Preface

The DHCP Health Level Seven (HL7) software package provides an interface that allows DHCP applications to exchange healthcare data with other applications using the HL7 Protocol. This manual provides instructions to IRM Service personnel for the operation of the DHCP HL7 package through the use of various menu options.
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Introduction

Overview

The first step in understanding the DHCP Health Level Seven (HL7) package is a basic understanding of HL7 itself. HL7 is a standard protocol which specifies the implementation of interfaces between two computer applications (sender and receiver) for electronic data exchange in healthcare environments. HL7 allows healthcare institutions to exchange key sets of data from different application systems. Specifically, it defines the following:

- The data to be exchanged
- The timing of the interchange
- The communication of errors to the sending/receiving application

The formats are generic in nature, and must be configured to meet the needs of the two applications involved. An HL7 interface specification should be written detailing what formats (events, messages, segments, and fields) will be used, and the lower level protocol that will be implemented in order for the two applications to interface with one another. Appendix B of this manual is an example of an HL7 interface specification.

The HL7 Protocol defines the content and format of abstract messages and transactions for interface capabilities for the following areas:

- Admission, discharge, and transfer (ADT)
- Order entry
- Query
- Financial applications such as charge, payment adjustments, and insurance
- Ancillary data reporting for Laboratory, Radiology, Pharmacy, etc.

In HL7, information is exchanged using HL7 messages when an event occurs in an application. Each HL7 message consists of one or more HL7 segments. A segment can be thought of as a record in a file. Each segment consists of one or more fields separated by a special character called the field separator. The field separator character is defined in the Message Header (MSH) segment of an HL7 message. The MSH segment is always the first segment in every HL7 message. Each field is assigned an HL7 data type (e.g., numeric, text, etc.).
Overview, cont.

In addition to the field separator character, there are four other special characters called *encoding characters*. Encoding characters are also defined in the MSH segment. They operate on a single field in an HL7 segment. Each encoding character must be unique, and serves a specific purpose. None of the encoding characters can be the same as the field separator character.

- The first encoding character is the *component separator*. Some data fields can be divided into multiple components. The component separator is used to separate adjacent components within a data field.

- The second encoding character is the *repetition separator*. Some data fields can be repeated multiple times in a segment. The repetition separator character is used to separate multiple occurrences of a field.

- The third encoding character is the *escape character*. Data fields defined as text or formatted text can include escape sequences. The escape character is used to separate escape sequences from the actual text.

- The fourth encoding character is the *sub-component separator*. Some data fields can be divided into components, and each component can be further divided into sub-components. The sub-component separator is used to separate adjacent sub-components within a component of a field.

The DHCP HL7 Package

The purpose of the DHCP HL7 package is to assist DHCP applications in exchanging healthcare information with other applications using the HL7 Protocol. The DHCP HL7 package consists of a set of utility routines and files that provide a generic interface to the HL7 Protocol for all DHCP applications. The DHCP HL7 package can be divided into two parts:

- Lower level protocol support between sending and receiving applications
- DHCP interface to the HL7 Protocol
Lower Level Protocols

The term lower level refers to a portion of the Open Systems Interconnect (OSI) model. The OSI model is divided into seven layers or levels. The lower levels (layers 1 through 4) support the actual movement of data between systems. This includes the actual physical connection between the systems and the communications protocol used.

DHCP HL7 V. 1.6 supports the following lower level interfaces:

- HL7 Hybrid Lower Layer Protocol over an RS-232 connection
- DHCP MailMan messages
- X3.28

Using these lower level interfaces, the DHCP HL7 package can support layers 1 through 4 of the OSI model and eliminate the need for DHCP applications to write lower level interfaces each time they want to exchange data with another application.

These lower level interfaces provide the following functions:

- Receive and send HL7 messages.
- Validate the HL7 Message Header (MSH) information.
- Invoke the appropriate DHCP application routine to process the data in the message.
- Send HL7 accept acknowledgment (ACK) messages back to the sending application.
The DHCP Interface to the HL7 Protocol

With the release of V. 1.6, DHCP HL7 supports several methods for interfacing to the HL7 protocol. The method established by V. 1.5 is still supported (for backwards compatibility), and a new method is introduced, as well as new routines, file structures, templates, menus, and options. There are some significant differences between the V. 1.5 and V. 1.6 interface methods, as shown in the following table.

<table>
<thead>
<tr>
<th>V. 1.5 Interface Method</th>
<th>V. 1.6 Interface Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>One sender and one receiver per message.</td>
<td>One sender, one or more receivers.</td>
</tr>
<tr>
<td>Sender and receiver must be on different systems.</td>
<td>Sender and receiver can be on the same or different systems.</td>
</tr>
<tr>
<td>Messages must go through a communications protocol.</td>
<td>Messages sent to applications on the same system do not have to go through a communications protocol.</td>
</tr>
<tr>
<td>All messages are processed in the background.</td>
<td>Messages are processed in either the foreground or background, based on the priority assigned by sending/receiving applications.</td>
</tr>
<tr>
<td>No support for event points.</td>
<td>Event points are supported.</td>
</tr>
</tbody>
</table>

The DHCP HL7 package assists DHCP applications in interfacing to the HL7 Protocol. In addition to the lower levels mentioned previously, all applications must perform the following upper level functions in order to exchange data with another application:

- Event analysis
- Data extraction
- Data filing
- Data formatting
- Message administration

Currently, the functions of event analysis, data extraction, and data filing must be performed by each application package. The DHCP HL7 package provides the following utilities to assist the application package with data formatting:

- Creation of HL7 Message Header (MSH) segments
- Utility calls to convert HL7 data to VA FileMan formats and vice versa
- Validation of Message Header information for all HL7 messages received
- A set of pre-defined variables for use in building HL7 messages/segments
The DHCP Interface to the HL7 Protocol, cont.

The DHCP HL7 package provides the following functions to assist the application package with message administration:

- Support for tracking transmissions and providing a status for each
- Generation of reports on pending transmissions and transmissions with errors
- A queue for incoming and outgoing transmissions
- A real-time monitor that monitors active transmission links and their statuses

The DHCP HL7 package has been designed to be modular, table-driven, and extensible. It appears that with minor modifications, the package could support other protocols (e.g., EDI/X12) in addition to HL7. Current development efforts are concentrated on adding table-driven support for the functions of event analysis, data extraction, data filing, and data formatting. Once these four areas are automated, it will be possible for an application to implement a new HL7 interface to exchange data without writing MUMPS routines.

Related Manuals

For applications using the V. 1.6 interface method, you might also want to refer to the following manuals:

- DHCP HL7 V. 1.6 Installation Guide
- DHCP HL7 V. 1.6 Package Security Guide
- DHCP HL7 V. 1.6 Release Notes
- DHCP HL7 V. 1.6 Technical Manual
- DHCP HL7 V. 1.6 User Manual

For applications using the V. 1.5 interface method, you might also want to refer to the following manuals:

- DHCP HL7 V. 1.5 Developer Manual
- DHCP HL7 V. 1.5 Installation Guide
- DHCP HL7 V. 1.5 Package Security Guide
- DHCP HL7 V. 1.5 Release Notes
- DHCP HL7 V. 1.5 Technical Manual
- DHCP HL7 V. 1.5 User Manual
Organization of this Manual

This manual is divided into the following sections:

• **Preface** - States the purpose of the software and the intended audience for this manual.
• **Table of Contents** - Lists the topics in the order in which they appear in this manual.
• **Introduction** - Provides an overview of the software and its purpose, refers you to related manuals, and explains the organization of this manual.
• **Orientation** - Provides useful tips to help you use this manual.
• **Package Management** - Addresses unique legal requirements and security precautions to be taken while using this software and its related data.
• **Package Operation** - Divided into the following sections that address the menus and options separately in each of the following categories:
  - **V. 1.5 OPTIONS Menu** - Provides instructions for using the options exported with this version of DHCP HL7 that support the V. 1.5 interface method.
  - **V. 1.6 OPTIONS Menu** - Provides instructions for using the options exported with this version of DHCP HL7 that support the V. 1.6 interface method.
  - **HL7 Main Menu Options that Support Both Versions** - Provides instructions for using the options exported with this version of DHCP HL7 that support both the V. 1.5 and V. 1.6 interface methods.
• **Glossary** - Provides a list of terms used in this manual with their definitions.
• **Appendices** - Contain supplemental information.
• **Index** - Provides an alphabetical listing of the topics presented in this manual.
Orientation

Package Operation

The Package Operation section provides documentation of each option, including a brief introduction to the option, a sample of what might appear on your screen when using the option, and sample outputs, when applicable.

The icon is used to highlight enhancements and functionality changes in the option documentation.

User Responses

All user responses are shown in boldface type. The <RET> symbol is used when referring to the user pressing the Return or Enter key. This symbol is not shown, but is implied, after boldface type. The <^> symbol is used when referring to the up-arrow or caret.

List Manager

DHCP HL7 V. 1.6 uses the List Manager utility, a tool designed to list items for selection and action. A double question mark entered at the “Select Action:” prompt gives you a list of all actions available for a particular screen. Please refer to Appendix A of this manual for more information about List Manager actions.
Orientation
Package Management

1. The DHCP HL7 package consists of a set of utility routines and files that provide a generic interface to the HL7 Protocol for DHCP packages. HL7 allows healthcare institutions to exchange key sets of data from different application systems. Proper handling of this information is important to ensure patient confidentiality.

2. Per VHA Directive 10-93-142 regarding security of software, do not modify the DHCP HL7 routines and data dictionaries due to the high level of package integration.
Package Management
Package Operation

On-line Help

When the format of a response is specific, a Help message is usually provided for that prompt. Help messages provide lists of acceptable responses or format requirements which provide instruction on how to respond.

You can request a Help message by typing single or double question marks. The Help message appears under the prompt, then the prompt repeats. For example, perhaps you see the prompt

Enter Last Date Of Visit: APR 30,1992//


Enter Last Date Of Visit: APR 30,1992//  
? 
Examples of Valid Dates:  
  JAN  20 1957 or 20 JAN  57 or 1/20/57 or 012057  
  T  (for TODAY), T+1 (for TOMORROW), T+2, T+7, etc.  
  T-1 (for YESTERDAY), T-3W (for 3 WEEKS AGO), etc.  
  If the year is omitted, the computer uses the CURRENT YEAR.  
  You may omit the precise day, as: JAN, 1957  
  If the date is omitted, the current date is assumed.  
  Follow the date with a time, such as JAN 20@10, T@10AM, 10:30, etc.  
  You may enter a time, such as NOON, MIDNIGHT or NOW.  
  Seconds may be entered as 10:30:30 or 103030AM.  
  Enter the date the patient was last seen at that facility.

Enter Last Date Of Visit: APR 30,1992//

For some prompts, the system lists the possible answers from which you can choose. When numbered lists of choices appear, the system usually accepts either the number or the name corresponding to the selection.

Note to Users with QUME Terminals

It is very important that you set up your QUME terminal properly. After entering your access and verify codes, you will see the following prompt.

Select TERMINAL TYPE NAME: {type}//

Please make sure that C-QUME is entered here. This entry will become the default and you can then enter <RET> for all subsequent log-ins. If any other terminal type configuration is set, options using the List Manager utilities will neither display nor function properly on your terminal.
V. 1.5 OPTIONS Menu

Non-DHCP Application Parameter Enter/Edit

Introduction

Use the Non-DHCP Application Parameter Enter/Edit option to

- Enter non-DHCP applications (applications that will be communicating with the DHCP system via the HL7 Protocol) in the HL7 NON-DHCP APPLICATION PARAMETER file (#770).
- Enter or edit parameters associated with non-DHCP applications.
- Delete an application from the HL7 NON-DHCP APPLICATION PARAMETER file (#770).

The applications entered in this file are referred to as non-DHCP applications simply as a way of distinguishing them from the DHCP system with which they will be communicating. These non-DHCP applications could also be other DHCP applications (e.g., Radiology sending/receiving HL7 messages to/from MAS). A non-DHCP application might have more than one entry in this file depending on how many DHCP applications it communicates with and how many versions of the HL7 Protocol it utilizes.

For V. 1.6 interfaces, use the Interface Workbench option on the V. 1.6 OPTIONS menu. (Please refer to the V. 1.6 OPTIONS Menu portion of the Package Operation section of this manual.)
Non-DHCP Application Parameter Enter/Edit

Example

```
Select HL7 Main Menu Option:  Non-DHCP Application Parameter Enter/Edit

Select HL7 NON-DHCP APPLICATION PARAMETER NAME:  AMCH-RADIOLOGY
ARE YOU ADDING 'AMCH-RADIOLOGY' AS
A NEW HL7 NON-DHCP APPLICATION PARAMETER (THE 3RD)?  Y  (YES)
HL7 NON-DHCP APPLICATION PARAMETER DHCP STATION NUMBER:  500  ALBANY
NEW YORK 500
HL7 NON-DHCP APPLICATION PARAMETER NON-DHCP FACILITY NAME:  AMCH XRAY
HL7 NON-DHCP APPLICATION PARAMETER DHCP APPLICATION:  EDR-MAS  ACTIVE
NAME: AMCH-RADIOLOGY//  <RET>
NON-DHCP FACILITY NAME: AMCH XRAY//  <RET>
DHCP STATION NUMBER: 500//  <RET>
MAXIMUM BLOCK SIZE: 245//  <RET>
NUMBER OF RETRIES: 3//  <RET>
HL7 DEVICE:  HLLP
HL7 VERSION NUMBER: 2.1//  <RET>  HEALTH LEVEL SEVEN
DHCP APPLICATION: EDR-MAS//  <RET>
LOWER LEVEL PROTOCOL TIMEOUT: 30//  <RET>
MAIL GROUP:  <RET>
HL7 PROCESSING ID:  P  PRODUCTION
PURPOSE:
  1> Data exchange between Albany VAMC and Albany Medical Center Hospital
  2> <RET>
EDIT Option:  <RET>
```
Initiate Background Task

Introduction

Use the Initiate Background Task option to create a background task to start up the lower level protocol routine for a specific non-DHCP application. You must select a non-DHCP application for which an HL7 device has been defined. Non-DHCP applications that use MailMan as their lower level protocol do not need a background task. This option also checks to make sure a background task is not already queued in TaskMan. If a task is already queued, a second task will not be started.

