Joint Legacy Viewer (JLV) Version 2.5.2

Requirements Specification Document (RSD)

April 2017

Version 1.4

Department of Veterans Affairs

Revision History

Date	Version	Description	Author
04/04/2017	1.4	Final comments addressed. Document approved	AbleVets
03/28/2017	1.3	Requirements edits	AbleVets
03/23/2017	1.2	Requirements edits, per ETS request	AbleVets
03/22/2017	1.1	Submitted for review two with client changes addressed	AbleVets
03/08/2017	1.0	Draft submitted for review one	AbleVets
01/15/2017	0.1	Initial draft of artifact	AbleVets

Artifact Rationale

The Requirements Specification Document (RSD) records the results of the specification gathering processes carried out during the Requirements phase. The RSD is generally written by the functional analyst(s) and should provide the bulk of the information used to create the test plan and test scripts. It should be updated for each increment.

The level of detail contained in this RSD should be consistent with the size and scope of the project. It is not necessary to fill out any sections of this document that do not apply to the project. The resources necessary to create and maintain this document during the life cycle of a large project should be acknowledged and clearly reflected in project schedules. Do not duplicate data that is already defined in another document or a section in this document; note in the section where the information can be found.

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1. Introduction

JLV is a centrally hosted, java-based web application that is managed as a single code baseline, and deployed in separate Department of Defense (DoD) and Department of Veteran Affairs (VA) environments. JLV is a browser-based, graphical user interface (GUI) that provides an integrated, read-only view of Electronic Health Record (EHR) data from the DoD, VA, and Virtual Lifetime Electronic Record (VLER) eHealth Exchange (eHX) partners, within a single application.

The JLV GUI retrieves and displays clinical data from a number of native data sources and systems. The data is then presented to the user in a simple to use, web-based interface, through widgets. Each widget corresponds to a clinical data domain. JLV eliminates the need for VA and DoD clinicians to access separate, disparate viewers. Born from a joint DoD-VA venture called JANUS, JLV was directed by the Secretary of Defense and Secretary of Veterans Affairs in early 2013 to further support interoperability between the two departments.

JLV users can create and personalize tabs, drag and drop widgets onto tabs, sort data within a widget's columns, set date filters, and expand a widget for a detailed view of patient information. Within each widget, a circular, blue icon indicates the data retrieved is from a VA source; a square orange icon indicates that the data retrieved is from a DoD source; and a hexagonal, purple icon indicates data that the data retrieved is from VA VLER partners.

1.1. Purpose

The purpose of the Requirements Specification Document (RSD) is to document requirements of the VA Office of Information Technology (OI&T) and Veterans Health Administration (VHA) stakeholders. The intended audience includes the project managers, business analysts, Veteran-focused Integration Process (VIP) Release team, and configuration managers and software developers tasked with developing the project scope.

1.2. Scope

This document focuses on the requirements for JLV version 2.5.2.

1.3. References

Table 1 details the reference documents for the RSD. All referenced documentation for JLV 2.5.2, once approved, is available on the Technical Service Project Repository (TSPR)[1].

Table 1: Reference Documents

Document Type	Name	Date
Business Requirements Document (BRD)	Health Information Exchange Viewer (HIEV) BRD	March 2014
Project Management Plan (PMP)	Project Management Plan	June 2015

[1] **NOTE:** Access to TSPR is restricted, and must be requested.

Document Type	Name	Date
Requirements Traceability Matrix (RTM)	CLIN 0003AF JLV 2.5.2 Requirements Traceability Matrix	April 2017
System Design Document (SDD)	CLIN 0003AA JLV 2.5.2 System Design Document	April 2017
Production Operations Manual (POM)	CLIN 003AL JLV 2.5.2 Production Operations Manual	April 2017
Joint Legacy Viewer (JLV) User Guide	CLIN 0003AM JLV 2.5.2 User Guide	April 2017
Deployment Installation Backout and Rollback Guide (DIBR)	CLIN 0003AL JLV 2.5.2 Deployment, Installation, Backout and Rollback Guide	April 2017

2. Overall Description

2.1. Accessibility Specifications

JLV applies the leading best practices and principles in areas such as color scheme, cognitive design and 508 compliance (standard look and feel toward usability), and technical standardization. To ensure high-quality releases through the certification process, restrictions and guidelines for adding functionality and common User Interface (UI) controls are established and used throughout the development of the product.

The accessible interface features Section 508-compliant, on-screen elements, including:

- Keyboard focus
- Panels and tab panels
- Tables
- Dialogs
- Context menus
- Widgets and widget tools

2.1.1. Clinical Context Object Workgroup (CCOW) Implementation

JLV allows VA users the ability to establish patient context management functionality with other clinical applications, such as Computerized Patient Record System (CPRS). JLV supports the ability to follow context, drive context, break context through the JLV interface, and re-connect context in the JLV interface. This functionality is achieved by leveraging the Sentillion Clinical Context Object Workgroup (CCOW) ActiveX Context Management plug-in.

The workstation used to access JLV and other context-enabled applications must have all applications installed locally on the workstation, in addition to having a Desktop Listener installed on, or accessible from, that workstation. Context management is enabled by default, and JLV attempts to connect to the context vault upon a valid login. Context status appears in the top right corner of all JLV screens. When context is established, the Context On icon is shown. When context is suspended, the Context Suspended icon is shown. Refer to the *CLIN 0003AM JLV 2.5.2 User Guide, Context Management,* for additional information.

