NATIONAL LABORATORY TEST (NLT) MAPPING TO LOGICAL OBSERVATION IDENTIFIER NAMES AND CODES (LOINC®) Patch LR*5.2*215

TECHNICAL, INSTALLATION, and USER GUIDES

Version 5.2

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Preface

This guide explains how to prepare for, install, set up, and use the National Laboratory Test (NLT) Mapping to Logical Observation Identifier Names And Codes (LOINC®) Patch LR*5.2*215 module of the Laboratory software application.

We highly recommend that the Laboratory Information Manager (LIM) or other laboratory staff with technical expertise be assigned to map NLT to LOINC codes.

The benefit of this mapping effort is to provide a way to support multiple normal ranges based on test, method, specimen, sex, and patient age. The new structure will allow multiple normal ranges within the same laboratory with differing equipment or methods for doing the same procedure. The final product (the normal range, critical high, critical low, reporting units, and method) will be stored with each individual result. Creation of new Data Names for normal range change will be eliminated.

The primary benefits to the veteran's healthcare is the implementation of a system that integrates across inpatient and outpatient settings allowing easy and timely retrieval of clinical information needed to provide efficient individual patient care.

🕮References

The following references may be helpful when installing and implementing patch LR*5.2*215.

- Laboratory V. 5.2
- Laboratory Electronic Data Interchange (LEDI) Patches LA*5.2*27 and LR*5.2*153
- National Laboratory Test (NLT) V. 5.254
- Logical Observation Identifier Names and Codes (LOINC®)
- Kernel Systems Manual V. 8.0
- Kernel Toolkit V. 7.3
- VA FileMan V. 21.0
- VA MailMan V. 7.1

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Introduction

The purpose of the National Laboratory Test (NLT) Mapping to the Logical Observation Identifier Names and Codes (LOINC) is to provide the mapping of CH subscripted tests result codes, and the standardization of files used in the Laboratory Software application. Standardizing codes allows the movement of test results from one computer system to another. This includes sharing information with both Veterans Health Information Systems and Technology Architecture (VISTA) and Non-VISTA computer systems. The LOINC committee including the largest clinical laboratories in the United States, and Veterans Affairs, has agreed to use LOINC to identify test results.

NLT Mapping to the Logical Observation Identifier Names and Codes (LOINC) has the following features:

- Provides a method to communicate across laboratories in support of Clinical Information Resource Network (CIRN) by mapping VISTA lab tests to LOINC codes.
- Provides sets of universal names and ID codes for identifying laboratory and clinical test results.
- Allows the creation of a uniform naming convention for clinical terms.
- Allows the merging of clinical data across sites (where terminology may vary widely).
- Provides the requirement for the adoption of naming or coding conventions, and the mapping of local terminology to these conventions.
- Maps the National Laboratory Test file (#64) to the LOINC codes.

This patch contains two new files:

- LAB LOINC file (#95.3)
- LAB LOINC COMPONENT file (#95.31).

This patch updates:

- LABORATORY TEST file (#60), RESULT NLT CODE field (#64.1), modified filed
- LABORATORY TEST file (#60), SPECIMEN subfile (#60.01) added LOINC CODE field (#95.3)
- TOPOGRAPHY FIELD file (#61), LEDI HL7 field (#.09), modified field
- WKLD file (#64) data dictionaries. The WKLD file (#64) is also known as the NATIONAL LABORATORY TEST file
- LAB ELECTRONIC CODES file (#64.061), new and modified fields
- WKLD SUFFIX CODES file (#64.2), new data

Special Notations

In this manual, the user's response is in **bold** type, but will not appear on the screen as bold. The bold 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 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 underlined and bold input.

Throughout the patch, help frames may be accessed from most prompts by entering one, two, or three question marks (?, ??, ???).

Within the examples representing actual terminal dialogues, the author may offer information about the dialogue. You can find this information enclosed in brackets (e.g., *{Select Print Device}*) and will not appear on the screen.

The computer dialogue appears in `Courier font`, no larger than 10 points.

V T This *boxed* element highlights special details about the current topic.

Technical Guide

This section briefly describes the technical and security aspects NLT Mapping to LOINC patch LR*5.2*215. It is intended for members of the Automated Data Processing (ADP)/Information Resources Management (IRM) staff, who have had experience with other VISTA software. These members have worked or will work with a LIM or patch coordinator who is familiar with the functions of the Laboratory in a VA Medical Center.

Additional information about this patch is contained in help prompts and comments which are available online. Detailed information can also be obtained by using the Kernel routine XINDEX to produce detailed listings of the routines and by using the VA FileMan to generate listings of data dictionaries for the files.

Implementation and Maintenance

Resource Requirements

There are no unique resource requirements needed or special device requirements.

System Configuration

There are no configurable site parameters involved in the implementation of this product.

Routine List

The following is a list of routines you will see for Patch LR*5.2*215 when you load the new routine set.

LR215	LRLNC0	LRLNC1	LRLNCHL7
LRLNCNLT	LRLNCPMP	LRLNCPRT	LRLNCTOP
LRLNCUTL	LRVER1		

The namespace for the NLT Mapping to LOINC is LRNC.

Files

This patch requires the seven files listed below. Information about the files can be obtained by using the VA FileMan to generate a list of file attributes.

The Data Dictionaries (DDs) are considered part of the online documentation for this software application. Use VA FileMan option *List File Attributes* [DILIST], under *Data Dictionary Utilities* [DI DDU], to print the DDs. The following are the files used in this patch:

UP FILE #	SEND DATA NAME	USER	DATE DD	SEC. CODE	COMES W/FILE	SITE DATA	RSLV PTS	OVER RIDE
60	LABORATORY TEST		YES	NO	NO			
Partial DD:	subDD: 60	fld: 64.1						
	subDD: 60.01	fld: 95.3						
61	TOPOGRAPHY FIELD		YES	NO	NO			
Partial DD:	subDD: 61	fld: .09						
64	WKLD CODE		YES	NO	NO			
64.061	LAB ELECTRONIC CODES		YES	NO	YES	OVER	NO	NO
64.2	WKLD SUFFIX CODES		YES	NO	YES	OVER	NO	NO
95.3	LAB LOINC		YES	YES	YES	OVER	NO	NO
95.31	LAB LOINC COMPONENT		YES	YES	YES	OVER	NO	NO

New Files

LAB LOINC file (#95.3)

The LAB LOINC file (#95.3) contains an extraction of the Regenstrief LOINC database. The LOINC database provides sets of universal names and ID codes for identifying laboratory and clinical test results. File (#95.3) is used to map the Laboratory WKLD CODE file (#64), also known as the National Laboratory Test file, to LOINC Codes. *This file is a standard file and is distributed by Dallas Chief Information Officer Field Office (CIOFO) and should not be edited locally.*

Field #	Name	Description
95.3,.01	CODE	This field contains the unique LOINC code in numeric form.
95.3,1	COMPONENT	The name of the component or analyte measured, e.g., potassium, hemoglobin, or hepatitis C antigen.
95.3,1.5	CHALLENGE	This field contains information necessary to interpret "challenge" (or loading or tolerance) tests.
95.3,1.6	ADJUSTMENT	This field contains calculations that adjust or correct some measured value.
95.3,1.7	NON-PATIENT SPECIMEN	In this field is the second subpart of the term that distinguishes observations on the patient (or samples taken from the patient or donor) from observations on non-patient materials that relate to the patient, e.g., a blood product unit (BPU). When the person or super system is not included in a name, it can be assumed to be the patient.
95.3,2	PROPERTY	This field contains the property measured, e.g., a mass concentration or enzyme activity.
95.3,3	TIME ASPECT	Point or moment in time versus time interval, e.g., 24-hour urine.

Field #	Name	Description
95.3,3.1	TIME MODIFIER	The second and optional subpart of the time component allows an indication of some sub selection or integration of the measures taken over the defined period. The 8H^MAX heart rate would be the highest heart rate observed over 8H(shift), MIN, MAX, FIRST, LAST, and MEAN are the other possible values for this subpart. When nothing is stored in this subpart, we assume a mean value over the time in question.
95.3,4	SYSTEM	This field contains the specimen.
95.3,5	SCALE TYPE	This field contains the data part of the test name, which specifies the scale of the measure, and is a required part. The abbreviation of the type of scale (previously called precision) should be used in the fully specified name.
95.3,6	METHOD TYPE	The method by which the test was performed. Methods need only be expressed as part of the name when they provide distinctions between tests that measure the same component (analyte) but which have different clinical reference ranges. For instance, whole blood glucose tested with a chemstrip might be distinguished in the method field.
95.3,7	CLASS	An arbitrary classification of the terms for grouping related observations together. Some examples are CHEM for Chemistry, MICRO for Microbiology and BLDBK for Blood Bank.
95.3,8	SOURCE	This is a field for internal use of the LOINC committee.
95.3,10	UNITS	This field contains the units of measure for the test of this specimen.
95.3,11	NORMAL RANGE	Normal range – Example answers from real tests may be given.

Field #	Name	Description
95.3,13	MOLAR MASS	Molecular weights: This field contains the molecular weights of chemical moieties when they are provided to LOINC. This release contains values kindly contributed by International Union of Pure and Applied Chemistry (IUPAC).
95.3,20	STATUS	Deprecated or superseded status indicated by DEL in this field (otherwise blank). Used to mark terms as the database evolves. LOINC codes will not be reused nor removed from the database, they will instead be cross-referenced to superseding terms in the MAP_TO field.
95.3,21	MAP TO	Used when a field has been dropped from the active database (by entering "DEL" in the STATUS field (#95.3,20) because it has been replaced by an updated term. In those cases, MAP_TO contains the LOINC code of the new term that should be used.
95.3,22	DATE LAST CHANGED	Date last changed, in the format YYYYMMDD.
95.3,23	CHANGE TYPE	Change Type Code: • DEL=delete • ADD=add • NAM=change to Analyte/Component field (#2) • MAJ=change to name field other than Field (#3 through #7) • MIN=change to field other than name
95.3,24	CHANGE REASON	Reason term was changed. If a term has been changed, the reason for the change is detailed here.
95.3,30	EUCLIDES CODE	European standard for clinical laboratory data exchange (EUCLIDES) analyte code. The EUCLIDES code identifies the analyte (the first subpart of the first part of the name).

Field #	Name	Description
95.33,31	ASTM CODE	The American Society for Testing and Materials (ASTM) codes apply to only a few of the tests, e.g., cell counts, antibiotic sensitivities. These are the codes included in the appendices of HL7 and ASTM E1238-94.
95.3,32	IUPAC CODE	The IUPAC code identifies the component, kind of property, and system.
95.3,33	SNOMED CODE	Systemized Nomenclature of Medicine (SNOMED) Code (for use in future versions). Not currently used.
95.3,34	VA CODE	VA Code (for use in future versions). Not currently used.
95.3,35	METPATH CODE	METPATH Code (for use in future versions). Not currently used.
95.3,36	HCFA CODE	Health Care Financing Administration (HCFA) Code (for use in future versions). Not currently used.
95.3,37	CDC	Code from the Center for Disease Control (CDC) complexity file that maps laboratory tests to the instruments used to perform the tests. These codes are at the analyte level, not the test instrument level.
95.3,38	GPI CODE	GPI Code: For drugs, this field contains a map to the MEDISPAN GPI codes. A hierarchical system of classifying pharmaceutical products
95.3,40	IUPAC ANALYTE CODE	IUPAC analyte code: This field contains the Chemical Abstract service number or the Enzyme Nomenclature numbers for the chemical components for chemicals and/or enzymes. These numbers were also contributed by IUPAC.

Field #	Name	Description
95.3,50	RELATED NAMES	This field is a synonym intended to make it easier to find a given observation by providing other names by which the observation may be known. For a drug level, for example, we include the trade names of that drug under the related names.
95.39,.01	RELATED NAMES	This field is a synonym intended to make it easier to find a given observation by which the observation may be known. For a drug level, for example, we included the trade names of that drug under the related name.
95.3,60	ANSWERLIST	The list of answers for results that are reportable from a multiple-choice list, (e.g., the answers for the term DISPOSITION OF BLOOD PACK are GIVEN;PARTIALLY GIVEN;DISCARDED). This field provides examples, not required answer lists.
95.33,.01	ANSWERLIST	The list of answers for results that are reportable from a multiple-choice list, (e.g., the answers for the term DISPOSITION OF BLOOD PACK are GIVEN;PARTIALLY GIVEN;DISCARDED). This field provides examples, not required answer lists.
95.32,.01	SCOPE	This field is not currently used.
95.3,80	FULLY SPECIFIED NAME	This field contains the fully specified name of the LOINC code. It has five or six major parts including: 1. The name of the component or analyte measured 2. The property observed 3. The timing of the measurement 4. The type of sample 5. The scale of measurement 6. The method of the measurement (where relevant)
95.3,99	COMMENTS	Free text comments relating to the test results.