For V. 1.6 interfaces, use the Interface Workbench option on the V. 1.6 OPTIONS menu. (Please refer to the V. 1.6 OPTIONS Menu portion of the Package Operation section of this manual.)

Example

Select HL7 Main Menu Option: Initiate Background Task

Note: You must select a Non-DHCP Application for which an HL7 Device has been defined.

Select HL7 NON-DHCP APPLICATION PARAMETER NAME: AMCH-RADIOLOGY 500 AMCH XRAY EDR-MAS
Start/Stop Log of HL7 Transmissions

Introduction

The Start/Stop Log of HL7 Transmissions option is a diagnostic tool. Use this option to

- Test the HL7 interface when the HL7 Hybrid Lower Level Protocol is used as the communications protocol.
- Check that HL7 messages are being properly exchanged with a particular non-DHCP application.

This option should not be used if your application uses DHCP MailMan as the lower level protocol.

There are three prompts used with this option. The first asks for a non-DHCP application parameter name. Enter a ? to produce a list of the entries in the HL7 NON-DHCP APPLICATION PARAMETER file (#770). The system then tells you if the log for that particular application is currently running. You can start or stop the transmission log at the next prompt. The final prompt asks if you wish to purge existing log entries. You should purge existing entries when you start the transmission log to ensure a clean start. Use the operating system routine that lists a global (%G, %GL, etc.) to view the contents of the log.

After you finish the test, you should stop the log to save disk space and reduce global sets. The log data is stored descendant from the ^TMP("HL",HLION) global node where HLION is equal to the name of the HL7 device that was entered into Field #6 of the HL7 NON-DHCP APPLICATION PARAMETER file (#770). It can be purged at any time by killing the ^TMP("HL",HLION) global.

Example

Select HL7 NON-DHCP APPLICATION PARAMETER NAME: \ AMCH-RADIOLOGY 500
AMCH XRAY EDR-MAS

The HL7 log is currently turned off.

START/STOP TRANSMISSION LOG: START LOG

Do you want to purge existing log entries? Yes// <RET>
V. 1.6 OPTIONS Menu

Communications Server
   Edit Communication Server parameters

\ New option

Introduction

Use the Edit Communication Server parameters option to edit the default value of the following fields in the HL COMMUNICATION SERVER PARAMETERS file (#869.3):

- DEFAULT NUMBER INCOMING FILERS (#11)
- DEFAULT NUMBER OUTGOING FILERS (#12)

The values you enter for these fields determine the number of filers that will be started when you use the Start default number of incoming & outgoing filers option in the Manage incoming & outgoing filers menu. A default value of “1” is set for both fields during package initialization. Filers must be running for messages to be processed.

Example

<table>
<thead>
<tr>
<th>Select Communications Server Option:</th>
<th>1</th>
<th>Edit Communication Server parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default number of incoming filers:</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Default number of outgoing filers:</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>
Communications Server
Manage incoming & outgoing filers

Introduction

Use the options in the Manage incoming & outgoing filers menu to control the number of incoming/outgoing filers that are running. Filers must be running for messages to be processed. With these options, you can perform the following tasks:

- Start the default number of incoming/outgoing filers.
- Start/stop a single incoming/outgoing filer.
- Stop all incoming/outgoing filers.

Since the option names are self-explanatory, this manual discusses them in two groups: start options and stop options.

Start Options

1 Start default number of incoming & outgoing filers

This option queues individual background jobs, and assigns separate task numbers, for each of the number of filers specified in the DEFAULT NUMBER INCOMING FILERS field (#11) and the DEFAULT NUMBER OUTGOING FILERS field (#12) of the HL COMMUNICATION SERVER PARAMETERS file (#869.3). It adds the jobs to the appropriate lists of incoming and outgoing filers that are running (which are displayed in the Filer Monitor when you use the Monitor incoming & outgoing filers option). The message “(Incoming) or (Outgoing) filer has not started yet” (whichever is appropriate) is displayed for each filer until it is physically started. The software then goes through the list of incoming filers sequentially by task number, and starts the first one that is not running. It continues starting the incoming filers until the default number of filers are running. The process is then repeated for the outgoing filers.
Communications Server
   Manage incoming & outgoing filers

Introduction, cont.

Start Options, cont.

2   Start an incoming filer
3   Start an outgoing filer

These options work in the same way as the Start default number of incoming & outgoing filers option, with the following basic differences:

- A single incoming or outgoing background job is queued, and a single task number is assigned.
- A single job is added to the appropriate list of incoming or outgoing filers that are running (which are displayed in the Filer Monitor when you use the Monitor incoming & outgoing filers option).
- The Start an incoming filer option starts only the first sequential incoming filer that is not running.
- The Start an outgoing filer option starts only the first sequential outgoing filer that is not running.

Stop Options

4   Stop all incoming filers
5   Stop all outgoing filers

These options first ask “Are you sure you want to stop all (incoming/outgoing) filers ? NO/”. If you accept the “No”, the message “(Incoming/Outgoing) filers will not be stopped” is displayed and you return to the Manage incoming & outgoing filers menu. If your response is “Yes”, the options look through the list of incoming/outgoing filers (whichever is appropriate for the option used), finds the filers that are running, and flags them to stop sequentially by task number. When they physically stop, they are automatically deleted from the list of filers that are running.
Communications Server
Manage incoming & outgoing filers

Introduction, cont.

Stop Options, cont.

6 Stop an incoming filer
7 Stop an outgoing filer

These options work in the same way as the Stop all incoming/outgoing filers options, except for the following basic differences:

• You are not asked “Are you sure you want to stop an (incoming/outgoing) filer”.
• The first filer in the incoming/outgoing list that is running gets flagged to stop.

Example - Start default number of incoming & outgoing filers

Select Manage incoming & outgoing filers Option:  1 Start default number of incoming & outgoing filers
Incoming filer queued as task number 130593
Incoming filer queued as task number 130594
Incoming filer queued as task number 130595

Outgoing filer queued as task number 130596
Outgoing filer queued as task number 130597

Example - Stop all incoming filers

Select Manage incoming & outgoing filers Option:  4 Stop all incoming filers

Are you sure you want to stop all incoming filers ? NO//  Y  YES

Please wait while all incoming filers are asked to stop ...
All incoming filers have been asked to stop
Communications Server
Monitor incoming & outgoing filers

New option

Introduction

Use the Monitor incoming & outgoing filers option to display and maintain the lists of incoming and outgoing filers that are running. This option provides a Filer Monitor in List Manager (a list processor utility) screen format. It provides the actions that let you start, stop, or delete filers, and displays the following information about the filers that are running.

**NOTE**: You must select the correct terminal type at sign-on for proper display of the Filer Monitor. The Filer Monitor cannot be displayed on a QUME terminal.

- **Task Number of (Incoming/Outgoing) Filer** - The task number that is assigned to each background job that is queued whenever you use any of the Start options in the Manage incoming & outgoing filers menu or any of the Start actions at the bottom of the Filer Monitor screen.

- **Asked To Stop** - Indicates whether the filer has been flagged to stop. “No” in this column means that the filer is running (has not been asked to stop). “Yes” in this column means that the filer is not running (has been asked to stop).

- **Last Known Date/Time** - The most recent date and time that the filer did any updating.

- **Time Difference** - The difference between the current date and time and the last date and time that the filer did any updating.
Communications Server
Monitor incoming & outgoing filers

Introduction, cont.

The following actions are available at the bottom of the Filer Monitor screen. At the “Type selection:” prompt, enter the character(s) shown in the parentheses. Do not press the Return or Enter keys after you enter your response, as these will return you to the menu.

• (+I) Start incoming filer - Queues a background job, assigns a task number, and adds it to the list of incoming filers. The message “**Incoming filer has not started yet**” is displayed until the filer is physically started.

• (+O) Start outgoing filer - Queues a background job, assigns a task number, and adds it to the list of outgoing filers. The message “**Outgoing filer has not started yet**” is displayed until the filer is physically started.

• (-I) Stop incoming filer - Searches through the list of incoming filers until it finds the first one that is running and flags it to stop. “Yes” is displayed in the “Asked To Stop” column. The message “**Incoming filer has been asked to stop**” is displayed until the filer is physically stopped, at which time it is automatically deleted from the Filer Monitor display and the list of incoming filers that are running.

• (-O) Stop outgoing filer - Searches through the list of outgoing filers until it finds the first one that is running and flags it to stop. “Yes” is displayed in the “Asked To Stop” column. The message “**Outgoing filer has been asked to stop**” is displayed until the filer is physically stopped, at which time it is automatically deleted from the Filer Monitor display and the list of outgoing filers that are running.

• (*I) Delete incoming filer - You should use this option only when “Error” is displayed in the “Asked To Stop” column, the message “**Incoming filer has stopped due to an error**” is displayed, and the filer is stopped. Use the options in Task Manager to diagnose the problem, then use this action to delete the filer(s) from the Filer Monitor display and from the list of incoming filers that are running. If “Error” is displayed for multiple filers, you are prompted to select which of these filer(s) you want to delete. If “Error” displays for a single filer, it will be automatically deleted when you use this action.
Communications Server
Monitor incoming & outgoing filers

Introduction, cont.

• (**O) Delete outgoing filer - You should use this option only when “Error” is displayed in the “Asked To Stop” column, the message “**Outgoing filer has stopped due to an error**” is displayed, and the filer is stopped. Use the options in Task Manager to diagnose the problem, then use this action to delete the filer(s) from the Filer Monitor display and from the list of outgoing filers that are running. If “Error” is displayed for multiple filers, you are prompted to select which of these filer(s) you want to delete. If “Error” displays for a single filer, it will be automatically deleted when you use this action.

• (N) Next 4 lines in list - Displays the next 4 lines in the Filer Monitor for both incoming and outgoing filers.

• (B) Back 4 lines in list - Backs up 4 lines in the Filer Monitor for both incoming and outgoing filers.

• (Q) Quit - Exits the option and returns you to the menu.

Example

<table>
<thead>
<tr>
<th>Task Number of</th>
<th>Asked Nbr</th>
<th>Asked To Stop</th>
<th>Last Known Date/Time</th>
<th>Time Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incoming Filer</td>
<td></td>
<td>No</td>
<td>07-JUN-95 @ 13:22:25</td>
<td>0 Day 00 Hr 00 Min 02 Sec</td>
</tr>
<tr>
<td>130594</td>
<td></td>
<td>No</td>
<td>07-JUN-95 @ 13:22:22</td>
<td>0 Day 00 Hr 00 Min 05 Sec</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No</td>
<td>07-JUN-95 @ 13:22:26</td>
<td>0 Day 00 Hr 00 Min 03 Sec</td>
</tr>
<tr>
<td>Outgoing Filer</td>
<td></td>
<td>No</td>
<td>07-JUN-95 @ 13:22:48</td>
<td>0 Day 00 Hr 00 Min 04 Sec</td>
</tr>
<tr>
<td>130596</td>
<td></td>
<td>No</td>
<td>07-JUN-95 @ 13:22:49</td>
<td>0 Day 00 Hr 00 Min 03 Sec</td>
</tr>
</tbody>
</table>

(+I) Start incoming filer  (-I) Stop incoming filer  (**I) Delete incoming filer
(+O) Start outgoing filer  (-O) Stop outgoing filer  (**O) Delete outgoing filer
(N) Next 4 lines in list   (B) Back 4 lines in list   (Q) Quit

Type selection:
Communications Server

Start LLP

New option

Introduction

Use the Start Hybrid LLP option to start the LLP for the appropriate device that will be receiving HL7 messages. The device must be defined in the DEVICE field (#2) of the HL LOGICAL LINK file (#870), and must be off-line/shutdown.

The only prompts ask for a link node and a method for running the receiver. After you enter the name of the link node with which you want to communicate, the system warns you if the LLP for the selected link node is already running, or if the device is not defined in File #870. If the LLP is not running, the system tells you the date and time of the last shutdown. You can then select the method for running the receiver from the following choices:

- Foreground (and trace)
- Background (normal)
- Quit without starting the receiver

Example

```
Select V. 1.6 Communications Server Option: 2 Start Hybrid LLP

This option is used to launch the lower level protocol for the appropriate device. Please select the node with which you want to communicate

Select HL LOGICAL LINK NODE: HEMOCARE
The LLP was last shutdown on NOV 29, 1994 09:42:10.

Select one of the following:

F  FOREGROUND
B  BACKGROUND
Q  QUIT

Method for running the receiver: B/<RET> BACKGROUND
Job was queued as 16868.
```
Communications Server
Stop LLP

New option

Introduction

Use the Stop Hybrid LLP option to shut down the LLP for the appropriate device that is receiving HL7 messages.