2.2. Business Rules Specification

Table 2 defines the original JLV Business Requirements goals and objectives extracted from the BRD for the Health Information Exchange (HIE). Use of the HIE Viewer addresses the Congressional Mandate of the National Defense Authorization Act of 2014 (NDAA 2014) which requires:

> "Not later than October 1, 2014, all health care data contained in … Armed Forces Health Longitudinal Technology Application (AHLTA) and … Veterans Health Information Systems and Technology Architecture (VistA) systems shall be computable in real time and comply with the existing national data standards …."
>
> "…if such national standards do not exist … [adopt] the articulation of data of the Health Data Dictionary until such national standards are established."
>
> "Ensure that the electronic health record systems … are interoperable with an integrated display of data, or a single electronic health record, by complying with the national standards and architectural requirements identified by the Interagency Program Office of the Departments …."

To date, VA and DoD have agreed to leverage previous work and current legacy systems to meet the October 1, 2014 NDAA 2014 mandates. This includes the previous work completed in the Data Federation Accelerators Threshold delivery as of December 2013, the (VLER) Health Concept of Operations (CONOPS) for VLER Capability Area (VCA) 1 and VCA 2 and the Bi-directional Health Information Exchange (BHIE) DoD Adaptor. JLV, developed in tandem by the VA and DoD in the Interagency Program Office (IPO), is proposed to meet the integrated view requirement for joint workflows, with further development as outlined in the BRD for the HIE Viewer.

Beyond the NDAA 2014, the VA Strategic Plan for 2014-2020 outlines the following Strategic Goals, Objectives, Strategies and Performance metrics, which the HIE Viewer directly enables:

Table 2: VA Strategic Plan, Goals, Objectives and Metrics for 2014 through 2020

VA Strategic Goal	VA Strategic Objective	VA Strategy	VA Performance Metric	HIE Viewer Contribution
1. Empower Veterans to Improve Their Well-being VA will directly, and in collaboration with its partners, deliver benefits and services in an integrated, client-centered portfolio that is personalized to meet each Veteran's needs and situation.	Strategic Objective 1.2: Increase Customer Satisfaction through Improvements in Benefits and Services Delivery Policies, Procedures, and Interfaces	VA will provide timely, accurate decisions on Veterans' disability claims and eliminate the claims backlog.	Increase compensation claims processing timeliness and quality.	The HIE Viewer provides more complete information faster to clinician disability examiners resulting in more timely and higher quality examinations. It also provides valuable and timely clinical information to VA administrators in evaluating compensation and pension benefits.
2. Enhance and Develop Trusted Partnerships The Departments must ensure that authorized beneficiary and health information is accessible, usable, shared, and secure in order to meet the needs of clients, customers, and stakeholders.	Strategic Objective 2.1: Enhance VA's Partnership with DoD.	VA and DoD will create an authoritative source of health information for DoD and VA beneficiaries, which will include the delivery of a highly flexible, reliable, secure, maintainable, and sustainable system.	Create clinical and technical standards profile and processes to ensure seamless integration of health data between VA and DoD and private health care providers.	The HIE Viewer delivers standards-based sharing of integrated VA, DoD and Private Sector Partner (PSP) data.

VA Strategic Goal	VA Strategic Objective	VA Strategy	VA Performance Metric	HIE Viewer Contribution
3. Enhance and Develop Trusted Partnerships The Departments must ensure that authorized beneficiary and health information is accessible, usable, shared, and secure in order to meet the needs of clients, customers, and stakeholders.	Strategic Objective 2.2: Enhance VA's Partnerships with Federal, State, Private Sector, Academic Affiliates, Veteran Service Organizations and Non-Profit Organizations.	VA will foster stronger collaboration and information exchange with across the spectrum of care, benefits and services providers.	VA will leverage productive partnerships to augment VA care, services, and benefits to better serve Veteran community members.	The HIE Viewer would incorporate PSP as well as DoD data to benefit Veterans by enabling care team access to their clinically relevant data.
4. Manage and Improve VA Operations to Deliver Seamless and Integrated Support VA will strengthen its business operations in targeted areas to ensure it is able to optimally and effectively serve Veterans and eligible beneficiaries.	Strategic Objective 3.5: Ensure Preparedness to Provide Services and Protect People and Assets Continuously and in Time of Crisis.	Through the VA Comprehensive Emergency Management Program, VA will support DoD, DHS/Federal Emergency Management Agency (FEMA), and other Federal Departments and Agencies in support of Presidential Policy Directive-8 – National Preparedness.	Increase the Department's preparedness posture to respond to and recover from all-hazards incidents.	The HIE Viewer would be deployed to all VA DOD Contingency Plan Patient Receiving Centers as well as Federal Coordinating Centers as part of the National Disaster Medical System (NDMS) to support continuity of patient records.

2.2.1. User Access Levels

Table 3 describes the user's level of system use, (e.g., primary user or secondary user), the user's role, responsibility, and permissions (access level).

Table 3: User Access Level, Responsibility, Role and Permissions

User Level	Role	Responsibilities	Access Level
Primary Users	VHA and Defense Health Administration (DHA) Clinician/Provider	Access to patient Electronic Health Records (EHRs).	View Only

User Level	Role	Responsibilities	Access Level
Primary Users	Veterans Benefits Administration (VBA) and Veterans Affairs Program Staff	Access to patient EHRs.	View Only
Secondary Users	System Administrator OI&T staff	Oversee daily system status; modify system configurations and general maintenance.	Full Access

2.3. Design Constraints Specification

The DoD Defense Medical Information Exchange (DMIX) team will continue to manage JLV development for DoD-only requirements, and/or other requirements, as agreed upon by the DoD and VA. The DoD JLV requirements will be provided as a separate RTM, with reference material in the VA RTM.