LAB LOINC COMPONENT file (#95.31)

This file contains the name of the component or analyte measured for the LAB LOINC file (#95.3). *This file is a standard file distributed by Dallas CIOFO and should not be edited locally.*

Field #	Name	Description
95.31,.01	COMPONENT	The name of the component or analyte measured, e.g., potassium, hemoglobin, or hepatitis C antigen.
95.31,1	DESCRIPTIVE NAME	The descriptive name of the component or analyte measured.
95.31,2	DISPLAY NAME	This field contains display name of the component or analyte measured.
95.31,10	RELATED NAME	This field contains related names of the component or analyte measured.
95.42,.01	RELATED NAME	This field contains related names of the component or analyte measured.

New Fields

Listed below are existing VISTA files that required new fields to develop patch LR*5.2*215:

LABORATORY TEST file (#60)

This is the file that holds the names and ordering, display of tests.

Field #	Name	Description
60.01,95.3	LOINC CODE	This field contains the pointer to the LAB LOINC file (#95.3). It is the LOINC code in the SITE/SPECIMEN subfile (#100)

NATIONAL LABORATORY TEST file (#64)

This file contains the list of WKLD Codes, which are used to compile Laboratory workload statistics. The WKLD Codes which refer to specific methods, i.e., suffixed codes, are created at the local site level. They are created either by manual entry via a special option or automatically during verification. This file should not be edited directly. It is a standardized national file with specific information at specific internal file numbers. *No entries should ever be deleted locally.*

Field #	Name	Description
64.02,.01	TIME ASPECT	This field contains the timing of the measurement or observation for this test for this specimen.
64.02,1	UNITS	This field contains the units of measure for the test for this specimen.
64.02,2	DATA LOCATION	This field contains the data storage location of the result. It comes from the FIELD field (#13) in File (#60) and is the Data Dictionary field in File (#63).
64.02,3	TEST	This field contains the backward pointer to the LABORATORY TEST file (#60).
64.02,4	LOINC CODE	This field contains the LOINC code for this specimen and time aspect.

LAB ELECTRONIC CODES file (#64.061)

The LAB ELECTRONIC CODES file contains a collection of codes used in electronic messaging. Some of these codes originated in established recognized sources (i.e. HL7 tables). Other codes are unique to the laboratory software application needs or requirements.

This file is a standard file for many types of terms used in electronic messaging.

Field #	Name	Description
64.061,9	LOINC TABLE	This field contains the number of the LOINC table from the LOINC Users' Guide.
64.061,10	SUBTYPE	This field further defines properties. Use as screen element. M=Mass L=Length V=Volume S=Speed T=Time R=Ratio C=Class U=Report Units

Modified Fields

LABORATORY TEST File (#60)

Field #	Name	Description
64,64.1	RESULT NLT CODE	This is the workload procedure code associated with this test. It is used in compiling laboratory workload statistics. This field is a pointer to the WKLD CODE file (#64).

TOPOGRAPHY FIELD file (#61)

Field #	Name	Description
61,.09	LEDI HL7	This field contains the HL7 standard specimen type code. This field is a pointer to the LAB ELECTRONIC file (#64.061)

LAB ELECTRONIC CODES file (#64.061)

Field #	Name	Description
#64.061,7	TYPE	'U' FOR UPDATE/STATUS 'S' FOR SPECIMEN 'P' FOR PRIORITY 'E' FOR EVENT 'M' FOR MEASUREMENTS; 'G' FOR GENERAL; 'C' FOR CHALLENGE; 'PR' FOR PROPERTY; 'A' FOR ADJUSTMENT;

Exported Options

Menu Assignments

Unless you have already assigned menus, the Lab Liason Menu should be assigned to the LIM or technical expert assigned to map NLT to LOINC.

New Options

Descriptions for the new NLT Mapping to LOINC options provided by this patch are given below.

New Options	Description
LOINC Main Menu [LRLOINC]	This is the main VISTA LOINC Mapping menu. LOINC is Copyright 1995,1996,1997 by Regenstrief Institute and the Logical Observation Identifier Names and Codes® (LOINC) Committee. All rights reserved. Permission was granted, without written agreement and without license or royalty fees, to use, copy, or distribute the LOINC codes, LOINC Users' Guide, and the contents of the LOINC database for any purpose, so long as this notice appears on any copies of LOINC database and Users' Guide. LOINC is a trademark of Regenstrief Institute 1001 West 10th. Street, RHC-5 Indianapolis, Indiana 46202 USA. The Department of Veterans Affairs abides by all copyright restrictions, conditions and LOINC use instructions. ITEM: LR LOINC MAP SYNONYM: 6 ITEM: LR LOINC PRINT NLT/LOINC SYNONYM: 7 ITEM: LR LOINC TOPOGRAPHY SYNONYM: 2 ITEM: LR7O 60-64 SYNONYM: 4 ITEM: LR LOINC LEDI HL7 CODE SYNONYM: 3 ITEM: LR LOINC LOOKUP SYNONYM: 5 ITEM: LR LOINC PRINT 60/LOINC MAP SYNONYM: 8 ITEM: LR LOINC HL7 SPECIMENS SYNONYM: 1 ITEM: LR LOINC PRINT RESULT NLT SYNONYM: 9

New Options	Description
Specimen HL7 Codes Print [LR LOINC HL7 SPECIMENS]	This option allows you to print a list of specimens you can use to enter LEDI HL7 specimens codes in the LAB TOPOGRAPHY FIELD file (#61). Those specimens on the list preceded by a '*' indicate that the origin of these specimens is from HL7 V2.3 Specimen source codes table 0070.
Add/Edit Topography Specimen HL7 Code [NAME: LR LOINC LEDI HL7 CODE]	This option allows you to add or edit LEDI HL7 Codes. We recommend you have a listing of LEDI HL7 Codes handy when adding or editing LEDI HL7 Codes.
Lookup LOINC Code [LR LOINC LOOKUP]	This option allows you to lookup a LOINC code for a lab test and specimen. You can use this option to match a VISTA lab test to a LOINC code. You will be prompted to enter a lab test name and specimen. This will be used as a default lookup value. If there are no matches, then you will see two question marks, "??", and you will return to the `LOINC Name. Specimen:` prompt. Now you can enter the first few characters of the test name or some value to find the LOINC code.
Map Lab Tests to LOINC Codes [LR LOINC MAP]	This option allows you to map VISTA lab tests to LOINC codes. This option allows you to enter the Result NLT Code for a lab test and/or LEDI HL7 Code for a specimen so that the test can be mapped to a LOINC code

New Options	Description
Print Lab Test Mapped/Not Mapped to LOINC Codes [LR LOINC PRINT 60/LOINC MAP]	This option allows you to print a list of Lab Tests mapped or not mapped to LOINC Codes. You can use this list to determine which tests you need to map and which tests are already mapped.
NLT/LOINC Codes Print [LR LOINC PRINT NLT/LOINC]	This option allows you to print a list of LOINC codes in the NLT file (#64). Only the NLT with corresponding LOINC codes are printed.
Lab Tests With/Without Result NLT Codes Print [LR LOINC PRINT RESULT NLT]	This option allows you to print a list of Lab Tests with or without Result NLT Codes. Lab tests must have a Result NLT Code before it is mapped to a LOINC code. To enter or edit a Result NLT Code, you may use the Link Result NLT Manual option under the National Laboratory File menu.
Topography Print With/Without LEDI HL7 Codes [LR LOINC TOPOGRAPHY]	This option allows you to print a list of lab tests with or without LEDI HL7 Codes. The specimen must have a LEDI HL7 Code before the test is mapped to a LOINC code. This list will show the specimens that need a LEDI HL7 Code.

National Laboratory File Options [LRO7 60-64]

This menu contains options to be used to link Laboratory tests to WKLD codes. The LIM should link those tests that can be ordered by clinicians to WKLD codes. This linkage is used by both the PCE CPT API, OE/RR V. 3.0., and LOINC.

Option	Description
Link Result NLT Manual [LR7O MAN RESULT NLT]	This option allows the user to manually select an Atomic test and assign a RESULT NLT CODE. This option can also be used to change or delete RESULT NLT CODES. RESULT NLT CODES are required by the LEDI software to identify test names. The receiving site will use the RESULT NLT CODE to link to local test names.
Manual Linking of file 60 to 64 [LR7O 60-64 MANUAL]	This option loops through the entries in LABORATORY TEST file (#60) in alphabetical order and allows the user to link File (#60) entries with appropriate entries in WKLD CODE file (#64). This process need to be done prior to the installation of OE/RR V. 3.0. The Semi-Automatic Linking of File 60 to 64 [LR7O 60-64 AUTO] option should be used first to link exact matching entries in File #60 to entries in File #64.
Result NLT Auto Linker [LR7O AUTO RESULT NLT]	This option assists the user in assigning Result NLT codes to Atomic tests in the LABORATORY TEST file (#60). The RESULT NLT CODE is used by the LEDI software to identify tests. The site receiving test results uses this code to identify and link test names locally. The RESULT NLT CODE can only be assigned to Atomic tests and it can only be assigned to a single Atomic test. (continued on the next page)

Option	Description
Result NLT Auto Linker [LR7O AUTO RESULT NLT] (continued)	You may choose to have the system prompt with RESULT NLT CODE or it can be automatically stuffed for those with an exact match of the names.
Semi-automatic Linking of file 60 to 64 [LR7O 60-64 AUTO]	This option should be run first to automatically link the LABORATORY TESTS file (#60) to WKLD CODES file (#64). It will reduce the LIM workload in preparation for PCE and OE/RR V. 3.0 installs. This option looks for potential matches in File #60 with File #64 and allows the user to link the entries. After this option is run, the Manual Linking of File 60 to 64 [LR7O 60-64 MANUAL] option should be run to manually link the entries that this option could not match.

Modified options

Lab liaison menu [LRLIAISON] is used as a link for menu items.

Callable Routines

Routines are not designated as callable from outside of this patch.

External Relations

This version of NLT Mapping to LOINC, patch LR*5.2*215 can only be installed in an environment that already has several existing features. Obviously, it can only be installed with a standard MUMPS operating system. It also requires the following VA application software:

Package	Minimum Version Needed
VA FileMan	21.0
Kernel	8.0
PMIS	5.3
IFCAP	5.0
Laboratory	5.2
National Lab Test	5.254
Order Entry/Results Reporting	2.5

Package	Patches
Laboratory V. 5.2	LR*5.2*153 LR*5.2*163 LR*5.2*210

The above software is not included in this patch and *must* be installed before this version of NLT Mapping to LOINC, Patch LR*5.2*215 is completely functional.

Data Base Integration Agreements (DBIAs)

No new DBIAs were required for this patch.

Internal Relations

Options in this patch are not invoked independently.

Package-wide Variables

Package-wide variables are not used in this patch.

Software Product Security

The software meets Laboratory security requirements.

Installation Guide

Pre-Installation Tasks

- It is *very important* to read these instructions completely before installing this software! Read these instructions through at least once before attempting to install.
- Installation of Patch LR*5.2*215 should be coordinated between the IRM staff and Laboratory Information Manager (LIM).
- There is no change in the performance of the system once Patch LR*5.2*215 is installed.
- Installation should take less than 30 minutes during off peak hours and less than 40 minutes during peak hours.
- The host file containing the KIDS distribution is LR52_215.KID. You may obtain this file, the NLT Mapping to LOINC Technical, Installation, and User Guides in Portable Document Format (PDF) (LR215IG.PDF), and the LOINC Users' Guide (LR215UM.PDF) from the Albany, Hines, and Salt Lake City Chief Information Officer Field Offices (CIOFOs) at the following FTP addresses:

CIOFOs	FTP Address	Directory
Albany	152.127.1.5	[ANONYMOUS.SOFTWARE]
Hines	152.129.1.110	[ANONYMOUS.SOFTWARE]
Salt Lake City	152.131.2.1	[ANONYMOUS.SOFTWARE]

VT The NLT Mapping to LOINC Guides and the LOINC User's Guide are availabel in PDF on the Intranet at the following address, http://www.vista.med.va.gov/softserv/clin_nar.row/lab/index.html. The LOINC User's Guide is also available in the World Wide Webb (WWW) at http://www.mcis.duke.edu/standards/termcode/loinclab/loinc.html.

- Installation of this patch requires no additional memory space.

Caution

This patch installs two new laboratory files, LAB LOINC file (#95.3) and LAB LOINC COMPONENT file (#95.31). These files are purged before installation to ensure data integrity. If you have any data in the ^DIC(95.3) or ^DIC(95.31) the data will be removed.