The only prompts ask for a link node and verification that you want to shut down the job. After you enter the name of the link node, the system displays the date and time that the LLP was last started, and asks, “Okay to shut down this job?”. Depending on your response, the system tells you whether or not the LLP will be shut down.

Example

Select V. 1.6 Communications Server Option: 3 Stop Hybrid LLP

This option is used to shut down the lower level protocol for the appropriate device. Please select the node which you would like to shutdown.

Select HL LOGICAL LINK NODE: HEMOCARE
The lower level protocol was started on NOV 29, 1994 09:13:41.

Okay to shut down this job? YES
The job for the HEMOCARE Lower Level Protocol will be shut down.
Communications Server

Systems Link Monitor

New option

Introduction

Use the Systems Link Monitor option to display the following real-time information about serial links.

*NOTE:* You must select the correct terminal type at sign-on for proper display of the Filer Monitor. The Systems Link Monitor cannot be displayed on a QUME terminal.

- **NODE** - Name of the logical link over which data will be sent.
- **MESSAGES RECEIVED** - Number of messages in the “In” queue.
- **MESSAGES PROCESSED** - Number of messages that have been passed to application processing routines.
- **MESSAGES TO SEND** - Number of messages in the “Out” queue waiting to be transmitted.
- **MESSAGES SENT** - Number of messages transmitted.
- **DEVICE ON-LINE** - Can be “Y” (Yes) or “N” (No). Indicates whether or not the LLP is currently running for the appropriate device that will be receiving the messages. Use the Start LLP option to set this to “Y”. Use the Stop LLP option to set this to “N”.
- **STATE** - Indicates the current state of the LLP (e.g., Idle, Shutdown, Reading, Writing, Validating, etc.)

The display also indicates the number of incoming and outgoing filers that are running. Filers must be running for messages to be processed. Please refer to the Manage incoming & outgoing filers and Monitor incoming & outgoing filers options for information about how to monitor, start, stop, and delete filers.
Communications Server
  Systems Link Monitor

Introduction, cont.

This option scrolls through File #870, and displays up to 10 entries at a time to the
Messaging Monitor screen. Use the following actions at the bottom of the display to scroll
through the list of serial links displayed in the monitor, or to exit the option and return to the
menu. At the “TYPE:” prompt, enter the character(s) shown in parentheses. Do not press the
Return or Enter keys after you enter your response, as these will return you to the menu.

- **(N) NEXT** - Advances the display to the next 10 entries in the file. When you reach
  the end of the list, the last entry from the previous page will be displayed in lieu of a blank
  page, and the system tells you that it cannot advance beyond the end of the buffer.
- **(B) BACKUP** - Backs up to the display of the previous 10 entries. If you try to
  back up beyond the beginning of the list, the system tells you that it cannot
  backup beyond the end of the buffer.
- **(Q) QUIT** - Exits the option and returns you to the menu.

To display the most recent communications error for a particular link, use the Show
Communications Error option. To clear the communications error for a particular
link, use the Clear Communications Error option.

*When the node (link name) flashes in the Messaging Monitor, it means that an LLP error has occurred.*
Communications Server
Systems Link Monitor

Screen Example

Select V1.6 OPTIONS Option:  1  Communications Server

Select Communications Server Option:  6  Systems Link Monitor

Output Example

<table>
<thead>
<tr>
<th>NODE</th>
<th>MESSAGES RECEIVED</th>
<th>MESSAGES PROCESSED</th>
<th>MESSAGES TO SEND</th>
<th>MESSAGES SENT</th>
<th>DEVICE ON-LINE</th>
<th>STATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEMOCARE</td>
<td>4</td>
<td>4</td>
<td>35</td>
<td>35</td>
<td>Y</td>
<td>IDLE</td>
</tr>
<tr>
<td>COPATH</td>
<td>0</td>
<td>35</td>
<td>32</td>
<td>0</td>
<td>Y</td>
<td>WRITING</td>
</tr>
<tr>
<td>BIOLINK</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>N</td>
<td>SHUTDOWN</td>
</tr>
<tr>
<td>MEDNET</td>
<td>0</td>
<td>0</td>
<td>237</td>
<td>0</td>
<td>N</td>
<td>SHUTDOWN</td>
</tr>
<tr>
<td>LAB</td>
<td>2</td>
<td>1</td>
<td>100</td>
<td>100</td>
<td>Y</td>
<td>READING</td>
</tr>
<tr>
<td>ANSOS</td>
<td>14</td>
<td>14</td>
<td>95</td>
<td>100</td>
<td>N</td>
<td>SHUTDOWN</td>
</tr>
</tbody>
</table>

Number of incoming filers running => 10
Number of outgoing filers running => 5

TYPE: (N) NEXT, (B) BACKUP, (Q) QUIT:
Communications Server  
Logical Link Queue Management  
Show Communications Error

New option

Introduction

Use the Show Communications Error option to view the entry in the GROSS COMMUNICATIONS ERROR field (#18) of the HL LOGICAL LINK file (#870) that is the most recent LLP error for a particular link.

*When the link (node) name flashes in the Messaging Monitor (accessed via the Systems Link Monitor option), it means that an LLP error has occurred.*

Example

Select Logical Link Queue Management Option: 1 Show Communications Error
Select HL LOGICAL LINK NODE: HEMOCARE
Error: LLP Exceeded Retry Param
Communications Server
  Logical Link Queue Management
  Clear Communications Error

New option

Introduction

Use the Clear Communications Error option to clear the entry in the GROSS COMMUNICATIONS ERROR field (#18) of the HL LOGICAL LINK file (#870) that is the most recent LLP error for a particular link.

*When the link name (node) flashes in the Messaging Monitor (accessed via the Systems Link Monitor option), it means that an LLP error has occurred.*

Example

```
Select Logical Link Queue Management Option: 2 Clear Communications Error
Select HL LOGICAL LINK NODE: HEMOCARE
```
Communications Server
  Logical Link Queue Management
  Create/Edit a Queue Test Entry

New option

Introduction

Use the Create/Edit a Queue Test Entry option to create/edit a “test” message in a selected queue for a specified link node. You can then send the message to either a non-DHCP system or a DHCP application in order to test an interface.

The first prompt asks you to select whether you are going to create or edit the message. Next, you enter the name of the link node, then select the queue in which the message is to be created or edited. The “Select IN QUEUE MESSAGE NUMBER:” prompt is next only if you chose to edit a message. Whether you are editing an existing message or creating a new one, “Editing entry number:” displays with the number of the message that is being created or edited. The remaining prompts let you make entries to the following fields in the HL LOGICAL LINK file (#870):

- MESSAGE TEXT (#193)
- STATUS (#191)
- ERROR (#192)
Communications Server
Logical Link Queue Management
Create/Edit a Queue Test Entry

Example

Select Logical Link Queue Management Option: 3 Create/Edit a Queue Test Entry

Select one of the following:

C CREATE
E EDIT

CREATE or EDIT entry: C/ EDIT

Select HL LOGICAL LINK NODE: HEMOCARE

Select one of the following:

I IN QUEUE
O OUT QUEUE

Select queue: I/ <RET> N QUEUE

Select IN QUEUE MESSAGE NUMBER: 12

Editing entry number: 12

MESSAGE TEXT: . . .

8>OBX ST VW^WEIGHT^L|120|KG
9>OBX ST VB^BLOOD PRESSURE^L|120/80|MM HG
10>OBX ST VT^TEMPERATURE^L|99|C
11>OBX ST VP^PULSE^L|75|/MIN
12>OBX ST VR^RESPIRATORY^L|12|/MIN
13>OBX CE OR^RETURN VISIT^L|CARDIOLOGY^19930415
14>OBX CE OO^ORDER^L|71010^R
15>OBX CE OO^ORDER^L|81000^L
16>$CHK$^00566110^HLCHK^00566110

EDIT Option: <RET>

STATUS: DONE PROCESSING// P PENDING

ERROR: G OTHER LLP ERROR
Communications Server
Logical Link Queue Management
Copy a Queue Entry

New option

Introduction

Use the Copy a Queue Entry option to copy a message into a queue multiple times. This option can be used to “test” interfaces by allowing the same message to be sent multiple times.

Example

Select Logical Link Queue Management Option: 4 Copy a Queue Entry
Select HL LOGICAL LINK NODE: HEMOCARE

Select one of the following:

I IN QUEUE
O OUT QUEUE

Select IN queue or OUT queue: I// <RET> N QUEUE
Select IN QUEUE MESSAGE NUMBER: 6
Number of times to re-queue: (1-1000): 1// 2
Copied the message 2 times to the queue.
Communications Server
Logical Link Queue Management
Clear a Queue of all Entries

New option

Introduction

Use the Clear a Queue of all Entries option to reinitialize a queue to zero entries, usually during testing. *It should not be necessary to use this option during normal operations.* You are prompted to enter the name of the logical link node and which queue(s) to clear.

Example

| Select Logical Link Queue Management Option: | 5 Clear a Queue of all Entries |
| Select HL LOGICAL LINK NODE: | COPATH |

Select one of the following:

- B BOTH QUEUES
- I IN QUEUE
- O OUT QUEUE

Enter which queue to clear: B/// OUT QUEUE
Communications Server

Report

New option

Introduction

Use the Report option to display/print specific messages in a selected queue. Only messages with entries in both the STATUS field (#019.1) and the ERROR field (#019.2) of the HL LOGICAL LINK file (#870) will be included in the output.

The first prompt asks you to enter the link node name; the second lets you choose from a list of queues to include in the report. The next two prompts offer numerous types of error codes and statuses from which you can choose. They both also offer two special selections: “ALL” to include all possible codes in the report, and “F” to indicate that you are finished making your selections. The last prompt asks for a device.

The output provides the following information:

- Node
- Queue
- Message number
- Message status
- Message error
- Message text
Communications Server
Report

Screen Example

Select Communications Server Option:  8  Report
Select HL LOGICAL LINK NODE:  COPATH

Select one of the following:

I  IN QUEUE
O  OUT QUEUE
B  BOTH

Select queue for report:  B/  <RET>  OTH

Select one of the following:

A  LLP ACKNOWLEDGED NO ERROR
C  LLP CHAR COUNT WRONG
X  LLP XOR WRONG
B  DATA TOO LONG
G  OTHER LLP ERROR
ALL ALL ERRORS
F  FINISH SELECTING QUEUES

Select an error code to sort by:  ALL/  <RET>  ERRORS

Select one of the following:

P  PENDING
D  DONE PROCESSING
S  STUB RECORD
ALL ALL STATUS
F  FINISH SELECTING QUEUES

Select a status code to sort by:  ALL/  <RET>  STATUS

DEVICE:  HOME/  <RET>  Decnet  RIGHT MARGIN:  80/  <RET>
Communications Server
Report

Output Example

<table>
<thead>
<tr>
<th>NOV 29, 1994</th>
<th>HL7 LOGICAL LINK INFORMATION</th>
<th>PAGE 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Node: COPATH</td>
<td>Queue: In</td>
<td></td>
</tr>
<tr>
<td>Message number: 1</td>
<td>Message status: PENDING</td>
<td></td>
</tr>
<tr>
<td>Message error: OTHER LLP ERROR</td>
<td>Message text:</td>
<td></td>
</tr>
</tbody>
</table>

D21

MSH|^~\&|INFOLIO TEST|LEAVENWORTH VAMC|IB PERIPH TEST|500|19900314130405|CHIS
OX^^PATRIOTS|ORU|RJS101|D^2.1
PID||7777790^2^M10||SMITH^JOHN||88888888
OBR||2930423.08^1^L||199304230800||DERMATOLOGY|
QBX CE 10040|OV|1^0^0^0^0^0^0|
QBX CE 11041|PR||
QBX CE 216.6|P||
QBX ST VW^WEIGHT^L|120|KG
QBX ST VB^BLOOD PRESSURE^L|120/80|MM HG
QBX ST VT^TEMPERATURE^L|99|C
QBX ST VP^PULSE^L|75|/MIN
Interface Workbench

New option

Introduction

The Interface Workbench option provides the List Manager screens, tools, and actions that allow you to define the application that you want to send/receive HL7 messages. (For more information about List Manager actions, please refer to Appendix A of this manual.)

When you select this option, the Currently Defined Applications screen is displayed. It contains a list of all of the applications which are currently defined in the HL7 APPLICATION PARAMETER file (#771) and provides the following tools:

• **CA - Create Application** - Lets you create entries in the following fields of the HL7 APPLICATION PARAMETER file (#771):
  - NAME (#.01)
  - FACILITY NAME (#3)
  - COUNTRY CODE (#7)
  - MAIL GROUP (#4)
  - HL7 FIELD SEPARATOR (#100)
  - HL7 ENCODING CHARACTERS (#101)

• **EA - Edit Application** - Lets you edit the fields shown for the Create Application action above, with the exception of NAME (#.01).

