Consistent Answers to Caller’s Questions
* Reducing the Average Handle Time by providing an integrated CRM solution and reduce or eliminate the need to access multiple call center applications to obtain information.
* Increasing the Call Resolution Rate
* Reducing the Need for Repeat Call

Improve Call Center Agent Productivity and Accuracy by:

* Improving and Enhancing the Workflow for Lengthy Transactional Processes
* Reducing the Amount of Time Required to Onboard Agents using CRM Improve Interface Design to Display Pertinent Data to Answer Inquiries based on Call Types

Improve the CRM System Performance by

* Reducing the Load on the System when Performing Basic Data Inquiries and Responding to Users
* Allowing more Flexibility to the Administrator Capabilities for Role Management, Data Field Manipulation and Report Development
* Including the Ability to Consume Compatible Functionality Developed by Other Teams

## Assumptions and Constraints

### Design Assumptions

The Following Assumptions Influenced the Design of this System:

* Microsoft Dynamics 2015 platform will be used to build the HEC CRM case management system
* EED, IVD, INF and Compliance and Integrity Division (CID) users will operate off a single HEC case management platform
* All the data associated with Veterans currently stored in WRAP and EDB will be migrated to the new CRM case management system
* The CRM solution will be able to integrate through web services with the following systems: ESR, EDB, VistA
* The HEC CRM case management system will be able to leverage and re-use all the capability currently built and to be built in CRM- UDO and other VHA CRM systems
* The HEC CRM case management system will be a part of a larger CRM Health (CRMh) Platform

### Design Constraints

The following conditions or constraints will limit the range of design choices that are available:

* Funding constraints for:
  + Licenses
  + Training
* New web service development
* Resources
* Availability of key resources during each of the SDLC phases

### Design Tradeoffs

There are non-functional requirements associated with this project which should be taken into consideration in the design of the new CRM solution.

These requirements are as follows:

**Performance** - Reduce load on the system when performing basic data inquiries and responses to users.

**508 Compliancy** – The Microsoft Dynamics CRM COTs solution, as well as the code to configure the system to the specifications of the HEC, must be 508 Compliant.

**Interoperability –** Interoperability with respect to systems, is theability to make systems work together (inter-operate). This project requires that the new HEC CRM solution integrates with various VA databases, so as to create a more efficient, seamless solution, by displaying relevant veteran data via the application.

**Usability Requirements** –Improving and Enhancing the Workflow for Lengthy Transactional Processes and improving interface design to display pertinent data to answer inquiries based on call types.

**Flexibility** - Accommodate future integration opportunities. Enable the development of more system capabilities.

It is essential that these requirements are taken into consideration, along with the functional HEC requirements when designing the new HEC CRM solution.

## Overview of the Significant Requirements

The content in this section is not to replace either the existing functional or technical requirements documents, nor serve as the basis for the Requirements Traceability Matrix, but only to inform non-project personnel reading this document of the basis for the design.

### Overview of Significant Functional Requirements

Below is an overview of the pivotal functional requirements for the new HEC CRM system. It is critical that the design takes in account these major functions to be performed.

| ID | Requirement |
| --- | --- |
| TBD |  |

Table 2: Functional Requirements

### Overview of Functional Workload/Performance Requirements

| ID | Requirement |
| --- | --- |
| TBD |  |

Table 3: Workload and Performance Requirements

### Overview of Operational Requirements

| ID | Requirement |
| --- | --- |
| N/A | None |

Table 4: Operational Requirements

### Overview of the Technical Requirements

| ID | Requirement |
| --- | --- |
| TBD |  |

Table 5: Technical Requirements

### Overview of the Security or Privacy Requirements

**General Security Requirements**

There are general VA security requirements for the project, which are listed below:

| ID | Requirement |
| --- | --- |
| TBD | All VA security requirements will be adhered to. Based on Federal Information Processing Standard (FIPS) 199 and National Institute of Standards and Technology (NIST) SP 800-60, recommended Security Categorization is Moderate.  The Security Categorization will drive the initial set of minimum-security controls required for the information system. Minimum security control requirements are addressed in NIST SP 800-53 and VA Handbook 6500. |

Table 6a: General Security Requirements

**HEC Security Requirements**

Security requirements for the HEC CRM system relate principally to User permission levels and Single Sign On (SSO) authentication. The principal requirements in this regard, are listed below:

| ID | Requirement |
| --- | --- |
| TBD | The CRM system will allow the internal user to log-on to the system one time and have access to multiple interfacing applications without having to log into those systems. |

**Table 6b: General Security Requirements**

### Overview of System Criticality and High Availability Requirements

The HEC system is mission critical, and should have a 99.9% system up time/availability. Details of the availability requirements, approach to provide the required level of availability and disaster recovery, and the summary of the compliance with Enterprise Infrastructure Engineering can be found in the SSP. The SSP is located in National Risk Vision under CRM Application Framework Assessing. The HEC CRM solution shall be available 7 days a week, 12 hours a day.

### Single Sign-on Requirement

The call center agents at the HEC are required to use multiple systems to research and provide answers to caller inquiries. In many cases, the agents will open several line of business (LOB) applications as well as opening multiple instances of the same application. This becomes a significant challenge for agents to take calls and to access the systems they need to answer in a timely fashion. To add to this challenge, the users are required to log in with different credentials for most of these LOB applications which are not federated with Active Directory. With average call time being one of the key performance metrics in the call center, every second that can be saved has great impact to veteran satisfaction and call center performance.

VA currently has multiple approved Single Sign On (SSO) solutions including VA Identity and Access Management (IAM) SSOi solution and a VHA SSOi solution design for applications such as VA Vista Applications.

The new HEC CRM out-of-the-box uses VA Active Directory login therefore any type of provisioning via existing VA AD (using Active Directory Federated Services – ADFS) will be inherent to the CRM out-of-the box architecture.

CRM as a part of the integrated design may have to use CRM Unified Service Desktop (USD) to develop User Interface (UI) hosting solution for HEC legacy applications where direct web-services are not available. In case of UI hosting CRM would have to negotiate the logins for the applications being hosted if the logins are no VA Active Directory logins. CRM would require all the hosted applications to have their Logins managed by a VA approved SSOi solution so CRM can negotiate with one SSOi API. In absence of Single Sign On Solution, CRM solution will have to pursue an interim solution as described as follows:

**Interim Solution**

The new HEC CRM solution will use Unified Desktop Services (USD) Microsoft application. This is a WPF based thick client that runs on the desktop PC of the agents. USD provides functionality such as SSO and User Interface Integration (UII). UII is a framework that allows USD to host win32 and browser based applications inside the USD desktop and provide capabilities to control the application through Microsoft .NET framework code. USDD is an ancillary product to Microsoft Dynamics CRM. USD runs on the client and loads CRM information retrieved from the CRM server.

The approach taken by the CRM project is to minimize manual entry and navigation of the LOB application screens so that the users can quickly access the information they need. To do so, we provided Single Sign-On (SSO) and USD automation to automatically navigate users to the screens they need to service a specific type of call.

**Business Impact without SSO**

As described above, all automations using UII starts with SSO. This allows the USD to log onto the LOB applications that are needed on behalf of the user so that all of the automated navigation can happen. If SSO was not available, there would be a break in the automated process where the users would be required to manually log in and therefore would eliminate most of the performance and data integrity benefits.

**CRM SSO Security Overview**

The CRM SSO module is designed to automate retrieval of a user’s credentials for any given application. The application uses the Advanced Encryption Standard (AES) class with a key size of 256 bits (using Cipher Block Chaining (CBC) mode) to encrypt the user’s password. AES is FIPS – approved cryptographic algorithm, and the AesCryptoServiceProvider Class is used, which is part of the .NET 4.5 framework.

The CRM SSO module also relies on separation of duties to protect the user’s encrypted passwords while they are stored in the CRM database. Users should not have both local administrative rights to user machines and also organization read access to the CRM SSO Credential entity. A local administrator can log into a user’s machine and retrieve the encryption key for that user’s password from the HKEY LOCAL USER node in the registry but as long as local administrators do not have read access to the credential in CRM they cannot decrypt the password.

The last layer of security is that each user’s credentials are encrypted with a unique encryption key. This helps ensure that all credentials are encrypted with different keys and cannot be decrypted by a single key.

**SSO Process**

1. The user is prompted with a form to populate the credentials needed for SSO to one or more applications.

2. When a user first saves their login and passwords using the SSO module the application generates a unique encryption key (by the AES .NET class encapsulated method for key generation) that is stored in the user’s registry under HKEY\_USERS with the Registry key path and key name provided in the SSO Configuration settings.

3. Using the security key that was created, the SSO application, which is part of USD, will then encrypt the user’s credentials in memory of the client PC and save it in CRM on the server. As soon as the data is transmitted to the server, the credentials are released from memory on the PC.

4. When the USD system needs to retrieve the user’s login credentials, it will retrieve the encrypted credentials from the CRM server for that user following the process below:

a. When USD needs to auto sign-on a user to an application, a secure web service call (HTTPS) is made from USD to the CRM server.

b. The encrypted credential information for the user is passed to the USD client via HTTPS.

c. USD retrieves the encryption key for the user from the registry and stores it in local memory.

d. USD decrypts the information using the AES .NET method call with the key and stores the output in variables in local memory in clear text. The registry key in local memory is released.

e. The credentials are injected into the login page/screen of the application and signs them on.

f. The memory is released once the credentials are used in the previous step.

The security key from user’s registry is used to decrypt the login credentials. CRM will inject the information into the login screen for the specific application and submits the request.

**Note:**

• In CRM standard users will only be able to see their own encrypted credentials in CRM.

• Only CRM Administrators will have access to see all user credentials in CRM. However, the passwords will be encrypted.

• If passwords expire in the line of business application, the user will be notified when USD fails to log them in. The users will need to update their password in the native application, then update CRM with their new credentials.

• If users change PCs and log into USD, their SSO credentials will not be available in the new machine.

**Long-term Solution**

To maintain compliance with VA architecture standards, HEC will pursue SSOi integration with all LOB systems leveraging IAM and/or VHA SSO capabilities. This process has been initiated for both teams with active Service Requests in place and solutions are currently being elaborated.

This section of the document will be updated as design specifics become available.

### Requirement for Use of Enterprise Portals

None

### Special Device Requirements

There are no special devices required for the HEC solution.

## Legacy System Retirement

None

## Conceptual Application Design

Microsoft CRM Dynamics 2015 Unified Service Desktop platform will be used to develop HEC Call Center and Case Management solution. The goal of the solution is to have an adaptive platform with enterprise reusability in mind. HEC CRM solution will be highly integrated and will rely on VA enterprise mid-tier services to deliver customer data.

### Application Context

TBD

Table 5: (Grouping): Application Context Description

Object

| ID | Name | Description | Interface Name | Interface System |
| --- | --- | --- | --- | --- |
| TBD |  |  |  |  |

Interfaces Internal to OIT

| ID | Name | Related Object | Input Messages | Output Messages | External Party |
| --- | --- | --- | --- | --- | --- |
| TBD |  |  |  |  |  |

**Externally Shared Data Stores**

| ID | Name | Data Stored | Owner | Access |
| --- | --- | --- | --- | --- |
| TBD |  |  |  |  |

### High-Level Application Design

The High-Level Application Design identifies the major components of the application and the relationships of the major application components to each other and to the surrounding applications. The major components of the application are at the subsystem or top-level service area. Many different graphical formats are acceptable for the High-Level Application Design Diagram. Lower-level services will be defined and documented in the Logical Application Design section.

Figure 3 illustrates a High-Level Application Design in the form of a dataflow diagram. This diagram differs from the diagram in Figure 2 in that the single object representing this system in Figure 2 is decomposed into its major components. Use Table 6 to describe the objects in Figure 3.

Note: If an extension to a legacy system is being developed without use of services, all references to “Service” should be changed to “Subsystem.”

A Collaboration Diagram, or in the case of Services, a Service Capability Diagram may be included instead or an Application Diagram if it illustrates the subject better.



