

## Introduction

To complete this training, the following documentation is required:

- Data Innovations Users Manual
- Laboratory Universal Interface Patch Documentation
- Laboratory Version 5.2, Planning and Implementation Guide

## Required Packages

Laboratory Universal Interface Patches LA\*5.2\*17 and LR\*5.2\*65

**Note** The ACCESSION file (#68) must be edited immediately post patch installation and before any tests can be accessioned (refer to the **VISTA** Configuration Part A. ACCESSION file portion of this documentation).

For additional requirements, see specifications on page 13 of the Laboratory Universal Interface Patch Documentation.

## Special Instructions for the First-Time Computer User

If you are not very familiar with Veterans Health Information Systems and Technology Architecture (**VISTA**) software applications, we recommend that you study the DHCP User's Guide to Computing. This orientation guide is a comprehensive handbook benefiting first time users of any **VISTA** application. The purpose of the introductory material is to help you become familiar with basic computer terms and the components of a computer. It is reproduced and distributed periodically by the Kernel Development Group. To request a copy, contact your local Information Resources Management (IRM) staff.

## Special Notations

In this manual, the user's response is bolded. The bolded part of the entry is the letter or letters that must be typed so that the computer can identify the response. In most cases, you need only enter the first few letters. This increases speed and accuracy.

Every response you type in must be followed by pressing the Return key (or Enter key for some keyboards). Whenever the Return or Enter key should be pressed, you will see the symbol <**RET**>. This symbol is not shown but is implied if there is bolded input.

Within the examples representing actual terminal dialogues, editorial comments are enclosed in brackets and will not appear on the screen.

To stop what you are doing, enter an up-arrow (^). You may use the up-arrow at almost any prompt to terminate the line of questioning and return to the previous level in the routine. Continue entering up-arrows to completely exit the system.

## On-line Help

On-line help is available at almost any prompt in the software. Entering a question mark (?) will provide information to help you answer the prompt. In some instances entering two or three question marks will provide even further information.

## Site Preparation

### Placement Considerations

In determining where the Data Innovations Instrument Manager should be located, consideration should be given to the present and planned locations of Laboratory and Non-Laboratory Analyzers.

- If all analyzers are located in one area, the Instrument Manager may be located within the same area.
- If analyzers are, or will be located in separate distinct areas or facilities, the Instrument Manager should be located in an area that would facilitate connection with minimum routing of communication lines.
- If network capabilities are available throughout the facilities, that is, Local Area Network (LAN) using LAT or TCP/IP Protocols, then the Instrument Manager can be located at any location with network access.

## **Port Configuration**

For port configuration information see Appendix A pages 95 through 98 of Laboratory Universal Interface Patch Documentation.

### **Test**

If using RS-232 Serial connection, test the line by connecting a CRT and successfully send and receive data at the terminal.

## **Wiring**

- Modem wiring for Data Innovations Instrument Managers Dial-In Modem

Provide direct inward dial line (DID).

- Wiring for Data Innovations Instrument Manager to analyzer(s)

Use Port Configuration if necessary.

- See Appendix A pages 95 through 98 of Laboratory Universal Interface Patch Documentation.
- If the analyzer is connected through a terminal server, supply IRMS with analyzer specific host communication settings: baud rate, data bits, stop bits, parity and protocol for each analyzer.

### **Test**

If using RS-232 Serial connection, test line by connecting a CRT and successfully send/receive data at the terminal.

# Instrument Manager-Validation

## Instrument Manager Hardware

1. Install PC, monitor, keyboard, and modem per installation instructions.
2. Power Up Instrument Manager.
3. Install Instrument Manager software if not purchased pre-installed per vendor instructions.
4. Notify Data Innovations of individual analyzer software drivers required and provide the following information.
  - Analyzer Name
  - Analyzer software version
  - Communication protocol
  - Unidirectional
  - Bidirectional
  - Cluster

## VISTA Configuration

### ACCESSION file (#68)

Using FileMan edit the ACCESSION file according to instructions in the Lab Universal Interface Patch Documentation (page 28).

#### Notes

Field #.091, Numeric Identifier, has been changed to Field #.4.

The Numeric Identifier field is a 1-2 alpha-numeric character(s) using the combination of numbers 1-9 and/or uppercase letters A-Z. If using the UID and an analyzer requires a numeric UID, then use number(s) 1-99.

### HL7 Package

When Version 1.6 of the HL7 package is installed, use HL7 V 1.5 options in configuring package parameters related to the Universal Interface.

You must configure the following files:

#### DEVICE file (# 3.5)

1. Define entry-NULL DEVICE

The **VISTA** HL7 package requires the entry of a NULL DEVICE.

The NULL DEVICE must be defined if not already defined.

For DSM Sites, Suggested Setup:

Field	Entry
NAME:	<b>NULL DEVICE</b>
SI:	<b>_NLA0:</b>
VOLUME SET(CPU):	<b>ROU</b>
SIGN-ON/SYSTEM DEVICE:	<b>NO</b>
LOCATION OF TERMINAL:	<b>COMPUTER ROOM</b>
SUBTYPE:	<b>P-OTHER</b> [or any generic terminal type]
TYPE:	<b>TERMINAL</b>

For MSM sites running additional HL7 interfaces, more than one Null device must be defined. Refer to pages 19 through 22 of the Laboratory Universal Interface Patch Documentation for specifics.

2. Define the device used by the **VISTA** HL7 package to communicate with the Instrument Manager.

Suggested Setup:

<b>Field</b>	<b>Entry</b>
NAME:	<b>LABDATA-IM</b>
SI:	[Set to appropriate value per operating system]
ASK DEVICE:	<b>NO</b>
ASK PARAMETERS:	<b>NO</b>
SIGN ON/SYSTEM DEVICE:	<b>NO</b>
LOCATION OF TERMINAL:	[Location of IM]
SUPPRESS FORM FEED AT CLOSE:	<b>YES</b>
SUBTYPE:	<b>P-OTHER</b> [or any generic terminal type, e.g., No codes in Open/Close Execute fields or other fields allowing control codes.]
TYPE:	<b>TERMINAL</b>

Suggested Setup for Alpha VMS/DSM Systems:

<b>Field</b>	<b>Entry</b>
LAT SERVER NODE:	[Terminal Server Name]
LAT SERVER PORT:	[Terminal Server Port Address]
VMS DEVICE TYPE:	<b>LAB INSTRUMENT</b>
LAT PORT SPEED:	[Baud rate of this port]