• **DA - Delete Application** - After you select the application that you want to delete, this tool asks “Are you sure you want to delete the application (Yes/No)?”
  - “Yes” response - Reviews all of the client protocols and all of the server protocols, and deletes their associations to the selected application. *This action does not delete the pointer to the HL7 Message Text File (#772).*
  - “No” response - Returns you to the Currently Defined Applications screen.
Interface Workbench

Introduction, cont.

NOTE: We recommend that you take the following steps before attempting to delete an application from the list:

1. Shut down the applicable logical link by using the Stop LLP option on the Communications Server menu.
2. Wait several days.
3. Check the message activity in the Systems Link Monitor to make sure that nothing is waiting with the application that you want to delete.

- **AI - Activate/Inactivate** - After you select the application that you want to edit from the list of currently defined applications, this tool lets you toggle the ACTIVE/INACTIVE field (#2) in File #771 between active and inactive. *An application must be active to send/receive messages.* This action works in the same way as the Activate/Inactivate DHCP Application option on the HL7 Main Menu.

- **SL - Show Logical Links** - Displays the Currently Defined Logical Links screen, which contains a list of all of the logical links that are currently defined in the HL LOGICAL LINK file (#870) and provides the following additional tools:
  - **CL - Create Logical Link** - Lets you create entries in the following fields of the HL LOGICAL LINK file (#870). (You can also create entries in other fields, depending on the LLP Type you select.)
    - NODE (#.01)
    - QUEUE SIZE (#21)
    - LLP PARAMETERS (#22)
    - TYPE (#1)
  - **EL - Edit Logical Link** - Lets you edit various fields in File #870, depending on the LLP type for the selected logical link.
Interface Workbench

Introduction, cont.

- **DL - Delete Logical Link** - After you select the logical link that you want to delete, this tool asks “Are you sure you want to delete the logical link (Yes/No)?”
  
  • “Yes” response - Looks at the client protocols for every known application and deletes the reference to the logical link being deleted. *This action does not delete the pointer from the HL7 MESSAGE TEXT file (#772).*
  
  • “No” response - Returns you to the Currently Defined Logical Links screen.

♦ **NOTE:** The following “Jump” tools are available, and work the same way, on all of the Interface Workbench screens:

  ◊ **JN - Jump To Next (Application, Link, Server, Client)** - Jumps down one entry in the list.

  ◊ **JP - Jump To Previous (Application, Link, Server, Client)** - Jumps up one entry in the list.

  ◊ **JA, JL, JS, JC - Jump To (Application, Link, Server, Client)** - Jumps to the specified entry in the list.
Interface Workbench

Introduction, cont.

- **SS - Show Srvr Protocols** - Displays the Server Protocols For screen, which contains a list of all known server protocols associated with the user-specified application and provides the following actions. (If no server protocols are listed for the selected application, Create Server Protocol is the default action.)

  - **CS - Create Srvr Protocol** - Lets you create entries in the following fields of the PROTOCOL file (#101). *Please note that while you can change the name of the application at this point, doing so removes it from the list of currently defined applications.*
    - NAME (#.01)
    - ITEM TEXT (#1)
    - PACKAGE (#12)
    - SERVER APPLICATION (#770.1)
    - DESCRIPTION (#3.5)
    - MESSAGE TYPE (#770.3)
    - EVENT TYPE (#770.4)
    - PRIORITY (#770.5)
    - PROCESSING ID (#770.6)
    - VERSION ID (#770.95)
    - ENTRY ACTION (#20)
    - EXIT ACTION (#15)
    - GENERATE/PROCESS ROUTINE (#771, #772)
    - CLIENT (SUBSCRIBERS) (#770.2)
    - ACCEPT ACK CODE (#770.8)
    - APPLICATION ACK TYPE (#770.9)

  - **ES - Edit Server Protocol** - Lets you edit the same fields as shown for the Create Srvr Protocol action above. *Please note that while you can change the name of the application at this point, doing so removes access to the server’s subscribers.*
Interface Workbench

Introduction, cont.

- **DS - Delete Srvr Protocol** - After you select the server protocol that you want to delete, this action asks “Are you sure you want to delete the server protocol (Yes/No)?”
  
  - “Yes” response - Deletes the user-specified server protocol associated with the application. *This action does not delete the pointer from the HL7 MESSAGE TEXT file (#772).*
  - “No” response - Returns you to the Server Protocols For screen.

- **SC - Show Client Protocols** - Displays the Client Protocols For screen, which contains a list of all known client protocols associated with the user-specified application and provides the following actions. (If no client protocols are listed for the selected application, Create Client Protocol is the default action.)

  - **CC - Create Clnt Protocol** - Lets you create entries in the following fields of the PROTOCOL file (#101):
    
    - MESSAGE TYPE (#770.3)
    - EVENT TYPE (#770.4)
    - PRIORITY (#770.5)
    - PROCESSING ID (#770.6)
    - VERSION ID (#770.95)
    - ENTRY ACTION (#20)
    - EXIT ACTION (#15)
    - GENERATE/PROCESS ROUTINE (#771, #772)
    - SENDING FACILITY REQUIRED? (#773.1)
    - RECEIVING FACILITY REQUIRED? (#773.2)
    - DATE/TIME OF MESSAGE REQUIRED? (#773.4)
    - SECURITY REQUIRED? (#773.3)
    - LOGICAL LINK (#770.7)

  - **EC - Edit Client Protocol** - Lets you edit the same fields as shown for the Create Clnt Protocol action above.
Interface Workbench

Introduction, cont.

- **DC - Delete Clnt Protocol** - After you select the client protocol that you want to delete, this action asks “Are you sure you want to delete the client protocol (Yes/No)?”
  
  - “Yes” response - Looks at the known server protocols for all applications and deletes their subscriptions to the client protocol being deleted. *This action does not delete the pointer from the HL7 MESSAGE TEXT file (#772).*
  - “No” response - Returns you to the Client Protocols For screen.

- **SUB - Subscribe** - Displays a list of all known server protocols and indicates whether or not the specified client is a subscriber.
  
  - **S2 - Subscribe to Server** - Adds the client as a subscriber to the specified server.
  - **RS - Remove Subscriptions** - Removes the client’s subscription to the server.
## Interface Workbench

### Example - Currently Defined Applications Screen

<table>
<thead>
<tr>
<th>HL-7 Interface Workbench</th>
<th>Jul 10, 1995 09:29:35</th>
<th>Page: 1 of 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>** Currently Defined Applications **</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(1) **AMCH-RADIOLOGY**
- Facility Name: AMCH XRAY
- Active/Inactive: ACTIVE
- Country Code: HL7 Field Separator: <DEFAULT>
- Mail Group: HL7 Encoding Characters: <DEFAULT>

(2) **EDR-MAS**
- Facility Name: BDC
- Active/Inactive: ACTIVE
- Country Code: HL7 Field Separator: <DEFAULT>
- Mail Group: HL7 Encoding Characters: <DEFAULT>

(3) **EDR-MAS-DHCP**
- Active/Inactive: ACTIVE
- Country Code: HL7 Field Separator: <DEFAULT>
- Mail Group: HL7 Encoding Characters: <DEFAULT>

Select Tool: Jump To Next App//

Enter ?? for more actions

CA Create Application   EA Edit Application
DA Delete Application   AI Activate/Inactivate
SL Show Logical Links   SS Show Srvr Protocols   SC Show Client Protocols
JN Jump To Next App     JP Jump To Previous App JA Jump To Application
Interface Workbench

Example - Currently Defined Logical Links Screen

<table>
<thead>
<tr>
<th>Currently Defined Logical Links</th>
</tr>
</thead>
<tbody>
<tr>
<td>(23) HLZ-SAMPLE</td>
</tr>
<tr>
<td>LLP Parameter: HLZ-MMLLP</td>
</tr>
<tr>
<td>LLP Type: MAILMAN (M)</td>
</tr>
<tr>
<td>Mail Group: HLZ LOGICAL LINK SAMPLE</td>
</tr>
<tr>
<td>Queue Size: &lt;DEFAULT&gt;</td>
</tr>
</tbody>
</table>

Enter ?? for more actions

CL Create Logical Link  EL Edit Logical Link  DL Delete Logical Link
JN Jump To Next Link  JP Jump To Previous Link  JL Jump To Link
Select Tool: Jump To Next Link//
Message Requeuer

Introduction

This option activates the HL7 Message Requeuer, which allows you to requeue selected HL7 messages for transmission through the use of various List Manager screens and actions.

When you select this option, the Known Logical Links screen, which contains the following information, is displayed.

- **Index** - For multiple links, indicates the numerical sequence in which data is read from the links; always “1” for a single link
- **Queue Name** - Logical link name
- **Queue Size** - Steady-state size of the queue as defined in the HL LOGICAL LINK file (#870)
- **Sent Msgs** - Number of messages transmitted from the Outgoing queue
- **Pending** - Number of messages waiting to be transmitted

Use the Expand Entry action to display the Processed Messages in Logical Link screen for the selected logical link, which contains the following information:

- **Number** - The number assigned to the message when it is enqueued into the FIFO queue
- **Date Processed** - The date and time the message was actually processed (sent or received).
- **Remote DHCP Application** - The application with which you are exchanging information

The following actions are available on the Processed Messages in Logical Link screen to help you view more detailed information:

- **SE - Select Messages** - Highlights the message for requeue.
- **DE - Deselect Messages** - Turns off the highlight for requeue, and upon exit asks “Do you want to requeue?”.
- **VM - View Message** - Displays the contents of the message in HL7 format.
Message Requeuer

Example - Known Logical Links screen

<table>
<thead>
<tr>
<th>Index</th>
<th>Queue Name</th>
<th>Queue Size</th>
<th>Sent Msgs</th>
<th>Pending</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TEST</td>
<td>11</td>
<td>2</td>
<td>9</td>
</tr>
</tbody>
</table>

+ Enter ?? for more actions

EP  Expand Entry
Select Action: Quit//  EP

Example - Processed Messages in Logical Link screen

<table>
<thead>
<tr>
<th>Number</th>
<th>Date Processed</th>
<th>Remote DHCP Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>JUN 22, 1995@14:27:08</td>
<td>ZADT RECEIVE</td>
</tr>
</tbody>
</table>

+ Enter ?? for more actions

SE  Select Messages
DE  Deselect Messages
VM  View Message
Select Item(s): Quit//  SE
Message Requeuer

Example - Selected Message from Logical Link screen

```
Package Operation - V. 1.6 OPTIONS Menu

Message Requeuer

Example - Selected Message from Logical Link screen

HL7 Message Requeuer | Sep 18, 1995 13:29:23 | Page: 0 of 4

Selected Message from Logical Link TEST

BHS^~\^
^ZADT^500^ZADT RECEIVE^19950622142708^P-ADT^A03^2.1^14850

MSH^~\^
^ZADT^500^ZADT RECEIVE^2950622.142708^ACK-A03^14850-1^P^2.1^USA

EVN^A03^19950531100217

PV1^I^11-B MEDICINE XREF~123456~SMITH~JOHN~23452~KUMQUAT~DR

NK1

MSH^~\^
^ZADT^500^ZADT RECEIVE^2950622.142708^ACK-A03^14850-2^P^2.1^USA

+ Enter ?? for more actions

SE Select Messages DE Deselect Messages VM View Message
Select Item(s): Quit //
```
HL7 Main Menu Options that Support Both Versions

Activate/Inactivate DHCP Application

Introduction

Use the Activate/Inactivate DHCP Application option to activate or inactivate a specific DHCP application which exists in the HL7 APPLICATION PARAMETER file (#771). Your entry with this option determines if a DHCP application is communicating with a non-DHCP application using the HL7 Protocol.

There are only two prompts used with this option. The first asks for an HL7 application parameter name. Enter a ? to produce a list of the entries in the HL7 APPLICATION PARAMETER file (#771). Your response to the second prompt sets the application to active or inactive within the HL7 Protocol.

Data in the HL7 APPLICATION PARAMETER file (#771) is entered by the package developer and cannot be updated by the site. This file will be updated, and new entries added, where applicable, with each new package release. More than one version of an application might be listed, since different non-DHCP systems might be interfacing with different versions.

Example

| Select HL7 DHCP APPLICATION PARAMETER NAME: | RADIOLOGY | INACTIVE |
| ACTIVE/INACTIVE: | INACTIVE// | ACTIVE |
| Select HL7 DHCP APPLICATION PARAMETER NAME: |
Print/Display Menu

Application Parameters Print/Display

Introduction

Use the DHCP Application Parameters Print/Display option to print or display a list of the DHCP applications in the HL7 APPLICATION PARAMETER file (#771) with which non-DHCP applications are exchanging information.

Data in this file is entered by the package developer and cannot be updated by the site. More than one version of an application might be listed, since different non-DHCP applications can be interfacing with different versions of a DHCP application.

The output shows the messages, segments, and fields included in each entry in the file, and whether a particular application is active or inactive (running or not running). The report is generated in alphabetical order by application.

The only prompts ask for the DHCP application name(s) and a device.

