

# **VistA Lab Enhancements Auto Verification / Auto Release**

## **Lab Auto Release 1.0 (LR\*5.2\*458 & LA\*5.2\*88)**

**And Warranty Release Patches: LA\*5.2\*94 & LR\*5.2\*475**

### **User Guide**

### **Version 0.6**



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## Revision History

Date	Revision	Description	Author
12/1/16	0.6	Added Warranty Release: LA*5.2*94 & LR*5.2*475 information	REDACTED
6/28/2016	0.5	Final peer review; remove template's instructional text (blue)	REDACTED
6/24/2016	0.4	Updated support information, clarified as necessary	REDACTED
06/23/2016	0.3	Merge edits from peer reviews; formatted examples of screen/print shots.	REDACTED
6/10/16	0.2	Updates	SME input
05/11/2016	0.1	Draft	VLE_PMO

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# **1. Introduction**

## **1.1. Purpose**

This Laboratory software enhancement will enable Auto Verification and Auto Release of normal lab results. Initially developed at the Kansas City Veterans Affairs Medical Center (VAMC), this new process involves automatic review and release of test results based on lab-established set of boundaries, also referred as rules, rule sets, and algorithms. Lab results that are in a "normal" range, as pre-determined by the laboratory, will transmit directly from the middleware to VistA Laboratory files and on to Computerized Patient Record System (CPRS) without the intermediate step of requiring a lab technologist to manually review and sign off on these normal lab results. This process will eliminate the need for a qualified technologist to manually approve all "normal" results before those results are filed in VistA Laboratory files and available for clinicians to view in CPRS.

Each VAMC site will determine which instruments will use this functionality as it can be set up on an instrument by instrument basis. Essentially VistA Laboratory instruments are set up as either being available for auto verification or not available for auto verification. If an instrument is set up for auto verification, then a lab result passing the rule set will be filed by the middleware in VistA Laboratory files and available in CPRS and a lab result that cannot pass the rule set will be held in the middleware system for review by a lab technologist.

## **1.2. Document Orientation**

### **1.2.1. Organization of the Manual**

This manual is prepared primarily for Laboratory Information Managers (LIM) or those acting in that role, and for those Laboratory representatives installing, supporting, and maintaining auto verification functions.

### **1.2.2. Assumptions**

The users of the laboratory information automatically released include physicians, nurses, laboratory staff, and Veterans. However, it is important to note that for the VistA patches providing the new Auto Release Capabilities, this will be transparent to the end users of the information. Only LIMs and Medical Technologists may have a need to review processing queues.

### **1.2.3. Coordination**

The site LIM, or site application coordinator if designated, is responsible for the implementation and coordination of these patches with local or Regional Office of Information & Technology (OI&T) personnel and Laboratory operations.

- No downtime is required for installation of these patches, however, testing to confirm installation and normal operation is still recommended.

## 1.2.4. Disclaimers

### 1.2.4.1. Software Disclaimer

This software was developed at the Department of Veterans Affairs (VA) by employees of the Federal Government in the course of their official duties. Pursuant to title 17 Section 105 of the United States Code this software is not subject to copyright protection and is in the public domain. VA assumes no responsibility whatsoever for its use by other parties, and makes no guarantees, expressed or implied, about its quality, reliability, or any other characteristic. We would appreciate acknowledgement if the software is used. This software can be redistributed and/or modified freely provided that any derivative works bear some notice that they are derived from it, and any modified versions bear some notice that they have been modified.

Blood Bank Review:

EFFECT ON BLOOD BANK FUNCTIONAL REQUIREMENTS: Patches LA\*5.2\*88 and LR\*5.2\*458 do not contain any changes to the VISTA BLOOD BANK Software as defined by ProPath standard titled: BBM Team Review of VistA Patches.

EFFECT ON BLOOD BANK FUNCTIONAL REQUIREMENTS: Patches LA\*5.2\*88 and LR\*5.2\*458 do not alter or modify any software design safeguards or safety critical elements functions.

RISK ANALYSIS: Changes made by patches LA\*5.2\*88 and LR\*5.2\*458 have no effect on Blood Bank software functionality, therefore RISK is none.

VALIDATION REQUIREMENTS BY OPTION: Because of the nature of the changes made, no specific validation requirements exist as a result of installation of this patch.

### 1.2.4.2. Documentation Disclaimer


The appearance of external hyperlink references in this manual does not constitute endorsement by the VA of this Web site or the information, products, or services contained therein. The VA does not exercise any editorial control over the information you may find at these locations. Such links are provided and are consistent with the stated purpose of the VA.


## 1.2.5. Documentation Conventions

This manual uses several methods to highlight different aspects of the material.

Various symbols are used throughout the documentation to alert the reader to special information. The following table gives a description of each of these symbols.

**Table 1. Documentation Symbols and Descriptions**

Symbol	Description
	NOTE: Used to inform the reader of general information including references to additional reading material.

Symbol	Description
	<b>CAUTION:</b> Used to caution the reader to take special notice of critical information.

- “Snapshots” of computer online displays (i.e., character-based screen captures/dialogs) and computer source code are shown in a non-proportional font and enclosed within a box. Also included are Graphical User Interface (GUI) Microsoft Windows images (i.e., dialogs or forms).
- User's responses to online prompts (e.g., manual entry, taps, clicks, etc.) will be **boldface** type.
- All uppercase is reserved for the representation of acronyms, M code, variable names, or the formal name of options, field and file names, and security key (e.g., the XUPROGMODE key).

### 1.2.6. References and Resources

The following documents have been updated/added as a result of the enhancements made for Auto Verification. These are available at SOFTWARE.DIR and the VistA Documentation Library (VDL) website as a secondary source.

- Lab UI HL V1.6 Upgrade Interface Specifications Document
- LR\*5.2\*458 and LA\*5.2\*88-Universal Interface-Release Notes
- LR\*5.2\*458 and LA\*5.2\*88-(Lab Auto Release 1.0) User Guide
- LR\*5.2\*458 and LA\*5.2\*88-(Lab Auto Release 1.0) Technical Manual/Security Guide

Reference material for Lab Universal Interface 1.6, also available on SOFTWARE.DIR and VDL as a secondary source:

- Lab UI HL V1.6 Upgrade Installation and User Guide LA\*5.2\*66

## 1.3. National Service Desk and Organizational Contacts

VistA support follows your site's already functioning support structure, and any issues with Auto Verification installation, set up, or use within VistA should be directed to your normal support channels, most common listed in the table 2 below.

VistA support representatives will not be able to assist with commercial off-the-shelf (COTS) vendor products, their rules creation and use, troubleshooting, and operations; these should be directed to your COTS middleware vendor.

**Table 2. Tier Support Contact Information for VistA**

Name	Role	Org	Contact Info
LIM	Tier 0 Support	VHA	Site Laboratory Information Manager
OI&T Local Support	Tier 2 Support	OI&T	OI&T Local Helpdesk
OI&T National Service Desk	Tier 1 Support	OI&T	<a href="mailto:Nationalservicedeskanr@va.gov">Nationalservicedeskanr@va.gov</a> 1-855-673-4357
Health Product Support	Tier 2 Support	VHA	<a href="mailto:Nationalservicedeskanr@va.gov">Nationalservicedeskanr@va.gov</a> 1-855-673-4357
VistA Patch Maintenance	Tier 3 Application Support	OI&T	<a href="mailto:Nationalservicedeskanr@va.gov">Nationalservicedeskanr@va.gov</a> 1-855-673-4357

**Table 3. Tier Support Contact Information for COTS GIM**

Name	Role	Org	Contact Info
LIM	Tier 0 Support	VHA	Site Laboratory Information Manager
COTS Vendor	Tier 2 Support	Vendor	COTS Vendor

