

RAI/MDS Modernization
Work Effort Unique Identifying #20131107
Business Requirements Document



May 2015

Revision History

Note: The revision history cycle begins once changes or enhancements are requested after the Business Requirements Document has been baselined.

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1. Purpose

The Business Requirements Document (BRD) is authored by the business community for the purpose of capturing and describing the business needs of the customer/business owner identified within New Service Request (NSR) #20131107¹ Resident Assessment Instrument (RAI) /Minimum Data Sets (MDS) Replacement System. The BRD provides insight into the AS-IS and TO-BE business area, identifying stakeholders and profiling primary and secondary user communities. It identifies what capabilities the stakeholders and the target users need and why these needs exist, providing a focused overview of the request requirements, constraints, and other considerations identified. This document does not state the development methodology. The intended audience for this document is the Office of Information Technology (OIT).

2. Overview

Geriatrics and Extended Care Operations is the existing AccuCare commercial off-the-shelf (COTS) software, which supports RAI/MDS. The application support will no longer be available as of September 30, 2015. Therefore, a modernized replacement system is needed to enable the Veterans Health Administration (VHA) to continue to use the automated standardized assessment instrument to assess every Community Living Center (CLC – formerly called Nursing Home Care Unit) resident as required by Handbook 1142.03² and ensure The Joint Commission (TJC) standards are met for long-term care facilities. Enhancements requested will allow the Department of Veterans Affairs (VA) to move away from client-server technology and move to a web-based solution.

VA Community Living Centers (CLCs) offer a dynamic array of short-stay and long-stay non-acute services for Veterans who are medically and psychiatrically stable. The Resident Assessment Instrument/Minimum Data Set (RAI/MDS) is a standardized assessment and treatment planning process designed to identify the functional and health care needs of the Veteran and to help develop a plan of care where services are individualized to meet the needs of each resident. The RAI/MDS application assists CLC staff in gathering definitive information on a resident's strengths and needs, which must be addressed in an individualized care plan. It also assists staff with evaluating patient goal achievement and revising care plans accordingly by enabling the CLC to track changes in the resident's status. As the process of problem identification is integrated with sound clinical interventions, the care plan becomes each resident's unique path toward achieving or maintaining his or her highest practicable level of well-being.

3. Customer and Primary Stakeholders

The Office of Geriatrics and Extended Care Operations, VHA is the business customer. Janet Barber, Program Analyst, serves as the Business Owner and primary stakeholder of the RAI MDS Modernization NSR.

[Appendix C](#) provides a complete list of business owners, endorsers, subject matter experts (SMEs), and stakeholders.

¹ http://vista.med.va.gov/nsrd/Tab_GeneralInfoView.asp?RequestID=20131107

² http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=2853

4. Scope

The scope of this document is to provide the business requirements to modernize the legacy RAI/MDS 3.0 software. The RAI/MDS Modernization software will enable VHA CLC staff to continue to use an automated tool that provides a comprehensive and standardized assessment of each resident's functional capabilities, helps staff identify health problems with real-time access to resident medical information, develop individualized care plans, and evaluate the quality of care. Additionally, the software will allow capturing of admission, discharge and transfer (ADT) movement via the use of tracking forms. Information will be recorded and updated by clinicians and shared securely with decision makers in a timely and effective manner. The software will also provide reporting functionality for local, Veterans Integrated Service Network (VISN), and national users.

By purchasing this software solution, VHA will remain in compliance with Centers of Medicare and Medicaid Services (CMS) requirements, provide accurate Resource Utilization Groups (RUG), assist with the calculations of Veterans Equitable Resource Allocation (VERA), document Quality Measures (QM) for long-term care surveys, and improve the ability to assess CLC residents' quality of life.

The solution shall provide a scalable automated system which shall enable the implementation of RAI/MDS at 137 CLCs, and integrate with approximately 137 instances of the Veterans Health Information Systems and Technology Architecture (VistA), adequately address the annual workloads of approximately 11,000 users, approximately 201,452 transactions, and manage approximately 12,000 patient beds per year. The software solution shall provide the functionality found in the legacy VA RAI/MDS 3.0 software, ensure accuracy with respective VA RAI/MDS technical documentation requirements while maintaining regulatory compliance with current CMS standards and regulations which can be found at the following URL: <http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/NursingHomeQualityInits/MDS30RAIManual.html>.

The solution shall consist of a customized commercial off the Shelf (COTS) product hosted and managed by the Contractor outside of the VA firewall in a private cloud environment with an enterprise license which permits expansion and the VA provision to add facilities and beds to meet Veteran demand and mission requirements with an anticipated growth estimate of three percent per year.

The Contractor shall develop and deliver integration software (i.e. interfaces between the product and VistA) using the agile software development methodology. This shall include all aspects of the agile methodology, system and interface documentation, including integration test case development, requirements verification, management, package technical design, development, test (functional, system, and Section 508), product delivery, and documentation.

The solution shall provide encrypted bi-directional Health Level-7 (HL7) communication between the system and VistA using Enterprise Messaging Infrastructure (eMI) as the messaging interface and develop an interface from the eMI to VistA imaging Import Application Programming Interface (Import API).

5. Goals, Objectives and Outcome Measures

Goal/Objective and	Impact/Benefit	Measurement
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Desired Outcome		
Improve and provide access to the most recent version of the VA RAI/MDS system software.	The software will ensure accuracy in documentation requirements and maintain regulatory compliance with current CMS standards and regulations for MDS. Current software availability for staff use will improve quality of resident records and indicates that VA is current with the rest of the long-term care industry. Faster decision-making More informed policy-making More effective workforce management	RAI/MDS data will be available at all CLCs will be at the acceptable level 99% of the time, measured on a daily basis.
Generate Care Area Assessments (CAA)	Assessment used Veterans' interdisciplinary plan of care.	Acceptable performance level 99% of the time measured on a monthly basis and determined by assessment entries.
Calculate Resource Utilization Groups (RUGs)	Properly documents resident's level of resources needed in a long-term setting.	Acceptable performance level 99% of the time measured on a monthly basis and determined by RUG entries.
Calculate QMs	Provides accurate resident measures related to potential problem areas that need further review and investigation.	Acceptable performance level 99% of the time measured on a monthly basis and determined by application availability.
Provide care plan template	Template used to document plan of care. Defines resident goals.	Acceptable performance level 99% of the time measured on a daily basis and determined by application availability.
Generate reports	Provides refined reports related to resident assessments in a timely and accurate fashion to improve the monitoring of Veteran care.	Acceptable performance level 99% of the time measured on a monthly basis and based on report availability within the application.

6. Enterprise Need/Justification

This expected solution would support VHA Handbook 1142.03 – Requirements for Use of RAI/MDS. This handbook provides procedures for the scheduling and completion of RAI/MDS assessments and tracking forms within CLCs and Spinal Cord Injury and Disorders (SCI&D) programs that are surveyed by TJC using Nursing Care Center (NCC) standards. This software is needed in order to complete comprehensive health care plans and assessments utilizing RAI/MDS instrument for all residents in CLCs.

