

# **Clinical Data Repository/ Health Data Repository (CHDR)**

**CHDR 2.1 VHIM Release**

**Requirements Specification Document (RSD)**



**Document Version 1.2**

**July 2011**

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## Revision History

The revision history cycle begins once changes or enhancements are requested to an approved RSD.

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8/16/2011	1.2	Removed Draft watermark and added e-signatures to Attachment A.	Kathy Stark
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# Table of Contents

<b>1.</b>	<b>Introduction</b>	<b>1</b>
1.1.	Purpose	1
1.2.	Scope	1
1.2.1.	CHDR Version 2.1 Scope Exclusion	3
1.3.	Acronyms and Definitions	3
1.3.1.	Acronyms	3
1.3.2.	Definitions	5
1.4.	References	5
<b>2.</b>	<b>Overall Specifications</b>	<b>6</b>
2.1.	Accessibility Specifications	6
2.2.	Business Rules Specifications	6
2.3.	Design Constraints Specifications	6
2.4.	Disaster Recovery Specifications	6
2.5.	Documentation Specifications	6
2.6.	Functional Specifications	7
2.7.	Graphical User Interface (GUI) Specifications	12
2.8.	Multi-Divisional Specifications	12
2.9.	Performance Specifications	12
2.10.	Quality Attributes Specifications	13
2.11.	Reliability Specifications	13
2.12.	Scope of Integration	14
2.13.	Security Specifications	14
2.14.	System Features	14
2.15.	Usability Specifications	15
<b>3.</b>	<b>Applicable Standards</b>	<b>15</b>
<b>4.</b>	<b>Interfaces</b>	<b>16</b>
4.1.	Communications Interfaces	16
4.2.	Hardware Interfaces	16
4.3.	Software Interfaces	16
4.4.	User Interfaces	17
<b>5.</b>	<b>Legal, Copyright, and Other Notices</b>	<b>17</b>
<b>6.</b>	<b>Purchased Components</b>	<b>17</b>
<b>7.</b>	<b>User Class Characteristics</b>	<b>17</b>
<b>8.</b>	<b>Estimation</b>	<b>17</b>
	<b>Attachment A - Approval Signatures</b>	<b>18</b>

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# 1. Introduction

The Department of Defense (DoD) and the Department of Veterans Affairs (VA) in partnership, designed and implemented a Clinical Data Repository/Health Data Repository (CHDR) system that supports the President's Executive Order to facilitate the sharing of a virtual lifetime electronic record (VLER) between the DoD and the VA. The CHDR system generates standards-based, "computable" electronic health data (CHDR data), and is the link between the DoD Clinical Data Repository (CDR) and the VA Health Data Repository (HDR). The mediated CHDR data is required for Veterans and beneficiaries eligible to receive healthcare services from both agencies, known as Active Dual Consumers (ADC).

This interoperability provides clinical users at DoD and VA medical facilities with bidirectional, real-time exchange of computable data for ADC patients that includes at a minimum, the exchange of outpatient pharmacy and drug allergies (limited only to drug allergies) to enable drug/drug and drug/allergy order checks. The computable clinical data elements are passed individually rather than in text blocks, and can be sorted and queried individually in the clinical systems. Once the computed clinical data is transferred it can be used by each agency's native healthcare system. At the VA, the integrated clinical data can be viewed in VistAWeb or Computerized Patient Record System (CPRS).

## 1.1. Purpose

The purpose of the Requirements Specification Document (RSD) is to document and describe the known requirements for the CHDR 2.1 Veterans Health Administration Health Information Model (VHIM) release. This document is intended for use by Program Management, Architects, Development, Business Analysts, Software Quality Assurance (SQA) Analysts, and other project stakeholders to gain an explicit understanding of functional requirements needed to support CHDR 2.1.

## 1.2. Scope

The CHDR 2.1 VHIM release enables CHDR to move from Health Level Seven (HL7) messages to the VHA VHIM compliance for reads and writes of allergy and outpatient pharmacy data. CHDR is responsible to transform HL7 messages received from DoD to the VHIM format, to send to and from Clinical Data Service (CDS). The release also includes supporting the Limited Look Back Business needs to limit exchange of inactive Outpatient Pharmacy data (inactive/cancelled/expired) exchanged between VA and DoD via CHDR to a maximum of one year (12 months) back from the date the record is accessed or flagged, and includes minor enhancements to the CHDR Admin GUI to address requests submitted by end-users currently using CHDR 2.0 in production.

The following table provides at a high-level the set of business needs that have been identified as part of the required functionality to be released as part of the CHDR version 2.1. Only those business needs of CHDR 2.1 requirements are included in the table below. Inclusion of the business need below does not imply that all requirements defined within the business needs are included in the release. See the CHDR Limited Look Back Business Requirements Document (BRD) authored by the business community for the purpose of capturing and describing the business needs of the customer/business owner.

