RESOURCE AND PATIENT MANAGEMENT SYSTEM

HEALTH LEVEL SEVEN
(HL)

Patch Notes

Version 1.6
April 2003

Information Technology Support Center
Division of Information Resources
Albuquerque, New Mexico

TABLE OF CONTENTS

1.0 HL*1.6*1 SEQ #1: Improved support for old 1.5 interfaces

Category: Routine

1.1 Description

This patch addresses problems when using the HL7 v1.5 interface method for bi-directional interfaces.

1.2 Routines

Routine Summary

<tab>;;1.6;HEALTH LEVEL SEVEN;**[patch list]**;Oct 13, 1995

HLCHK   value = 15619917

HLLP   value = 13252153

HLTF   value = 7445472

Routine Information
Routine Name: HLLP
Routine Checksum:

Routine Name: HLCHK
Routine Checksum:

Routine Name: HLTF
Routine Checksum:

1.3 Installation Instructions

Please follow the instructions below to install this patch.

1. Review your mapped set.   If any of the routines listed in the routine information section above are mapped, they should be removed from the mapped set at this time.

2. Sign into programmer mode on your production system.

3. Ensure that the variables DUZ, DT, DTIME, and U are defined properly and that the variable DUZ(0)="@".

4. Stop all running v1.5 HLLPs.

5. Load the routines from the PackMan message.

6. Move routines to all systems.

7. If routines were unmapped as part of step 1, they should be returned to the mapped set at this time.

8. Restart HLLPs stopped in step #4.

2.0 HL*1.6*2 SEQ #2: Lower Layer Protocol Fixes

Category
Routine

2.1 Description

This patch will address several problems identified with the version 1.6 Lower Layer Protocols. The Hybrid Lower Layer Protocol (HLLP) and the X3.28 protocol have been corrected to conform to the HL7 specifications.

Related NOIS:
ISA-0296-10391
ISA-0296-10392
ISB-0296-30780

Miscellaneous
Sets v1.5 local variables for backward compatibility.

HLLP
- The checksum routine has been corrected.

- Acknowledgments have been corrected.

- The time-out condition have been changed to resubmit the same message.

- Added trap for disconnect errors to keep link up while client is off line.

- HLCSDR2 halts with an undefined when the read termination character is not passed into the function SETNODE. The related NOIS is ATG-0196-30564, reported by Atlanta VA.

X3.28
1. Checksum on incoming message has been corrected.

2. Abort on a blank message has been modified such that it will not generate an error.

3. Read terminators now enabled correctly.

4. Corrects error in background startup.

5. Re-enables echo characteristic after completing a foreground session.

6. Enabled error trapping for disconnect errors. Link will attempt to re-connect once every 5 seconds, then idle.

7. For de-bugging in 'foreground mode' added ability to log communications IO. Translates all control characters in a string and writes the translated string to ^XTMP("HL",n). This node is set for automatic purge the following day.

- Correctly ACKs client

2.2 Routines

Routines	Checksum
HLCS	value = 5220817
HLCSDL	value = 4175013
HLCSDL1	value = 5346676
HLCSDL2	value = 5442356
HLCSDR	value = 3597126
HLCSDR1	value = 9745288
HLCSDR2	value = 5218053
HLCSIN	value = 1651857
HLCSUTL	value = 4322424
HLFNC2	value = 5211111
HLTP01	value = 3988246
HLTPCK1A	value = 10899550
HLUTIL3	value = 465440

Routine Information
Routine Name: HLCSDL1
Routine Checksum:

Routine Name: HLCSDL2
Routine Checksum:

Routine Name: HLCSDR2
Routine Checksum:

Routine Name: HLCSUTL

Routine Checksum:

Routine Name: HLFNC2
Routine Checksum:

Routine Name: HLCSIN
Routine Checksum:

Routine Name: HLCSDR1
Routine Checksum:

Routine Name: HLUTIL3
Routine Checksum:

Routine Name: HLCS
Routine Checksum:

Routine Name: HLTP01
Routine Checksum:

Routine Name: HLTPCK1A
Routine Checksum:

Routine Name: HLCSDL
Routine Checksum:

Routine Name: HLCSDR
Routine Checksum:

2.3 Installation Instructions

Please follow the instructions below to install this patch.

1. Review your mapped set. If any of the routines listed in the routine information section above are mapped, they should be removed from the mapped set at this time.

2. Sign into programmer mode on your production system.

3. Ensure that the variables DUZ, DT, DTIME, and U are defined properly and that the variable DUZ(0)="@".

4. Stop all running v1.6 LLPs and Incoming/Outgoing filers.

5. Load the routines from the PackMan message.

6. Move routines to all systems.

7. If routines were unmapped as part of step 1, they should be returned to the mapped set at this time.

8. Restart LLPs and filers stopped in step #4.

3.0 HL*1.6*5 SEQ #3 Incorrect Dates in 772 (Message Text)

Category
Routine

3.1 Description

$TXT Created by CLEMENS,JOHN at KERNEL.ISC-SF.VA.GOV on MONDAY, 04/29/96 at 10:55

Related NOIS: TOP-1295-41680

The zero nodes of file 772 (MESSAGE TEXT FILE) contain an entry for DT. If the filers are running in the background, this variable is set once at startup and never gets reset as new message text is entered. This patch ensures that the correct value of DT exists before writing to 772 by calling the Kernel function $$DT^XLFDT.

3.2 Routines

Routine Information:
Routine Name: HLTF1
Routine Checksum:

HLTF1   value = 12330837

3.3 Installation

Please follow the instructions below to install this patch.

1. Review your mapped set. If any of the routines listed in the routine information section above are mapped, they should be removed from the mapped set at this time.

2. Sign into programmer mode on your production system.

3. Ensure that the variables DUZ, DT, DTIME, and U are defined properly and that the variable DUZ(0)="@".

4. Stop all running LLPs and Incoming/Outgoing filers.

5. Load the routines from the PackMan message.

6. Move routines to all systems.

7. If routines were unmapped as part of step 1, they should be returned to the mapped set at this time.

8. Restart LLPs and filers stopped in step #4.

4.0 HL*1.6*6 SEQ #4: LLP State After Stopping

Category
Routine

4.1 Description

The option to stop a lower level protocol was designed to set a flag to notify the background process to shut down. The state of the process in file 870 is not actually updated until the process actually shuts down. In situations such as a system reboot, the background process is no longer running and the state cannot be properly reset. With this patch, the state of the link in file 870 will be fully reset to shutdown mode when a stop request is made.

4.2 Routines

Routine: HLCSLNCH

Previous Checksum: 6946551

New Checksum: 7065769

This patch can be installed on running systems. The routine is used only for starting and stopping logical links.

Routine Information
Routine Name: HLCSLNCH
Routine Checksum: 7065769

5.0 HL*1.6*7 SEQ #5: New HL7 Event Type

Category
Other

5.1 Description

Ambulatory Care requires the immediate addition of a new 'Z' namespaced event type.

5.2 Routines

No routines included

5.3 Installation Instructions

To install this patch, use VA FileMan, Enter/Edit File Entries and follow the dialog capture below:

```
 VA FileMan 21.0


 Select OPTION: ENTER OR EDIT FILE ENTRIES


INPUT TO WHAT FILE: NEW PERSON// 779.001  HL7 EVENT TYPE CODE
                                            (57 entries)
 EDIT WHICH FIELD: ALL//


Select HL7 EVENT TYPE CODE: Z00 <== 'Z,zero,zero'
   Are you adding 'Z00' as a new HL7 EVENT TYPE CODE (the 58TH)? Y  (Yes)
    HL7 EVENT TYPE CODE DESCRIPTION:Ambulatory Care Reporting Project
 DESCRIPTION:Ambulatory Care Reporting Project
           Replace
 Select VERSION: 2.2          HEALTH LEVEL SEVEN
   Are you adding '2.2' as a new VERSION (the 1ST for this HL7 EVENT TYPE
CODE)? Y   (Yes)

Select HL7 EVENT TYPE CODE:
```

6.0 HL*1.6*8 SEQ #6: NULLSUBSCR Error-Batch Acknowledgments

Category
Routine

6.1 Description

This *KIDS* patch prevents a NULLSUBSCR error from occuring on inbound batch acknowledgments and corrects a problem with the format of the MSA segment.

6.2 Routines

Routine Name: HLTPCK1
Routine Checksum: 4288888

Routine Name: HLTF1
Routine Checksum: 13138621

6.3 Installation Instructions

Please follow the instructions below to install this patch.

1. Review your mapped set. If any of the routines listed in the routine information section above are mapped, they should be removed from the mapped set at this time.

2. Sign into programmer mode on your production system.

3. Ensure that the variables DUZ, DT, DTIME, and U are defined properly and that the variable DUZ(0)="@".

4. Stop all running v1.6 LLPs and Incoming/Outgoing filers.

5. Load the routines from the PackMan message.

6. Install using the KIDS options for installing patches.

7. Move routines to all systems.

8. If routines were unmapped as part of step 1, they should be returned to the mapped set at this time.

9. Restart LLPs and filers stopped in step #4.

7.0 HL*1.6*9 SEQ #7: Patch to Patch

Category:
Routine
Patch for a Patch

7.1 Description:

$TXT Created by CLEMENS,JOHN at REL.KERNEL.ISC-SF.VA.GOV (KIDS) on
TUESDAY, 06/25/96 at 16:04

This *KIDS* patch to patch number 2 corrects errors in the first and second lines of
the routines HLCS and HLCSDR2. Remaining code is unchanged.

7.2 Routines

The checksum values are as follows:

HLCS value = 5044367

HLCSDR2 value = 5218053

Routine Information
Routine Name: HLCS
Routine Checksum:

Routine Name: HLCSDR
Routine Checksum:

7.3 Installation Instructions

Please follow the instructions below to install this patch.

1. Review your mapped set. If any of the routines listed in the routine
   information section above are mapped, they should be removed from the
   mapped set at this time.

2. Sign into programmer mode on your production system.

3. Ensure that the variables DUZ, DT, DTIME, and U are defined properly and
   that the variable DUZ(0)="@".

4. Stop all running v1.6 LLPs and Incoming/Outgoing filers.

5. Load the routines from the PackMan message.

6. Install using the KIDS options for installing patches.

7. Move routines to all systems.

8. If routines were unmapped as part of step 1, they should be returned to the mapped set at this time.

9. Restart LLPs and filers stopped in step #4.

8.0 HL*1.6*10 SEQ #8: HLMA Nodes Not Purged

Category:
Routine

8.1 Description

The HL7 1.6 purge utility does not remove corresponding nodes from the HLMA global. The following routine will remove these nodes as well as entries in file 772: ^HLUOPT1

This patch has been tested at VAMC Bronx.

Functional changes in option "Purge Message Text File Entries":
If you invoke the option manually (but queue it) the purge date you enter is used. You will be able to choose whether or not to purge errors 4-7 (See Below). If you schedule the option on a recurring basis the purge will retain the last seven days and error status 4-7 will not be purged. The default of -7 days can be changed by entering a number (ie, '-3') in the TASK PARAMETERS fields of the Option scheduling file. Please refer to page 344, "TASK PARAMETERS" of the Kernel Systems manual.

HL7 MESSAGE STATUS FILE
1 = PENDING TRANSMISSION-------------NEVER PURGED

2 = AWAITING ACKNOWLEDGEMENT---------NEVER PURGED

3 = SUCCESSFULLY COMPLETED-----------ALWAYS PURGED

4 = ERROR DURING TRANSMISSION--------OPTIONAL, MANUALLY INVOKED ONLY

5 = ERROR DURING GENERATION----------OPTIONAL, MANUALLY INVOKED ONLY

6 = ERROR DURING PROCESSING----------OPTIONAL, MANUALLY INVOKED ONLY

7 = APPLICATION LEVEL ERROR----------OPTIONAL, MANUALLY INVOKED ONLY

8 = BEING GENERATED------------------NEVER PURGED

9 = AWAITING PROCESSING--------------NEVER PURGED

8.2 Routines

Routine Information
Routine Name: HLUOPT1
Routine Checksum: 8023727

8.3 Installation Instructions

Please follow the instructions below to install this patch.

1. Review your mapped set. If any of the routines listed in the routine information section above are mapped, they should be removed from the mapped set at this time.

2. Sign into programmer mode on your production system.

3. Ensure that the variables DUZ, DT, DTIME, and U are defined properly and that the variable DUZ(0)="@".

4. Load the routines from the PackMan message.

5. Move routines to all systems.

6. If routines were unmapped as part of step 1, they should be returned to the mapped set at this time.

7. Users can remain on the system during this install.

9.0 HL*1.6*16 SEQ #9: HL7 MailMan Server Option

Category:
Informational

9.1 Description

This is an informational patch for the "HL V16 SERVER" option. It is advised that this server option use "SERVER DEVICE" (#227), an optional field, as a resource device that will allow multiple processes (p. 161, Kernel Systems Manual). Prior to editing this field you will need to create the resource device in the DEVICE file (p. 270, Kernel Systems Manual).

It has become apparent with the Amb-Care HL7 transmissions that the HL V16 SERVER can become overloaded. Using the optional SERVER DEVICE (#227) field in the OPTION file, IRM can control the number of servers that will be tasked to handle the load.

  Example:

```
 KRN,KDE>
 KRN,KDE>
 KRN,KDE>D ^XUP


         ======
 Select OPTION NAME: EVE           Systems Manager Menu
                   ===
 Select Systems Manager Menu Option: ^RESOURCE DEVICE EDIT
                                     ====================
 Select Resource Device: HLCS RESOURCE
                         =============
 NAME: HLCS RESOURCE//
 $I: HLCS RESOURCE
     =============
 VOLUME SET(CPU):
 RESOURCE SLOTS: 3      (***  enter how many slots to best handle your load )
                 =

 Select Resource Device: ^



KRN,KDE>
 KRN,KDE>
 KRN,KDE>D P^DI
         ======
 VA FileMan 21.0

 Select OPTION: 1  ENTER OR EDIT FILE ENTRIES
               =

 INPUT TO WHAT FILE: OPTION
                    ======
     1   OPTION                            (1183 entries)
     2   OPTION SCHEDULING            (18 entries)
 CHOOSE 1-2: 1
           =
 EDIT WHICH FIELD: ALL// 227  SERVER DEVICE
                        ===
 THEN EDIT FIELD:
Select OPTION NAME: HL V16 SERVER          HL7 v1.6 Mail Message Server
                    =============
 SERVER DEVICE: HLCS RESOURCE             (***  name of newly created resource
)
             =============

 Select OPTION NAME: ^
```

9.2 Routines

No routines included.

10.0HL*1.6*17 SEQ #10: Mail Links Never Purged

Category:
Routine

10.1   Description

The ^HLCS global is reported to be growing rapidly and uncontrollably. Mailman-type Logical Links are growing continuously because messages are never set to a 'done' status after it is handed off to Mailman.

This patch corrects the problem of uncontrolled growth of file 870.

Further, it corrects the following miscellaneous problems:

- The date field of the zero node in ^XMB(3.9 is set incorrectly if the background job has been running for several days. It is now updated with a call to $$DT^XLFDT.

- The subject field of the message has been slightly modified to make use of the actual site name as derived from the $$SITE^VASITE call.

- An effort has been made to optimize the transfer of message text from ^HLCS to ^XMB. It now uses the merge command to move text 100 lines at a time into ^XMB. Please note that any benefit derived from this change has not been proven yet.

10.2   Routines

This patch contains the following routine:

^HLCSMM

The second line now looks like this:

 ;;1.6;HEALTH LEVEL SEVEN;**17**;Oct 13, 1995

Routine Information
Routine Name: HLCSMM
Routine Checksum:

HLCSMM   value = 2972970 (CHECK^XTSUMBLD)

10.3   Installation Instructions

1. Disable all HL7 version 1.6 OUTGOING FILERS and wait for the process' to disappear from the system status.

2. Select V1.6 OPTIONS Option: COMmunications Server

```
1       Edit Communication Server parameters
2       Manage incoming & outgoing filers ...
3       Monitor incoming & outgoing filers
4       Start LLP
5       Stop LLP
6       Systems Link Monitor
7       Logical Link Queue Management ...
8       Report
```

3. Select Communications Server Option: 2 Manage incoming & outgoing filers

```
1       Start default number of incoming & outgoing filers
2       Start an incoming filer
3       Start an outgoing filer
4       Stop all incoming filers
5       Stop all outgoing filers
6       Stop an incoming filer
7       Stop an outgoing filer
```

4. Select Manage incoming & outgoing filers Option: 5 Stop all outgoing filers

5. Use the option, SYSTEMS LINK MONITOR to check the status of messages being processed out of your active Logical Links. It will look SIMILAR to this:

NODE	MESSAGES RECEIVED	MESSAGES PROCESSED	MESSAGES TO SEND	MESSAGES SENT	DEVICE ON-LINE	STATE
AMB-CARE	0	0	1	1	Y	OUT QUEUE

Notice that MESSAGES TO SEND and MESSAGES SENT are equal. As long as the filers are disabled, no new messages will be queued. It is now safe to clear the queue of all entries.

6. Select the option LOGICAL LINK QUEUE MANAGEMENT, then select CLEAR A QUEUE OF ALL ENTRIES. Use this option to clear out all of your 'Mailman' type links.

7. Now disable the logical links you have just cleared and prepare to install this patch. Use the option, STOP LLP for each Link you need to shut down.

8. AXP sites should check and remove HL* from their map sets. (Mapping of HL7 1.6 routines is not recommended at this time)

9. Users may remain on the system.

10. Load the KIDS BUILD FILE using the Packman option INSTALL/CHECK MESSAGE.

11. On the KIDS menu, under the 'Installation' menu, use the following option:

    - Select Installation Option: Install Package(s)

    - Select INSTALL NAME: HL*1.6*17

    - Answer 'NO' to 'Want to DISABLE Schedule Options, Menu Options, and Protocols?'

    - MSM Sites - Answer 'YES' to the question 'Want to MOVE routines to other CPUs?' Then enter the names of your other Compute and Print server(s).

12. After the KIDS installation has completed, remember to re-enable all previously disabled Logical Links and re-start your default number of Incoming and Outgoing filers.

11.0 HL*1.6*13 SEQ #11: Purge Awaiting ACK Message

Category:
Routine

11.1   Description

This patch solves the problems described in NOIS REN-1096-61037. It adds extra ability to the OPTION 'Purge Message Text File Entries' for purging the 'Awaiting Acknowledgment' messages.

When it is manually invoked, you need to enter the cutoff date for the purge of 'Awaiting Acknowledgment' messages.

When this option is scheduled, you may pass a string with two piece data into the TASK PARAMETERS of the OPTION SCHEDULING file.

For example, you may enter '-5;-30'. These two negative numbers are separated by ';'. The negative number in the first piece represents the retaining days for the 'successfully transmitted' messages, while the negative number in the second piece represents the retaining days for the 'Awaiting Acknowledgment' messages. The 'Awaiting Acknowledgment' messages will not be purged if the second piece data is missing or is not submitted. Please refer to the description in patch HL*1.6*10 for the purge information except the messages with 'Awaiting Acknowledgment' status.