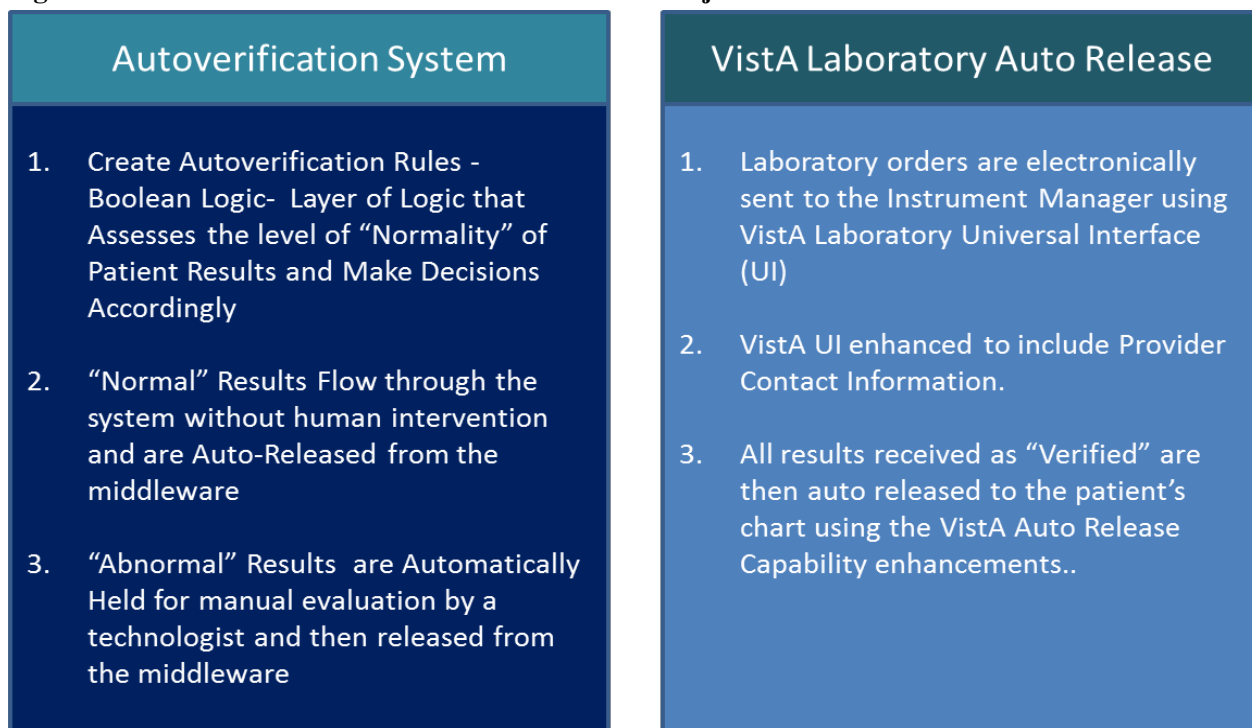
## 2. System Summary

The VistA Auto Release Capability works in conjunction with an external COTS product that allows the VA to implement rules that evaluate results transmitted by Laboratory instrumentation and verifies them automatically or holds them for review and manual release by a Medical Technologist (MT). Once verified by either middleware rules or an MT and sent to VistA via the Laboratory Universal Interface, the new VistA Auto Release Capability accepts, stores, and makes the results available to clinical providers without the need for human interaction.

The Figure 1 section outlines the major functions of the VistA Auto Release Capability enhancements as well as the COTS Auto Verification System. For purposes of this release all testing was performed with the predominant COTS system in use throughout the VA, the Data Innovations (DI) Instrument Manager (IM).



**Figure 1: VistA Auto Verification and Auto Release Major Functions**



The VistA Auto Release Capability is an enhancement to the VistA Legacy Laboratory module which gives VistA Laboratory the ability to accept automatically verified results from COTS middleware and automatically release those results.

The Figure 1 diagram below shows the context of the VistA Legacy Laboratory Auto Release Capability to the COTS Auto Verification System using such a COTS product. In this case, Instrument Manager by Data Innovations is shown.

**Figure 2: VistA Auto Release Enhancement to the VistA Lab Application - Context Diagram**

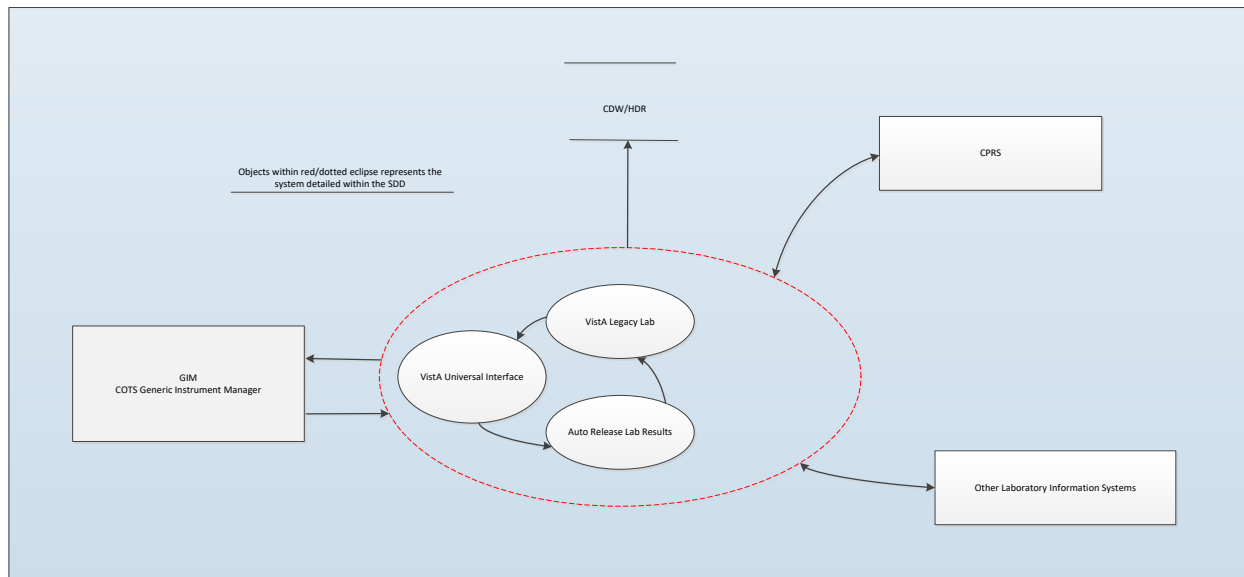


Table 4, below, describes the information in the Application Context Diagram.

**Table 4: Application Context Description**

ID	Name	Description	Interface Name	Interface System	
1	VistA Laboratory System – Auto Release Enhancements	Shows how VistA Legacy Laboratory system is enhanced to include the ability to Auto Release verified results.	ORM Order Message ORU Result Message Remote Procedure Calls (many)- existing	Data Innovations CPRS Health Data Repository (HDR) Clinical Data Warehouse (CDW) and 32+ downstream systems.	
ID	Name	Related Object	Input Messages	Output Messages	External Party
2	External Laboratory Systems	External Lab	Lab Orders	Lab Results	Varies: VistA, LabCorp, Quest, etc.
ID	Name	Related Object	Input Messages	Output Messages	External Party
3	CPRS	Remote Procedure Calls	Lab Orders	Lab Results	N/A
ID	Name	Data Stored		Owner	Access
4	HDR & CDW	Laboratory Results		OIT	HL7 Interface

## 2.1.1. High-Level Application Design

This section describes the high level design for the VistA Auto Release Capability, shown in Figure 3.

**Figure 3: High-Level Application Diagram**

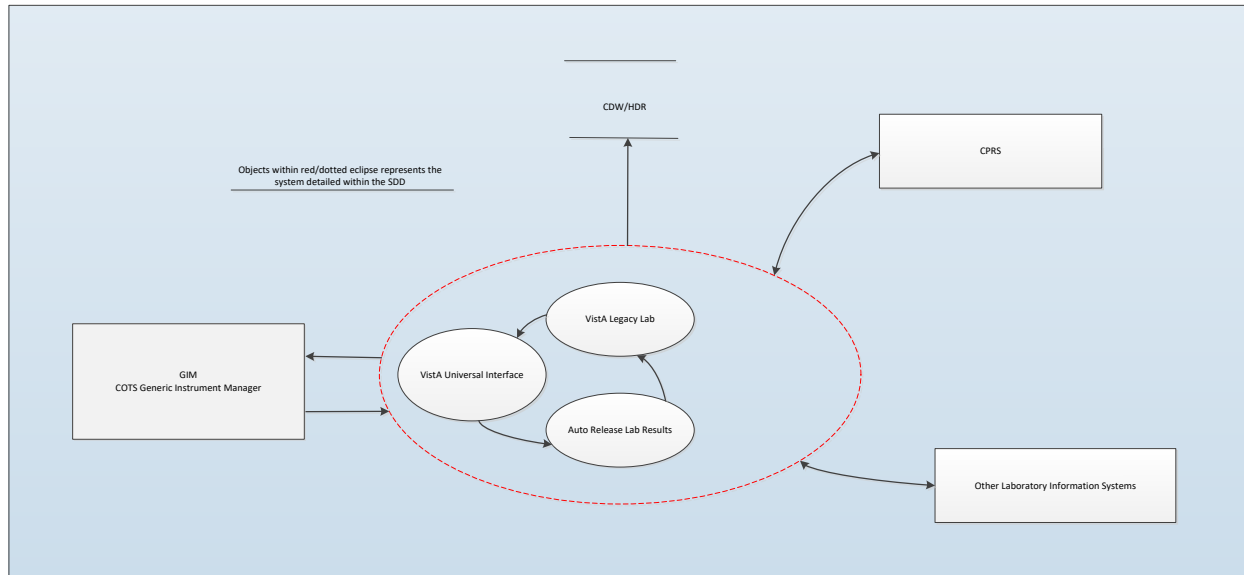


Table 5, below, describes Objects in the High Level Application Diagram.