VA JLV and DoD JLV will be maintained as a single code base, to the extent possible. The requirements generally apply to all JLV instances, except for features that are unique to VA JLV or DoD JLV.

JLV retrieves clinical data from the following external systems and services.

- Patient Discovery Web Service (PDWS)
- Master Veteran Index (MVI)
- VistA Local Hosts
- DoD Exchange Service (DES)
- Document Archive Service (DAS)
- eHealth Exchange (eHX)
- VistA Imaging Viewer

Changes to the systems or services that impact transactions must be communicated to the JLV Development team.

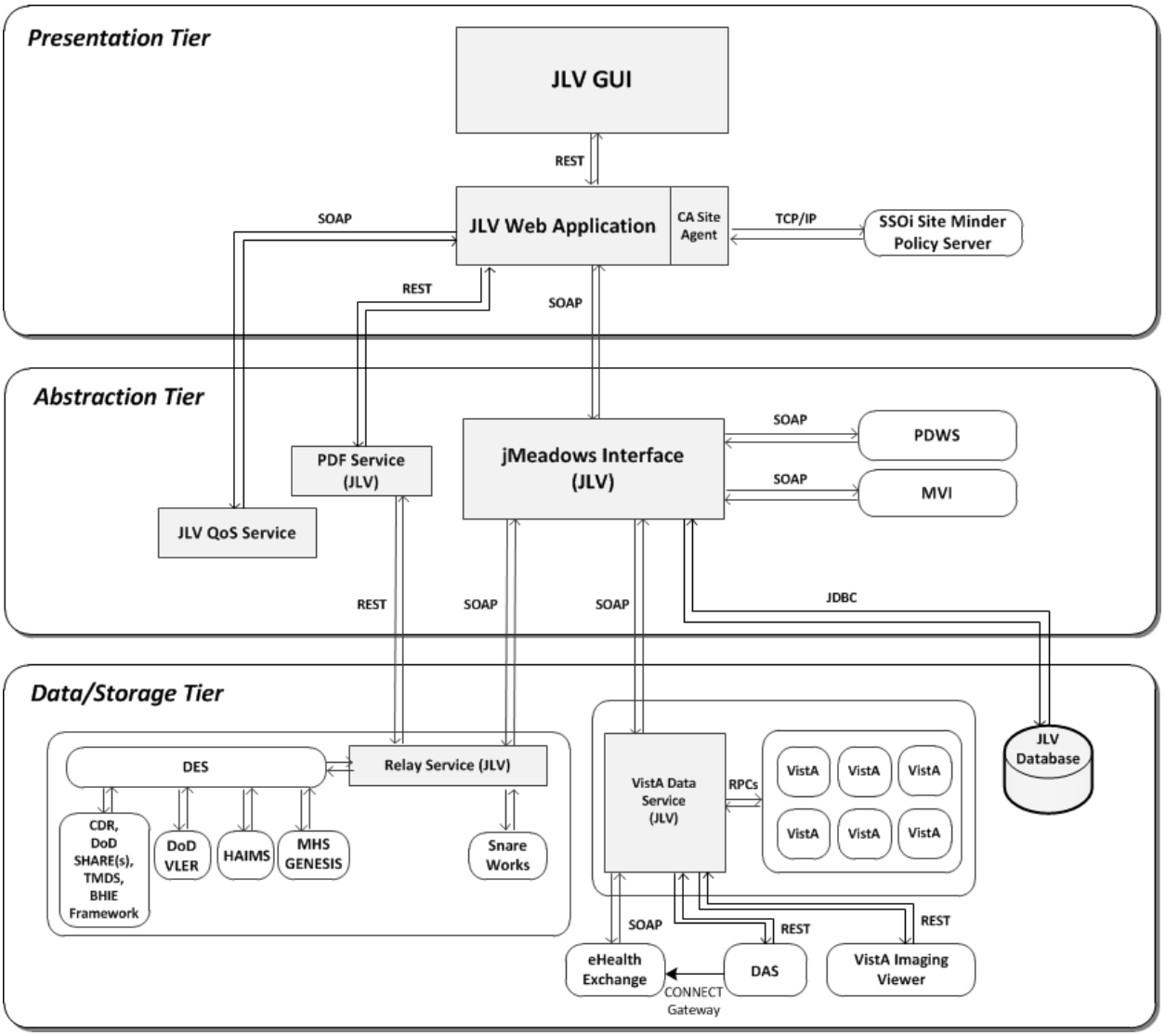
2.3.1. Known Interfaces and Data Sources

JLV is read only interface to multiple VA data sources. Figure 1 illustrates the three tiers (presentation, abstraction, and data/storage) of the JLV architecture, the location of JLV system components within the tiers, and the external systems that JLV communicates within enterprise environments. In the diagram, components of the JLV system (GUI, web application, Quality of Service (QoS) service, jMeadows interface, Relay service, VistA Data service, Rich Text Format (RTF) Conversion service, and database) are shaded. Communication protocols used between JLV components and external systems are labeled as Simple Object Access Protocol (SOAP) or Representational State Transfer (REST). New communication protocol, Transmission Control Protocol/Internet Protocol (TCP/IP), is used to/from Single Sign On Internal (SSOi).