Figure 3: Sample High-Level Application Design

Table 6: Objects in the High Level Application Design

Objects / Components to be Built or Modified

| ID | Name | Description | Service or Legacy Code | External Interface Name | External Interface ID | Internal Interface Name | Internal Interface ID | SDP Sections 1&2 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| TBD |  |  |  |  |  |  |  |  |

**Internal Data Stores**

| ID | Name | Data Stored | Steward | Access |
| --- | --- | --- | --- | --- |
| TBD | CRM Contact History Data | MS SQL Server 2012 | MS CRM Dynamics 2015 | Generate and Store Interaction History as part of the call center and Case management data capture. |

### Application Locations

Table 7: Application Locations

| Application Component | Description | Location at Which Component is Run | Type |
| --- | --- | --- | --- |
| TBD |  |  |  |

Table 8: Application Users

| Application Component | Location | User |
| --- | --- | --- |
| TBD |  |  |

## Conceptual Data Design

### Project Conceptual Data Model

TBD

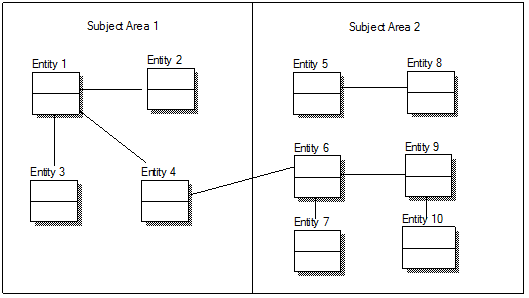
****

Figure 4: Sample Project Conceptual Data Model

### Database Information

Table 9: Database Inventory

| Database Name | Description | Type | Steward |
| --- | --- | --- | --- |
| MS SQL Server | CRM data captured as part of the call center and case management operation | Create/Modify | Customer Relationship Management (CRM) Design |
| VA VISTA | VA Veteran Health Information System Technology Architecture (VISTA) | View/Modify | Multiple applications interface with various Vista Databases including CPRS and CAPRI |
| VA CORP DB | VA CORP DB hold VBA benefit data | TBD | Multiple applications interface with VBA CORP DB |
| Master Veteran Index | Master Veteran Index (MVI) database is a consolidated repository of VA customer identification data | View/Modify | Several Applications use MVI database as the source for enterprise customer search |

### User Interface Data Mapping

TBD

#### Application Screen Interface

TBD

##### <Insert name of screen>

Figure 5: *<screen name>* Screen

Table 10: *<screen name>* Screen Description

| Graphical User Interface (GUI) Field | Table (Database Table that field connects to) | Field (Field in Table that the GUI field connects to) | Comments |
| --- | --- | --- | --- |
| TBD |  |  |  |

#### Application Report Interface

TBD

##### <Insert name of report>

TBD

Figure 6: *<report name>* Report

Table 11: *<report name>* Description

| Report Column | Data Source *<TableName. FieldName>* |
| --- | --- |
| Patient | <xxx.PATIENT\_NAME> |
| SSN | <xxx.SSN> |
| DoB | <yyyy.DATE\_OF\_BIRTH> |

#### Unmapped Data Element

TBD

## Conceptual Infrastructure Design

TBD

### System Criticality and High Availability

TBD

### Special Technology

TBD

Table 12: Special Technology Requirements

| Special Technology | Description | Notional Location | TRM Status |
| --- | --- | --- | --- |
| TBD |  |  |  |

### Technology Locations

TBD

Table 13: Technology Location Details

| Technology Component  Production 1 | Location | Usage |
| --- | --- | --- |
| Workstations |  |  |
| Special Hardware |  |  |
| Interface Processors |  |  |
| Legacy Mainframe |  |  |
| Legacy Application Server |  |  |
| Legacy Databases |  |  |
| Other |  |  |

| **Technology Component**  **Production 2** | **Location** | **Usage** |
| --- | --- | --- |
|  |  |  |

| Technology Component  Certification | Location | Usage |
| --- | --- | --- |
|  |  |  |

| Technology Component  Education | Location | Usage |
| --- | --- | --- |
|  |  |  |

| Technology Component  Test | Location | Usage |
| --- | --- | --- |
|  |  |  |

| Technology Component  Development | Location | Usage |
| --- | --- | --- |
|  |  |  |

### Conceptual Infrastructure Diagram

#### Location of Environments and External Interfaces

TBD

Sample Conceptual Networks and Environments

Figure 7: Sample Conceptual Networks and Environments

#### Conceptual Production String Diagram

TBD

# Conceptual Design

## Conceptual Application Design

Microsoft CRM Dynamics 2015 Unified Service Desktop platform will be used to develop HEC Call Center and Case Management solution. The goal of the solution is to have an adaptive platform with enterprise reusability in mind. HEC CRM solution will be highly integrated and will rely on VA enterprise mid-tier services to deliver customer data.

HEC CRM solution will be design to support the EED, IVD, and Congressional users at the Serices Center at the HEC Atlanta and other optional locations. The key to the CRM design is it’s ability to provide a call center framework and integrate with the key sources of data that provide information to the CSRs.

The high level set of features slaed to be designed and developed using the CRM Dynamics COTS framework over several increments are:

1. Enterprise Person Search (Increment 1)
2. CRM Call Center Solution Framework (General COTS framework setup for Increment 1)
   1. Phone Call Management
   2. Contact/Interaction History Management
   3. Service Request/Escaltion Mechanism
   4. Task Management
   5. Letter Generation
   6. Form Generation
3. CRM Unifed Service Desktop Integration (Optional)
   1. Call Center features
   2. Interim Non-Web-Services based integration using UI based integration framework
   3. Call Center Script Management
4. CRM Data and Application Integration
   1. Patient/Person Data
      1. Person Info
      2. Military History
      3. Eligbility Data (ESR)
   2. Benefit Data (CORP Data)
   3. Health Data (VISTA Data)
   4. Enrollment Database
   5. Camp Legune Data (CLEAR DB)
   6. Defense Personnel Records Information Retrival System (DPRIS)
   7. Electronic Document Management Systems (EDMS) – Legacy
   8. eFolder – Legacy
   9. FFP Database – Fujitive Felon Program (FFP) Database
   10. Genesys Survey Solution
   11. HEC Alert Database
   12. HEC Legacy (Data from VAMC imported nightly)
   13. HINQ
   14. External Links (TBD)
   15. KB
   16. VIS – Veteran Information Solution
   17. WRAP – Workload Reporting and Productivity
   18. VBMS Data
   19. VA Health Care Facility (VA HCF)

### Application Context

Microsoft CRM Dynamics 2015 CRM as a call center solution sits as an integrated application geared to provide a unfied desktop view of all the processes and information needed to run the call center operation. The consolidate view consists of several data integration end points and web-resources to support data views and business processes.



Figure 2: HEC CRM Application Context

The above diagram depicts generic grouping of application and type of information HEC CRM solution will need.

Table 5: (Grouping): Application Context Description

Object

| ID | Name | Description | Interface Name | Interface System |
| --- | --- | --- | --- | --- |
| TBD | MVI Enterprise Person Search | Master Veteran Index Services and Database provides the VA lines of business ability to search for a customer that is currently getting a benefit or using VA services. | Master Veteran Index (MVI) Service | Vista National Databases |
| TBD | VISTA Health | HEC Call center uses VISTA data to ascertain the type of issue the caller is concerned about. | National Vista | National Vista DB |
| TBD | Vista CMOP |  | TBD |  |
| TBD | Vista AR |  | TBD |  |
| TBD | Vista Appointments and Exams\*\*\* | Vista Appointments and Exams are accessed through a VA Web-Services | Pathways Exam and Appointments | Health Data Repository (HDR) |
| TBD | VLER Feed \*\*\* | Veteran Life Type Electronic Record delivers certain patient health and case information from VHA and DoD. | Health and DoD data | VLER DAS |
| TBD | HEC | Health Eligibility Center – Information is provided to HEC about the new enrollees | HEC Data | Eligibility System Redesign (ESR) Service |
| TBD | eBenefits \*\*\* | VA Self Service secure portal | eBenefit | Identify and Access Management (IAM) Proxy Service |
| TBD | My HealtheVet \*\*\* | VA secure portal for patients to access PACT and health information | MyHealtheVet API/Service | TBD |
| TBD | SEP Portal | Stakeholder Enterprise Portal is a VA self-service portal that provides access to non-VA staff and external stake holders access to VA applications and data driven by VA security rules | TBD | TBD |
| TBD | Beneficiary Identification Records Locator Subsystem (BIRLS) \*\*\* | Beneficiary Identification Records Locator Subsystem (BIRLS) provides VA military history, benefits, demographic and death records | BIRLS DB | Benefit Enterprise Portal (BEP) |
| TBD | VBA CORP DB | VBA Corp Database is the repository of the VBA benefit data including disability, education and pension data | VBA CORP access through Benefit Enterprise Portal (BEP) |  |
| TBD | VVA Database | Virtual VA Document Repository | Virtual VA | VVA Service |
| TBD | VBMS | Veteran Benefit Management System is a web-based benefit intake, development and award system. | BEP Benefit Services | Benefit Gateway Services (BGS) |
| TBD | Education Benefit \*\*\* | Part of the VBA benefits | TBD | TBD |
| TBD | VADIR | Veteran Affairs/Department of Defense Identity Repository (VADIR) is a VA/DoD database for Veteran info, demographics and military history | VADIR | Member Services Technical Integration (MSTI) VADIR Service |
| TBD | MICROMEDEX | The evidence-based resources of Micromedex® Solutions are used by clinicians to inform and educate care decisions with the goal to meaningfully improve patient outcomes. The industry standard for more than 40 years, Micromedex Solutions provide hospitals and healthcare providers with a single source of clinical information — from need-to-know drug, pediatric, disease, lab, and toxicology information to comprehensive resources for patient and consumer education. | TBD | TBD |
| TBD | SATORI | Address verification tool | CRM | CRM |
|  | Knowledge Management (KM) | TBD | TBD | TBD |
| TBD | JIRA | TBD | TBD | TBD |
| TBD | VA Facility Locator | Online resource | TBD | TBD |
| TBD | CCPC PDF Reproduction | TBD | TBD | TBD |
| TBD | FMS | Financial Management System | TBD | TBD |
| TBD | VAPARAS | VA Patient Account Resource System VAPARS was developed by staff at the Mid-South CPAC within the last 12 months to automate and expedite the process for refunds processed on Standard Form (SF) 1047, Public Voucher for Refunds.  VA Patient Account Resource System (VAPARS) is a workflow enhancement application designed to increase employee effectiveness and workflow efficiency. It accomplishes this by converting many slow and cumbersome manual processes into streamlined electronic ones. VAPARS is currently deployed in several departments of the CPAC including First Party, Administrative Services, Accounting, and Quality Assurance. It is also used by various Executive Management personnel. There are also plans at the time of this writing to implement a Third Party version of VAPARS in the future.  There are many services VAPARS provides for the CPAC including the handling of insurance credits, the creation and handling of First Party public vouchers, the handling of waivers and payment agreements throughout their entire lifecycles and much more.  VAPARS does not directly communicate with VISTA, to transfer data between the two sources users must copy and paste the desired information. | TBD | TBD |
|  | Nuance Encoding | The Encoder Product Suite provides an intelligent, comprehensive approach to VA inpatient and outpatient data management technology for the HIMS, Billing, Utilization Review, Accounts Receivable, and Compliance departments.    The Encoder Product Suite includes Windows graphical user interface modules of various VistA packages with coding, compliance, billing, and auditing functionality. It provides VA staff and management with the tools needed to do their jobs effectively. With the official VA-sanctioned communication technology, RPC Broker, the system provides real-time integration into VA packages, such as Patient Care Encounter, Patient Treatment File, Computerized Patient Record System, and Surgery. This integration ensures that all of the necessary data and documentation is available to staff directly involved with coding and billing of accurate, comprehensive claims for the VA. | TBD | TBD |
| TBD | PSETS | Privacy and Security Event Tracking System (PSETS) is used to report privacy violations to the VA Network and Security Operations Center | TBD | TBD |
| TBD | Insurance Carrier Buffer | The Insurance Capture Buffer (ICB) is an insurance card scanning and Veterans Health Information Systems and Technology Architecture (VistA) Buffer File update management system designed to enhance insurance data collection and verification processes. | VISTA ICB Module | TBD |
| TBD | IRIS | Inquiry Routing Information System is a secure and non-secure email capability available to VA customers and internet staff to create Assistance Inquiry and Internal communication for downstream task management. | TBD | TBD |
| TBD | Pay.gov | Department of Treasury Payment Portal | TBD | TBD |

\*\*\* Interface will be analyzed as interim or long term solution or use of an alternate interface as part of the detail design.