**Table 5: Objects in the High Level Application Diagram**

ID	Name	Description	Service or Legacy Code
1	VistA Legacy Lab	Manages Laboratory Order Requests & Result Reports	VistA
2	VistA Universal Interface	Manages interfaces between VistA Lab and Instruments/Middleware	VistA
3	Auto Release	New Routines added to automatically release externally verified results	VistA

Table 6, below, describes the Internal Data Stores.

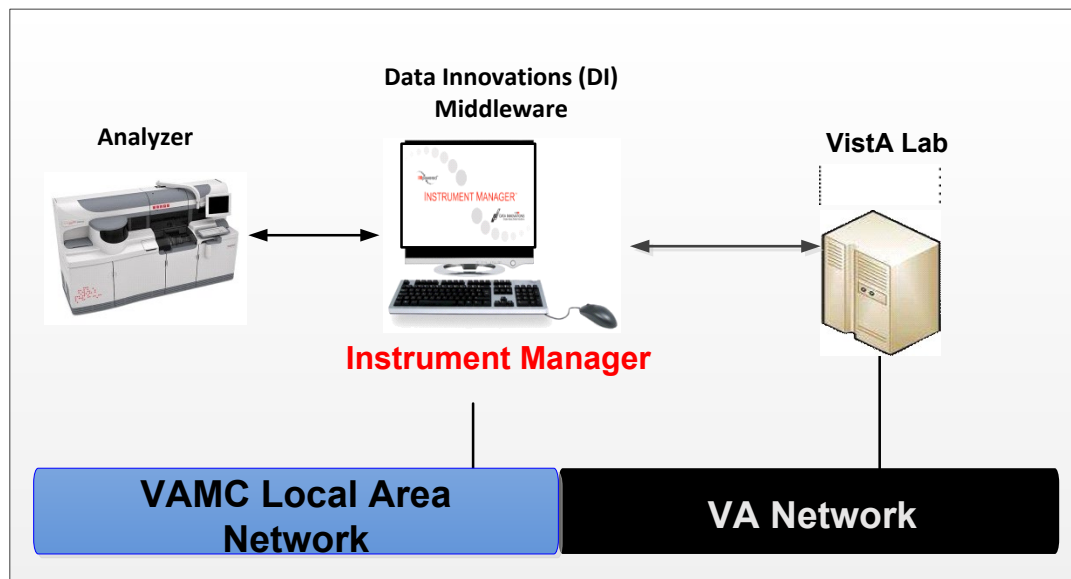
**Table6: Internal Data Stores**

ID	Name	Data Stored	Steward	Access
No Changes	VistA	Lab order requests and Lab results	No Changes	No Changes

## 2.2. System Configuration

The following diagram shows the Data Innovations middleware, Instrument Manager and the Laboratory instruments on the local area network, while the VistA systems may be locally or regionally located and on the VA's wide area network.

**Figure4: VistA Lab System Configuration**



### 2.2.1. Configuration Considerations for External Generic Interface Manager (GIM)

1. Ensure the minimum version level meets specifications
  - a. i.e. (8.13.03) of Data Innovations (DI) Instrument Manager and the latest DI VA driver (currently V 8.00.0017). Follow vendor provided instructions to properly configure for Auto Verification.
2. Make sure all Laboratory Techs have the LRVERIFY security key in VistA. If not done, and a user manually verifies a result on IM and sends to VistA it will fail and generate an interface Application Error. See item #5 in section 2.2.2 below for a report that will list users and related security keys to be used as source document to configure generic interface manager (GIM). Also the Troubleshooting section in this guide.

### 2.2.2. Initial Configuration to Activate VistA Auto Release

1. Set Auto Release Results System Wide parameter to enabled.

The Auto Release Results System Wide [LA7UI AUTO RELEASE MASTER] parameter is a system-wide switch that can quickly enable/disable the Auto Release process. When this parameter is set to Disabled, it will disable the Auto Release process on this system, and will override the settings in the Auto Instrument file. When enabled, this will enable

the Auto Release process for instruments that are marked for Auto Release (via the Auto Release field... see step #4 below).

```
Select Lab Universal Interface Menu Option: UIS Lab Universal Interface Setup
Select one of the following:

      1      LA7 MESSAGE PARAMETER (#62.48)
      2      AUTO INSTRUMENT (#62.4)
      3      Auto Release System Parameter
      4      Configuration Report (132 COL)
      5      Holders of Lab keys
      6      Ordering Provider Contact Parameter
      7      Convert LAB UI 1.6 to Enhanced Acknowledgement Mode

Select which file to setup: 3 Auto Release System Parameter

Auto Release Results System Wide may be set for the following:

      1  System      SYS      [xxxxxxxxxxxxxxxxxxx]
     10  Package     PKG      [LAB MESSAGING]

Enter selection: 1 System  xxxx.xxxx.xxx.xx.xxx

      Setting Auto Release Results System Wide for System: xxxx.xxxx.xxx.xx.xxx
      AUTO RELEASE RESULTS SYSTEM WIDE: YES (ENABLED)// ??

This parameter is used to determine whether lab results are sent to the
auto release process.

      AUTO RELEASE RESULTS SYSTEM WIDE: YES (ENABLED)// ?

Do you want to Auto Release Results System Wide?.

      Select one of the following:

          0      NO (DISABLED)
          1      YES (ENABLED)

      AUTO RELEASE RESULTS SYSTEM WIDE: YES (ENABLED)//
```

## 2. Enable the instrument(s) for Auto Release.

The Auto Release field (#99) in the Auto Instrument file (#62.4) enables Auto Release on an instrument by instrument basis. It allows for different levels of granularity.

- **Data Type:** AUTO RELEASE (or any data type)
  - 0: NO
  - 1: YES
  - 2: AUTO VERIFY ONLY
  - 3: USER RELEASE ONLY
- **Description:** If results received via this auto instrument entry can be associated with an external auto or user verification system then enable this field.

This field will be checked in conjunction with the Auto Release master switch parameter LA7UI AUTO RELEASE MASTER and the specific HL7 message

containing the results to determine if the lab results should be processed by the Laboratory Auto Release process.



It can be configured at several levels of granularity:

- 0 - no auto release for this auto instrument
- 1 - yes instrument is enabled for *both* auto and user verification
- 2 - yes however, only release results that have been *auto verified*
- 3 – yes however, only release results that have been *user verified, no auto verification*.

Select Lab Universal Interface Menu Option: **UIS** Lab Universal Interface Setup

LAB UNIVERSAL INTERFACE SETUP

SELECT ONE OF THE FOLLOWING:

- |          |   |
|----------|---|
| 1        | LA7 MESSAGE PARAMETER (#62.48)                      |
| <b>2</b> | <b>AUTO INSTRUMENT (#62.4)</b>                      |
| 3        | AUTO RELEASE SYSTEM PARAMETER                       |
| 4        | CONFIGURATION REPORT (132 COL)                      |
| 5        | HOLDERS OF LAB KEYS                                 |
| 6        | ORDERING PROVIDER CONTACT PARAMETER                 |
| 7        | CONVERT LAB UI 1.6 TO ENHANCED ACKNOWLEDGEMENT MODE |

SELECT WHICH FUNCTION TO CONFIGURE/REPORT: **2** AUTO INSTRUMENT (#62.4)

SELECT AUTO INSTRUMENT NAME: **ARCH**

- |   |                  |
|---|------------------|
| 1 | ARCH1            |
| 2 | ARCH2            |
| 3 | ARCHC            |
| 4 | ARCH-I1000 I1000 |
| 5 | ARCHI C-ARCHI    |

CHOOSE 1-5: **1** ARCH1

NAME: ARCH1//

LOAD/WORK LIST: ARCH//

ENTRY FOR LAGEN ROUTINE: ACCESSION CROSS-REFERENCE  
//

CROSS LINKED BY: ID//

MESSAGE CONFIGURATION: LA7UI9//

METHOD: ARCH1//

DEFAULT ACCESSION AREA: CHEMISTRY//

OVERLAY DATA: YES//

STORE REMARKS: YES//

VENDOR CARD ADDRESS:

SEND TRAY/CUP LOCATION:

AUTO DOWNLOAD:

AUTO RELEASE: YES// **??**

If results received via this auto instrument entry can be associated with an external auto or user verification system then enable this field.