Includes	ClearQuest (CQ) Reference #	Description
BN 1	HDS00020207, HDS00019596, HDS00020202	Provide the ability for a VA or DoD clinician to view a single, combined, outpatient medication list looking back up to 12 months for the same VA/DoD patient when accessed from the VA or DoDs Electronic Health Record (EHR) while maintaining optimal system performance.

Includes	ClearQuest (CQ) Reference #	Description
BN 2	HDS00020134 (reference closed CQ's 14903, 14904,18456, 14908)	Incorporate new version 4.0.5.0 of Person Service Lookup (PSL), to improve performance and use of the PSL filter features used in the CHDR Admin GUI to lookup and mark patients as ADC. Improvements such as retaining the Ward and Clinic linked to a patient search, until search data is cleared by the end-user.
BN 3	HDS00020191	GUI upgrade to Spring Webflow to improve code maintainability and reusability.
BN 4	HDS00020192	VHIM read/write to CDS to translate DoD HL7 into VHIM compliance for reads/writes for allergy and pharmacy data and to eliminate the use of the HDR II Socket Facade.
BN 5	HDS00020193, HDS00020206	CDS Synchronous reads/writes. CHDR 2.1 eliminates audit of the clinical messages sent to HDR.
BN 6	HDS00020195, HDS00020196	Cross Application Integration Protocol (CAIP) upgrade to version 3.0.2 including configuration changes to NDS/CAIP.
BN 7	HDS00020198 (reference closed CQ 19475)	CHDR message header for MPI messages.
BN 8	HDS00020199 (reference closed CQ 19104)	Truncate CHDR unique ID to 20 characters for messages sent to CDS, and change the CDS read request to be a configurable parameter to support the Limited Look Back feature.
BN 9	HDS00020200 (reference closed CQ 19333)	Fix schematron validation rule.
BN 10	HDS00020201 (reference closed CQ 19365)	Change the "Timeout" in the CHDR Admin GUI to make it clear to the user that message processing will continue.
BN 11	HDS00020203 (reference closed CQ 20041, reference open CQ 20178)	Modify the CHDR 5-digit Site-ID to eliminate the Z03 within the Z06 to be dropped when received from DoD.
BN 12	HDS00020269, HDS00020263, HDS00020266, HDS00020267, HDS00020273, HDS00020268, HDS00020333 (reference STS/VTS CQ's CQ 18007, 18008, and 18009)	Upgrade 3rd party libraries Spring Framework, CDS, Hibernate, log4j, Spring Web Flow, junit, VTS.
BN 13	HDS00020239	Remove the portrait feature in PSL from CHDR capabilities. This functionality is a provided feature of PSL, and not needed by CHDR users.
BN 14	HDS00020019	Correct Patient Lookup field in CHDR GUI.
BN 15	HDS00020023	Vulnerability scan report - Security Defects.
BN 16	HDS00020178 (reference closed CQ 20041, reference open CQ 20203)	Implement new business rule for VA CHDR 5-digit Site ID.

Includes	ClearQuest (CQ) Reference #	Description
BN 17	HDS00020251	First name optional in MPI/VistA, replace first name assertion with business error message.
BN 18	HDS00019473	WebLogic integration with the multi-data source is not supporting failover based on the RAC configuration.

### 1.2.1. CHDR Version 2.1 Scope Exclusion

CHDR Version 2.1 Scope Exclusions include the following:

Excludes	Descriptions
2.1.1	Any updates to patient traits used in correlation on the DoD system. These are First Name, Last Name, Social Security Number (SSN), and Date of Birth (DOB). Storage of these traits will be eliminated from the VA CHDR system so no updates to traits on the VA CHDR system will be required.
2.1.2	Exchange of Lab information will be excluded from this release.

## 1.3. Acronyms and Definitions

### 1.3.1. Acronyms

Acronym	Definition
ADC	Active Dual Consumer
AHLTA	Armed Forces Health Longitudinal Technology Application
AITC	Austin Information Technology Center
API	Application Program Interface
CAIP	Cross-Application Integration Protocol
CDR	Clinical Data Repository
CDS	Clinical Data Services
CHCSII	Composite Health Care System II
CHDR	Clinical Data Repository/Health Data Repository
CPRS	Computerized Patient Record System
DEERS	Defense Enrollment Eligibility Reporting System
DOB	Date of Birth
DoD	Department of Defense
EHR	Electronic Health Records
ETS	Enterprise Technology Services
FN	First Name
FTE	Full Time Equivalent
GUI	Graphical User Interface
HAPI	HL7 Application Program Interface (VHA HL7 Message Library)