**HL7 APPLICATION PARAMETER file (#771)**

LA\*5.2\*17 patch post init should create the entry LA AUTO INST as follows:

<b>Field</b>	<b>Entry</b>
NAME:	<b>LA AUTO INST</b>
ACTIVE/INACTIVE:	<b>ACTIVE</b>
HL7 ENCODING CHARACTERS:	~^\&
HL7 FIELD SEPARATOR:	
HL7 MESSAGE:	<b>ORU</b>
PROCESSING ROUTINE:	<b>ORU^LA7HL7</b>
HL7 MESSAGE:	<b>ORM</b>
PROCESSING ROUTINE:	<b>NONE</b>
HL7 SEGMENT:	<b>OBR</b>
FIELDS USED IN THIS SEGEMENT:	<b>4,7,8,9,14,22</b>
HL7 SEGMENT:	<b>OBX</b>
FIELDS USED IN THIS SEGEMENT:	<b>2,3,4,5,6,7,8</b>
HL7 SEGMENT:	<b>MSH</b> [FIELDS USED IN THIS SEGEMENT: 1,2,3,4,5,6,7,8,9,10,11,12]
HL7 SEGMENT:	<b>PID</b>
FIELDS USED IN THIS SEGEMENT:	<b>3,5,7,8,19</b>
HL7 SEGMENT:	<b>ORC</b>
FIELDS USED IN THIS SEGEMENT:	<b>1,2,3</b>
HL7 SEGMENT:	<b>NTE</b>
FIELDS USED IN THIS SEGEMENT:	<b>3</b>

**Note** An entry must also be created or exist in File # 771 for LAB INTERFACE:

<b>Field</b>	<b>Entry</b>
NAME:	<b>LAB INTERFACE</b>
ACTIVE/INACTIVE:	<b>ACTIVE</b>
FACILITY NAME:	<b>Instrument Manager</b>



**HL7 NON DHCP APPLICATION PARAMETER file (#770)**

Set up Lab Interface using the HL7 Main Menu

- Version 1.5 Option
- Non- **VISTA** Application Parameter Enter/Edit

Suggested field entries:

<b>Field</b>	<b>Entry</b>
NAME:	<b>LAB INTERFACE</b>
<b>VISTA</b> STATION NUMBER:	[Site's VA station number]
NON- <b>VISTA</b> FACILITY NAME:	<b>Instrument Manager</b>
MAXIMUM BLOCK SIZE:	<b>245</b>
NUMBER OF RETRIES:	<b>3</b>
HL7 DEVICE:	[Name of device specified in DEVICE file (#3.5) to which the Instrument Manager is connected for <b>VISTA</b> connection.]
HL7 VERSION NUMBER:	[Version of HL7 Specification used by Data Innovations. At this writing it is V. 2.2]
<b>VISTA</b> APPLICATION:	<b>LA AUTO INST</b>
LOWER LEVEL PROTOCOL TIMEOUT:	<b>5</b>
RELATED FILE 771 ENTRY:	<b>LAB INTERFACE</b>
HL7 PROCESING ID:	<b>PRODUCTION</b>
START/STOP TRANSMISSION LOG:	<b>STOP LOG</b>

**LA7 MESSAGE PARAMETER CONFIGURATION (#62.48)**

The following entries are required for this file:

<b>Field</b>	<b>Entry</b>
CONFIGURATION:	<b>UNIVERSAL INTERFACE</b>
PROTOCOL:	<b>HEALTH LEVEL SEVEN</b>
STATUS:	<b>ACTIVE</b>
DEBUG LOG:	<b>ON</b> [Turning this on logs errors]
HL7 NON- <b>VISTA</b> APPLICATION:	<b>LAB INTERFACE</b>
PROCESS IN:	<b>D QUE^LA7UIIN</b>
PROCESS DOWNLOAD:	<b>D EN^LA7UID1</b>
REMOTE SYSTEM ID:	<p>[This is a free text field and should contain the following entries in order.</p> <p>.01 field of file #770, #3 field of file #770, field #8 of file # 770 and field #2 of file # 770.</p> <p>Do not insert spaces between field entries. This entry is case sensitive.</p> <p>Example</p> <pre>LAB INTERFACEInstrument ManagerLA AUTO INST695]</pre>

**TOPOGRAPHY file (#61)**

Map those entries that are used by your site to define test specimens to the appropriate HL7 specimen type.

Refer to page 29 of the Lab Universal Interface Patch Documentation.

**URGENCY file (#62.05)**

Map **VISTA** Lab urgency to the HL7 urgency. These entries are used when downloading to analyzer and analyzer accepts multiple urgencies. It is unnecessary to map workload urgencies.

**AUTO INSTRUMENT file (#62.4)**

Create an entry for each instrument connected through the Instrument Manager.

Entries in the Auto Instrument file must be created as specified in the Laboratory Planning and Implementation Guide. The following are unique requirements for entries using the universal interface.

<b>Field</b>	<b>Description/Entry</b>
NUMBER	Select an entry that is <100 and does not conflict with any Laboratory System Interface (LSI) entries
NAME:	This name should be 1-8 alpha numeric characters, unique and match exactly the corresponding entry in the Instrument Manager.
PROGRAM:	This field is not used by the universal interface.
LOAD/WORK LIST	Name of load/work list associated with this instrument
ENTRY for LAGEN ROUTINE	<b>IDE</b>
CROSS LINKED BY	Accession cross-reference
MESSAGE CONFIGURATION:	UNIVERSAL INTERFACE

<b>Field</b>	<b>Description/Entry</b>
CHEM TEST (Multiples)	
PARAM 1:	This is an old field with a new use. Any M code written into this field will be executed on a given test result that is contained in the variable LA7VAL. **Any prior code in this field will need to be removed. If additional coding is required, refer to page 47 of the Laboratory Universal Interface Patch Documentation
PARAM 2 & 3:	These fields are not used by the universal interface.
UI TEST CODE:	Refer to analyzer vendor documentation for specific codes required.
NUMBER OF DECIMAL PLACES:	<b>Site preference</b>
CONVERT RESULT TO REMARK:	<b>Site preference</b>
ACCEPT RESULTS FOR THIS TEST:	<b>Site preference</b>
DOWNLOAD TO INSTRUMENT:	<b>Site preference</b>
IGNORE RESULTS NOT ORDERED:	<b>Site preference</b>
REMOVE SPACES FROM RESULT:	<b>Site preference</b>
DOWNLOAD ENTRY & DOWNLOAD PROTOCOL:	These fields are not used by the universal interface.
FILE BUILD ENTRY:	<b>EN</b>
FILE BUILD ROUTINE:	<b>LA7UID</b>
AUTO DOWNLOAD:	Set to YES if analyzer is run in Bidirectional mode in order to send orders automatically to the analyzer

### Other Files

Additional entries must be created in Files #'s 3.5, 770, 771, 62.48, and 62.4, for each Instrument Manager in use. (Suggested naming: LAB INTERFACE2, LAB INTERFACE3, etc., UNIVERSAL INTERFACE2, UNIVERSAL INTERFACE3, as applicable.)