7. Requirements

7.1. Business Needs/Owner Requirements

ReqPro Tag BN/OWNR Number	Business Need (BN)/Owner (OWNR) Requirement	OWNR Priority*
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ReqPro Tag BN/OWNER Number	Business Need (BN)/Owner (OWNER) Requirement	OWNER Priority*
NEED1555 BN 1	The solution must adhere to the Enterprise Level requirements as specifically addressed in Appendix D of this document.	High
NEED/ARCH BN 2	Provide the ability to identify a discharged resident as inactive.	High
NEED/ARCH BN 3	Allow the VA users to download and send weekly extensible markup language (XML) (batch) files containing the MDS assessment and tracking forms from the external software to the VA data repository at AITC and be able to receive and track acknowledgement messages from the data center in the software. This batch file is currently uploaded by the VA user to a web interface at AITC.	High
OWNER 3.1	Provide the ability for a user to seal MDS record data prior to batching for transmission to AITC.	High
OWNER 3.2	Provide the ability to batch MDS record data for transmission to the AITC.	High
OWNER 3.3	Provide the ability for a user to unseal MDS record until successfully transmitted to AITC.	High
OWNER 3.4	Provide the ability for user to use the MDS software to reconcile transmitted MDS data with AITC validation reports.	High
OWNER 3.5	Provide the ability for a sealed MDS record to be locked after successful transmissions to AITC.	High
OWNER 3.6	Provide the ability to correct an MDS record that was previously submitted to the AITC.	High
OWNER 3.7	Provide the ability to inactivate a record that was previously submitted to the AITC.	High
NEED/ARCH BN 4	Provide the ability to manage MDS records.	High
OWNER 4.1	Provide the ability to include an Omnibus Budget Reconciliation Act/Medicare Prospective Payment Assessment Form (OBRA/MPAF) assessment scheduler to set reminders according to VA regulations.	High
OWNER 4.2	Provide the ability to make modifications to the MDS records.	High
OWNER 4.3	Provide the ability to save modifications to MDS records.	High
OWNER 4.4	Provide the ability to make modifications to the care plan.	High
OWNER 4.5	Provide the ability to save modifications to the care plan.	High

ReqPro Tag BN/OWNER Number	Business Need (BN)/Owner (OWNER) Requirement	OWNER Priority*
OWNER 4.6	Provide the ability to change assessment type based on user permission level.	High
OWNER 4.7	Provide the ability to delete an assessment based on user permission level.	High
OWNER 4.8	Provide the ability to allow more than one discipline to complete a CAA.	High
NEED/ARCH BN 5	Provide reporting functionality.	High
OWNER 5.1	Provide the ability to display the history of previously coded MDS items.	Medium
OWNER 5.2	Provide the ability to sort all reports by nursing location.	High
OWNER 5.3	Provide the ability to create a Centers for Medicare and Medicaid Services (CMS) 802 report.	High
OWNER 5.4	Provide the ability to edit the content of the CMS 802 report.	High
OWNER 5.5	Provide the ability to save the edits to the CMS 802 report.	High
OWNER 5.6	Provide the ability to create ad hoc reports from RAI/MDS.	High
OWNER 5.7	Provide the ability to modify ad hoc reports from RAI/MDS.	High
OWNER 5.8	Provide the ability to print ad hoc reports from RAI/MDS.	High
OWNER 5.9	Provide the ability to export ad hoc reports from RAI/MDS into a spreadsheet format.	High
OWNER 5.10	Provide a master resident list with demographic information.	High
OWNER 5.11	Provide the ability to calculate RUGs.	High
OWNER 5.12	Provide the ability to calculate quality indicators/quality measures.	High
NEED/ARCH BN 6	Provide the ability to access International Classification of Diseases (ICD) codes.	High
OWNER 6.1	Provide the ability to search for ICD codes when completing assessments.	High

ReqPro Tag BN/OWNER Number	Business Need (BN)/Owner (OWNER) Requirement	OWNER Priority*
NEED/ARCH BN 7	Provide the ability for RAI/MDS software to interface with VistA.	High
OWNER 7.1	Provide the ability to receive demographic information from VistA.	High
NEED/ARCH BN 8	Provide the ability to establish security levels for users.	High
OWNER 8.1	Provide the ability to assign security levels for users.	High
OWNER 8.2	Provide the ability to manage changes to security levels for users.	High
NEED/ARCH BN 9	Provide care planning functionality.	High
OWNER 9.1	Provide the ability to create a care plan.	High
OWNER 9.2	Provide the ability to update a care plan.	High
OWNER 9.3	Provide the ability to save a care plan.	High
OWNER 9.4	Provide the ability to sign a care plan.	High
OWNER 9.5	Provide a care plan library that is editable by the users.	High
OWNER 9.6	Provide a care plan library that can be shared with users.	Medium
NEED/ARCH BN 10	Provide the ability to manage errors.	High
OWNER 10.1	Provide the ability to remove signatures from assessments signed in error.	High
OWNER 10.2	Provide the ability to remove CAA narratives entered in error.	High
OWNER 10.3	Provide the ability to perform error checking of assessments.	High
NEED/ARCH BN 11	Provide the ability to manage RAI/MDS forms.	High
OWNER 11.1	Provide the ability to view RAI/MDS assessment forms.	High

ReqPro Tag BN/OWNER Number	Business Need (BN)/Owner (OWNER) Requirement	OWNER Priority*
OWNER 11.2	Provide the ability to print RAI/MDS assessment forms.	High
OWNER 11.3	Provide the ability to view RAI/MDS tracking forms.	High
OWNER 11.4	Provide the ability to print RAI/MDS tracking forms.	High
NEED/ARCH BN 12	Provide an RAI/MDS web based solution.	High
OWNER 12.1	Provide the ability to view historical RAI/MDS data while completing a new assessment.	High
NEED/ARCH 13	Provide audit trail tracking capabilities.	High
	Allow three disciplines to electronically sign a CAA.	High
	Provide a minimum of 15 electronic signature lines for assessments and care plans reviewing/approving signatures.	High
	Be able to begin work on a CAA before the MDS is completed.	High
	Be able to manage resident lists through views such as all, current, discharged, etc. to show discharged residents as inactive.	High
	Be able to print forms generated by the RAI/MDS software; such as resident care plans, individual CAA narratives.	High
	Have an Omnibus Budget Reconciliation Act (OBRA) assessment scheduler.	High
	Be able to make modifications and save the Care Plan review date within schedule.	High
	Be capable of exporting RAI/MDS reports into a Microsoft Office document, version 2010 or greater.	High
	Have a standardized care plan library that will be shared enterprise wide and the library is customizable to make the problems, goals, and approaches individualized.	High
	Ensure the software is in compliance with the CMS's current Interface Control Document (ICD) codes at all times.	High
	Allow administrator to edit assessments and create an audit trail to track who made the changes, what was changed, and the date/time.	High
	Provide alert to user before password expires or require the user to change their password on the first login after expiration.	High
	Sort all reports by nursing station/ward/unit.	High