11.2   Routines

The following routines are included in this patch. The second line of these routines now look like:

    <tab>;;1.6;HEALTH LEVEL SEVEN;**10,13**;Oct 13, 1995

CHECK^XTSUMBLD results:

Routine Name	Before Patch	After Patch	Patch List
HLUOPT1	8023727	9764899	10,13

Routine Information
Routine Name: HLUOPT1
Routine Checksum: 9764899

11.3   Installation Instructions

1.   Users may remain on the system during the installation of this patch.

2. Check and make sure that the 'HL PURGE TRANSMISSIONS' option is not scheduled during the time of installation.

3. For mapped AXP sites, disable mapping for this patch routine.

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. On the KIDS menu, under the 'Installation' menu, use the following option:

    - Select Installation Option: Install Package(s)

    - Select INSTALL NAME: HL*1.6*13

    - Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

6. MSM Sites - Answer 'YES' to the question 'Want to MOVE routines to other CPUs?'. Then enter the names of your other Compute and Print server(s).

7. AXP Sites - After the patch has been installed, rebuild your map set.

8. Re-schedule 'HL PURGE TRANSMISSIONS' option if this option was scheduled and has been stopped in step #2.

12.0HL*1.6*12 SEQ #12: Outgoing Message with Pointer Problems

Category:
Routine

12.1   Description

This patch solves the following problems for the V1.5 Lower Level Protocol background job, which are described in NOIS call #MIW-0696-41662:

- An outgoing message with no pointer to 'Message' file (#3.9).

- An outgoing message with an broken pointer to 'Message' file (#3.9), which could be purged by MailMan purging routines.

- An outgoing message with a pointer to 'Message' file (#3.9), but the message text is missing.

12.2   Routines

The following routines are included in this patch. The second line of these routines now look like:

    <tab>;;1.6;HEALTH LEVEL SEVEN;**<Patch List>**;Oct 13, 1995

CHECK^XTSUMBLD results:

Routine Name	Before Patch	After Patch	Patch List
HLLP	13252153	13472823	1,12
HLTF0	4721527	4765190	12

Routine Information
Routine Name: HLLP
Routine Checksum: 13472823

Routine Name: HLTF0
Routine Checksum: 4765190

12.3   Installation Instructions

1. Users may remain on the system during the installation of this patch.

2. For mapped AXP sites, disable mapping for this patch routine.

3. Stop all running v1.5 LLPs.

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. On the KIDS menu, under the 'Installation' menu, use the following option:

   - Select Installation Option: Install Package(s)

   - Select INSTALL NAME: HL*1.6*12

   - Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

6. MSM Sites - Answer 'YES' to the question 'Want to MOVE routines to other CPUs?'. Then enter the names of your other Compute and Print server(s).

7. AXP Sites - After the patch has been installed, rebuild your map set.

8. Restart LLPs stopped in step #3.

13.0 HL*1.6*21 SEQ #13 More Control Over Purge

Category
Routine

13.1   Description

This patch adds support for HL7 message 'vaporization dates.' Users can specify a date before which all messages will be purged regardless of status. If the purge option is scheduled in taskman, enter a negative number in the 3rd ';' piece of the taskman parameters field. The default vaporization date is 'T-90.'

The routine has been 'shored up' to insure that all local variables are properly namespaced.

Finally, it now checks for and cleans up 'orphaned' nodes in ^HLMA. These occur when sites have purged 772 using Fileman.

13.2   Routines

HLUOPT1   ;AISC/SAW-Main Menu for HL7 Module (Con't) ;12/05/96 11:28

 ;;1.6;HEALTH LEVEL SEVEN;**10,13,21**;Oct 13, 1995

CHECKSUM (from CHECK^XTSUMBLD)
HLUOPT1   value = 9958836

13.3   Installation Instructions

1. Users may remain on the system during the installation of this patch.

2. Check and make sure that the 'HL PURGE TRANSMISSIONS' option is not scheduled during the time of installation.

3. For mapped AXP sites, disable mapping for this patch routine.

4. If the HL global is large, consider disabling journaling before running the purge for the first time, then re-enable journaling.

5. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

6. On the KIDS menu, under the 'Installation' menu, use the following option:
    - Select Installation Option: Install Package(s)
    - Select INSTALL NAME: HL*1.6*21

- Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

7. MSM Sites - Answer 'YES' to the question 'Want to MOVE routines to other CPUs?'. Then enter the names of your other Compute and Print server(s).

8. AXP Sites - After the patch has been installed, rebuild your map set.

9. Re-schedule 'HL PURGE TRANSMISSIONS' option if this option was scheduled and has been stopped in step #2.

14.0 HL*1.6*15   SEQ   #14   Comm   Serv   Monitors   Wrapping Problems

Category
Routine

14.1   Description

This patch fixes wrapping problems within the communication server's monitoring routines for both filers and LLPs.

This problem was reported locally by Trung Nguyen. There is no NOIS associated with this patch.

There was no problem identified on a DSM environment, but there was a wrapping problem on a MSM environment. During the screen painting, the cursor gets lost in the header line display. This causes to wrap around. Routines were modified to resolve these problems.

14.2   Routines

The following routines are included in this patch. The second line of these routines now look like:

<tab>;;1.6;HEALTH LEVEL SEVEN;**15**;Oct 13, 1995

CHECK^XTSUMBLD results:

Routine Name	Before Patch	After Patch	Patch List
HLCSFMN	4628837	4928566	15
HLCSFMN0	5723402	5857525	15
HLCSMON1	3920951	3988003	15

Routine Information
Routine Name: HLCSMON1
Routine Checksum:

Routine Name: HLCSFMN0
Routine Checksum:

Routine Name: HLCSFMN
Routine Checksum:

14.3   Installation Instructions

1. Users may remain on the system during the installation of this patch.

2. For mapped AXP sites, disable mapping for routines in this patch.

3. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

4. On the KIDS menu, under the 'Installation' menu, use the following option:

    *   Select Installation Option: Install Package(s)

    *   Select INSTALL NAME: HL*1.6*15

    *   Answer 'NO' to 'Want to DISABLE Schedule Options, Menu Options, and Protocols?'

5. MSM Sites - Answer 'YES' to the question 'Want to MOVE routines to other CPUs?' Then enter the names of your other Compute and Print server(s).

6. AXP Sites - After the patch has been installed, rebuild your map set.

15.0 HL*1.6*18 SEQ #15: In/Outbound Filers in Infinite Loop

Category
Routine

15.1   Description

The Inbound and Outbound filers can be forced into an infinite loop if entries in file 869.3 (HL COMMUNICATION SERVER PARAMETERS) are deleted. The file and related monitors will then not provide accurate information regarding the number of filers actually running on your system.

The routine ^HLCSUTL2 has been modified to signal a filer to stop whether the user sets the stop flag or actually deletes the entry from the file.

The second line of HLCSUTL2 now looks like:

;;1.6;HEALTH LEVEL SEVEN;**18**;Oct 13, 1995

15.2   Routines

Routine Information
Routine Name: HLCSUTL2
Routine Checksum:

HLCSUTL2 value = 2107626 (CHECK^XTSUMBLD)

15.3   Installation Instructions

To install this patch:

1. Stop all running filers (select options 4 and 5, below) Select Communications Server Option: MANage incoming & outgoing filers

```
1      Start default number of incoming & outgoing filers
2      Start an incoming filer
3      Start an outgoing filer
4      Stop all incoming filers
5      Stop all outgoing filers
6      Stop an incoming filer
7      Stop an outgoing filer
```

2. AXP sites should check and remove HL* from their map sets. (Mapping of HL7 1.6 routines is not recommended at this time)

3.   Users may remain on the system.

4.   Load the KIDS BUILD FILE using the Packman option INSTALL/CHECK
     MESSAGE.

5.   On the KIDS menu, under the 'Installation' menu, use the following option:

     •   Select Installation Option: Install Package(s)

     •   Select INSTALL NAME: HL*1.6*18

     •   Answer 'NO' to 'Want to DISABLE Schedule Options, Menu Options, and
         Protocols?'

6.   MSM Sites - Answer 'YES' to the question 'Want to MOVE routines to other
     CPUs?' Then enter the names of your other Compute and Print server(s).

7.   After the KIDS installation has completed, remember to re-start your default
     number of INBOUND and OUTBOUND filers. (option 1 above)

16.0 HL*1.6*22 SEQ #16: HLLP Out Queue / BTS Clean-Up

Category:
Routine

16.1   Description

This patch fixes problems with the out queue's for HLLP's and Batch messages that only contain one message.

The ^HLCS global is not being purged for the out queue multiple on HLLP Logical Links. The messages are never set to 'done' status after completion and remain in a 'pending' status. This problem was reported in NOIS OKL-0197-71130. This Patch will correct the problem and allow the purging utilities to clean out the ^HLCS global.

Routine HLCSDR1 was modified to update the out queue status after processing the message.

The BTS segment is not getting generated when only one message is being sent as a Batch. The problem was reported in NOIS ISA-1296-10454.

Routine HLTF1 was modified to check the message type and create a BTS for a Batch message regardless of the number of messages.

16.2   Routines

The following routines are included in this patch. The second line of these routines now look like:

   <tab>;;1.6;HEALTH LEVEL SEVEN;**??,??**;Oct 13, 1995

CHECK^XTSUMBLD results:

Routine Name	Before Patch	After Patch	Patch List
HLCSDR1	9745288	9808127	2,22
HLTF1	13138621	13439654	5,8,22

16.3   Installation Instructions

1. Users may remain on the system during the installation of this patch.

2. For mapped AXP sites, disable mapping for routines in this patch.

3. Use 'HL7 Communications server' options to stop all LLP's and Filers.

    - Select Communications Server Option: 2 Manage incoming & outgoing filers

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

    - Select Manage incoming & outgoing filers Option: 5 Stop all outgoing filers

    - Select Communications Server Option: Shut Down All Logical Links

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. On the KIDS menu, under the 'Installation' menu, use the following option:

    - Select Installation Option: Install Package(s)

    - Select INSTALL NAME: HL*1.6*22

    - Answer 'NO' to 'Want to DISABLE Schedule Options, Menu Options, and Protocols?'

6. MSM Sites - Answer 'YES' to the question 'Want to MOVE routines to other CPUs?'   Then enter the names of your other Compute and Print server(s).

7. AXP Sites - After the patch has been installed, rebuild your map set.

8. Use 'HL7 Communications Server' option to Re-Start LLP's and Filers.

    - Select Communications Server Option: Restart All Links and Filers

17.0 HL*1.6*20 SEQ #17 Documentation Change Pages

Category
Informational

17.1   Description

This patch is to notify sites of some errors encountered in the DHCP HL7 V.1.6 Manuals.

All corrected pages are now available on the HL7 Home Page located at the following Intranet address:

- http://152.127.1.95/softserv/infrastr.uct/hl7/index.html

If you merely wish to print the individual change pages and not the entire manual, please go to the following Intranet address:

- http://152.127.1.95/softserv/infrastr.uct/hl7/docs/changes.html

The new updated doc set is available in PDF Format at:

ALBANY 152.127.1.5
HINES 152.129.1.110
SLC   152.131.2.1
HL71_6DM.PDF for the Developers Manual
HL71_6TM.PDF for the Technical Manual

Sites will receive printed change pages at a later date.

17.2   Routine Information

No routines included

18.0 HL*1.6*25 SEQ #18: Filers Error Out

Associated patches
(v)HL*1.6*22 must be installed BEFORE `HL*1.6*25'

Category
Routine

18.1   Description

This patch is used to fix the problems described in NOIS calls:

HUN-0297-21666, LEX-0297-41531, BAC-0297-40046, IND-0197-42390,

JAC-0297-71674, MAR-0297-20929, etc. The filers erred out abnormally when unexpected data were encountered. This patch will catch these unexpected data to prevent these errors.

It will fix the problems for the outgoing filer as follows:
- Catch the erroneous client message entry with incorrect Logical Link.
- Catch the erroneous client message entry with parent message missing.
- Catch the erroneous client message entry with illegal message type.

It will fix the problems for the incoming filer as follows:
- Mock MSA segment error when a batch message is received.
- Missing original outgoing message of the incoming message error.
- Missing Event Type Protocol pointer error.

18.2   Routines

Routine Information

The following routines are included in this patch. The second line of these routines now look like:

<tab>;;1.6;HEALTH LEVEL SEVEN;**Patch List**;Oct 13, 1995

CHECK^XTSUMBLD results

Routine Name	Before Patch	After Patch	Patch List
HLCSOUT	3686510	4104234	25
HLTF1	13439654	9700889	5,8,22,25

Routine Name	Before Patch	After Patch	Patch List
HLTF2	N/A	4516843	25
HLTP0	3059568	3059585	25
HLTP01	3988246	3987933	2,25
HLTPCK1A	10899550	9629334	2,25

Routine Information
Routine Name: HLCSOUT
Routine Checksum:

Routine Name: HLTF1
Routine Checksum:

Routine Name: HLTF2
Routine Checksum:

Routine Name: HLTP0
Routine Checksum:

Routine Name: HLTP01
Routine Checksum:

Routine Name: HLTPCK1A
Routine Checksum:

18.3   Installation Instructions

1. Users may remain on the system during the installation of this patch.

2. Shut down all the incoming and outgoing filers by using the options: 'Stop all incoming filers' and 'Stop all outgoing filers'

3. For mapped AXP sites, disable mapping for these routines.

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. On the KIDS menu, under the 'Installation' menu, use the following options:
   - Print Transport Global
   - Compare Transport Global to Current System
   - Verify Checksums in Transport Global

6. On the KIDS menu, under the 'Installation' menu, use the following option:

- Select Installation Option: Install Package(s)
- Select INSTALL NAME: HL*1.6*25
- Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

7. MSM Sites - Answer 'YES' to the question 'Want to MOVE routines to other CPUs?'. Then enter the names of your other Compute and Print server(s).

8. AXP Sites - After the patch has been installed, rebuild your map set.

9. Restart the incoming and outgoing filers.

19.0HL*1.6*27 SEQ #19: HLLP Processing Loop

Associated patches
(v)HL*1.6*22 must be installed BEFORE `HL*1.6*27'

(v)HL*1.6*25 must be installed BEFORE `HL*1.6*27'

Category
Patch for a patch

19.1   Description

NOIS: BRX-0397-10990, LOU-0397-40857, FAV-0397-70995, FAV-0397-70958, TOG-0397-11110, BHH-0397-41436.

Test Sites: West Palm, Lincoln, Dallas, Salt Lake, Charleston

This patch fixes problems with HLLP applications getting in a processing loop when a device is timed-out and a retransmission occurs. This patch will fix problems that Patch HL*1.6*22 uncovered.

If an attempted write is timed-out, the Out-Queue is decremented and reprocessed on the next iteration. The status will be changed to 'pending'. The status will also need to be set to 'pending' if a Neg Ack is received.

Removed initial line of code in HLCSDR1 that used %ZOSF to set the priority. The system managers will be responsible for adjusting the priority as needed.

It is recommended that the 'OUT QUEUE' be cleared of all entries for each of the HL Logical Links that are affected by this patch. Those include all VIC applications and some Pharmacy BETA test applications, plus any local applications that use the HLLP protocol for communication. If you don't clear these queues you will need to edit the field 'OUT QUEUE FRONT POINTER' to reflect the last successfully transmitted message in the 'OUT QUEUE' for each of these logical links. The last successfully transmitted message will have a status of DONE.

19.2   Routines

The following routines are included in this patch. The second line of these routines now look like:

  <tab>;;1.6;HEALTH LEVEL SEVEN;** {Patch List} **;Oct 13, 1995

CHECK^XTSUMBLD results:

Routine Name	Before Patch	After Patch	Patch List

Routine Name	Before Patch	After Patch	Patch List
HLCSDR1	9808127	10565274	2,22,27

19.3   Installation Instructions

1. Users may remain on the system during the installation of this patch.

2. Do Not place Taskman in a Wait/Stop state.

3. For mapped AXP sites, disable mapping for routines in this patch.

4. Use 'HL7 Communications server' options to stop all LLP's and Filers.
    - Select Communications Server Option: 2   Manage incoming & outgoing filers
    - Select Manage incoming & outgoing filers Option: 4 Stop all incoming filers
    - Select Manage incoming & outgoing filers Option: 5 Stop all outgoing filers
    - Select Communications Server Option: Stop LLP
    - ** Stop all LLP's that are using HLLP (VIC and some pharmacy applications)

5. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu.   This option will load the KIDS package onto your system.

6. On the KIDS menu, under the 'Installation' menu, use the following option:
    - Select Installation Option: Install Package(s)
    - Select INSTALL NAME: HL*1.6*27
    - Answer 'NO' to 'Want to DISABLE Schedule Options, Menu Options, and Protocols?'

7. MSM Sites - Answer 'YES' to the question 'Want to MOVE routines to other CPUs?'   Then enter the names of your other Compute and Print server(s).

8. AXP Sites - After the patch has been installed, rebuild your map set.

9. Use 'HL7 Communications Server' option to Re-Start LLP's and Filers.

20.0 HL*1.6*26 SEQ #20: Honor Disabled Server Protocol

Category
Routine
Data Dictionary
Enhancement (Mandatory)
Sort Template

20.1   Description

Prerequisites
None

Subject
HL*1.6*26: Recognize 'out-of-order' server protocols

Description
his patch enables recognition of HL7 Server Protocols that have been placed out of order as well as those Server Protocols that have no clients. This information is returned to the HL7 calling application as an error message while calling the entry point, INIT^HLFNC2. Two new error messages have been added to file 771.7, HL7 ERROR MESSAGE. They are:

CODE: 15   SHORT TEXT: No client

DESCRIPTION: No clients are defined for this server protocol. Unless the application intends to submit a specific client using the HLL("LINKS") array, this message should not be sent.

CODE: 16   SHORT TEXT: Server Protocol Disabled

 DESCRIPTION: The server protocol has been placed OUT OF SERVICE. The message has been rejected by the HL7 Message Service. The sending application must retain the message for later transmission.

Test Sites
Requested by CIRN Developers

20.2   Routines

Routine Summary
^HLFNC2 (second line):

 <tab ;;1.6;HEALTH LEVEL SEVEN;**2,26**;Oct 13, 1995

Routine Name	Checksum Before	Checksum After	Patch List
HLFNC2	5211111	5393929	2,26

From CHECK^XTSUMBLD

To test if the transport has been corrupted, you can use the "Verify Package Integrity" option. This option is under Utilities under the KIDS menu. It will compare the checksums in the build with the current checksums and list any that differ.

Routine Information
Routine Name: HLFNC2

Routine Checksum:

HLFNC2   value = 5393929

20.3   Installation Instructions

1. Users ARE allowed to be on the system during the installation.

2. You DO NOT need to place TaskMan in a WAIT/STOP state.

3. AXP SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global.

6. On the KIDS menu, under the 'Installation' menu, use the following options:
    - Verify Checksums in Transport Global
    - Print Transport Global
    - Compare Transport Global to Current System
    - Backup a Transport Global
    - Install Package(s)
    - INSTALL NAME: HL*1.6*26

7. MSM Sites - Answer YES to the question 'Want to MOVE routines to other CPUs?'. Enter the names of your Compute and Print server(s). AXP Sites - Answer NO to this question.

8. Rebuild your mapped set if necessary.

21.0 HL*1.6*28 SEQ #21: More Control Over Filers

Category
Routine

21.1   Description

Patch HL*1.6*18 did not fully address the conditions under which an Inbound or
Outbound Filer process should terminate. With this update, a filer will stop if the
node in file 869.3 is missing or the task number is missing. We discovered that the
node is recreated every time $H is reset, but there is no longer an associated task
number. This patch will help prevent the need to FORCEX unwanted processes on
TaskMan nodes.