Globals ^LAB(95.3) and ^LAB(95.31) will be installed. There is no need to place these globals.

- This patch was exported using the Kernel Installation and Distribution System (KIDS). You will use KIDS to install the software. Please read your KIDS documentation located in Part 5 of your Kernel V. 8.0 Systems Manual and familiarize yourself with KIDS before you install this software.

- The following is an example of the installation process that can be performed from the KIDS installation menu.

Installation Instructions

The routines and files contained in this release are exported as Laboratory Patch LR*5.2*215.

Step Description

1. Start from Kernel
   From the *KIDS Menu* [XPD MAIN], select the *Installation Menu* [XPD INSTALLATION MENU].

2. Select Installation option
   Select Installation option: Load a Distribution [XPD LOAD DISTRIBUTION]
   Enter a Host File: LR52_215.KID

   This Distribution contains Transport Globals for the following Package(s): LR*5.2*215

   Want to RUN the Environment Check Routine? YES// **<RET>**
   LR*5.2*215

   Will first run the Environment Check Routine, LR215

   Use INSTALL NAME: LR*5.2*215 to install the Distribution

V T The following information is optional.

---

   a. *Backup a Transport Global* [XPD PRINT CHECKSUM] option. This option creates a backup message of any routines exported with this patch. It will not backup any other changes, such as DDs or templates.
   b. *Compare Transport Global to Current System* [XPD COMPARE TO SYSTEM] option is not recommended. The reporting data is misleading.
   c. *Verify Checksums in Transport Global* [XPD PRINT CHECKSUM] option. This option will allow you to ensure the integrity of the routines that are in the transport global.

3. This patch may be installed at off peak hours with users remaining on the system.

4. No options need to be placed out of service; LAB job does not need to be stopped. Stopping lab lower level protocols (LLPs) is not required.

5. Installation should take less than 40 minutes during off peak hours and less than 60 minutes during peak hours.

6. Installation of this patch requires no additional memory space.

7. From the *Installation Menu* run the *Install Package(s*) option, select the package LR*5.2*215 and proceed with the install.

8. Routine LR215 may be deleted from the routine directory.

Example Installation

```
Select Kernel Installation & Distribution System Option: INstallation

   1      Load a Distribution
   2      Verify Checksums in Transport Global
   3      Print Transport Global
   4      Compare Transport Global to Current System
   5      Backup a Transport Global
   6      Install Package(s)
          Restart Install of Package(s)
          Unload a Distribution

Select Installation Option: Load a Distribution
Enter a Host File: LR52_215.KID

KIDS Distribution saved on Feb 03, 1999@11:06:57
Comment: LR*5.2*215

This Distribution contains Transport Globals for the following Package(s):
     LR*5.2*215

Want to Continue with Load? YES// <RET>
Loading Distribution...

Want to RUN the Environment Check Routine? YES// <RET>
   LR*5.2*215
Will first run the Environment Check Routine, LR215

Use INSTALL NAME: LR*5.2*215 to install this Distribution.


Select Installation Option: INStall Package(s)
Select INSTALL NAME:    LR*5.2*215        Loaded from Distribution
2/23/99@10:31:03
     => LR*5.2*215  2/23/99  ;Created on Feb 23, 1999@11:06:57

This Distribution was loaded on Feb 23, 1999@10:31:03 with header of
LR*5.2*215 ON  2/23/99  ;Created on Feb 23, 1999@11:06:57
It consisted of the following Install(s):
LR*5.2*215

   LR*5.2*215
Will first run the Environment Check Routine, LR215


                        *** Environment check started ***

                  This patch installs two new Laboratory Files.

                              Prior to installation

               these files will be purged to ensure data integrity.

                              ^DIC(95.3,0) Does not have Data.

                              ^DIC(95.31,0) Does not have Data.

             If you have ANY data in ^DIC(95.3) or ^DIC(95.31) FILES,

                                 these files will be removed!
```

```
Do you want to continue? YES// <RET>

Install Questions for LR*5.2*215

Incoming Files:


   60        LABORATORY TEST  (Partial Definition)
Note:  You already have the 'LABORATORY TEST' File.


   61        TOPOGRAPHY FIELD  (Partial Definition)
Note:  You already have the 'TOPOGRAPHY FIELD' File.


   64        WKLD CODE
Note:  You already have the 'WKLD CODE' File.


   64.061    LAB ELECTRONIC CODES  (including data)
Note:  You already have the 'LAB ELECTRONIC CODES' File.
I will OVERWRITE your data with mine.


   64.2      WKLD SUFFIX CODES  (including data)
Note:  You already have the 'WKLD SUFFIX CODES' File.
I will OVERWRITE your data with mine.
```

```
   95.3      LAB LOINC  (including data)


   95.31     LAB LOINC COMPONENT  (including data)


Want KIDS to Rebuild Menu Trees upon Completion of Install?YES//NO

Want to DISABLE Scheduled Options, Menu Options, and Protocols? YES// NO

Enter the Device you want to print the Install messages.
You can queue the install by enter a 'Q' at the device prompt.
Enter a '^' to abort the install.

DEVICE: HOME// {Select Print Device}


 Install Started for LR*5.2*215 :
               Feb 24, 1999@14:14:04

 Installing Routines:
               Feb 24, 1999@14:14:04

 Running Pre-Install Routine: PRE^LR215

 Installing Data Dictionaries:
               Feb 24, 1999@14:14:08

 Installing Data:
.............................................................
.............................................................................
.............................................................................
                                  LR*5.2*215
_____________________________________________________________________________

.................................
               Feb 24, 1999@14:17:31

 Installing PACKAGE COMPONENTS:

 Installing OPTION
               Feb 24, 1999@14:17:33

 Updating Routine file...

 Updating KIDS files...

 LR*5.2*215 Installed.
               Feb 24, 1999@14:17:33


Install Completed
```

Post-Installation

Routine LR215 may be deleted from the routine directory.

Technical Assistance

If you experience problems of a technical nature with this software patch, you are encouraged to contact the National VISTA Support HELP DESK.

Implementation and Maintenance

Resource Requirements

There are no unique resource requirements needed or special device requirements.

System Configuration

There are no configurable site parameters involved in the implementation of this product.

User Guide

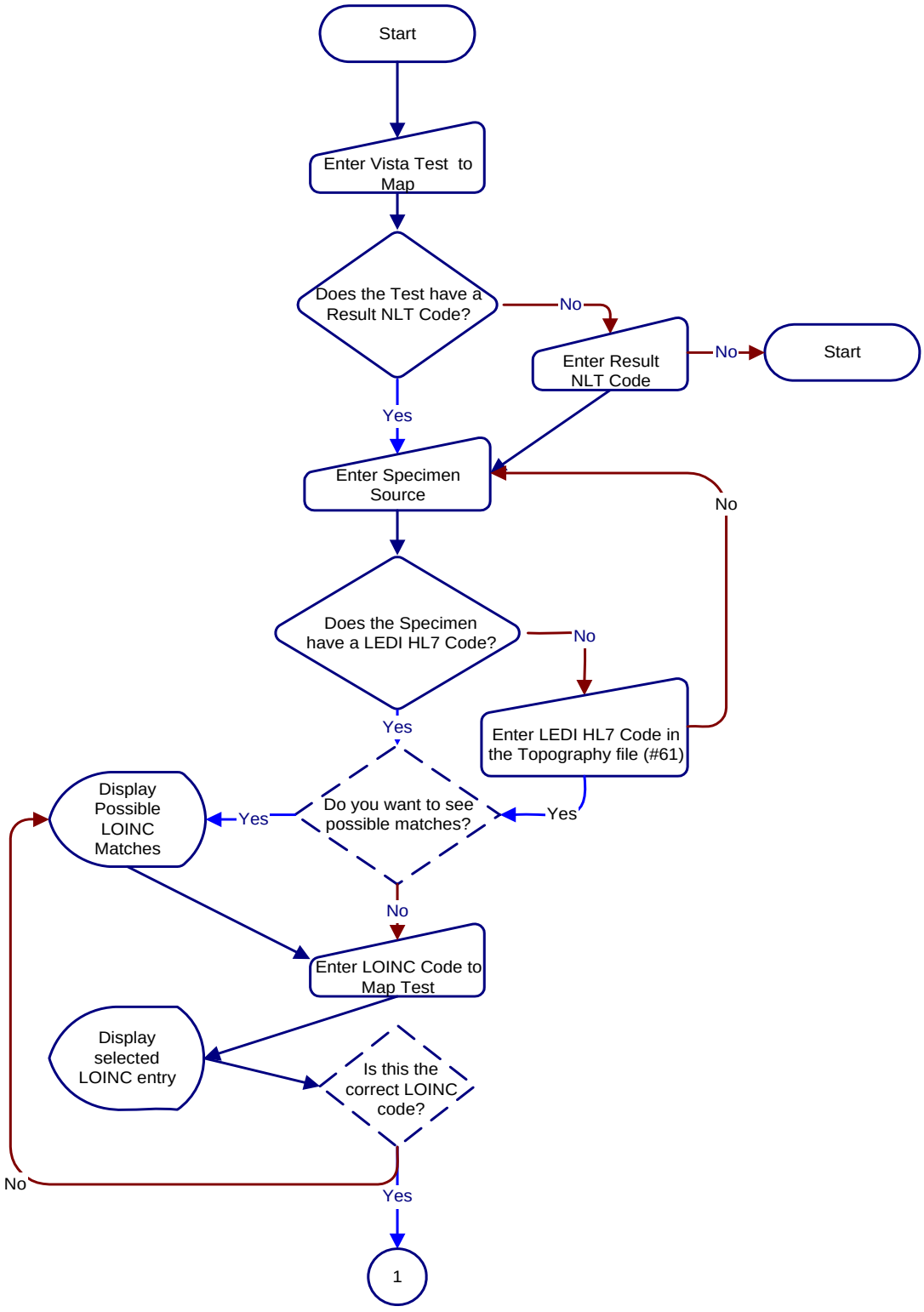
This section describes the functional characteristics of NLT Mapping to LOINC. It is intended for laboratory personnel with technical expertise who are familiar with the functioning of laboratory coding systems.

We highly recommend that before you start mapping take the time to read the LOINC Users' Guide. This type of preparation before attempting to map the NLT to LOINC codes is extremely necessary to understand the LOINC code structure.

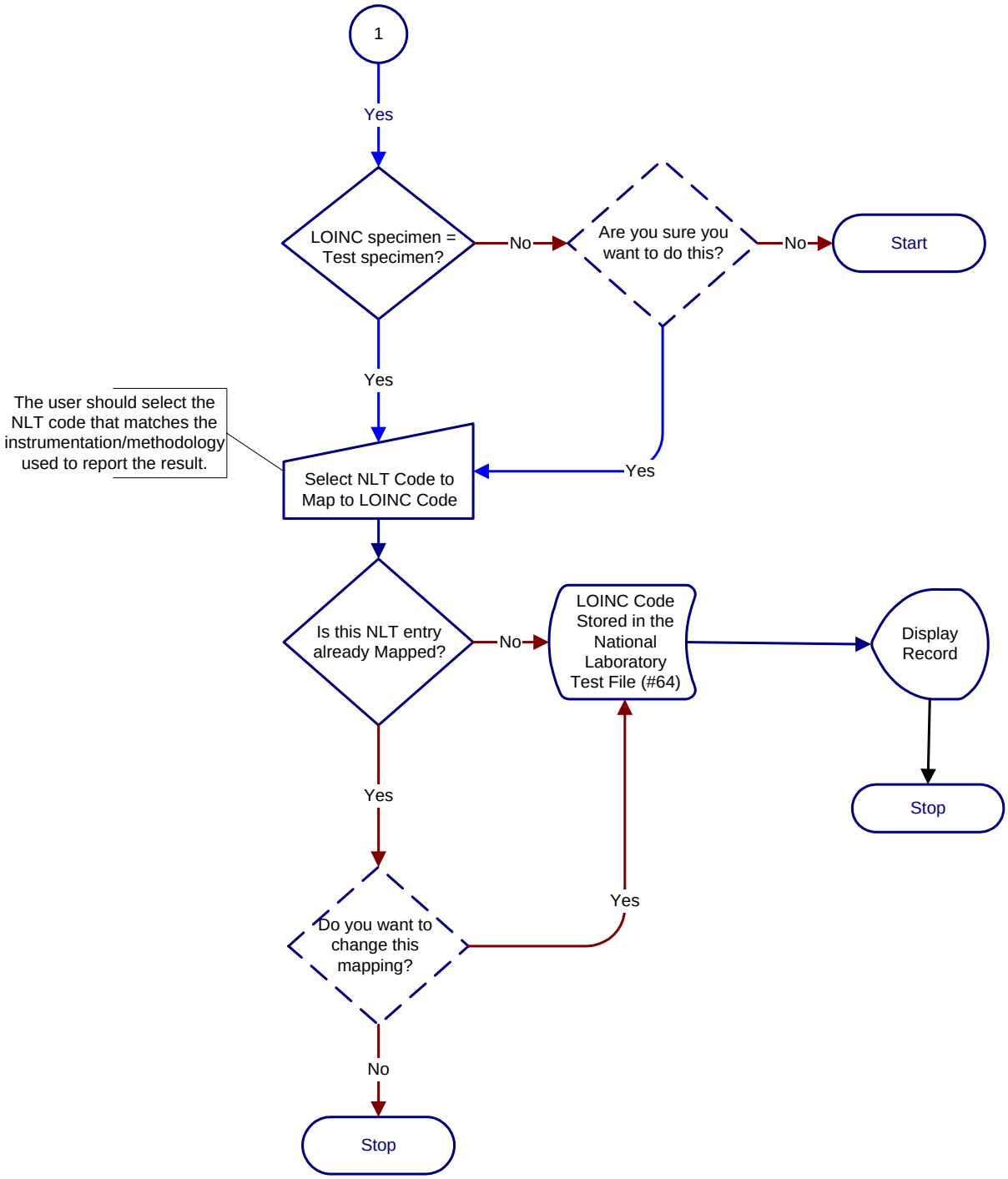
We also recommend that the Laboratory Information Manager (LIM) or other laboratory staff with technical expertise be assigned to map NLT to LOINC codes.