2.3.2. Single Sign On - Internal

SSOi is an authentication solution for internal-facing VA applications utilized by VA employees, contractors, and volunteers. JLV receives VA users' Personal Identification Verification (PIV) authentication and user credentials from SSOi during the JLV log in process to enable user access to the JLV GUI.

Figure 1: JLV Architecture and Components



2.4. Disaster Recovery Specification

The JLV production environment, as described in the *CLIN 0003AA JLV 2.5.2 System Design Document*, is hosted and maintained in the VA Austin Information Technology Center (AITC) and the VA Philadelphia Information Technology Center (PITC). Administrators of these data centers are responsible for the creation and maintenance of disaster recovery plans, as well as the execution of recovery efforts as needed.

The Enterprise Operations (EO) Cloud team at the ATIC/PITC performs daily backups on all virtual machines (VMs) in order for EO Cloud Systems Administrators to restore the VMs back to a previous 'known good' state, in the event of a disaster. Additionally, AITC and PITC serve as hot back up sites in the event of a disaster. JLV databases are replicated between AITC and PITC, ensuring 100% data integrity in the event of a site's database failure.

After the execution of a recovery effort, which includes the restoration of system components and other necessary services in the production environment (as shown in Figure 1), the JLV Support team validates that the JLV system and services are available and operating normally. Additionally, the team validates that the system meets appropriate operational requirements, as outlined in Table 7.

2.5. Documentation Specifications

Web-based help documentation is available within the application for user reference.

Feature set documentation includes:

- User Guide
- System Design Document
- Version Description Document
- Requirements Specification Document
- Requirements Traceability Matrix
- Master Test Plan and Test Execution Report

2.6. Functional Specifications

Table 4 lists the functional specification requirements for JLV 2.5.2.

Table 4: JLV 2.5.2 Functional Specification Requirements

RRC ID	Implementation Requirement
868266	As a JLV authorized user, I need single-sign on integration for logging into JLV, in order to be compliant with the two-factor authentication mandate.
860082	The system shall integrate with SSOi in order to provide access to JLV via PIV.
878697	The system shall integrate with SSOi in order to provide access to JLV via Windows Active Directory Login.
878708	The system shall integrate with SSOi in order to provide access to JLV via Kerberos login.
868271	As a JLV authorized user, I need the ability to open the CAPRI Restricted Patient lists, so that I can adhere to only viewing authorized patient records
860085	The system shall open the CAPRI Restricted Patient lists in the Patient List window, when a user who authenticates against the claim server selects the Patient List button
868273	As a JLV authorized user, I need to know if progress notes will yield available images, so that I can see all available data for the patient
860087	The system shall provide a column that specifies if images are available within the progress notes section

RRC ID	Implementation Requirement
868274	The system shall display the camera icon under the Image column of a document record when the record has an associated Vista image or VA Text Integration Utilities (TIU) document in the Progress Notes widget CLARIFICATION: This functionality is VA ONLY
868275	The system shall display a generic thumbnail icon in the detail view of outpatient encounter record when the record has an associated Vista Image or VA TIU document in the Progress Notes widget
871857	The system shall open Vista Imaging viewer in a separate browser window to display non-diagnostic radiological images or VA TIU documents when the user selects the generic thumbnail from the detail view in the Progress Notes widget.
868276	As a JLV authorized user, I need the ability to incorporate Community Data into Report Builder, so that I can view the Community Data in Report Builder and create a Portable Document Format .pdf file that is then printable, savable, and up-loadable to support clinician needs
860088	The system shall provide the ability to add essentris CDA notes in Report Builder
860089	The system shall provide the ability to add Demographics to the Report Builder
860090	The system shall provide the ability to add HIE partner records to the Report Builder
868277	As a JLV authorized user, I need to know when the MVI requires additional search attributes, so that the patient desired is accurately identified
860091	The system shall notify the end user with a pop-up for MVI search when 'NF' (not found) tag is returned telling end users to add a 3rd search attribute (first name or DoB)
868278	As a JLV authorized user, I need the ability to view the last 10 patients I accessed in the recently viewed patient list regardless of whether patient has an Electronic Data Interchange Personal Identifier (EDIPI), so that I can quickly access the patient records
860092	The system shall add patients without an EDIPI to the recently viewed patient list
868280	As a JLV authorized user, I need the ability to identify corrupt notes when building a report in Report Builder, so that I am aware of notes which are corrupt and will be removed when building and printing a report
868281	The system shall have the ability to validate the added record when the build button is selected in the Report Builder.
868282	The system shall display the number of validated records when the build process completed validation in the Report Builder.
868283	The system shall have the ability to print a report of the validated patient records in Report Builder.
870031	As a JLV authorized user, who authenticates against the claims server, I need a unique JLV Uniform Resource Locator (URL) so that I can log into JLV and adhere to current policies
870032	The system shall provide unique URL for users authenticating against the claims server. This URL will be exclusively for non VHA user for login.
870426	As a JLV authorized user, I need access to non-diagnostic quality radiographic images and narrative interpretations from across the VA and DoD Enterprise to ensure comprehensive clinically relevant data for patient care.
870427	The system shall open Vista Imaging viewer in a separate browser window to display non-diagnostic radiological images or VA TIU documents when the user selects the generic thumbnail from the detail view in the Radiology Reports, Documents, Outpatient Encounters and Procedures widgets.