## Instrument Manager Configuration

### Instrument Manager System Configuration

When setting up the system configuration, the following four parameters must match the corresponding entries in the **VISTA** HL7 package:

Parameter	Entry
Sending Application:	[.01 Name field in the NON-DHCP APPLICATION PARAMETER file (# 770).]
Sending Site:	[The NON-DHCP FACILITY NAME field in the NON-DHCP APPLICATION PARAMETER file (#770).]
Receiving Application:	[LA AUTO INST as specified in the HL7 APPLICATION PARAMETER file (#771).]
Receiving Site:	[Your VAMC Site number.]
Port location:	[Device used by Instrument Manager to communicate to <b>VISTA</b> .]

### Configuration for each Analyzer

Analyzer configuration must be specified on the Instrument Manager using the System Configuration-Configuration Editor-Add/Edit Configuration. (See the Data Innovations Instrument Manager User Manual for further explanation.)

Field	Description
Configuration Name:	Brief name for the configuration (1-6 alpha-numeric characters).
Configuration Description:	Detailed description of the configuration. (1-25 alpha-numeric characters).
Driver type:	Choose the appropriate driver for the instrument you are interfacing. All available drivers will be listed for selection.

Test Mapping performed (if necessary). If you use the test code transmitted by the instrument as the UI test code in the DHCP Auto Instrument file (#62.4), no test code mapping will be required.

Test code mapping is unique to each instrument. If further information is required, refer to the Data Innovations Instrument Manager User Manual.

Configurations may be copied and assigned to multiple identical instruments. (See the Data Innovations Instrument Manager User Manual for further information.)

Port connection for each analyzer is defined on the Instrument Manager using the System Configuration Menu option/Connection Assignment. (See the Data Innovations Instrument Manager User Manual for further explanation.)

<b>Field</b>	<b>Description</b>
Connection Name:	A unique one to eight character name must be entered which has a corresponding identical entry in the DHCP AUTO INSTRUMENT file (#62.4).
Configuration Name:	Choose entry created using configuration editor
Device:	This field is similar to the <b>VISTA</b> Device file, in that a device name is associated with a physical device and the system address to access that device. Refer to Data Innovations Instrument Manager User Manual for specifications.
Days of data to keep:	This field is selected by the site. This field determines the number of days in which the orders and results are kept on the Instrument Manager for the specified analyzer. Orders will be purged after the specified number of days and will be unavailable for host query purposes. Increase this parameter when testing is not performed within the number of days specified.
Destination Line(s):	This field is generally left blank. It is only used when running multiple applications (lab and non-lab).
Auto Start on System Start:	This field determines if the instrument interface should be started automatically when the Instrument Manager system is started.

## **Cluster Definition**

Groups of similar instruments may be "clustered" together. Clustering allows a specimen to be run and reported on any of the analyzers included in the cluster without specifying a particular analyzer. The individual analyzers must have unique entries, and an additional "cluster" entry that contains all tests to be analyzed in the **VISTA** Auto Instrument file (#62.4). Orders are downloaded using the "cluster" entry and results are returned to the individual analyzer entry that performed the test. All individual analyzers must be defined in the Instrument Manager as specified above. The Cluster is then created using the System Configuration/Connection Assignment/Cluster Definition option on the Data Innovations Instrument Manager. See the Data Innovations Instrument Manager User Manual for further explanation.

When changes are made to any configuration, save the changes to an appropriately labeled floppy disk as per instructions in the Data Innovations Instrument Manager User Manual.

## **Analyzer Configuration**

Each analyzer must be defined in the AUTO INSTRUMENT file (#62.4)

Refer to technical notes in the Lab Universal Interface Patch Documentation pages 47 through 51 for more detailed information.

## **Analyzer Host Communications to Instrument Manager**

Refer to specific analyzer documentation for the required host communication setups.

## **Barcode Labels**

If barcode labels are utilized for instrument interfacing, the following steps are necessary:

1. Printer should be installed and functioning.
2. Barcode capable label routine should be installed and printing barcodes.
3. Barcodes should be set to YES using field #5 Barcode Print of the ACCESSION file (#68) for each accession area that has an analyzer utilizing barcodes.
4. Barcode type should be identified as SHORT (accession number) or LONG (UID) in the Type Of Accession Number field (#092) of the ACCESSION file (#68).

Each analyzer utilizing barcodes should have barcode capabilities enabled. Barcodes should be functional before interfacing is attempted.



## Confirming Data Transmission

### Test Data Stream (Upload Results)

1. Turn on the Instrument Manager system
2. Start the individual interface to the analyzer to be tested as per the Data Innovations Instrument Manager User Manual instructions.

**Note** Upload testing should always be successfully performed prior to download testing.

### Analyzer to Instrument Manager

1. Transmit results from analyzer to Instrument Manager.

**Note** This may be accomplished by either running a specimen on the analyzer or retransmitting a prior unverified result.

2. Watch Instrument Manager System Status screen for incrementing IN Status for the analyzer.

### Interface Manager to VISTA

1. Turn on Transmission Log via HL7 Menu Option

**Note** The log will be stored in global TMP("HL",hl7 device name for Instrument Manager,date/time,"SEND" or "REC." The SEND node is what **VISTA** is sending to the Instrument Manager. The REC node is what **VISTA** is receiving from the Instrument Manager.