VT The option examples throughout this section have been shortened because of their length.

NLT Mapping to LOINC Process Workflow



Continued on the next page


1
Yes
LOINC specimen = Test specimen?
No
Are you sure you want to do this?
No
Start
Yes
The user should select the NLT code that matches the instrumentation/methodology used to report the result.
Select NLT Code to Map to LOINC Code
Yes
Is this NLT entry already Mapped?
No
LOINC Code Stored in the National Laboratory Test File (#64)
Display Record
Stop
Yes
Do you want to change this mapping?
Yes
No
Stop

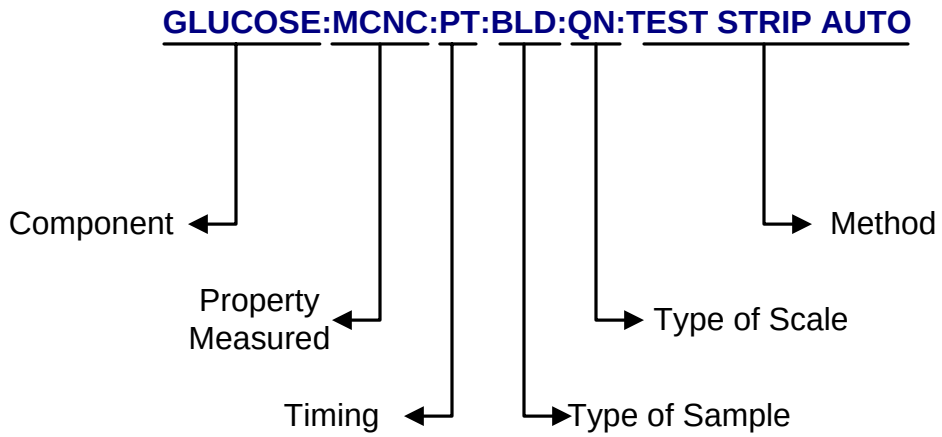
How to Prepare for Mapping

Before you begin mapping NLT codes to LOINC,

- You need to understand how the LOINC codes are specified. Each LOINC record corresponds to a single test result. The fully specified name of a test result or clinical observation has five or six main parts including:

  1) Component (analyte), e.g., potassium, hemoglobin, hepatitis C antigen.
  2) Property measured, e.g., a mass concentration, enzyme activity (catalytic rate).
  3) Timing, i.e., whether the measurement is an observation at a moment of time, or an observation integrated over an extended duration of time, e.g., 24-hour urine.
  4) The type of sample, e.g., urine, blood.
  5) The type of scale, e.g., whether the measurement is quantitative (a true measurement) ordinal (a ranked set of options) or nominal (E Coli; Staph Aureus).
  6) Where relevant, the method used to produce the result or other observation.

Example Fields in a LOINC Record



V T Chapter 2 of the LOINC Users' Guide provides a detailed description of the specified names. You may access the LOINC Users' Guide at http://www.mcis.duke.edu/standards/termcode/loinclab/loinc.html.

- You may use the Map Lab Tests to LOINC Codes option to enter the Result NLT code for a lab test or LEDI HL7 code for a specimen. However, if the majority of the codes need entering, the following options have been provided in the LOINC main menu.

- If you have not entered LEDI HL7 codes in File (#61) or Result NLT codes in File (#60), we recommend you do this before you map lab tests to LOINC codes

- The following links must be established before mapping the NATIONAL LABORATORY TEST file (#64) entries to a LOINC code:

  - LABORATORY TEST file (#60) must be linked to the NATIONAL LABORATORY TEST file (#64)
  - TOPOGRAPHY FIELD file (#61) must be linked to the LAB ELECTRONIC CODES file (#64.061)

Linking Lab Specimens to HL7 Codes

The Add/Edit Topography Specimen HL7 Code option assists you in linking File (#61) to File (#64.061).

Specimen HL7 Codes Print
Topography Print With/Without LEDI HL7 Codes
Add/Edit Topography Specimen HL7 Code

Linking Lab Tests to Result NLT Codes

The National Laboratory File options assist you in linking File (#60) to File (#64).

Lab Tests With/Without Result NLT Codes Print
National Laboratory File ...

Mapping Lab Tests to LOINC

After you link Files (#60) to (#64) and Files (#61) to (#64.061), you can map the Lab test to the LOINC codes.

Map Lab Tests to LOINC Codes
NLT/LOINC Codes Print
Print Lab Test Mapped/Not Mapped to LOINC Codes

LOINC Main Menu [LRLOINC]

You can access the *LOINC Main Menu* [LRLOINC] from the *Lab Liaison Menu* [LRLIAISON].

The *LOINC Main Menu* [LRLOINC]assists you in the mapping of NLT codes to the LOINC codes. The options available through this menu are listed below.

| 1 Specimen HL7 Codes Print [LR LOINC HL7 SPECIMENS]
| 2 Topography Print With/Without LEDI HL7 Codes [LR LOINC TOPOGRAPHY]
| 3 Add/Edit Topography Specimen HL7 Code [LR LOINC LEDI HL7 CODE]
| 4 National Laboratory File ... [LR7O 60-64]
| 5 Lookup LOINC Code [LR LOINC LOOKUP]
| 6 Map Lab Tests to LOINC Codes [LR LOINC MAP]
| 7 NLT/LOINC Codes Print [LR LOINC PRINT NLT/LOINC]
| 8 Print Lab Tests Mapped/Not Mapped to LOINC Codes [LR LOINC PRINT 60/LOINC MAP]
| 9 Lab Tests With/Without Result NLT Codes Print [LR LOINC PRINT RESULTNLT]

Mapping NLT Codes to LOINC

Mapping Lab Specimens to HL7 Codes

Specimen HL7 Codes Print [LR LOINC HL7 SPECIMENS]

This option prints a list of specimens from the LAB ELECTRONIC CODES file (#64.061). This list of specimens can be used to enter LEDI HL7 specimens codes in the LAB TOPOGRAPHY FIELD file (#61). Those specimens preceded by a '*' indicate that the origin of these specimens is from HL7 V. 2.3 Specimen source codes table 0070.

VT This list provides possible selections for entry into the LEDI HL7 specimen code field in the TOPOGRAPH FIELD file (#61). You will also be able to print a list of LEDI HL7 specimens codes in the Add/Edit Topography Specimen HL7 Code option.

Example: Specimen HL7 Codes Print

```
Select LOINC Main Menu Option: 1  Specimen HL7 Codes Print


               This option prints a list of specimens from the
                     LAB ELECTRONICS CODE file (#64.061).
                  This list may assist you when linking your
              local TOPOGRAPHY (#61) entries with the file 64.061.
DEVICE: HOME//  {Select Print Device}

                        LEDI HL7 ELECTRONIC SPECIMEN CODES
     Feb 12, 1999@12:29                                          Page   1
* Source HL7 0070 Table
================================================================================
1 day                                  1 hour
1 min                                  1 month
1 week                                 10 days
10 hours                               10 mins
10 months                              12 hours
15 mins                                18 hours
2 days                                 2 hours
2 min                                  2 months
2 weeks                                2.5 hours
20 mins                                24 hours
25 mins                                3 days
3 hours                                3 mins
3 months                               3 weeks
30 mins                                4 days
4 hours                                4 mins


Press RETURN to continue or '^' to exit: <RET>
```

```
                    LEDI HL7 ELECTRONIC SPECIMEN CODES
     Feb 12, 1999@12:29                                          Page   2
* Source HL7 0070 Table
================================================================================
4 weeks                                 45 mins
5 days                                  5 hours
5 mins                                  6 days
6 hours                                 6 mins
7 days                                  7 hours
7 mins                                  72 hours
8 hours                                 8 hr Shift
8 mins                                  9 hours
9 mins                                  90 mins
ABDOMEN                                 ABDOMEN.MID
ABDOMINAL WALL                          ALLERGIC & IMMUNILOGIC
AMNIOTIC FLUID.QUADRANT FOUR            AMNIOTIC FLUID.QUADRANT ONE
AMNIOTIC FLUID.QUADRANT THREE           AMNIOTIC FLUID.QUADRANT TWO
ANKLE                                   AORTA
AORTA ASCENDING                         AORTA DESCENDING

Press RETURN to continue or '^' to exit: <RET>


                    LEDI HL7 ELECTRONIC SPECIMEN CODES
     Feb 12, 1999@12:29                                          Page   3
* Source HL7 0070 Table
================================================================================
AORTA.ABDOMINAL.DISTAL                  AORTA.ABDOMINAL.PROXIMAL
AORTA.THORACIC.ASCENDING                AORTA.THORACIC.DESCENDING
AORTA.THORACIC.PROXIMAL ASCENDING       AORTIC ARCH
AORTIC ROOT                             ARM,UPPER
ARTERIAL SYSTEM                         ARTIFICIAL CARDIAC PACEMAKER
ASTERISK                                ATRIUM.LEFT
ATRIUM.RIGHT                            ATRIUM.RIGHT.HIGH
ATRIUM.RIGHT.LOW                        ATRIUM.RIGHT.MID
AXILLA                                  AXILLARY
*Abcess                                 *Amniotic fluid
*Another message part                   Anus
*Aspirate                               BACK
BILIARY DRAIN                           BILIARY TRACT
BLADDER                                 BLD/MAR
BLDP                                    BLOOD PRESSURE DEVICE

Press RETURN to continue or '^' to exit: ^
```

Topography Print With/Without LEDI HL7 Codes [LR LOINC TOPOGRAPHY]

This option allows you to print a list of lab specimens with or without LEDI HL7 Codes. You are asked to choose to print lab specimens with or without the LEDI HL7 Codes. The specimen must have a LEDI HL7 Code before the test can be mapped to a LOINC code. This list will show the specimens that need a LEDI HL7 Code.

VT We recommend you print the lab specimen list without LEDI HL7 codes before you use the Add/Edit Topography Specimens HL7 Code to select the specimens needing a LEDI HL7 Code.