<b>Acronym</b>	<b>Definition</b>
HDR	Health Data Repository
HDR IMS	Health Data Repository Interim Solution
HDR II	Health Data Repository II
HL7	Health System 7 messages
ICN	Integration Control Number
ID	Identity
IMDQ	Identity Management / Data Quality
JAXB	Java Architecture for XML Binding
JAXP	Java API for XML Processing
JDK	Java Development Kit
JRE	Java Runtime Environment
JUG	Java UUID Generator
LOE	Level of Effort
LN	Last Name
MPI	Master Patient Index
NDS	National Data System, Naming and Directory Service
PDM	Programming Mistake Detector (used to find bugs in JAVA code)
PDTS	Pharmacy Data Transaction Service
PSL	Person Service Lookup
RAC	Real Application Cluster
RDV	Remote Data View
RSD	Requirement Specification Document
SAN	Storage Area Network
SQA	Software Quality Assurance
SSN	Social Security Number
STS	Standards and Terminology Service
TCP/IP	Transmission Control Protocol/Internet Protocol
VA	Department of Veterans Affairs
UUID	Universally Unique Identifier
VAMC	Department of Veterans Affairs Medical Center
VHIM	Veterans Health Administration Health Information Model
VIE	Vitria Interface Engine
VistA	Veterans Health Information Systems and Technology Architecture
VLER	Virtual Lifetime Electronic Record
VPID	VA Patient ID
VTS	VHIM Template Service
VUID	VHA Unique IDentifiers
XALAN	An XSLT processor for transforming XML documents into HTML, text, or other

Acronym	Definition
	XML document types
XML	eXtensible Markup Language
XSD	XML Schema Document
XSL	Extensible Stylesheet Language
XSLT	XSL Transformation

### 1.3.2. Definitions

Term	Definition
Interoperable Data	Data that may be used by the receiving agency for providing health care, but may not be useful for program or business processes (e.g., clinical reminders and drug-drug or drug allergy checks) requiring the processing of individual data elements and their content.
Computable Data	Refers to data elements passed individually rather than in text blocks so that the data elements can be individually sorted and queried, and will allow the clinical systems to perform medication and allergy checking.
Active Dual Consumer (ADC)	The portion of the Dual Treatable population who has actually been treated by both DoD and VA facilities. Automation further adds the requirement that the patient has been seen at DoD in the past 3 years.
Master Patient Index (MPI)	Enterprise database that enables unique identification of all VA beneficiaries along with their location within the enterprise.

## 1.4. References

- *Interagency CHDR Pharmacy Prototype Concept of Operations (CONOPS)*, version 2.10, March 2009
- *CHDR Phase 2 Systems Requirements Specification (SyRS)*, version 2.14, May 2009
- *CHDR Phase2 Business Rules Version 5.0*
- FHIE Memorandum of Agreement
- HL7 Document Standards, version 2.4, 06 October 2000
- *IEEE Software Engineering Standards, 4th Edition*, The Institute of Electrical and Electronic Engineering, Inc., 1997
- Presidential Review Directive 5, Executive Office of the President, August 1998
- President's Task Force to Improve Health Care Delivery for Our Nation's Veterans, Final Report, May 2003

## **2. Overall Specifications**

### **2.1. Accessibility Specifications**

Any and all user interfaces developed for CHDR 2.1 will be fully compliant with Section 508 specifications and standards as defined by the Federal mandate and adopted by the VA.

### **2.2. Business Rules Specifications**

This section describes at a high-level CHDR business rules related to data transformations. These include necessary filtering of data types such as non-drug allergies, transformations such as converting VA HL7 elements into more descriptive terms for interagency exchange, and outcalls to Enterprise Technology Services (ETS) to convert codesets to VHA Unique IDentifiers (VUIDs) or VUIDs to codesets.

The following business rules will be supported in the CHDR version 2.1 release:

- Domain Filter for data outbound to DoD.
- Allergy Filter for data outbound to DoD.
- ADC Filter for unsolicited updates from VistA.
- Pharmacy Validation.
- CHDR discards any records that do not contain a VUID so the existing mapping table assumes a VUID is received.
- CHDR audits validation failures and reports the failure to DoD.

### **2.3. Design Constraints Specifications**

This section documents the constraints that influence the design of the CHDR system. No constraints have been identified at this time.

### **2.4. Disaster Recovery Specifications**

Nightly back ups are performed by the Austin staff at the Austin Information Technology Center (AITC). Back ups are routinely checked for prevention of failures and disaster.

1. CHDR Audit table is specifically archived after 90 days. Process performed routinely by staff at the AITC every 30 days.
2. All archived data are kept for 3 years; minimum.
3. All nightly back ups are kept for a minimum of one year.
4. CHDR fully leverages any and all good fail-over/disaster practices exercised by the AITC.

### **2.5. Documentation Specifications**

1. CHDR provides online Help with searchable abilities for the Admin GUI user functionality.
2. CHDR User Guide located at [http://vista.med.va.gov/chdr/CHDR\\_Documentation.asp](http://vista.med.va.gov/chdr/CHDR_Documentation.asp).

## 2.6. Functional Specifications

The following table identifies the CHDR Version 2.1 requirements by business need. The functional requirements for this section are located in Section 3.2.1 of the Interagency SyRS document in the section titled “SYRS-CHDR-1100 MANUAL CONTROL OF PATIENT ADC STATUS.”