**Caution** Remember to **turn off transmission log** after communication is successfully established. If transmission log is left on then site incurs danger of disk containing TMP global becoming full. Use above option to purge log, user must be on same system which contains TMP global used to log transmissions.

2. Make sure Background Job is running.

**Note** Check for routine HLLP in the system status. If not running, start job using the V1.5 HL7 option INITIATE BACKGROUND TASK and selecting LAB INTERFACE. If task appears to start then stop, check for availability of **VISTA** DEVICE “NULL DEVICE”, required in addition to device connected to Instrument Manager, also check ability of **VISTA** to open device that the Instrument Manager is connected to.

3. Message should be sent once background job has been initiated.

## Troubleshooting

Successful receipt of message by **VISTA** HL7 package can be confirmed by viewing the TMP("HL",...global. If a message is rejected by the HL7 package due to transmission problems, the **VISTA** HL7 package will send an N21 message that indicates a checksum problem with the message.

This usually indicates a possible line noise problem. Recheck line connections.

If the message is successfully received by the **VISTA** HL7 package it will then pass the message off to the Laboratory package. The Laboratory package will process the message and create an MSA message segment. This will show in the transmission log in the SEND node. The MSA segment will have the following:

- AA - Application Accept
- AR - Application Reject

If AA, then the laboratory package will process the message. Any problems detected in processing the message will be logged in the "debug log" if the site has set "DEBUG LOG" on in File #62.48, LA7 MESSAGE CONFIGURATION. This log is viewed using the LA7 PRINT LAB UI ERROR LOG option.

If AR, then the laboratory package could not find the entry in File #62.48 that will process this message. Review the field "REMOTE ID" for entry "UNIVERSAL INTERFACE" and for correct spelling. Corresponding entries in Files #770, #771 and on Instrument Manager for sending application/facility and receiving application/facility need to be uniform.

If you see that the message is not transmitting, review file setups and check for presence of routines on all the systems. If routines are mapped, check to see if appropriate changes have been made for mapping. Review entries in the Instrument Manager.

## **Test Data Stream (Download Orders)**

1. Accession test specimen or utilize specimen that has been accessioned but not yet assigned to a load/work list.
2. For testing of bidirectional load/work list download, build a load/work list for the analyzer to be tested.

All processes for testing upload should remain active.

### **Data-VISTA to Instrument Manager**

1. For auto download, a message should be created upon accessioning.
2. Download load/work list for testing of bidirectional load/work list download.

### **Instrument Manager to Analyzer**

Messages should be sent from the Instrument Manager to the analyzer including tests to be run on the specimen and may include specimen ID and location on the analyzer if applicable. If unsuccessful, the analyzers host computer will flag an error and reject the request.

### **Troubleshooting**

Watch TMP("HL"...global for messages. If messages are not created, utilize the LA7 PRINT LAB UI ERROR LOG option to review errors as listed above. Review the lab files for correct and complete entries Watch for spelling. If mapping was performed on the Instrument Manager, review for correct and complete entries and spelling. If the message is not transmitting, review file setups and checks for presence of routines on all the systems. If routines are mapped, check to see if appropriate changes have been made for mapping.

If checking data from the Instrument Manager to the Analyzer, check Host Configuration Parameters on your analyzer.

For more information regarding HL7 messages, refer to the Laboratory Universal Interface Patch Documentation pages 65 through 83.

## Training

Most of the changes present will be transparent to the lab user. Individuals that are responsible for set up, training and workflow should be informed of any new capabilities. Be aware that the operation of the analyzers may change, especially when moving from a unidirectional to a bidirectional mode.

If the Instrument Manager is located in the laboratory, users may be trained in the following operations of the Instrument Manager:

- Starting/Stopping of individual interfaces.
- Monitoring System Status screen on the Instrument Manager for changes in the IN and SEND queues that would indicate transmission and receipt of messages.

IRMS should be aware that the interface should be re-started after any system downtime. IRM can task multiple background jobs. Only one job will run at a time. If the background job should stop or the system rebooted, then TaskMan will automatically start one of the waiting tasks.

The Laboratory Information Manager (LIM) should be assigned the LA7 MAIN MENU (Lab Universal Interface menu).

It is recommended that the error log be reviewed once a day (on screen or printed) using the option LA7 PRINT LAB UI ERROR LOG.

## Appendix A: Sample Instrument

### Clinitek 100

#### Load/Work List:

```

NAME: CLINITEK-100                                LOAD TRANSFORM: UNIVERSAL
  TYPE: TRAY,CUP                                  CUPS PER TRAY: 10
  FULL TRAY'S ONLY: NO                           EXPAND PANELS ON PRINT: NO
  VERIFY BY: ACCESSION                           SUPPRESS SEQUENCE #: NO
  INCLUDE UNCOLLECTED ACCESSIONS: NO             ADDITIONAL LAB TESTS: Instrument Set

Up - Urinalysis
PROFILE: URINALYSIS                               ACCESSION AREA: URINALYSIS
TEST: URINALYSIS                                  BUILD NAME ONLY: NO
TEST: T.REACTION,URINE                           BUILD NAME ONLY: NO
TEST: URINE MICROSCOPIC                           BUILD NAME ONLY: NO
TRAY #: 1
CUP or SEQUENCE #: 1                              CONTROL: CLINITEK QC LEVEL 1
CUP or SEQUENCE #: 2                              CONTROL: CLINITEK QC LEVEL 2
  WKLD METHOD: CLINITEK 100                        WKLD CODE METHOD NAME: CLINITEK 100
  WKLD CODE SUFFIX: .4339                          MAJOR ACCESSION AREA: URINALYSIS