This field will be checked in conjunction with the auto release master switch parameter LA7UI AUTO RELEASE MASTER and the specific HL7 message containing the results to determine if the lab results should be processed by the Laboratory Auto Release process.

It can be configured at several levels of granularity.

- 0 - no auto release for this auto instrument
- 1 - yes instrument is enabled for auto and user verification
- 2 - yes however only process results that have been auto verified
- 3 - yes however only process results that have been user verified, no auto verification.

Choose from:

- 0 NO
- 1 YES
- 2 AUTO VERIFY ONLY
- 3 USER RELEASE ONLY

**SELECT TEST: GLUCOSE**

TEST: GLUCOSE//  
UI TEST CODE: GLU//  
DOWNLOAD TO INSTRUMENT: YES//  
ACCESSION AREA: CHEMISTRY//  
SPECIMEN: PLASMA//  
URGENCY:  
NUMBER OF DECIMAL PLACES: 0//  
CONVERT RESULT TO REMARK:  
ACCEPT RESULTS FOR THIS TEST: YES//  
IGNORE RESULTS NOT ORDERED:  
REMOVE SPACES FROM RESULT:  
STORE REMARKS: YES//  
REMARK PREFIX:

**SELECT TEST:**

**SELECT SITE NOTES DATE: NOV 15,2015//**

SITE NOTES DATE: NOV 15,2015//

TEXT:

SET AI FOR AUTO-RELEASE-LTW

EDIT? NO//

SETTING FIELDS FOR AUTO DOWNLOAD FILE BUILD ENTRY (#93) TO: EN  
FILE BUILD ROUTINE (#94) TO: LA7UID

...DONE

### 3. Create Load/List profile for Auto Release

Use option Edit the default parameters Load/Work list [LRLLE DFT] to configure the load/work list. Auto Release can use an existing load/work list or can create a new one. This load list should be associated with the corresponding auto instrument file (#62.4) entry.

- a. The Default Reference Laboratory (#2.3) should be set to the Institution that should be used as the performing and releasing lab for results released via the Auto Release process.



Failure to do so will cause all results to generate a user division error in Vista

- b. The Auto Release field (#2.4) in the Load/Work List file (#68.2) is used to mark a profile as being used by the Auto Release process.



There should only be one profile flagged per load list.

**Data Type:** AUTO RELEASE (or any data type)

- i. 0: NO
- ii. 1: YES

**Description:** If an auto release process to accept and file laboratory results from an external system using auto verification and/or human verification is being used then this field indicates to the auto release process which profile on this load list to use to process the lab results.



**There should only be one profile flagged per load list.**



SELECT OPTION NAME: **LRLLE DFT** EDIT THE DEFAULT PARAMETERS LOAD/WORK LIST.  
EDIT THE DEFAULT PARAMETERS LOAD/WORK LIST.

SELECT LOAD/WORK LIST NAME: **AUTO RELEASE**

LOAD TRANSFORM: UNIVERSAL//

TYPE: SEQUENCE/BATCH//

CUPS PER TRAY: 0//

FULL TRAY'S ONLY: NO//

EXPAND PANELS ON PRINT: YES//

INITIAL SETUP:

VERIFY BY: ACCESSION//

SUPPRESS SEQUENCE #: NO//

INCLUDE UNCOLLECTED ACCESSIONS: NO//

SHORT TEST LIST: NO//

WKLD METHOD: AUTO//

SELECT PROFILE: AUTO RELEASE **CHEMISTRY**

ACCESSION AREA: CHEMISTRY//

UID VERIFICATION: ANY ACCESSION AREA//

STORE DUPLICATE COMMENTS: YES//

**DEFAULT REFERENCE LABORATORY: ZZ ALBANY//**

**AUTO RELEASE: YES//**

SELECT PROFILE:

4. Run Configuration Report to check the Auto Release configuration and to assist in configuring the middleware.

Select Lab Universal Interface Menu Option: **Lab Universal Interface Setup**

Select one of the following:

- 1 LA7 MESSAGE PARAMETER (#62.48)
- 2 AUTO INSTRUMENT (#62.4)
- 3 Auto Release System Parameter
- 4 Configuration Report (132 COL)
- 5 Holders of Lab keys
- 6 Ordering Provider Contact Parameter
- 7 Convert LAB UI 1.6 to Enhanced Acknowledgement Mode

Select which file to setup: **4** Configuration Report (132 COL)

Select AUTO INSTRUMENT NAME: **ASTRA**

DEVICE: HOME// **0;132;9999**

Lab Universal Interface Configuration Report  
for interface: ASTRA

Page:1  
Printed: Jun 21, 2016@15:05:20

Vista Lab Auto Release Master: YES (ENABLED)

Vista Application Proxy ID/DUZ HL7 encoding format

Vista Application Proxy	ID/DUZ	HL7 encoding format
LRLAB, AUTO VERIFY	101099	101099-VA500^LRLAB^AUTO^VERIFY^^^^99VA4
LRLAB, AUTO RELEASE	101098	101098-VA500^LRLAB^AUTO^RELEASE^^^^99VA4

HL7 Components: <ID Number (ST)> ^ <Family Name (FN)> ^ <Given Name (ST)> ^ ^ ^ ^ ^  
<Source Table (IS)> ^

Instrument Auto Download Status.: YES

Instrument Auto Download Routine: EN^LA7UID

Instrument Auto Release Status: YES

Associated Lab UI Message Configuration: LA7UI4

Associated Load/Work List: AUTO RELEASE

Auto Release Profile: AUTO RELEASE

Performing Lab: ZZ ALBANY

ORDERABLE TESTS

Entry	Name	UI Test Code	Accession Area	Data Name [IEN]
[1]	SODIUM	01A		SODIUM [5]
[2]	POTASSIUM	02A		POTASSIUM [6]
[3]	CO2	03A		CO2 [8]
[4]	CREATININE	04A		CREATININE [4]
[5]	CHLORIDE	05A		CHLORIDE [7]
[6]	UREA NITROGEN	06A		UREA NITROGEN [3]
[7]	GLUCOSE	07A		GLUCOSE [2]
[8]	PROTEIN, TOTAL	08A		PROTEIN, TOTAL [13]
[9]	ALBUMIN	09A		ALBUMIN [14]
[10]	CALCIUM	10A		CALCIUM [9]
[11]	AMYLASE	11A		AMYLASE [40]
[12]	TOT. BILIRUBIN	12A		BILIRUBIN, TOTAL [15]
[13]	DIR. BILIRUBIN	13A		BILIRUBIN, DIRECT [16]
[14]	URIC ACID	14A		URIC ACID [11]
[15]	TRIGLYCERIDE	15A		TRIGLYCERIDE [47]
[16]	PO4	16A		PO4 [10]
[17]	CHOLESTEROL	17A		CHOLESTEROL [12]
[18]	SGOT	18A		SGOT [19]
[19]	SGPT	19A		SGPT [20]
[20]	CPK	20A		CPK [41]
[21]	PROTEIN, TOTAL	21A		PROTEIN, TOTAL [13]
[22]	LDH	22A		LDH [18]
[23]	ALKALINE PHOSPHATASE	23A		ALKALINE PHOSPHATASE [17]
[24]	GAMMA-GTP	24A		GAMMA-GTP [21]

REPORTABLE TESTS

Result to	Accept	Ignore	Remove	Store	Decimal
Entry	Name			UI Test Code	Places
Remark	Results	Results	Spaces	Remarks	
[1]	SODIUM			01A	
[2]	POTASSIUM			02A	
[3]	CO2			03A	
[4]	CREATININE			04A	
[5]	CHLORIDE			05A	
[6]	UREA NITROGEN			06A	
[7]	GLUCOSE			07A	
[8]	PROTEIN, TOTAL			08A	
[9]	ALBUMIN			09A	
[10]	CALCIUM			10A	
[11]	AMYLASE			11A	
[12]	TOT. BILIRUBIN			12A	
[13]	DIR. BILIRUBIN			13A	
[14]	URIC ACID			14A	
[15]	TRIGLYCERIDE			15A	
[16]	PO4			16A	
[17]	CHOLESTEROL			17A	
[18]	SGOT			18A	
[19]	SGPT			19A	
[20]	CPK			20A	
[21]	PROTEIN, TOTAL			21A	
[22]	LDH			22A	
[23]	ALKALINE PHOSPHATASE			23A	
[24]	GAMMA-GTP			24A	

- To assist in adding lab users to the middleware system, the following option can be used to print out a list of users that hold a certain lab security key. Make sure users who will be verifying results on the external system hold the LRVERIFY key on VistA.