Test Sites
None

21.2   Routines

Routine Summary
HLCSUTL2

;;1.6;HEALTH LEVEL SEVEN;**18,28**;Oct 13, 1995

Checksums:

Routine	Checksum Before	Checksum After
HLCSUTL2	2107626	2181860

Used CHECK^XTSUMBLD

To test if the transport has been corrupted, you can use the "Verify Package Integrity"
option. This option is under Utilities under the KIDS menu. It will compare the
checksums in the build with the current checksums and list any that differ.

Routine Information
Routine Name: HLCSUTL2
Routine Checksum: 2181860

21.3   Installation Instructions

1. Users ARE allowed to be on the system during the installation.

2. DO NOT place TaskMan in a WAIT/STOP state.

3. Routine mapping is NOT recommended for these routines. If you are using mapping, ensure that these routines are NOT in your mapped routine before proceeding.

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global.

6. On the KIDS menu, under the 'Installation' menu, use the following options:
   - Verify Checksums in Transport Global
   - Print Transport Global
   - Compare Transport Global to Current System
   - Backup a Transport Global
   - Install Package(s)
   - INSTALL NAME: HL*1.6*28

7. MSM Sites - Answer YES to the question 'Want to MOVE routines to other CPUs?'. Enter the names of your Computer and Print server(s). AXP Sites - Answer NO to this question.

8. Rebuild your mapped set if necessary.

22.0 HL*1.6*29   SEQ   #22:   Date.Time   Subscript   of TMP('HL'

Category
Routine

22.1   Description

This patch fixes the problems as described in NOIS #BRX-0896-12049.   The problems come from the "date.time" subscript of the ^TMP("HL", ^TMP("HLR", and ^TMP("HLS", which is not correctly set to comply with the FileMan format.

22.2   Routines

Routine Summary
The following is a list of the routines included in this patch. The second line of each of these routines now looks like:

    <tab>;;1.6;HEALTH LEVEL SEVEN;**[patch list]**;Oct 13, 1995

Checksums

Routine Name	Checksum Before	Checksum After	Patch List
HLLP	13472823	13466846	1,12,29

From CHECK^XTSUMBLD

Routine Information
Routine Name: HLLP
Routine Checksum:

22.3   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. Stop all the HLLP logical links for v 1.5 interface.

3. AXP SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:

- Verify Checksums in Transport Global

- Print Transport Global

- Compare Transport Global to Current System

- Backup a Transport Global

- Install Package(s)

- INSTALL NAME: HL*1.6*29

- Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

6. MSM Sites - Answer 'YES' to the question 'Want to MOVE routines to other CPUs?'. Enter the names of your Compute and Print server(s).

7. AXP Sites: Rebuild your mapped set if necessary.

8. Restart all the HLLP logical links which have been stopped at step 2.

23.0 HL*1.6*23 SEQ #23: Country Code Length

Category
Data Dictionary

23.1 Description

This patch adds a new entry into the Country Code file (#779.004) to solve the problem as described in NOIS ISF-0297-60099. This new entry contains a 2-character Country Code, "US" (United States of America), in order to conform to the ISO 3166 standard.

In order to create a message with the MSH segment containing the two-character "US" country code (MSH-17), field 'Country Code' (#771,7) of the 'HL7 Application Parameter' file (#771) should be changed from "USA" to "US."

23.2 Installation Instructions

1. Users are allowed to be on the system during the installation.

2. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

3. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:
    *   Verify Checksums in Transport Global
    *   Print Transport Global
    *   Compare Transport Global to Current System
    *   Backup a Transport Global
    *   Install Package(s)
    *   INSTALL NAME: HL*1.6*23
    *   Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

4. MSM Sites - Answer 'NO' to the question 'Want to MOVE routines to other CPUs?'.

5. Optional: Use FileMan Enter/Edit option to change "USA" to "US" for field #771,7 of the application in order to create a message, containing the "US" country code in the MSH segment for the application.

24.0 HL*1.6*24 SEQ #24: DD & Data Change for File #772 & #771.7

Associated patches
(v)HL*1.6*26 must be installed BEFORE `HL*1.6*24'

Category
Data Dictionary

24.1   Description

This patch will do the following to correct the problems found in DD and data in files #772 and #771.7:

- Rewrite the KILL logic for the 'AXMITOUT1' cross-reference of 'Logical Link' field (#772,11) in the HL7 Message Text file (#772).

- Rewrite the KILL logic for the 'AXMITOUT2' cross-reference of 'Status' field (#772,20) in the HL7 Message Text file (#772).

- Modify DD of 'Error Type' field (#772,23) in the HL7 Message Text file (#772).

- Modify data of the entry, CODE=1, in the HL7 Error Message file (#771.7).

24.2   Installation Instructions

1. Patch HL*1.6*26 must be installed before this patch.

2. Users are allowed to be on the system during the installation.

3. Shut down all the outgoing filers.

4. Shut down all the incoming filers.

5. No routine mapping for this patch.

6. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

7. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:
   - Verify Checksums in Transport Global
   - Print Transport Global

- Compare Transport Global to Current System
- Backup a Transport Global
- Install Package(s)
- INSTALL NAME: HL*1.6*24
- Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

8. MSM Sites - Answer 'NO' to the question 'Want to MOVE routines to other CPUs?'.

9. Restart all the outgoing and incoming filers which have been shut down at step 2 and 3.

10. You may delete the post-install routine 'HLPAT24' after you have successfully installed this patch.

25.0 HL*1.6*30 SEQ #25: Reduce Unnecessary Sets/Journaling

Category
Routine

25.1   Description

NOIS WBP-0397-21732

Repetitive sets are being made even though nothing is being processed, causing excessive journaling. Both the filers (In/Out) and the LLPs continually make status changes. Four routines have been modified so that the statuses will be changed less frequently, resulting in fewer disk accesses and considerably less journaling (should see improved processing time). This fix can be categorized as a 'quick fix' to help reduce the excessive journaling immediately. A more entailed fix would be to re-write the monitoring sections to determine the statuses dynamically.

Test Sites
VAMC Wilkes Barre, PA

25.2   Routines

Routine Summary

The following routines are included in this patch. The second line of these routines now look like:

   <tab>;;1.6;HEALTH LEVEL SEVEN;**??,??**;Oct 13, 1995

CHECK^XTSUMBLD results:

Routine Name	Before Patch	After Patch	Patch List
HLCSDR1	10565274	10561764	2,22,27,30
HLCSFMN	4928566	4928662	15,30
HLCSIN	1651857	1665942	2,30
HLCSOUT	4104234	4118513	25,30

25.3   Installation Instructions

1. Users may remain on the system during the installation of this patch.

2. For mapped AXP sites, disable mapping for routines in this patch.

3. Use 'HL7 Communications server' options to stop all LLP's and Filers.

    - Select Communications Server Option: 2 Manage incoming & outgoing filers

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

    - Select Manage incoming & outgoing filers: 5 Stop all outgoing filers

    - Select Communications Server Option: 5 Stop LLP (** for each LLP)

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. On the KIDS menu, under the 'Installation' menu, use the following options:
    - Verify Checksums in Transport Global
    - Print Transport Global
    - Compare Transport Global to Current System
    - Backup a Transport Global
    - Install Package
    - Select INSTALL NAME: HL*1.6*30
    - Answer 'NO' to 'Want to DISABLE Schedule Options, Menu Options, and Protocols?'

6. MSM Sites - Answer 'YES' to the question 'Want to MOVE routines to other CPUs?'   Then enter the names of your other Compute and Print server(s).

7. AXP Sites - After the patch has been installed, rebuild your map set.

8. Use 'HL7 Communications Server' option to Re-Start LLP's and Filers.

    - Select Communications Server Option: 2 Manage incoming & outgoing filers

    - Select Manage incoming & outgoing filers Option: 1 Start default filers..

    - Select Communications Server Option: 4 Start LLP (** for each LLP)

26.0 HL*1.6*35 SEQ #27: HL7 MAILMAN LLP

Category: Routine

26.1   Description

Mailman-type logical links do not always shut down on demand. This is due to inconsistent use of locks. The Mailman protocol has been revised to correct this problem and further improve performance and IO issues. Status updates now occur only once-when the status actually changes.

26.2   Routine Summary

The following is a list of the routines included in this patch. The second line of each of these routines now look like:

KRN,KDE 04/17/98	FIRST LINE LIST:
HLCSMM	ISC/MTC-Create Mail Message and Entry in the HL7 Transmission File;0 9/11/97 11:04 ;;1.6; HEALTH LEVEL SEVEN; ** 17, 35 **; Oct 13, 1995
HLCSMM1	;ISC-SF/JC - HL7 PROTOCOL FOR MAILMAN ;04/17/98 13:13 ;;1.6;HEALTH LEVEL SEVEN; **35**; Oct 13, 1995;

Checksums

Routine Name	Checksum Before	Checksum After
HLCSMM	2972970	2776063
HLCSMM1	3526168	1462301

From CHECK^XTSUMBLD

Routine Information
Routine Name: HLCSMM
Routine Checksum:

Routine Name: HLCSMM1
Routine Checksum:

26.3   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. Check and make sure that the 'HL PURGE TRANSMISSIONS' option is not scheduled during the time of installation.

3. Stop all the incoming and outgoing filers and any MAILMAN-TYPE logical links.

4. AXP SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

5. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

6. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:
    - Verify Checksums in Transport Global
    - Print Transport Global
    - Compare Transport Global to Current System
    - Backup a Transport Global
    - Install Package(s)
        - INSTALL NAME: HL*1.6*35
    - Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu
    - Options, and Protocols?'.

7. DSM Sites: Rebuild your mapped set if necessary.

8. Restart all the filers and logical links.

27.0 HL*1.6*36   SEQ   #28:   Don't   Purge   and Reprocessing functions

Category: Data Dictionary, Routine

27.1   Description

This patch provides two new features, "Don't Purge" and "Reprocessing" messages, which were originally requested by the CIRN project. The new extrinsic function calls allow the VISTA/DHCP applications to interface with HL7 in the following ways:

1. Set the new flag field "DON'T PURGE" (#772,15) to prevent a message being purged by the "HL PURGE TRANSMISSIONS" option. The following extrinsic function may be used for this purpose: $$DONTPURG^HLUTIL()

2. Clear the flag field "DON'T PURGE" (#772,15) to allow the message to be purged by the "HL PURGE TRANSMISSIONS" option. The following extrinsic function may be used for this purpose: $$TOPURG^HLUTIL()

3. Reprocessing   the   message   by   calling   the   extrinsic   function: $$REPROC^HLUTIL(IEN,RTN) where: IEN is the child message IEN (or the parent message IEN). RTN is the routine to be Xecuted for reprocessing the message.

These extrinsic functions and their associated parameters, return values, and results are described as follows:

$$DONTPURG^HLUTIL():

purpose: to set the "DON'T PURGE" field (#772,15).

input: none

return value: 1   means field has been successfully set

                    -1 means call has failed; nothing has been changed

$$TOPURG^HLUTIL():

purpose: to clear the "DON'T PURGE" field (#772,15).

input: none

return value: 0   means field has been successfully cleared

                    1 means call has failed; nothing has been changed

$$REPROC^HLUTIL(IEN,RTN):

purpose: to reprocess message.

input: IEN= the child message IEN (or the parent message IEN) of file #772.

                    RTN= routine, to be Xecuted for reprocessing the message.

return value: 0 means call has been successfully completed

                         1 means call has failed; nothing has been changed

The extrinsic functions, $$DONTPURG^HLUTIL(), $$TOPURG^HLUTIL(), should be called by one of the following routines:

- RTN routine, which is provided to $$REPROC^HLUTIL(IEN,RTN).

- routine stored in field "GENERATE/PROCESS ROUTINE"(#101,771).

- routine stored in field "GENERATE/PROCESS ACK ROUTINE"(#101,772).

When called by these routines, HL7 assumes that the variables, HLMTIENS(child message IEN of file #772) and HLMTIEN(parent message IEN of file #772), are already properly defined. Otherwise, if they are called elsewhere, at least the HLMTIEN should be defined in order to make them to work. If only HLMTIEN is defined, then the call will only update the entry of parent message. Of course, having only a defined HLMTIENS is enough for HL7 to find the corresponding value for HLMTIEN, and consequently HL7 will update entries for both child and parent massages.

The IEN, which is provided to $$REPROC^HLUTIL(IEN,RTN) should be the child message IEN of file #772. This will make HL7 update the "STATUS" for both child and parent message entries. If the IEN is the parent message IEN, then only the "STATUS" of the parent message entry will be updated.

27.2   Routines

Routine Summary
The following is a list of the routines included in this patch. The second line of each of these routines now looks like: <tab>;;1.6;HEALTH LEVEL SEVEN;**[patch list]**;Oct 13, 1995

Checksums

Routine Name	Checksum Before	Checksum After	Patch List

Routine Name	Checksum Before	Checksum After	Patch List
HLUTIL	N/A	4603738	36
HLTPCK1	4288888	4288888	8,36
HLUOPT1	9958836	9990663	10,13,21,36

From CHECK^XTSUMBLD

Routine Information:
Routine Name: HLUOPT1
Routine Checksum:

Routine Name: HLTPCK1
Routine Checksum:

Routine Name: HLUTIL
Routine Checksum:

27.3   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. Check and make sure that the 'HL PURGE TRANSMISSIONS' option is not scheduled during the time of installation. Stop all HL7 background processes. This includes Logical Links, inbound and outbound filers.

3. DSM SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:

    *   Verify Checksums in Transport Global

    *   Print Transport Global

    *   Compare Transport Global to Current System

    *   Backup a Transport Global

    *   Install Package(s)
        o   INSTALL NAME: HL*1.6*36

    *   Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

6. DSM Sites: Rebuild your mapped set if necessary.

7. Restart all HL7 background jobs.

8. Re-schedule 'HL PURGE TRANSMISSIONS' option if this option was scheduled and has been stopped in step #2.

28.0 HL*1.6*38 SEQ #29: M10 & M11 Check Digit Scheme

Category: Routine

28.1   Description

This patch solves the following problems:

NOIS ISF-1097-61155: The M10 and M11 check digit algorithms do not comply with the HL7 Standard.

The two extrinsic functions, $$M10^HLFNC(X,HLECDE) and $$M11^HLFNC(X,HLECDE) have been corrected to bring them into compliance with the HL7 Standard.

> **Note**: It is highly unlikely that an interface with a commercial system or an Interface Engine will break due to this fix unless they deliberately modified their system. However, if this is the case, the code that originally called M10 or M11 can be modified to call the new tags:

$$OLDM10^HLFNC(X,HLECDE) or $$OLDM11^HLFNC(X,HLECDE)

28.2   Routines

Routine Summary
The following is a list of the routines included in this patch. The second line of each of these routines now looks like: <tab>;;1.6;HEALTH LEVEL SEVEN;**[patch list]**;Oct 13, 1995

Checksums

Routine Name	Before Checksum	Checksum After	Patch List
HLFNC	5564618	6477455	38

From CHECK^XTSUMBLD

Routine Information
Routine Name: HLFNC
Routine Checksum:

28.3   Installation Instructions

1.   Users are allowed to be on the system during the installation.

2. DSM SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

3. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

4. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:

   • Verify Checksums in Transport Global

   • Print Transport Global

   • Compare Transport Global to Current System

   • Backup a Transport Global

   • Install Package(s)

   • INSTALL NAME: HL*1.6*38

   • Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

5. DSM Sites: Rebuild your mapped set if necessary.

29.0 HL*1.6*34 SEQ #30: Msg ID, HLLP Data Blocks & LLP Priority

Category: Routine

29.1   Description

This patch solves the following problems:

1. IND-0797-40843: A corrupted message with message ID missing crashed the HL7 incoming filer.

2. SLC-0897-50592: LLP priorities are no longer set by the routine. The mailman LLP is fixed in patch 35.

3. STX-0897-70964: An unexpected message block sequence, issued by the VIC machine, blew out the HL7 LLP process.

4. IND-0198-40985: system monitor/process priority.

5. Fixes the problem with undefined application name in fields (MSH;3) and/or (MSH;5).

6. Messages arriving via the Mailman server option that are addressed to a protocol that does not have a logical link defined do not trigger an update to the system link monitor. This is likely to happen when messages are dynamically addressed using the API's described in the Patch 14 documentation.

7. Local application-to-application communication did not work if 'enhanced mode' commit acks were enabled.

29.2   Routines

Routine Summary
The following is a list of the routines included in this patch. The second line of each of these routines now looks like: <tab>;;1.6;HEALTH LEVEL SEVEN;**[patch list]**;Oct 13, 1995

Checksums

Routine Name	Checksum Before	Checksum After	Patch List
HLCSDL1	5346676	5319767	2,34
HLCSDR1	10561764	10571563	2,22,27,30,34

Routine Name	Checksum Before	Checksum After	Patch List
HLCSMON	7357108	7285222	34
HLMA0	603501	596674	34
HLTP01	3987933	5246181	2,25,34
HLTPCK1A	9629334	7334335	2,25,34
HLTPCK1B	N/A	2303469	34
HLTP1	4281970	4286152	34
HLTP2	1168795	1201442	34

From CHECK^XTSUMBLD

Routine Information
Routine Name: HLCSDL1
Routine Checksum:

Routine Name: HLCSDR1
Routine Checksum:

Routine Name: HLCSMON
Routine Checksum:

Routine Name: HLMA0
Routine Checksum:

Routine Name: HLTP01
Routine Checksum:

Routine Name: HLTPCK1A
Routine Checksum:

Routine Name: HLTPCK1B
Routine Checksum:

Routine Name: HLTP1
Routine Checksum:

Routine Name: HLTP2
Routine Checksum:

29.3   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. Stop all the incoming filers and LLPs.

3. DSM/VMS SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:

   - Verify Checksums in Transport Global
   - Print Transport Global
   - Compare Transport Global to Current System
   - Backup a Transport Global
   - Install Package(s)
   - INSTALL NAME: HL*1.6*34
   - Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

6. DSM/VMS Sites: Rebuild your mapped set if necessary.

7. Restart the incoming filer(s) and LLPs, which have been stopped in step #2.

30.0 HL*1.6*41 SEQ #31: Patch 34 Missing Routine

Associated patches: (v)HL*1.6*34 must be installed BEFORE `HL*1.6*41'

Category: Patch for a Patch

30.1   Description

Patch 34 was released ahead of patch 14 and is therefore missing the updated routine, HLUTIL3. This patch must be installed with patch 34.

30.2   Routines

Routine Information
The first and second lines of the the routine now look like this:

HLUTIL3 ;ALB/MTC - VARIOUS HL7 UTILITIES - 2/1/95 ;06/16/98 08:38

        ;;1.6;HEALTH LEVEL SEVEN;**2,41**;Oct 13, 1995

Routine checksum (before): 465440

Routine checksum (after): 1189330

Routine Information:
Routine Name: HLUTIL3
Routine Checksum:

30.3   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. Stop all the incoming filers and LLPs.