Interfaces External to OIT

| ID | Name | Related Object | Input Messages | Output Messages | External Party |
| --- | --- | --- | --- | --- | --- |
| TBD | MICROMEDEX | TBD | TBD | TBD | TBD |
| TBD | Pay.gov | TBD | TBD | TBD | TBD |

Interfaces Internal to OIT

| ID | Name | Related Object | Input Messages | Output Messages | External Party |
| --- | --- | --- | --- | --- | --- |
| TBD | MVI Enterprise Person Search | MVI Enterprise Person Search | IAM MVI Input Search Parameters and minimum required ID traits (Examples: FNAME, LNAME, DOB, SS# etc.) | Veteran or Beneficary identification Information | N/A |
| TBD | VISTA Health | VISTA Health | MVI Integration Control Number (ICN) and Vista Station ID | Various VISTA records based on the target module | NA |
| TBD | CMOP | CMOP | Patient search Identifiers such as SS#, FN, LN | TBD | NA |
| TBD | VISTA AR | VISTA AR | TBD | TBD | NA |
| TBD | CCP | CCP | TBD | TBD | NA |
| TBD | PACT Data – PCMM | PACT Data – PCMM | TBD | TBD | NA |
| TBD | Vista Appointments and Exams\*\*\* | Vista Appointments and Exams\*\*\* | MVI ICN # | Exam and Appointment data | N/A |
| TBD | VLER Feed \*\*\* | VLER Feed \*\*\* | TBD | TBD | TBD |
| TBD | HEC | HEC | TBD | TBD | TBD |
| TBD | eBenefits \*\*\* | eBenefits \*\*\* |  |  |  |
| TBD | My HealtheVet \*\*\* | My HealtheVet \*\*\* |  |  |  |
| TBD | SEP Portal | SEP Portal |  |  |  |
| TBD | Beneficiary Identification Records Locator Subsystem (BIRLS) \*\*\* | Beneficiary Identification Records Locator Subsystem (BIRLS) \*\*\* | Veteran and Beneficiary SS# |  |  |
| TBD | VBA CORP DB | VBA CORP DB | Veteran and Beneficiary SS# or CORP Participant ID | Benefit Data | NA |
| TBD | VVA Database | VVA Database | Veteran and Beneficiary SS# |  | NA |
| TBD | VBMS | VBMS | Veteran and Beneficiary SS# or CORP Participant ID |  | NA |
| TBD | Education Benefit \*\*\* | Education Benefit \*\*\* | TBD | TBD | NA |
| TBD | VADIR | VADIR | TBD | TBD | NA |
| TBD | MICROMEDEX | MICROMEDEX | TBD | TBD | NA |
|  | SATORI | SATORI | TBD | TBD | NA |
| TBD | Knowledge Management (KM) | Knowledge Management (KM) | TBD | TBD | NA |
| TBD | JIRA | JIRA | TBD | TBD | NA |
| TBD | VA Facility Locator | VA Facility Locator | TBD | TBD | NA |
| TBD | CCPC PDF Reproduction | CCPC PDF Reproduction | TBD | TBD | NA |
| TBD | FMS | FMS | TBD | TBD | NA |
|  | VAPARAS | VAPARAS | TBD | TBD | NA |
| TBD | Nuance Encoding | Nuance Encoding | TBD | TBD | NA |
| TBD | PSETS | PSETS | TBD | TBD | NA |
| TBD | Insurance Carrier Buffer | Insurance Carrier Buffer | TBD | TBD | NA |
| TBD | IRIS | IRIS | TBD | TBD | NA |

**Externally Shared Data Stores**

| ID | Name | Data Stored | Owner | Access |
| --- | --- | --- | --- | --- |
| TBD | TBD | TBD | TBD | TBD |

### High-Level Application Design

The High-Level Application Design identifies the major components of the application and the relationships of the major application components to each other and to the surrounding applications. The major components of the application are at the subsystem or top-level service area. Many different graphical formats are acceptable for the High-Level Application Design Diagram. Lower-level services will be defined and documented in the Logical Application Design section.

Figure 3 illustrates a High-Level Application Design in the form of a dataflow diagram. This diagram differs from the diagram in Figure 2 in that the single object representing this system in Figure 2 is decomposed into its major components. Use Table6 to describe the objects in Figure 3.

Note: If an extension to a legacy system is being developed without use of services, all references to “Service” should be changed to “Subsystem.”

A Collaboration Diagram, or in the case of Services, a Service Capability Diagram may be included instead or an Application Diagram if it illustrates the subject better.



Figure 3: Sample High-Level Application Design

Table 6: Objects in the High Level Application Design

Objects / Components to be Built or Modified

| ID | Name | Description | Service or Legacy Code | External Interface Name | External Interface ID | Internal Interface Name | Internal Interface ID | SDP Sections 1&2 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| TBD |  |  |  |  |  |  |  |  |

**Internal Data Stores**

| ID | Name | Data Stored | Steward | Access |
| --- | --- | --- | --- | --- |
| TBD | CRM Contact History Data | MS SQL Server 2012 | MS CRM Dynamics 2015 | Generate and Store Interaction History as part of the call center and Case management data capture. |

### Application Locations

Table 7: Application Locations

| Application Component | Description | Location at Which Component is Run | Type |
| --- | --- | --- | --- |
| TBD |  |  |  |

Table 8: Application Users

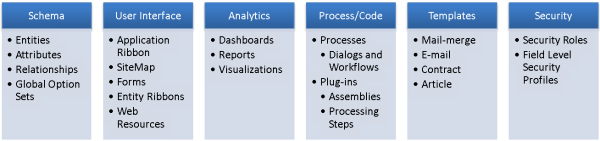
| Application Component | Location | User |
| --- | --- | --- |
| TBD |  |  |

## CRM Solution Layers – Conceptual Design

Solution Layers are ‘packages’ of system customizations of all kinds which can be exported and imported between CRM organizations and handled in various ways to insure the integrity of customization components and stability of the system at large. The content below, from the Microsoft Developer Network (MSDN) Library, discusses in mild detail how CRM Solution Layers operate. For further details, please refer the relevant MSDN entries.

### Solution Components

Solution components are created by using the customization tools or APIs included in Microsoft Dynamics CRM and are fully hosted in the application. The following diagram shows the types of solution components.

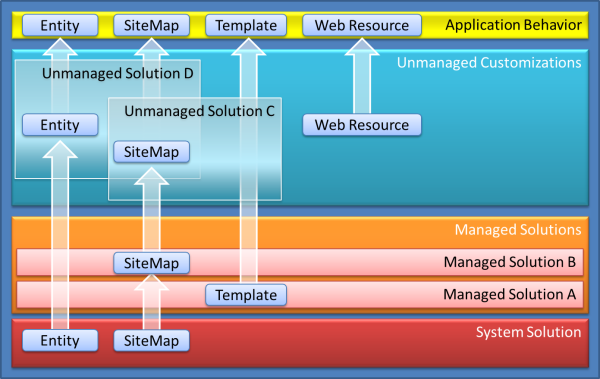


*Figure 9 – Solution Components*

### Managed and Unmanaged Solutions

There are two types of Microsoft Dynamics CRM solutions: Unmanaged and Managed. A managed solution is a completed solution that is intended to be distributed and installed. An unmanaged solution is one that is still under development or is not intended to be distributed. When the unmanaged solution is complete and you want to distribute it, export the unmanaged solution and select the option to package it as a managed solution.

The following diagram introduces how managed and unmanaged solutions interact with the system solution to control application behavior.



*Figure 10 – Solution layering*

**System Solution:** The system solution represents the solution components defined within Microsoft Dynamics CRM. Without any managed solutions or customizations, the system solution defines the default application behavior.

Many of the components in the system solution are customizable and can be used within managed solutions or unmanaged customizations.

**Managed Solutions:** Managed solutions are installed on top of the system solution and can modify any customizable solution components or add more solution components.

Managed solutions can also be layered on top of other managed solutions. As long as a managed solution enables customization of solution components within it, other managed solutions may be installed on top of it and modify any customizable solution components that it provides.

**Unmanaged Customizations:** All customizable solution components provided by the system solution or any managed solutions can be customized in the unmanaged customizations.

**Unmanaged Solutions:** Unmanaged solutions are groups of unmanaged customizations. Any unmanaged customized solution component can be associated with any number of unmanaged solutions.

You create a managed solution by exporting an unmanaged solution and selecting to package it as a managed solution.

**Application Behavior:** The ultimate behavior of an instance of Microsoft Dynamics CRM for a specific organization is the culmination of the system solution, any managed solutions and any unmanaged customizations.

#### Unmanaged Solutions

When a solution is unmanaged, you can perform the following actions:

* Add components.
* Remove components.
* Delete components that allow for deletion.
* Export and import the unmanaged solution.
* Export the solution as a managed solution.

An unmanaged solution is roughly equivalent to customizations performed by using Microsoft Dynamics CRM 4.0. However, in Microsoft Dynamics CRM 4.0 you could not create a group of items you wanted to export separately. In Microsoft Dynamics CRM 2011, you can include a solution component in as many groups as you want.

##### Importing Unmanaged Solutions

When you import an unmanaged solution, you can edit its components in the new organization.

##### Unmanaged Customizations

Each Microsoft Dynamics CRM organization contains customizable solution components. Together, all of these solution components are called the *default solution*. This is the solution you edit when you select **Customize the System** in the application. You can export this solution and the customizations within it in just like an unmanaged solution. However, you cannot export the default solution as a managed solution.

##### Solution Publisher for Unmanaged Solutions

Each solution requires a solution publisher. For an unmanaged solution, the solution publisher provides a common customization prefix and option value prefix. For more information, see [Create a Solution Publisher](http://msdn.microsoft.com/en-us/library/d5a39fc3-054f-48d3-8dfc-64c4f8afe4dd#BKMK_CreateSolutionPublisher).

Many solutions can be associated with a single solution publisher. Each organization will have a solution publisher called “Default Publisher for <*OrganizationUniqueName*>”. If you want all your unmanaged solutions to share the same customization prefix and option value prefix, we recommend that you just associate your unmanaged solutions with the default publisher for your organization.

##### Delete an Unmanaged Solution

If you delete an unmanaged solution, you are just deleting the group used to contain references to solution components. The solution components in an unmanaged solution remain in the system but they are no longer associated with the unmanaged solution you delete.

#### Managed Solutions

If you intend to distribute your solution as a managed solution, export your unmanaged solution and select the **Managed** option in the **Package Type** dialog box.

After you install a managed solution, the following applies:

* You cannot add or remove solution components in a managed solution.
* You cannot export a managed solution.
* Deleting a managed solution uninstalls all the solution components within it.

For more information about the specific tasks you can perform with managed solutions, see [Create, Install, and Update a Managed Solution](http://msdn.microsoft.com/en-us/library/gg309325.aspx).

After you install a managed solution you may be able to customize the solution components if the creator of the managed solution has configured the managed solution to enable it. You must access the customizable solution components using **Customize the System** instead of through the managed solution itself.

Whether a solution component is customizable and what specific customization actions are enabled is controlled by using [Managed Properties](http://msdn.microsoft.com/en-us/library/gg334576.aspx#BKMK_ManagedProperties).

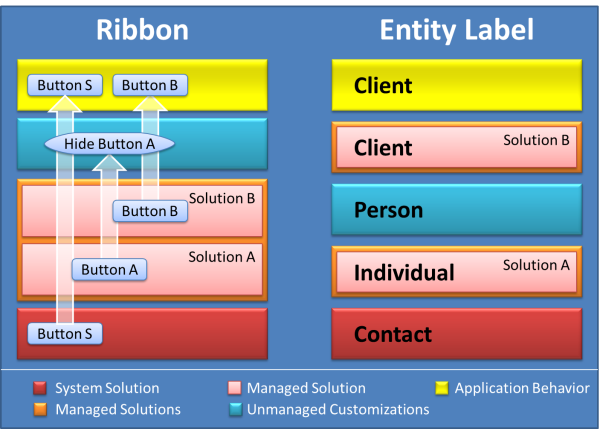
##### Solution Publisher for managed solutions

When you intend to distribute managed solutions, the solution publisher record associated with your managed solution is created in each organization that installs your solution. Use the solution publisher to provide information about how people who install your solution can contact you.

The solution publisher for a managed solution is also important if you want to release an update to your managed solution. If you use the same solution publisher you can create a new managed solution with the ability to update a managed solution you previously released. For more information, see [Maintain Managed Solutions](http://msdn.microsoft.com/en-us/library/gg328109.aspx).

#### Conflict Resolution

When two or more solutions define solution components differently, Microsoft Dynamics CRM resolves the conflict using two strategies, **Merge** and **Top Wins**. The following diagram illustrates the differences.



*Figure 11 – Conflict resolution*

##### Merge

User interface components (ribbons, forms, and site map) are merged. This means that the solution components are re-calculated from the lowest level to the highest so that the organization’s unmanaged customizations are the last to be applied.

##### Top Wins

For all other solution components any conflict is calculated in favor of the customization that is applied last. For managed solutions, this usually means that the last solution installed is applied. However, there is a special case when an update to a managed solution is installed.

#### Conflict resolution on the update of a managed solution

Because unmanaged customizations are considered ”above” any managed solution in terms of conflict resolution, organizations installing an update to a managed solution may not see their changes applied because of unmanaged modifications. An option exists to make sure that changes applied by an update to a managed solution are available.