For multi-division sites: All users in the division will populate the report, not just facility.

```
Select Lab Universal Interface Menu Option:  Lab Universal Interface Setup

Select one of the following:

1          LA7 MESSAGE PARAMETER (#62.48)
2          AUTO INSTRUMENT (#62.4)
3          Auto Release System Parameter
4          Configuration Report (132 COL)
5          Holders of Lab keys
6          Ordering Provider Contact Parameter
7          Convert LAB UI 1.6 to Enhanced Acknowledgement Mode

Select which file to setup: 5 Holders of Lab keys
Select LAB SECURITY KEY NAME: LRLAB
Select Another LAB SECURITY KEY NAME: LRVERIFY
Select Another LAB SECURITY KEY NAME:

All USERS? Yes//  YES

DEVICE: HOME// 0;80;99999 VIRTUAL TELNET

Jun 21, 2016@15:11                                     Page: 1

                                HOLDERS OF LAB KEYS

DUZ/ID      NAME                                     LRLAB LRVERIFY
-----
101097 LRUSER,DRI                                     X
235 LRUSER,ONE                                     X      X
101053 LRUSER,TWO                                     X      X
```

- When VistA Lab sends a Lab HL7 Order message to the middleware, it will send the ordering provider's contact info in the HL7 message. To override the default settings, and customize at a system or user level which contact info is sent, the following Lab Universal Interface Setup option can be used.

```
Select Lab Universal Interface Menu Option:  Lab Universal Interface Setup

Select one of the following:

1          LA7 MESSAGE PARAMETER (#62.48)
2          AUTO INSTRUMENT (#62.4)
3          Auto Release System Parameter
4          Configuration Report (132 COL)
5          Holders of Lab keys
6          Ordering Provider Contact Parameter
7          Convert LAB UI 1.6 to Enhanced Acknowledgement Mode

Select which file to setup: 6 Ordering Provider Contact Parameter
```

Lab Ordering Provider Contact Info may be set for the following:

1	User	USR	[choose from NEW PERSON]
2	System	SYS	[xxx.xxx.xxx.xx.xxx]
3	Package	PKG	[AUTOMATED LAB INSTRUMENTS]

Enter selection: **2** System xxx.xxx.xxx.xx.xxx

Setting Lab Ordering Provider Contact Info for System: xxx.xxx.xxx.xx.xxx  
Select Sequence: ??

Contains the list of which contact info for the ordering provider to send in a Lab HL7 Order message from the user's corresponding entry in NEW PERSON file (#200).

It can be specified at the system or the individual user level. If specified at the user level it takes precedence and overrides the setting at the system level allowing specific users to have their own specific set of contacts to send.

The sequence specifies the order and info to check, maximum of 6 allowed. Only the first 2 with a value will be placed in the message as the HL7 standard constrains the number of repetitions for this information at 2.

The value specifies which field from the person's entry in NEW PERSON file (#200) to send in the message.

These are the fields currently available.


Field #	Field Name	Description
.131	PHONE (HOME)	This is the telephone number for the new person.
.132	OFFICE PHONE	This is the business/office telephone for the new person.
.133	PHONE #3	This is an alternate telephone number where the new person might also be reached.
.134	PHONE #4	This is another alternate telephone number where the new person might also be reached.
.135	COMMERCIAL PHONE	This is a commercial phone number.
.136	FAX NUMBER	This field holds a phone number for a FAX machine for this user. It needs to be a format that can be understood by a sending MODEM.
.137	VOICE PAGER	This field holds a phone number for an ANALOG PAGER that this person carries with them.
.138	DIGITAL PAGER	This field holds a phone number for a DIGITAL PAGER that this person carries with them.



The parameter is distributed pre-configured at the package level as follows:

Sequence	Value
-----	-----
1	OFFICE PHONE
2	DIGITAL PAGER
3	VOICE PAGER
4	PHONE #3
5	PHONE #4
6	PHONE (HOME)
7	COMMERICAL PHONE
8	FAX NUMBER

Select Sequence:

7.  Once the GIM has been updated to implement enhanced acknowledgement mode (check with your vendor for the correct enhanced acknowledgement version), the following option is used to enable enhanced acknowledgement mode for LAB UI 1.6.



Enabling this feature without properly configuring **\*ALL\*** affected Lab UI GIM systems using **LAB UI 1.6** to the HL7 2.5.1 messaging protocol enhanced acknowledgments will cause those connections to stop working entirely!

```
Select Lab Universal Interface Menu <TEST ACCOUNT> Option:  Lab Universal Interface Setup

Select one of the following:

1          LA7 MESSAGE PARAMETER (#62.48)
2          AUTO INSTRUMENT (#62.4)
3          Auto Release System Parameter
4          Configuration Report (132 COL)
5          Holders of Lab keys
6          Ordering Provider Contact Parameter
7          Convert LAB UI 1.6 to Enhanced Acknowledgement Mode

Select which function to configure/report: 7 Convert LAB UI 1.6 to Enhanced
Acknowledgement Mode

Has the Lab UI COTS driver been upgraded to send HL7 v2.5.1 messages? No// ?

Enter either 'Y' or 'N'.

This normally involves a driver update on the COTS system
to allow the COTS system to send HL7 messages indicating
either HL7 v2.2 or v2.5.1. Contact your Laboratory Information
Manager to confirm the status of the driver update.

Has the Lab UI COTS driver been upgraded to send HL7 v2.5.1 messages? No// YES

Implement enhanced acknowledgement mode transmission? No// ?
```

```
Enter either 'Y' or 'N'.
```

```
Implement enhanced acknowledgement mode transmission? No// YES
```

```
Starting checking and updating related Lab UI protocols in file #101
```

```
Protocol LA7UI ORM-O01 EVENT already updated to HL7 version 2.5.1
```

```
Protocol LA7UI ORM-O01 EVENT updated to HL7 Enhanced Mode Acknowledgments.
```

```
Protocol LA7UI ORM-O01 SUBS already updated to HL7 version 2.5.1
```

```
.  
. .  
. .  
. .
```

```
Protocol LA7UI9 ORU-R01 EVENT already updated to HL7 version 2.5.1
```

```
Protocol LA7UI9 ORU-R01 EVENT updated to HL7 Enhanced Mode Acknowledgments.
```

```
Finished checking and updating related Lab UI protocols in file #101
```

8. Local site personnel should assign DIVISIONS to the new proxy users, LRLAB, AUTO RELEASE and LRLAB, AUTO VERIFY that corresponds to the performing laboratories that will utilize the Auto Release process.

The LRLAB, AUTO RELEASE and LRLAB, AUTO VERIFY user records are automatically created in VistA File #200 NEW PERSON FILE.

- A. LRLAB, AUTO RELEASE is used to reflect results released within VistA Lab that were verified by an auto verification process (LRLAB, AUTO VERIFY) or released/approved by a human on an external system (DI or other COTS/external lab).
  - B. LRLAB, AUTO VERIFY – used to indicate that the results were approved by an automated process using a rules-based system.
9. New option was added to the Supervisor reports [LRSUPER REPORTS] menu.

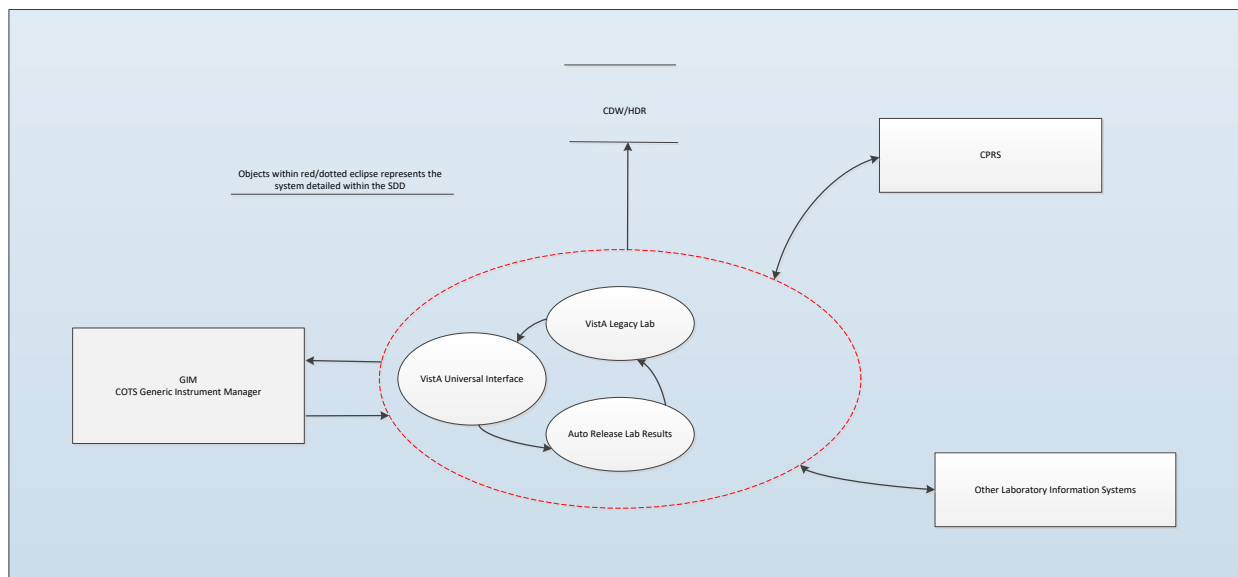
### **Summary List (Patient) [LRLISTPS]**

**Description:** All results for a given patient for a given area for a given date. This report can serve as an 'audit trail' for a patient. Includes information on person placing order, person performing test, verifying person, and dates and times of specimen collection and test completion. The report can be printed in an "extended" form, which includes the above mentioned information plus the test results and associated units/normals/LOINC coding and performing lab.