ReqPro Tag BN/OWNR Number	Business Need (BN)/Owner (OWNR) Requirement	OWNR Priority*
	Develop Section S according to VA specifications (Attachment 1)	High
	If a user can remove another user's data (including in the CAA worksheet) an audit trail shall be available to track who did "what" and "when" and "why" they changed the existing data.	High
	Provide access to the RAI/MDS manual within the software.	High
	Provide a pop-up warning of significant change when working in an assessment.	High
	Input 12 months of historical MDS data from the legacy product into the new solution to maintain connectivity. The historical data will be provided by the VA business sponsor.	High
	The solution will provide interfaces to internal and external e-government systems.	High

*All listed requirements are needed by the business community. The Priority is merely a mechanism to suggest a sense of urgency and order to the technical community if the requirements are to be parsed into phases. The order of importance begins with those that are designated as High priority.

7.2. Non-Functional Requirements

Functional requirements describe what a system must be able to perform—that is, the system behavior. All other requirements are non-functional. This section describes the non-functional requirements from a business need perspective.

ReqPro Tag	Non-Functional Requirements (NONF) Category
	Operational Environment Requirements
NONF1780	Maintenance, including maintenance of externally developed software incorporated into the application(s), shall be scheduled during off peak hours or in conjunction with relevant maintenance schedules. The business owner should provide specific requirements for establishing system maintenance windows when planned service disruptions can occur in support of periodic maintenance.
NONF1608	Information about response time degradation resulting from unscheduled system outages and other events that degrade system functionality and/or performance shall be disseminated to the user community within 30 minutes of the occurrence. The notification shall include the information described in the current Automated Notification Reporting (ANR) template maintained by the VA Service Desk. The specific business impact must be noted in order for OIT to provide accurate data in the service impact notice of the ANR.
NONF1609	Provide a real-time monitoring solution to report agreed/identified critical system performance parameters.
	The solution and its components shall be deployed and managed according to VA standards and procedures.

ReqPro Tag	Non-Functional Requirements (NONF) Category
NONF1610	Notification of scheduled maintenance periods that require the service to be offline or that may degrade system performance shall be disseminated by the vendor to the business user community a minimum of 48 hours prior to the scheduled event.
	Documentation Requirements
NONF1612	A technical training curriculum shall be developed and delivered to all levels of staff users by the vendor.
NONF1613	The training curriculum shall state the expected training time for primary users and secondary users to become proficient at using the COTS application(s).
NONF3209	All training curricula, user manuals and other training tools shall be developed/updated by the vendor and delivered to the identified point of contacts and available on the VA SharePoint site. The curricula shall include all aspects of the COTS application and all changes to processes and procedures.
NONF3210	The training curriculum developed by the vendor shall be available to the point of contacts 10 business days prior to the training session.
	Implementation Requirements
NONF3211	Technical Help Desk support for the application shall be provided by the vendor for users to obtain assistance with access and functionality related issues.
NONF3212	The implementation must be completed per the contract requirements.
	The IT solution shall be designed to comply with the applicable approved Enterprise Service Level Agreements (SLA).
	Data Protection/Back-up/Archive Requirements
NONF3185	The vendor must provide a back-up and data recovery process for when the system is brought off-line for maintenance or technical issues/problems.
NONF3186	Data protection measures, such as back-up intervals and redundancy shall be consistent with the Performance Work Statement (PWS).
	Data Quality/Assurance Requirements
NONF2229	A monitoring process shall be provided to ensure that data is accurate and up-to-date and provides accurate alerts for malfunctions while minimizing false alarms.
	User Access/Security Requirements
NONF1617	Ensure the proposed solution meets the most current version of all VHA Security, Privacy, and Identity Management requirements including VA Handbook 6500 ³ (see Appendix D). The software is rated at a FISMA-HIGH classification. The Contractor shall ensure compliance with the most current versions of VA Directive 6500, NIST Special Publication 800-53, FISMA, OMB Circular A-130, OMB 08-05, TIC v2.0, VA Handbook 6500, as well as the Federal Risk and Authorization Management Program (FedRAMP) and Continuous Readiness in Information Security Program (CRISP).

³ http://vaww1.va.gov/vapubs/viewPublication.asp?Pub_ID=638&FType=2

ReqPro Tag	Non-Functional Requirements (NONF) Category
	The Contractor shall obtain and maintain an Authority to Operate (ATO). The Contractor shall complete and submit all required documentation to obtain a Temporary ATO (TATO) or ATO for VA review within three months after contract award. The Contractor shall remediate all findings and vulnerabilities that are identified by VA within four months after contract award.
	The Contractor shall deploy a secured private cloud solution that would be purpose-built specifically for the RAI/MDS solution. The dedicated solution shall meet all FISMA-HIGH, TIC v2.0, FedRAMP, and VA-specific security controls including VA Handbook 6500 while delivering a physically “air-gapped” solution that does not have shared hardware resources with other agencies or departments. The firewalls, switches, physical host servers, storage, backup resources, and management/monitoring systems shall be completely dedicated to VA for RAI/MDS. The air-gapped solution shall provide for maximum security flexibility with no risk of resource contention.
	The external private cloud must house only VA systems and data, no non-VA data or systems can exist in the private cloud. Additionally, as the system houses PII/PHI, the external VA-only private cloud must connect to VA via an Internal Business Partner Extranet (iBPE) connection. No other connections to the external private cloud are permitted. If remote maintenance is required, the Contractor personnel may be required to connect into VA and then access the external enclave through the iBPE connection. All traffic to/from VA and the external private cloud must go through the iBPE connection. At termination of the contract, the Contractor shall provide the underlying infrastructure (private cloud) to VA within 15 business days. The underlying infrastructure shall include any VA data, the queries, the database itself, and the data dictionary.
	The software shall meet VA’s Continuous Monitoring Requirement which requires the NSOC to conduct predictive Nessus vulnerability scans on a monthly basis. To obtain and maintain an ATO, the system must meet this continuous monitoring requirement. The Contractor shall grant the VA NSOC and OCS unrestricted access to Contractor owned software and servers for required initial and monthly security scans (Nessus/ Web Application Security Assessment (WASA). Access shall also be granted when requested by OCS, NSOC, and/or when new vulnerabilities potentially affecting the system/applications are identified. Unrestricted access shall be granted throughout the contract lifecycle.
	The Contractor shall ensure all software, hardware, data, production data hosting facilities, disaster recovery data facilities, external storage, and any personnel used to support this contract are located within the contiguous United States. The hosting environment and solution must pass a VA approved Assessment and Authorization (A&A) process appropriate for a system with data sensitivity of FISMA-HIGH system. The software will house Personally Identifiable Information (PII) and Protected Health Information (PHI) data.
	The solution must be able to accommodate changing data processing needs for a period of at least five years.
	The solution shall maintain an audit trail of who has accessed individual files and the time and date of when those files were accessed, edited, or deleted.
	Data storage and backup shall be in compliance with VA architectural guidelines. All storage and hosting solutions shall comply, at a minimum, with VA security protocols and directives.