The interagency functional requirements for this section are located in Section 3.2.2 of the Interagency SyRS document in the section titled “SYRS-CHDR-1150 SPECIFIC DOMAIN TRANSFER REQUEST.” A complete listing of all requirements can be found under the Reference Section. The following table describes the CHDR Version 2.1 Business Requirements.

Business Need (BN)	OWNR Number	Owner Requirement (OWNR)
BN 1: LLB - Provide the ability for the VA or DoD to limit the exchange of inactive outpatient pharmacy data to a maximum of one year (12 months).		
	1.1	Reduce the traffic/volume of inactive (inactive/cancelled/expired) outpatient pharmacy data exchanged via CHDR between VA & DoD.
	1.2	Limit exchange of inactive outpatient pharmacy data between VA and DoD via CHDR to a maximum of one year (12 months) back from the date the record is accessed or flagged as ADC.
	1.3	Parameter of time period will be configurable so it can be changed if necessary in the future.
	1.4	Limit the data look back period to a period of time needed for appropriate medication review, reconciliation, and decision support will provide the following benefits: <ul style="list-style-type: none"> <li>• Reduce the DoD transaction costs for medication records sent to Pharmacy Data Transaction Service/System (PDTs) for drug-drug and drug-allergy checking.</li> <li>• Reduce traffic/volume of less clinically relevant outpatient pharmacy data transmitted between DoD and the VA.</li> <li>• Reduce the amount of storage space required to hold the exchanged data.</li> <li>• Reduce response time of applications displaying CHDR clinical patient data for Veterans with a long history of information.</li> </ul>
BN 2: PSL - Incorporate new version of Person Service Lookup.		
	2.1	CHDR shall use the PSL for searching and looking up patients on Vista systems. CHDR shall communicate with PSL via CAIP.
	2.2	For CHDR this component sends a clinical message through Cross-Application Integration Protocol (CAIP) to a web service and expects an acknowledgement back.
BN 3: GUI upgrade to Spring Webflow.		
	3.1	GUI upgrade to Spring Webflow to improve code maintainability and reusability.

Business Need (BN)	OWNR Number	Owner Requirement (OWNR)
BN 4: VHIM read/write to CDS.		
	4.1	The CHDR 2.x VHIM release enables CHDR to move from Health Level Seven (HL7) messages to the VAs VHIM compliance for both reads and writes for allergy and outpatient pharmacy data. CHDR is responsible to transform HL7 messages received from DoD to the VHIM format to and from CDS.
	4.1	CHDR will be the first client to send VHIM write messages to CDS. VHIM reads are currently already supported by a number of clients for a limited number of clinical domains. Although the CDS architecture is able to accommodate several interfaces for read/write requests, including synchronous and asynchronous variations, the scope of this project is limited to synchronous reads and writes via CDS Web Service invocation from CHDR.
	4.2	CDS ensures compliance with the VHIM data standard by validating payload messages using XML Schema documentation (XSD) supplied directly by the VHIM Template Service (VTS). The VTS is used to search the cache for the template specified in the read request. The support from HDR II/CDS includes: <ul style="list-style-type: none"> <li>• Synchronous VHIM writes from CHDR v2.x for allergy and outpatient domains.</li> <li>• Synchronous VHIM read requests from CHDR v2.x for allergy and outpatient domain results.</li> <li>• Response message back to CHDR v2.x that acknowledges receipt of write message in the form of the create request.</li> <li>• VHIM Message Store to save fully intact VHIM messages.</li> <li>• Error message management for notification of system interruptions and exceptions.</li> <li>• Monitoring reports through online monitoring.</li> </ul>
BN 5: CDS Synchronous reads/writes - CHDR 2.1		
	5.1	CDS Synchronous reads/writes - CHDR 2.1 will write to CDS and receive an acknowledgement, but will ignore the acknowledgement based on future functionality.  The CHDR 2.1 read requests will be synchronous to the extent that CHDR sends a read request and receives a response that is the data requested.
	5.2	CHDR 2.1 eliminates audit of the clinical messages sent to HDR.
BN 6: CAIP upgrade to version 3.0.2 including configuration changes to NDS/CAIP.		
	6.1	CHDR will communicate to external services using infrastructure services, Delivery Service for messaging based asynchronous communications and CAIP for synchronous communication.
	6.2	For CHDR CDS web service would be accessed through Cross-Application Integration Protocol (CAIP) for reads and writes.
	6.3	CHDR shall communicate with Standards and Terminology Service (STS) using CAIP for all terminology translations.