When you release an update to a managed solution, the organization installing the update can select:

* To preserve any customizations they have applied on top of your managed solution.
* To overwrite any customizations they have applied on top of your managed solution.

Organizations installing an update to a managed solution should work with the managed solution creator to evaluate which option is best.

#### Dependency Tracking

The solutions framework automatically tracks dependencies for solution components. Every operation on a solution component automatically calculates any dependencies to other components in the system. The dependency information is used to maintain the integrity of the system and prevent operations that would lead to an inconsistent state.

As a result of dependency tracking the following behaviors are enforced:

* Deleting a component is prevented if another component in the system depends on it.
* Exporting a solution warns the user if there are any missing components that could potentially cause failure when importing that solution in another system.
* Importing solution fails if all required components are not included in the solution and also do not exist in the target system.

## CRM Core Components

### Enterprise Person Search

HEC CRM will use IAM MVI Person Search capabilities to perfom patient serach. This search will include various permutations already design by MVI.



**Figure 4: Base MVI orchestration for CRM Person Search**

HEC CRM will use existing orechestration designed under the CRM-e project and extend the capability to any additional authoritative soruces of system to get the relevant Corresponding IDs. The enumeration and retrieval of the new corresponding IDs (not already managed by MVI DB) will be a project level decision based on increment priority and level of effort it would take to add new system IDs to MVI.

The person search will use MVI required identity traits including:

* + - First Name
    - Last Name
    - DOB
    - SS#

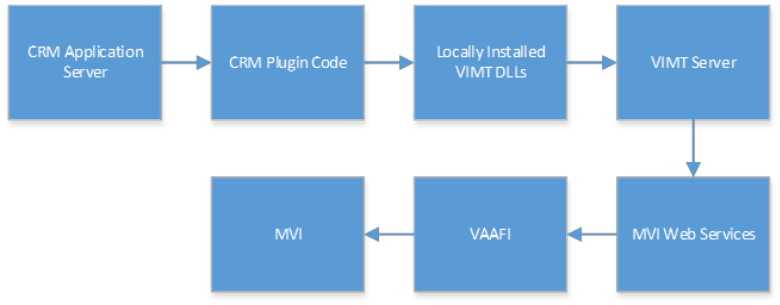
OR

* + - EDIPI Number

CRM will perform the MVI serach using secure VA channel and using Attended Search and Get Corresponding IDs.

There are additional inputs available for a deterministic serach including:

* + - First Name
    - Last Name
    - Middle Name
    - SS#
    - Date of Birth (DOB)
    - Home Address – Street
    - Home Address – City
    - Home Address – State
    - Homes Address – Zip
    - Home Phone Number
    - Mother’s Maiden Name (MMN)
    - Fully Qualitfied Identifier (EDIPI, Patient IDs etc.)



CRM will use the HEC MVI calls via CRM Plugin App/Code to establish logical communication with the service endpoint governed by the CRM HEC business rules. Message will pass through the VA CRM middle tier currently named VIMT – VA Internation Middle Tier where the connection between the Service request and MVI Endpoint will be negoatiated.

### CRM Call Center Framework

HEC CRM Increment 1 will establish the CRM call center framework using CRM COTS compoents as well as customizations to establish the integration framework with existing and to-be developed web-services. Part of the goal of the increment 1 is to transition from the current Siebel CRM in place in to CRM Dynamics based solution.

Key ares of the framework are:

* Phone Call Management
* Case Management Views for various user groups
* Services Request Management
* CRM integration connections
* Information Collection and Dash to support the call
* Commuication Framework for Emails and Task
* Generate Letters and Forms
* Other Call Center fucntions like Change of Address
* CRM integrated Reporting

## Conceptual Data Design

### Project Conceptual Data Model

HEC CRM solution will leverage CRM Dynamcis COTS data architecture, model and design. External supporting data fetched via web-services will not be housed in CRM except for reference and corresponding IDs to associated Contact/Interaction history and Case Management stages and activities. Detail representational design for any custom data entities will be developed durig the development phase.

### Database Information

Table 9: Database Inventory

| Database Name | Description | Type | Steward |
| --- | --- | --- | --- |
| MS SQL Server | CRM data captured as part of the call center and case management operation | Create/Modify | Customer Relationship Management (CRM) Design |
| VA VISTA | VA Veteran Health Information System Technology Architecture (VISTA) | View/Modify | Multiple applications interface with various Vista Databases including CPRS and CAPRI |
| VA CORP DB | VA CORP DB hold VBA benefit data | View Only | Multiple applications interface with VBA CORP DB – Data is access through Benefit Gateway Services (BGS) |
| Master Veteran Index | Master Veteran Index (MVI) database is a consolidated repository of VA customer identification data | View/Modify | Several Applications use MVI database as the source for enterprise customer search |

## Conceptual Infrastructure Design

HEC CRM will leverage the existing HAC infrastructure at a high level.

### System Criticality and High Availability

The approach taken to provide the required level of availability and disaster recovery is described in the CRM System Security Plan ([SSP](http://vaww.yourserver.domain/sites/vrm/CRMUDKM/CRMUDKM%20Documents/CRM_UD_KM/ESE%20Release%20Management%20Documentation/HAC%203.0/VA%20CRM%20Cloud%20Solutn%20SSP%20V1%200%20pw.pdf)).

### Special Technology

At this time, no special technology is used as part of this system.

### Technology Locations

*Table 13: Technology Location Details*

|  |  |  |
| --- | --- | --- |
| **Technology Component** | **Location** | **Usage** |
| Production, Development and Test Virtual Machines | BAH | Production environment TBD |
| Workstations | Topkeka, Kansas  Waco, Texas  Others TBD | Production end users |
| Special Hardware | N/A |  |
| Interface Processors | N/A |  |
| Legacy Mainframe | N/A |  |
| Legacy Application Server | Austin and Chicago | Systems of record |
| Legacy Databases | N/A |  |
| Other | N/A |  |

### Conceptual Infrastructure Diagram

#### Location of Environments and External Interfaces

The VIMT interface is completed and the design that depicts the CRM server based VIMT interface is below. See [Section 1.10](#_References), Reference 4 for most current VIMT Decision document.

Sample Conceptual Networks and Environments

Figure 7: Sample Conceptual Networks and Environments

Sample Conceptual Networks and Environments

Figure 8: Sample Conceptual Networks and Environments

#### Conceptual Production String Diagram

Please refer to Section 3.1.2. High-Level Application Design - “High-Level Application Design” diagram.

# System Architecture

## Hardware Architecture

HEC CRM will be hosted in VA BAH Secure Cloud at the Century Link Data Center. Hardware architecture is virtualized and scalable and designed for multi-thread server side operation. MS Dynamics hardware architecture generally consists of various front and backend severs including database server, application server, web-server, data access component server and LDAP directory server clustered for optimized performance.

The following diagram depicts the VA secure cloud hardware architecture configuration for the HEC production environment.

IMAGE REDACTED

In addition to a production environment, the VA Secure cloud has non-production environments for development, testing, integration and performance testing.

## Software Architecture

MS CRM Dynamics 2015 software platform is a COTS architecture that allows development of Call Center and Case Management solutions, without developing extensive class libraries and development components from the ground up. MS CRM Software Development Kit (SDK) provides .NET based development tools to develop workflows, web-services, plug-ins, forms and web-resources.

The following diagrams illustrate the high-level COTS software architecture.



The core CRM application for HEC will consist of the following areas:

1. CRM Unified Service Desktop (Optional)
2. Contact Management
3. Interaction and Service Request Management
4. Process Management
5. VA Domain Data Management

## Network Architecture

TBD

## Service Oriented Architecture / ESS

TBD

## Enterprise Architecture

TBD

# Data Design

This section outlines the design of the database management system (DBMS) and non-DBMS files associated with the system. For networks, detail the distribution of data and identify any changes to the logical data model that may occur due to software or hardware requirements.

Note: Provide a data dictionary appendix showing data element name, type, length, source, validation rules, maintenance, data stores, outputs, aliases, and description.

## DBMS Files

If a database will be used list and describe the logical requirements that exist for data formats, storage capabilities, data retention, data integrity, etc.

Describe how the database will be designed, including the following information, as appropriate:

* Logical model; provide normalized table layouts, entity relationship diagrams, and other logical design information
* DBMS schemas, subschemas, records, sets, tables, storage page sizes
* Access methods (such as indexed, via set, sequential, random access, sorted pointer array)
* Estimate the database file size or volume of data within the file, data pages, including overhead resulting from access methods and free space
* Definition of the update frequency of the database tables, views, files, areas, records, and sets
* Estimates on the number of transactions that the database may have to process.

## Non-DBMS Files

* Describe all non-DBMS files including narratives on the usage of each file.
* Identify if the file is used for input, output, or both; identify temporary files, which modules read and write the file, and similar.
* Identify record structures, record keys, indices, and reference data elements within the records.
* Define record length and blocking factors.
* Define the file access method such as: index sequential, virtual sequential, random access.
* Estimate the file size or volume of data within the file.
* Define the update frequency of the file if appropriate. Provide the estimated number of transactions per unit time and the statistical mean, mode, and distribution of those transactions.

## Data View

A "Data View" should be included in the Architectural Representation whenever persistent data objects are included in the system (they are typically present in most software systems). The data view describes the logical data model of the system and includes an Entity Relationship Diagram (ERD). For a description of Entity Relationship diagramming please refer to the whitepaper <<http://www-106.ibm.com/developerworks/rational/library/content/03July/2500/2785/2785_uml.pdf>>

# Detailed Design

This section describes the proposed design in detail. Provide the necessary information for the development team to integrate the hardware components and write the software code, so that the hardware and software components will provide a functional product. This is the detailed design, based upon the conceptual design (high level) that was described in the document up to this point. Most sections prior to this are needed for Milestone 1, on a best effort basis as the design is visualized and refined. This section is needed for Milestone 2, this is where the design in described in the conceptual sections is refined and an in depth detailed design is documented.

Note: Every design item should map back to the Requirements Specification Document. These should be captured in the Requirement Traceability Matrix (RTM).

## Hardware Detailed Design

The information requested in this section maybe provided by Engineering and/or the Developers. The information provided here is mainly for use by Engineering and Operations.

In this section, provide enough information for the developers to build and/or procure the system’s hardware. The level of detail requested should be treated as a general guideline and can be omitted if it needs to be filled in by Engineering and Operations.

Note: If this section becomes too lengthy, consider incorporating it as an appendix or reference it in a separate document. Add additional diagrams, if necessary, to describe each component and its functions.

Include the following information (as applicable):

* How much compute capacity? (MFLOPS, TPMs etc.)
* System Memory
* Local and Shared storage
* Network requirements (Bandwidth, Latency etc.)
* Public or Private cloud

## Software Detailed Design

This section provides conceptual and final detailed information associated with the design of the software being delivered. This should be an extension of the corresponding section from Section 3.1, but should contain additional detail as the project progresses.

### Conceptual Design

This section introduces the conceptual information that establishes the basis for how the software will be built.

#### Product Perspective

This subsection of the SDD should put the product into perspective with other related products. If the product is independent and completely self-contained, it should be stated here. If the SDD defines a product that is a component of a larger system, then this subsection should relate the requirements of that larger system to functionality of the software and should identify interfaces between that system and the software.

A block diagram showing the major components of the larger system, interconnections, and external interfaces can be helpful.

Sections of the Requirements Specification Document (RSD) can be referenced in the subsections, if applicable.

##### User Interfaces

This subsection should specify the logical characteristics of each interface between the software product and its users. This includes those configuration characteristics necessary to accomplish the software requirements (e.g., screens, roll and scroll, GUI interface).

Recommendation: Create a block diagram showing the user interfaces.

##### Hardware Interfaces

This subsection should specify the logical characteristics of each interface between the software product and the hardware components of the system. This includes configuration characteristics (for example, hardware platform or mainframe versus personal computer). It also covers matters such as what devices the system will support, how they will be supported, and protocols. Examples include scanners, pen driven devices, and radio frequency devices.

Recommendation: Create a block diagram showing the hardware interfaces.

##### Software Interfaces

This subsection should specify the use of other required software products (e.g., VA Kernel, VA FileMan, Windows NT); and interfaces with other applications or other systems such as commercial off-the-shelf (COTS) or national databases. Specify the application interfaces (e.g., the linkage between an accounts receivable system and a general ledger system and a COTS software package that will be interfaced using an existing interface). This section should provide the following information for each required software product:

* Name
* Version number
* Discussion of the purpose of the interfacing software as related to this software product
* Definition of the interface in terms of message content and format (e.g., Health Level Seven [HL7], electronic data interchange).

##### Communications Interfaces

This subsection should specify the various interfaces to communications such as local network protocols, e-mail, Transmission Control Protocol (TCP), modems.