ReqPro Tag	Non-Functional Requirements (NONF) Category
	The current rules for Precision/Accuracy prevail as defined in the VA Handbook 6500.
	The solution must be able to accommodate changing data storage needs for a period of at least five years.
	System Performance Reporting Requirements
	At a minimum, the systems shall have the ability to measure reporting requirements for Responsiveness, Capacity, and Availability as defined in the non-functional requirements section of this document.
	The solution shall be designed to minimize resource utilization on the source systems from which data is being extracted.
	The solution should be designed to maximize query performance.
	Make the performance measurements available to the IT Performance Dashboard to enable display of “actual” system metrics to customers and IT staff.

7.2.1. User Access Levels

The table below defines the different levels of user access to the application:

Name	Description	RAI/MDS
Primary Users	Interdisciplinary CLC staff	Read/Write
Primary Users	Resident Assessment Coordinators	Full Control
Primary Users	Resident Assessment Nurse	Full Control
Primary Users	Registered Nurse	Read/Write
Primary Users	Medical Provider (medical doctor, physician's assistant, nurse practitioner)	Read/Write
Primary Users	Recreation Therapist(Creative Arts Therapist – Music)	Read/Write
Primary Users	Registered Dietitian	Read/Write
Primary Users	Social Worker	Read/Write
Primary Users	Occupational Therapist	Read/Write
Primary Users	Physical Therapist	Read/Write
Secondary Users	Geriatrics and Extended Care Leadership	Read Only
Primary Users	Registered Pharmacist	Read/Write
Primary Users	Psychologist	Read/Write
Primary Users	Kinesiotherapist	Read/Write
Primary Users	Respiratory Therapist	Read/Write
Primary Users	Speech Therapist	Read/Write
Primary Users	Administrative Support	Read/Write
Primary Users	Coders	Read/Write

Name	Description	RAI/MDS
Primary Users	OIT System Administrators, Information Resource Management (IRM), IT, Information Systems (IS)	Full Control
Primary Users	Chaplain	Read only
Primary Users	Central Office	Full Control
Secondary Users	VISN and Medical Center Leadership	Read Only
Primary Users	Certified Nursing Assistant (CNA)/Licensed Practical Nurse (LPN)/Quality Management/all Therapy assistants	Read Only

7.2.2. Performance, Capacity, and Availability Requirements

7.2.2.1. Performance

If this is a system modification, how many users does the current system support?
This is a new requirement and not a system modification; it will replace an antiquated system and paper-based processes. It will support 137 CLCs, approximately 11,000 users, 30,000 annual admissions, and 12,000 patient beds per year.
How many users will the new system (or system modification) support?
The new system will support all users at all VHA CLC and approximately 11,000 users.
What is the predicted annual growth in the number of system users?
The predicted annual growth is approximately 3% per year. The system's increase or decrease is a representation of the population/staffing increase or decrease in the VHA CLCs, not the RAI/MDS System.

7.2.2.2. Capacity

What is the predicted size (average) of a typical business transaction?
RAI/MDS is externally hosted by the vendor. There is no known limitation on the number of simultaneous users that can be supported by the RAI/MDS COTS application.
What is the predicted number of transactions per hour (day, or other time period)?
The VA processes approximately 201,452 transactions per year.
Is the transaction profile expected to change (grow) over time?
After deployment to the entire VA CLC population, the transaction profile is anticipated to remain fairly constant, additional CLC locations may be activated in the future at a growth rate of approximately 3% per year.
What is the process for planning/adjusting capacity?
The software vendor is responsible to scale the product based on the required number of VA CLCs and users.
Does the update require a surge capacity that would be different from the base application?

The hosted application would be expected to manage surge usage for typical clinical situations in VA.

7.2.2.3. Availability

Describe when the envisioned system will need to be available (business hours only, weekends, holidays, etc.) to support the business.

The hours of operation are 24 hours per day, 7 days a week, and 365 days a year. The RAI/MDS system interfaces with each CLC's instance of VistA to obtain demographic data. It shall recognize the updates in VistA within 15 minutes from the time that the facility's VistA instance has been updated. The vendor is expected to provide a contingency plan in the event of emergencies. System maintenance will be scheduled on weekends or after hours. The system needs to be available in accordance with VA access requirements for medical records systems.

The Contractor shall deploy a two-site solution data center in order to provide continued cloud services in the event that one site becomes unavailable. The selection of sites to host the managed cloud offering should include consideration of the inter-site bandwidth necessary to support the replication requirements between the two sites. The Contractor hosted system shall be backed up daily to meet the recovery needs and maintain a minimum recovery point objective (RPO) of twenty-four hours in the event of failure. The Contractor hosted system shall not degrade more than 10 percent from average performance during system backup or recovery operations to include a minimum of two data centers in order to provide continued cloud services in the event that one site becomes unavailable.

The Contractor shall provide a restoration of services and response time for a system classification of routine support with service level availability of 99 percent. The restoration of services and response times and other system management requirements are provided below:

1. The Contractor shall restore all losses of service within 24 hours.
2. The Contractor shall respond to major system failures within one hour of notification, 24 hours per day, 7 days per week, 365 days per year.
 - a. A major system failure is a failure that affects the ability to provide service from more than one facility.
3. The Contractor shall respond to minor system failures within four hours of notification, Monday through Friday, from 8 a.m. to 5 p.m. ET.
 - a. A minor system failure is a failure that affects the ability to provide service to less than one facility.
4. The Contractor shall meet the recovery time objective (RTO) of 30 days and the RPO of 24 hours.
5. Scheduled outages shall not occur more than once per week and must be set up at least 48 hours in advance for maintenance and/or system upgrades. Scheduled system outages shall not exceed two hours per month or 24 hours per year.
6. Contractor response to unscheduled system outages must be received within one hour of notification of outage. The Contractor shall estimate the projected downtime at this time.
7. The Contractor shall notify the PM six months in advance of requirements for license renewal.
8. The Contractor shall provide the utility for remote administration of all system management functions that VA team members must perform.
9. The Contractor shall provide an automatic database archive based on user defined age parameters.
10. Backup of data and configuration files shall be performed at a minimum of every 24 hours.
11. The system shall be available for normal operations while back up occurs.
12. The system shall support normal operations on unaffected areas during data recovery operations.