## **2.3. Data Flows**

Figure 5 depicts graphically the overall flow of data in the system.

**Figure 5: Data Flow Diagram**



## 2.4. User Access Levels

There are two primary user roles for this new capability:

- (1) Laboratory Information Manager (LIM) – responsible for initial configuration and ongoing support, including troubleshooting of Application Errors.
- (2) Medical Technologists authorized to verify results external to VistA on the COTS package – these users will need to have the LRVERIFY key and an active VistA account and have appropriate security settings in the COTS GIM system.

## 2.5. Continuity of Operation

No changes, continuity of operations in the case of an emergency or disaster for the laboratory universal interface and modules on VistA continue as per current policy and procedures.

## 3. Getting Started

### 3.1. Logging On

No changes, VistA log-on continues as per current operations.

### 3.2. System Menu

#### 3.2.1. Modifications to the AUTO INSTRUMENT (#62.4) option.

Select Lab Universal Interface Menu <TEST ACCOUNT> Option: Lab Universal Interface Setup

Select one of the following:

Lab Auto Release 1.0 (LR\*5.2\*458 & LA\*5.2\*88, LA\*5.2\*94 & LR\*5.2\*475)

- 1 LA7 MESSAGE PARAMETER (#62.48)
- 2 [AUTO INSTRUMENT \(#62.4\)](#)
- 3 Auto Release System Parameter
- 4 Configuration Report (132 COL)
- 5 Holders of Lab keys
- 6 Ordering Provider Contact Parameter
- 7 Convert LAB UI 1.6 to Enhanced Acknowledgement Mode

### 3.2.2. New Auto Release System Parameter Option

Select Lab Universal Interface Menu <TEST ACCOUNT> Option: Lab Universal Interface Setup

Select one of the following:

- 1 LA7 MESSAGE PARAMETER (#62.48)
- 2 AUTO INSTRUMENT (#62.4)
- 3 [Auto Release System Parameter](#)
- 4 Configuration Report (132 COL)
- 5 Holders of Lab keys
- 6 Ordering Provider Contact Parameter
- 7 Convert LAB UI 1.6 to Enhanced Acknowledgement Mode

### 3.2.3. New Summary List (Patient) Report Option

Select Supervisor reports Option: sum

- 1 Summary list (extended supervisors')
  - 2 [Summary List \(Patient\)](#)
  - 3 Summary list (supervisors')
- CHOOSE 1-3: 2 Summary List (Patient)

## 3.3. Changing User ID and Password

No changes, VistA password resets continue as per current operations.

## 3.4. Exit System

No changes, VistA log-offs continue as per current operations.

## 3.5. Caveats and Exceptions

Please review the Troubleshooting section of this guide to learn about how to triage and act upon interface application errors.

Lab Auto Release 1.0 (LR\*5.2\*458 & LA\*5.2\*88, LA\*5.2\*94 & LR\*5.2\*475)

User Guide

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## 4. Using the Software

### 4.1. Auto Verified Results from External System

When results are Auto Verified on an external system such as DI's Instrument Manager, then when the results are received and stored on VistA, proxy users are entered in the "VERIFY PERSON" and "PERFORMED/RELEASED BY" fields. An example is shown below using the Summary List (Patient) Report on the Supervisor Reports menu off of the Lab Menu.

#### EXAMPLE OF AUTO VERIFIED RESULT with PROXY USERS

SELECT SUPERVISOR REPORTS OPTION: **SUMM**

1 SUMMARY LIST (EXTENDED SUPERVISORS')

2 SUMMARY LIST (PATIENT)

3 SUMMARY LIST (SUPERVISORS')

CHOOSE 1-3: **2** SUMMARY LIST (PATIENT)

SELECT PATIENT NAME: **####NNNNN** ZZDUCK,ZBYEV MMM 9-30-

48 **####NNNNN**

NO NON-VETERAN (OTHER)

WARNING : YOU MAY HAVE SELECTED A TEST PATIENT.

WARNING : \*\* THIS PATIENT HAS BEEN FLAGGED WITH A BAD ADDRESS INDICATOR.

ENROLLMENT PRIORITY: CATEGORY: NOT ENROLLED END DATE:

03/28/2005

ENROLLMENT STATUS: NOT ELIGIBLE; INELIGIBLE DATE

SELECT LR SUBSCRIPT: CH// **EM, HEM, TOX, RIA, SER, ETC.**

ENTER START DATE: TODAY//T (MAY 18, 2016)

ENTER END DATE: T-1//T (MAY 18, 2016)

DISPLAY AN EXTENDED LISTING? YES//

DISPLAY ASSOCIATED GLOBAL? NO//

DEVICE: HOME// LINUX TELNET/SSH

PATIENT SUMMARY REPORT WORK COPY ONLY - DO NOT FILE PRINTED: MAY 18, 2016

ZZDUCK,DAISY SUE **####NNNNN** SEX: F

FOR DATE RANGE: MAY 18, 2016 TO MAY 18, 2016@24:00 FOR CHEM, HEM, TOX, RIA, SE R, ETC.

DATE/TIME SPECIMEN TAKEN: MAY 18, 2016@07:27:23

DATE REPORT COMPLETED: MAY 18, 2016@07:37:28

VERIFY PERSON: **LRLAB,AUTO RELEASE** SPECIMEN TYPE: PLASMA

ACCESSION: COAG 0518 18 METHOD OR SITE: ACLTOP(AR)

REQUESTING PERSON: MATHUR,SHARAD C REQUESTING LOCATION: LAB

REQUESTING LOC/DIV: KC-PATHOLOGY LABORATORY

ACCESSIONING INSTITUTION: VA HEARTLAND - WEST, VISN 15

INR EK: 3.0 ( INR)

PERFORMED/RELEASED BY:

**Lrlab,Auto Verify**

PERFORMED/RELEASED ON: MAY 18, 2016@07:37:28

PERFORMING LAB: VA HEARTLAND - WEST, VISN 15

LOINC CODE: 6301-6

EII: ACPTOP1;LRAV

#### EXAMPLE OF AUTO VERIFIED RESULT with PROXY USERS

```
PT(10/01): 32.2 H (9.6-12.5 SEC)      PERFORMED/RELEASED BY:
Lrlab,Auto Verify
PERFORMED/RELEASED ON: MAY 18, 2016@07:37:28
PERFORMING LAB: VA HEARTLAND - WEST, VISN 15
LOINC CODE: 5902-2                      EII: ACPTOP1;LRAV
APTT ACL: 63.5 H (25.8-36.6 SEC)      PERFORMED/RELEASED BY:
Lrlab,Auto Verify
PERFORMED/RELEASED ON: MAY 18, 2016@07:37:28
PERFORMING LAB: VA HEARTLAND - WEST, VISN 15
LOINC CODE: 14979-9                    EII: ACPTOP1;LRAV
```

## 4.2. Tech Verified Result from External System

If a user with appropriate authority including an active VistA account and holder of the LRVERIFY key manually verifies a result outside of VistA (for example on the GIM), then when the results are sent back to VistA via the Laboratory Universal Interface, this user will be recorded as the 'PERFORMED/RELEASED BY' tech. To view this information please use the Summary List (Patient) Report on the Supervisor Reports menu off of the Lab Menu. The screen capture below shows an example of how the report will look.