```

#### Auto Instrument Setup:

```

NUMBER: 18                                         NAME: CL100-IM
  LOAD/WORK LIST: CLINITEK-100
  ENTRY for LAGEN ROUTINE: Accession cross-reference
  CROSS LINKED BY: ID
  MESSAGE CONFIGURATION: UNIVERSAL INTERFACE
  METHOD: CLT100                                    DEFAULT ACCESSION AREA: URINALYSIS
  OVERLAY DATA: YES

NUMBER: 1                                           TEST: URINE COLOR
  UI TEST CODE: URINE COLOR                         ROUTINE STORAGE:
TV(683,1)
  CONVERT RESULT TO REMARK: NO

NUMBER: 2                                           TEST: URINE CLARITY
  UI TEST CODE: URINE CLARITY                       ROUTINE STORAGE:
TV(162,1)
  CONVERT RESULT TO REMARK: NO

NUMBER: 3                                           TEST: SPECIFIC GRAVITY (URINES)
  UI TEST CODE: SPECIFIC GRAVITY (URINES)
  ROUTINE STORAGE: TV(685,1)                         NUMBER OF DECIMAL PLACES: 3

NUMBER: 4                                           TEST: URINE PH
  UI TEST CODE: URINE PH                             ROUTINE STORAGE: TV(692,1)
  NUMBER OF DECIMAL PLACES: 1

NUMBER: 7                                           TEST: URINE KETONES
  PARAM 1: S
LA7VAL=$S(LA7VAL="Negative":"Negative",1:$P("TRACE;SMALL;MOD;LARGE",",",LA7VAL
+1))
  UI TEST CODE: URINE KETONES
  ROUTINE STORAGE: TV(689,1)                         CONVERT RESULT TO REMARK: NO
  WKLD METHOD: CLINITEK 100                          WKLD CODE METHOD NAME:
CLINITEK 100
  WKLD CODE SUFFIX: .4339

```

## Beckman CX Series

### Load/Work List:

NAME: CX7M	TYPE: SEQUENCE/BATCH
CUPS PER TRAY: 0	FULL TRAY'S ONLY: NO
EXPAND PANELS ON PRINT: NO	VERIFY BY: ACCESSION
SUPPRESS SEQUENCE #: YES	INCLUDE UNCOLLECTED
ACCESSIONS: NO	
SHORT TEST LIST: YES	
PROFILE: CX7	ACCESSION AREA: CHEMISTRY
TEST: GLUCOSE (PLASMA/SERUM)	BUILD NAME ONLY: NO
TEST: UREA NITROGEN	BUILD NAME ONLY: NO
TEST: CREATININE	BUILD NAME ONLY: NO
TEST: CHEM 7	BUILD NAME ONLY: YES
TEST: CHEM 3	BUILD NAME ONLY: YES
TEST: ELECTROLYTES	BUILD NAME ONLY: YES
TEST: CREATININE CLEARANCE	BUILD NAME ONLY: YES
TEST: GLUCOSE, FLUID	BUILD NAME ONLY: NO
TEST: PROTEIN, TOTAL (FLUID)	BUILD NAME ONLY: NO
Specimens to EXCLUDE!: BLOOD	
PROFILE: HDL	ACCESSION AREA: CHEMISTRY
TEST: HDL CHOLESTEROL	BUILD NAME ONLY: NO
TEST: LDL CHOLESTEROL	BUILD NAME ONLY: NO
TEST: LDL CALCULATED	BUILD NAME ONLY: NO
PROFILE: DAU	ACCESSION AREA: CHEMISTRY
TEST: AMPHETAMINES	BUILD NAME ONLY: NO
TEST: BENZODIAZEPINES	BUILD NAME ONLY: NO
TEST: ZDRUGS OF ABUSE - URINE SCREEN	BUILD NAME ONLY: YES
WKLD METHOD: SYNCHRON CX7	WKLD CODE METHOD NAME: SYNCHRON CX7
WKLD CODE SUFFIX: .4009	MAJOR ACCESSION AREA: CHEMISTRY
LAB SUBSECTION: SYNCHRON BENCH	

### Auto Instrument Setup:

NUMBER: 16	NAME: CX5-IM
LOAD/WORK LIST: CX7M	
ENTRY for LAGEN ROUTINE: Accession cross-reference	
CROSS LINKED BY: ID	
MESSAGE CONFIGURATION: UNIVERSAL INTERFACE	
METHOD: CX5	
DEFAULT ACCESSION AREA: CHEMISTRY	OVERLAY DATA: YES
NUMBER: 1	TEST: UREA NITROGEN
UI TEST CODE: 05C	
ROUTINE STORAGE: TV(3,1)	NUMBER OF DECIMAL PLACES: 0
DOWNLOAD TO INSTRUMENT: YES	
NUMBER: 2	TEST: GLUCOSE
UI TEST CODE: 06C	
ROUTINE STORAGE: TV(608085,1)	NUMBER OF DECIMAL PLACES: 0
DOWNLOAD TO INSTRUMENT: YES	
NUMBER: 3	TEST: CREATININE
UI TEST CODE: 03C	
ROUTINE STORAGE: TV(4,1)	NUMBER OF DECIMAL PLACES: 1
DOWNLOAD TO INSTRUMENT: YES	