Describe when the envisioned system will need to be available (business hours only, weekends, holidays, etc.) to support the business.

13. Data restore operations must be initiated within eight hours of a data restore request.
14. Respond to trouble ticket requests within one (1) business hour or less from receipt.
15. Respond to system malfunction due to the software upgrade process within one (1) business hour or less upon receipt of the request.

7.3. Known Interfaces

This is the business community's best understanding of known interfaces and may not be a comprehensive listing. All required interfaces will be stated as Business Needs in [Section 7.1](#).

VA is purchasing the services of a customized commercial off the shelf solution (COTS) for RAI/MDS. All hardware and software will be developed and maintained by the vendor at their site(s) as Commercial Off the Shelf (COTS) products.

The solution will also provide encrypted bi-directional Health Level-7 (HL7) communication between the RAI/MDS software and VistA using Enterprise Messaging Infrastructure (eMI) as the messaging interface and develop an interface from the eMI to VistA imaging Import Application Programming Interface (Import API). It shall be compatible with VA's Services Oriented Architecture (SOA) and integrate with VA's Identify and Access Management (IAM) for identification, authentication, and access management. The current HL7 messages will be redirected to VA's SOA suite. The develop bi-directional HL7 communication from contractor private cloud through the trusted internet connection (TIC) to eMI then eMI to VistA Imaging's "Import API".

Austin Information Technology Center (AITC) – Houses VHA's centralized relational database that receives data from VHA clinical information systems. Records/data collected include updated patient demographic information, the data and time of service, the practitioner(s) who provided the service, the location where the service was provided, diagnoses, and procedures, among other things.

CPRS – Provides an integrated patient record system for clinicians, managers, quality assurance staff, and researchers. Its primary goal is to create a fast and easy-to-use product that gives physicians enough information through clinical reminders, results reporting, and expert system feedback to make better decisions regarding orders and treatment.

Identity and Access Management – Offers a VHA enterprise wide service for verifying Veteran Identity (housed in the MVI).

Name of Application	Description-of current application	Interface Type	Existing Functionality	Deliverables
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VistA	Source of resident identification information (DG*5.3*190 RAI/MDS VISTA HL7 INTERFACE)	Automated	Yes	Resident demographic data
VistA	Source of resident identification information The current HL7 messages shall be redirected to VA's SOA suite. Develop bi-directional HL7 communication from contractor private cloud through TIC to eMI then eMI to VistA Imaging's "Import API"	Automated	No	Resident demographic data

7.4. Related Projects or Work Efforts

There are no active projects or other related work efforts to this request.

8. Other Considerations

8.1. Alternatives

Return to manual documentation of assessments, manual completion of forms, and manual RUGs, QM, and VERA calculations.

8.2. Assumptions

It is assumed that the software application and its components will:

- Acquire a customized enterprise level RAI/MDS Modernization software solution– select a vendor/ product that satisfies VHA RAI/MDS needs and allows for customizations and integration with internal VHA systems and business entities external VHA.
- Provide the functionality found in the legacy VA RAI/MDS 3.0 software, ensure accuracy with respective VA RAI/MDS technical documentation requirements while maintaining regulatory compliance with current Centers for Medicare & Medicaid Services (CMS) standards and regulations.
- The software solution application will be an externally hosted model for the RAI/MDS platform for long-term care, which will allow VA to manage the complete MDS/Care Area Assessment (CAA)/Care Plan cycle. Consist of a customized software product hosted and managed by the Contractor outside of the VA firewall in a private cloud environment which will house PHI and PII data and meet FISMA-high security classification.
- Provide an enterprise license which permits expansion and the VA provision to add facilities and beds to meet Veteran demand and mission requirements with an anticipated growth estimate of three percent per year
- Provide encrypted bi-directional Health Level-7 (HL7) communication between the system and VistA using Enterprise Messaging Infrastructure (eMI) as the messaging interface and develop an interface from the eMI to VistA imaging Import Application

Programming Interface (Import API). It shall be compatible with VA's SOA, it shall integrate with VA's IAM for identification, authentication, and access management

- The current HL7 messages shall be redirected to VA's SOA suite. The SOA suite shall be used to facilitate the delivery and use of services in support of interoperability of health information between the RAI/MDS Modernization software and the eMI and the return communication shall be developed from the Contractor private cloud using the trusted internet connection (TIC) to eMI then from the eMI to VistA Imaging's "Import API" showing the message flow between all systems.
- Derive digital data from VA interfaces necessary to populate in the replacement software application.
- Securely transmit resident data from VA to the replacement software application on a regular, recurring basis.
- Provide security levels for authorized users through an easy, user-friendly interface with the ability to read, write, edit, and query data.
- Conform to VA data standards and information technology and management best practices.
- Provide support to all CLC facilities.
- Software implementation must be completed per the contract requirements.

8.3. Dependencies

The government has no influence on the design, as it is a customized commercial of the shelf solution (COTS). Any available information provided by the vendor will be submitted in future update of this document.

- VistA and eMI/SOA must be operational in order to transmit data to the replacement application.
- RAI/MDS requirements would not be met if funding is not provided for the new solution.
- All existing code for this solution is currently being remediated to support ICD-10. Any future work on this solution needs to allow for code set versioning of the ICD files using approved Lexicon application programmer interfaces (APIs).
- Trusted Internet Connection (TIC) is required for data being sent outside of the VA firewall

8.4. Constraints

- The new application must be in place by September 30, 2015
- The new software will be hosted on a private cloud managed by the vendor
- The solution must support all users at VHA CLCs.
- Delays in background investigations may cause delay in access to the VA environment.
- The interface between VistA and the new solution was developed using Health Level Seven (HL7) standards. Any necessary changes to the interface will continue to follow VistA Messaging Service HL7 standards.

- Availability of Subject Matter Experts (SME) and project team members and stakeholders balancing competing priorities and deadlines of concurrent projects. The success of the project depends on continued strong management endorsement and support.

8.5. Business Risks and Mitigation

There is clear definition of requirements scope, then significant system customization could be identified after baseline requirements identification. Mitigation: involve all stakeholders and project team members in identifying requirements.

If there is insufficient VA staff dedicated to project, then schedule delays could result from lack of adequate project support. Mitigation: Assign core staff to project permanently and relieve them of other duties; obtain a time commitment from part time project team members.

Business Risks	Mitigation
Timely implementation	Request an extension to ensure the requested functionality is operational at all CLCs.
Security	Secure project Information Security Officer (ISO) and ensure that VA security and privacy requirements are part of the Request for Proposal (RFP) and that vendor facilities and related storage and transmission/communications mechanisms comply with said standards.
On-boarding process	Accept that the project has no control over the on-boarding process and will engage senior management with any on-boarding process delays.
Funding	Collaborate with VHA and OIT budget personnel to ensure funding.