Recommendation: Create a block diagram showing the communications interfaces.

##### Memory Constraints

This subsection should specify any applicable characteristics and limits on memory or partition size.

##### Special Operations

This subsection should specify the special operations required by the user such as backup, recovery, and archiving operations.

This section should also include any operations for external devices or COTS systems.

#### Product Features

This subsection should provide a summary of the major features of the software.

For example, an SDD for an accounting program might use this section to address customer account maintenance, customer statement, and invoice preparation without mentioning the vast amount of detail that each of those features requires.

Note: For clarity, remember these items when creating this section of the SDD:

* The features should be organized in a way that makes the list of features understandable to the customer or to anyone else reading the document for the first time.
* Textual or graphical methods can be used to show the different features and their relationships.
* Such a diagram is not intended to show a design of a product, but simply shows the logical relationships among variables.

#### User Characteristics

This subsection should describe the general characteristics of the intended users of the product, including experience and technical expertise. It should not be used to state specific requirements but rather should provide the reasons why certain specific requirements are specified in the RSD.

#### Dependencies and Constraints

This subsection should provide a description of any other items that will limit the developer’s options. The following list includes items that limit the developer’s options.

* Regulatory policies
* Hardware limitations (for example, signal timing requirements)
* Interfaces to other applications
* Parallel operation
* Audit functions
* Control functions
* Higher-order language requirements
* Reliability requirements
* Criticality of the application
* Safety and security considerations
* Usability (including 508 compliance)

This section of the SDD should contain all the software design to a level of detail sufficient to enable programmers to develop a system that satisfies the requirements defined in the RSD. It should be detailed so as to make it easy for technical staff to find the methods to complete the designed function.

These requirements should, at minimum, include the following items:

* An indication of the associated requirement(s) in the RSD which is being designed
* A description of the functionality being designed
* The design entities (and their attributes) affected
* The algorithm executed (where appropriate) to implement the functionality.

Because the Dependencies and Constraints section is often the largest and most important part of the SDD, the following principles apply:

* Specific design should be cross-referenced to earlier, related documents (e.g., the RSD).
* All design should be uniquely identifiable.
* Items in this section should be identified from a technical level rather than an end user level. (i.e., an option name should be identified rather than the menu text for that option).

### Specific Requirements

#### Database Repository

The Database Repository section in the RSD can be referenced in this section.

If a logical database design is a part of the system, it should be listed here. Logical database design should specify the logical requirements for any information that is to be placed into a database. This may include:

* Types of information used by various functions
* Frequency of use
* Accessing capabilities
* Data entities and their relationships
* Integrity constraints
* Data retention requirements.

Recommendation: Create a block diagram showing the databases and where the data resides.

#### System Features

Describe the system features, functional requirements, sub-requirements, etc. which can be organized in an outline format that matches the RSD. Specific formatting and organization of the paragraphs (i.e., section numbering) is left to the discretion of the author and is dependent on the level of detail essential to fully describe the design. Some designs may only require two levels; others may require multiple levels. The information necessary to define the items or to specify modifications to the items affected by the functionality being designed should be provided in the appropriate design element tables. Where feasible, instead of duplicating the RSD, it can be referenced via a link, to avoid unnecessary duplication. The key goal is to provide traceability to requirements.

#### Design Element Tables

The design element tables are provided for your convenience. Copy each table as many times as necessary to address multiple items within each section. Add rows and headings to the tables to provide any additional required information to define the item or to specify the modifications to the item. Numbering of the design element tables to align them underneath the applicable requirement or sub-requirement is recommended, but is left to the author’s discretion. For that reason they are not numbered in this template.

##### Routines (Entry Points)

This section is an illustration that is VistA specific. The authors are free to organize this information by technology, different templates, or optional sections depending on the task at hand.

Complete the table for each routine affected by the functionality being designed.

Table 14: Routines (Instructions)

| Routines | Instructions |
| --- | --- |
| **Routine Name** | List the routine affected by the functionality being designed. |
| **Enhancement Category** | Check the appropriate box: New, Modify, Delete, or No Change. |
| **RTM** | List the RSD item number within the SDD (i.e., If the RSD has a requirement of 3.3.1, add Support for a new API, then in this column list RSD Requirement 3.3.1) |
| **Related Options** | List options that directly call or are called by the routine. |
| **Related Routines** | List routines that directly call or are called by the routine. |
| **Data Dictionary (DD) References** | List files that reference the routine through input transforms, cross reference logic, etc. |
| **Related Protocols** | List protocols that reference or are referenced by the routine. |
| **Related Integration Control Registrations (ICRs)** | List proposed new ICRs and subscribed ICRs. Also, list any obscure Supported ICRs. |
| **Data Passing** | Check the appropriate box. Also a short description of what invokes the new/changed routine should be included in this section. An example of such a description would be a note that the new/changed routine will be invoked as part of a function call or it would be invoked through user menu-driven options, system protocols, HL7 Logical Links, etc. This section refers specifically to the change implemented with the design. |
| **Input Attribute Name and Definition** | List the Input Attributes passed into the new or changed routine logic. Each attribute should be defined. |
| **Output Attribute Name and Definition** | List the Output Attributes returned from the new or changed routine logic. Each attribute should be defined. |
| **Current Logic** | Define the current logic in the routine that the design will modify. If this is new code, enter “N/A”. |
| **Modified Logic (Changes are in bold)** | Define the logic in the routine that the design will implement. |

Table 15: (Grouping): Routines

| Routines | Activities | | | |
| --- | --- | --- | --- | --- |
| **Routine Name** |  | | | |
| **Enhancement Category** | New | Modify | Delete | No Change |
| **RTM** |  | | | |
| **Related Options** |  | | | |

| Related Routines | Routines “Called By” | Routines “Called” |
| --- | --- | --- |
|  |  |  |

| Routines | Activities | | | | |
| --- | --- | --- | --- | --- | --- |
| **Data Dictionary (DD) References** |  | | | | |
| **Related Protocols** |  | | | | |
| **Related Integration Control Registrations (ICRs)** |  | | | | |
| **Data Passing** | Input | Output Reference | Both | Global Reference | Local |
| **Input Attribute Name and Definition** | Name:  Definition: | | | | |
| **Output Attribute Name and Definition** | Name:  Definition: | | | | |

| Current Logic |
| --- |
|  |

| Modified Logic (Changes are in bold) |
| --- |
|  |

##### Templates

Complete Table 16 for each template affected by the functionality being designed. A short description of what change will be made to the templates should be included in this section.

Note: If preferred, copy and paste this section directly from VA FileMan DDs instead of using the tables.

Table 16: Templates (Instructions)

| Templates | Instructions |
| --- | --- |
| **Template Name** | Identify the template affected by the functionality being designed |
| **Enhancement Category** | Check the appropriate box: New, Modify, Delete, or No Change. |
| **RSD Traceability** | List the Requirement Specification Document (RSD) item number within the SDD (i.e., If the RSD has a requirement of 3.3.1, add Support for a new API, then this column should list RSD Requirement 3.3.1) |
| **Template Type** | Indicate the type of template identified (Sort, Input, or Print). |
| **Related Options** | List options that directly call or are called by the template. |
| **Related Routines** | List routines that directly call or are called by the template. |
| **Data Dictionary (DD) References** | List files/fields that reference the template(s) through input transforms, and cross reference logic. |
| **Global References** | List the ICRs for global references that are outside your namespace. |

Table 17: Templates

| Templates | Description | | | |
| --- | --- | --- | --- | --- |
| **Template Name** |  | | | |
| **Enhancement Category** | New | Modify | Delete | No Change |
| **RSD** |  | | | |
| **Template Type** | Sort | Input | Print | Other |
| **Related Options** |  | | | |

| Related Routines | Routines “Called By” | Routines “Called” |
| --- | --- | --- |
|  |  |  |

| Routines | Description |
| --- | --- |
| **Data Dictionary (DD) References** |  |
| **Global References** |  |

##### Bulletins

If the project develops or affects bulletins, then complete this section; if not then state that the section is not applicable and delete the tables and content of the section. Complete the table for each bulletin affected by the functionality being designed. A short description of what change will be made to the bulletins should be included in this section.

Note: If preferred, copy and paste this section directly from VA FileMan DDs instead of using the tables.

Table 18: Bulletins (Instructions)

|  |  |
| --- | --- |
| Bulletins | Instructions |
| **Bulletin Name** | List the specific bulletin affected by the functionality being designed. |
| **Enhancement Category** | Check the appropriate box: New, Modify, Delete, or No Change. |
| **RTM** | List the RSD item number within the SDD (i.e., If the RSD has a requirement of 3.3.1, add Support for a new API, then in this column list RSD Requirement 3.3.1). |
| **Related Options** | List options that directly send the bulletin. |
| **Related Routines** | List routines that directly send the bulletin. |
| **Mail Subject** | List the subject of the mail message, i.e., which bulletin this affects. |
| **Mail Group** | List the mail group (recipients) of the mail message. |
| **Parameters** | List necessary parameters. |
| **Data Dictionary (DD) References** | List files/fields that reference the bulletin(s) through input transforms, cross reference logic, etc. should be listed under Data Dictionary (DD) References. |

Table 19: Bulletins

| Bulletins | Description | | | |
| --- | --- | --- | --- | --- |
| **Bulletin Name** |  | | | |
| **Enhancement Category** | New | Modify | Delete | No Change |
| **RTM** |  | | | |

| Related Routines | Routines “Called By” | Routines “Called” |
| --- | --- | --- |
|  |  |  |

| Routines | Description |
| --- | --- |
| **Mail Subject** |  |
| **Mail Group** |  |
| **Parameters** |  |
| **Data Dictionary (DD) References** |  |

##### Data Entries Affected by the Design

Provide the following data for each field to be created, modified, or deleted or provide a “Before and After: Data Entries Affected by the Design.”

Identify the entries affected by the design. If a blanket change will be made to each entry affected, that change should be defined in this table.

Only changes that are unique to each record should be defined in the Unique Record(s) section (Section 6.2.2.3.5). Redundant information should not be entered into each chart in the Unique Record(s) section.

Table 20: Data Entries Affected by the Design

| Field Name | Current Value | New Value |
| --- | --- | --- |
|  |  |  |

##### Unique Record(s)

List the unique record ID(s) that will be affected by the changes implemented by the design. This is commonly done in the .01 field. The values defined in the Current Value and New Value columns should be the exact value of the data. For each unique record ID, copy this table and provide the information.

Table 21: Unique Record ID

| Field Name(s) | Current Value | New Value |
| --- | --- | --- |
|  |  |  |

##### File or Global Size Changes

Indicate the change to the size of the file or global as a result of the design implemented with this description. Global size changes tie back to the business requirements and RSD. Growth or reduction in the size of the global should be indicated in this section. If the file is static across all VistA systems, a blanket statement of how the change will affect the size of the global will suffice.

For example, “The National Procedure file is a new file and will require 8.7K of disk space to install.”

If a file is dynamic and its size may vary from VistA system to VistA system, the description should indicate the change in the file per record and the number of records that the site may anticipate. For example, if a field is being added to the patient file that will result in an increase of 7K per patient, the site can estimate the global growth based on the number of entries in that file.

Note: If the Capacity Planning analysis is available, then enter it here. If not, then use the Project Team projection.

Table 22: File or Global Size Changes

| File/Global Name(s) | Estimated Increase | Estimated Decrease |
| --- | --- | --- |
|  |  |  |

##### Mail Groups

Complete the table for each of the mail groups affected by the functionality being designed. A short description of what changes will be made to the affected mail groups should be included in this section.

Note: If preferred, this can be captured directly from VA FileMan DDs after the fact.

Table 23: Mail Groups (Instructions)

| Mail Groups | Instructions |
| --- | --- |
| **Mail Group Name** | List the name of the mail group being modified. The mail group name may include a domain name. |
| **Enhancement Category** | Check the appropriate box: New, Modify, Delete, or No Change. |
| **Related Options** | List options that directly reference the file. |
| **Related Routines** | List routines that reference the mail group. |
| **Data Dictionary (DDs) References** | List files that reference the mail group through input transforms, cross-reference logic, etc. |
| **Related Protocols** | List protocols that directly reference the mail group. |
| **Mail Group Description** | Describe the purpose for the mail group. |
| **Self-Enrollment Allowed** | Check the appropriate box either Yes or No. |
| **Type** | Check the appropriate box either Public or Private. |

Table 24: Mail Groups

| Mail Groups | Activities | | | |
| --- | --- | --- | --- | --- |
| **Mail Group Name** |  | | | |
| **Enhancement Category** | New | Modify | Delete | No Change |
| **Related Options** |  | | | |

| Related Routines | Routines “Called By” | Routines “Called” |
| --- | --- | --- |
|  |  |  |

| Mail Groups | Instructions | |
| --- | --- | --- |
| **Data Dictionary (DD) References** |  | |
| **Related Protocols** |  | |
| **Mail Group Description** |  | |
| **Self-Enrollment Allowed** | Yes | No |
| **Type** | Public | Private |

##### Security Keys

This section lists the specific security keys affected by the functionality being designed. A short description of the changes that will be made to the security keys affected should be included in this section.