Screen Example

Select Print/Display Menu Option: DHCP Application Parameters Print/Display
START WITH NAME: FIRST// <RET>
DEVICE: A700 RIGHT MARGIN: 132// <RET>
DO YOU WANT YOUR OUTPUT QUEUED? NO// Y (YES)
REQUESTED TIME TO PRINT: NOW// <RET>
REQUEST QUEUED!
Task number: 12630
Print/Display Menu

Application Parameters Print/Display

Output Example

<table>
<thead>
<tr>
<th>HL7 DHCP Application Parameters</th>
<th>NOV 25, 1994 10:32 PAGE 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME: EDR-MAS</td>
<td>ACTIVE/INACTIVE: ACTIVE</td>
</tr>
<tr>
<td>NAME: IVM</td>
<td>ACTIVE/INACTIVE: ACTIVE</td>
</tr>
<tr>
<td>HL7 ENCODING CHARACTERS: ~</td>
<td>&amp;</td>
</tr>
<tr>
<td>HL7 MESSAGE: ORU</td>
<td>PROCESSING ROUTINE: ORU^IVMPREC2</td>
</tr>
<tr>
<td>HL7 MESSAGE: QRY</td>
<td>PROCESSING ROUTINE: QRY^IVMPREC</td>
</tr>
<tr>
<td>HL7 MESSAGE: ACK</td>
<td>PROCESSING ROUTINE: ACK^IVMPREC1</td>
</tr>
<tr>
<td>HL7 SEGMENT: PID</td>
<td></td>
</tr>
<tr>
<td>FIELDS USED IN THIS SEGMENT:</td>
<td>1,3,5,7,8,11,12,13,14,19</td>
</tr>
<tr>
<td>HL7 SEGMENT: ZCT</td>
<td></td>
</tr>
<tr>
<td>FIELDS USED IN THIS SEGMENT:</td>
<td>1,2,3,4,5,6,7</td>
</tr>
<tr>
<td>HL7 SEGMENT: ZDP</td>
<td></td>
</tr>
<tr>
<td>FIELDS USED IN THIS SEGMENT:</td>
<td>1,2,3,4,5,6,7,8,9</td>
</tr>
<tr>
<td>HL7 SEGMENT: ZEL</td>
<td></td>
</tr>
<tr>
<td>FIELDS USED IN THIS SEGMENT:</td>
<td>1,2,6,7,10,11,13</td>
</tr>
<tr>
<td>HL7 SEGMENT: ZEM</td>
<td>FIELDS USED IN THIS SEGMENT:</td>
</tr>
<tr>
<td>HL7 SEGMENT: ZGD</td>
<td></td>
</tr>
<tr>
<td>FIELDS USED IN THIS SEGMENT:</td>
<td>1,2,3,4,5,6,7,8</td>
</tr>
<tr>
<td>HL7 SEGMENT: ZIC</td>
<td></td>
</tr>
<tr>
<td>FIELDS USED IN THIS SEGMENT:</td>
<td>1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20</td>
</tr>
<tr>
<td>HL7 SEGMENT: ZMT</td>
<td></td>
</tr>
<tr>
<td>FIELDS USED IN THIS SEGMENT:</td>
<td>1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16</td>
</tr>
<tr>
<td>HL7 SEGMENT: ZPD</td>
<td></td>
</tr>
<tr>
<td>FIELDS USED IN THIS SEGMENT:</td>
<td>1,8,9,11,12,13</td>
</tr>
<tr>
<td>HL7 SEGMENT: ZTA</td>
<td>FIELDS USED IN THIS SEGMENT:</td>
</tr>
<tr>
<td>HL7 SEGMENT: ZIO</td>
<td>FIELDS USED IN THIS SEGMENT:</td>
</tr>
<tr>
<td>HL7 SEGMENT: ZIR</td>
<td>FIELDS USED IN THIS SEGMENT:</td>
</tr>
<tr>
<td>HL7 SEGMENT: NTE</td>
<td>FIELDS USED IN THIS SEGMENT:</td>
</tr>
<tr>
<td>HL7 SEGMENT: FT1</td>
<td>FIELDS USED IN THIS SEGMENT:</td>
</tr>
<tr>
<td>HL7 SEGMENT: IN1</td>
<td>FIELDS USED IN THIS SEGMENT:</td>
</tr>
<tr>
<td>HL7 SEGMENT: ZIV</td>
<td>FIELDS USED IN THIS SEGMENT:</td>
</tr>
</tbody>
</table>
Print/Display Menu
Non-DHCP Application Parameters Print/Display

Introduction

Use the Non-DHCP Application Parameters Print/Display option to print or display a list of the non-DHCP applications in the HL7 NON-DHCP APPLICATION PARAMETER file (#770) with which the DHCP system is communicating through the HL7 Protocol. Data in this file is entered through the Non-DHCP Application Parameters Enter/Edit option.

The applications in the HL7 NON-DHCP APPLICATION PARAMETER file (#770) are referred to as non-DHCP applications simply as a way of distinguishing them from the DHCP system with which they communicate. These non-DHCP applications could also be other DHCP applications (e.g., Radiology sending/receiving HL7 messages to/from MAS). A non-DHCP application might have more than one entry in this file depending on how many DHCP applications it communicates with and how many versions of the HL7 Protocol it utilizes.

The output is produced in alphabetical order by non-DHCP application name and might include the following information (depending on your parameter entries):

- Non-DHCP facility name
- DHCP station number
- HL7 Protocol version number
- HL7 device
- Maximum block size
- Number of retries
- Lower level protocol time-out
- Mail Group
- HL7 processing ID
- DHCP application
- Purpose
- Start/Stop Transmission Log status

The only prompts ask for the non-DHCP application name(s) and a device.
Print/Display Menu

Non-DHCP Application Parameters Print/Display

Screen Example

Select Print/Display Menu Option: Non-DHCP Application Parameters Print/Display
START WITH NAME: FIRST//<RET>
DEVICE: A700 RIGHT MARGIN: 132//<RET>
DO YOU WANT YOUR OUTPUT QUEUED? NO//Y (YES)
REQUESTED TIME TO PRINT: NOW//<RET>
REQUEST QUEUED!
Task number: 12682

Output Example

<table>
<thead>
<tr>
<th>HL7 Non-DHCP Application Parameters</th>
<th>NOV 28,1994 13:45 PAGE 1</th>
</tr>
</thead>
</table>

NAME: AMCH-RADIOLOGY  DHCP STATION NUMBER: 500
NON-DHCP FACILITY NAME: AMCH XRAY  MAXIMUM BLOCK SIZE: 245
NUMBER OF RETRIES: 3  HL7 DEVICE: HLLP
HL7 VERSION NUMBER: 2.1  DHCP APPLICATION: EDR-MAS
LOWER LEVEL PROTOCOL TIMEOUT: 30  HL7 PROCESSING ID: PRODUCTION
PURPOSE: Data exchange between Albany VAMC and Albany Medical Center Hospital
START/STOP TRANSMISSION LOG: STOP LOG

NAME: EDR-MAS  DHCP STATION NUMBER: 500
NON-DHCP FACILITY NAME: BDC  MAXIMUM BLOCK SIZE: 245
NUMBER OF RETRIES: 3  HL7 VERSION NUMBER: 2.2
DHCP APPLICATION: EDR-MAS  LOWER LEVEL PROTOCOL TIMEOUT: 30
MAIL GROUP: EDR-MAS  HL7 PROCESSING ID: DEBUG

NAME: IVM CENTER  DHCP STATION NUMBER: 500
NON-DHCP FACILITY NAME: 724  MAXIMUM BLOCK SIZE: 245
HL7 VERSION NUMBER: 2.1  DHCP APPLICATION: IVM
MAIL GROUP: IVM TRANSMISSIONS  HL7 PROCESSING ID: PRODUCTION
Print/Display Menu
Awaiting/Pending HL7 Transmissions Print/Display

Introduction

Use the Awaiting/Pending HL7 Transmissions Print/Display option to print or display a list of entries in the HL7 MESSAGE TEXT file (#772) with a status of PENDING TRANSMISSION or AWAITING ACKNOWLEDGMENT. This list can be used to determine if there are any problems with transmissions.

Entries in the HL7 MESSAGE TEXT file (#772) should only remain in a PENDING status for a short time (i.e., an hour or less).

The output might include the following information for the entries listed:

- Message ID
- Message text
- Date/time transmission entered
- DHCP application
- Non-DHCP application
- Transmission type
- Related MailMan message number
- Transmission status
- Error message
- Error type
- Number of characters in message
- Number of events in message

The entries on the output are listed in chronological order by ID (date/time entered).

The only prompts ask for an ID and a device.
Package Operation - HL7 Main Menu Options that Support Both Versions

Print/Display Menu
Awaiting/Pending HL7 Transmissions Print/Display

Screen Example

Select Print/Display Menu Option: Awaiting/Pending HL7 Transmissions Print/Display
START WITH ID: FIRST// <RET>
DEVICE: <RET> Decnet RIGHT MARGIN: 80// <RET>

Output Example

Log of HL7 Transmissions in Awaiting or Pending Status
NOV 25, 1994 13:03 PAGE 1

ID: NOV 18, 1994@16:47:05
MESSAGE TEXT:
MSH|^~\&|INFOLIO TEST|LEAVENWORTH VAMC|IB PERIPH
TEST|500|19900314130405|ORU|RJS101|D|2.1|
PID|7777790^2^M10|SMITH^JOHN||88888888|
OBR|2930423.08^1^L|199304230800||DERMATOLOGY|
OBX CE 10040 OV^0^0^0^0|
OBX CE 11041 PR|
OBX CE 216.6 P|
OBX ST VW^WEIGHT^L|120|KG
OBX ST VB^BLOOD PRESSURE^L|120/80|MM HG
OBX ST VT^TEMPERATURE^L|99|C
OBX ST VP^PULSE^L|75|/MIN
OBX ST VR^RESPIRATORY^L|12|/MIN
OBX CE OR^RETURN VISIT^L|CARDIOLOGY^19930415|
OBX CE OO^ORDER^L|71010^R|
OBX CE OO^ORDER^L|81000^L|
STATUS: ERROR DURING TRANSMISSION
DATE/TIME PROCESSED: NOV 18, 1994@16:47:05
ERROR MESSAGE: Missing Event Type        ERROR TYPE: 13
NO. OF CHARACTERS IN MESSAGE: 547        NO. OF EVENTS IN MESSAGE: 1
Introduction

Use the Failed HL7 Transmissions Print/Display option to print or display a list of entries in the HL7 MESSAGE TEXT file (#772) with a status of ERROR IN TRANSMISSION. It can be used to obtain a list of those transmissions which were unsuccessful and the reason why the transmission failed.

The output might include the following information for the entries listed:

- Message ID
- Message text
- Date/time transmission entered
- DHCP application
- Non-DHCP application
- Transmission type
- Related MailMan message number
- Transmission status
- Error message
- Error type
- Number of characters in message
- Number of events in message

The entries on the output are listed in chronological order by ID (date/time entered).

The only prompts ask for an ID and a device.

Screen Example

```
Select Print/Display Menu Option: Failed HL7 Transmissions Print/Display
START WITH ID: FIRST<!-- RET -->
DEVICE: <!-- RET --> Decnet RIGHT MARGIN: 80<!-- RET -->
```
Print/Display Menu

Failed HL7 Transmissions Print/Display

Output Example

Log of Failed HL7 Transmissions
NOV 25, 1994 13:16 PAGE 1

ID: NOV 17, 1994@09:34:51
MESSAGE TEXT:
MSH|^~\&|INFOLIO TEST|LEAVENWORTH VAMC|IB PERIPH
TEST 500|19900314130405|OBU|RJS101|D|2.1
PID |7777790^2^M10|^SMITH^JOHN||88888888|
OBR |2930423.08^1^L|199304230800|||DERMATOLOGY|
OBX CE 10040|OV^1^0^0^0^0|
OBX CE 11041 PR
OBX CE 216.6 P
OBX ST VW^WEIGHT^L|120|KG
OBX ST VB^BLOOD PRESSURE^L|120/80|MM HG
OBX ST VT^TEMPERATURE^L|99|C
OBX ST VP^PULSE^L|75|/MIN
OBX ST VR^RESPIRATORY^L|12|/MIN
OBX CE OR^RETURN VISIT^L|CARDIOLOGY^19930415|
OBX CE OO^ORDER^L|71010^R|
OBX CE OO^ORDER^L|81000^L|
STATUS: ERROR DURING TRANSMISSION
DATE/TIME PROCESSED: NOV 17, 1994@09:34:51
ERROR MESSAGE: Missing Event Type ERROR TYPE: 13
NO. OF CHARACTERS IN MESSAGE: 547 NO. OF EVENTS IN MESSAGE: 1
Print/Display Menu
Version Print/Display

Introduction

Use the Version Print/Display option to print or display a list of the HL7 Protocol versions in the HL7 VERSION SUPPORTED file (#771.5) which are supported by the DHCP HL7 interface.

Data in this file is sent with the HL7 package and cannot be updated by the site. New versions of HL7 will be added to this file as they are released.

The output displays the HL7 Protocol version number(s) in the HL7 VERSION SUPPORTED file (#771.5). The only prompt asks for a device.