#### EXAMPLE OF Externally VERIFIED RESULT and AUTO RELEASED on VistA with PROXY USER

```
SELECT PROCESS DATA IN LAB MENU <TEST ACCOUNT> OPTION: ^SUPERVISOR REPORTS

SELECT SUPERVISOR REPORTS <TEST ACCOUNT> OPTION: SUMM
  1  SUMMARY LIST (EXTENDED SUPERVISORS')
  2  SUMMARY LIST (PATIENT)
  3  SUMMARY LIST (SUPERVISORS')
CHOOSE 1-3: 2  SUMMARY LIST (PATIENT)

SELECT PATIENT NAME: #####NNNNN  BLUSAHN,AAXNI THKULY      10-21-
75  #####NNNNN
6   YES      SC VETERAN
  ENROLLMENT PRIORITY: GROUP 1      CATEGORY: ENROLLED      END DATE:
  COMBAT VET STATUS: EXPIRED        END DATE:
05/18/2009
SELECT LR SUBSCRIPT: CH// EM, HEM, TOX, RIA, SER, ETC.
ENTER START DATE: TODAY//0517 (MAY 17, 2016)
ENTER END DATE: T-1// (MAY 26, 2016)
DISPLAY AN EXTENDED LISTING? YES//
DISPLAY ASSOCIATED GLOBAL? NO//
DEVICE: HOME//  LINUX TELNET/SSH
```

EXAMPLE OF Externally VERIFIED RESULT and AUTO RELEASED on VistA with PROXY USER

PATIENT SUMMARY REPORT      WORK COPY ONLY - DO NOT FILE      PRINTED: MAY 27, 2016

BLUSAHN,AAXNI THKULY      #####NNNNN      SEX: M

FOR DATE RANGE: MAY 17, 2016 TO MAY 26, 2016@24:00 FOR CHEM, HEM, TOX, RIA, SER, ETC.

DATE/TIME SPECIMEN TAKEN: MAY 17, 2016@08:54:51

DATE REPORT COMPLETED: MAY 18, 2016@09:27:06

VERIFY PERSON: **LRLAB,AUTO RELEASE**

SPECIMEN TYPE: PLASMA

ACCESSION: CH 0517 88

METHOD OR SITE: ARCH1(AR)

REQUESTING PERSON: MATHUR,SHARAD C

REQUESTING LOCATION: LAB

REQUESTING LOC/DIV: KC-PATHOLOGY LABORATORY

ACCESSIONING INSTITUTION: VA HEARTLAND - WEST, VISN 15

SODIUM: 137 (136-145 MEQ/L)

PERFORMED/RELEASED BY: **REDACTED**

PERFORMED/RELEASED ON: MAY 17, 2016@09:28:17

PERFORMING LAB: VA HEARTLAND - WEST, VISN 15

LOINC CODE: 2951-2

POTASSIUM: 4.1 ( )

PERFORMED/RELEASED BY: **REDACTED**

PERFORMED/RELEASED ON: MAY 18, 2016@09:27:03

PERFORMING LAB: VA HEARTLAND - WEST, VISN 15

LOINC CODE: 2823-3

EII: VISTA IN-ORDERS;LRTV

CL: 108 ( )

PERFORMED/RELEASED BY: **REDACTED**

ENTER RETURN TO CONTINUE OR '^' TO EXIT:

PERFORMED/RELEASED ON: MAY 18, 2016@09:27:03

PERFORMING LAB: VA HEARTLAND - WEST, VISN 15

LOINC CODE: 2075-0

EII: VISTA IN-ORDERS;LRTV

CARBONDI: 25 ( )

PERFORMED/RELEASED BY: **REDACTED**

PERFORMED/RELEASED ON: MAY 18, 2016@09:27:03

PERFORMING LAB: VA HEARTLAND - WEST, VISN 15

LOINC CODE: 2028-9

EII: VISTA IN-ORDERS;LRTV

UID: 2361380088

ORDERED TEST: ELECTROLYTES

ORDERED URGENCY: ROUTINE

CPRS ORDER #: 105362623

LAB ORDER #: LR-430-316138

ORDER TYPE: LAB COLLECT

ORDERING PROVIDER LOCAL:

MATHUR,SHARAD C

SPECIMEN TOPOGRAPHY: PLASMA

COLLECTION SAMPLE: GREEN TOP TUBE

LAB TEST ORDERED: ELECTROLYTES

RELEASING SITE: VA HEARTLAND - WEST, VISN 15

ENTER RETURN TO CONTINUE OR '^' TO EXIT:

## 5. Post Release Patches, LR\*5.2\*475 and LR\*5.2\*94

**LR\*5.2\*475** adds functionality to store Lab Test (#60) configuration data which doesn't come from the middleware for verified results.

This will allow the user to edit previously auto-released results using the normal VistA lab EM/EA options utilizing the values used at the time of original verification.

**LR\*5.2\*94** corrects an issue with the "Holders of Lab Keys" report, where the report would seem to queue up when user requested a printed report, but the report would not print. The report could be displayed on screen.

## 6. Troubleshooting

The VistA software enhancement for Lab Auto Release 1.0 includes enhanced interface messaging support between GIM and the VistA Laboratory Universal Interface. VistA will send an application acknowledgement (ACK) to IM when a Health Level 7 (HL7) message errors when VistA Laboratory is trying to process and save the data. This error will show on the IM Status page. The enhanced acknowledgement Support can be activated on the vadhl7hl 8.00.0017driver.

### 6.1. Order Message Acknowledgements

If the option for enhanced acknowledgement support is unchecked, then the GIM will send an Application Acknowledgment (ORR) in response to an order message (ORM) and will not send any values in MSH.15 or MSH.16.

If the option for enhanced acknowledgement support is enabled then the GIM will send a Commit Acknowledgment (ACK) on the inbound connection in response to an order (ORM) followed by an Application Acknowledgment (ORR) on the outbound connection.

### 6.2. Result Acknowledgements



For results, the GIM will populate MSH.15 and MSH.16 to indicate the Commit Acknowledgment and the Application Acknowledgement conditions.

Upon receipt of a result message (ORU), the VistA HL package responds with a commit acknowledgment (ACK) based on the value specified in MSH.15. The VistA Laboratory system responds with an application acknowledgment (ACK) message based on the condition specified by MSH.16 of the result (ORU) message. The application ACK message consists of the following segments.

<u>ACK</u>	<u>General Acknowledgment Message</u>
MSH	Message Header
MSA	Message Acknowledgment
ERR	Error

When triaging an Application Acknowledgment please refer to the following message structure information below for where to identify data related to errors.

MSA-2 Message Control ID will contain the message control ID of the ORU message being acknowledged.

MSA-3 Text Message will contain either of the following:

- If MSA-1 Acknowledgment Code is AA then MSA-3 will be blank.
- If MSA-1 Acknowledgment Code is AE then MSA-3 will contain an error message.

#### ERR-3 HL7 Error Code

- If MSA-1 Acknowledgment Code is AA then ERR-3 will contain value 0 from HL7 Table 0357.
- If MSA-1 Acknowledgment Code is AE then ERR-3 will contain an error code/message from HL7 Table 0357.

#### ERR-4 Severity

- If MSA-1 Acknowledgment Code is AA then ERR-4 will be blank.
- If MSA-1 Acknowledgment Code is AE then ERR-4 will contain an error code/message from HL7 Table 0357

#### ERR-5 Application Error Code

- If MSA-1 Acknowledgment Code is AA then ERR-5 will be blank.
- If MSA-1 Acknowledgment Code is AE then ERR-4 will contain an error code/message from Vista Laboratory LA7 MESSAGE LOG BULLETINS FILE (#62.485) (see troubleshooting table below)

#### ERR-8 User Message

- If MSA-1 Acknowledgment Code is AA then ERR-8 will be blank.
- If MSA-1 Acknowledgment Code is AE then ERR-8 will contain text message from ERR-5.

#### ERR-9 Inform Person Indicator

- If MSA-1 Acknowledgment Code is AA then ERR-9 will be blank.
- If MSA-1 Acknowledgment Code is AE then ERR-9 will contain "USR".

#### EXAMPLE:

Message with an AA application accept

```
MSH|^~\&|LA7LAB|500|LA7UI1|500|20160108183946-  
0500||ACK^R01|500396|T|2.5.1||AL|NE|USA  
MSA|AA|64014,61262  
ERR|||0^Message accepted^HL70357|I"
```

Message with an AE application error

```

MSH|^~\&|LA7LAB|500|LA7UI1|500|20160108183946-
0500||ACK^R01|500399|T|2.5.1|||AL|NE|USA
MSA|AE|63886,49648|Msg #30, Auto Release not allowed for accession UID
CH53230012
ERR|||207^Application internal error^HL70357|E|307^Msg #30, Auto Release not
allowed for accession UID CH53230012. Results have previously been
released.^99VA62.485|||Msg #30, Auto Release not allowed for accession UID
CH53230012. Results have previously been released.|USR

```

### 6.2.1. Troubleshooting VistA Generated Application Error Codes

The following table provides troubleshooting information on VistA Generated Application Error Codes sent to Data Innovations (DI) when it fails to process/save the information on the received Result Messages. Error information is found in the 5<sup>th</sup> sequence of the ERR segment in the HL7 message ACK. All possible errors in this sequence may be found in LA7 MESSAGE LOG BULLETINS FILE (#62.485).