Example: Specimen list with LEDI HL7 codes

```
Select LOINC Main Menu Option: 2  Topography Print With/Without LEDI HL7 Codes

This option prints a list of SITE/SPECIMENS from the LABORATORY TEST FILE
            Standard LEDI HL7 specimen codes in the Topography file.
You will be prompted to print the specimen with or without the LEDI HL7 codes;


Print Topography with or without a LEDI HL7 CODE.

     Select one of the following:

          1         WITH
          2         WITHOUT

Enter response: 1  WITH
DEVICE: HOME// {Select Print Device}


                                                    Feb 12, 1999@12:30   Page   1

       A LISTING FROM THE TOPOGRAPHY FILE OF SPECIMENS WITH LEDI HL7 CODE

   FILE 61                          LEDI
    [IEN]  SITE/SPECIMEN          HL7 [IEN]    ELEC CODE NAME
================================================================================
   [ 114]  ABDOMEN                 [ 69]       Other
   [8394]  ABDOMEN, PERITONEUM     [ 97]       Tissue, unspecified
   [1574]  ACETABULUM              [ 97]       Tissue, unspecified
   [6266]  AMNIOTIC FLUID          [  2]       Amniotic fluid
   [ 352]  AORTA                   [ 97]       Tissue, unspecified
   [  66]  APPENDIX                [ 97]       Tissue, unspecified
   [7732]  AQUEOUS HUMOR           [ 69]       Other
   [8760]  ARM                     [ 97]       Tissue, unspecified
   [8728]  ARTERIAL BLOOD          [  6]       Blood  arterial
   [  88]  BACK                    [ 69]       Other
   [ 815]  BASOPHILIC MEGAKARYO    [  4]       Basophils
   [ 809]  BASOPHILIC METAMYELO    [  4]       Basophils
   [ 808]  BASOPHILIC MYELOCYTE    [  4]       Basophils
   [ 788]  BASOPHILIC NORMOBLAS    [  4]       Basophils

Press RETURN to continue or '^' to exit: <RET>
```

```
                                                        Feb 12, 1999@12:30   Page   2

        A LISTING FROM THE TOPOGRAPHY FILE OF SPECIMENS WITH LEDI HL7 CODE

   FILE 61                          LEDI
    [IEN]  SITE/SPECIMEN          HL7 [IEN]    ELEC CODE NAME
================================================================================
   [ 807]  BASOPHILIC PROMYELOC   [  4]       Basophils
   [1006]  BILE                   [ 69]       Other
   [  70]  BLOOD                  [ 11]       Blood  venous
   [1028]  BLOOD EOSINOPHIL       [ 36]       Eosinophils
   [ 322]  BONE                   [ 12]       Bone
   [ 319]  BONE MARROW            [ 62]       Marrow (bone)
   [ 127]  BRONCHIAL BRUSHING C   [ 14]       Bronchial
   [3533]  BRONCHIAL CYTOLOGIC    [ 14]       Bronchial
   [3534]  BRONCHIAL MUCUS        [ 14]       Bronchial
   [ 124]  BRONCHIAL WASHING CY   [ 14]       Bronchial
   [ 336]  BRONCHUS               [ 69]       Other
   [ 327]  BURSA                  [ 97]       Tissue, unspecified
   [8350]  BUTTOCK                [ 97]       Tissue, unspecified
   [8615]  CALF OF LEG            [ 97]       Tissue, unspecified

Press RETURN to continue or '^' to exit: ^
```

Example: Specimen list without LEDI HL7 codes

```
     Select one of the following:

          1         WITH
          2         WITHOUT

Enter response: 2  WITHOUT
DEVICE: HOME// {Select Print Device}

                                                        Feb 12, 1999@12:30   Page   1

                      LAB SPECIMEN WITHOUT LEDI HL7 CODE
        THESE SPECIMENS NEED LEDI HL7 CODES DEFINED IN THE TOPOGRAPHY FILE

     LAB TEST NAME                    SITE/SPECIMEN
================================================================================
     BASE EXCESS (CALC)               BLOOD, VENOUS
     CHLORIDE                         BLOOD, VENOUS
     CIE: CLOSTRIDIUM DIFFICILE       ARRECTOR PILI MUSCLE
     COHB%                            BLOOD, VENOUS
     FIO2                             BLOOD, VENOUS
     GLUCOSE                          BLOOD, VENOUS
     HCO3 -ACT (CALC)                 BLOOD, VENOUS
     HCO3- STD (CALC)                 BLOOD, VENOUS
     HCT (B-GAS CALC)                 BLOOD, VENOUS
     HCT (NOVA)                       BLOOD, VENOUS
     HEMOGLOBIN, TOTAL (B-GAS)        BLOOD, VENOUS
     HGBc (NOVA)                      BLOOD, VENOUS
     HHb                              BLOOD, VENOUS

Press RETURN to continue or '^' to exit: <RET>
```

```
                                                    Feb 12, 1999@12:30   Page   2

                      LAB SPECIMEN WITHOUT LEDI HL7 CODE
        THESE SPECIMENS NEED LEDI HL7 CODES DEFINED IN THE TOPOGRAPHY FILE

     LAB TEST NAME                    SITE/SPECIMEN
================================================================================
     IONIZED CALCIUM                  BLOOD, VENOUS
     ISV PANEL                        TOPOGRAPHY UNKNOWN
     LACTIC ACID                      BLOOD, VENOUS
     LIQUIFACTION                     EPIDIDYMIS, VAS DEFERENS, SPER
     METHB%                           BLOOD, VENOUS
     MOTILITY 0 HR (100%)             EPIDIDYMIS, VAS DEFERENS, SPER
     O2CAP (CALC)                     BLOOD, VENOUS
     O2CT. (CALC)                     BLOOD, VENOUS
     O2HB% (MEASURED)                 BLOOD, VENOUS
     O2HB% (SAT-CALC)                 BLOOD, VENOUS
     OXYGEN FLOW                      BLOOD, VENOUS
     PCO2                             BLOOD, VENOUS
     PH                               BLOOD, VENOUS
Press RETURN to continue or '^' to exit: <RET>

                                                    Feb 12, 1999@12:30   Page   3

                      LAB SPECIMEN WITHOUT LEDI HL7 CODE
        THESE SPECIMENS NEED LEDI HL7 CODES DEFINED IN THE TOPOGRAPHY FILE

     LAB TEST NAME                    SITE/SPECIMEN
================================================================================
     PO2                              BLOOD, VENOUS
     POTASSIUM                        BLOOD, VENOUS
     SO2 (CALC)                       BLOOD, VENOUS
     SODIUM                           BLOOD, VENOUS
     SPERM COUNT                      EPIDIDYMIS, VAS DEFERENS, SPER
     VISCOSITY                        EPIDIDYMIS, VAS DEFERENS, SPER

Press RETURN to continue or '^' to exit: ^
```

Add/Edit Topography Specimen HL7 Code [LR LOINC LEDI HL7 CODE]

This option allows you to add or edit LEDI HL7 Codes. You will be prompted to print out a list of LEDI HL7 specimens codes.

V T We recommended that you have a printout of the list of LEDI HL7 codes when adding or editing LEDI HL7 Codes.

Example: Add or edit LEDI HL7 codes

```
Select LOINC Main Menu Option: 3  Add/edit Topography Specimen HL7

                This option allows the user to add/edit
             Lab Electronic specimen codes in the Topography file.

          It is recommended that you print a copy of Specimen codes
                   to assist you in editing SITE/SPECIMENS.


Print a copy of the Electronic Code specimens? NO// Y  YES

               This option prints a list of specimens from the
                     LAB ELECTRONICS CODE file (#64.061).
                  This list may assist you when linking your
             local TOPOGRAPHY (#61) entries with the file 64.061.
DEVICE: HOME// {Select Print Device}

                        LEDI HL7 ELECTRONIC SPECIMEN CODES
     Feb 12, 1999@12:30                                          Page   1
* Source HL7 0070 Table
================================================================================
1 day                                   1 hour
1 min                                   1 month
1 week                                  10 days
10 hours                                10 mins
10 months                               12 hours
15 mins                                 18 hours
2 days                                  2 hours
2 min                                   2 months
2 weeks                                 2.5 hours
20 mins                                 24 hours
25 mins                                 3 days
3 hours                                 3 mins
3 months                                3 weeks
30 mins                                 4 days
4 hours                                 4 mins

Press RETURN to continue or '^' to exit: <RET>
```

```
                    LEDI HL7 ELECTRONIC SPECIMEN CODES
     Feb 17, 1999@09:28                                          Page   2
* Source HL7 0070 Table
================================================================================
4 weeks                                 45 mins
5 days                                  5 hours
5 mins                                  6 days
6 hours                                 6 mins
7 days                                  7 hours
7 mins                                  72 hours
8 hours                                 8 hr Shift
8 mins                                  9 hours
9 mins                                  90 mins
ABDOMEN                                 ABDOMEN.MID
ABDOMINAL WALL                          ALLERGIC & IMMUNILOGIC
AMNIOTIC FLUID.QUADRANT FOUR            AMNIOTIC FLUID.QUADRANT ONE
AMNIOTIC FLUID.QUADRANT THREE           AMNIOTIC FLUID.QUADRANT TWO
ANKLE                                   AORTA
AORTA ASCENDING                         AORTA DESCENDING

Press RETURN to continue or '^' to exit: <RET>


                    LEDI HL7 ELECTRONIC SPECIMEN CODES
     Feb 17, 1999@09:28                                          Page   3
* Source HL7 0070 Table
================================================================================
AORTA.ABDOMINAL.DISTAL                  AORTA.ABDOMINAL.PROXIMAL
AORTA.THORACIC.ASCENDING                AORTA.THORACIC.DESCENDING
AORTA.THORACIC.PROXIMAL ASCENDING       AORTIC ARCH
AORTIC ROOT                             ARM,UPPER
ARTERIAL SYSTEM                         ARTIFICIAL CARDIAC PACEMAKER
ASTERISK                                ATRIUM.LEFT
ATRIUM.RIGHT                            ATRIUM.RIGHT.HIGH
ATRIUM.RIGHT.LOW                        ATRIUM.RIGHT.MID
AXILLA                                  AXILLARY
*Abcess                                 *Amniotic fluid
*Another message part                   Anus
*Aspirate                               BACK
BILIARY DRAIN                           BILIARY TRACT
BLADDER                                 BLD/MAR
BLDP                                    BLOOD PRESSURE DEVICE

Press RETURN to continue or '^' to exit: <RET>
```

```
                    LEDI HL7 ELECTRONIC SPECIMEN CODES
     Feb 17, 1999@09:28                                          Page   4
* Source HL7 0070 Table
================================================================================
BODY TEMPERATURE DEVICE                 BOWEL
BRACHIAL ARTERY                         BRACHIAL ARTERY.LEFT
BRACHIAL ARTERY.RIGHT                   BRAIN
BREASTS                                 BREATH RATE DEVICE
BREATH RATE MEASUREMENT                 BUTTOCKS
Baseline                                *Basophils
*Bile fluid                             *Blood  arterial
*Blood  capillary                       *Blood  venous
*Blood - cord                           *Blood bag
Blood product unit                      *Body fluid, unsp
*Bone                                   *Breast milk
*Breath (use EXHLD)                     *Bronchial
*Burn                                   CALF
CALF.LEFT                               CALF.RIGHT
CAPILLARY BED                           CARDIAC APEX

Press RETURN to continue or '^' to exit:

Select Topography Specimen to Map: blood ,v
     1   BLOOD VESSEL  BLOOD VESSEL        40000
     2   BLOOD VESSEL AND BLOOD VESSEL,  BLOOD VESSEL AND BLOOD VESSEL, CS
  40900
     3   BLOOD VESSEL OF RETINA  BLOOD VESSEL OF RETINA        XX370
     4   BLOOD, VENOUS  BLOOD, VENOUS        0X003
CHOOSE 1-4: 4  BLOOD, VENOUS        0X003
LEDI HL7: ?
     This field contains the standard HL7 specimen type code.
     Limits the selection of only Specimen type codes.
 Answer with LAB ELECTRONIC CODES NAME, or LOINC ABBR, or HL7 ABBR, or
     LAB ABBR, or TYPE
 Do you want the entire LAB ELECTRONIC CODES List? NO
LEDI HL7: vena
     1   VENA CAVA          SPECIMEN      from LOINC system list
     2   VENA CAVA. INFERIOR          SPECIMEN      from LOINC system list
     3   VENA CAVA. SUPERIOR          SPECIMEN      from LOINC system list
     4   VENOUS.CENTRAL          SPECIMEN      from LOINC system list
CHOOSE 1-4:??
     This field contains the standard HL7 specimen type code.
     Limits the selection of only Specimen type codes.
LEDI HL7: blood
     1   BLOOD PRESSURE DEVICE          SPECIMEN      from LOINC system list
     2   BLOOD  ARTERIAL  Blood  arterial    SPECIMEN    from LOINC system list
     3   BLOOD  CAPILLARY  Blood  capillary   SPECIMEN   from LOINC system list
     4   BLOOD  VENOUS  Blood  venous       SPECIMEN     from LOINC system list
     5   BLOOD - CORD  Blood - cord        SPECIMEN      from LOINC system list


CHOOSE 1-5: 4  Blood  venous        SPECIMEN      from LOINC system list
```

Mapping Lab Tests to Result NLT Codes

Lab Tests With/Without Result NLT Codes Print [LR LOINC PRINT RESULTNLT]

This option allows you to print a list of Lab Tests with or without Result NLT Codes. Lab tests must have a Result NLT Code before they can be mapped to a LOINC code. To enter or edit a Result NLT Code, you may use the option Link Result NLT Manual [LR7O MAN RESULT NLT] option under the National Laboratory File [LR70 60-64] menu.