**Auto Instrument Setup (continued):**

```

NUMBER: 37                                TEST: HDL CHOLESTEROL
  UI TEST CODE: 83A
  ROUTINE STORAGE: TV(80,1)              NUMBER OF DECIMAL PLACES: 0
  DOWNLOAD TO INSTRUMENT: NO
NUMBER: 38                                TEST: LDL CHOLESTEROL
  UI TEST CODE: LDL(CALC)
  ROUTINE STORAGE: TV(291,1)             NUMBER OF DECIMAL PLACES: 0
  DOWNLOAD TO INSTRUMENT: NO
NUMBER: 40                                TEST: AMPHETAMINES
  PARAM 1: S LA7VAL=$S(LA7VAL=1:"POS",LA7VAL=0:"NEG",1:"")
S:LA7VAL="" LA7VAL=""
",LA7XFORM(3)=0                          UI TEST CODE: 84A
  ROUTINE STORAGE: TV(26,1)             DOWNLOAD TO INSTRUMENT: YES
NUMBER: 41                                TEST: BENZODIAZEPINES
  PARAM 1: S LA7VAL=$S(LA7VAL=1:"POS",LA7VAL=0:"NEG",1:"")
S:LA7VAL="" LA7VAL=""
",LA7XFORM(3)=0                          UI TEST CODE: 86A
  ROUTINE STORAGE: TV(216,1)           DOWNLOAD TO INSTRUMENT: YES
  METH NAME: CX5-IM
  FILE BUILD ENTRY: EN                  FILE BUILD ROUTINE: LA7UID
  SEND TRAY/CUP LOCATION: yes          AUTO DOWNLOAD: NO
  WKLD METHOD: SYNCHRON CX5CE          WKLD CODE METHOD NAME:
SYNCHRON CX5CE
  WKLD CODE SUFFIX: .4576
NUMBER: 15                                NAME: CX7-IM
  LOAD/WORK LIST: CX7M
  ENTRY for LAGEN ROUTINE: Accession cross-reference
  CROSS LINKED BY: ID
  MESSAGE CONFIGURATION: UNIVERSAL INTERFACE
  METHOD: CX7
  DEFAULT ACCESSION AREA: CHEMISTRY    OVERLAY DATA: YES
NUMBER: 1                                TEST: GLUCOSE
  UI TEST CODE: 06C
  ROUTINE STORAGE: TV(608085,1)        NUMBER OF DECIMAL PLACES: 0
  DOWNLOAD TO INSTRUMENT: YES
NUMBER: 2                                TEST: UREA NITROGEN
  UI TEST CODE: 05C
  ROUTINE STORAGE: TV(3,1)             NUMBER OF DECIMAL PLACES: 0
  DOWNLOAD TO INSTRUMENT: YES
NUMBER: 3                                TEST: CREATININE
  UI TEST CODE: 03C
  NUMBER OF DECIMAL PLACES: 1          ROUTINE STORAGE: TV(4,1)
  DOWNLOAD TO INSTRUMENT: YES
NUMBER: 25                                TEST: HDL CHOLESTEROL
  UI TEST CODE: 83A
  ROUTINE STORAGE: TV(80,1)            NUMBER OF DECIMAL PLACES: 0
  DOWNLOAD TO INSTRUMENT: NO
NUMBER: 27                                TEST: LDL CHOLESTEROL
  UI TEST CODE: LDL(CALC)
  ROUTINE STORAGE: TV(291,1)           NUMBER OF DECIMAL PLACES: 0
  DOWNLOAD TO INSTRUMENT: NO
  METH NAME: 195
  FILE BUILD ENTRY: EN                  FILE BUILD ROUTINE:
LA7UID
  SEND TRAY/CUP LOCATION: yes          AUTO DOWNLOAD: NO
  WKLD METHOD: SYNCHRON CX7            WKLD CODE METHOD NAME:
SYNCHRON CX7
  WKLD CODE SUFFIX: .4009

```



**Auto Instrument Setup (continued):**

NUMBER: 22 NAME: CX-CLUS  
 LOAD/WORK LIST: CX7M  
 ENTRY for LAGEN ROUTINE: Accession cross-reference  
 CROSS LINKED BY: ID  
 MESSAGE CONFIGURATION: UNIVERSAL INTERFACE  
 METHOD: CX5  
 DEFAULT ACCESSION AREA: CHEMISTRY OVERLAY DATA: YES  
 NUMBER: 1 TEST: UREA NITROGEN  
 UI TEST CODE: O5C  
 ROUTINE STORAGE: TV(3,1) NUMBER OF DECIMAL PLACES: 0  
 DOWNLOAD TO INSTRUMENT: YES  
 NUMBER: 2 TEST: GLUCOSE  
 UI TEST CODE: 06C  
 ROUTINE STORAGE: TV(608085,1) NUMBER OF DECIMAL PLACES: 0  
 DOWNLOAD TO INSTRUMENT: YES  
 NUMBER: 3 TEST: CREATININE  
 UI TEST CODE: 03C  
 ROUTINE STORAGE: TV(4,1) NUMBER OF DECIMAL PLACES: 1  
 DOWNLOAD TO INSTRUMENT: YES  
 NUMBER: 37 TEST: HDL CHOLESTEROL  
 UI TEST CODE: 83A  
 ROUTINE STORAGE: TV(80,1) NUMBER OF DECIMAL PLACES: 0  
 DOWNLOAD TO INSTRUMENT: NO  
 NUMBER: 38 TEST: LDL CHOLESTEROL  
 UI TEST CODE: LDL(CALC)  
 ROUTINE STORAGE: TV(291,1) NUMBER OF DECIMAL PLACES: 0  
 DOWNLOAD TO INSTRUMENT: NO  
 NUMBER: 40 TEST: AMPHETAMINES  
 PARAM 1: S LA7VAL=\$S(LA7VAL=1:"POS",LA7VAL=0:"NEG",1:"")  
 S:LA7VAL="" LA7VAL=""  
 ",LA7XFORM(3)=0 UI TEST CODE: 84A  
 ROUTINE STORAGE: TV(26,1) DOWNLOAD TO INSTRUMENT:  
 YES  
 NUMBER: 41 TEST: BENZODIAZEPINES  
 PARAM 1: S LA7VAL=\$S(LA7VAL=1:"POS",LA7VAL=0:"NEG",1:"")  
 S:LA7VAL="" LA7VAL=""  
 ",LA7XFORM(3)=0 UI TEST CODE: 86A  
 ROUTINE STORAGE: TV(216,1) DOWNLOAD TO INSTRUMENT:  
 YES  
 METH NAME: CX5-IM  
 FILE BUILD ENTRY: EN FILE BUILD ROUTINE:  
 LA7UID  
 SEND TRAY/CUP LOCATION: yes AUTO DOWNLOAD: YES  
 WKLD METHOD: SYNCHRON CX7 WKLD CODE METHOD NAME:  
 SYNCHRON CX7  
 WKLD CODE SUFFIX: .4009

**CX Host Communication Parameters:**

Enable Barcode type that prints on label printer.

Host Communications:

Mode: Bidirectional      Baud Rate: 9600    Data Bits: 8  
Stop Bits: 1 Parity: None      Device ID: 0  
Flow Control: XON/XOFF

For Query Mode:

Stream 700 Special Functions /Func 2 Host Set-up = ON

Stream 701 Sample/Cup/Func 6 Host Query= ON

Stream 702 Results/Func 3 Test Results= ON

Stream 703 Instrument Status /Func 2 Bidirectional Start Up = ON.