RRC ID	Implementation Requirement
870428	The system shall display the camera icon under the Image column of a Radiology report or document record when the record has an associated Vista image or VA TIU document in the Documents widgets.
870429	The system shall display a generic thumbnail icon in the detail view of a radiology or outpatient encounter record when the record has an associated Vista Image or VA TIU document in the Documents widget.
870430	The system shall display the camera icon under the Image column of a document record when the record has an associated VA TIU document in the Outpatient Encounters widgets.
870431	The system shall display a generic thumbnail icon in the detail view of an outpatient encounter record when the record has an associated VA TIU document in the Outpatient Encounters widget.
870432	The system shall display the camera icon under the Image column of a procedure record when the record has an associated VA TIU document in the Procedures widgets.
870433	The system shall display a generic thumbnail icon in the detail view of a procedure record when the record has an associated VA TIU document in the Procedures widget.
870434	The system shall display the camera icon under the Image column of a Radiology report record when the record has an associated non-diagnostic radiological image in the Radiology Reports widgets.
870435	The system shall display a generic thumbnail icon in the detail view of a radiology record when the record has an associated non-diagnostic radiological image in the Radiology Reports widget.

2.7. GUI Specifications

The JLV application is a compilation of GUI widgets. An overview of the GUI design and functionality is addressed in the *CLIN 0003AM JLV 2.5.2 User Guide*.

JLV is comprised of a number of widgets that retrieve clinical data, in real time, from VA, DoD and VLER partner data sources, and displays the data in a chronological view. A user can create and personalize tabs, drag and drop widgets to add to tabs, sort data in widget columns, set date filters, and see data in expanded and detailed views of widgets.

Within each widget, an orange square icon indicates data retrieved from a DoD source, a blue circle indicates data retrieved from a VA source, and a purple hexagon indicates data retrieved from an HIE VA community partner source. It is recommended that JLV is accessed through Internet Explorer (IE) 11. It is required that JLV is accessed through IE9 and above. The user's system should have the latest Adobe Reader installed.

Table 5 provides additional details about the framework elements of JLV.

Table 5: Framework Elements and Implementation

Element	Implementation
PORTAL A gateway for a website or web application that is, or proposes to be, the major starting point for users once connected to the web. A gateway for a website or web application that users visit as an anchor.	The interface has two portals: a provider portal and a patient portal. Each portal does the following: • Pertains to a particular subject or topic. • Includes a library of widgets. • Provides a column-based widget layout and layout customization. • Provides a tabular layout design and the ability to view any number of widget layouts.
TOKEN An object that represents another object, either physical or virtual, or an abstract concept.	The GUI uses these types of tokens: a patient token and a record token. A patient token: • Consists of patient ID, patient site code, and date/timestamp. • Is tied to an active session that is initiated by the provider upon log in to the system. • Is generated in Grails and encrypted. Data encryption is provided by the Advanced Encryption Standard (AES). A record token is used to retrieve specific details.
WIDGET An element of a GUI that displays information, or provides a specific way for a user to interact with the operating system and the application. Widgets include icons, pull-down menus, buttons, selection boxes, progress indicators, on/off checkmarks, scroll bars, windows, window edges (that allow the resizing of a window), toggle buttons, forms, and many other devices for displaying information, and for inviting, accepting, and responding to user actions.	Each widget: • Is a mini-application, running within a larger application. • A generic container to which provider data, or clinical data, can be ported. • Contains data coming from one source; in this case, from the REST layer. • Requires a patient token to retrieve data.
SESSION A session is initiated when an authorized user logs in to the web application.	During an active session, a user has access to the following capabilities: • View/Edit user profiles. • Change on-screen user interface themes. • Search for patient records. By default, a session will terminate automatically after a period of inactivity.

2.8. Multi-divisional Specifications

A single instance of the JLV web application can be configured by the user to display a compilation of GUI widgets. It is necessary for one instance to support the following:

- Read-only access to VA, DoD, and VLER clinical health data systems
- Presentation of VA health data to authorized users within the VA and DoD:
  - Users in multiple VA health care facilities can view patient health data
  - Users can view patient health data from community partners

- Users have a restricted view of certain patients' data, based upon their permissions, across location domains (i.e., view data for multiple sites)
- Users can filter data (e.g., using the date range filter)
- Support of multi-site operations where VA may be sharing data with a non-VA entity, such as DoD

2.9. Performance Specifications

Performance specifications are described in Table 7, with the Data Center and VA Network Service levels to be determined.

2.10. Quality Attributes Specification

JLV was developed utilizing SOAP messaging protocols between systems that allow JLV components to be shared amongst other systems, and provide portability of components to be utilized in other frameworks. The technologies in use are:

- Grails Model Viewer Controller (MVC): An open source application viewer framework that can be shared with other n-tiered applications.
- jQuery: A JavaScript library Application Program Interface (API), simplifies development with HyperText Markup Language (HTML) document manipulation and event handling.
- Cloud infrastructure makes it easier to clone and scale the application.
- Load balancers manage the distribution of the work load across servers.
- Clustered management servers provide scalability and redundancy for recovery purposes.

The use of these technologies ensures the integrity and quality of patient data.

2.11. Reliability Specifications

The critical business processes for JLV are to access read-only DoD and VA healthcare data to authorized DoD and VA users, and to personalize the patient data display. Time objectives are defined as:

- Maximum Tolerable Downtime (MTD) – 72 hours
- Recovery Time Objective (RTO) – 72 hours

2.12. Scope Integration

JLV is a patient-centric, presentation system that provides authorized VA users the ability to view specific clinical data from various systems available to the VA, DoD, and VLER partners. JLV application instances are driven by web system configurations hosted by AITC and PITC, and are dependent upon the integrity of the VA network for user access.