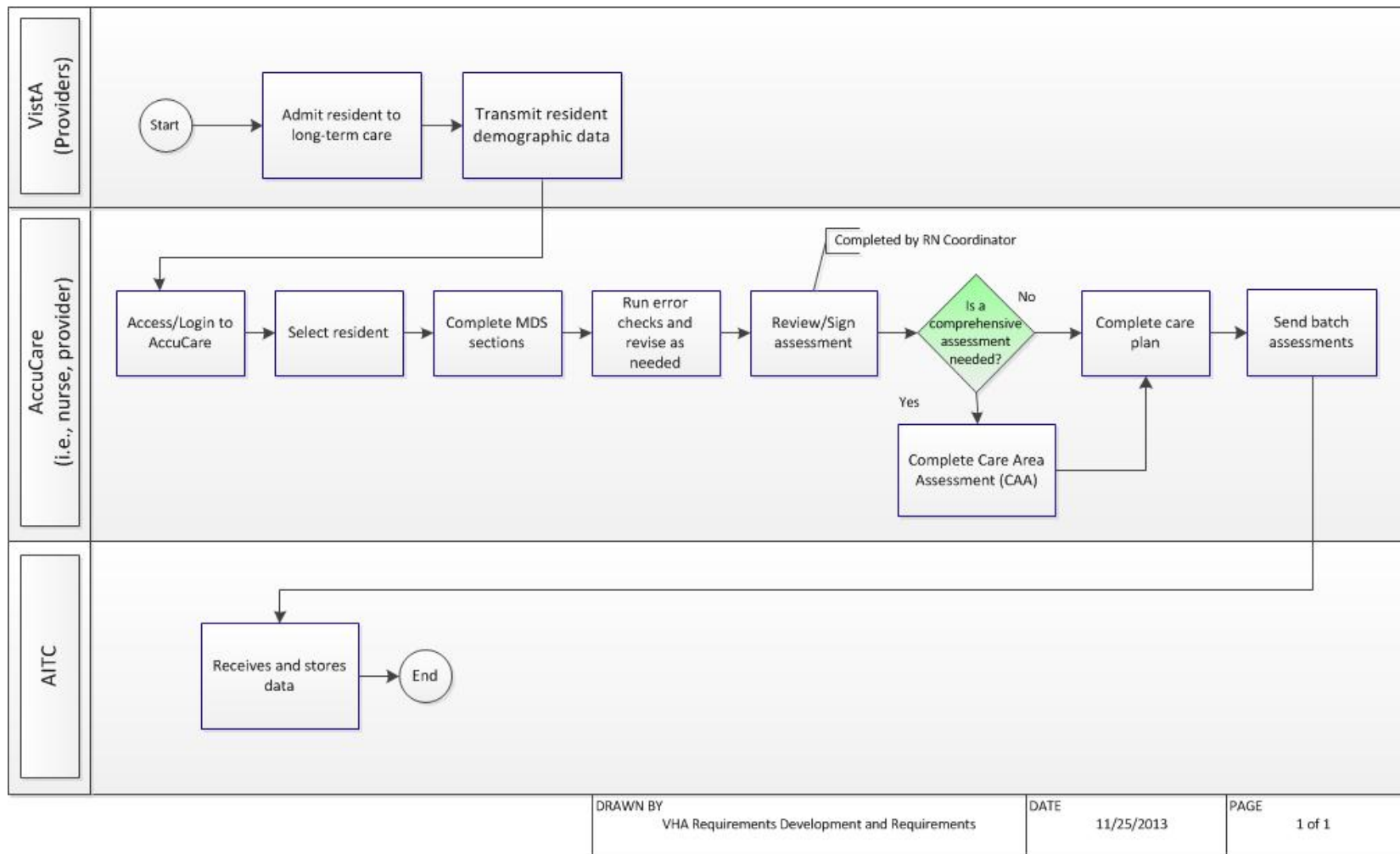
Appendix A References

- Public Law 100-103
<http://www.gpo.gov/fdsys/pkg/STATUTE-101/pdf/STATUTE-101-Pg720.pdf>
Omnibus Budget Reconciliation Act mandated assessment standardization for each nursing home resident within 14 days from admission as well as quarterly and annual assessments.
- VA Handbook 6500 – Information Security Program
http://vaww1.va.gov/vapubs/viewPublication.asp?Pub_ID=638&FType=2
- VHA Handbook 1142.03—Requirements for Use of RAI/MDS
http://www.va.gov/vhapublications/ViewPublication.asp?pub_ID=2853
- RAI/MDS Modernization System NSR
http://vista.med.va.gov/nsrd/Tab_GeneralInfoView.asp?RequestID=20131107
- Directive 2008-007 Resident Assessment Instrument (RAI) Minimum Data Set (MDS)
- CMS standards and regulations for MDS, which can be found at the following URL:
<http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/NursingHomeQualityInits/MDS30RAIManual.html>