## Modulus Differential Counter

### Load/Work List:

NAME: DIFFERENTIAL (BLOOD)	LOAD TRANSFORM: UNIVERSAL
TYPE: TRAY,CUP	CUPS PER TRAY: 30
FULL TRAY'S ONLY: NO	EXPAND PANELS ON PRINT: NO
VERIFY BY: ACCESSION	SUPPRESS SEQUENCE #: NO
INCLUDE UNCOLLECTED ACCESSIONS: NO	
PROFILE: DIFFERENTIAL (BLOOD)	ACCESSION AREA: HEMATOLOGY
TEST: DIFFERENTIAL (BLOOD)	BUILD NAME ONLY: YES
TEST: WBC SCAN	BUILD NAME ONLY: NO
TEST: SEGS	BUILD NAME ONLY: NO
TEST: BANDS	BUILD NAME ONLY: NO
TEST: POLYCHROMASIA	BUILD NAME ONLY: NO
TEST: NUCLEATED RBC/100WBC	BUILD NAME ONLY: NO
PROFILE: SCAN COMPLETE	ACCESSION AREA:HEMATOLOGY
TEST: SEGS	BUILD NAME ONLY: YES
TEST: BANDS	BUILD NAME ONLY: YES
TEST: PLT (ESTM)	BUILD NAME ONLY: YES
TEST: POLYCHROMASIA	BUILD NAME ONLY: YES
TEST: HYPOCHROMIA	BUILD NAME ONLY: YES
TEST: DIFFERENTIAL (BLOOD)	BUILD NAME ONLY: YES
TEST: SCAN-COMPLETE	BUILD NAME ONLY: NO
PROFILE: RBC MORPHOLOGY	ACCESSION AREA: HEMATOLOGY
TEST: PLT (ESTM)	SPECIMEN: BLOOD
BUILD NAME ONLY: YES	
TEST: RBC SCAN	SPECIMEN: BLOOD
BUILD NAME ONLY: YES	
WKLD METHOD: MANUAL	WKLD CODE METHOD NAME: MANUAL
WKLD CODE SUFFIX: .3000	MAJOR ACCESSION AREA: HEMATOLOGY

### Auto Instrument Setup:

NUMBER: 13	NAME: DIFF1-IM
LOAD/WORK LIST: DIFFERENTIAL (BLOOD)	
ENTRY for LAGEN ROUTINE: Accession cross-reference	
CROSS LINKED BY: ID	
MESSAGE CONFIGURATION: UNIVERSAL INTERFACE	
METHOD: MODULUS	
DEFAULT ACCESSION AREA: HEMATOLOGY	OVERLAY DATA: YES
NUMBER: 1	TEST: EOSINOPHILS
PARAM 1: S LA7VAL=+LA7VAL	UI TEST CODE: EOSINOPHILS
ROUTINE STORAGE: TV(398,1)	
NUMBER: 14	TEST: POLYCHROMASIA
PARAM 1: S LA7VAL=LA7VAL_+"	UI TEST CODE:POLYCHROMASIA
ROUTINE STORAGE: TV(412,1)	
NUMBER: 18	TEST: PLT (ESTM)
PARAM 1: S LA7VAL=\$S(LA7VAL="0": "ADQ", LA7VAL="1": "DEC",	
LA7VAL="2": "INC", 1:LA7VAL)	
UI TEST CODE: PLT (ESTM)	
ROUTINE STORAGE: TV(405,1)	
NUMBER: 30	TEST: WBC SCAN
PARAM 1: S LA7VAL=\$S(LA7VAL="1": "OK", 1:LA7VAL)	
UI TEST CODE: WBC SCAN	ROUTINE STORAGE:TV(608029,1)





## Uro-Comp for Clinitek 200

### Load/Work List:

```

NAME: CLINITEK-200                                LOAD TRANSFORM: UNIVERSAL
  TYPE: TRAY,CUP                                  CUPS PER TRAY: 10
  FULL TRAY'S ONLY: NO                           EXPAND PANELS ON PRINT: NO
  VERIFY BY: ACCESSION                            SUPPRESS SEQUENCE #: NO
  INCLUDE UNCOLLECTED ACCESSIONS: NO PROFILE: URINALYSIS
ACCESSION AREA: URINALYSIS
TEST: URINALYSIS                                  BUILD NAME ONLY: NO
TEST: T.REACTION,URINE                           BUILD NAME ONLY: NO
TEST: URINE MICROSCOPIC                          BUILD NAME ONLY: NO
TEST: URINE COLOR                                 BUILD NAME ONLY: YES
TEST: URINE CLARITY                               BUILD NAME ONLY: YES
TEST: URINE GLUCOSE                               BUILD NAME ONLY: YES
TEST: URINE WBC/HPF                              BUILD NAME ONLY: YES
TEST: URINE RBC/HPF                              BUILD NAME ONLY: YES
TEST: SQUAMOUS EPITHELIAL                         BUILD NAME ONLY: YES
EST: AMORPHOUS CRYSTALS                          BUILD NAME ONLY: YES
TRAY #: 1
CUP or SEQUENCE #: 1                             CONTROL: CLINITEK QC
LEVEL 1
CUP or SEQUENCE #: 2                             CONTROL: CLINITEK QC
LEVEL 2
  WKLD METHOD: CLINITEK 200                        WKLD CODE METHOD NAME: CLINITEK 200
  WKLD CODE SUFFIX: .3100                          MAJOR ACCESSION AREA: URINALYSIS

```

### Auto Instrument Setup:

```

NUMBER: 12                                         NAME: URO-IM
  LOAD/WORK LIST: CLINITEK-200
  ENTRY for LAGEN ROUTINE: Accession cross-reference
  CROSS LINKED BY: ID
  MESSAGE CONFIGURATION: UNIVERSAL INTERFACE
  METHOD: UROC/CLINT
  DEFAULT ACCESSION AREA: URINALYSIS              OVERLAY DATA: YES
NUMBER: 1                                          TEST: URINE COLOR
  PARAM 1: S LA7VAL=$P("YELLOW;PALE
YEL;STRAW;AMBER;DK.AMBER;ORANGE;RED;BROWN;BLUE;GREEN",",",LA7VAL+1)
UI TEST CODE: URINE COLOR
  ROUTINE STORAGE: TV(683,1)
NUMBER: 2                                          TEST: URINE CLARITY
  PARAM 1: S
LA7VAL=$P("CLEAR;HAZY;CLOUDY;TURBID;FLOC;SMOKEY;MUCOID",",",LA7VAL+1)
UI TEST CODE: URINE CLARITY
  ROUTINE STORAGE: TV(162,1)
NUMBER: 3                                          TEST: SPECIFIC GRAVITY (URINES)
  UI TEST CODE: SPECIFIC GRAVITY (URINES)
  ROUTINE STORAGE: TV(685,1)                      NUMBER OF DECIMAL PLACES: 3
NUMBER: 5                                          TEST: URINE PROTEIN
  PARAM 1: S LA7VAL=$S(LA7VAL=0:"NEG",LA7VAL=1:"TRACE",1:LA7VAL)
  UI TEST CODE: URINE PROTEIN                    ROUTINE STORAGE: TV(691,1)
  NUMBER OF DECIMAL PLACES: 0