Example 1: Print all Lab test with Result NLT codes

```
Select LOINC Main Menu Option: 9 Lab Tests With/Without Result NLT Codes Print
            This option will print tests and their RESULT NLT CODES
           assigned. Result NLT codes are required for LEDI and LOINC
                       Mapping software to function properly.
   You may use the option 'Link Result NLT Manual' to make necessary changes.

       Only CH subscripted tests that have TYPE of either BOTH or OUTPUT.

     Select one of the following:

          0         All Lab Tests
          1         Lab Tests with Result NLT Codes
          2         Lab Tests without Result NLT Codes

Enter response: 0  All Lab Tests
DEVICE: HOME// {Select Print Device}

     Feb 12, 1999@13:05:37                                  Page: 1
                Alphabetical Listing of CH Subscripted Lab Tests

  IEN     Lab Test Name
      NLT #        Result NLT Code Name

  431   1,25-DIHYDROXYVIT D3
 1823   1-METHYLHISTIDINE
 1198   1/2HR LTT
 1680   1/2HR LTT (URINE)
  470   1/2Hr.GTT
  478   1/2Hr.GTT (URINE)
  237   11-DEOXYCORTISOL
 2676   11-HYDROXYANDROSTERONE
 2677   11-HYDROXYETIOCHOLANOLONE
 2674   11-KETOANDROSTERONE
 2675   11-KETOETIOCHOLANOLONE
  615   17-HYDROXYCORTICOSTEROIDS
  616   17-HYDROXYPROGESTERONE
  621   17-KETOGENIC STEROIDS
  622   17-KETOSTEROIDS,TOTAL
 2039   18-OH CORTICOSTERONE

                    Total Printed Tests: 16
```

Example 2: Print Lab test with Result NLT codes

```
Select LOINC Main Menu Option: 9 Lab Tests With/Without Result NLT Codes Print
            This option will print tests and their RESULT NLT CODES
           assigned. Result NLT codes are required for LEDI and LOINC
                     Mapping software to function properly.
   You may use the option 'Link Result NLT Manual' to make necessary changes.

       Only CH subscripted tests that have TYPE of either BOTH or OUTPUT.

     Select one of the following:

          0         All Lab Tests
          1         Lab Tests with Result NLT Codes
          2         Lab Tests without Result NLT Codes

Enter response: 1  Lab Tests with Result NLT Codes
DEVICE: HOME// {Select Print Device}

     Feb 12, 1999@13:05:44                                  Page: 1
                Alphabetical Listing of CH Subscripted Lab Tests
                                RESULT NLT CODES

  IEN     Lab Test Name
      NLT #        Result NLT Code Name

303   ACETAMINOPHEN
     [ 81068.0000 Acetaminophen ]

  193   ACETONE
     [ 81504.0000 Acetone ]

  439   ACETYLCHOLINE RECEPTOR
     [ 89080.0000 Acetylcholine receptor ]

  208   ACTH
     [ 82020.0000 ACTH ]

  185   ALBUMIN
     [ 82040.0000 Albumin ]

Enter RETURN to continue or '^' to exit: ^
```

Example 3: Print Lab test without Result NLT codes

```
Select LOINC Main Menu Option: 9  Lab Tests With/Without Result NLT Codes Print

           This option will print tests and their RESULT NLT CODES
          assigned. Result NLT codes are required for LEDI and LOINC
                    Mapping software to function properly.
   You may use the option 'Link Result NLT Manual' to make necessary changes.

       Only CH subscripted tests that have TYPE of either BOTH or OUTPUT.

Select one of the following:

          0         All Lab Tests
          1         Lab Tests with Result NLT Codes
          2         Lab Tests without Result NLT Codes

Enter response: 2  Lab Tests With/Without Result NLT Codes
DEVICE: HOME// {Select Print Device}


     Feb 12, 1999@13:08:06                                  Page: 1
                Alphabetical Listing of CH Subscripted Lab Tests
                  That do not have RESULT NLT CODES assigned

  IEN     Lab Test Name

  431   1,25-DIHYDROXYVIT D3
 1823   1-METHYLHISTIDINE
 1198   1/2HR LTT
 1680   1/2HR LTT (URINE)
  470   1/2Hr.GTT
  478   1/2Hr.GTT (URINE)
  237   11-DEOXYCORTISOL
 2676   11-HYDROXYANDROSTERONE
 2677   11-HYDROXYETIOCHOLANOLONE
 2674   11-KETOANDROSTERONE
 2675   11-KETOETIOCHOLANOLONE
  615   17-HYDROXYCORTICOSTEROIDS
  616   17-HYDROXYPROGESTERONE
  621   17-KETOGENIC STEROIDS
  622   17-KETOSTEROIDS,TOTAL

                    Total Printed Tests: 15
```

National Laboratory File [LR7O 60-64]

The National Laboratory File option has four suboptions.

1 Semi-automatic Linking of file 60 to 64 [LR7O 60-64 AUTO]

Use this option first to automatically link the LABORATORY TESTS file (#60) to WKLD CODES file (#64).

This option looks for potential matches in File (#60) with File (#64) and allows the user to link the entries. After this option is run, the Manual Linking of File 60 to 64 [LR7O 60-64 MANUAL] option should be used to manually link the entries that this option could not match.

V T The Semi-Automatic Linking of File 60 to 64 [LR7O 60-64 AUTO] option should be used first to link exact matching entries in File (#60) to entries in File (#64).

Example: Semi-automatic Linking of file 60 to 64

```
Select National Laboratory File Option: 1  Semi-automatic Linking of file 60 to
64


 This option will look for potential matches between file 64 (NLT) and file 60.
   You will be allowed to create a permanent link between matching entries in
 these files. Tests with the type of NEITHER will be omitted during link phase.

               ONLY GENERIC NLT CODES CAN BE LINKED TO LAB TEST


      Those LAB TEST already linked to the NLT file will also be omitted.

Would you like a list of WKLD CODES from LABORATORY TEST file? No// <RET>  NO

Ready to proceed? Y  YES

     Do you want to automatically link entries when there is an exact match

                             on the NAME in both files
? No// Y
  (Yes)


    Did not find a exact name match for Lab Test -VDRL QUAN DONE
 Want to use a Verify WKLD code instead?

  Rapid Plasma Reagin~RAPID PLASMA REAGIN QUANT   89106.3833

Select Verify WKLD if appropriate <RET>
```

```
    Did not find a exact name match for Lab Test 1/2HR LTT
 Want to use a Verify WKLD code instead?

  Glucose Quant~EKTACHEM 700XRC                   84330.4415

Select Verify WKLD if appropriate


    Did not find a exact name match for Lab Test ABSOLUTE LYMPHS
 Want to use a Verify WKLD code instead?

  Misc Hem Test 1~MANUAL                          85031.3000

Select Verify WKLD if appropriate <RET>


60 = ACETALDEHYDE
64 = Acetaldehyde   81502.0000
                               o----LINKED----o



    Did not find a exact name match for Lab Test ACHR RECEPTOR BINDING AB (SK)
 Want to use a Accession WKLD code instead?

  Specimen Dispatch w data handl~SMITH KLINE BEECHAM89351.8001

Select Accession WKLD if appropriate <RET>



    Did not find a exact name match for Lab Test ACHR RECEPTOR MODULATING
AB (MAYO)
 Want to use a Verify WKLD code instead?

  Misc Chem Test 1~MAYO                           81096.8010

Select Verify WKLD if appropriate <RET>



    Did not find a exact name match for Lab Test AFB CULTURE & SMEAR
(SEND)
 Want to use a Accession WKLD code instead?

  InHouse or Send Out Test~MICROSCOPIC/SEND OUT   87101.8100
  InHouse or Send Out Test~CULT/SEND OUT          87101.8200

Select Accession WKLD if appropriate <RET>



    Did not find a exact name match for Lab Test AFB CULTURE (ISP)
 Want to use a Accession WKLD code instead?

  Specimen Dispatch w data handl~IU LABS          89351.8027
  InHouse or Send Out Test~MICROSCOPIC/SEND OUT   87101.8100
  InHouse or Send Out Test~CULT/SEND OUT          87101.8200

Select Accession WKLD if appropriate <RET>
```

```
   Did not find a exact name match for Lab Test AFB SMEAR (ISP)
 Want to use a Accession WKLD code instead?

  Specimen Dispatch w data handl~IU LABS          89351.8027
  InHouse or Send Out Test~MICROSCOPIC/SEND OUT   87101.8100
```

2 Manual Linking of file 60 to 64 [LR7O 60-64 MANUAL]

This option loops through the entries in LABORATORY TEST file (#60) in alphabetical order and allows the user to link its entries with appropriate entries in WKLD CODE file (#64). This process needs to be done prior to the installation of OE/RR V. 3.0.

Example: Manual Linking of file 60 to 64

```
Select National Laboratory File Option: 2  Manual Linking of file 60 to 64
     Would you like a list of Laboratory Tests

     Select one of the following:

          0         No
          1         ALL
          2         Linked
          3         Unlinked

Enter response: 0  No
  This option will allow you to make links between file 64 (NLT) and file 60.
          You must select a GENERIC NLT (.0000 suffix) code to create
                 a linkage of entries between these two files.
    Tests with the type of NEITHER or null will be skipped in the Auto Mode.
            ONLY ORDERABLE LAB TEST NEED TO BE LINKED TO WKLD CODES.

Would you like a list of WKLD CODES from LABORATORY TEST file? No// <RET>  NO

Ready to proceed? YES


                            Select Linking Method
              Linking options description
ONLY ORDERABLE LAB TEST NEED TO BE LINKED TO WKLD CODES.



(S) You can use the semi automated method, which will provide a
alphabetical listing of LABORATORY TEST names. The system will prompt
you for those tests not already assigned a WKLD CODE.
Tests with null TYPE or with the type of NEITHER are excluded.

 (M) Using the Manual method, you are able to select ANY test
regardless of the type field in the LABORATORY TEST file,
and assign it a WKLD CODE. If the test is already linked
the system will display the code and allow you to change
the WKLD CODE assigned. This method will allow you to
change linked LABORATORY TEST to another WKLD CODE.
```

```
Select one of the following:

          M         Manual
          S         Semi-Auto

Select Linking Method : M  Manual
You may select any test in LABORATORY TEST FILE: GLUCOSE
     1   GLUCOSE
     2   GLUCOSE (BST)
     3   GLUCOSE PHOS. ISOMERASE, ERYTH.
     4   GLUCOSE TOLERANCE TEST (Blood)
     5   GLUCOSE TOLERANCE TEST (URINE)
Press <RETURN> to see more, '^' to exit this list, OR
CHOOSE 1-5: 1  GLUCOSE

Now select a WKLD CODE for GLUCOSE


WKLD CODE: GLUCOSE
     1   GLUCOSE TT 2HR  Glucose 2hr        81162.0000
     2   GLUCOSE TT 3HR  Glucose Tolerance 3hr        81163.0000
     3   GLUCOSE TT 6HR  Glucose Tolerance 6hr        81164.0000
     4   GLUCOSE 6 PHOS DEHYDROGENASE  Glucose 6 Phos Dehydrogenase
82955.0000
     5   GLUCOSE FASTING  Glucose Fasting        81352.0000
Press <RETURN> to see more, '^' to exit this list, OR
CHOOSE 1-5: <RET>
     6   GLUCOSE QUAL  Glucose Qual        81470.0000
     7   GLUCOSE QUANT  Glucose Quant        84330.0000
     8   GLUCOSE STICK  Glucose Stick        81184.0000
     9   GLUCOSE TOLERANCE 4HR  Glucose Tolerance 4hr        83001.0000
     10  GLUCOSE TOLERANCE 5HR  Glucose Tolerance 5hr        83002.0000
CHOOSE 1-10: 7  Glucose Quant        84330.0000

60 = GLUCOSE
64 = Glucose Quant   84330.0000
     Link the two entries? No// Y  (Yes)
??
                                o----LINKED----o

You may select any test in LABORATORY TEST FILE: ALBUMIN
     1   ALBUMIN
     2   ALBUMIN CLEARANCE/MIN
     3   ALBUMIN, URINARY  MICROALBUMIN, TIMED PANEL
     4   ALBUMIN/CREATININE RATIO  MICROALBUMIN, RANDOM PANEL
CHOOSE 1-4: 1  ALBUMIN

Now select a WKLD CODE for ALBUMIN

WKLD CODE: ALBUMIN
     1   ALBUMIN  Albumin        82040.0000
     2   ALBUMIN FRACT URINE  Albumin Fract Urine        81577.0000
     3   ALBUMIN FRACTION  Albumin Fraction        81365.0000
     4   ALBUMIN PRE   Albumin Pre         82042.0000
     5   ALBUMIN/CREAT RATIO  Albumin/Creat Ratio        81214.0000
Press <RETURN> to see more, '^' to exit this list, OR
CHOOSE 1-5: 1  Albumin        82040.0000

60 = ALBUMIN
64 = Albumin   82040.0000
     Link the two entries? No// Y  (Yes)
??
                                o----LINKED----o
```

```
You may select any test in LABORATORY TEST FILE: FERRITIN

Now select a WKLD CODE for FERRITIN


WKLD CODE: FERRITIN  Ferritin        82370.0000

60 = FERRITIN
64 = Ferritin   82370.0000
     Link the two entries? No// Y  (Yes)
??
                                o----LINKED----o
```

3 Result NLT Auto Linker [LR7O AUTO RESULT NLT]

This option will assist you in assigning Result NLT codes to Atomic tests in the Laboratory Test file (#60). The RESULT NLT CODE is used by the LEDI software to identify the test. You can use this option to identify and link test names locally.