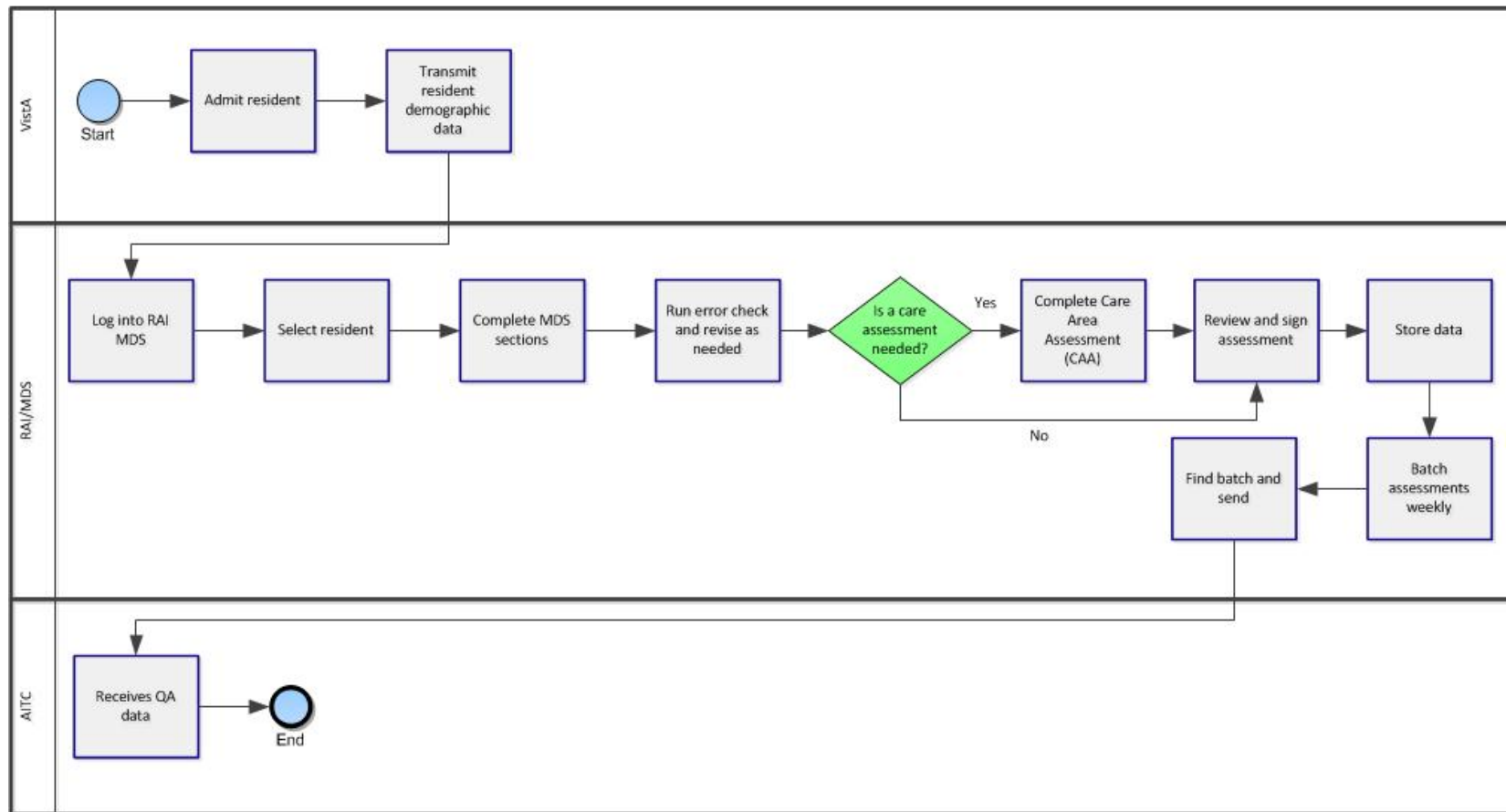
Appendix B Models

NSR#: 20131107 - RAI/MDS Replacement System

As-Is Model



NSR#: 20131107 - RAI/MDS Replacement System
To-Be Model



Appendix C Stakeholders, Users, and Workgroups

Stakeholders

Type of Stakeholder	Description	Responsibilities
Requester	Janet Barber National Program Manager, Data Management and Analytics, Geriatrics and Extended Care Operations	Submitted request. Submits business requirements. Monitors progress of request. Contributes to BRD development.
Endorser	Lisa Minor Chief, Facility Based Programs, Geriatrics and Extended Care Operations	Endorsed this request. Provides strategic direction to the program. Elicits executive support and funding. Monitors the progress and time lines.
Business Owner/Program Office	Janet Barber National Program Manager, Data Management and Analytics, Geriatrics and Extended Care Operations	Provides final approval of BRD with sign-off authority. Provides strategic direction to the program. Elicits executive support and funding. Monitors the progress and time lines.
Business SME	Janet Barber National Program Manager, Data Management and Analytics, Geriatrics and Extended Care Operations	Provides background on current system and processes. Describes features of current systems, including known problems. Identifies features of enhancement.
Technical SME	Patty Medeiros Senior Information Technology (IT) Project Manager, OIT	Provides technical background information about the current software and requested enhancements.

Stakeholder Support Team (BRD Development)

Type of Stakeholder	Description	Responsibilities
Health Care Security Requirements SME	Rhonna Clark, Program Analyst, Office of Information and Analytics	Responsible for determining the Health Insurance Portability and Accountability Act (HIPAA) security requirements for the request.
Security Requirements SME	Susan Nelson, Information Security Officer, OIT Field Security Service (FSS)	Responsible for determining the Assessment and Authorization and other security requirements for the request.
Service Coordination SME	Clare Lythgoe Integrated Project Team Implementation Manager	Responsible for ensuring all functional requirements have been accurately implemented.
Applied Informatics Management (AIM) Staff	Douglas Wahl, Program Specialist, AIM	Serve as the liaison between the Program Office (Business Owner) and Product Development throughout the lifecycle.
Strategic Investment	LeAnn Miller	Responsible for working with all

Type of Stakeholder	Description	Responsibilities
Management (SIM), Requirements Development and Management (RDM)	Program Analyst, RDM	stakeholders to ensure the business requirements have been accurately recorded for this request.

Primary and Secondary Users

Type of User	Description	Responsibilities
Primary Users	Interdisciplinary CLC Staff	Complete MDS assessments
Primary Users	RAI/MDS Coordinators	<ul style="list-style-type: none"> Direct, coordinate and monitor completion of MDS assessments Transmit MDS assessments to AITC Receive and interpret RUGs and quality reports from AITC
Secondary Users	Geriatric and Extended Care Operation Program Office	<ul style="list-style-type: none"> Directs operationalization of all GEC policies Monitor, report and evaluate MDS data
Secondary Users	Geriatric and Extended Care Policy Program Office	Develops policy for the RAI/MDS program
Secondary Users	Medical Center Directors	Review Quality Indicator (QI) data from MDS used in performance measures
Secondary Users	Researchers	Utilize MDS data

Appendix D Enterprise Requirements

Below is a subset of Enterprise-level Requirements that are of particular interest to the business community. These requirements **MUST** be addressed within each project resulting from this work effort. If OIT cannot address these Enterprise-level requirements, the Business Owners responsible for each area **MUST** be engaged in any waiver discussions prior to any decisions being made. This section is not meant to be a comprehensive list of all Enterprise-level requirements that may apply to this work effort and should not preclude the technical community from reviewing all Enterprise-level requirements and identifying others that should apply to this work effort as well.

ReqPro Tag	Requirement Type	Description
ENTR25	Security	<p>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, Security Categorization is FISMA High.</p> <p>The proposed is required to meet and maintain compliance with the most current version of all VHA Security, Privacy, and Identity Management requirements including VA Handbook 6500 (see Appendix D). The software is rated at a FISMA-HIGH classification. The Contractor shall ensure compliance with the most current versions of VA Directive 6500, NIST Special Publication 800-53, FISMA, OMB Circular A-130, OMB 08-05, TIC v2.0, VA Handbook 6500, as well as the Federal Risk and Authorization Management Program (FedRAMP) and Continuous Readiness in Information Security Program (CRISP).</p> <p>The Security Categorization will drive the initial set of minimal security controls required for the information system. Minimum security control requirements are addressed in NIST SP 800-53 and VA Handbook 6500, Appendix D.</p>
ENTR10	Privacy	All VA Privacy requirements will be adhered to. Efforts that involve the collection and maintenance of individually identifiable information must be covered by a Privacy Act system of records notice.
ENTR7	Executive Order	All executive order requirements will be adhered to.
ENTR8	Identity Management	All Enterprise Identity Management requirements will be adhered to. These requirements are applicable to any application that adds, updates, or performs lookups on persons.
	508 Compliance Requirements	All Section 508 requirements will be adhered to.