3. DSM/VMS SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:
   - Verify Checksums in Transport Global
   - Print Transport Global

- Compare Transport Global to Current System
- Backup a Transport Global
- Install Package(s)
- INSTALL NAME: HL*1.6*41
- Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

6. DSM/VMS Sites: Rebuild your mapped set if necessary.

7. Restart the incoming filer(s) and LLPs, which have been stopped in step #2.

31.0 HL*1.6*42 SEQ #32: M10 and M11 for Alphanumeric ID

Associated patches: (v)HL*1.6*38 install with patch `HL*1.6*42'

Category: Routine

31.1   Description

This patch solves the following problems:

NOIS PHI-0798-20072 and PHI-0698-22536: Patient ID with alphanumeric data type.

The two extrinsic functions, $$M10^HLFNC(X,HLECDE) and $$M11^HLFNC(X,HLECDE) have been improved for the input ID with alphanumeric data type. The additional outputs will be as follows:

1. Return X concatenated with encoding characters, if X is alphanumeric.

2. Return the input X only, if encoding character is not defined. Nothing has been changed for the numeric data type input with encoding character, its result will contain the X with its corresponding check digit and algorithms. For example:

```
>W $$M10^HLFNC("12345","|")
 12345|5|M10

>W $$M10^HLFNC("9999","^")
 9999^4^M10

>W $$M11^HLFNC("128952","^")
 128952^7^M11

>W $$M11^HLFNC("1234567","|")
 1234567|4|M11

>W $$M11^HLFNC("1234-F","|")
 1234-F||

>W $$M10^HLFNC("401-56-1234","^")
 401-56-1234^^
```

31.2   Routines

Routine Summary
The following is a list of the routines included in this patch. The second line of each of these routines now looks like:

<tab>;;1.6;HEALTH LEVEL SEVEN;**[patch list]**;Oct 13, 1995

Checksums

Routine Name	Checksum Before	Checksum After	Patch List
HLFNC	6477455	6494537	38,42

From CHECK^XTSUMBLD

Routine Information:
Routine Name: HLFNC
Routine Checksum:

31.3   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. DSM SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

3. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

4. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:

    -   Verify Checksums in Transport Global

    -   Print Transport Global

    -   Compare Transport Global to Current System

    -   Backup a Transport Global

    -   Install Package(s)

    -   INSTALL NAME: HL*1.6*42

    -   Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

5. DSM Sites: Rebuild your mapped set if necessary.

32.0 HL*1.6*14 SEQ #33: Dynamic Addressing/ Subscription Registry

Associated patches:
(v)XU*8*43 install with patch `HL*1.6*14'

(v)LA*5.2*44 install with patch `HL*1.6*14'

Category:
- Enhancement (Mandatory)
- Routine
- Data Dictionary

32.1   Description

HL*1.6*14 introduces the following new features as part of the CIRN project and addresses a number of NOIS related issues:

1. Dynamic addressing of messages

2. Subscription Control (new file and APIs)

3. Mapping of logical links to institutions (and related api's)

4. Auto-restart of logical links

5. A new option to shut down all logical links

6. HL7 reference file updates to support HEALTH LEVEL SEVEN Version 2.3

7. Performance enhancements to the Inbound Filer

8. Improves locking behavior in file 870. Concurrent enqueues, dequeues and purge activity could result in loss of filers or links on busy systems.

DEVELOPERS: The documentation (including APIs) for using dynamic addressing, the new subscription registry, and mapping logical links to institutions is available in the new "DHCP HL7 DEVELOPER MANUAL: DYNAMIC ADDRESSING SUPPLEMENT" manual. The PDF version of this manual, in file HL71_6P14.PDF, is available from the standard anonymous directories:

- ftp://152.129.1.110/SOFTWARE/
- ftp://152.127.1.5/SOFTWARE/
- ftp://152.131.2.1/SOFTWARE/

The PDF version of this manual is also available from the HL7 home page on the VISTA Software Development web server:

http://www.vista.med.va.gov/softserv/infrastr.uct/hl7/

Related NOIS Reports:
- LOU-1196-41719
- CTX-1196-70249
- BRX-1096-12263
- SDC-1096-62229
- DUB-1096-31061
- DAY-1096-40376
- DAY-0496-41961

32.2   Installation Instructions

1. Stop all incoming and outgoing filers using the HL7 options:
    - Stop all incoming filers
    - Stop all outgoing filers

2. Stop all logical links using the HL7 option: Stop LLP

3. Create and place the new global, ^HLS. This will be the storage location for file 774, SUBSCRIPTION CONTROL.

4. If mapping is enabled for the 'HL' namespace at VMS sites, disable mapping for these routines.

5. Use the INSTALL/CHECK MESSAGE option on the PackMan menu. This option loads the KIDS package into a Transport global onto your system.

6. Use KIDS to install the Transport global as follows: On the KIDS menu, under the Installation menu, use the following options:
    - Verify Checksums in Transport Global
    - Print Transport Global
    - Compare Transport Global to Current System
    - Backup a Transport Global
    - Install Package(s) (HL*1.6*14)

    - MSM sites - Answer Yes to the question "Want to MOVE routines to other CPUs?". Enter the names of your Compute and Print server(s).

    - Move the routines to the other servers.

- AXP sites - Answer No to this question.

7. At the completion of the install:

- Using FileMan, edit the AUTOSTART field of file 870. Set this to '1' if you want your logical links to automatically restart after a system reboot.

- Using the TaskMan option, Schedule/Unschedule options, select the new option, Restart All Links and Filers, and place an 'S' in the SPECIAL QUEUEING field.

- Invoke the new HL7 option, Restart All Links and Filers, to bring the HL7 package back on line. Remember this will only restart the links that are 'autostart' enabled.

32.3   Documentation of New Features

The documentation for the following new features is available from the VISTA Software Development web server (www.vista.med.va.gov):

1. Dynamic addressing of messages

2. Subscription Control (new file and APIs)

3. Mapping of logical links to institutions (and related api's)

To access the documentation, from the main page of the web server, choose the following links:

- OpenVista
- VISTA HL7 Package
- Documentation

The documentation for the following new features is contained below:

1. Auto-restart of logical links

2. New option to shut down all logical links

3. HL7 reference file updates to support HEALTH LEVEL SEVEN, Version 2.3

32.4   Note

1. Auto-restart of logical links

All HL7 background jobs will now be automatically restarted after a system shutdown using the new option below:

Name: HL Task Restart

Menu Text: Restart All Links and Filers

Type: run routine

Creator: Clemens,John

Package: Health Level Seven

Description: This is a Taskman "startup" option used to restart all HL7Logical Links and the default number of inbound and outbound filers after a system reboot.

> Note: The new field, AUTOSTART, has been added to the HL LOGICAL LINK file and must be enabled or disabled for all links in your configuration. The default is DISABLED.

 2.   New Option to Shut Down All Logical Links

Name: HL Stop All Links

Menu Text: Shut Down All Logical Links

Type: run routine

Creator: Clemens,John

Package: Health Level Seven

Description: This option will request a shutdown of all Logical Links.

Routine: LLP^HLCS2

Uppercase Menu Text: Shut down all logical links

 3.   HL7 reference file updates to support HEALTH LEVEL SEVEN, Version 2.3

This patch allows developers to build HL7 version 2.3 interfaces.

32.5   File Updates

1. SUPPORT FOR HEALTH LEVEL SEVEN, VERSION 2.3, DRAFT 2. The following HL7 reference files have been updated to support the latest information available regarding the 2.3 standard.

    - HL7 MESSAGE TYPE

    - HL7 SEGMENT TYPE

- HL7 DATA TYPE

- HL7 VERSION

- HL7 EVENT TYPE CODE

2. PROTOCOL FILE (101)-NEW FIELD 774 ROUTING LOGIC (K), [774;E1,245]

3. HL LOGICAL LINK (870)-NEW FIELD

- .02   INSTITUTION (P4'), [0;2]

- .03   DOMAIN (P4.2'), [0;7]

- AUTOSTART (S), [0;6]

32.6   Routine Updates

KRN,KDE 07/16/98	FIRST LINE LIST
HLCS	;ALB/RJS,MTC,JRP - COMMUNICATIONS SERVER - ;07/08/98 08:07 ;;1.6;HEALTH LEVEL SEVEN; **2,9,14**;Oct 13, 1995
HLCS2	;SF/JC - More Communication Server utils ;06/11/98 08:34 ;;1.6;HEALTH LEVEL SEVEN;**14**;29-Jan-97 14:25
HLCSDR	;ALB/RJS - INITIALIZE VARIABLES AND OPEN DEVICE FOR RECEIVER ;04/14/98 15:41 ;;1.6;HEALTH LEVEL SEVEN;**2,14**;Oct 13, 1995
HLCSIN	;ALB/JRP - INCOMING FILER;01-MAY-95 ;05/07/98 15:20 ;;1.6;HEALTH LEVEL SEVEN;**2,30,14**;Oct 13, 1995
HLCSQUE	;ALB/MFK HL7 UTILITY FUNCTIONS - 10/4/94 11AM ;05/11/98 15:13 ;;1.6;HEALTH LEVEL SEVEN;**14**;Oct 13, 1995
HLCSQUE1	;ALB/MFK HL7 UTILITY FUNCTIONS - 10/4/94 11AM ;05/11/98 14:46

	;;1.6;HEALTH LEVEL SEVEN;**14**;Oct 13, 1995
HLDTIW02	;ALB/JRP - INTERFACE WORKBENCH SCREEN # 2;03-MAR-95 ;06/30/98 15:22 ;;1.6;HEALTH LEVEL SEVEN;**14**;Oct 13, 1995
HLDTIW04	;ALB/JRP - INTERFACE WORKBENCH SCREEN # 4;24-FEB-95 ;06/30/98 16:40 ;;1.6;HEALTH LEVEL SEVEN;**14**;Oct 13, 1995
HLDTIW2A	;ALB/JRP - INTERFACE WORKBENCH SCREEN # 2 ROLLOVER;03-MAR-95 ;07/10/98 14:06 ;;1.6;HEALTH LEVEL SEVEN;**14**;Oct 13, 1995
HLDTIW2B	;ALB/JRP - INTERFACE WORKBENCH SCREEN # 2 ROLLOVER;03-MAR-95 ;07/10/98 16:19 ;;1.6;HEALTH LEVEL SEVEN;**14**;Oct 13, 1995
HLDTIW2C	;ALB/JRP - INTERFACE WORKBENCH SCREEN # 2 ROLLOVER;03-MAR-95 ;07/10/98 16:43 ;;1.6;HEALTH LEVEL SEVEN;**14**;Oct 13, 1995
HLDTIWP1	;ALB/JRP - INTERFACE WORKBENCH PROTOCOLS;15-FEB-94 ;07/13/98 10:08 ;;1.6;HEALTH LEVEL SEVEN;**14**;Oct 13, 1995
HLDTIWP3	;ALB/JRP - INTERFACE WORKBENCH PROTOCOLS;16-FEB-94 ;07/13/98 10:30 ;;1.6;HEALTH LEVEL SEVEN;**14**;Oct 13, 1995
HLP14PRE	;SFIRMFO/JC - HL7 PATCH 14 PRE-INIT ;03/05/98 11:44 ;;1.6;HEALTH LEVEL SEVEN;**14**;Oct 13, 1995
HLSUB	;IRMFO-SF/JC - Subscription Registry ;02/12/98 15:31 ;;1.6;HEALTH LEVEL SEVEN;**14**;Jan 29, 1997
HLTP	;AISC/SAW-Transaction Processor Module ;04/11/98 15:32 ;;1.6;HEALTH LEVEL SEVEN;**14**;Oct 13, 1995

16 ROUTINES

32.7   Routines

Checksums

Routine	Before	After
HLP14PRE	**NEW**	value = 208162
HLCS	5044367	value = 5666872
HLCS2	**NEW**	value = 3197473
HLSUB	**NEW**	value = 4535863
HLTP	5313409	value = 5532648
HLCSDR	3597126	value = 3946224
HLCSIN	1665942	value = 2120979
HLCSQUE	4277953	value = 4308358
HLCSQUE1	1091487	value = 1150239
HLDTIW02	3113507	value = 3456618
HLDTIW04	7467021	value = 7913363
HLDTIW2A	2299262	value = 4178875
HLDTIW2B	3939992	value = 5008365
HLDTIW2C	5265559	value = 5280954
HLDTIWP1	7858585	value = 8445958
HLDTIWP3	8640942	value = 8732228

From CHECK^XTSUMBLD

Routine Information:
Routine Name: HLCS
Routine Checksum:

Routine Name: HLCS2
Routine Checksum:

Routine Name: HLCSDR
Routine Checksum:

Routine Name: HLP14PRE
Routine Checksum:

Routine Name: HLSUB
Routine Checksum:

Routine Name: HLTP
Routine Checksum:

Routine Name: HLUTIL3
Routine Checksum:

Routine Name: HLCSIN
Routine Checksum:

Routine Name: HLCSQUE
Routine Checksum:

Routine Name: HLCSQUE1
Routine Checksum:

33.0 HL*1.6*37 SEQ #34: Batch Initiating and ACK Messages

Associated patches: (v)HL*1.6*25 install with patch `HL*1.6*37'

Category: Routine

33.1   Description

This patch solves the following problems:
NOIS ISB-1097-32281: Batch message transmission problems for both initial and acknowledgement messages with missing acknowledgement code, reference batch control ID, etc.   This was causing UNDEFINED variable errors in HLTP01+47^HLTP01.

33.2   Routines

Routine Summary
The following is a list of the routines included in this patch. The second line of each of these routines now looks like: <tab>;;1.6;HEALTH LEVEL SEVEN;**[patch list]**;Oct 13, 1995

Checksums

Routine Name	Checksum Before	Checksum After	Patch List
HLCSHDR	5439890	6047496	37
HLTP0	3059585	3159167	25,37

From CHECK^XTSUMBLD

Routine Information
Routine Name: HLCSHDR
Routine Checksum:

Routine Name: HLTP0
Routine Checksum:

33.3   Installation Instructions

1.   Users are allowed to be on the system during the installation.

2.   Stop all the outgoing and incoming filers by using the HL7 "Stop all incoming filers" and "Stop all outgoing filers" options.

4. DSM SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

5. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

6. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:

   - Verify Checksums in Transport Global
   - Print Transport Global
   - Compare Transport Global to Current System
   - Backup a Transport Global
   - Install Package(s)
     - INSTALL NAME: HL*1.6*37
   - Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

7. DSM Sites: Rebuild your mapped set if necessary.

8. Restart the outgoing and incoming filers, by using the HL7 "Start default number of incoming & outgoing filer" option, which have been stopped in step #2.

34.0 HL*1.6*40 SEQ #35: New site Parameters, Monitor updates

Associated patches:
(v)HL*1.6*14 must be installed BEFORE `HL*1.6*40'
(v)HL*1.6*15 must be installed BEFORE `HL*1.6*40'
(v)HL*1.6*34 must be installed BEFORE `HL*1.6*40'

Category:
- Enhancement (Mandatory)
- Data Dictionary
- Routine

34.1   Description

Developers: See below for description of a new API

Summary:

1. Enhancements to Systems Link Monitor:

    - -more information in header to help distinguish multiple displays.

    - -provides both a full and abbreviated display format, as well as a help screen

2. Additional required Messaging site parameters added to file 869.3.

3. Updated option "Edit Communication Server Parameters" to support new site parameters.

4. New field in 869.3 to support a local mail group for Messaging system alerts and notifications.

5. New public FUNCTION CALL to retrieve an application-specific mail group for alerts and notifications pertaining to initiating or processing a particular transaction. This mail group field is found in the HL Application Parameter file and is edited via the Interface Workbench. This is not a new field. There has just never been an API to retrieve this information until now. The second piece returned is the active/inactive flag.

GETAPP^HLCS2(HLAPP); Function to Retrieve parameters pertaining to a specific sending or receiving application

    ;HLAPP=APPLICATION NAME OR IEN OF FILE 771

;Returns MAIL GROUP NAME^'a' or 'i' (active or inactive)

Example:
KRN,KDE>S   ZZPARMS=$$GETAPP^HLCS2("JC   TEST   SERVER")   W
ZZPARMS

RESULT: ZZPARMS=JOHN^a

34.2   Routines

Routine Summary
The following is a list of the routines included in this patch. The second line of each
of these routines now looks like:

NXT,KDE 07/28/98	FIRST LINE LIST:
HLCS2	;SF/JC - More Communication Server utils ;06/10/98 14:47 ;;1.6;HEALTH LEVEL SEVEN; **14,40** ;29-Jan-97 14:25
HLCSMON	;ALB/RJS-DISPLAY DRIVER PROGRAM ;07/28/98 09:35 ;;1.6;HEALTH LEVEL SEVEN; **34,40**;Oct 13, 1995
HLCSMON1	;ALB/RJS-Utilities for Driver Program ;06/10/98 16:13 ;;1.6;HEALTH LEVEL SEVEN;**15,40**;Oct 13, 1995
HLCSTERM	;ALB/RJS - SET UP VIDEO ATTRIBUTES - 8/1/94 ;07/28/98 09:43 ;;1.6;HEALTH LEVEL SEVEN;**40**;Oct 13, 1995

Checksums:

Routine	BEFORE	AFTER
HLCS2	3197473	4802116
HLCSMON	7285222	9246839
HLCSMON1	3988003	3987859
HLCSTERM	2472908	2560922

From CHECK^XTSUMBLD

Routine Information
Routine Name: HLCS2
Routine Checksum:

Routine Name: HLCSMON
Routine Checksum:

Routine Name: HLCSMON1
Routine Checksum:

Routine Name: HLCSTERM
Routine Checksum:

34.3   Installation Instructions

> Note: Prior to installing this patch and updating your new site parameters, create a new mail group with at least one recipient to receive Messaging System alerts. Support for this feature will be added in future enhancements. Note that this mail group is for issues specific to the Messaging System. It does not have to be the same mail group used by Applications as described above.

1. Users are allowed to be on the system during the installation.
   - Disable your Logical Links using the option, Shut Down All Logical Links.
   - Disable your HL7 Inbound and Outbound Filers using the options:
   - Stop all Incoming Filers
   - Stop all Outgoing Filers

2. DSM SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

3. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

4. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:
   - Verify Checksums in Transport Global
   - Print Transport Global
   - Compare Transport Global to Current System
   - Backup a Transport Global
   - Install Package(s)
   - Install Name: HL*1.6*40

- Answer 'NO' to 'Want to Disable Scheduled Options, Menu Options, and Protocols?'.

5. DSM Sites: Rebuild your mapped set if necessary.

6. At the conclusion of this installation, go to the ScreenMan option, Edit Communications Server parameters, and complete entries for the new site parameters provided. The screen will appear as follows:

- Select Option Name: Edit Communication Server Para   HL Edit Comm Server Parameters Edit Communication Server parameters
- Edit HL7 Site Parameters
- Current Domain: <enter your Domain name>
- Current Institution: <enter the name of your institution>
- Is this a Production or Test Account? <enter 'P' or 'T'
- Default Number of Incoming Filers: 1
- Default Number of Outgoing Filers: 1
- Mail Group for Alerts:

7. To resume messaging, use the option "Restart all Links and Filers." Note that any logical links that do not have the "autostart" parameter set to Enabled must be started manually using the option "Start LLP."