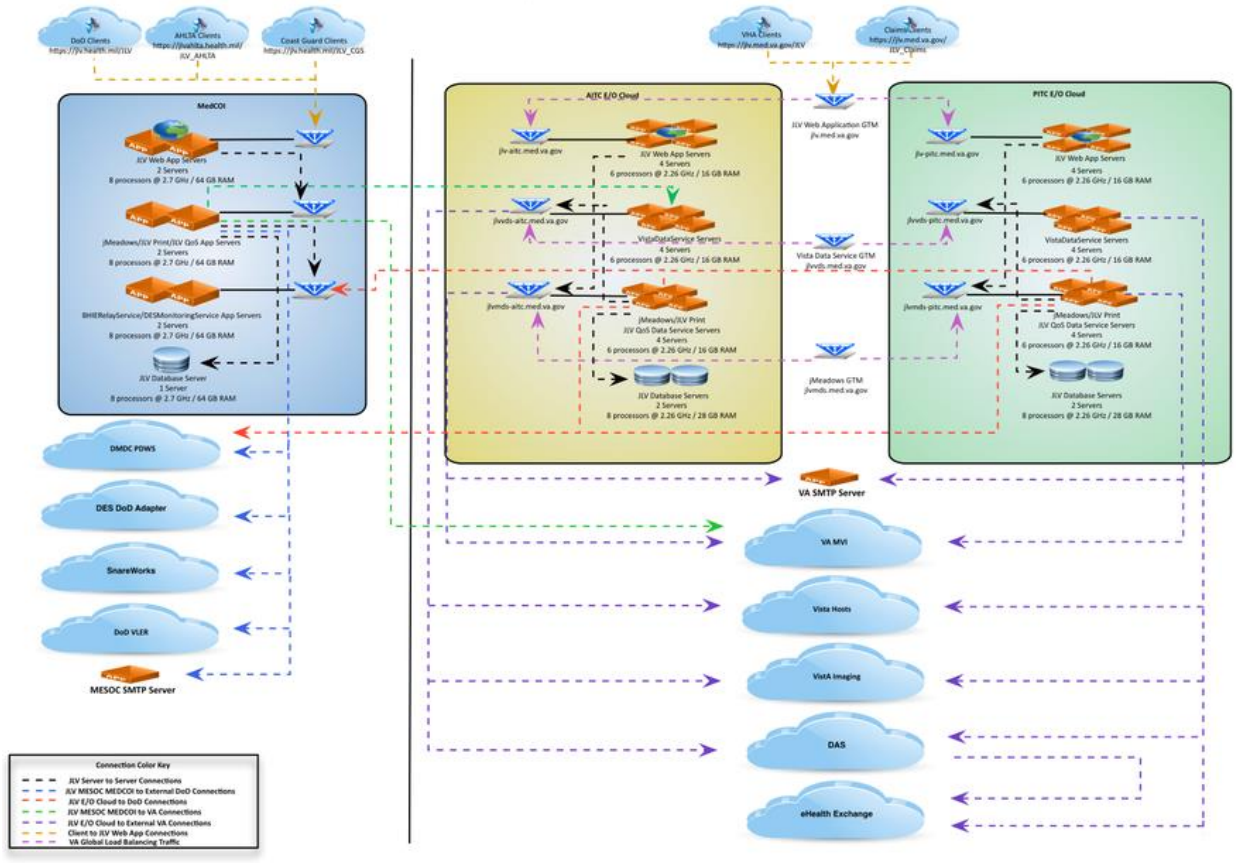
jMeadows and VistA Data Service (JLV system components) interface with the following external interfaces to provide patients' longitudinal health records:

- PDWS

- MVI
- VistA Local Hosts
- DES
- DAS
- eHX
- VistA Imaging Viewer

JLV is currently hosted at both the DoD and VA data centers. Figure 2 provides an overview of the JLV production infrastructure hosted at DoD MESOC, and VA AITC and PITC.

Figure 2: JLV Production Infrastructure in the VA and DoD Environments



2.13. Security Specifications

As a web-based hosting application, the following security design principles are applied to the JLV system to ensure a system that follows security protocol standards for secured systems:

- Session security: By the use of secured unique session tokens, generated using a 128-bit hash from a secure random number generator for each authenticated user, the system ensures prevention of communication session hijacking. Once the user logs out of the system, the session is immediately destroyed, and the session hash can no longer be used.

Also, if in some instance the session ID were to be obtained, the user cannot paste it as part of a URL string in order to gain access.

- Data Encryption: Using Secure Sockets Layer (SSL) with Transport Layer Security (TLS) 1.0 ensures that all server communication is encrypted, which limits the ability to perform Man in the Middle (MITM) attacks.
- Database Encryption at Rest: Microsoft Structured Query Language (SQL) Server Transparent Data Encryption (TDE) Encryption level AES 256-bit is used to encrypt Personal Identification Information (PII)/Protected Health Information (PHI) data at rest.
- Firewall rules exist to allow granular control of the traffic between servers within the system. Explicit rules allow communication-only over specific ports.
- For the web-facing servers within the AITC, only 443 (HyperText Transfer Protocol Secure (HTTPS)) traffic directed at the URL communityviewer.va.gov is allowed to access the web interface, and login and query traffic from the web-facing servers to the internal jMeadows server cluster over 443 (HTTPS) with VA certificates is allowed.
- Schema Validation: Web Services are used in JLV to employ schema validation. This helps prevent Denial of Service (DoS) attacks by preventing the invocation of eXtensible Markup Language (XML) bombs.