Screen Example

Select Print/Display Menu Option: Version Print/Display
DEVICE: <RET> Decnet RIGHT MARGIN: 80// <RET>

Output Example

<table>
<thead>
<tr>
<th>HL7 Version Numbers</th>
<th>NOV 25,1994 13:30 PAGE 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERSION: 2.1</td>
<td>STANDARD: HEALTH LEVEL SEVEN</td>
</tr>
<tr>
<td>VERSION: 2.2</td>
<td>STANDARD: HEALTH LEVEL SEVEN</td>
</tr>
<tr>
<td>VERSION: 2.0</td>
<td>STANDARD: HEALTH LEVEL SEVEN</td>
</tr>
<tr>
<td>VERSION: 2.0D</td>
<td>STANDARD: HEALTH LEVEL SEVEN</td>
</tr>
</tbody>
</table>
Print/Display Menu
Message Type Print/Display

Introduction

Use the Message Type Print/Display option to print or display entries in the HL7 MESSAGE TYPE file (#771.2) which are used to signal the exchange of data between the non-DHCP system and the DHCP system. These messages are internal and will not be seen by the user.

Data in the HL7 MESSAGE TYPE file (#771.2) is entered by the package developer and cannot be updated by the site. This file will be updated, and new entries added, where applicable, with each new package release.

This output is generated in alphabetical order by abbreviated name and includes the following information for each message:

- Abbreviated name
- Full name
- HL7 Protocol version number

The only prompt asks for a device.

Screen Example

Select Print/Display Menu Option: Message Type Print/Display
DEVICE: A700 RIGHT MARGIN: 132// <RET>
DO YOU WANT YOUR OUTPUT QUEUED? NO// Y (YES)
REQUESTED TIME TO PRINT: NOW// <RET>
REQUEST QUEUED!
Task number: 12833
Output Example

The following output example is intended to illustrate the format of the output only, and does not provide a complete list of the message types. For a complete list of supported HL7 message types, please refer to Appendix C of this manual.

<table>
<thead>
<tr>
<th>HL7 Message Types</th>
<th>Nov 25, 1994 13:38 Page 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ABBREVIATED NAME:</strong></td>
<td><strong>FULL NAME:</strong></td>
</tr>
<tr>
<td>ACK</td>
<td>General Acknowledgment</td>
</tr>
<tr>
<td>ADT</td>
<td>ADT Message</td>
</tr>
<tr>
<td>ARD</td>
<td>Ancillary Report (Display)</td>
</tr>
<tr>
<td>BAR</td>
<td>Add/Change Billing Account</td>
</tr>
<tr>
<td>DFT</td>
<td>Detail Financial Transaction</td>
</tr>
<tr>
<td>DSR</td>
<td>Display Response</td>
</tr>
<tr>
<td>MCF</td>
<td>Delayed Acknowledgment</td>
</tr>
<tr>
<td>ORM</td>
<td>Order Confirmation</td>
</tr>
<tr>
<td>ORF</td>
<td>Observational Result/Record Response</td>
</tr>
<tr>
<td>ORU</td>
<td>Observational Results Unsolicited</td>
</tr>
<tr>
<td>OSQ</td>
<td>Order Status Query</td>
</tr>
</tbody>
</table>
Print/Display Menu
Segment Name Print/Display

Introduction

Use the Segment Name Print/Display option to print or display entries in the HL7 SEGMENT TYPE file (#771.3).

Entries in this file are segments contained within each message in the HL7 MESSAGE TYPE file (#771.2).

*Data in this file is entered by the package developer and cannot be updated by the site. This file will be updated, and new entries added, where applicable, with each new package release.*

The output is generated in alphabetical order by abbreviated name and includes the following information for each segment:

- Abbreviated name
- Full name
- HL7 Protocol version number

The only prompt asks for a device.

Screen Example

```
Select Print/Display Menu Option: Segment Name Print/Display
DEVICE: A700 RIGHT MARGIN: 132/\ <RET>
DO YOU WANT YOUR OUTPUT QUEUED? NO/\ Y (YES)

REQUESTED TIME TO PRINT: NOW/\ <RET>
REQUEST QUEUED!
Task number: 12841
```
Package Operation - HL7 Main Menu Options that Support Both Versions

Print/Display Menu
   Segment Name Print/Display

Output Example

The following output example is intended to illustrate the format of the output only, and does not provide a complete list of the segment names. For a complete list of supported HL7 segment types, please refer to Appendix D of this manual.

<table>
<thead>
<tr>
<th>ABBREVIATED NAME</th>
<th>FULL NAME</th>
<th>VERSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Patient Visit - Additional</td>
<td>2.1</td>
</tr>
<tr>
<td>ACC</td>
<td>Accident</td>
<td>2.1</td>
</tr>
<tr>
<td>ADD</td>
<td>Addendum</td>
<td>2.1</td>
</tr>
<tr>
<td>BHS</td>
<td>Batch Header</td>
<td>2.1</td>
</tr>
<tr>
<td>BLG</td>
<td>Billing</td>
<td>2.1</td>
</tr>
<tr>
<td>BTS</td>
<td>Batch Trailer</td>
<td>2.1</td>
</tr>
<tr>
<td>DG1</td>
<td>Diagnosis</td>
<td>2.1</td>
</tr>
<tr>
<td>DSC</td>
<td>Continuation Pointer</td>
<td>2.1</td>
</tr>
<tr>
<td>DSP</td>
<td>Display Data</td>
<td>2.1</td>
</tr>
<tr>
<td>ERR</td>
<td>Error</td>
<td>2.1</td>
</tr>
<tr>
<td>EVN</td>
<td>Event Type</td>
<td>2.1</td>
</tr>
<tr>
<td>FHS</td>
<td>File Header</td>
<td>2.1</td>
</tr>
<tr>
<td>FT1</td>
<td>Financial Transaction</td>
<td>2.1</td>
</tr>
<tr>
<td>FTS</td>
<td>File Trailer</td>
<td>2.1</td>
</tr>
<tr>
<td>GT1</td>
<td>Guarantor</td>
<td>2.1</td>
</tr>
<tr>
<td>IN1</td>
<td>Insurance</td>
<td>2.1</td>
</tr>
<tr>
<td>MRG</td>
<td>Merge Patient Information</td>
<td>2.1</td>
</tr>
</tbody>
</table>
Print/Display Menu  
Data Type Print/Display

Introduction

Use the Data Type Print/Display option to print or display entries in the HL7 DATA TYPE file (#771.4). Data types are associated with fields. Only one data type can be associated with a field.

Data in this file is entered by the package developer and cannot be updated by the site. This file will be updated, and new entries added, where applicable, with each new package release.

The output is generated in alphabetical order by data type abbreviation and includes the following information for each data type:

- Abbreviated name
- Full name
- HL7 Protocol version number

As future HL7 releases are added to the system, the output will be generated alphabetically by data type abbreviation, then by version number within each data type.

The only prompt asks for a device.

Screen Example

```
Select Print/Display Menu Option:  Data Type Print/Display
DEVICE:  A700     RIGHT MARGIN: 132//  <RET>
DO YOU WANT YOUR OUTPUT QUEUED? NO//  Y  (YES)

REQUESTED TIME TO PRINT: NOW//  <RET>
REQUEST QUEUED!
Task number:  12951
```
Print/Display Menu

Data Type Print/Display

Output Example

The following output example provides a list of HL7 data types. For a comparison list of HL7 data types with their corresponding VA FileMan data types, please refer to Appendix E of this manual.

<table>
<thead>
<tr>
<th>NAME</th>
<th>VERSION</th>
<th>FULL NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>AD</td>
<td>2.1</td>
<td>Address</td>
</tr>
<tr>
<td>CE</td>
<td>2.1</td>
<td>Composite Element</td>
</tr>
<tr>
<td>CK</td>
<td>2.1</td>
<td>Composite ID with Check Digit</td>
</tr>
<tr>
<td>CM</td>
<td>2.1</td>
<td>Composite</td>
</tr>
<tr>
<td>CN</td>
<td>2.1</td>
<td>Composite ID and Name</td>
</tr>
<tr>
<td>CQ</td>
<td>2.1</td>
<td>Composite Quantity with Units</td>
</tr>
<tr>
<td>DT</td>
<td>2.1</td>
<td>Date</td>
</tr>
<tr>
<td>FT</td>
<td>2.1</td>
<td>Formatted Text</td>
</tr>
<tr>
<td>ID</td>
<td>2.1</td>
<td>Coded Value</td>
</tr>
<tr>
<td>NM</td>
<td>2.1</td>
<td>Numeric</td>
</tr>
<tr>
<td>PN</td>
<td>2.1</td>
<td>Person Name</td>
</tr>
<tr>
<td>SI</td>
<td>2.1</td>
<td>Sequence ID</td>
</tr>
<tr>
<td>ST</td>
<td>2.1</td>
<td>String</td>
</tr>
<tr>
<td>TM</td>
<td>2.1</td>
<td>Time</td>
</tr>
<tr>
<td>TN</td>
<td>2.1</td>
<td>Telephone Number</td>
</tr>
<tr>
<td>TS</td>
<td>2.1</td>
<td>Time Stamp</td>
</tr>
<tr>
<td>TX</td>
<td>2.1</td>
<td>Text</td>
</tr>
</tbody>
</table>
Print/Display Menu
  Fields Print/Display

Introduction

The Fields Print/Display option is used to print or display entries in the HL7 FIELD file (#771.1), which are used to support the exchange of package data for each of the segments within a message.

Data in this file is entered by the package developer and cannot be updated by the site. This file will be updated, and new entries added, where applicable, with each new package release.

The output is generated in alphabetical order by field name and might include the following information:

- Field name
- HL7 Protocol version number
- Abbreviated segment name
- Maximum field length
- Data type associated with the field
- Sequence number (determines where in the segment the field appears)
- Item and table numbers (references to pertinent sections of the Health Level Seven Interface Protocol)
- Repetition (number of times the field can be repeated within a segment)
- Whether the field is required for this particular segment
- Field description (for locally created fields, indicated by a “Z” type segment) (Please refer to the documentation for the Health Level Seven V. 2.2 Final Standard documentation for a complete list of fields.)
- Sample values for DHCP and HL7 values (for locally created fields, indicated by a “Z” type segment) (Please refer to the documentation for the Health Level Seven V. 2.2 Final Standard documentation for a complete list of fields.)

The only prompts ask for a name and a device.

Screen Example

```
Select Print/Display Menu Option: FIELDS Print/Display
START WITH NAME: FIRST// <RET>
DEVICE: <RET> Decnet RIGHT MARGIN: 80// <RET>
```
### Output Example

The following output example is intended to illustrate the format of the output only, and does not provide a complete list of the HL7 fields. For a complete list of HL7 fields, please refer to the documentation for the Health Level Seven V. 2.2 Final Standard.

<table>
<thead>
<tr>
<th>HL7 Fields</th>
<th>NOV 28,1994 16:08 PAGE 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME: ABNORMAL FLAGS</td>
<td>SEGMENT: OBX</td>
</tr>
<tr>
<td>SEQUENCE: 8</td>
<td>MAXIMUM LENGTH: 10</td>
</tr>
<tr>
<td>DATA TYPE: ST</td>
<td>REQUIRED?: NOT REQUIRED</td>
</tr>
<tr>
<td>REPETITION: 5</td>
<td>TABLE NUMBER: 0078</td>
</tr>
<tr>
<td>ITEM NUMBER: 00564</td>
<td>VERSION: 2.1</td>
</tr>
<tr>
<td>VERSION: 2.2</td>
<td></td>
</tr>
<tr>
<td>NAME: ACCIDENT CODE</td>
<td>SEGMENT: ADD</td>
</tr>
<tr>
<td>SEQUENCE: 2</td>
<td>MAXIMUM LENGTH: 2</td>
</tr>
<tr>
<td>DATA TYPE: ID</td>
<td>REQUIRED?: NOT REQUIRED</td>
</tr>
<tr>
<td>TABLE NUMBER: 0050</td>
<td>ITEM NUMBER: 00184</td>
</tr>
<tr>
<td>VERSION: 2.1</td>
<td></td>
</tr>
<tr>
<td>VERSION: 2.2</td>
<td></td>
</tr>
<tr>
<td>NAME: ACCIDENT DATE/TIME</td>
<td>SEGMENT: ADD</td>
</tr>
<tr>
<td>SEQUENCE: 1</td>
<td>MAXIMUM LENGTH: 19</td>
</tr>
<tr>
<td>DATA TYPE: TS</td>
<td>REQUIRED?: NOT REQUIRED</td>
</tr>
<tr>
<td>ITEM NUMBER: 00182</td>
<td>VERSION: 2.1</td>
</tr>
<tr>
<td>VERSION: 2.2</td>
<td></td>
</tr>
<tr>
<td>NAME: ACCIDENT LOCATION</td>
<td>SEGMENT: ADD</td>
</tr>
<tr>
<td>SEQUENCE: 3</td>
<td>MAXIMUM LENGTH: 25</td>
</tr>
<tr>
<td>DATA TYPE: ST</td>
<td>REQUIRED?: NOT REQUIRED</td>
</tr>
<tr>
<td>ITEM NUMBER: 00185</td>
<td>VERSION: 2.1</td>
</tr>
<tr>
<td>VERSION: 2.2</td>
<td></td>
</tr>
<tr>
<td>NAME: ACCOUNT ID</td>
<td>SEGMENT: BTS</td>
</tr>
<tr>
<td>SEQUENCE: 3</td>
<td>MAXIMUM LENGTH: 100</td>
</tr>
<tr>
<td>DATA TYPE: CM</td>
<td>REQUIRED?: NOT REQUIRED</td>
</tr>
<tr>
<td>ITEM NUMBER: 00730</td>
<td>VERSION: 2.1</td>
</tr>
<tr>
<td>VERSION: 2.2</td>
<td></td>
</tr>
</tbody>
</table>
Purge Message Text File Entries

Introduction

Use the Purge Message Text File Entries option to purge entries that are at least seven days old from the HL7 MESSAGE TEXT file (#772). This file contains a record of all outgoing HL7 transmissions and their statuses. Using this option purges all entries in the file that have been successfully transmitted and, optionally, those entries with a status of ERROR IN TRANSMISSION.