35.0 HL*1.6*19 SEQ #36: Bi-Directional TCP/IP

Associated patches:
(v)HL*1.6*14 must be installed BEFORE `HL*1.6*19'
(v)HL*1.6*36 must be installed BEFORE `HL*1.6*19'
(v)XU*8*69 must be installed BEFORE `HL*1.6*19'
(v)HL*1.6*37 must be installed BEFORE `HL*1.6*19'

Category:
- Routine
- Data Dictionary

35.1   Description

This patch introduces TCP/IP as a transport layer for the HL7 package. For information on how to work with TCP/IP HL7 interfaces, see the new "DHCP HL7 User Manual: TCP/IP Supplement", which is in the file HL71_6P19.PDF, available from the Customer Service anonymous directories.

This patch will convert the messages in HL7 MESSAGE ADMINISTRATION, file 773, and in HL7 MESSAGE TEXT, file 772. To speed up the conversion, run the 'Purge Message Text File Entries' option to remove old messages.

Earlier version of Patch 19, prior to test version 25, are Uni-directional.

All TCP Logical Links must be redefined to work with this version of patch 19. Messages might also need to be modified.

35.2   Routines

Routine Modifications
The following routines are included in this patch. The second line of these routines now look like: <tab>;;1.6;HEALTH LEVEL SEVEN;**19**;JUL 17, 1995

CHECK^XTSUMBLD results:

Routine Name	Before Patch	After Patch	Patch List
HLCS	5666872	5781112	**2,9,14,19**
HLCS1	10146376	10172566	**19**
HLCSHDR	6047496	5939243	**37,19**

Routine Name	Before Patch	After Patch	Patch List
HLCSHDR1	NEW	6658466	**19**
HLCSIN	2120979	2517664	**2,30,14,19**
HLCSLNCH	7065769	11290939	**6,19**
HLCSRPT	NEW	14324083	**19**
HLCSRPT1	NEW	9680356	**19**
HLCSTCP	NEW	3731985	**19**
HLCSTCP1	NEW	4613833	**19**
HLCSTCP2	NEW	7316489	**19**
HLCSUTL	4322424	5134775	**2,19**
HLDTIW2B	5008365	5012027	**14,19**
HLDTIWP0	7906384	7922736	**19**
HLDTIWU3	2154979	2083370	**19**
HLMA	3791837	3745291	**19**
HLMA1	4194174	4230657	**19**
HLMA2	1082489	3410765	**19**
HLPAT19	NEW	845483	**19**
HLTF	7445472	7170159	**1,19**
HLTF0	4765190	3173064	**12,19**
HLTF1	9700889	9479987	**5,8,22,25,19**
HLTP3	NEW	12380779	**19**
HLTP4	NEW	7754632	**19**
HLTPCK2	NEW	3804314	**19**
HLTPCK2A	NEW	11350701	**19**

Routine Name	Before Patch	After Patch	Patch List
HLUOPT1	9990663	11568432	**10,13,21,36,19*
HLUTIL	4603738	1343106	**36,19**
HLUTIL2	3877956	5547421	**19**

Routine Information
Routine Name: HLCSTCP
Routine Checksum:

Routine Name: HLCSTCP1
Routine Checksum:

Routine Name: HLCSTCP2
Routine Checksum:

Routine Name: HLCSLNCH
Routine Checksum:

Routine Name: HLCSHDR
Routine Checksum:

Routine Name: HLCSHDR1
Routine Checksum:

Routine Name: HLCSRPT
Routine Checksum:

Routine Name: HLCSRPT1
Routine Checksum:

Routine Name: HLCSUTL
Routine Checksum:

Routine Name: HLMA
Routine Checksum:

Routine Name: HLMA1
Routine Checksum:

Routine Name: HLMA2
Routine Checksum:

Routine Name: HLPAT19

Routine Checksum:

Routine Name: HLTF
Routine Checksum:

Routine Name: HLTF0
Routine Checksum:

Routine Name: HLTF1
Routine Checksum:

Routine Name: HLTP3
Routine Checksum:

Routine Name: HLTP4
Routine Checksum:

Routine Name: HLTPCK2
Routine Checksum:

Routine Name: HLTPCK2A
Routine Checksum:

Routine Name: HLUOPT1
Routine Checksum:

Routine Name: HLUTIL2
Routine Checksum:

Routine Name: HLUTIL
Routine Checksum:

Routine Name: HLDTIW2B
Routine Checksum:

Routine Name: HLDTIWP0
Routine Checksum:

Routine Name: HLDTIWU3
Routine Checksum:

Routine Name: HLCS
Routine Checksum:

Routine Name: HLCS1
Routine Checksum:

Routine Name: HLCSIN
Routine Checksum:

35.3   Installation Instructions

1. Use the option 'Purge Message Text File Entries' option to remove old messages. Suggested answers:

   - Enter the cutoff date for all messages REGARDLESS OF STATUS: T-90//T-28

   - Enter last INCLUSIVE date for status SUCCESSFULLY TRANSMITTED: T-7//T-2

   - Purge entries with an ERROR STATUS? NO//YES

   - Cutoff date for AWAITING ACKNOWLEDGEMENT status: T-30//T-7

2. Make sure all messages have been transmitted. Run the option 'Systems Link Monitor', under the 'Communications Server' menu, and make sure 'messages to send' is equal to 'messages sent' for all Logical Links.

3. Shutdown all Logical Links and incoming and outgoing filers. Use the 'Shut Down All Logical Links', 'Stop all incoming filers', and 'Stop all outgoing filers' options.

4. User are NOT allowed on the system during installation. Inhibit logins and place TaskMan in a wait state, use the option 'Place TaskMan in a WAIT State'. Have the submanager shutdown after finishing their current task.

5. Some of these routines are new. Currently we do not recommend that you add these routines to your map set.

6. Use the INSTALL/CHECK MESSAGE option on the PackMan menu. This option loads the KIDS package into a Transport global onto your system.

7. You now need to use KIDS to install the Transport global. From programmer prompt Do ^XPDKRN.

8. On the KIDS menu, under the Installation menu, use the following options:

   - 2 Verify Checksums in Transport Global

   - 3 Print Transport Global

   - 4 Compare Transport Global to Current System

   - 5 Backup a Transport Global

   - 6 Install Package(s)
     - o   INSTALL NAME: HL*1.6*19

   - The length of the install depends on the size of file 772. The average install takes about 15 minutes for 40,000 entries in file 772.

9. Allow users back on the system and remove TaskMan from wait state, use the option 'Remove TaskMan from WAIT State'.

10. Use the 'Edit Communication Server parameters' option to add a Mail Group to the 'Mail Group for Alerts' field.

11. Startup all Logical Links and incoming and outgoing filers. Use the 'Restart All Links and Filers' option.

35.4   Data Dictionary Modifications

869.1 HL LOWER LEVEL PROTOCOL TYPE
No modifications were made to the data dictionary. One record, TCP, has been added and will be merged into your current data.

869.2 HL LOWER LEVEL PROTOCOL PARAMETER
     400.01   TCP/IP ADDRESS (F) [400;1]

     400.02   TCP/IP PORT (NJ5,0) [400;2]

     400.03   TCP/IP SERVICE TYPE (S) [400;3]

     400.04   PERSISTENT (S) [400;4]

     400.05   STARTUP NODE (P14.7) [400;6]

771.6 HL7 MESSAGE STATUS
No modifications were made to the data dictionary. Several new statuses have been added and will overwrite your current data.

771.7 HL7 ERROR MESSAGE
No modifications were made to the data dictionary. Several new errors messages have been added and will overwrite your current data.

772 HL7 MESSAGE TEXT
The .01 field, DATE/TIME ENTERED, has been changed from a pointer to a date/time field.

773 HL7 MESSAGE ADMINISTRATION
The .01 field, DATE/TIME ENTERED, has been changed from a date/time to a pointer to file 772. Fields have been added to this file for bi-directional TCP messages.

35.5   New Options

'View Transmission Log'   Option name: HL VIEW TRANSMISSION LOG
This option is used to view the Transmission Log; i.e., the Message Administration File entries. It displays those messages that have been sent or are pending. Display of messages with HL7 errors or exceptions is not yet supported.

New Alert
If a message exceeds the 'RE-TRANSMISION ATTEMPTS' for a Logical Link, an alert will be generated. The alert will be sent to the Mail Group defined in the HL COMMUNICATION SERVER PARAMETERS file, 869.3.

36.0 HL*1.6*43 SEQ #37: TCP Support for MPI

Associated patches

(v)HL*1.6*14 install with patch `HL*1.6*43'

(v)HL*1.6*19 install with patch `HL*1.6*43'

(v)HL*1.6*40 install with patch `HL*1.6*43'

Category

Enhancement (Mandatory)

36.1   Description

This patch addresses the following issues:

- Support is provided for connecting to the Master Patient Index (MPI).

- FileMan auditing ordinarily depends on DUZ, but when VA FileMan records are updated by subscriber protocols, DUZ is undefined, disabling auditing. Changes in this patch combined with changes that will be released VA FileMan V22.0 allow auditing based on subscriber protocol, rather than DUZ.

- Autostart of a Logical Link now uses the STARTUP NODE field in the HL LOWER LEVEL PROTOCOL PARAMETER file.

- The API GENERATE^HLMA would return the parameter HLRESLT, when passed by reference, equal to the message id. But, multiple messages could have been generated. This patch will now also return the array HLRESLT, where HLRESLT(1)=2nd message id.

36.2   Routines

Routine Modifications

The following routines are included in this patch. The second line of these routines now look like: ;;1.6;HEALTH LEVEL SEVEN;<patchlist>;Oct 13, 1995

CHECK^XTSUMBLD results:

Routine Name	Before Patch	After Patch	Patch List
HLCS	5781112	5743323	2,9,14,19,43
HLCS2	4802116	7195833	14,40,43

Routine Name	Before Patch	After Patch	Patch List
HLCSAC	NEW	2497076	43
HLCSAS	NEW	2943880	43
HLCSAS1	NEW	1742491	43
HLCSLNCH	11290939	11368535	6,19,43
HLCSTCP	3731985	4005742	19,43
HLCSTCP1	4613833	4899040	19,43
HLCSTCP2	7316489	7436704	19,43
HLMA	3745291	5502295	19,43
HLMA1	4230657	3849338	19,43
HLMA2	3410765	7300625	19,43
HLTF	7170159	7284127	1,19,43
HLTP	5532648	4283999	14,43
HLTP3	12380779	12440103	19,43
HLUTIL2	5547421	5380198	19,43

Routine Information
Routine Name: HLCS
Routine Checksum:

Routine Name: HLCS2
Routine Checksum:

Routine Name: HLCSAC
Routine Checksum:

Routine Name: HLCSAS
Routine Checksum:

Routine Name: HLCSAS1
Routine Checksum:

Routine Name: HLCSTCP
Routine Checksum:

Routine Name: HLCSTCP2
Routine Checksum:

Routine Name: HLMA
Routine Checksum:

Routine Name: HLMA1
Routine Checksum:

Routine Name: HLMA2
Routine Checksum:

Routine Name: HLTP
Routine Checksum:

Routine Name: HLTP3
Routine Checksum:

Routine Name: HLCSTCP1
Routine Checksum:

Routine Name: HLCSLNCH
Routine Checksum:

Routine Name: HLTF
Routine Checksum:

Routine Name: HLUTIL2
Routine Checksum:

36.3   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. DSM SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

3. DSM SITES: If you are using UCX, disable all services that are connected to HL7 Logical Links.

4. Shutdown all Logical Links and incoming and outgoing filers. Use the 'Shut Down All Logical Links', 'Stop all incoming filers', and 'Stop all outgoing filers' options.

5. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

6. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:

- 2 Verify Checksums in Transport Global

- 3 Print Transport Global

- 4 Compare Transport Global to Current System

- 5 Backup a Transport Global

- 6 Install Package(s)
  - INSTALL NAME: HL*1.6*43

- Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

7. Startup all Logical Links and incoming and outgoing filers. Use the 'Restart All Links and Filers' option.

8. DSM Sites: If you are using UCX, enable any services you disabled.

9. DSM Sites: Rebuild your mapped set if necessary.

37.0 HL*1.6*52   SEQ   #38:   HL7   Journaling Recommendation

Category: Informational

37.1   Description

This patch is to notify sites of changes to the HL7 Technical Manual with regards to journaling of globals.

Page 24, under 'Globals' it states:

"The globals ^HL, ^HLCS, and ^HLMA are the globals for DHCP HL7 V1.6.

It is recommended that all of these globals be journaled."

We are now recommending the following change:

"The globals ^HL, ^HLCS, and ^HLMA are the globals for DHCP HL7 V1.6.

It is recommended that only ^HL and ^HLMA be journaled."

37.2   Routines

No routines included

38.0 HL*1.6*51 SEQ #39: HL7 to FM Name Conversion

Associated patches: (v)HL*1.6*42 must be installed BEFORE `HL*1.6*51'

Category: Routine

38.1   Description

The CIRN developers reported a problem with the function $$FMNAME^HLFNC(X,HLECDE).

Additional details of their findings are recorded in NOIS: BAY-0499-31160.

If the variable X is used as the first parameter of this function and has a value of DOE~JOHN~""~SR this function when invoked (e.g.: S Y=$$FMNAME^HLFNC(X,"~")) would return the following value: DOE,JOHNSR

This occurred because this function specifically checked from the second component to the last whether the next component contained two double quotes (e.g.: "") or had no value. When this condition was encountered, this function did not place a space between each component and the component immediately following starting from the second.

After this patch is installed, the return value will now be DOE,JOHN SR for the above example.

The following code may be used in programmer mode to test this function:

```
   NOTE:  The '>' character is the mumps programmer prompt.
   >R X
   DOE~JOHN~""~SR          <---Enter this data on the READ command.
   >W $$FMNAME^HLFNC(X,"~")
   DOE,JOHN SR             <---This should be the the result after this patch
is installed.
   You may also try the following:
   >W $$FMNAME^HLFNC("DOE~JOHN~~SR","~")
   DOE,JOHN SR
```

38.2   Routines

Routine Summary
The following is a list of the routines included in this patch. The second line of each of these routines now looks like:

<tab>;;1.6;HEALTH LEVEL SEVEN;**[patch list]**;Oct 13, 1995

Checksums

Routine Name	Checksum Before	Checksum After	Patch List
HLFNC	6494537	5785780	38,42,51

From CHECK^XTSUMBLD

Routine Information
Routine Name: HLFNC
Routine Checksum:

38.3   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. DSM SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

3. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

4. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:

    - Verify Checksums in Transport Global

    - Print Transport Global

    - Compare Transport Global to Current System

    - Backup a Transport Global

    - Install Package(s)

    - INSTALL NAME: HL*1.6*51

    - Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

5. DSM Sites: Rebuild your mapped set if necessary.

39.0 HL*1.6*48 SEQ #40: Error in Display of System Link Monitor

Category: Routine

39.1   Description

This patch solves the following problems:

NOIS BHH-0299-40326: The last screen of the System Link Monitor erroneously repeated Logical Links from the previous screen.

39.2   Routine Summary

The following is a list of the routines included in this patch. The second line of each of these routines now looks like:

<tab>;;1.6;HEALTH LEVEL SEVEN;**[patch list]**;Oct 13, 1995

Checksums

Routine Name	Checksum Before	Checksum After	Patch List
HLCSMON	9246839	9506155	34,40,48

From CHECK^XTSUMBLD

Routine Information
Routine Name: HLCSMON
Routine Checksum:

39.3   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. DSM SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

3. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

4. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:
   - Verify Checksums in Transport Global
   - Print Transport Global

- Compare Transport Global to Current System
- Backup a Transport Global
- Install Package(s)
- INSTALL NAME: HL*1.6*48
- Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

5. DSM Sites: Rebuild your mapped set if necessary.

Health Level Seven (HL)   V 1.6

40.0 HL*1.6*44 SEQ #41: X3.28 Undefined Variable HLDP

Associated patches: (v)HL*1.6*2 must be installed BEFORE `HL*1.6*44'

Category: Routine

40.1   Description

This patch solves the following problem:

To prevent an "undefined variable HLDP" error for the X3.28 lower level protocol. This error occurs when starting the LLP, it fails to establish a connection and auto start is enabled.

40.2   Routines

Routine Summary
The following is a list of the routines included in this patch. The second line of each of these routines now looks like:

   <tab>;;1.6;HEALTH LEVEL SEVEN;**[patch list]**;Oct 13, 1995

Checksums

Routine Name	Checksum Before	Checksum After	Patch List
HLCSDL	4175013	4198429	2,44

From CHECK^XTSUMBLD

Routine Information
Routine Name: HLCSDL
Routine Checksum:

40.3   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. Use the HL7 "Stop LLP" to stop the LLPs that are configured to use the X3.28 protocol.

3. DSM SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

Patch Notes   95   HL V 1.6
                                                                                  April 2003

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:

    - Verify Checksums in Transport Global
    - Print Transport Global
    - Compare Transport Global to Current System
    - Backup a Transport Global
    - Install Package(s)
        o INSTALL NAME: HL*1.6*44
    - Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

6. DSM Sites: Rebuild your mapped set if necessary.

7. Restart the LLPs by using the HL7 "Start LLP" option, which have been stopped in step #2.

41.0 HL*1.6*55 SEQ #42: Missing ID for 1.5 interface

Associated patches: (v)HL*1.6*43   install with patch   `HL*1.6*55'

Category: Routine

41.1   Description

This patch corrects the problem identified in NOIS IVM-0499-31407, message IDs no longer created for version 1.5 messages.

41.2   Routines

Routine Modifications
The following routines are included in this patch. The second line of these routines now look like: ;;1.6;HEALTH LEVEL SEVEN;<patchlist>;Oct 13, 1995

CHECK^XTSUMBLD results:

Routine Name	Before Patch	After Patch	Patch List
HLTF	7284127	7261750	1,19,43,55

Routine Information
Routine Name: HLTF
Routine Checksum:

41.3   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. DSM SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

3. Shutdown all Logical Links and incoming and outgoing filers. Use the 'Shut Down All Logical Links', 'Stop all incoming filers', and 'Stop all outgoing filers' options.

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:

- 2 Verify Checksums in Transport Global
- 3 Print Transport Global
- 4 Compare Transport Global to Current System
- 5 Backup a Transport Global
- 6 Install Package(s)
- INSTALL NAME: HL*1.6*55
- Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

6. Startup all Logical Links and incoming and outgoing filers. Use the 'Restart All Links and Filers' option.

7. DSM Sites: Rebuild your mapped set if necessary.

42.0 HL*1.6*50 SEQ #43: Transmission, Error Log

Category: Routine

42.1   Description

This patch requires running the purge message option and shutting down all links and filers before installing the patch.

This patch provides both additional functionality and NOIS fixes.

First, it provides fixes for the following NOISes: BAC-0599-40603 and IND-0599-40402. One NOIS reported, in some cases, a failure to display the message text after selecting an individual record from the list. The other NOIS reported the routine HLCSRPT errored out with an undefined variable message in some circumstances.

Second, additional functionality is provided as follows:

Refined message searchs. The messages search is now expanded to allow the user to select a message search based any combination (or all) of the search fields. They include status code, message type, event type and logical link. The default entry for each field is "ALL". As before, all message searching will be limited to a user entered start date/time. The single criteria message searching is replaced with this enhanced searching capability. Pending messages. The option for pending messages has not changed. Error listing. An option providing for the display of messages that are in an error status is added. The default is all errored messages, but the user may select a specific error code.