2.14. System Features

The JLV application is a compilation of GUI widgets, as seen in Table 6. The functionality of widgets, from the end user perspective, is captured in detail in the *CLIN 0003AM JLV 2.5.2 User Guide*.

Table 6: GUI Widgets

Clinical Data Widget	Description of data displayed Additional data available in expanded view of widgets
Admissions	Dates of admission and discharge for each episode as well as ward and site.
Allergies	Allergen, reaction, severity and site where recorded.
Appointments	Date, provider, clinic and site
Clinical Reminders	VA only reminders including due date, when last completed, reminder type and site where reminder is in effect
Community Health Summaries and Documents - VA	VA community partner information, including C32, C62 and CCDA (Consolidated Clinical Document Architecture) documents.
Consult Encounters	Consult information including date, type, status and site
Documents	Health records from multiple clinical domains to include scanned DoD and VA documents
Immunizations	Immunization history including date, vaccine name, reaction if any and site
Inpatient Medications	Inpatient medications including status and where prescribed
Inpatient Summaries	Discharge notes, including date, type and site; other DoD inpatient care notes
Lab Panel Results	Lab orders and panels and the associated results

Clinical Data Widget	Description of data displayed Additional data available in expanded view of widgets
Lab Results	Lab results including microbiology and anatomic pathology
MHS GENESIS	VA and DoD users can access documents within the patient's record from the MHS GENESIS system
Orders	Patient orders with order date, status and site where written
Outpatient Encounters	Date, clinic, provider and site for each encounter
Outpatient Medications	Outpatient medications including last fill, status, expiration date and site where prescribed
Problem List	Problems, including onset, when updated, status and site where recorded
Procedures	Medical procedures with date/time performed, provider, and location
Progress Notes	Progress notes including date, document type and title, and provider.
Questionnaires and Deployment Assessments	Questionnaires administered, as well as pre-and post-deployment health assessments
Radiology Reports	Radiology exams ordered along with the corresponding report and images if available
Social, Medical and Other Histories	DoD only Histories including date reported, type, any findings, status and site where recorded
Vitals	Vital sign information including date taken, type, result, the units and where taken

2.15. Usability Specifications

JLV provides a customizable GUI-based system for users, and is designed to be intuitive to use.

- As a government application, JLV is required to be accessible to individuals with disabilities, and is developed to be 508 compliant. Compliance for each release is tested by the VA 508 Compliance team.
- The user interface for JLV is designed with input from clinicians and Human Factors Engineering, within the VA, to ensure an intuitive interface that is easy to learn. Typically, users become productive in the system within two hours.
- User assistance with system use is provided via online help, online training courses in TMS, a user guide, and direct support from VHA.

3. Purchased Components

There are no purchased components for JLV 2.5.2. The system is comprised of Government Off the Shelf (GOTS) components.

4. Estimation

Team AbleVets uses Subject Matter Expert (SME) input, and analysis of business user stories, to determine the number of story points to be assigned to the features developed in support of JLV.

5. Approval Signatures

Signed: Latricia R. Facundus 703001 Digitally signed by Latricia R. Facundus 703001 DN: dc=gov, dc=va, o=internal, ou=people, 0.9.2342.19200300.100.1.1=latricia.facundus@va.gov, cn=Latricia R. Facundus 703001 Date: 2017.04.06 11:31:04 -04'00'

Latricia R. Facundus, Project Manager Date

Signed: Amanda M. Cournoyer 162029 Digitally signed by Amanda M. Cournoyer 162029 DN: dc=gov, dc=va, o=internal, ou=people, 0.9.2342.19200300.100.1.1=amanda.cournoyer@va.gov, cn=Amanda M. Cournoyer 162029 Date: 2017.04.07 10:30:15 -04'00'

Amanda Cournoyer, Business Sponsor Date

Signed: Michael J. Braithwaite 570687 Digitally signed by Michael J. Braithwaite 570687 DN: dc=gov, dc=va, o=internal, ou=people, 0.9.2342.19200300.100.1.1=michael.braithwaite@va.gov, cn=Michael J. Braithwaite 570687 Date: 2017.04.10 09:34:17 -06'00'

Michael Braithwaite, Program Manager Date

A. Appendix A: Non-Functional Requirements

The following non-functional requirements should be reviewed and assessed while developing the requirements for the project.

System Performance Reporting Requirements

There are no system performance reporting requirements for this release of JLV.

Operational Environment Requirements

Table 7 outlines the functional workload and performance requirements for JLV.

Table 7: Operational Environment Requirements

Non-Functional Rqmt #	Operational Environment Requirements (OER)
OER 1.0	System response times and page load times shall be less than 10 seconds. Where response cannot be achieved in 10 seconds, user will be presented a progress indicator or busy working indicator.
OER 2.0	Maintenance, including maintenance of externally developed software incorporated into the JLV 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.
OER 3.0	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.
OER 4.0	Provide a real-time monitoring solution to report agreed/identified critical system performance parameters.
OER 5.0	Critical business performance parameters shall be identified (e.g. transaction speed, response time for screen display/refresh, data retrieval, etc.) in a manner that data capture can occur to support metric reporting and support the OIT performance dashboard display.
OER 6.0	Notification of scheduled maintenance periods that require the service to be offline or that may degrade system performance shall be disseminated to the business user community a minimum of 48 hours prior to the scheduled event.

Documentation Requirements

All documentation required by VIP is delivered to the VA. Those documents are:

- Deployment, Installation, Backout, and Rollback Guide (DIBR)
- Production Operations Manual (POM)
- User Guide
- Version Description Document (VDD)

Implementation Requirements

A fully operational production environment is required for operating JLV.