The RESULT NLT CODE can only be assigned to Atomic tests and it can only be assigned to a single test.

You may choose to have the system prompt with RESULT NLT CODE or it can be automatically stuffed for those having exact match of the names.

Example Result NLT Auto Linker

```
Select National Laboratory File Option: 3  Result NLT Auto Linker
   This option will Auto Link RESULT NLT CODE to Laboratory test file (#60).
            RESULT NLT CODE is used by the LEDI software to identify
                  test results returned by Host Laboratories.
               ONLY GENERIC NLT CODES CAN BE LINKED TO LAB TEST


               Only ATOMIC lab tests can have an NLT RESUTL CODE.

Would you like a list of RESULT NLT CODES from LABORATORY TEST file? No// N  NO

Ready to proceed? YES

     Do you want to automatically link entries when there is an exact match
                           on the NAME in both files
? No// Y
  (Yes)
     Press Return to Stop Auto Update


60 = ARBOVIRUS EEE TITER
64 = Arbovirus EEE Titer   87473.0000
                                o----LINKED----o
```

```
60 = ARBOVIRUS SLE TITER
64 = Arbovirus SLE Titer   87475.0000
                                o----LINKED----o


60 = ARBOVIRUS WEE TITER
64 = Arbovirus WEE Titer   87477.0000
                                o----LINKED----o


60 = ARSENIC
64 = Arsenic   81538.0000
                                o----LINKED----o
```

4 Link Result NLT Manual [LR7O MAN RESULT NLT]

This option allows you to manually select an Atomic test and assign a RESULT NLT CODE.

This option can also be used to change or delete RESULT NLT CODES.

RESULT NLT CODES are required by the NLT Mapping to LOINC software to identify test names. You can use the RESULT NLT CODE to link to local test names.

You can use this option to link LABORATORY TEST file (#60) to the NATIONAL LABORATORY TEST file (#64) before mapping LOINC to Lab tests.

Example: Link Result NLT Manual

```
Select National Laboratory File Option: 4  Link Result NLT Manual
     Would you like a list of Result NLT linked codes

     Select one of the following:

          0         No
          1         ALL
          2         Linked
          3         Unlinked

Enter response: 0  No
     You have not yet ran the Semi-automatic Linking of RESULT NLT  option
                    [LR70 641-64 AUTO]

IT IS STRONGLY RECOMMENDED YOU RUN THE AUTOMATIC OPTION FIRST

This option will allow you to assign RESULT NLT Code to Atomic Lab Tests.
                 You must select a GENERIC NLT (.0000 suffix).
    Tests with the type of NEITHER or null will be skipped in the Auto
Mode.
     ONLY ATOMIC LAB TEST YIELDING RESULTS SHOULD BE ASSIGNED RESULT
CODES.
```

```
Print list of both NLT and RESULT NLT CODES from LABORATORY TEST file? No//
<RET> NO

Ready to proceed? Y  YES


                            Select Linking Method
              Linking RESULT NLT CODE methods description

                       ONLY ATOMIC LAB TEST
          YIELDING A RESULT CAN BE LINKED TO RESULT NLT CODES.



(S) You can use the semi automated method, which will provide a
alphabetical listing of LABORATORY TEST names. The system will prompt
you for those tests not already assigned a RESULT NLT CODE.
Tests with null TYPE or with the type of NEITHER are excluded.

(M) Using the Manual method, you are able to select ANY ATOMIC test
regardless of the type field in the LABORATORY TEST file,
and assign it a RESULT NLT CODE. If the test is already linked
the system will display the code and allow you to change
the RESULT NLT CODE assigned. This method will allow you to
change linked LABORATORY TEST to another RESULT NLT CODE.



     Select one of the following:

          M         Manual
          S         Semi-Auto

Select Linking Method : M  Manual

You may select any ATOMIC test in LABORATORY TEST FILE: gluco
     1   GLUCAGON
     2   GLUCOSAMINIC ACID
     3   GLUCOSE
     4   GLUCOSE (BST)
     5   GLUCOSE PHOS. ISOMERASE, ERYTH.
Press <RETURN> to see more, '^' to exit this list, OR
CHOOSE 1-5: 3  GLUCOSE

Now select a RESULT NLT CODE for GLUCOSE

RESULT NLT CODE: glucose
     1   GLUCOSE TT 2HR  Glucose 2hr        81162.0000
     2   GLUCOSE TT 3HR  Glucose Tolerance 3hr        81163.0000
     3   GLUCOSE TT 6HR  Glucose Tolerance 6hr        81164.0000
     4   GLUCOSE 6 PHOS DEHYDROGENASE  Glucose 6 Phos Dehydrogenase
82955.0000
     5   GLUCOSE FASTING  Glucose Fasting        81352.0000
Press <RETURN> to see more, '^' to exit this list, OR
CHOOSE 1-5: <RET>
     6   GLUCOSE QUAL  Glucose Qual        81470.0000
     7   GLUCOSE QUANT  Glucose Quant        84330.0000
     8   GLUCOSE STICK  Glucose Stick        81184.0000
     9   GLUCOSE TOLERANCE 4HR  Glucose Tolerance 4hr        83001.0000
     10  GLUCOSE TOLERANCE 5HR  Glucose Tolerance 5hr        83002.0000
CHOOSE 1-10: 7  Glucose Quant        84330.0000
```

```
IEN: [175] GLUCOSE
NATIONAL VA LAB CODE: Glucose Quant            RESULT NLT CODE: Glucose
Quant
CATALOG ITEM: YES
```

VT We recommend you print the Lab Tests with Result NLT Code after linking the Result NLT to Atomic lab tests to assist you in mapping lab tests to LOINC.

Mapping Lab Tests to LOINC

Map Lab Tests to LOINC Codes [LR LOINC MAP]

This option allows you to map VISTA lab tests to LOINC codes. This option allows you to enter the Result NLT Code for a lab test or LEDI HL7 Code for a specimen so that the test can be mapped to a LOINC code.

VT We recommended that you have a printout of the list of LEDI HL7 codes when adding or editing LEDI HL7 Codes.

Example 1: LOINC code selected does not have the same specimen chosen to map

```
Select LOINC Main Menu Option: 6  map Lab Tests to LOINC Codes


VistA Lab Test to Link/Map to LOINC : gluco
     1   GLUCOSAMINIC ACID
     2   GLUCOSE
     3   GLUCOSE (BST)
     4   GLUCOSE PHOS. ISOMERASE, ERYTH.
     5   GLUCOSE, OTHER
CHOOSE 1-5: 2  GLUCOSE

Specimen source: ?
 Answer with SITE/SPECIMEN, or FOREIGN COMPUTER SYSTEM
Choose from:
   BLOOD
   URINE
   CEREBROSPINAL FLUID
   PERITONEAL FLUID
   PLEURAL FLUID
   SYNOVIAL FLUID
   PERICARDIAL FLUID
   KNEE
   ARTERIAL BLOOD
   BLOOD, VENOUS

     You may enter a new SITE/SPECIMEN, if you wish
     To enter a Site/specimen, a Data name must be entered.
 Answer with TOPOGRAPHY FIELD NAME
 Do you want the entire 8644-Entry TOPOGRAPHY FIELD List? N (NO)
Specimen source: blood
     1   BLOOD          0X000
     2   BLOOD, VENOUS          0X003
CHOOSE 1-2: 1  BLOOD        0X000
         ...OK? Yes// Y  (Yes)
```

```
Do you want to see possible LOINC code? NO


Enter LOINC Code/Name : GLU...BLD
 Answer with LAB LOINC CODE, or COMPONENT, or FULLY SPECIFIED NAME, or
     RELATED NAMES
 Do you want the entire 15447-Entry LAB LOINC List? Y  (YES)


You can see possible LOINC CODES/Specimen by entering the
LOINC Test Name..Specimen   example( GLUCOSE..UR )

Enter LOINC Code Name or LOINC Number

Enter LOINC Code/Name : GLUCOSE
     1   GLUCOSE PC  14760
   GLUCOSE~2H POST MEAL:SCNC:PT:BLDC:QN
     2   GLUCOSE RANDOM  14743
   GLUCOSE:SCNC:PT:BLDC:QN:GLUCOMETER
     3   GLUCOSE RANDOM  14749
   GLUCOSE:SCNC:PT:SER/PLAS:QN
     4   GLUCOSE-6-PHOSPHATE ISOMERASE  2353
   GLUCOSE PHOSPHATE ISOMERASE:CCNC:PT:SER:QN
     5   GLUCOSE CSF/GLUCOSE PLAS..CSF+PLAS  2352
   GLUCOSE CSF/GLUCOSE PLAS:MCRTO:PT:CSF+PLAS:QN
Press <RETURN> to see more, '^' to exit this list, OR
CHOOSE 1-5: <RET>
     6   GLUCOSE MEAN VALUE..BLD  13453
   GLUCOSE MEAN VALUE:ACNC:PT:BLD:QN:ESTIMATED FROM GLYCATED HEMOGLOBIN
     7   GLUCOSE PHOSPHATE ISOMERASE..RBC  11047
   GLUCOSE PHOSPHATE ISOMERASE:CCNC:PT:RBC:QN
     8   GLUCOSE-6-PHOSPHATASE..SER  2354
   GLUCOSE-6-PHOSPHATASE:CCNC:PT:SER:QN
     9   GLUCOSE-6-PHOSPHATASE..TISS  2355
   GLUCOSE-6-PHOSPHATASE:CCNT:PT:TISS:QN
     10  GLUCOSE-6-PHOSPHATE DEHYDROGEN..RBC  2356
   GLUCOSE-6-PHOSPHATE DEHYDROGENASE:ACNC:PT:RBC:ORD
Press <RETURN> to see more, '^' to exit this list, OR
CHOOSE 1-10: <RET>
     11  GLUCOSE-6-PHOSPHATE DEHYDROGEN..RBC  2357
   GLUCOSE-6-PHOSPHATE DEHYDROGENASE:CCNC:PT:RBC:QN
     12  GLUCOSE-6-PHOSPHATE DEHYDROGEN..SER  2358
   GLUCOSE-6-PHOSPHATE DEHYDROGENASE:ACNC:PT:SER:ORD
     13  GLUCOSE-6-PHOSPHATE DEHYDROGEN..SER  2359
   GLUCOSE-6-PHOSPHATE DEHYDROGENASE:CCNC:PT:SER:QN
     14  GLUCOSE-6-PHOSPHATE DEHYDROGEN..WBC  2360
   GLUCOSE-6-PHOSPHATE DEHYDROGENASE:CCNC:PT:WBC:QN
     15  GLUCOSE..AMN  6300
   GLUCOSE:MCNC:PT:AMN:QN
Press <RETURN> to see more, '^' to exit this list, OR
CHOOSE 1-15: <RET>
     16  GLUCOSE..BLD  2339
   GLUCOSE:MCNC:PT:BLD:QN
     17  GLUCOSE..BLD  2340
   GLUCOSE:MCNC:PT:BLD:QN:TEST STRIP AUTO
     18  GLUCOSE..BLD  2341
   GLUCOSE:MCNC:PT:BLD:QN:TEST STRIP MANUAL
     19  GLUCOSE..BLD  5914
   GLUCOSE:ACNC:PT:BLD:ORD:DIPSTICK COLORIMETRIC
Press <RETURN> to see more, '^' to exit this list, OR
CHOOSE 1-60: 16  2339
   GLUCOSE:MCNC:PT:BLD:QN
```

```
LOINC CODE: 2339   GLUCOSE:MCNC:PT:BLD:QN
SYSTEM: Whole blood                    CLASS: CHEM
COMPONENT: GLUCOSE
PROPERTY: Mass Concentration
TIME ASPECT: POINT
SCALE TYPE: Quantitative


Is this the correct one? Y  YES

The LOINC code that you have selected does not have the
same specimen that you chose to map.
Are you sure you want to do this? N  NO
```