Business Need (BN)	OWNR Number	Owner Requirement (OWNR)
BN 7: CHDR message header for MPI messages.		
	7.1	The CHDR message header for MPI messages will be changed to have a "P" for production and eliminate the current "T" for test.
	7.2	The MSG header of message sent from VA CHDR to the VA MPI contains a field labeled "T" for test rather than "P" for production. If MPI increases their message validation then CHDR messages could fail as a result of this issue. This field is not currently validated by MPI but the requirement is in place based on possible modification of MPI message validation.
BN 8: CHDR truncates unique ID to 20 characters sent to CDS.		
	8.1	As of CHDR v2.x that is VHIM-based, the unique ID that is generated is 32 characters and has been truncated to 20 characters due to a limited field size. With CHDR VHIM there is no longer the limitation for VHIM and CDS. CDS recommends no longer truncating the unique ID/request ID.
BN 9: Fix schematron validation rule.		
	9.1	Currently CHDR 2.0 drops messages with multiple ORC-25.1 because CHDRs validation rule requires all ORC-25.1 to be non-empty. We have seen messages in production that have ORC-25.1 as non-empty. The validation rules must be changed to only check for ORC-25.1 in the first ORC segment.
BN 10: CHDR Admin GUI message "Timeout".		
	10.1	Refer to CQ 19365 - CHDR Admin GUI message stating "Timeout" will be updated to make it clear that message processing will continue.
	10.2	When users initiate a Z01 activation request and there is a delay in response from DoD, the message displayed to users states that the system will process their request but the title states that a timeout has occurred. Many users fail to read the details and instead try to re-activate the patient.
	10.3	The new message will read: Processing Temporarily Delayed The request to change the status of Lastname, Firstname to ACTIVE was sent to Department of Defense. The response from Department of Defense(DoD) has not been received. The system will process this status change request as soon as the response is received from DoD. Please continue with other activities and check back later for the outcome of the request.
BN 11: CHDR -5-digit siteid is sent to DoD causing the Z03 within Z06 to be dropped.		
	11.1	VA is sending 5-digit value in ORC.13.4 in a Z03 within a Z06. The 5-digit siteid is not mapped in the DoD CHDR , therefore, the individual Z03 failed to store in the DoD side. Examples of 5-digit site ids are: 53752, 61852, 65652, 65752, 64652, 69552, 55652, 55852, 57852, 60552. From these examples, the last two digits are actually the File id.
BN 12: Upgrade 3 <sup>rd</sup> party libraries.		
	12.1	Upgrade CHDR to Spring Framework 3.0.5.

Business Need (BN)	OWNR Number	Owner Requirement (OWNR)
	12.2	Upgrade to CDS 3.0 client and common libraries.
	12.3	Upgrade Hibernate to version 3.6.5.
	12.4	Upgrade CHDR to log4j version 1.2.16.
	12.5	Upgrade CHDR to version 2.2.1 of Spring Web Flow.
	12.6	Upgrade CHDR to junit 4.8.2.
	12.7	<p>Upgrade CHDR to VTS 2.0.</p> <p>The primary change to v2.0 is the translation of one or many DoD mediation codes to a single VUID. The translations currently are done on a one meditation code to one VUID basis. This upgrade will provide consistent order/drug-allergy checks across VA, greater information transfer/exchange between VA and DoD, and increased flexibility to manage legacy data.</p> <p>VTS supplies a Java runtime (.JAR) and supporting Oracle schemas complete with data mappings to the CHDR infrastructure. The CHDR application receives terminology mediation data codes from the DoD, such as RxNorm, and then makes translation calls to the VTS “.JAR” for the VA equivalent. STS maintains supporting databases that contain the mappings required to support the data exchange.</p> <p>VTS is a remote terminology translation service that is used by CHDR for translating VA proprietary terminology codes known as VUIDs to and from industry standard code systems as indicated below:</p> <ol style="list-style-type: none"> <li>1. Translates UMLS codes from DoD into VA VUIDs.</li> <li>2. Translates VA VUIDs from VA into UMLS codes sent to DoD.</li> <li>3. Translates SNOMED codes from DoD into VA VUIDs.</li> <li>4. Translates VA VUIDs from VA into SNOMED codes sent to DoD.</li> <li>5. Translates RXNORM codes from DOD into VA VUIDs.</li> <li>6. Translates VA VUIDs from VA into RXNORM codes sent to DoD.</li> </ol> <p>The code mappings are supported in an Oracle database, which VTS queries for performing these translations for CHDR.</p> <p>There is a business service in CHDR, the terminology service, which is called by the business rule transformations to perform the terminology translations.</p>
	BN 13: Remove the portrait feature set in PSL from CHDR capabilities.	
	13.1	PSL picture Icon error occurs when a user clicks on the picture icon for a patient in the PSL patient list. An empty picture frame appears along with an authentication dialog. CHDR is working as designed, however to allow this functionality and prevent the error the users need to be registered in the NDS Microsoft Directory.
	13.2	Modify the Configurable parameter in the PLS properties file (CHDR EAR) and turn off the capability. This enhancement will remove the portrait feature set of PSL from CHDR capabilities. If the user wants to enable the functionality in the future there procedure will be to register in the NDS Microsoft directory.
BN 14: Correct Patient Lookup field in CHDR GUI.		