Note: If preferred, this can be captured directly from VA FileMan DDs after the fact.

Table 25: Security Keys (Instructions)

| Security Keys | Instructions |
| --- | --- |
| **Security Key Name** | List the specific name of the security key being modified. |
| **Enhancement Category** | Check the appropriate box: New, Modify, Delete, or No Change. |
| **Related Options** | List options that directly reference the security key. |
| **Related Routines** | List routines that reference the security key. |
| **Data Passing** | Check the appropriate box. Enter a short description of an event that would trigger the new/changed routine, for example, a note that the change to the security key will be referenced through user menu driven options, routines, etc. This section refers specifically to the change implemented with the design. |
| **Security Key Description** | List a brief description of the security key. |
| **Subordinate Keys** | List any subordinate keys. |
| **Mutually Exclusive Keys** | Enter the name of a key that may not be held jointly with this one. |
| **Granting Condition Logic** | Define the logic for the Granting Condition of the Security Key affected by the functionality being designed. |
| **Current Logic** | If the security key currently has a granting condition, define the current logic for that granting condition. If the security key did not exist before, indicate that there is currently no security key. |
| **Modified Logic  (Changes are in bold)** | Define the granting condition that the design will implement. If the security key is new to the field, define the logic here. |
| **Hierarchical Precedence** | Define which key is used if one key will take precedence over another key. |

Table 26: Security Keys

| Security Keys | Activities | | | |
| --- | --- | --- | --- | --- |
| **Security Key Name** |  | | | |
| **Enhancement Category** | New | Modify | Delete | No Change |
| **Related Options** |  | | | |

| Related Routines | Routines “Called By” | Routines “Called” |
| --- | --- | --- |
|  |  |  |

| Security Keys | Activities | | | | |
| --- | --- | --- | --- | --- | --- |
| **Data Passing** | Input | Output | Both | Global Reference | Local Reference |
| **Security Key Description** |  | | | | |
| **Subordinate Keys** |  | | | | |
| **Mutually Exclusive Keys** |  | | | | |
| **Granting Condition Logic** |  | | | | |

**Current Logic**

**Modified Logic (Changes are in bold)**

| Security Keys | Activities |
| --- | --- |
| **Hierarchical Precedence** |  |

##### Options

Complete the table for each of the options affected by the functionality being designed. A short description of the changes that will be made to the options affected should be included. Changes to the OPTION file (#19) are to be included, not the functionality of the option invoked.

Note: If preferred, this can be captured directly from VA FileMan DD after the fact.

Table 27: Options (Instructions)

| Options | Instructions |
| --- | --- |
| Option Name (MENU TEXT field) | List the menu type options on which the respective option is or will be contained. |
| Data Passing | Check the appropriate box. Also a short description of what invokes the new/changed routine should be included in this section. An example of such a description would be a note that the change to the option will be referenced through VA Mailman server messages, user selection of the option from the VA Kernel Menu Management system, etc. This section refers specifically to the change implemented with the design |
| Menu Text Description | Enter the name of the option as it will be displayed to the user within the menu system. |
| Option Type | Specify the type of option |
| Option Definition | Provide all the information necessary to fully define the option. Include options that are included in the menu, if applicable |
| Current Entry Action Logic | Define the current logic for the entry action of the option affected by the functionality being designed. If the entry action did not exist before, indicate that there currently is no entry action. |
| Modified Entry Action Logic (Changes are in bold) | Define the entry action that the design will implement. If the entry action is new to the field, define the logic here.. |
| Current Exit Action Logic | Define the current logic for the exit action of the option affected by the functionality being designed. If the exit action did not exist before, indicate that there currently is no exit action. |
| Modified Exit Action Logic (Changes are in bold) | Define the entry action that the design will implement. If the entry action is new to the field, define the logic here. |
| Current Exit Action Logic | Define the exit action that the design will implement. If the exit action is new to the field, define the logic here. |
| Modified Exit Action Logic  (Changes are in bold) | Define the exit action that the design will implement. If the exit action is new to the field, define the logic here. |

Table 28: Options

| Options | Activities | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Option Name** |  |  | | |  | |  | | | |
| **Enhancement Category** | New | Modify | | | Delete | | No Change | | | |
| **Associated Menu Options that will invoke this reference** |  | | | | | | | | | |
| **Data Passing** | Input | | Output | | | Both | | | Global Reference  Local Reference | |
| **Menu Text Description** |  | | | | | | | | | |
| **Option Type** | Edit  Action | | | Print  Run Routine | | | | Menu  Other | | Inquire |
| **Associated Routine** |  | | | | | | | | | |
| **Option Definition** |  | | | | | | | | | |

**Current Entry Action Logic**

**Modified Entry Action Logic (Changes are in bold)**

**Current Exit Action Logic**

**Modified Exit Action Logic (Changes are in bold)**

##### Protocols

Complete the table for each of the protocols affected by the functionality being designed. A short description of the changes that will be made to the protocols affected should be included in this section. Changes to the PROTOCOL file (#101) are to be included, not the functionality of the protocol invoked.

Note: If preferred, this can be captured directly from VA FileMan DDs after the fact.

Table 29: Protocols (Instructions)

| Protocols | Instructions |
| --- | --- |
| **Protocol Name** | List the name of the protocol affected. |
| **Enhancement Category** | Check the appropriate box: New, Modify, Delete, or No Change. |
| **Associated Protocols** | List the ancestors of the protocol being designed, i.e., those protocols that contain the respective protocol as an item. |
| **Data Passing** | Check the appropriate box. An event that would trigger the new/changed protocol should be included in this section. An example would be a note that the change to the protocol will be referenced through the VA event driver, List Manager, user selection of a protocol from the VA Kernel Menu Management system. This section refers specifically to the change implemented with the design. |
| **Item Text Description** | Enter the protocol's text as it appears to the user on the menu or sub-header. |
| **Protocol Type** | Define the type of protocol to be executed |
| **Associated Routine** | List any associated routines affected by the protocol being designed. |
| **Current Entry Action Logic** | Define the current logic for the entry action of the protocol affected by the functionality being designed. If the entry action did not exist before, indicate that there currently is no entry action. |
| **Modified Entry Action Logic  (Changes are in bold)** | Define the entry action that the design will implement. If the entry action is new to the field, define the logic here. |
| **Current Exit Action Logic** | Define the current logic for the exit action of the protocol affected by the functionality being designed. If the exit action did not exist before, indicate that there currently is no exit action. |
| **Modified Exit Action Logic  (Changes are in bold)** | Define the exit action that the design will implement. If the exit action is new to the field, define the logic here. |

Table 30: Protocols

| Protocols | Activities | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Protocol Name** |  |  | | |  | |  | | | |
| **Enhancement Category** | New | Modify | | | Delete | | No Change | | | |
| **Associated Protocols** |  | | | | | | | | | |
| **Data Passing** | Input | | Output | | | Both | | | Global Reference  Local Reference | |
| **Item Text Description** | N/A | | | | | | | | | |
| **Protocol Type** | Action  Limited Protocol | | | Menu  Extended Action | | | | Protocol  Dialog | | Protocol Menu  Other |
| **Associated Routine** |  | | | | | | | | | |

**Current Entry Action Logic**

**Modified Entry Action Logic (Changes are in bold)**

**Current Exit Action Logic**

**Modified Exit Action Logic (Changes are in bold)**

##### Remote Procedure Call (RPC)

Complete the table for each RPC affected by the functionality being designed.

Note: If preferred, this can be captured directly from VA FileMan DDs after the fact.

Table 31: RPCs (Instructions)

| RPCs | Instructions |
| --- | --- |
| **Name** | List the specific name of the RPC affected. |
| **TAG^RTN** | List the tag (label) and routine. |
| **Input Parameters** | This field is used to identify an input parameter for the API. |
| **Results Array** | This field tells the RPC Broker how to process the resulting data from the call. |
| **Description** | Provide a brief description of the RPC affected. |

Table 32: RPCs

| RPCs | Activities | | |
| --- | --- | --- | --- |
| **Name** |  | | |
| **TAG^RTN** |  | | |
| **Input Parameters** |  | | |
| **Results Array** | Single Value | Array | Word Processing |
| Global Array | Global Instance |  |
| **Description** |  | | |

##### Constants Defined in Interface

Provide the name and description.

Table 33: Constants Defined in Interface

| Name | Description |
| --- | --- |
|  |  |

##### Variables Defined in Interface

Provide the name, type, and description.

Table 34: Variables Defined in Interface

| Name | Type | Description |
| --- | --- | --- |
|  |  |  |

##### Types Defined in Interface

Provide the name, type, and description.

Table 35: Types Defined in Interface

| Name | Type | Description |
| --- | --- | --- |
|  |  |  |

##### GUI

List the GUI affected by the functionality being designed and include a short description of the changes made to the affected GUI. The headers in the following tables have names for the information outlined. There are a number of items in this section that would generally be global information and visible to all other aspects.

Table 36: GUI

| Unit Name | Description |
| --- | --- |
|  |  |

##### GUI Classes

Table 37: GUI Classes (Instructions)

| GUI Classes | Instructions |
| --- | --- |
| **Class Name** | List the name of the class affected. The headers in the following tables have names for the information outlined. Note that only the new properties and methods for a class are listed below. All ancestor properties and methods are still available and unchanged. |
| **Derived From Class** | List the class that this is derived from, its parent and any interfaces listed as part of this class. |
| **Purpose** | Describe the functionality that users can access from this class and related form, if any. |

Table 38: GUI Classes

| GUI Classes | Instructions |
| --- | --- |
| **Class Name** |  |
| **Derived From Class** |  |
| **Purpose** |  |

##### Current Form

Provide a screen capture or graphical representation of the current layout.

##### Modified Form

Provide a screen capture or graphical representation of the layout that the design will implement.

##### Components on Form

Table 39: Components on Form

| Name | Type | Description |
| --- | --- | --- |
|  |  |  |

##### Events

Table 40: Events

| Name | Type | Description |
| --- | --- | --- |
|  |  |  |

##### Methods

Table 41: Methods

| Method Name | Procedure/Function | Description |
| --- | --- | --- |
|  |  |  |

##### Special References

Include references that are not listed elsewhere.

| Special Reference Name | Type | Description |
| --- | --- | --- |
|  |  |  |

##### Class Events

Table 42: Class Events

| Name | Type | Description |
| --- | --- | --- |
|  |  |  |

##### Class Methods

Table 43: Class Methods

| Name | Procedure/Function | Description |
| --- | --- | --- |
|  |  |  |

##### Class Properties

Table 44: Class Properties

| **Class Properties Name** | **Type** | **Visibility** | **Description** |
| --- | --- | --- | --- |
|  |  |  |  |

##### Uses Clause

Use this section to provide a uses clause that lists the other units (code or form units) that this unit will use. This may be documented in the form of a Unified Modeling Language (UML) drawing.

##### Forms

This section lists the forms that will be affected or created by the functionality being designed. A short description of the change that will be made to the forms should be included.

Table 45: Forms (Instructions)

| Forms | Instructions |
| --- | --- |
| **Form Name** | List the name of the form affected by the functionality being designed. |
| **Enhancement Category** | Check the appropriate box: New, Modify, Delete, or No Change. |
| **Form Functionality** | Describe the form’s functionality and refer to the usage of the form. An example of such a description is “This form is used to enter patient demographic data.” |
| **Current Form Layout** | Define the current form layout that the design will modify. If this is a new form, enter “N/A”. |
| **Modified Form Layout (Changes are in bold)** | Define the form layout that the design will implement. |

Table 46: Forms

| Forms | Description | | | |
| --- | --- | --- | --- | --- |
| **Form Name** |  | | | |
| **Enhancement Category** | New | Modify | Delete | No Change |
| **Form Functionality** |  | | | |

**Current Form Layout**

**Modified Form Layout (Changes are in bold)**

##### Functions

The functions affected by the capabilities being designed should be listed in this section. A short description of what change will be made to the functions and/or new functions should be included.