To purge entries with an error status, run this option directly and answer YES at the “Purge entries that were not successfully transmitted?” prompt. Entries with an error status should be reviewed before purging.

It is recommended that this option be queued to run once a day as a background task in order to automatically purge entries that were successfully transmitted.

Example

Select HL7 Main Menu Option: **Purge** HL7 MESSAGE TEXT File Entries

Enter cutoff date for purge of HL7 MESSAGE TEXT file: **T-8** (NOV 20, 1994)

Purge entries that were not successfully transmitted? NO// **Y** YES

Purge queued to run in background.
## Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Background Filer</td>
<td>Takes messages from the communications server, puts them into the HL7 MESSAGE TEXT file (#772), and calls the application processing routine. Conversely, it takes messages generated by DHCP programs and delivers them to the communications server, which in turn delivers them to other systems.</td>
</tr>
<tr>
<td>Communications Error</td>
<td>Evidenced by flashing of the node name in the Messaging Monitor. There are presently three reasons for a communications error to occur:</td>
</tr>
<tr>
<td></td>
<td>• The LLP could not enqueue a message into File #870, which caused the LLP to shut itself down. This means that messages cannot be recorded in File #870.</td>
</tr>
<tr>
<td></td>
<td>• The LLP tried to send a message enough times that it exceeded the Re-Transmission Attempts parameter in File #870. The transmission was either negatively acknowledged (NAK'd) or not acknowledged (possibly indicating the other system is down).</td>
</tr>
<tr>
<td></td>
<td>• The LLP negatively acknowledged (NAK'd) an incoming message.</td>
</tr>
<tr>
<td>Communications Server</td>
<td>This module manages communications with other systems. It consists of multiple options which allow system managers to link their HL7 applications to other systems and devices.</td>
</tr>
<tr>
<td>DHCP Application</td>
<td>A software package developed by VA to support clinical or administrative functions at VAMCs nationwide. It is written in MUMPS, and, via Kernel, will run on all major MUMPS implementations, regardless of vendor.</td>
</tr>
<tr>
<td>Event</td>
<td>A DHCP “movement”, such as an admission, discharge or bed transfer, inter-ward transfer, transfer to a new treating specialty, etc.</td>
</tr>
<tr>
<td>Glossary</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>HL7 Component</td>
<td>A field can contain multiple components separated by the HL7 component separator.</td>
</tr>
<tr>
<td>HL7 Field</td>
<td>A field is a specific unit of data. Each field is defined by the following set of characteristics: Position in the Segment, Name, ID Number, Maximum Length, Optionality, Repetition, Table Assignment (optional) and Type.</td>
</tr>
<tr>
<td>HL7 Hybrid Lower Layer Protocol (HLLP)</td>
<td>A communication protocol that supports layers 1 through 4 of the OSI Protocol.</td>
</tr>
<tr>
<td>HL7 Interface</td>
<td>The exchange of information between a DHCP application and the DHCP HL7 package.</td>
</tr>
<tr>
<td>HL7 Message</td>
<td>A message is the atomic unit for transferring data between systems. It is comprised of a group of HL7 segments in a defined sequence. Each message has a message type that defines its purpose. Each message is identified by a unique three character code.</td>
</tr>
<tr>
<td>HL7 Protocol</td>
<td>Health Level Seven. An application communications standard for text-type patient-specific data. Permits data exchange between diverse computer configurations with a variety of communications protocols. Communications take place by exchange of HL7 “messages”.</td>
</tr>
<tr>
<td>HL7 Segment</td>
<td>A segment is a logical grouping of one or more data fields separated by the HL7 field separator. Segments of a message might be optional or required. They might occur only once or might repeat multiple times. Each segment is identified by a unique three character code.</td>
</tr>
<tr>
<td>Logical Link Node</td>
<td>An entry in the HL LOGICAL LINK file (#870) that links the HL7 package through the DEVICE file (#3.5) to a device, or to MailMan via the MailMan Protocol.</td>
</tr>
<tr>
<td>Glossary Item</td>
<td>Definition</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Lower Level Interface</td>
<td>Refers to layers 1 through 4 of the Open Systems Interconnect (OSI) Protocol for exchanging data between computer systems. Layers 1 through 4 ensure physical connectivity and error-free delivery of data between computer systems and are normally handled by a communication protocol independent of the HL7 Protocol. In the DHCP HL7 package the lower level interface is handled by either the DHCP MailMan package or the HL7 Hybrid Lower Layer Protocol.</td>
</tr>
<tr>
<td>Non-DHCP Application</td>
<td>A term used to refer to and distinguish between the two applications (the other is called the DHCP application) that will be exchanging data using the HL7 Protocol.</td>
</tr>
<tr>
<td>Systems Link Monitor</td>
<td>A real-time display of the links defined in the HL LOGICAL LINK file (#870).</td>
</tr>
</tbody>
</table>
Glossary
Appendix A. List Manager Actions

The following is a list of generic VA List Manager actions with a brief description of each. The synonym for each action is shown in brackets [ ] following the action name. Entering the synonym is the quickest way to select an action.

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Next Screen [+ ]</td>
<td>Move to the next screen.</td>
</tr>
<tr>
<td>Previous Screen [- ]</td>
<td>Move to the previous screen.</td>
</tr>
<tr>
<td>Up a Line [UP ]</td>
<td>Move up one line.</td>
</tr>
<tr>
<td>Down a Line [DN ]</td>
<td>Move down one line.</td>
</tr>
<tr>
<td>Shift View to Right [&gt;]</td>
<td>Move the screen to the right if the screen width is more than 80 characters.</td>
</tr>
<tr>
<td>Shift View to Left [&lt; ]</td>
<td>Move the screen to the left if the screen width is more than 80 characters.</td>
</tr>
<tr>
<td>First Screen [FS ]</td>
<td>Move to the first screen.</td>
</tr>
<tr>
<td>Last Screen [LS ]</td>
<td>Move to the last screen.</td>
</tr>
<tr>
<td>Go to Page [GO ]</td>
<td>Move to any selected page in the list.</td>
</tr>
<tr>
<td>Refresh Screen [RE ]</td>
<td>Redisplay the current screen.</td>
</tr>
<tr>
<td>Print Screen [PS ]</td>
<td>Prints the header and the portion of the list currently displayed.</td>
</tr>
<tr>
<td>Print List [PL ]</td>
<td>Prints the list of entries currently displayed.</td>
</tr>
<tr>
<td>Search List [SL ]</td>
<td>Finds selected text in list of entries.</td>
</tr>
<tr>
<td>Auto Display(On/Off) [ADPL]</td>
<td>Toggles the menu of actions to be displayed/not displayed automatically.</td>
</tr>
<tr>
<td>Quit [QU ]</td>
<td>Exits the screen.</td>
</tr>
</tbody>
</table>
Appendix B. Sample HL7 Interface Specification

HEALTH LEVEL 7
INTERFACE SPECIFICATIONS
ALBANY INFORMATION SYSTEMS CENTER
DEPARTMENT OF VETERANS AFFAIRS

DECENTRALIZED HOSPITAL COMPUTER PROGRAM
EXCHANGE OF RADIOLOGY HEALTHCARE INFORMATION

MARCH 1993

1. PURPOSE

This document specifies an interface to the DHCP Radiology package based upon the HL7 Protocol. It is intended that this interface form the basis for the exchange of healthcare information between the DHCP Radiology package and all non-DHCP systems, especially those non-DHCP systems that generate radiology results information.

2. OVERVIEW

2.1 Statement of Intent

The Albany Information Systems Center (ISC) is developing and plans to implement a generic interface to the HL7 Protocol for use by the DHCP Radiology package in communicating with non-DHCP systems for the purpose of exchanging healthcare information. This interface may eventually be used by all DHCP clinical packages to exchange healthcare information with non-DHCP systems. The interface will strictly adhere to the HL7 Protocol and will avoid using "Z" type extensions to the protocol wherever possible.

2.2 Scope

This document describes messages that are exchanged between the DHCP Radiology package and a non-DHCP system for the purpose of exchanging information concerning radiology results, specifically reports and impressions.
3. GENERAL SPECIFICATIONS

3.1 Communication Protocol

The HL7 Protocol defines only the seventh level of the Open System Interconnect (OSI) Protocol. This is the application level. Levels one through six involve primarily communication protocols. The HL7 Protocol provides some guidance in this area. The communication protocols that will be used for interfacing with the DHCP Radiology package will be based on the HL7 Hybrid Lower Level Protocol which is described in the HL7 Interface Standards document.

3.2 Application Processing Rules

The HL7 Protocol itself describes the basic rules for application processing by the sending and receiving systems. Information contained in the protocol will not be repeated here, therefore anyone wishing to interface with the DHCP Radiology package should become familiar with the HL7 Protocol version 2.1.

3.3 Messages

The following HL7 messages will be used to support the exchange of Radiology data:

- ACK General Acknowledgment
- ORF Observational Report Response
- ORM Order
- ORR Order Response Message
- ORU Observational Results Unsolicited
- QRY Query Message

3.4 Segments

The following HL7 segments will be used to support the exchange of Radiology data:

- MSA Message Acknowledgment
- MSH Message Header
- OBR Observational Request
- OBX Result
- ORC Common Order
- PID Patient Identification
- QRD Query Definition
3.5 Fields

The following HL7 fields will be used to support the exchange of Radiology data for each of the segments listed in paragraph 3.4:

<table>
<thead>
<tr>
<th>SEGMENT</th>
<th>FIELD SEQUENCE NUMBER</th>
<th>FIELD ELEMENT NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSA</td>
<td>1</td>
<td>Acknowledgment Code</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Message Control ID</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Text Message</td>
</tr>
<tr>
<td>MSH</td>
<td>1</td>
<td>Field Separator</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Encoding Characters</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Sending Application</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Sending Facility</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Receiving Application</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Receiving Facility</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Date/Time of Message</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Security</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Message Type</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>Message Control ID</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>Processing ID</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>Version ID</td>
</tr>
<tr>
<td>OBR</td>
<td>4</td>
<td>Universal Service Ident.</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Observation Date/Time</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Observation End Date/Time</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Collection Volume</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>Specimen Received Date/Time</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>Ordering Provider</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>Placers Field #1 (Ward/Clinic)</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>Fillers Field #1 (Ward/Clinic)</td>
</tr>
<tr>
<td></td>
<td>22</td>
<td>Results Rpt/Status Chng-Date/Time</td>
</tr>
<tr>
<td>OBX</td>
<td>2</td>
<td>Value Type</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Observation Identifier</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Observation Results</td>
</tr>
<tr>
<td>ORC</td>
<td>1</td>
<td>Order Control</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Date/Time of Transaction</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>Call Back Phone Number</td>
</tr>
<tr>
<td>PID</td>
<td>3</td>
<td>Patient ID (Internal ID)</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Patient Name</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Date of Birth</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Sex</td>
</tr>
<tr>
<td></td>
<td>19</td>
<td>SSN Number - Patient</td>
</tr>
</tbody>
</table>
3.5 Fields

<table>
<thead>
<tr>
<th>SEGMENT</th>
<th>FIELD SEQUENCE NUMBER</th>
<th>FIELD ELEMENT NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>QRD</td>
<td>1</td>
<td>Query Date/Time</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Query Format Code</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Query Priority</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Query ID</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Quantity Limited Request</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Who Subject Filter</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>What Subject Filter</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>What Department Data Code</td>
</tr>
</tbody>
</table>

4. TRANSACTION SPECIFICATIONS

4.1 General

The flow of transactions between the DHCP Radiology package and the non-DHCP system may occur in one of two ways.

A. DHCP will notify the non-DHCP system that an exam has been done and the non-DHCP system will notify the DHCP system of the results of the exam once the report has been entered.

B. The non-DHCP system will query the DHCP system for an exam list for a patient or for a specific exam and the DHCP system will respond with the appropriate exam information. The non-DHCP system will then send the results of the exam(s) to the DHCP system once the report has been entered.