```

**Auto Instrument Setup (continued):**

NUMBER: 6 TEST: URINE GLUCOSE  
PARAM 1: S LA7VAL=\$S(LA7VAL=0:"NEG",1:LA7VAL)  
UI TEST CODE: URINE GLUCOSE ROUTINE STORAGE:  
TV(690,1)  
NUMBER OF DECIMAL PLACES: 0

NUMBER: 7 TEST: URINE KETONES  
PARAM 1: S  
LA7VAL=\$S(LA7VAL=">80": "LARGE",1:\$P("NEG;TRACE;SMALL;MOD",",",LA7VAL+1))  
UI TEST CODE: URINE KETONES  
ROUTINE STORAGE: TV(689,1)

NUMBER: 8 TEST: URINE BILIRUBIN  
PARAM 1: S LA7VAL=\$P("NEG;;SMALL;MOD;LARGE",",",LA7VAL+1)  
UI TEST CODE: URINE BILIRUBIN ROUTINE STORAGE: TV(688,1)

NUMBER: 10 TEST: NITRITE, URINE  
PARAM 1: S LA7VAL=\$S(LA7VAL=0:"NEG",LA7VAL=6:"POS",1:LA7VAL)  
UI TEST CODE: NITRITE, URINE ROUTINE STORAGE: TV(795,1)

NUMBER: 13 TEST: URINE WBC/HPF  
PARAM 1: S LA7VAL=\$P("NONE;0-4;5-10;10-20;20-30;30-50;50-  
100;100+;TNTC",",",LA7VAL+1)  
ROUTINE STORAGE: TV(693,1)  
UI TEST CODE: URINE WBC/HPF

NUMBER: 15 TEST: SQUAMOUS EPITHELIAL  
PARAM 1: S LA7VAL=\$P("NONE;OCC;FEW;MOD;MANY",",",LA7VAL+1)  
UI TEST CODE: SQUAMOUS EPITHELIAL ROUTINE STORAGE: TV(777,1)  
INTERFACE NOTES: Clinitek 200 interfaced through a URO-Comp PIN  
CONFIGURATION: 3(GREEN)...7(RED)

## AxSYM

### Load/Work List:

```

NAME: AXSYM                                TYPE: SEQUENCE/BATCH
  CUPS PER TRAY: 0                          FULL TRAY'S ONLY: NO
  VERIFY BY: ACCESSION                       INCLUDE UNCOLLECTED
ACCESSIONS: NO
PROFILE: TDM                                ACCESSION AREA: SPECIAL CHEMISTRY
TEST: DIGOXIN                               BUILD NAME ONLY: NO
PROFILE: PSA                                ACCESSION AREA: SPECIAL CHEMISTRY
TEST: PROSTATE SPECIFIC ANTIGEN            BUILD NAME ONLY: NO
  WKLD METHOD: ABBOTT AXSYM                 WKLD CODE METHOD NAME: ABBOTT AXSYM
  WKLD CODE SUFFIX: .4455                 MAJOR ACCESSION AREA: CHEMISTRY
  LAB SUBSECTION: SPECIAL CHEMISTRY

```

### Auto Instrument Setup:

```

NUMBER: 20                                NAME: AXSYM
LOAD/WORK LIST: AXSYM
ENTRY for LAGEN ROUTINE: Accession cross-reference
CROSS LINKED BY: ID
MESSAGE CONFIGURATION: UNIVERSAL INTERFACE
METHOD: AXSYM
DEFAULT ACCESSION AREA: SPECIAL CHEMISTRY
OVERLAY DATA: YES
NUMBER: 1                                TEST: PROSTATE SPECIFIC ANTIGEN
  UI TEST CODE: 441                       ROUTINE STORAGE: TV(608312,1)
  NUMBER OF DECIMAL PLACES: 1             DOWNLOAD TO INSTRUMENT: NO
NUMBER: 2                                TEST: DIGOXIN   UI TEST CODE: 601
ROUTINE STORAGE: TV(608060,1)
  NUMBER OF DECIMAL PLACES: 1             DOWNLOAD TO INSTRUMENT: YES
  METH NAME: AXSYM                       FILE BUILD ROUTINE: LA7UID
  FILE BUILD ENTRY: EN                   AUTO DOWNLOAD: YES
  SEND TRAY/CUP LOCATION: yes            WKLD CODE METHOD NAME: ABBOTT AXSYM
  WKLD METHOD: ABBOTT AXSYM
  WKLD CODE SUFFIX: .4455

```

**Note** UI test codes are the assay numbers for each test. Test codes may be found using the axSYM instrument terminal, configuration option, or assay parameters.

At this time, the Digoxins are set to run Host/Query. The PSAs are only run once a week and are set up to run Unidirectional and options for Host Query and Auto-ID are turned off. Only Transmit to Host is left on.



On the instrument:

Main Menu:

Configuration:

General:

6, 26, 28, and 29 set to on.

Sample Bar Code: (We use the LRLABEL routine for Intermec 4100 10 part label)

Code 39

Enable Symbology: **YES**

Use Checksum: **NO**

Ports:

Host Port: Parity- NONE

Baud Rate- **9600**

Data Bits- **8**

Stop Bits- **1**

Pin Configuration:

STD RS232:

**AXSYM VISTA**

Pin 1-----Shield----- 1 ||

Pin 2-----Output----\ /--->> 2

  \

  /

Pin 3<<-----Input-----/ \--->> 3

Pin 7-----Ground----- 7

Pins 2 and 3 are "crossed" in this twisted pair diagram.

Further documentation may be found in patch LR\*5.2\*11 SEQ 6.

The Data Innovations Instrument Manager will automatically default the LRDFN as the patient ID. You must go into Configuration Edit on the Instrument Manager and change the PID to SSN.

Department of Veterans Affairs



**DATA INNOVATIONS INSTRUCTIONAL  
IMPLEMENTATION GUIDE**

March 1997

Office of Employee Education  
Salt Lake Education Center  
Clin2 Customer Services  
Lab ADPAC Training Advisory Council  
Lab Development Team

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