Table 47 Forms (Instructions)

| Functions | Instructions |
| --- | --- |
| **Function Name** | List the specific function affected by the capability being designed. |
| **Short Description** | List a short description of the change that will be made to the functions and/or new functions. |
| **Enhancement Category** | Check the appropriate box: New, Modify, Delete, or No Change. |
| **Related Options** | List the options that directly call or are called by the function. |
| **Related Routines** | List the routines that directly call or are called by the function. |
| **Data Dictionary (DD) References** | List the files that reference the function through input transforms, cross reference logic, etc. |
| **Related Protocols** | List the protocols that reference or are referenced by the function. |
| **Related Integration Control Registrations (ICRs)** | List proposed new ICRs and subscribed ICRs. Also, list any obscure Supported ICRs. |
| **Data Passing** | Check the appropriate box. An event that would trigger the new/changed function should be included in this section. An example of such a description would be a note that the new/changed function will be invoked as part of a function call or it would be invoked through system protocols, HL7 Logical Links, etc. This section refers specifically to the change implemented with the design. |
| **Input Attribute Name and Definition** | List the input attributes passed into the new or changed function logic. Each attribute should be defined. |
| **Output Attribute Name and Definition** | List the output attributes returned from the new or changed function logic. Each attribute should be defined. |
| **Current Logic** | Define the current logic in the function that the design will modify. If this is new code, enter “N/A”. |
| **Modified Logic (Changes are in bold)** | Define the logic in the function that the design will implement. |

Table 48: Forms

| Function Name | Activities | | | |
| --- | --- | --- | --- | --- |
| **Short Description** |  | | | |
| **Enhancement Category** | New | Modify | Delete | No Change |
| **Related Options** |  | | | |

| Related Routines | Routines “Called By” | Routines “Called” |
| --- | --- | --- |
|  |  |  |

| Function Name | Activities | | | | |
| --- | --- | --- | --- | --- | --- |
| **Data Dictionary (DD) References** |  | | | | |
| **Related Protocols** |  | | | | |
| **Related Integration Control Registrations (ICRs)** |  | | | | |
| **Data Passing** | Input | Output | Both | Global Reference | Local Reference |
| **Input Attribute Name and Definition** | Name: | | | | |
| Definition: | | | | |
| **Output Attribute Name and Definition** | Name: | | | | |
| Definition: | | | | |

**Current Logic**

**Modified Logic (Changes are in bold)**

##### Dialog

In this section list the changes to the DIALOG file (#.84).

Table 49: Dialog (Instructions)

| Dialog | Instructions |
| --- | --- |
| **Dialog Message (Description)** | List the specific message affected or needed by the changes being designed. |
| **Enhancement Category** | Check the appropriate box: New, Modify, Delete, or No Change. |
| **Dialog Message (Description) Condition** | Describe the dialog message (description) functionality. An example of such a description would be the condition that would trigger the output of the message (dialog). This section refers to the condition generating the message (dialog). |
| **Current Dialog Message (Description)** | Define the current dialog message (description) that the design will modify. If this is a new dialog message (description) enter N/A. |
| **Modified Dialog Message (Description)  (Changes are in bold)** | Define the dialog message (description) that the design will implement. |

Table 50: Dialog

| Dialog | Instructions | | | |
| --- | --- | --- | --- | --- |
| **Dialog Message (Description)** |  | | | |
| **Enhancement Category** | New | Modify | Delete | No Change |
| **Dialog Message (Description) Condition** |  | | | |
| **Current Dialog Message (Description)** |  | | | |
| **Modified Dialog Message (Description)  (Changes are in bold)** |  | | | |

##### Help Frame

A short description of what change will be made to the Help Frame text and/or new text should be included in this section. Help frames may be associated with options or with data dictionary fields to provide on-line instruction.

Table 51: Help Frame (Instructions)

| Help Frame | Instructions |
| --- | --- |
| **Help Frame Text** | List the text affected or needed by the changes being designed. |
| **Enhancement Category** | Check the appropriate box: New, Modify, Delete, or No Change. |
| **Help Frame Text Calling Mechanism** | Provide a short description of the mechanism used to call the Help Frame text in this section. An example of a mechanism would be the name of the routine or an explanation of how the Help Frame is called. An example of a calling mechanism would be the Standard VA FileMan API and the keystroke(s) that would trigger the output of the text. |
| **Current Help Frame Text** | List the current Help Frame Text that the design will modify. If new text enter N/A. |
| **Modified Help Frame Text (Changes are in bold)** | List the Help Frame Text that the design will modify. |

Table 52: Help Frame

| Help Frame | Description | | | |
| --- | --- | --- | --- | --- |
| **Help Frame Text** |  | | | |
| **Enhancement Category** | New | Modify | Delete | No Change |
| **Help Frame Text Calling Mechanism** |  | | | |

**Current Help Frame Text**

**Modified Help Frame Text (Changes are in bold)**

##### HL7 Application Parameter

Table 53: HL7 Application Parameter (Instructions)

| HL7 Application Parameter | Instructions |
| --- | --- |
| **HL7 Application Parameter Name** | List the HL7 Application Parameter affected or needed by the changes being designed. |
| **Enhancement Category** | Check the appropriate box: New, Modify, Delete, or No Change. |
| **Application Status** | Check the appropriate box in the applicable column for Current and Modified |
| **Facility Name** | List the current and modified value in the appropriate column. |
| **Country Code** | List the current and modified value in the appropriate column. |
| **HL7 Field Separator** | List the current and modified value in the appropriate column. |
| **HL7 Encoding Characters** | List the current and modified value in the appropriate column. |
| **Mail Group** | List the current and modified value in the appropriate column. |

Table 54: HL7 Application Parameter

| HL7 Application Parameter Name | Description | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Enhancement Category** | New | Modify | | Delete | | No Change |
| **Application Status** | Active | | Inactive | | Active | Inactive |

| Enhancement Category | Current | Modified |
| --- | --- | --- |
| **Facility Name** |  |  |
| **Country Code** |  |  |
| **HL7 Field Separator** |  |  |
| **HL7 Encoding Characters** |  |  |
| **Mail Group** |  |  |

##### HL7 Logical Link

Table 55: HL7 Logical Link (Instructions)

| HL7 Logical Link | Instructions |
| --- | --- |
| **HL7 Logical Link Parameter (LLP) Name** | List the specific HL7 Logical Link affected or needed by the changes being designed. |
| **Enhancement Category** | Check the appropriate box: New, Modify, Delete, or No Change. |
| **Node** | List the current and modified value in the appropriate column. |
| **Institution** | List the current and modified value in the appropriate column. |
| **Domain** | List the current and modified value in the appropriate column. |
| **Autostart** | List the current and modified value in the appropriate column. |
| **Queue Size** | List the current and modified value in the appropriate column. |
| **LLP Type** | List the current and modified value in the appropriate column. |

Table 56: HL7 Logical Link

| HL7 Logical Link | Description | | | |
| --- | --- | --- | --- | --- |
| **HL7 Logical Link Parameter Name** |  | | | |
| **Enhancement Category** | **New** | **Modify** | **Delete** | **No Change** |

| Enhancement Category | Current | Modified |
| --- | --- | --- |
| **Facility Name** |  |  |
| **Country Code** |  |  |
| **HL7 Field Separator** |  |  |
| **HL7 Encoding Characters** |  |  |
| **Mail Group** |  |  |

##### COTS Interface

The specific communication method(s) and Application Interface(s) that will be created or modified for the COTS system being interfaced should be described in this section. A short description of the existing tools that will be used and any new tools that will be developed should also be included.

Table 57: COTS Interface (Instructions)

| COTS Interface | Instructions |
| --- | --- |
| **Communication Method** | List the specific communication method created or modified for the functionality being designed. |
| **Application Interface** | List the specific application interface created or modified for the functionality being designed. |

Table 58: COTS Interface

| COTS Interface | Description |
| --- | --- |
| **Communication Method** |  |
| **Application Interface** |  |

## Network Detailed Design

Provide enough detailed information about the communication requirements to build and/or procure the communication components for the system. This section should provide sufficient detail to support the procurement of hardware for the system installation. Include the following information in the form of detailed designs (as appropriate):

* Details of servers and clients to be included on each area network
* Specifications for bus timing requirements and bus control
* Format(s) for data being exchanged between components
* Diagrams showing connectivity between components, data flow (if applicable), and distances between components
* LAN topology.

## Service Oriented Architecture / ESS Detailed Design

This section provides details of provided and consumed services as follows:

* Consumed Services: Provide link to Service Description Document for each consumed service.
* Provided Services: Give service design for each provided service.

The information you provide here will be used to upload to the ESS Registry and Repository. At some point in the near future, we do not expect these SOA artifacts such as SLA, Service Description, etc. to be static documents. They will be dynamically generated from the ESS Registry and Repository tool in the form of reports. Any application and service integration design is also documented here.

A list of currently available Enterprise Shared Services is available here: <insert link to ESS list>

### Service Description for <Consumed Service Name>

Provide link to Service Description document for the consumed service. This section will repeat for each consumed service. The Service Description includes Service Interface and Service Level Definition (SLD) to address anticipated capacity requirements.

### Service Design for <Provided Service Name>

This section should describe the detailed service design for each ESS and SOA service needed to obtain an intended result. The Service Design includes Service Interface and Service Level Definition (SLD) to address anticipated capacity requirements.

This section will repeat for each provided service.

#### Introduction

##### Purpose and Scope of Service

This service was described at a high level in the charter document. Please refer to it here via a link.

##### Links to Other Documents

Provide links to other documents created for this service so far in the SOA lifecycle. At a minimum, provide links to:

* Service Charter
* Service Roadmap
* Service Description

#### Service Details

##### Service Identification

This section will be written as a table to provide a quick reference to the service's what, where, why and how - cheat sheet.

| Service Attribute | Value |
| --- | --- |
| Name and Alias (if any) | Name of the service and other names for the service, which might be used by someone searching for this service. Please follow ESS naming standards. |
| Overview | Brief textual overview of the service. |
| Version | Version number of the service being described here |
| Latest Status | This field shows the latest status for the above referenced version of this service! The status of a service shows the progress of the service from initiation through development, deployment, and eventual retirement. The status also has a status date associated with the status - and we will be using the latest one here in this document. Valid values include: Inception, Design, Provisioning, Certification / Testing, Operation, Deprecated, Retired, Rejected - Owner has decided not to develop the service. |
| Service Type | Used to define applicable architecture patterns. Examples (from Open Group):  • Interaction  • Process  • Information  • Partner  • Business Application  • Access  • Service Connectivity |
| Architecture Layer | Referred to as class in VA Service template. Used to define applicable architecture patterns and relationships to governing bodies. Examples:  • Solution  • Process  • Information  • Utility  • Underlying |
| Business Domain | Business Vertical or Business Division where this service belongs. |
| Service Domain | The service or technical domain that the service belongs to. Can be used to establish the namespace. |
| Business Organization and Owner | Person who approves this service & any changes. Include email. |
| Technical Organization and Owner | Person responsible for provisioning (specifying, acquiring certifying) this service. Include email. |
| Development Organization and Owner | Person who is responsible for the development processes and activities for this service. Include email. |
| Support Organization and Owner | Person who is responsible for the support of this service while in production. Include email. |
| Target Consumer Organization(s) and Owner(s) | Organizations and/or developers roles that service is intended for. |

##### Service Versions

|  |  |  |
| --- | --- | --- |
| Version Numbers | Current Status of Version | A Brief Description of the change implemented in that version |
| This version | Being Designed |  |
| Example: version 2 | Example: In production. Will be retired with this release. | Example: This release added the ability to look up a person by address.  Provide a link to each version of the service. |
| Example: version 1 | Example: Retired. | Example: This release provided the base minimum functionality to look up a person by name.  Provide a link to each version of the service. |

##### Summary of Design and Platform Details

###### SOA Pattern(s) Implemented

Name of the SOA pattern implemented – for instance, this may be a Pub/Sub model. Just a name and reference to the document or book with the pattern is sufficient for popular patterns or VA's own patterns. If you are using some esoteric pattern, more details will help.

###### COTS Platform vendor names and versions for hosting platform

Example, TIBCO.

#### Dependencies

The Dependency Model identifies other services, systems, databases, etc. that [Service Name] is dependent upon or interacts with to perform its function.

This section should clearly identify all sources and external systems that are accessed by this service to fulfill the service consumers’ request. This section should include diagrams to show as much detail as necessary to inform the developer. Provide a context diagram for the service.

Note: Here our primary audience includes the providers of the service. So this document in general will emphasize system components and sub-systems as much as external interactions.

#### Service Design Details

The next sub-section on Interface Technical Specs **could be** just a copy from the corresponding sub-section in Interface section in the Service Description Document. Here, you could provide more detail necessary for building this service but **the interface spec needs to be consistent between this document and the Service Description Document**. This section contains all information necessary to fully describe an interface published by this service...

##### Interface Technical Specs

The technical specification allows developers of service consumers to locate and discover the service for run time consumption.

###### Service Invocation Type

Such as: SOAP over HTTP, REST.