Business Need (BN)	OWNR Number	Owner Requirement (OWNR)
	14.1	Correct the function of the PATIENT LOOKUP button to refresh the screen to get back to the Patient Lookup search window and search for a new patient instead of researching the same patient as previously entered without having to log entirely off CHDR and the log back in.
	14.2	Clear the search criteria so that the prior patient information is removed when a new search is done. Remove the prior values so that a new patient can be refreshed and researched.
BN 15: Vulnerability scan report - Security Defects.		
	15.1	Correct security defects found in the AITC Security Vulnerability Report. All files referenced will be found in CHDR-WEB.
	15.2	Implement code changes to CHDR to rectify the security errors. Modifying the variable named "bannedRequestAttributes" provides a definitive spot to restrict additional request attributes from being displayed.
BN 16: VA CHDR -5-Digit Site-ID needs new business rule implemented.		
	16.1	Modify the current search criteria - existence of an '_' to parse out the facility ID. Some historical data does not contain this character, so as a result a 5 digit facility ID is sent to DoD. DoD fails to process these messages since it is an invalid facility ID
	16.2	New business rules will be written to accommodate the 5-Digit Site-ID.
BN 17: First name optional in MPI/VistA. Replace first name assertion with business error message.		
	17.1	The first name is optional in the MPI and VistA. CHDR currently applies an assertion in "chdr-web" to the first name just before validating the Integration Control Number (ICN). If the first name does not exist, the assertion will throw a RuntimeException and display the exception information to the user.
	17.2	The first name is not optional for CHDR. CHDR requires the first name for sending Z01 messages to the DoD. Therefore when there is not a first name specified, a business error should be displayed to the user instead of the RuntimeException error.
BN 18: WebLogic integration with the multi-data source is not supporting failover based on the RAC configuration.		
	18.1	The WebLogic driver used by CHDR does not support an Oracle failure. As a result, if the Oracle data source is suspended, the system fails to select the data source that is active. When this occurs, the end user is unable to sign in to the CHDR Admin GUI.
	18.2	CHDR has acquired an evaluation copy of a new driver from Data Direct that is supposed to support both Oracle failover and hibernate.
	18.3	CHDR migration plans are to utilize the new version of hibernate and failover is required.

## 2.7. Graphical User Interface (GUI) Specifications

The following are the CHDR Version 2.1 user interface specifications:

- Limit access to the system based on user's role or permissions.
- Provide the ability to view all exchange partners via VistAWeb and CPRS.

## 2.8. Multi-Divisional Specifications

System platforms and applications in use today include CPRS, CPRS RDV, VistAWeb, and VistA.

The CHDR Admin GUI provides multi-division capability based on the ONE-VA approach to support multiple VA health care facilities to perform all business and patient care functions. Users can view data across location domains according to the user's permissions (e.g., view data for multiple sites, wards, pharmacies, clinics, etc.).

For security reasons and to ensure sensitive patient confidentiality, each Veterans Affairs Medical Center (VAMC) site must have its information and proxy access codes entered into the CHDR national server. Only the primary site must configure the CONNECTOR, AAC CHDR proxy. Any VAMC location, including remote divisions where there will be CHDR users, must be communicated to the national server configuration team.

For example, site "520 Biloxi VAMC" must have the CHDR proxy user defined on the production system. In addition, site "520BZ Pensacola OPC" must be communicated to the configuration team for addition as a selectable site. The additional site division will use the same proxy access and verify code access as the primary site.

## 2.9. Performance Specifications

The CHDR system will comply with the following performance specifications:

VA Performance Requirements:

- [future] The VA CHDR system shall be capable of handling a single domain transfer (Lab Chem & Hem) in addition to normal system traffic on the existing patient population at the time of Lab release, spanning a 4 week period.
- [future] The VA CHDR system shall be capable of handling 800,000 ADC activations in addition to normal system traffic, spanning a 2 year period of time.
- [future] The VA CHDR system shall be capable of handling update and merge traffic for an ADC population of 800,000 ADC patients.
- The VA CHDR system shall be capable of handling 1600 new ADC activations per day and typical daily update traffic.
- The system needs to be available 99.99% of the time, 24 hours a day/7 days a week.

Clinical Updates Performance Requirements:

- If a VA Information System User performs a triggering action on the patient's allergy list, the system shall update the DoD Information System within 12 seconds, 90% of the time (in the United States or any of its territories).
- If a VA Information System User performs a triggering action on the patient's outpatient pharmacy record, the system shall update the DoD Information System within 12 seconds, 90% of the time (in the United States or any of its territories).

#### Batch/Historical Exchange Performance Requirements:

- If a VA Information System patient is identified as a DoD Information System patient, the system shall request all pertinent patient data from the DoD Information System within 2 seconds, 90% of the time (in the United States or any of its territories).
- Upon receipt of a DoD Information System patient data request, the VA CHDR System shall return all pertinent patient data (e.g. medication and allergy lists) to the DoD CHDR System within 120 seconds, 90% of the time (in the United States or any of its territories).

#### VA Scalability Requirements:

- VA CHDR shall process messages quicker.
- VA CHDR shall support greater throughput.
- VA CHDR shall increase system reliability.
- VA CHDR shall be clusterable.
- VA CHDR shall have greater capability for rollback and retry.