**Table7: Troubleshooting VistA Generated Application Error Codes**




For additional Error Codes, see File 62.485

Code	Text	Scenario	Fix	Test Scenario
<b>301</b>	301 Msg # 1 , User  2  [DUZ:  3 ] does not own the LRVERIFY security key. Auto Release not allowed for accession UID  4 .	User verifies a result on GIM but does not hold the LRVERIFY key on VistA.	<ol style="list-style-type: none"> <li>1. Follow facility policy for requesting security key, if assigned in a timely manner, resend result from GIM</li> </ol> <p>OR</p> <ol style="list-style-type: none"> <li>2. Have a tech with the proper VistA key, verify the result and resend to VistA</li> <li>3. Verify transmitted results using normal VistA Lab <u>ENTER/VERIFY DATA (AUTO INSTRUMENT) OPTION</u> [LRVR].</li> </ol>	Testing Scenario-1 A user will be configured in IM Security setting that does not hold the LRVERIFY Lab Key. A test will be ordered and run on an instrument. The result should be one that does not pass the rule set and is held in IM Workspace. Log into IM Workspace as the user configured above and release the result. This should cause an error on the Vista side since the user does not hold the LRVERIFY Lab Key. VistA should send an ACK ERR message back to GIM which should appear on the Status screen.

Code	Text	Scenario	Fix	Test Scenario
302	302 Msg #  1 , User  2  [DUZ:  3 ] is not an active user on the system. Auto Release not allowed for accession UID  4 .	A result is released from GIM with a user that does not have an Active VistA User Record/Account	1. Have results released by a user with an active account on VistA. OR 2. Have a tech with an active account on VistA verify the result and resend to VistA	Testing Scenario-2: A user will be configured in IM Security setting that does not exist on VistA. A test will be ordered and run on an instrument. The result should be one that does not pass the rule set and is held in IM Workspace. Log into IM Workspace as the user configured above and release the result. This should cause an error on the Vista side since the user does not exist on VistA. Vista should send an ACK ERR message back to GIM which should appear on the Status screen.
303	303 Msg #  1 , No verifying user or application proxy found. Auto Release not allowed for accession UID  2 .	A result is released from GIM without a user or proxy user in the message.	1. Consult the Install Guide and ensure that the required proxy users and valid VistA users are set up on GIM. 2. Alternatively, use LRVERIFY EA in VistA to release manually	
304	304 Msg #  1 , User  2  [DUZ:  3 ] is not a valid user to verify results. Auto Release not allowed for accession UID  4 .	A result is released from GIM and indicated the performing user was the application proxy LRLAB, AUTO RELEASE This application proxy is invalid.	1. Need to transmit the identity of the actual user (VistA DUZ number) or the application proxy LRLAB, AUTO VERIFY. Configured in the COTS driver configuration. 2. Alternatively, use LRVERIFY EA in VistA to release manually	



Code	Text	Scenario	Fix	Test Scenario
305	305 Msg #  1 , User  2  [DUZ:  3 ] is not allowed to verify. Only auto verification enabled for this instrument. Auto Release not allowed for accession UID  4 .	A result is released from GIM by a tech versus the application proxy LRLAB AUTO VERIFY when VistA is configured to only allow auto verification for the instrument, and the instrument does not allow external tech verification.	<ol style="list-style-type: none"> <li>1. Either configure VistA Lab auto instrument entry to allow tech verification or disable tech verification on Generic Instrument Manager (GIM).</li> <li>2. Alternatively, use LRVERIFY EA in VistA to release manually</li> </ol>	
306	306 Msg #  1 , User  2  [DUZ:  3 ] is not allowed to verify. Only tech verification enabled for this instrument. Auto Release not allowed for accession UID  4 .	A result indicates that it was released by an auto verification process when VistA is configured to only allow tech verification on the GIM.	<ol style="list-style-type: none"> <li>1. Either configure VistA Lab auto instrument entry to allow auto verification or disable auto verification on GIM.</li> <li>2. Alternatively, use LRVERIFY EA in VistA to release manually</li> </ol>	

Code	Text	Scenario	Fix	Test Scenario
307	307 Msg # 1 , Auto Release not allowed for accession UID  2 . Results have previously been released.	<p>A result (data packet) is transmitted from GIM which contains at least one result that has already been resulted or cancelled in Vista</p>  <p><b>*NOTE*</b> A single “previously verified” or “previously cancelled” result will invalidate Auto Release for ALL results present in a given data packet, regardless of their Auto Verification status or eligibility</p>	Compare the result on GIM and Vista, if needed issue an amended report thru Vista.	Testing Scenario- B. A test will be ordered in Vista and run on an instrument. The result should be one that does not pass the rule set and is held in IM Workspace. Once the result is held the tester will go into Vista and using EM result out the test. Once the test is resulted using EM the tester will release the result from IM. This should cause an error on the Vista side since the test will have a status of “Completed” making the result ineligible for processing. Vista should send an ACK ERR message back to Instrument Manager which should appear on the Status screen.
	13 Msg # 1 , accession not found in file 68 for area  2  (Auto Instrument Name), date  3 , entry  4 , using LRUID	A result has been released by the GID that does not exist in the corresponding Auto Instrument file	Confirm the UID is correct. This error typically happens with UID numbers that do not correspond to a patient and erroneously passed through the Auto Verification logic. If necessary, modify Auto Verification rules so that only acceptable UID numbers pass through to VISTA.	

## 6.2.2. Example of Error Messages on Instrument Manager Console

The image below shows a screen shot of the Data Innovations Instrument Manager (IM) console and all Application Errors are shown on the bottom third of this view.

The screenshot displays the Instrument Manager console interface. The top section shows system status for various components, including Purge, Onp, Quality Control, and Specimen Routing. Below this, a table lists 'Use Defined' components and their status. The bottom section, titled 'Errors', shows a list of application errors with columns for Last Date/Time, Qty, and Error. The errors include messages about remote client disconnection, data access issues, and session not found.

Last Date/Time	Qty	Error
5/17/2016 12:34:53 PM	1	Remote client disconnected from IM server process: Port 10601
5/17/2016 12:35:01 PM	1	Msg #110, Database 100000 not in accession 2461 300001 or Load/Work list ACLTOP1
5/17/2016 12:35:02 PM	4	Remote client disconnected from IM server process: Port 10601
5/17/2016 11:30:10 AM	1	Msg #130, Database 2 not in accession 2361 300001 or Load/Work list ARICH test profile
5/17/2016 11:30:10 AM	1	Msg #130, Database 2 not in accession 2361 300001 or Load/Work list ARICH test profile
5/17/2016 11:36:33 AM	5	Remote client disconnected from IM server process: Port 10601
5/17/2016 11:03:50 AM	2	MSG # 113, accession not found in the list for area 1 (CHEMISTRY), date 3160517 (5/17/16), entry 6, using LRUSD
5/17/2016 11:03:03 AM	1	Remote client disconnected from IM server process: Port 10601
5/17/2016 11:00:59 AM	2	MSG # 111, accession not found in the list for area 3 (COAGULATION), date 3160517 (5/17/16), entry 0, using LRUSD



Check with your vendor for examples of error messages

## 7. Acronyms, Abbreviations, Definitions

	Term and/or Definition
ACK	Acknowledgement
Auto Release	Results automatically released from VistA upon receipt from GIM
Auto Verify	Results verified and released from the GIM that satisfy the set rules and algorithms defined for said test, and sent to VistA
DI	Data Innovations – Corporation that develops the Instrument Interface
DUZ	Unique Identifier of a VistA User
ERR	Error Segment in an Health Level 7 (HL7) Interface Transmission
GIM	Generic Interface Manager
HL7	Health Level 7 Interface Standard
IM	Instrument Manager, product that manages the interface of orders and results
LIM	Laboratory Information Manager
MSA	Message Acknowledgment
Msg	Message
MSH	Message Header
OI&T	Office of Information and Technology
UID	Unique Identifier
UI	Universal Interface
VA	Department of Veterans Affairs
VistA	Veterans Health Information Systems and Technology Architecture