Appendix E Acronyms and Abbreviations

OIT Master Glossary:

http://vaww.oed.wss.va.gov/process/Library/master_glossary/masterglossary.htm

Term	Definition
ADT	Admission, Discharge and Transfer
AITC	Austin Information Technology Center
ANR	Automated Notification Reporting
BN	Business Need
BRD	Business Requirements Document
CAA	Care Area Assessment
CLC	Community Living Center
CMS	Centers for Medicare and Medicaid
COTS	Commercial off-the-shelf
ENTR	Enterprise Requirement
ET	Eastern Time
FIPS	Federal Information Processing Standard
FSS	Field Security Service
HIPAA	Health Insurance Portability and Accountability Act
HL7	Health Level Seven
HSPM	Health Systems Portfolio Management
ICD	International Classification of Diseases
ISO	International Organization for Standardization
IT	Information Technology
LTC	Long Term Care
MDS	Minimum Data Set
MPAF	Medicare Prospective Payment Assessment Form
NIST	National Institute of Standards and Technology
NONF	Non-Functional Requirement
NSR	New Service Request
OBRA	Omnibus Budget Reconciliation Act
OIT	Office of Information Technology
OWNR	Owner Requirement
PWS	Performance Work Statement
QA	Quality Assurance

Term	Definition
QI	Quality Indicator
QM	Quality Measures
RAI	Resident Assessment Instrument
RDM	Requirements Development and Management
ReqPro	Rational© RequisitePro©
RFP	Request for Proposal
RN	Registered Nurse
RUG	Resource Utilization Groups
SCI&D	Spinal Cord Injuries & Disorders
SIM	Strategic Investment Management
SME	Subject Matter Expert
TJC	The Joint Commission
VA	Department of Veterans Affairs
VERA	Veterans Equitable Resource Allocation
VHA	Veterans Health Administration
VISN	Veterans Integrated Service Network
VistA	Veterans Health Information Systems and Technology Architecture

Appendix F Approval Signatures

The requirements defined in this document are the high level business requirements necessary to meet the strategic goals and operational plans of the Geriatrics and Extended Care. Further elaboration to these requirements will be done in more detailed artifacts.

Business Owner

Signifies that the customer approves the documented requirements, that they adequately represent the customers desired needs, and that the customer agrees with the defined scope.

Signed:

_____ [REDACTED], Program Analyst National Program Manager, Data Mgmt. and Analytics Geriatrics and Extended Care Ops (10NC4)	_____ Date
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Business Liaison

Signifies appropriate identification and engagement of necessary stakeholders and the confirmation and commitment to quality assurance and communication of business requirements to meet stakeholder expectations.

Signed:

_____ [REDACTED] Information Systems Manager Applied Informatics Management	_____ Date
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Office of Information and Technology

Indicates agreement that the requirements have been received, are clear, understandable, and are documented sufficiently to facilitate project planning when the project is approved and funded. It is understood that negotiations may need to occur with the business during project planning as a result of technical reviews and feasibility.

Signed:

_____ [REDACTED], Senior IT Project Manager Office of Information Technology	_____ Date
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ATTACHMENT 1 RAI/MDS SECTION S FOR VA

Resident	Identifier	Date
Section S. Federal VA		
SVA0100. VA CLC Number		
Enter VA CLC <input type="text"/>	Enter the VA Community Living Center Number (VA CLC).	
SVA0101. VA VISN Number		
Enter Code <input type="text"/>	Enter the VA VISN number.	
SVA0102. MPI Number		
Enter MPI <input type="text"/>	Enter the Master Patient Index (MPI) Number.	
SVA0200. CLC Treating Specialty		
Enter Code <input type="text"/>	CLC Treating Specialties 42. LS Dementia 43. LS Skilled Nursing 44. LS Maintenance 45. LS Psyche Care 46. LS SCI 47. SS Respite 64. SS Rehab 66. SS Restorative 67. SS Maintenance 68. SS Psych 69. SS Dementia 81. GEM 95. SS Skilled Nursing 96. Hospice	
SVA0201. Length of Stay		
Enter Code <input type="text"/>	Code the Length of Stay (1 or 2) 1. Long Stay 2. Short Stay	
SVA0300. Enrollment Priority		
Enter Code <input type="text"/>	Enrollment Priority (1-9) 1. Group 1 2. Group 2 3. Group 3 4. Group 4 5. Group 5 6. Group 6 7. Group 7 8. Group 8 9. Non Veteran	
SVA0400. Community Living Center (CLC) Unit Name		
Enter CLC Unit Name CLC Unit Name <input type="text"/>		
SVA0500. Spinal Cord Injury		
Enter Code <input type="text"/>	Identification of SCI units 0. Non SCI Unit 1. SCI Unit	

Resident _____ Identifier _____ Date _____

SVA0600. Kinesiotherapy Days	
Enter KT days <input style="width: 100%;" type="text"/>	Enter the number of days resident receives KT.
SVA0601. Kinesiotherapy Minutes	
Enter KT minutes <input style="width: 100%;" type="text"/>	Enter the number of minutes resident receives KT.
SVA0700. Additional/Miscellaneous Data	
Enter additional report data Misc. Data <input style="width: 80%;" type="text"/>	
SVA0701. Additional/Miscellaneous Data	
Enter additional report data Misc. Data <input style="width: 80%;" type="text"/>	
SVA0702. Additional/Miscellaneous Data	
Enter additional report data Misc. Data <input style="width: 80%;" type="text"/>	
SVA0800. Signature of RN Coordinator	
1. RN sign <input style="width: 100%;" type="text"/> 2. <input style="width: 15%;" type="text"/> - <input style="width: 15%;" type="text"/> - <input style="width: 20%;" type="text"/> Month Day Year	Signature and date of RN verifying completion of Section S.
SVA0801. Additional Signature	
1. Sign <input style="width: 100%;" type="text"/> 2. <input style="width: 15%;" type="text"/> - <input style="width: 15%;" type="text"/> - <input style="width: 20%;" type="text"/> Month Day Year	Signature and date of discipline contributing to Section S completion.
SVA0802. Additional Signature	
1. Sign <input style="width: 100%;" type="text"/> 2. <input style="width: 15%;" type="text"/> - <input style="width: 15%;" type="text"/> - <input style="width: 20%;" type="text"/> Month Day Year	Signature and date of discipline contributing to Section S completion.
SVA0803. Additional Signature	
1. Sign <input style="width: 100%;" type="text"/> 2. <input style="width: 15%;" type="text"/> - <input style="width: 15%;" type="text"/> - <input style="width: 20%;" type="text"/> Month Day Year	Signature and date of discipline contributing to Section S completion.