This patch also contains the DD for file 773, Message Administration File. It adds a new cross-reference, "AG", which pertains to the Status field. A Post-Install routine is run to set the cross-reference.

Data Dictionary Modifications
773 HL7 MESSAGE ADMINISTRATION

The STATUS field, #20, has been changed to add the "AG" cross-reference.

42.2   Routines

Routine Summary
The following routines are included in this patch. The second line of each of these routines now looks like: ;;1.6;HEALTH LEVEL SEVEN;<patchlist>;Oct 13, 1995

Checksum

Routine	Old	New	2nd Line

Routine	Old	New	2nd Line
HLCSRPT	14324083	10630512	**19,50**
HLCSRPT1	9680356	13849369	**19,50**
HLCSRPT2	NEW	18087507	**50**
HLCSRPT3	NEW	10792707	**50**
HLP50PST	NEW	36805	**50**

List of preceding patches: 19

Sites should use CHECK^XTSUMBLD to verify checksums.

Routine Information
Routine Name: HLCSRPT
Routine Checksum:

Routine Name: HLCSRPT1
Routine Checksum:

Routine Name: HLCSRPT2

Routine Checksum:

Routine Name: HLCSRPT3
Routine Checksum:

Routine Name: HLP50PST
Routine Checksum:

42.3   Installation Instructions

1. Use the option 'Purge Message Text File Entries' option to remove old messages.

2. Shutdown the VISTA HL7 package. Execute the following steps in the listed order:

    a. For OpenVMS sites, if you have any TCP/IP listeners implemented through UCX, use UCX to shut those listeners down. Do this by disabling each listener's service in UCX.

    b. If you are a Cache site running a multi-threaded listener, use Cache's "JobExam" utility to force-exit the listener process.

  c. Use the "TCP/IP Link Manager Start/Stop" option to shut down the TCP/IP Link Manager if it is running (for sites that have installed HL*1.6*49).

  d. Use the "Shut Down All Logical Links" to shut down all running logical links (this command also shuts down any single-threaded listeners.)

  e. Use the "Stop all incoming filers" and "Stop all outgoing filers" options to shut down all running incoming and outgoing filers.

3. User are allowed on the system during installation. Do NOT inhibit logins and do NOT place Taskman in a wait state.

4. Some of these routines are new. Currently we do not recommend that you add these routines to your map set.

5. Use the INSTALL/CHECK MESSAGE option on the PackMan menu. This option loads the KIDS package into a Transport global onto your system.

6. You now need to use KIDS to install the Transport global. From programmer prompt Do ^XPDKRN.

7. On the KIDS menu, under the Installation menu, use the following options:
- 2 Verify Checksums in Transport Global
- 3 Print Transport Global
- 4 Compare Transport Global to Current System
- 5 Backup a Transport Global
- 6 Install Package(s)
  - INSTALL NAME: HL*1.6*50

8. Restart the VISTA HL7 package. This includes:

  a. Restarting all Logical Links and incoming and outgoing filers. Use the 'Restart All Links and Filers' option.

  b. Restart the HL7 Link Manager (only sites which have HL*1.6*49).

  c. UCX Sites: Restart the HL7 TCP/IP service using your site's standard procedures.

43.0 HL*1.6*47 SEQ #44: Message Status, Error lists & purging

Category: Routine, Data Dictionary

43.1   Description

This patch has made changes for the following:

1. Adds three new fields in HL COMMUNICATION SERVER PARAMETERS file (#869.3):

    *   Field #869.3,41 PURGE COMPLETED MESSAGES: The number of days "Successfully Completed" messages are retained before they are purged. If no value is entered, the default is 7 days. Used as the actual value when the "Purge Messages" option is scheduled through TaskMan, and as the default when run interactively.

    *   Field #869.3,42   PURGE AWAITING ACK MESSAGES: The number of days "Awaiting Application Acknowledgement" messages are retained before they are purged. If no value is entered, the default is 30 days. Used as the actual value when the "Purge Messages" option is scheduled through TaskMan, and as the default when run interactively.

    *   Field #869.3,43 PURGE ALL MESSAGES: The number of days that any status message are retained before they are purged(except for ERROR status messages). If no value is entered, the default is 90 days. Used as the actual value when the "Purge Messages" option is scheduled through TaskMan, and as the default when run interactively.

    *   Please find the following HL7 options to enter or change data for fields described above:

        o   step 1. HL MAIN MENU

        o   step 2. Communications Server ...

        o   step 3. Edit Communication Server parameters

        o   And then you will enter the FileMan ScreenMan form as follows:

```
                           Edit HL7 Site Parameters
                    Current Domain: NXT.KERNEL.ISC-SF.VA.GOV
                    Current Institution: ISC SAN FRANCISCO
      Is this a Production or Test Account? test

Default Number of Incoming Filers: 1
Default Number of Outgoing Filers: 1

Mail Group for Alerts: HL7
Days to Keep Completed Messages: 7
Days to Keep Awaiting ACK Messages: 30
Days Before Purging All Messages: 90
_____


        COMMAND:                                           Press <PF1>H for
help
        Insert
```

> o The old method which was used to change the data for the above three fields, by entering numbers in the TASK PARAMETERS field of the OPTION SCHEDULING FILE, will be replaced by this new method as described above, when the "Purge Message Text File Entries [HL PURGE TRANSMISSIONS]" OPTION is scheduled to TaskMan. No Error status messages can be purged in the background. Error status messages should be investigated before purging them in the foreground.

2. Brings in updated data for files: HL7 MESSAGE STATUS and HL7 ERROR MESSAGE, these two files can only be used by HL7 routines.

3. Solves problems for NOIS ISF-0499-63255: Entries existed in file #773 with broken pointers to file #772.

43.2   Routines

Routine Summary
The following is a list of the routines included in this patch. The second line of each of these routines now looks like:

<tab>;;1.6;HEALTH LEVEL SEVEN;**[patch list]**;Oct 13, 1995

Checksums

Routine Name	Checksum Before	Checksum After	Patch List
HL47PRE	new	613093	47

Routine Name	Checksum Before	Checksum After	Patch List
HLUOPT1	11568432	13112533	10,13,21,36,19,47
HLTP01	5246181	5245980	2,25,34,47
HLTP1	4286152	4286011	34,47

From CHECK^XTSUMBLD

Routine Information
Routine Name: HL47PRE
Routine Checksum:

Routine Name: HLUOPT1
Routine Checksum:

Routine Name: HLTP01
Routine Checksum:

Routine Name: HLTP1
Routine Checksum:

43.3   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. Check and make sure that the 'HL PURGE TRANSMISSIONS' option is not scheduled during the time of installation.

3. Stop all the Logical links, incoming and outgoing filers.

4. DSM SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

5. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

6. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:
   - Verify Checksums in Transport Global
   - Print Transport Global
   - Compare Transport Global to Current System
   - Backup a Transport Global
   - Install Package(s)

- INSTALL NAME: HL*1.6*47
- Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

7. DSM Sites: Rebuild your mapped set if necessary.

8. Restart all the Logical links, incoming and outgoing filers, which have been stopped in step #3.

9. Re-schedule 'HL PURGE TRANSMISSIONS' option if this option was scheduled and has been stopped in step #2.

10. You may use the "Edit Communication Server parameters" option to change the data described in DESCRIPTION section for fields- (#869.3,41), (#869.3,42), and (#869.3,43) if you want to.

44.0 HL*1.6*49 SEQ #45: Link Manager

Associated patches:
(v)HL*1.6*14 install with patch `HL*1.6*49'
(v)HL*1.6*19 install with patch `HL*1.6*49'
(v)HL*1.6*35 install with patch `HL*1.6*49'
(v)HL*1.6*40 install with patch `HL*1.6*49'
(v)HL*1.6*43 install with patch `HL*1.6*49'
(v)HL*1.6*44 install with patch `HL*1.6*49'
(v)HL*1.6*47 install with patch `HL*1.6*49'
(v)HL*1.6*48 install with patch `HL*1.6*49'

Category:
- Enhancement (Mandatory)
- Routine

44.1   Description

This patch addresses the issue of reducing the number of required logical links running as active concurrent processes. Before this patch, all possible HL7 TCP/IP Client Logical Links would have to be defined and started as LLPs. These LLPs would run and remain as active processes on the system regardless of the frequency to deliver HL7 messages. This was true with both persistent and non-persistent client connection-type LLPs.

After this patch is installed, non-persistent client LLPs will still have to be started as they were before this patch. To start an LLP, use the 'Start LLP' option. To start an LLP automatically after a system reboot, either use the Interface Workbench to edit Logical Links or use FileMan to edit the AUTOSTART field(#4.5) of the HL LOGICAL LINK file(#870). For each Logical Link that wish to start automatically after a re-boot of the system, you must edit the AUTOSTART field to have a value of ENABLED. Do NOT simply enable the AUTOSTART field for all Logical Links. Only select those that you wish start that are both legitimate and appropriate for your site.

Note: Although you may have started a non-persistent LLP, the system process representing this LLP does not actually start until messages are in the associated message queue. Once a process is started, it will remain running on the system until the associated queue is emptied and the associated Retention time has expired. The Retention time is the time in seconds in which the LLP process will wait while continually checking for messages in the associated message queue. If messages are found in the queue before the retention time has expired, the LLP process will continue to de-queue messages as before. Otherwise, the LLP process will actually return back to TaskMan's sub-manager and possibly terminate. When this occurs, a

status of INACTIVE is indicated on the STATE column of the system link monitor for this LLP.

This patch also addresses the following issues:

1. Fix allocation error in HLCSDR.

    *   Related NOIS:

        o   SFC-0599-60101

        o   SBY-0199-30725

        o   HIN-1298-40436

    *   Actual error: $ZE= INT+22^%ET:1, %DSM-E-ALLOC, allocation failure

    *   Description: This error was first seen after the introduction of patch HL*1.6*14. This patch 14, utilized error trapping to trap disconnect errors so that processing may continue once the errors have passed. However, if the associated port/device was bad/busy, the code would continually loop to the code that sets the trap. As the stack continues to grow, an allocation error would result in about 4 to 6+ hours after the logical link was started or when the device became bad/busy. This allocation error was seen associated with the applications using the serial HLLP protocol of the HL7 v1.6 (HLCSDR* routines).

2. Fix allocation error in HLCSMON.

    *   Description: If a user enters '?' and <RET> repeatedly at the command prompt of the Systems Link Monitor, an allocation error will be encountered after 6+ attempts.

3. Fix extraneous display of **STOP** on CACHE sites.

    *   Related NOIS: MAN-0799-11246

    *   Description: When the Restart All Links and Filers option is run, **STOP** is displayed after failing to connect to a listener. This is now corrected by this patch.

44.2   Routines

Routine Modifications
The following routines are included in this patch. The second line of these routines now looks like: ;;1.6;HEALTH LEVEL SEVEN;<patchlist>;29-Jan-97 14:25

CHECK^XTSUMBLD results:

Routine Name	Before Patch	After Patch	Patch List
HLCS2	7195833	8763479	14,40,43,49
HLCSDL	4198429	4174780	2,44,49
HLCSDR	3946224	3936049	2,14,49
HLCSLM	NEW	6276510	49
HLCSLNCH	11368535	12855635	6,19,43,49
HLCSLSM	NEW	154819	49
HLCSMM1	1462301	1445162	35,49
HLCSMON	9506155	10703763	34,40,48,49
HLCSMON1	3987859	5535017	15,40,49
HLCSTCP	4005742	4550642	19,43,49
HLCSTCP2	7436704	7773433	19,43,49
HLCSTERM	2560922	2618931	40,49
HLDTIW2A	4178875	4164880	14,49
HLDTIW2B	5012027	5250753	14,19,49
HLDTIWP1	8445958	8449802	14,49

Routine Information
Routine Name: HLCS2
Routine Checksum:

Routine Name: HLCSDL
Routine Checksum:

Routine Name: HLCSDR
Routine Checksum:

Routine Name: HLCSLNCH
Routine Checksum:

Routine Name: HLCSMM1

Routine Checksum:

Routine Name: HLCSMON
Routine Checksum:

Routine Name: HLCSMON1
Routine Checksum:

Routine Name: HLCSTCP
Routine Checksum:

Routine Name: HLCSTCP2
Routine Checksum:

Routine Name: HLCSTERM
Routine Checksum:

Routine Name: HLDTIW2A
Routine Checksum:

Routine Name: HLDTIW2B
Routine Checksum:

Routine Name: HLDTIWP1
Routine Checksum:

Routine Name: HLCSLM
Routine Checksum:

Routine Name: HLCSLSM
Routine Checksum:

44.3   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. DSM SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

3. Shutdown all Logical Links and incoming and outgoing filers. Use the 'Shut Down All Logical Links', 'Stop all incoming filers', and 'Stop all outgoing filers' options. For DSM sites ONLY, if you have an HL7 UCX Service associated with the account(uci/directory) where you are installing this patch, please disable this service.

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:

- 2 Verify Checksums in Transport Global

- 3 Print Transport Global

- 4 Compare Transport Global to Current System

- 5 Backup a Transport Global

- 6 Install Package(s)

- INSTALL NAME: HL*1.6*49

- Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

6. Startup all Logical Links and incoming and outgoing filers. Use the 'Restart All Links and Filers' option. For DSM sites ONLY, if you previously disabled an HL7 UCX Service for this installation, you may now enable it.

7. DSM Sites: Rebuild your mapped set if necessary.

8. Start Link Manager as follows:

   a. HL7 Main Menu

   b. V1.6 OPTIONS

   c. Communications Server

   d. TCP/IP Link Manager Start/Stop

```
Link Manager is NOT currently running!
 Would you like to start the Link Manager now? YES//
 Link Manager queued as task number 2712635
```

9. Create entry in OPTION SCHEDULING file as follows:

   In order to set up this option to startup when the system/TaskMan starts, please find the following HL7 options to create an entry in the OPTION SCHEDULING file:

   a. TaskMan Management ...

   b. Schedule/Unschedule Options

   c. (Create the following entry):

- Select OPTION to schedule or reschedule: HL AUTOSTART LINK MANAGER Are you adding 'HL AUTOSTART LINK MANAGER' as a new OPTION SCHEDULING (the 12TH)? No// Y

d. (From STEP 3 you will automatically enter the FileMan ScreenMan form as follows and you should edit the 'SPECIAL QUEUEING' field to have a value of 'Startup Persistent'):

```
                         Edit Option Schedule
    Option Name: HL AUTOSTART LINK MANAGER
    Menu Text: Autostart Link Manager                         TASK ID:
_____

  QUEUED TO RUN AT WHAT TIME:

DEVICE FOR QUEUED JOB OUTPUT:

 QUEUED TO RUN ON VOLUME SET:

     RESCHEDULING FREQUENCY:

            TASK PARAMETERS:

           SPECIAL QUEUEING: Startup Persistent


_____
  COMMAND:                              Press <PF1>H for help    Insert
```

44.4   Data Dictionary Modifications

869.2   HL LOWER LEVEL PROTOCOL PARAMETER
400.05   RETENTION (NJ6,0), [400;5] (new)

869.3   HL COMMUNICATION SERVER PARAMETERS
51 DEFAULT RETENTION (NJ6,0), [5;1] (new)

52 LINK MANAGER TASK NUMBER (NJ15,0), [5;2] (new)

53 STOP LINK MANAGER (S), [5;3] (new)

54 LM LAST KNOWN $H (F), [5;4] (new)

870   HL LOGICAL LINK
3 LLP ONLINE (S), [0;4] (old) changed to:

3   DEVICE TYPE (S), [0;4] (new)

44.5   New Options

'TCP/IP Link Manager Start/Stop' Option name: HL START/STOP LINK MANAGER 'Autostart Link Manager' Option name: HL AUTOSTART LINK MANAGER

New for Systems Link Monitor
1. Status of whether TaskMan is currently running.

2. Status of whether Link Manager currently running.

3. Additional STATES for non-persistent client links:
    - ENABLED
    - INACTIVE

4. New DEVICE TYPE column replaces DEVICE ON-LINE column.

5. New DEVICE TYPES:
    - PC -- Persistent TCP/IP Client
    - NC -- Non-Persistent TCP/IP Client
    - SS -- Single-threaded TCP/IP Server
    - MS -- Multi-threaded TCP/IP Server
    - SH -- Serial HLLP
    - SX -- Serial X3.28
    - MM -- MailMan

44.6   Configuration considerations

The only configuration parameter is Retention.

This may be edited per Logical Link using the Interface Workbench. Also, a Default Retention time may be edited using the 'Edit Communication Server parameters' option.

The order of precedence for Retention is as follows:

1. Retention (Per Logical Link value overrides any defaults).

2. Default Retention (System-wide account default.

    - If valued, this field is the default per Logical Link when the Retention field is left unvalued).

3. 15 seconds (System-wide account default.   This value is used when both Retention and Default Retention are left unvalued).

You may wish to accept the system-wide default of 15 seconds for Retention of your non-persistent TCP/IP client Logical Links.

Once you become more familiar with the frequency and load of each link, you may adjust these Retention values accordingly.

44.7   Troubleshooting Information

The HL7 Systems Link Monitor is a useful tool to help you troubleshoot problems with either the Link Manager or the individual Logical Links. This tool will monitor both TaskMan and Link Manager. When either of these does not appear to be running, a warning will be displayed on the Systems Link Monitor.

Alert Notification
It is highly recommended that sites establish a mail group for HL7 related alerts. Once this has been establish, use the 'Edit Communication Server parameters' option to identify the Mail Group for Alerts.

If a mail group has been created and identified, the Link Manager will use this mail group to send the following alert whenever it finds a configuration problem between the links and TaskMan:

```
HL7 Logical Link LLname shutdown due to TaskMan unable to process task
request
```

The most likely cause for receiving such an alert is having TaskMan running in non-DCL context and having a Logical Link with an associated Startup node other than where TaskMan is currently running. This applies to both the AXP and AVANTI sites. After receiving this alert, make the needed corrections and restart the Logical Link if necessary.

45.0 HL*1.6*39 SEQ #46: HL7 TCP Logical Links for CIRN

Associated patches:

(v)HL*1.6*14 must be installed BEFORE `HL*1.6*39'

(v)HL*1.6*19 must be installed BEFORE `HL*1.6*39'

(v)XU*8*85 must be installed BEFORE `HL*1.6*39'

Category: Enhancement (Mandatory)

45.1   Description

> **Note**: Please read before you proceed

This patch configures Logical Links and Lower Level Protocol parameters for VA sites in the CIRN wide area network. These links make use of the MLLP/TCP protocol provided in HL7 patch 19. The TCP/IP address and service port for HL7 messaging has been provided to the CIRN TEAM by each of the sites.

The Logical Links in this patch all begin with the letters 'VA' or 'MPI'. These links are sent with the field, 'AUTOSTART', set to 'Disable'. You should NOT start these links. The CIRN implementation team will enable the links when CIRN is activated at your site.

Precautions
1. All sites: Do not install this patch in your test environment. To prevent data from being misrouted from a test system to a production environment the logical link definitions are to be installed on production systems only.

2. Current CIRN PD/MPI V1.0 Sites: This patch should be installed in your production account. The Environment Check will check if you have already installed a previous version of this patch. If you have, it will remove the Logical Link information in this patch. You should see the message:

```
 A previous version of patch 39 was already installed.
Removing patch data.
```

Installing this patch will just update your Patch Application History and send a message to Forum.