4.2 Specific Transactions

A. Complete Exam Sent to Non-DHCP System

When an exam is completed on the DHCP system, an Order (ORM) message is sent to the non-DHCP system. The ORM message would consist of the following segments:

<table>
<thead>
<tr>
<th>ORM</th>
<th>ORDER MESSAGE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MSH</td>
<td>Message Header</td>
<td></td>
</tr>
<tr>
<td>PID</td>
<td>Patient Identification</td>
<td></td>
</tr>
<tr>
<td>ORC</td>
<td>Common Order</td>
<td></td>
</tr>
<tr>
<td>OBR</td>
<td>Observational Request</td>
<td></td>
</tr>
<tr>
<td>OBX</td>
<td>Result</td>
<td></td>
</tr>
</tbody>
</table>
4.2 Specific Transactions

EXAMPLE:

```
MSH^~|&^RADIOLOGY^608^RADIOLOGY^NON-DHCP^199104301000^ORM^12345^P^2.1
PID^^55555--5--M11^JONES--JOHN--J^19300101^M^^^^^^^^^^^987654321
ORC^NW^^^^^^^^199104301000
ORB^^^^708989.8.453-1--04391-66--L^^^^199104301200^^^^33232--
HARRIS--JACK----MEDICINE^^^^199104301000
OBX^^TX^M--PROCEDURE--L^100--CHEST PA & LAT--L
OBX^^TX^M--MODIFIERS--L^RIGHT, PORTABLE
OBX^^TX^H--HISTORY--L^None
OBX^^TX^A--ALLERGIES--L^BEE STINGS
```

The non-DHCP system then sends a General Acknowledgment (ACK) message back to the DHCP system.

EXAMPLE:

```
MSH^~|&^RADIOLOGY^NON-DHCP^RADIOLOGY^608^199104301001^ORR^54322^P^2.1
MSA^AA^12345
```

B. Results of Exam sent to DHCP System

When the exam results corresponding to the order that was sent by the ORM message in paragraph A are ready, an Observational Results Unsolicited (ORU) message is sent to the DHCP system. The ORU would consist of the following segments:

```
ORU OBSERVATIONAL RESULTS UNSOLICITED
```

MSH Message Header
PID Patient Identification
OBR Observational Request
OBX Result

EXAMPLE:

```
MSH^~|&^RADIOLOGY^NON-DHCP^RADIOLOGY^608^199104301010^ACCESS CODE--
SIGNATURE CODE^ORU^12346^P^2.1
PID^^55555--5--M11^JONES--JOHN--J^19300101^M^^^^^^^^^^^987654321
ORB^^^^708989.8.543-1--04391-66--L^^^^199104301200^^^^33232--
HARRIS--JACK----MEDICINE^^^^199104301010
OBX^^TX^I--IMPRESSION--L^HEART NORMAL SIZE
OBX^^TX^D--DIAGNOSTIC CODE--L^NORMAL
OBX^^TX^R--REPORT--L^Heart appears to be of normal size.
OBX^^TX^R--REPORT--L^No infiltrate or abnormal mass noted.
```
Appendix B. Sample HL7 Interface Specification

4.2 Specific Transactions

The DHCP system would then send back a General Acknowledgment (ACK) message.

EXAMPLE:

```
MSH^~|\&^RADIOLOGY^608^RADIOLOGY^NON-DHCP^199104301011^ACK^54320^P^2.1
MSA^AA^12346
```

C. Query for a List of Exams for a Patient

An alternate method for a non-DHCP system to determine which exams have been completed for a patient is to send a Query Message (QRY) to the DHCP system. The QRY would consist of the following segments:

```
QRY QUERY MESSAGE
```

```
MSH^~|\&^RADIOLOGY^608^RADIOLOGY^NON-DHCP SITE^RADIOLOGY^608\199104301100^ACCESS
CODE--SIGNATURE CODE^QRY^12347^P^2.1
QRD^199104301100^R\1^P^1^Q1^5^RD^55555^OTH^PATIENT
```

The DHCP system would respond to the query with a list of up to five exams for patient 55555 in record-oriented format. In the following example, only one complete exam existed for the patient.

EXAMPLE:

```
MSH^~|\&^RADIOLOGY^608^RADIOLOGY^NON-DHCP^199104301101^ORF^54321^P^2.1
MSA^AA^12347
QRD^199104301101^R^I^Q1^^^5~RD^55555^OTH^PATIENT
PID^^^55555--5--M11^DOE--JOHN--J^199104301^M^^^^^^^^^^987654321
OBX^^CE^P~PROCEDURE~L^^110~CHEST 1 VIEW~L
OBX^^TX^M~MODIFIERS~L^^RIGHT, PORTABLE
OBX^^TX^H~HISTORY~L^^A history is not available for this patient.
OBX^^TX^A~ALLERGIES~L^^BEE STINGS
```

This query can be used to request a list of exams or just the most recent exam. To request the most recent exam, Field #7 of the QRD segment would specify one record as the quantity (1~RD) in Field #7. To receive a list of exams, more than one record would be specified as in the example above. For either of these queries, the full SSN of the patient or the first letter of the last name and the last four digits of the SSN may be passed as the Who Subject Filter. Likewise, this query can be used to request a specific exam. To do so, Field #7 would specify one record (1~RD), Field #8 would specify the exam number (e.g., 042891-666) or case number (e.g., 666), and Field #10 would specify the word EXAM.
## Appendix C. Supported HL7 Message Types

<table>
<thead>
<tr>
<th>Abbreviated Name</th>
<th>Full Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACK</td>
<td>General Acknowledgment</td>
</tr>
<tr>
<td>ADT</td>
<td>ADT Message</td>
</tr>
<tr>
<td>ARD</td>
<td>Ancillary Report (Display)</td>
</tr>
<tr>
<td>BAR</td>
<td>Add/Change Billing Account</td>
</tr>
<tr>
<td>DFT</td>
<td>Detail Financial Transaction</td>
</tr>
<tr>
<td>DSR</td>
<td>Display Response</td>
</tr>
<tr>
<td>MCF</td>
<td>Delayed Acknowledgment</td>
</tr>
<tr>
<td>OCF</td>
<td>Order Confirmation</td>
</tr>
<tr>
<td>ORM</td>
<td>Order</td>
</tr>
<tr>
<td>ORR</td>
<td>Order Response Message</td>
</tr>
<tr>
<td>ORU</td>
<td>Observational Results Unsolicited</td>
</tr>
<tr>
<td>OSQ</td>
<td>Order Status Query</td>
</tr>
<tr>
<td>QRY</td>
<td>Query</td>
</tr>
<tr>
<td>UDM</td>
<td>Unsolicited Display</td>
</tr>
</tbody>
</table>
Appendix C. Supported HL7 Message Types
## Appendix D. Supported HL7 Segment Types

<table>
<thead>
<tr>
<th>Abbreviated Name</th>
<th>Full Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC</td>
<td>Accident</td>
</tr>
<tr>
<td>ADD</td>
<td>Addendum</td>
</tr>
<tr>
<td>BHS</td>
<td>Batch Header</td>
</tr>
<tr>
<td>BLG</td>
<td>Billing</td>
</tr>
<tr>
<td>BTS</td>
<td>Batch Trailer</td>
</tr>
<tr>
<td>DG1</td>
<td>Diagnosis</td>
</tr>
<tr>
<td>DSC</td>
<td>Continuation Pointer</td>
</tr>
<tr>
<td>DSP</td>
<td>Display Data</td>
</tr>
<tr>
<td>ERR</td>
<td>Error</td>
</tr>
<tr>
<td>EVN</td>
<td>Event Type</td>
</tr>
<tr>
<td>FT1</td>
<td>Financial Transaction</td>
</tr>
<tr>
<td>GT1</td>
<td>Guarantor</td>
</tr>
<tr>
<td>IN1</td>
<td>Insurance</td>
</tr>
<tr>
<td>MRG</td>
<td>Merge Patient Information</td>
</tr>
<tr>
<td>MSA</td>
<td>Message Acknowledgment</td>
</tr>
<tr>
<td>MSH</td>
<td>Message Header</td>
</tr>
<tr>
<td>NCK</td>
<td>System Clock</td>
</tr>
<tr>
<td>NK1</td>
<td>Next of Kin</td>
</tr>
<tr>
<td>NPU</td>
<td>Non-Patient Update</td>
</tr>
<tr>
<td>NSC</td>
<td>Status Change</td>
</tr>
<tr>
<td>NST</td>
<td>Statistics</td>
</tr>
<tr>
<td>NTE</td>
<td>Notes and Comments</td>
</tr>
<tr>
<td>OBR</td>
<td>Observation Request</td>
</tr>
</tbody>
</table>
### Appendix D. Supported HL7 Segment Types

<table>
<thead>
<tr>
<th>Abbreviated Name</th>
<th>Full Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBX</td>
<td>Result</td>
</tr>
<tr>
<td>ORC</td>
<td>Common Order</td>
</tr>
<tr>
<td>ORO</td>
<td>Order Other</td>
</tr>
<tr>
<td>PID</td>
<td>Patient Identification</td>
</tr>
<tr>
<td>PR1</td>
<td>Procedures</td>
</tr>
<tr>
<td>PV1</td>
<td>Patient Visit</td>
</tr>
<tr>
<td>QRD</td>
<td>Query Definition</td>
</tr>
<tr>
<td>QRF</td>
<td>Query Filter</td>
</tr>
<tr>
<td>RX1</td>
<td>Pharmacy Order</td>
</tr>
<tr>
<td>UB1</td>
<td>UB82 Data</td>
</tr>
<tr>
<td>URD</td>
<td>Results/Update Definition</td>
</tr>
<tr>
<td>URS</td>
<td>Unsolicited Selection</td>
</tr>
</tbody>
</table>
## Appendix E. HL7/VA FileMan Data Types

The following table is a list of HL7 data types and their corresponding VA FileMan data types. Listed under the first column titled "Function Call" are entry points in the HLFNC routine that can be called to convert VA FileMan data to HL7 format. Listed under the second column titled "Function Call" are entry points that can be called to convert HL7 data to VA FileMan format.

<table>
<thead>
<tr>
<th>HL7 Data Type</th>
<th>Function Call</th>
<th>VA FileMan Data Type</th>
<th>Function Call</th>
</tr>
</thead>
<tbody>
<tr>
<td>(ST) String</td>
<td>None Needed</td>
<td>Free Text</td>
<td>None Needed</td>
</tr>
<tr>
<td>(TX) Text</td>
<td>None Needed</td>
<td>Word Processing</td>
<td>None Needed</td>
</tr>
<tr>
<td>(FT) Formatted Text (See Note below)</td>
<td>None</td>
<td>No Equivalent</td>
<td>None</td>
</tr>
<tr>
<td>(NM) Numeric</td>
<td>None Needed</td>
<td>Numeric</td>
<td>None Needed</td>
</tr>
<tr>
<td>(DT) Date</td>
<td>HLDATE</td>
<td>Date Only</td>
<td>FMDATE</td>
</tr>
<tr>
<td>(TM) Time</td>
<td>HLDATE</td>
<td>Time Only</td>
<td>FMDATE</td>
</tr>
<tr>
<td>(TS) Time Stamp</td>
<td>HLDATE</td>
<td>Date/Time</td>
<td>FMDATE</td>
</tr>
<tr>
<td>(PN) Person Name</td>
<td>HLNAME</td>
<td>Free Text</td>
<td>FMNAME</td>
</tr>
<tr>
<td>(TN) Telephone No.</td>
<td>HLPHONE</td>
<td>Free Text</td>
<td>None Needed</td>
</tr>
<tr>
<td>(AD) Address</td>
<td>HLADDR</td>
<td>Free Text</td>
<td>None Needed</td>
</tr>
<tr>
<td>(ID) Coded Value</td>
<td>None Needed</td>
<td>Set of Codes or Pointer</td>
<td>None Needed</td>
</tr>
<tr>
<td>(SI) Sequence ID</td>
<td>None Needed</td>
<td>Numeric</td>
<td>None Needed</td>
</tr>
<tr>
<td>(CM) Composite</td>
<td>None Needed</td>
<td>No Equivalent</td>
<td>None Needed</td>
</tr>
<tr>
<td>(CE) Coded Element</td>
<td>None Needed</td>
<td>No Equivalent</td>
<td>None Needed</td>
</tr>
<tr>
<td>(CF) Coded Element with Formatted Value</td>
<td>None Needed</td>
<td>No Equivalent</td>
<td>None Needed</td>
</tr>
<tr>
<td>(CK) Composite ID with Check Digit</td>
<td>None Needed</td>
<td>No Equivalent</td>
<td>None Needed</td>
</tr>
<tr>
<td>(CN) Composite ID and Name</td>
<td>None Needed</td>
<td>No Equivalent</td>
<td>None Needed</td>
</tr>
<tr>
<td>(CQ) Composite Quantity with Units</td>
<td>None Needed</td>
<td>No Equivalent</td>
<td>None Needed</td>
</tr>
<tr>
<td>(MO) Money</td>
<td>None Needed</td>
<td>No Equivalent</td>
<td>None Needed</td>
</tr>
<tr>
<td>(RP) Reference Pointer</td>
<td>None Needed</td>
<td>No Equivalent</td>
<td>None Needed</td>
</tr>
<tr>
<td>(TQ) Timing Quantity</td>
<td>None Needed</td>
<td>No Equivalent</td>
<td>None Needed</td>
</tr>
</tbody>
</table>

**NOTE:** The formatted text (FT) data type is not required to be used in any HL7 fields at this time. The formatted text data type includes formatting instructions (escape codes) in the data string. It is recommended that locally created fields not be assigned the formatted data type. Use the string (ST) or text (TX) data types instead.
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