Example 2: LOINC code selected has the same specimen chosen to map

```
Select LOINC Main Menu Option: 6  map Lab Tests to LOINC Codes

VistA Lab Test to Link/Map to LOINC : GLUCOSE
     1   GLUCOSE
     2   GLUCOSE (BST)
     3   GLUCOSE PHOS. ISOMERASE, ERYTH.
     4   GLUCOSE, OTHER
CHOOSE 1-4: 1  GLUCOSE

Specimen source: ?
 Answer with SITE/SPECIMEN, or FOREIGN COMPUTER SYSTEM
Choose from:
   BLOOD
   URINE
   CEREBROSPINAL FLUID
   PERITONEAL FLUID
   PLEURAL FLUID
   SYNOVIAL FLUID
   PERICARDIAL FLUID
   KNEE
   ARTERIAL BLOOD
   BLOOD, VENOUS

     You may enter a new SITE/SPECIMEN, if you wish
     To enter a Site/specimen, a Data name must be entered.
 Answer with TOPOGRAPHY FIELD NAME
 Do you want the entire 8644-Entry TOPOGRAPHY FIELD List? N (NO)
Specimen source: URINE          7X100
         ...OK? Yes// Y  (Yes)



Do you want to see possible LOINC code? Y  (YES)


1:GLUCOSE~30M POST 100 G GLUCOSE PO:MCNC:PT:UR:QN
2:GLUCOSE~90M POST 100 G GLUCOSE PO:MCNC:PT:UR:QN
3:GLUCOSE~1H POST 100 G GLUCOSE PO:MCNC:PT:UR:QN
4:GLUCOSE~1H POST 50 G GLUCOSE PO:MCNC:PT:UR:QN
5:GLUCOSE~1H POST 75 G GLUCOSE PO:MCNC:PT:UR:QN
6:GLUCOSE~2H POST 100 G GLUCOSE PO:MCNC:PT:UR:QN
7:GLUCOSE~2H POST 75 G GLUCOSE PO:MCNC:PT:UR:QN
8:GLUCOSE~3H POST 100 G GLUCOSE PO:MCNC:PT:UR:QN
9:GLUCOSE~4H POST 100 G GLUCOSE PO:MCNC:PT:UR:QN
10:GLUCOSE~5H POST 100 G GLUCOSE PO:MCNC:PT:UR:QN
11:GLUCOSE~6H POST 100 G GLUCOSE PO:MCNC:PT:UR:QN
12:GLUCOSE~POST 12H CFST:MCNC:PT:UR:QN
13:GLUCOSE:ACNC:PT:UR:ORD
14:GLUCOSE:MCNC:PT:UR:QN
15:GLUCOSE:MRAT:24H:UR:QN
16:GLUCOSE:MCNC:PT:UR:ORD:TEST STRIP
17:GLUCOSE~1H POST 50 G LACTOSE PO:ACNC:PT:UR:ORD:TEST STRIP


LOINC code to map this test:  (1-17): 14
LOINC CODE: 2350   GLUCOSE:MCNC:PT:UR:QN
SYSTEM: Urine                          CLASS: CHEM
```

```
COMPONENT: GLUCOSE
PROPERTY: Mass Concentration
TIME ASPECT: POINT
SCALE TYPE: Quantitative
Is this the correct one? Y  (YES)

     1   84330.0000   Glucose Quant        84330.0000
     2   84330.3000   Glucose Quant~MANUAL        84330.3000
     3   84330.3009   Glucose Quant~IL 282 CO-OXIMETER        84330.3009
     4   84330.3192   Glucose Quant~INSTRUMENT NOS 2        84330.3192
     5   84330.3390   Glucose Quant~SYSMEX NE-8000        84330.3390
Press <RETURN> to see more, '^' to exit this list, OR
CHOOSE 1-5: <RET>
     6   84330.3970   Glucose Quant~GCMS SETUP/INJ        84330.3970
     7   84330.3980   Glucose Quant~ELECTROPHORESIS, REP ANALYZER    84330.3980
     8   84330.4002   Glucose Quant~TDX FLX        84330.4002
     9   84330.4126   Glucose Quant~STRATUS II        84330.4126
     10  84330.4128   Glucose Quant~HITACHI 911        84330.4128
Press <RETURN> to see more, '^' to exit this list, OR
CHOOSE 1-10: <RET>
     11  84330.4340   Glucose Quant~CLINITEK 200+        84330.4340
     12  84330.4415   Glucose Quant~EKTACHEM 700XRC        84330.4415
     13  84330.4435   Glucose Quant~STAT PROFILE PLUS 9        84330.4435
     14  84330.4455   Glucose Quant~ABBOTT AXSYM        84330.4455
     15  84330.4582   Glucose Quant~CELL DYN 3500R        84330.4582
Press <RETURN> to see more, '^' to exit this list, OR
CHOOSE 1-15: 10  Glucose Quant~HITACHI 911        84330.4128


NLT: Glucose Quant~HITACHI 911
WKLD CODE: 84330.4128
SPECIMEN: URINE
TIME ASPECT: POINT       DATA LOCATION: DD(63.04,2,

TEST: 175         LOINC CODE: 2350
```

NLT/LOINC Codes Print [LR LOINC PRINT NLT/LOINC]

This option allows you to print a list of LOINC codes in the NATIONAL LABORATORY TEST file (#64) . The NLT and the corresponding LOINC code are printed. Only entries with LOINC codes are printed.

The `Enter response`: prompt requires a reply. If you are not going to print a list of LOINC codes, you can select to abort.

Example: Ready to Print WORKLOAD CODES MAPPED TO LOINC

```
Select LOINC Main Menu Option: 7  NLT/LOINC Codes Print

          This option will print WORKLOAD CODES and their LOINC CODES.
   You may use the option 'MAP LOINC TEST TO NLT' to make necessary changes.

     Select one of the following:

          1         Ready to print WORKLOAD CODES MAPPED TO LOINC
          2         Abort

Enter response: 1

DEVICE: HOME// {Select Print Device}


                 Alphabetical Listing of Workload (WKLD) CODES
                        that are Mapped to LOINC Codes.
     Feb 17, 1999 8:32:06 am                                  Page: 1

NLT IEN #        WKLD CODE Name

  697       81512.0000  Aluminum
     Specimen: SERUM
          Collection Type: POINT
LC= ALUMINUM:MCNC:PT:SER:QN
================================================================================
  100022    82310.3103  Calcium~EKTACHEM 700
     Specimen: URINE
          Collection Type: POINT
LC= CALCIUM:SCNC:PT:UR:ORD
================================================================================
  139       82466.0000  Cholesterol Total
     Specimen: SERUM
          Collection Type: POINT
LC= CHOLESTEROL:MCNC:PT:SER:QN
================================================================================
Enter RETURN to continue or '^' to exit: <RET>
```

```
Alphabetical Listing of Workload (WKLD) CODES
                        that are Mapped to LOINC Codes.
     Feb 17, 1999 8:32:06 am                                  Page: 2

NLT IEN #        WKLD CODE Name

  165       82540.0000  Creatine
     Specimen: URINE
          Collection Type: POINT
LC= CREATININE:MCNC:PT:UR:QN
================================================================================
  268       84330.0000  Glucose Quant
     Specimen: BLOOD
          Collection Type: POINT
LC= GLUCOSE:SCNC:PT:BLD:QN
  268       84330.0000  Glucose Quant
     Specimen: SERUM
          Collection Type: Abcess
LC= GLUCOSE:MCNC:PT:SER/PLAS:QN
  268       84330.0000  Glucose Quant
     Specimen: CEREBROSPINAL FLUID
          Collection Type: POINT
LC= GLUCOSE:MCNC:PT:CSF:QN
================================================================================
Enter RETURN to continue or '^' to exit: <RET>


                Alphabetical Listing of Workload (WKLD) CODES
                        that are Mapped to LOINC Codes.
     Feb 17, 1999 8:32:06 am                                  Page: 3

NLT IEN #        WKLD CODE Name

  903       85027.0000  Glycosylated HGB, total
     Specimen: BLOOD
          Collection Type: POINT
LC= HEMOGLOBIN A1C:SFR:PT:BLD:QN:ELECTROPHORESIS
================================================================================
  1942      85118.0000  Red Blood Cell
     Specimen: BLOOD
          Collection Type: Abcess
LC= ERYTHROCYTES:MORPH:PT:BLD:NOM
================================================================================
  577       84295.0000  Sodium
     Specimen: URINE
          Collection Type: Abcess
LC= SODIUM:SCNC:PT:UR:QN
================================================================================
Enter RETURN to continue or '^' to exit: <RET>
```

```
                Alphabetical Listing of Workload (WKLD) CODES
                       that are Mapped to LOINC Codes.
     Feb 17, 1999 8:32:06 am                                  Page: 4

NLT IEN #        WKLD CODE Name

  100004    84295.3035  Sodium~DU PONT ACA
     Specimen: SERUM
          Collection Type: Abcess
LC= AMINOSALICYLATE:MCNC:PT:SER:QN
================================================================================
  2034      81248.0000  pH
     Specimen: PERITONEAL FLUID
          Collection Type: POINT
LC= PH:SCNC:PT:PRT:QN
  2034      81248.0000  pH
     Specimen: PLEURAL FLUID
          Collection Type: POINT
LC= PH:SCNC:PT:PLR:QN
================================================================================
               Total Number of Mapped WKLD CODES/Specimens: 13
```

Print Lab Test Mapped/Not Mapped to LOINC Codes [LR LOINC PRINT 60/LOINC MAP]

This option allows you to print a list of Lab Tests mapped or not mapped to LOINC Codes. This list can be used to see which tests you need to map and which tests are already mapped.

Example 1: Print Lab test mapped to LOINC codes

```
Select LOINC Main Menu Option: 8  PRINT Lab Tests Mapped/Not Mapped to LOINC
Codes
This option prints a list of the LABORATORY TESTS from the LABORATORY TEST
FILE.
                You will be prompted to print lab tests that are
                       mapped/not mapped to a LOINC code.
               Inactive(Type:Neither) lab tests are not reported.


Print lab tests that are mapped/not mapped to a LOINC code.

     Select one of the following:

          1         MAPPED
          2         NOT MAPPED

Enter response: 1  MAPPED
DEVICE: HOME// {Select Print Device}

               LAB TESTS MAPPED TO LOINC CODES
     Feb 12, 1999@13:26                                      Page   1

     LAB TEST                          SPECIMEN                  LOINC CODE
================================================================================

 GLUCOSE                               URINE                      2350
GLUCOSE:MCNC:PT:UR:QN
```

Example 2: Print Lab test not mapped to LOINC codes

```
Select LOINC Main Menu Option: 8  Print Lab Tests Mapped/Not Mapped to LOINC
Codes

This option prints a list of the LABORATORY TESTS from the LABORATORY TEST
FILE.

               You will be prompted to print lab tests that are
                     mapped/not mapped to a LOINC code.
              Inactive(Type:Neither) lab tests are not reported.


Print lab tests that are mapped/not mapped to a LOINC code.

     Select one of the following:

          1         MAPPED
          2         NOT MAPPED

Enter response: 2  NOT MAPPED
DEVICE: HOME// {Select Print Device}

                LAB TESTS NOT MAPPED TO LOINC CODES
     Feb 12, 1999@13:26                                        Page   1

     LAB TEST                          SPECIMEN
================================================================================

 WBC                                   BLOOD
                                       URINE
                                       CEREBROSPINAL FLUID
                                       PERITONEAL FLUID
                                       PLEURAL FLUID
                                       SYNOVIAL FLUID
 RBC                                   BLOOD
                                       URINE
                                       CEREBROSPINAL FLUID
                                       PERITONEAL FLUID
                                       PLEURAL FLUID
                                       SYNOVIAL FLUID
 HGB                                   BLOOD
 HCT                                   BLOOD
 MCV                                   BLOOD
```

Glossary

Analyte	A substance undergoing analysis.
ASTM	American Society for Testing and Materials. ASTM is a not-for-profit organization that provides a forum for producers, users, ultimate consumers, and those having a general interest (representatives of government and academia) to meet on common ground and write standards for materials, products, systems, and services. A standard specification for representing clinical laboratory test.
CDC	Center for Disease Control
EUCLIDES	European standard for clinical laboratory data exchange
HCFA	Health Care Financing Administration HCFA regulates all laboratory testing (except research) performed on humans in the U.S. through the Clinical Laboratory Improvement Amendments (CLIA).
IUPAC	The International Union of Pure and Applied Chemistry (IUPAC) serves to advance the worldwide aspects of the chemical sciences and to contribute to the application of chemistry in the service of Mankind. As a scientific, international, non-governmental and objective body, IUPAC can address many global issues involving the chemical sciences.

LOINC	Logical Observation Identifier Names and Codes LOINC is Copyright 1995,1996,1997 by Regenstrief Institute and the Logical Observation Identifier Names and Codes® (LOINC) Committee. All rights reserved.
SNOMED	Systemized Nomenclature of Medicine developed to standardize the coding information regarding specific diseases.