## 2.10. Quality Attributes Specifications

The CHDR system will comply with the quality specifications set forth in the VLER Program Software Quality Acceptance (SQA) Plan, Version 1.3. Following types of testing will be done to ensure the quality of the system:

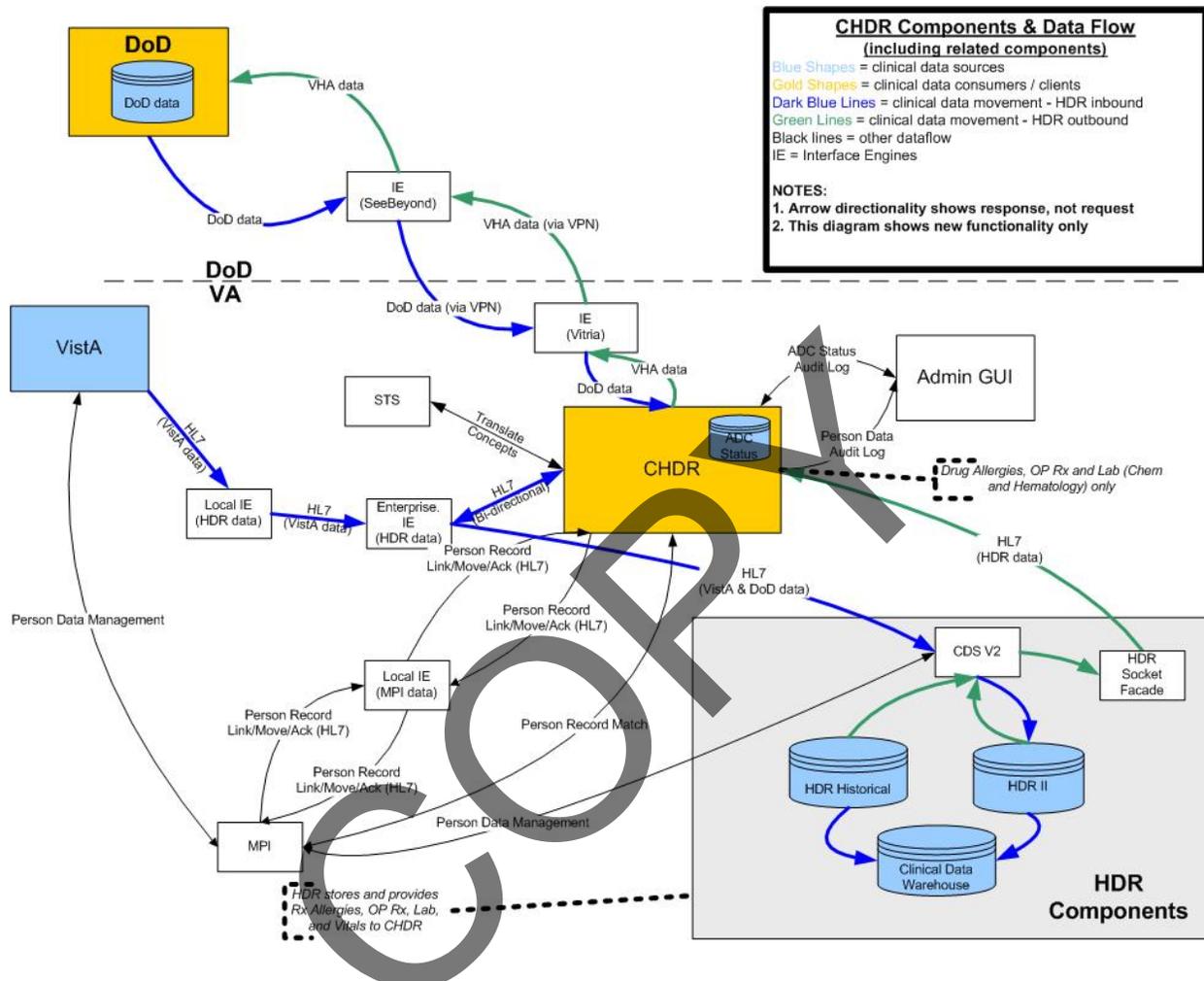
- Development Testing
- System and Integration Testing
- Go No Go Testing

## 2.11. Reliability Specifications

The CHDR system provides real-time clinical updates between systems and, as such, must be operational in a manner consistent with HDR reliability standards for availability. Data exchanged by the system must be accurate but it is recognized that data that (1) fails validation or (2) fails to mediate properly, may be discarded. This issue was presented to a board of clinicians whom determined the need for more data (i.e. Interagency data and order checks) outweighs the risk of incomplete data.

## 2.12. Scope of Integration

The following diagram illustrates CHDR product and related services diagram.



## 2.13. Security Specifications

CHDR adheres to VHA Security Policies, and access to service administration component functions and data is only granted to authorized administrative users, and requires the user to enter an access and verify code.