45.2   Routines

This patch comes with the NEW environment check routine, HL39ENV. The first two lines should appear as follows:

HL39ENV   ;ISCSF/JC-Patch 39 ENVIRONMENT CHECK ;07/02/98 14:23

                 ;;1.6;HEALTH LEVEL SEVEN;**39**;05/13/98

CHECKSUM INFORMATION (from CHECK^XTSUMBLD)

HL39ENV   value = 409165

Routine Information
Routine Name: HL39ENV
Routine Checksum:

45.3   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. Shutdown all Logical Links and incoming and outgoing filers. Use the following options:
    - Shut Down All Logical Links
    - Stop all incoming filers
    - Stop all outgoing filers
    - For DSM sites ONLY, if you have an HL7 UCX Service associated with the account(uci/directory) where you are installing this patch, please disable this service.

3. Use the INSTALL/CHECK MESSAGE option on the PackMan menu. This option loads the KIDS package into a Transport global onto your system.

4. Use KIDS to install the Transport global as follows: On the KIDS menu, under the Installation menu, use the following options:

    - Verify Checksums in Transport Global

    - Print Transport Global

    - Compare Transport Global to Current System

    - Backup a Transport Global

    - Install Package(s)

        o INSTALL NAME: HL*1.6*39

- Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

5. During the install, you might see messages like:

```
'Couldn't resolve Domain MPI-AUSTIN.VA.GOV for Logical Link MPIVA'
```

Ignore these, they will be resolved by the CIRN implementation team when CIRN is installed at your site.

6. Startup all Logical Links and incoming and outgoing filers. Use the 'Restart All Links and Filers' option.

This will only restart the links that are 'autostart' enabled. The links in this patch are exported with all links set to 'autostart disabled.'

For DSM sites ONLY, if you previously disabled an HL7 UCX Service for this installation, you may now enable it.

46.0 HL*1.6*54 SEQ #47: Add & Update Entries for Files #771.5, #779.001, and #771.2

Category: Data Dictionary, Routine

46.1   Description

This patch does the following tasks to comply with the HL7 standard:

1. Modifies some entries in file #779.001 (HL7 Event Type Code file) and #771.2 (HL7 Message Type file).

2. Finds duplicate entries in file #779.001 and #771.2.

3. Resolves duplicate entries pointers for the following fields:
    *   #101,770.4 (event type).
    *   #101,770.3 (message type).
    *   #101,770.11 (message type).
    *   #773,16 (event type).
    *   #773,15 (message type).
    *   Sub-field: #771.06,.01 (message type) of field #771,6.

4. Deletes duplicate entries in file #779.001 and #771.2.

5. Bring new data of version, event types, and message types into files, #771.5 (HL7 Version file), #779.001 and #771.2, to comply with HL7 2.3 and 2.3.1 Standard.

46.2   Routines

Routine Summary
The following is a list of the routines included in this patch. The second line of each of these routines now looks like:

<tab>;;1.6;HEALTH LEVEL SEVEN;**[patch list]**;Oct 13, 1995

Checksums

Routine Name	Checksum Before	Checksum After	Patch List
HLPAT54	new	7691750	54

From CHECK^XTSUMBLD

Routine Information
Routine Name: HLPAT54

Routine Checksum:

46.3   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. Stop all the Logical links, incoming and outgoing filers.

3. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

4. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:

    - Verify Checksums in Transport Global
    - Print Transport Global
    - Compare Transport Global to Current System
    - Backup a Transport Global
    - Install Package(s)
    - INSTALL NAME: HL*1.6*54
    - Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

5. Restart all the Logical links, incoming and outgoing filers, which have been stopped in step #3.

47.0 HL*1.6*57 SEQ #48: Tools, Security, Backwards Compatibility, Fixes

Associated patches:

(v)HL*1.6*15	install with patch `HL*1.6*57'
(v)HL*1.6*19	install with patch `HL*1.6*57'
(v)HL*1.6*26	install with patch `HL*1.6*57'
(v)HL*1.6*34	install with patch `HL*1.6*57'
(v)HL*1.6*39	install with patch `HL*1.6*57'
(v)HL*1.6*43	install with patch `HL*1.6*57'
(v)HL*1.6*14	must be installed BEFORE `HL*1.6*57'
(v)HL*1.6*35	must be installed BEFORE `HL*1.6*57'
(v)XU*8*98	must be installed BEFORE `HL*1.6*57'
(v)XU*8*118	must be installed BEFORE `HL*1.6*57'
(v)HL*1.6*49	must be installed BEFORE `HL*1.6*57'
(v)HL*1.6*50	must be installed BEFORE `HL*1.6*57'
(v)XU*8*120	must be installed BEFORE `HL*1.6*57'

Category:

Routine
Data Dictionary
Enhancement (Mandatory)
Input Template

47.1   Description

Y2K Waiver Request ID#: Y2KW0001 Y2K Waiver Status: Approved this patch may be installed during the Y2K Moratorium, but it should be installed BEFORE 12/15/99 or AFTER 1/15/2000.This patch MAY NOT be installed during the 12/15/1999 thru 1/15/2000 Y2K lockdown.

VISTA HL7 patch HL*1.6*57 addresses most of the outstanding HL7 1.6 deficiencies cited by the HL7 Joint Application Development (JAD) Focus Group and Part 2 of the OpenVISTA Tactical Plan.

> **Caution**: If you have logical links namespaced "LA7V" that are currently in use (LEDI), you must install Laboratory patch LA*5.2*51 immediately AFTER installing this patch. This Laboratory patch resolves a previously unknown issue with the LA7V protocol setups. Please note that your LA7V interface will not function correctly without LA*5.2*51 installed.

- Exportable Interface Definitions. Class I Interface definitions are now exportable to all VISTA systems with little or no modification at the site.

- Reduction in Interface Development, Testing and Activation Time. Interfaces are now more intuitive, consistent and simpler regardless of the role of the VISTA system as sender or receiver or the mode of communication (Mailman, TCP, serial, local app-to-app). The number of protocol definitions that are required to support a simple interface has been reduced in most cases to just two.

- Redesigned Menu. The HL7 MAIN MENU option has been completely reorganized to reflect user preferences both from the field and the JAD Focus Group.

- Event types for version 2.1 messages are no longer required. HL7 1.6 is now backward compatible to HL7 Standard, version 2.1 transactions. VISTA HL7 version 1.5 interfaces should be upgraded to 1.6 as soon as possible. Version 1.5 fields have been marked for removal from the system. Once this occurs, version 1.5 interfaces will no longer function. There should be no new development using the 1.5 interface method.

- Merger of Split Logical Link and Lower Level Protocol Parameter Files. File 870 (Logical Link) and file 869.2 (HL LOWER LEVEL PROTOCOL PARAMETER) have been merged into a single file.

- Response message type and event type can now be different from the initial message's message type/event type pair. The Transaction Message type and Event type are no longer defined on the subscriber protocol for a message to be successfully delivered. This information is now derived from the Event Point Protocol only. The Response Message Type and Event Type fields are now used for defining the message type and event type of the subscriber response.

- "Report" Option Fixed. The HL7 option, "Report" has been fixed to properly display non-TCP status codes and errors. The option has been renamed to, "Link Error/Status Report (non-TCP)."

- Same-System Batch Messages. It has not been possible to exchange batch messages between applications running on the same system. This has been corrected.

- Message Header Enhancements to Improve Security. Message headers have been enhanced to improve security. It is now possible to identify the source of a message and route (deferred) acknowledgements based entirely on header information. When enabled, the facility id field contains the source domain and destination domain as well as the Institution Number. Facility ID follows the HL7 Version 2.3 format, INSTITUTION NUMBER_cs_DOMAIN_NAME_cs_"DNS." For improved security, it is now possible to validate a source domain against entries in the logical link file. When valid domain information is present in the message header, the HL7 package (1) attempts to resolve the domain to the corresponding logical link and (2) uses this information as the return path for responses in place of what may be defined in the Protocol file, Logical Link field.

- Message Header Enhancements Facilitate Message Broker Integration. Enhancements to message header also facilitate the integration of Message Brokers into our Enterprise Application Integration strategy. In a future enhancement, it will be possible to query a DNS for current IP information. Note that any data that currently exists in the HL7 Application Parameter file (771), Facility ID field, overrides this enhancement. Data for the 'default' Sending Facility ID (if required and no Application Parameter is defined) is derived from the HL7 Communication Server Parameter file and edited using the option, Edit Site Parameters.Data for the Receiving Facility ID field is derived from the HL7 Logical Link File (870).

- Processing ID Field Checking. Another improved security feature includes a check of the processing id field against the protocol definition or the site parameter file. On the receiving system, a mismatch between the message and the local definition results in an error. This can prevent test or debug messages from being processed in production accounts, and vice versa.

- Startup and Shutdown Enhancements. A new option has been created, "Stop All Logical Links And Filers". The "Restart All Links And Filers" option has also been fixed; it was shutting down all links, and then restarting only those links with AUTOSTART ENABLED. Now only AUTOSTART links are shut down and restarted.

- Interface Workbench Replacement. The former HL7 option, "Interface Workbench," has been replaced. Due to the HL7 package's underlying architecture, it is relatively unintuitive to use and has been a problem to maintain. The new user interface also eliminates 21 routines and 62 protocols.

- Message Synchronization Over TCP. When a connection is broken it is possible for subsequent transactions to get out of synch. A fix is provided to assist with re-synchronizing the two systems. The following changes were added:

  o A new field has been added to the HL LOGICAL LINK file, #870. When a TCP client exceeds the parameter value for the maximum number of re-transmissions, the action below will be performed.

    200.21 EXCEED RE-TRANSMIT ACTION 200;10 SET

    'I' FOR ignore;

    'R' FOR restart;

    'S' FOR shutdown;

    Description: This field determines what to do when a message exceeds the number of retry attempts for this Logical Link.

    Actions are: Ignore = send alert once and keep trying to resend

                    Restart = send alert once and shutdown link then start link

                    Shutdown = send alert once and shutdown link

  o There is a new entry in HL7 ERROR MESSAGE file, #771.7.

    Code: 109

    Short Text: Duplicate Message

    Description: Message has already been received and processed. This is a duplicate.

- The DATE/TIME field of the HL7 Message Header has been enhanced to include the timezone offset.

- New public functions:

MSGSTAT^HLUTIL(X) ;message status
input value: X = message id return value: status^status updated^error msg.^error type pointer^

status: 0 = message doesn't exist
            1 = pending transmission
            1.5 = being transmitted
            2 = awaiting application acknowledgement
            3 = successfully completed

4 = error

8 = being generated

9 = awaiting processing

MSGACT^HLUTIL(X,HLIENACT) ;outgoing message action
input value: X = message id

HLIENACT = 1-cancel; 2-requeue

return value: 1 = action successful

0 = action failed

CHKLL^HLUTIL(X)   ;check setup of Logical Link
input value: X = institution name or number

return value: 1 = setup OK

0 = LL setup incorrect

- New Option: "Validate Interfaces"

Use this option to check your interface setups for potential problems. Starting with an Event Driver Protocol, the event driver, subscriber(s) and application definitions will be scanned and a report generated.

After patch 57 is installed, your pre-57 interfaces will continue to work. However, you may be interested in upgrading your existing interfaces to the post-57 style to take advantage of the new features. If you run this option on a pre-57 setup, you can use the report as a guide for making modifications. If your post-57 setup results in fewer protocols, be sure to remove the unneeded protocols. Remember-if the report on a pre-57 interface reports errors, it does NOT mean the interface has been broken or will stop working because of patch 57. Use the report as a guide only for upgrading or for troubleshooting an existing POST-57 interface.

No conversion of existing interfaces that have been properly defined will be necessary.

Additional details regarding changes to the Application Parameter File, Event Point Protocols, Subscriber Protocols and key related fields are defined below.

- The following NOIS's are addressed by this patch:
  ISF-0499-61219
  ISF-0499-61021
  BRX-0499-11335
  MIA-0499-31927

SAG-0599-42045

ISH-0696-40781

BAY-1099-32639

SLC-1099-51078

BAY-0499-31357

SDC-1099-62397

ISB-1099-31173

BAC-0699-40281

BIG-0999-72027

47.2   Routines

The following routines are included in this patch. The second line of each of these routines now looks like: ;;1.6;HEALTH LEVEL SEVEN;<patchlist>;Oct 13, 1995

CHECK^XTSUMBLD results:

Routine Name	Before Patch	After Patch	Patch List
HLCS	5743323	5745388	2,9,14,19,43,57
HLCS2	8763479	10072062	14,40,43,49,57
HLCSAS1	1742491	1743950	43,57
HLCSDL	4174780	4111820	2,44,49,57
HLCSDR	3936049	3904673	2,14,49,57
HLCSFMN0	5857525	5857070	15,57
HLCSFMN2	NEW	1942573	57
HLCSHDR	5939243	7364841	37,19,57
HLCSHDR1	6658466	7750238	19,57
HLCSHDR2	NEW	1077600	57
HLCSLM	6276510	6371649	49,57
HLCSLNCH	12855635	12643769	6,19,43,49,57
HLCSLSM	154819	191876	49,57

Routine Name	Before Patch	After Patch	Patch List
HLCSMM	2776063	2836421	17,35,57
HLCSORAT	5245857	5441831	57
HLCSRPT3	10792707	10830740	50,57
HLCSTCP	4550642	5152314	19,43,49,57
HLCSTCP1	4899040	4965932	19,43,57
HLCSTCP2	7773433	10328595	19,43,49,57
HLERCHK	NEW	12063792	57
HLFNC2	5393929	5397412	2,26,57
HLMA2	7300625	7268935	19,43,57
HLPAT57	NEW	1630585	57
HLSUB	4535863	5277110	14,57
HLTP01	5245980	5262489	2,25,34,47,57
HLTP3	12440103	14050232	19,43,57
HLTP31	NEW	1680845	57
HLTP4	7754632	7805100	19,57
HLTPCK1A	7334335	14402537	2,25,34,57
HLTPCK2A	11350701	15262342	19,57
HLUOPT	11331726	11707096	57
HLUTIL	1343106	2643574	36,19,57
HLUTIL2	5380198	5387464	19,43,57

List of preceding patches: 14, 15, 26, 34, 35, 43, 49, 50

Sites should use CHECK^XTSUMBLD to verify checksums.

HLPAT57 is a post-install routine. After the installation, HLPAT57 is deleted from your system.

Routine Information
Routine Name: HLCSHDR
Routine Checksum:

Routine Name: HLCS
Routine Checksum:

Routine Name: HLCS2
Routine Checksum:

Routine Name: HLCSAS1
Routine Checksum:

Routine Name: HLCSDL
Routine Checksum:

Routine Name: HLCSDR
Routine Checksum:

Routine Name: HLCSHDR2
Routine Checksum:

Routine Name: HLCSLM
Routine Checksum:

Routine Name: HLCSLNCH
Routine Checksum:

Routine Name: HLCSORAT
Routine Checksum:

Routine Name: HLCSRPT3
Routine Checksum:

Routine Name: HLCSTCP
Routine Checksum:

Routine Name: HLCSTCP1
Routine Checksum:

Routine Name: HLCSTCP2
Routine Checksum:

Routine Name: HLFNC2
Routine Checksum:

Routine Name: HLMA2
Routine Checksum:

Routine Name: HLPAT57
Routine Checksum:

Routine Name: HLTP3
Routine Checksum:

Routine Name: HLTP4
Routine Checksum:

Routine Name: HLTPCK1A
Routine Checksum:

Routine Name: HLTPCK2A
Routine Checksum:

Routine Name:- HLUOPT
Routine Checksum:

Routine Name: HLCSHDR1
Routine Checksum:

Routine Name: HLERCHK
Routine Checksum:

Routine Name: HLUTIL
Routine Checksum:

Routine Name: HLCSFMN0
Routine Checksum:

Routine Name: HLCSFMN2
Routine Checksum:

Routine Name: HLCSMM
Routine Checksum:

Routine Name: HLTP31
Routine Checksum:

Routine Name: HLUTIL2
Routine Checksum:

Routine Name: HLCSLSM
Routine Checksum:

Routine Name: HLSUB
Routine Checksum:

47.3   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. DSM SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

3. Shutdown all Logical Links and incoming and outgoing filers, and the Link Manager. Use the options:

    *   Shut Down All Logical Links

    *   Stop all incoming filers

    *   Stop all outgoing filers

    *   TCP/IP Link Manager Start/Stop

    *   For DSM sites ONLY, if you have an HL7 UCX Service associated with the account(uci/directory) where you are installing this patch, please disable this service.

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:

    *   2 Verify Checksums in Transport Global

    *   3 Print Transport Global

    *   4 Compare Transport Global to Current System

    *   5 Backup a Transport Global

    *   6 Install Package(s)
        o   INSTALL NAME: HL*1.6*57

    *   Answer 'YES' to 'Want KIDS to Rebuild Menu Trees upon Completion of Install?'.

    *   Answer 'NO' to 'Want KIDS to INHIBIT LOGONS during the install?'.

    *   Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

6. Startup all Logical Links and incoming and outgoing filers. Use the 'Restart/Start All Links and Filers' option. For DSM sites ONLY, if you previously disabled an HL7 UCX Service for this installation, you may now enable it.

7. DSM Sites: Rebuild your mapped set if necessary.

8. Start Link Manager using the option: "TCP/IP Link Manager Start/Stop."

There is additional information contained in the Build description of this patch and online. It contains details of how patch 57 changes the way interfaces are set up.

For a complete and up-to-date set of documents, tutorials and presentations (and access to the HL7 Standard) please visit the OpenVista

Website (frequently) at: http://vista2.med.va.gov/openvista/

At this site, you'll be able to find the new DEVELOPER MANUAL, released in patch HL*1.6*56, as well as supplemental information on DYNAMIC ADDRESSING and TCP/IP SUPPORT.

48.0 HL*1.6*56 SEQ #49: Documentation Refresh

Category: Informational

48.1   Description

This patch provides a complete refresh of the User and Developer Manuals for the VISTA HL7 package. The following new, combined manual is provided:

- VISTA HL7 Site Manager & Developer Manual (hl71_6p56um.pdf)

This manual is for post-HL*1.6*57 VISTA HL7 environments only. Many patches have been released since the original release of V. 1.6 of the VISTA HL7 package, and the HL7 standard itself has evolved over the past few years. The new VISTA HL7 Site Manager & Developer Manual brings the package's documentation up-to-date with those changes. It should be used for VISTA HL7 systems that are at a patch level of HL*1.6*57 and above only.

The manual, as HL71_6P56UM.PDF, is available from the standard anonymous directories:

ftp://152.129.1.110/SOFTWARE/

ftp://152.127.1.5/SOFTWARE/

ftp://152.131.2.1/SOFTWARE/

It is also available from the VISTA HL7 package homepage:

http://vista2.med.va.gov/hl7/

This completely revised manual supercedes the following existing manuals, which are obsolete and should be discarded after you have upgraded your system to patch level HL*1.6*57:

- DHCP HL7 V. 1.6 User Manual

- DHCP HL7 V. 1.6*19 User Manual: TCP/IP Supplement

- DHCP HL7 V. 1.6 Developer Manual

- DHCP HL7 V. 1.6*14 Developer Manual: Dynamic Addressing Supplement

These obsolete manuals are archived on the VISTA HL7 package homepage,

http://vista2.med.va.gov/hl7/.