Data Protection/Back-up/Archive Requirements

Please see the *CLIN 003AK JLV 2.5.2 Production Operations Manual*, for backup and restore procedures.

Levels for Disaster Recovery

Please see Section 2.11, Reliability Specifications.

Data Quality/Assurance Requirements

There are no data quality/assurance requirements for this release of JLV.

User Access/Security Requirements

Please see Section 2.6, Functional Specifications.

Usability/User Interface Requirements

JLV is 508 compliant, as required. See Section 2.15, Usability Specifications.

Conceptual Integrity

There are no conceptual integrity requirements for this release of JLV.

Availability

1. Maintenance window, including maintenance of externally developed software incorporated into the VistA 4 application(s), will be by mutual agreement between OI&T and the VHA Point of Contact (POC) for the affected facility(ies).
2. VistA application unavailability due to an unplanned outage, or planned outages that exceed the defined maintenance window, will not exceed 8.76 hours per year, and will not exceed 43.8 minutes per month (99.9% availability).
3. The application shall be available 24 hours a day, seven days a week, with an uptime of 99.9%.
4. All system updates and scheduled maintenance will occur between the hours of 8:00 pm and 6:00 am (per local time zone), when clinical usage would be lightest.

Interoperability

There are no interoperability requirements for this release of JLV.

Manageability

There are no manageability requirements for this release of JLV.

Reliability

Please see Section 2.11, Reliability Specifications.

Supportability

There are no supportability requirements for this release of JLV.

B. Appendix B: Acronyms and Abbreviations

Table 8 lists the acronyms and abbreviations used throughout this document, and their descriptions.

Table 8: Acronyms and Abbreviations

Acronym	Description
AHLTA	Armed Forces Health Longitudinal Technology Application
AITC	Austin Information Technology Center
ANR	Automated Notification Reporting
API	Application Program Interface
BHIE	Bi-directional Health Information Exchange
BIA	Business Impact Assessment
BRD	Business Requirements Document
C32	The Summary Documents Using HL7 Continuity of Care Document (CCD) Component describes the document content summarizing a consumer's medical status for the purpose of information exchange. The content may include administrative (e.g., registration, demographics, insurance, etc.) and clinical (problem list, medication list, allergies, test results, etc.) information. This Component defines content in order to promote interoperability between participating systems such as Personal Health Record Systems (PHRs), Electronic Health Record Systems (EHRs), Practice Management Applications and others.
C62	The Unstructured Document Component is provided for the capture and storage of patient identifiable, unstructured document content, such as text, PDF, and images rendered in PDF. It is based on the Cross-Enterprise Sharing of Scanned Documents (XDS-SD) profile from the Integrating the Healthcare Enterprise (IHE) IT Infrastructure Technical Framework (ITI-TF).
CCD	Continuity of Care Document
CCDA	Consolidated Clinical Document Architecture
CCOW	Clinical Context Object Workgroup
CONOPS	Concept of Operations
CPMP	Contractor Project Management Plan
CPRS	Computerized Patient Record System
DAS	Document Archive Service
DES	(DoD) Data Exchange Service
DHA	Defense Health Administration
DIBR	Deployment Installation Backout and Rollback Guide
DMIX	Defense Medical Information Exchange
DoD	Department of Defense
DoS	Denial of Service
EDIPI	Electronic Data Interchange Personal Identifier
EHR	Electronic Health Record
eHX	eHealth Exchange
EO	Enterprise Operations

Acronym	Description
FEMA	Federal Emergency Management Agency
GOTS	Government Off the Shelf
GUI	Graphical User Interface
HIEV	Health Information Exchange Viewer
HL7	Health Level 7
HTML	HyperText Markup Language
HTTPS	HyperText Transfer Protocol Secure
IHE	Integrating the Healthcare Enterprise
JLV	Joint Legacy Viewer
MITM	Man in the Middle
MTD	Maximum Tolerable Downtime
MVC	Grails Model Viewer Controller
MVI	Master Veteran Index
NDAA 2014	National Defense Authorization Act of 2014
OI&T	Veterans Affairs Office of Information Technology
PDF	Portable Document Format
PDWS	Patient Discovery Web Service
PII	Personal Identification Information
PHI	Protected Health Information
PITC	Philadelphia Information Technology Center
PIV	Perso nal Identification Verification
POC	Point of Contact
POM	Production Operations Manual
PSP	Private Sector Partner
REST	Representational State Transfer
RSD	Requirement Specification Document
RTO	Recovery Time Objective
RTF	Rich Text Format
RTM	Requirements Traceability Matrix
QoS	Quality of Service
SDD	System Design Document
SOAP	Simple Object Access Protocol (SOAP)
SME	Subject Matter Expert
SQL	Microsoft Structured Query Language
SSL	Secure Sockets Layer
SSOi	Single Sign On Internal
TDE	Server Transparent Data Encryption
TIU	Text Integration Utilities
TLS	Transport Layer Security

Acronym	Description
TSPR	Technical Services Project Repository
UI	User Interface
URL	Uniform Resource Locator
VA	Veterans Affairs
VBA	Veterans Benefits Administration
VCA	VLER Capability Area
VDD	Version Description Document
VHA	Veterans Health Administration
VIP	Veteran-focused Integration Process
VistA	Veterans Health Information Systems and Technology Architecture
VLER	Virtual Lifetime Electronic Record
VM	Virtual Machine
XML	eXtensible Markup Language