## 2.14. System Features

Please refer to section 2, Overall Specifications.

## 2.15. Usability Specifications

Normal clinical users require very little training. DoD data will be available via VistAWeb and potentially CPRS RDV via existing user process. Limited training will be provided to explain where the DoD and CHDR data displays and where to look for the data in VistAWeb and CPRS. Training also includes explanations for the need to manually mark patients ADC, and to ensure field staff understands that only Active Dual Consumers will have DoD data displayed.

## 3. Applicable Standards

The VA CHDR product shall adhere to all known VA standards and conventions.

The Admin GUI shall conform to 508 guidelines. See <http://www.access-board.gov/sec508/standards.htm> for specific requirements.

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## 4. Interfaces

### 4.1. Communications Interfaces

#### Messaging and Communication Requirements:

- The requirements for this section are located in Section 3.3.3 of the Interagency SyRS document in the section titled “SYRS-CHDR-5100 Messaging and Communications Requirements.”

#### VA Messaging and Communication Requirements:

- All asynchronous communication interfaces shall use the Vitria Interface Engine (VIE).
- Synchronous communication interfaces to MPI and CDS shall be via TCP/IP sockets.
- Synchronous communication interfaces to STS shall use CAIP.
- CHDR shall be a J2EE application and shall be deployed on a JEE compliant application server.
- CHDR shall communicate via JMS queues for all internal asynchronous communication.
- CHDR shall use PSL for person services lookup.
- CHDR shall use KAAJEE/VistALink authentication for user authentication.

### 4.2. Hardware Interfaces

- CHDR shall use Linux/HP-UX hosting WebLogic Server 10.3 with redundant network cards and multiple CPUs.
- File stores, message stores shall use drives from a Storage Area Network (SAN).
- Local disk shall be used for log files.

### 4.3. Software Interfaces

- CHDR shall use Hibernate for database operations and object relational (OR) mapping.
- CHDR shall use Ant as the build tool for building the deployment archives.
- CHDR shall use Apache Commons libraries for logging.
- CHDR shall use HAPI libraries for converting XML to ER7 and ER7 to XML transformations.
- CHDR shall use Dozer for mapping POJO (plain old java objects).
- CHDR shall use EH Cache for caching database objects.
- CHDR shall use the EJB 3.0 persistence API and Hibernate Entity Manager.
- CHDR shall use the Spring Framework for dependency injection.
- CHDR shall use the Java UUID Generator (JUG) for generating UUIDs.
- CHDR shall use WebLogic Server 10.x as the J2EE application server.
- CHDR shall use XALAN for XSLT stylesheet processing.
- CHDR shall use Xerces for JAXP processing.
- CHDR shall use Checkstyle for conforming to Java Coding Standards.
- CHDR shall use FindBugs and PMD to find bugs.
- CHDR shall use the WebLogic System Libraries for JEE implementation.
- CHDR shall use the Sun JDK/JRE for developing Java based application.
- CHDR shall use JAXB for XML binding.

## 4.4. User Interfaces

CHDR provides a single user interface (CHDR Admin GUI) that provides users the ability to (1) View or change a patient's sharing status, (2) determine system status, and (3) view audit details. The GUI is described in greater detail and length in the *CHDR User Guide* located on the CHDR website. Clinical users view CHDR data using their existing tools, VistAWeb and CPRS.

## 5. Legal, Copyright, and Other Notices

N/A

## 6. Purchased Components

N/A

## 7. User Class Characteristics

The target users of the CHDR clinical data include staff responsible for providing clinical care and dispensing pharmacy drugs and viewing patient records in CPRS or VistAWeb. Target users also include site staff that will identify and flag ADC patients using the CHDR Admin GUI.

## 8. Estimation

The estimate for the size and labor hours required to complete the project can be found by referring to the project plan in Primavera.

# Attachment A - Approval Signatures

This section is used to document the approval of the Requirements Specification Document during the Formal Review. The review should be ideally conducted face to face where signatures can be obtained 'live' during the review however the following forms of approval are acceptable:

1. Physical signatures obtained face to face or via fax.
2. Digital signatures tied cryptographically to the signer.
3. /es/ in the signature block provided that a separate digitally signed e-mail indicating the signer's approval is provided and kept with the document.

## REVIEW DATE:

SCRIBE: Captured via track changes

<u>//es//George Zachariah</u> <i>George Zachariah, Business Sponsor</i>	<u>08/19/2011</u> Date Signed
<u>//es//Dick Rickard</u> <i>Dick Rickard, CHDR IT Program Manager</i>	<u>08/19/2011</u> Date Signed
<u>//es//Lyle Severson</u> <i>Lyle Severson, Development Project Manager</i>	<u>8/16/2011</u> Date Signed
<u>//es//Larry Boland</u> <i>Larry Boland, CHDR Support Services Program Manager</i>	<u>8/16/2011</u> Date Signed
<u>//es// Don Reick</u> <i>Don Reick, VLER PMO Program Manager</i>	<u>8/15/2011</u> Date Signed