###### Service Interface Type

Such as: WSDL via Web Service 2.0

###### Service Name

Technical Service Name. Comply with ESS naming standards.

###### Interface

Link to WSDL or other interface document.

###### End Points

Provide if known! Calls that can be made into the service. Can be referenced to the WSDL or can be in a separate table.

###### Operations or Methods

In the table below, the technical names of the operations, inputs and outputs are used. Inputs and outputs, if parameters, must have a data type.

Non-primitive data types must be defined in the Service Information Model section.

This table could be generated automatically from the WSDL content or its equivalent.

Style can take any of these values: Parameters or Document; and One-way or Request-response or Solicit-response or Notification.

Use a separate column for the operation purpose if you wish.

You might use abbreviations in the Faults column and explain the abbreviations used below the table. For example, NF = Not Found, MI = Missing Input.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Operation Name | Inputs | Outputs | Transactional Qualities if relevant (Updating?, Atomic?, Can participate in transaction?) | Pre and Post Conditions | Exception (s) |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

Provide a link to the Service Information model so that the consumer of your system knows the schema for the input and output parameters.

###### Message Schemas

Provide definitions or links to definitions of the message(s) related to the service operations. These may be dependent on the implementation style and protocol binding of the interface.

##### Information Model

Even though this section looks similar to the corresponding section 3.2 in Service Description, remember that the primary objective here is to facilitate construction and to gain approvals from governing bodies. So you will provide more of a “white box” view of the design here to help your developers code the service.

###### Class Diagram and Description of Entities Involved

Map out all entities involved in the service: input, output, exceptions, entities manipulated in persistent media/DBs, intermediate entities created in memory etc.

###### Mappings from ELDM to Standards Based Schemas

Provide mappings from your native schema to any standards based schemas your service will use to communicate outside. For instance, if you are using HL7 based messages then you will show how data is converted from your native schema to HL7.

##### Behavior Model (AKA Use Case Realization)

The Behavior Model defines the actions and processes supported by the service. Actions and methods represented in the use cases and sequence diagrams shown below are further defined by the operation contracts and the message payloads.

###### Use Cases (Use Case Model)

How does this service fit into the larger use case model of the consumer? You may need multiple models for multiple consumers. Focus is not on the internal workings of the new service instead of the calls made from external consumers. Just a summary or the Use Case Diagram may be sufficient. List the alternative and exception flows. Reference the detailed design documents via a URL.

###### Interaction Diagrams

Cut and paste screen shot from RSA or similar tool or provide link to the model. Provide description to help developers build your service. The interaction diagrams should depict external interactions and internal sequences of calls between internal components. The sequence diagram should cut through all layers to show the main, alternate and exception flows.

#### Gap Analysis

Provide a Gap Analysis (Reference) to demonstrate compliance of this service with various standards, policies, guidelines and laws. The Gap Analysis may take the form of a matrix as shown in the sample below. This will help the governance boards expedite your request.

| Design Elements🡪  Policies / SLD elements etc.↓ | Design  Element A | Design  Element B | Design  Element C | Comment for non-conformance |
| --- | --- | --- | --- | --- |
| Policy X | Match |  |  |  |
| Policy Y |  | Partial |  |  |
| Policy Z |  |  |  | Commercial encryption server in prod will have to address this policy. |
| Policy A |  |  |  | Compliance with this policy not required until next year. |
| New / Additional Features |  |  | New element minimizes manual intervention |  |

##### Variances from Enterprise Target Architecture

This list of “variances” will become a submission to the ESS dispensation process.

##### Variances from SLDs

This list of “variances” will become a submission to the ESS dispensation process.

##### Variances from Standards and Policies

This list of “variances” will become a submission to the ESS dispensation process.

##### Justification for Exceptions and Mitigation

This section will list out any non-functional and functional requirements that are not being met. The non-conformance may be in violation of elements of SLDs, enterprise architecture (TRM Technology Reference Model), privacy policies or guidelines. For each exception provide:

1. Reasons for non-conformance (cost, time, technology, etc.)
2. Mitigating actions taken to reduce the impact of non-conformance
3. Plan (roadmap) to come back into conformance

This list can grow depending on what the Review bodies may ask for.

# External System Interface Design

This section details interfaces external to system, that are NOT services (ESS/SOA). Typically, these may include, RPCs, Flat Data Files etc.

External systems are systems that are not within the scope of the system under development, regardless of whether the other systems are managed by the vendor or its client.

In this section, describe the interface(s) between the system under development (i.e., the system that is the subject of this SDD) and external systems and/or subsystem(s).

It is best to illustrate these sections with annotated diagrams to clearly identify the various elements of the interfaces.

## Interface Architecture

Describe the interface(s) between the system being designed and other systems. Include the interface architecture(s) being implemented, such as wide area networks, gateways, etc. Provide diagrams showing the communications path(s) between this system and other systems.

## Interface Detailed Design

Provide sufficient detail about the interface requirements for the development team to format, transmit, and/or receive data across the interface.

Include the following information (as appropriate):

* Data format requirements; if data must be reformatted before it is transmitted or after incoming data is received. Describe the tools and/or methods for the reformat process.
* Specifications for hand-shaking protocols between systems; content and format of hand-shake messages, timing for exchanging these messages, and errors handling.
* Format(s) for reports exchanged between the systems.
* Graphical representation of the connectivity between systems, showing the direction of data flow.
* Query and response descriptions.
* Describe the individual data elements that the interfacing entity(s) will provide, store, send, access, and receive, such as:
* Names/identifiers
  + Data Element Name
  + Data Format/Length
  + Data Type
  + Definition
  + Non-Technical Name
  + Non-Technical Synonyms
  + Specifications
  + Synonyms
* Range or enumeration of possible values (e.g., 0-99)
* Accuracy and precision (number of significant digits)
* Priority, timing, frequency, sequencing, and other constraints
* Security and privacy constraints
* Sources (setting/sending entities) and recipients (using/receiving entities).

Describe the data element assemblies (records, messages, files etc.) that the interfacing entity(s) will provide, store, and send, such as:

* Names/identifiers
  + Technical Name, e.g., data structure name
  + Non-technical Names, e.g. synonyms
* Data elements
* Medium/structure of data elements/assemblies
* Visual characteristics (e.g. layouts, fonts, icons etc.)
* Relationships among assemblies
* Security and privacy constraints
* Sources and recipients.

Describe the communication methods that the interfacing entity(s) will use for the interface, such as:

* Communication links, bands, frequencies, and media
* Message formatting
* Flow control (e.g. sequence numbering)
* Data transfer rate
* Routing
* Transmission services
* Safety
* Security and privacy considerations.

Describe characteristics of the protocols that the interfacing entity(s) will use for the interface, such as:

* Priority/layer of the protocol
* Packeting
* Legality checks, error control
* Recovery procedures
* Synchronization
* Status, identification, and other reporting features.

Where appropriate describe other characteristics, such as physical compatibility of the interfacing entity(s) (dimensions, tolerances, loads, voltages, plug compatibility, etc.)

# Human-Machine Interface

Describe the human-machine interface (i.e., GUI) relative to the user. Additional information may be added if the suggested headings are inadequate.

## Interface Design Rules

Identify conventions and standards for designing the GUI.

## Inputs

Identify the input media used by the user (i.e., operator) for providing information to the system, such as data entry screens, optical character readers, bar scanners, etc.

Identify the messages associated with operator inputs, including the following:

* Form(s) if the input data is keyed or scanned for data entry
* Access restrictions
* Security considerations.

## Outputs

Describe the system output design relative to the user. System outputs include reports, data display screens, query results, etc.

Identify the following, if appropriate:

* Access restrictions or security considerations
* Description of the purpose of the output
* Report requirements, including frequency of periodic reports
* Screen contents. (Provide a graphic representation of each layout. Define all data elements associated with the layout).

## Navigation Hierarchy

Provide a diagram of the navigation hierarchy that shows how a user moves through the GUI.

### Screen [x.1]

Provide the layout of all input data screens or GUIs. Provide a graphic representation of each GUI, for example, a low-resolution screenshot. Define all data elements associated with each screen or GUI, or reference the data dictionary. Label each data input screen and/or GUI.

### Screen [x.2]

Provide a graphic representation of each GUI, for example, a low-resolution screenshot. Define all data elements associated with each screen or GUI, or reference the data dictionary.

### Screen [x.3]

Provide a graphic representation of each GUI, for example, a low-resolution screenshot. Define all data elements associated with each screen or GUI, or reference the data dictionary.

# Security and Privacy

## Security

Describe specific security mechanisms at the application level, as guided by NIST 800-53 revision 3 (or most current version). Also, summarize the security mechanisms to be provided by the VA GSSs. Reference the Security Risk Assessment.

The following information will be provided to address security controls:

A high-level description of the security controls, grouped according to the 18 control families identified in NIST 800-53 revision 3 (or most current version). A description of all 18 control families must be addressed; if a control family is not applicable, then state that control family does not apply and explain why it does not apply.

A description of the specific security controls that will be provided by existing VA infrastructure or VA GSSs.

Describe the planned use by the application of the infrastructure’s centralized security mechanisms and VA GSSs (in particular, the identification and authentication, access control, and audit mechanisms), and infrastructure mechanisms, (e.g., Directory Services) to store user account information. Sufficient detail should be provided to show the feasibility of the integration and/or inter operation of application security mechanisms with infrastructure security mechanisms.

## Privacy

Identify privacy design considerations. Describe specific privacy mechanisms at the application. Describe how the application’s privacy requirements will be met. Reference the System Security Plan (SSP) and Privacy Impact Assessment (PIA).

Attachment A – Approval Signatures

This section is used to document the approval of the System Design Document. The review should be conducted face to face where signatures can be obtained ‘live’ during the review. If unable to conduct a face-to-face meeting then it should be held via LiveMeeting and concurrence captured during the meeting. The Scribe should add /es/name by each position cited. Example provided below.

The Chair of the governing Integrated Project Team (IPT), Business Sponsor, IT Program Manager, and Project Manager are required to sign.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signed: Date:

< Integrated Project Team (IPT) Chair >

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signed: Date:

< Business Sponsor >

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signed: Date:

< IT Program Manager >

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Signed: Date:

< Project Manager >

1. Additional Information

Attach any addition information that supplements the design specification.

* 1. RTM

Include an RTM that traces modules and data structures to the software requirements. A reference to the location of the RTM is also acceptable.

* 1. Packaging and Installation

Outline any special considerations for software packaging and installation.

* 1. Design Metrics

Describe all metrics to be used during the design activity.

* 1. Acronym List and Glossary

Identify and define all acronyms and terms that establish meaning within the context of the plan.

Table 59: Glossary

| Term | Meaning |
| --- | --- |
|  |  |
|  |  |
|  |  |

* 1. Required Technical Documents

The following documents must be submitted for review to support proper approval:

* Conformance Validation Statement (CVS) - Section 508
* For additional information regarding how to obtain proper approval for this project, refer to the following documents:
* IT Infrastructure Standards
* Systems Engineering and Design Review (SEDR) process
* Enterprise Architecture Web page
* One-VA TRM
  1. Attach Documents

Once the SDD is approved, submit the AERB Design Compliance Decision Certificate as an attachment to the completed and approved SDD.

Template Revision History

| Date | Version | Description | Author |
| --- | --- | --- | --- |
| January 2015 | 2.8 | Updated to latest Section 508 guidelines and remediated with Common Look Office Tool | Process Management |
| September 2014 | 2.7 | Adds Enterprise Shared Services terms and requires AERB Compliance Certificate attachment. | Process Management |
| August 2014 | 2.6 | Signature block update authorized by AERB CR\_018934 | Process Management |
| March 2014 | 2.5 | Section 508 repairs to new version approved by AERB Chair approved | Process Management |
| August 2013 | 2.3 | Replaced the Service Architecture sub-section with new sub-sections for consumed and provided services. Also applied miscellaneous feedback from VA team. | ASD Enterprise Shared Services (ESS) Work Group |
| June 2013 | 1.3 | Upgraded to MS Office 2007-2010 format | Process Management |
| June 2013 | 1.2 | Address inconsistencies in Section 3, Conceptual Design, Correct headings | Process Management |
| March 2013 | 1.1 | Formatted to documentation standards and edited for Section 508 conformance | Process Management |
| January 2013 | 1.0 | Initial Document | PMAS Business Office |

Place latest revisions at top of table.

The Template Revision History pertains only to the format of the template. It does not apply to the content of the document or any changes or updates to the content of the document after distribution.

The Template Revision History can be removed at the discretion of the author of the document.

Remove blank rows.

See TOGAF® 9.1, Part III: ADM Guidelines & Techniques, Gap Analysis on TOGAF website at <http://pubs.opengroup.org/architecture/togaf9-doc/arch/chap27.html>