This patch has received Y2K waiver #Y2KWE0027.

48.2   Routine Information

No routines included.

49.0 HL*1.6*60 SEQ #50: Routing Mailman Acks

Associated patches:
(v)HL*1.6*47   <<= must be installed BEFORE `HL*1.6*60'

(v)HL*1.6*57   <<= must be installed BEFORE `HL*1.6*60'

Category:
Routine

49.1   Description

This patch

1. Resolves an issue with how to address responses to messages arriving over a Mailman-type Logical Link.

If Routing Logic is defined, the response will be dynamically addressed using the SOURCE DOMAIN provided by querying Mailman. In some cases this could result in a response being returned over a logical link that is different from the one the message arrived on. Specifically, the source domain will resolve to one of the VA-namespaced logical links exported with HL*1.6*39. If this is the case, it is important to insure that the inks on both the sending and receiving systems are properly configured and enabled.

If there is no routing logic defined on the subscriber protocol, Vista HL7 will assume that the link defined on the subscriber protocol is the correct return path and Mailman will not be queried.

2. Fixes a corrupted node found on the logical link, LR NCH-L which prevented patch HL*1.6*57 from converting this link.

Related NOIS:
MON-0200-51683
CLA-0100-22220
MIW-0200-41686
FRE-1299-61997
BHS-1299-12078
POR-1299-52132
WCO-1199-50457

49.2   Routines

The following routines are included in this patch. The second line of each of these routines now looks like: ;;1.6;HEALTH LEVEL SEVEN;<patchlist>;Oct 13, 1995

CHECK^XTSUMBLD results:

Routine Name	Before Patch	After Patch	Patch List
HLTP01	5262489	5578885	**2,25,34,47,60**
HLPAT60	**NEW**	805414	Removed during install

Routine Information
Routine Name: HLTP01
Routine Checksum:

Routine Name: HLPAT60
Routine Checksum:

49.3   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. DSM SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

3. Shutdown all Logical Links and incoming and outgoing filers, and the Link Manager. Use the options:
   - Filer and Link Management Options ->
   - SA   Stop All Messaging Background Processes
   - LM   TCP/IP Link Manager Start/Stop

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:
   - Verify Checksums in Transport Global
   - Print Transport Global
   - Compare Transport Global to Current System
   - Backup a Transport Global
   - Install Package(s)
     - o   INSTALL NAME: HL*1.6*60

- Answer 'YES' to 'Want KIDS to Rebuild Menu Trees upon Completion of Install?'.
- Answer 'NO' to 'Want KIDS to INHIBIT LOGONS during the install?'.
- Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

6. Startup all Logical Links and incoming and outgoing filers. Use the

- Filer and Link Management Options ->

- RA   Restart/Start All Links and Filers (Note that links that do not have "autostart" enabled will need to be restarted manually)

- For DSM sites ONLY, if you previously disabled an HL7 UCX Service for this installation, you may now enable it.

7. DSM Sites: Rebuild your mapped set if necessary.

8. Start Link Manager using the option: "TCP/IP Link Manager Start/Stop."

50.0 HL*1.6*58 SEQ #51 Error with Ping

Associated patches: (v)HL*1.6*57   install with patch   `HL*1.6*58'

Category: Routine

50.1   Description

This patch addresses the following issues:

- ISB-1299-31632, AUS-1299-N1595: Errors when using HL7 Ping option. fter error, ping doesn't work for any site.

- DET-1199-41731: Undefined error when transmitting HL7 messages.

- TAM-1199-32092: The option HL TASK RESTART, start wrong number of outbound filers.

- Support for CPRS Remote Patient Data View project.

- Cleans up application variables between inbound transactions.

50.2   Routines

Routine Modifications
The following routines are included in this patch. The second line of these routines now look like:;;1.6;HEALTH LEVEL SEVEN;<patchlist>;Oct 13, 1995

CHECK^XTSUMBLD results:

Routine Name	Before Patch	After Patch	Patch List
HLCS2	10072062	10270936	14,40,43,49,57,58
HLCSTCP	5152314	5155167	19,43,49,57,58
HLCSUTL	5134775	6479348	2,19,58
HLMA	5502295	6284735	19,43,58
HLMA2	7268935	7530649	19,43,57,58
HLSUB	5277110	5501510	14,57,58
HLTP3	14050232	14451393	19,43,57,58

Routine Name	Before Patch	After Patch	Patch List
HLTP31	1680845	1651062	57,58

Routine Information
Routine Name: HLMA2
Routine Checksum:

Routine Name: HLMA
Routine Checksum:

Routine Name: HLTP31
Routine Checksum:

Routine Name: HLCS2
Routine Checksum:

Routine Name: HLSUB
Routine Checksum:

Routine Name: HLCSUTL
Routine Checksum:

Routine Name: HLTP3
Routine Checksum:

50.3   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. DSM SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

3. Use the option 'Stop All Messaging Background Processes' to disable all links and filers. For DSM sites ONLY, if you have an HL7 UCX Service associated with the account(uci/directory) where you are installing this patch, please disable this service.

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:
   - Verify Checksums in Transport Global

- Print Transport Global
- Compare Transport Global to Current System
- Backup a Transport Global
- Install Package(s)
- INSTALL NAME: HL*1.6*58
- Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.
- Startup all Logical Links and incoming and outgoing filers. Use the 'Restart All Links and Filers' option.
- DSM Sites: Rebuild your mapped set if necessary.

50.4 New Public Functions (only for TCP messages)

$$MSGLINE(msgid)
return the number of lines in a message header and text

input: msgid = message id

output: return number of lines

$$MSG^HLCSUTL(msgid, ref)
return the message header and text in the given reference

input: msgid = message id

ref = closed local or global reference to place message

output: return 1 for success and 0 if message doesn't exist

The message is returned with blank lines between each line. Example:

```
ref(1)=MSH^~|\&^VOICERAD^^RADIOLOGY^^20000110145151-0800^^ORU~R01^1231^T^2
.2
ref(2)=
ref(3)=PID^^^100~10~M11^^JONES~JOHN~J^^19421112^M^^^^^^^^^^123456789
ref(4)=
ref(5)=OBR^^^^7089898.8543-1~043091-66~L^^^199104301200^"^"^^^^^"^^3232~HA
RR IS~JACK^^^^MEDICINE^^199104301010
ref(6)=
ref(7)=OBX^^TX^I~IMPRESSION~L^^HEART NORMAL SIZE
ref(8)=
ref(9)=OBX^^ST^D~DIAGNOSTIC CODE~L^^NORMAL
ref(10)=
ref(11)=OBX^^TX^R~REPORT~L^^Heart appears to be of normal size.
ref(12)=
ref(13)=OBX^^TX^R~REPORT~L^^No infiltrate or abnormal mass noted.
ref(14)
```

51.0HL*1.6*63 SEQ #52: HL7 Support for DNS Lookups

Associated patches
(v)HL*1.6*57 must be installed BEFORE `HL*1.6*63'

(v)HL*1.6*58 must be installed BEFORE `HL*1.6*63'

(v)XU*8*142 must be installed BEFORE `HL*1.6*63'

Category
Routine

51.1   Description

This patch introduces DNS support for Vista HL7. In order to conduct HL7 message exchange between sites using TCP, the TCP/IP address of each site running an HL7 service must be known by all other sites. If the address is changed, such as from "152.x.x.x" to "10.x.x.x," or when the HL7 service is moved to a different computer, or when multiple computers are able to support HL7 services at a single domain, other sites can use DNS to "discover" this information without interruption in message exchange.

When a connection attempt over a TCP Logical Link fails, a call will be made to the locally specified Domain Name Server (found in the Kernel Site Parameters) to retrieve the current IP address. This feature was introduced in Kernel patch XU*8*142. One or more IP addresses may be registered on the DNS systems. The DNS was initially seeded with IP information supplied by HL*1.6*39 and any subsequent changes made to date to the VA* and MPI logical links. These IP addresses are associated specifically with the service "HL7" on the DNS and the port 5000. The port number is currently fixed for VA-to-VA HL7 messaging in production accounts and should not be changed.

If one or more IP addresses are returned, each address will be tried in sequence until a successful connection is made. The successful IP address will then be stored and used until the next connection attempt that fails.

Queries to the DNS will work only if the Logical Link (file 870) points to the correct Domain (file 4.2). Review the link definitions paying particular attention to those links in your VISN and verify that the Domain field is defined correctly.

The Logical Link that represents your site should be configured as a "multithreaded listener" to receive INBOUND connection requests.

Following the installation of this patch you should enable your TCP/IP listener for inbound HL7 connections. Detailed instructions for this may be found in the HL7 Document, "Vista HL7 Site Manager and Developer Manual" released as HL*1.6*56.

Here, you will find information for both Cache and for configuring UCX/TCP services under the OpenVMS operating system.

The IP address and port for this listener is known by all other sites and referenced by them to establish a connection. Changing the IP address will prevent sites from establishing a connection. Therefore, if you wish to establish a new IP address, your nearest national VA DNS must be updated in advance of the change. It must contain an entry in the format, HL7.yoursite.med.va.gov, and your new TCP/IP address. For example, DNS will contain an entry for Bay Pines VA looking like, "HL7.BAY-PINES.MED.VA.GOV." This entry will return a TCP/IP address of 152.130.80.5. Note that this entry does not have to be placed in your local Domain file (4.2). However, that file should already have the entry for BAY-PINES.MED.VA.GOV (the synonym for BAY-PINES.VA.GOV) and should be pointed to by a single logical link in the HL7 package.

Please note that the HL7 development team is not responsible for maintenance of the VA's DNS systems. Questions should be referred to your local or VISN-level DNS administrator, or via MS Exchange to the group, "VHA CIO DNS ADMIN."

51.2   Routines

The following routines are included in this patch. The second line of each of these routines now looks like: ;;1.6;HEALTH LEVEL SEVEN;<patchlist>;Oct 13, 1995

CHECK^XTSUMBLD results:

Routine Name	Before Patch	After Patch	Patch List
HLCSTCP2	10328595	11299763	**19,43,49,57,63*
HLMA	6284735	7929932	**19,43,58,63**

List of preceding patches: 57, 58

Sites should use CHECK^XTSUMBLD to verify checksums.

Routine Information
Routine Name: HLMA
Routine Checksum:

Routine Name: HLCSTCP2
Routine Checksum:

51.3   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. DSM SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

3. Shutdown all Logical Links and incoming and outgoing filers, and the Link Manager. Use the options:
    *   Filer and Link Management Options ->
    *   SA   Stop All Messaging Background Processes
    *   LM   TCP/IP Link Manager Start/Stop

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:
    *   Verify Checksums in Transport Global
    *   Print Transport Global
    *   Compare Transport Global to Current System
    *   Backup a Transport Global
    *   Install Package(s)
    *   INSTALL NAME: HL*1.6*63
    *   Answer 'NO' to 'Want KIDS to INHIBIT LOGONS during the install?'.
    *   Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

6. Startup all Logical Links and incoming and outgoing filers. Use the Filer and Link Management Options -> RA   Restart/Start All Links and Filers (Note that links that do not have "autostart" enabled will need to be restarted manually)For DSM sites ONLY, if you previously disabled an HL7 UCX Service for this installation, you may now enable it.

7. DSM Sites: Rebuild your mapped set if necessary.

8. Start Link Manager using the option: "TCP/IP Link Manager Start/Stop."

52.0 HL*1.6*61 SEQ #53: Requeuer and DICN-Error

Associated patches: (v)HL*1.6*14   <<= must be installed BEFORE `HL*1.6*61'

Category: Routine

52.1   Description

This patch solves the following problems
  1. NOIS MWV-1297-20006: Requeuer screen didn't show the correct information in columns "Queue Size" and "Pending."

  2. Fixes the DICN-Error nodes problems for "IN" queue of HL LOGICAL LINK file(#870).

Test sites
 1. Fayetteville

 2. Martinsburg

52.2   Routines

Routine Summary
The following is a list of the routines included in this patch. The second line of each of these routines now looks like:

<tab>;;1.6;HEALTH LEVEL SEVEN;**[patch list]**;Oct 13, 1995

Checksums:

Routine Name	Checksum Before	Checksum After	Patch List
HLCSQUE	4308358	4338251	14,61
HLCSREQ	1749378	1790153	61

From CHECK^XTSUMBLD

Routine Information
Routine Name: HLCSQUE
Routine Checksum:

Routine Name: HLCSREQ
Routine Checksum:

52.3   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. Stop all the Logical links, incoming and outgoing filers.

3. DSM SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:

    -   Verify Checksums in Transport Global
    -   Print Transport Global
    -   Compare Transport Global to Current System
    -   Backup a Transport Global
    -   Install Package(s)
    -   INSTALL NAME: HL*1.6*61
    -   Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

6. DSM Sites: Rebuild your mapped set if necessary.

7. Restart all the Logical links, incoming and outgoing filers, which have been stopped in step #2.

53.0 HL*1.6*59 SEQ #54: Support for Message Structures, Fix Stub Records

Associated patches

(v)HL*1.6*14   install with patch   `HL*1.6*59'

(v)HL*1.6*36   install with patch   `HL*1.6*59'

(v)HL*1.6*57   install with patch   `HL*1.6*59'

(v)HL*1.6*58   install with patch   `HL*1.6*59'

(v)HL*1.6*61   install with patch   `HL*1.6*59'

Category
Data Dictionary
Routine

53.1   Description

1. Introduces HL7 version 2.3.1 MESSAGE STRUCTURE components:

-Introduces a new file (#779.005) to hold the new HL7 MESSAGE STRUCTURE CODES.

-Adds a new field, MESSAGE STRUCTURE (#770.5), to the Protocol file. When defined, the MESSAGE STRUCTURE will be added to the version 2.3.1 message header.

 2. The message type of outbound messages was incorrectly stored in file 773. This has been fixed.

 3. In file 771, HL APPLICATION PARAMETER, the input transforms for FIELD SEPARATOR and ENCODING CHARACTERS have been modified to prevent reuse of the field separator in the encoding characters. Each of the characters defined must be unique.

 4. HL*1.6*57 introduced a new menu structure. However, the old, obsolete menus were not removed. This patch will remove them.

 5. Fixes a problem with STUB records left behind in file 870 (Logical Link) resulting in freezing of links and the System Link Monitor as well as causing queues to grow until disk space is used up.

> **Note**: Some sites may have a considerable number of messages needing to be purged from file 870. Please consider disabling journaling of ^HLCS() for about a week after installing this patch.

6. Changes the PROCESSING ID field of file 101 to be no longer required.

> **Note**: HL7 message headers are populated with information for 'TRAINING' or 'PRODUCTION' taken from the HL7 site parameters. Use the option, SITE PARAMETER EDIT, to verify that your production account is identified as such and your test/training account is identified as 'TRAINING.' The event driver protocol PROCESSING ID field is now used only for DEBUG mode. Debug mode will override your site parameter setting. Make sure the protocol is set to 'debug' on both the sending and receiving system.

7. Corrects a problem with creating new subscriptions when a user edits the zero node of file 774.

This patch resolves the following NOIS calls:

    AMA-0300-70683

    ISD-0300-71919

    HOU-0400-71933

The following routines are included in this patch. The second line of each of these routines now looks like: ;;1.6;HEALTH LEVEL SEVEN;<patchlist>;Oct 13, 1995

CHECK^XTSUMBLD results:

Routine Name	Before Patch	After Patch	Patch List
HLCSHDR	7364841	7637619	**37,19,57,59**
HLCSHDR1	7750238	8586633	**19,57,59**
HLCSQUE	4338251	4440270	**14,61,59**
HLCSQUE1	1150239	1371156	**14,59**
HLFNC2	5397412	5365297	**2,26,57,59**
HLSUB	5501510	5552075	**14,57,58,59**
HLTP3	14451393	14649677	**19,43,57,58,59*
HLTP4	7805100	7964901	**19,57,59**
HLTPCK1	4288888	4452787	**8,36,59**

Routine Name	Before Patch	After Patch	Patch List
HLTPCK1A	14402537	14751742	**2,25,34,57,59**
HLTPCK2	3804314	3962788	**19,59**
HLTPCK2A	15262342	15611547	**19,57,59**
HLUTIL2	5387464	5486507	**19,43,57,59**

List of preceding patches: 14, 36, 57, 58, 61

Sites should use CHECK^XTSUMBLD to verify checksums.

Routine Information
Routine Name: HLCSHDR
Routine Checksum:

Routine Name: HLCSHDR1
Routine Checksum:

Routine Name: HLCSQUE
Routine Checksum:

Routine Name: HLCSQUE1
Routine Checksum:

Routine Name: HLFNC2
Routine Checksum:

Routine Name: HLTP4
Routine Checksum:

Routine Name: HLTPCK1A
Routine Checksum:

Routine Name: HLTPCK2A
Routine Checksum:

Routine Name: HLUTIL2
Routine Checksum:

Routine Name: HLTPCK1
Routine Checksum:

Routine Name: HLTPCK2
Routine Checksum:

Routine Name: HLTP3
Routine Checksum:

Routine Name: HLSUB
Routine Checksum:

53.2   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. DSM SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

3. Shutdown all Logical Links and incoming and outgoing filers, and the Link Manager. Use the options:

    - Filer and Link Management Options ->
    - SA   Stop All Messaging Background Processes
    - LM   TCP/IP Link Manager Start/Stop

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:

    - Verify Checksums in Transport Global
    - Print Transport Global
    - Compare Transport Global to Current System
    - Backup a Transport Global
    - Install Package(s)
    - INSTALL NAME: HL*1.6*59
    - Answer 'NO' to 'Want KIDS to Rebuild Menu Trees upon Completion of Install?'.
    - Answer 'NO' to 'Want KIDS to INHIBIT LOGONS during the install?'.
    - Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

6. Startup all Logical Links and incoming and outgoing filers. Use the Filer and Link Management Options -> RA Restart/Start All Links and Filers   (Note that links that do not have "autostart" enabled will need to be restarted manually) For DSM sites ONLY, if you previously disabled an HL7 UCX Service for this installation, you may now enable it.

7. DSM Sites: Rebuild your mapped set if necessary.

8. Start Link Manager using the option: "TCP/IP Link Manager Start/Stop."

54.0 HL*1.6*64 SEQ #55: Update Message Status

Associated patches
(v)HL*1.6*57 install with patch `HL*1.6*64'

(v)HL*1.6*58 install with patch `HL*1.6*64'

(v)HL*1.6*63 install with patch `HL*1.6*64'

Category
Routine

54.1   Description

This patch addresses the following issues:

- Added new status, AWAITING RESPONSE, to the HL7 MESSAGE STATUS file.

- New parameter, HLP("ACKTIME"), will reset the Acknowledgement Timeout, for the one message. This parameter can be passed in GENERATE^HLMA or DIRECT^HLMA APIs.

- Retransmission alerts are no longer generated.

- DEVNOTOPN errors will no longer be recorded.

- New APIs:
  - $$MSGSTAT^HLUTIL = returns status of a message
  - $$MSGACT^HLUTIL = outgoing message action, cancel or requeue
  - $$CHKLL^HLUTIL = check setup of Logical Link
  - $$FLD^HLCSUTL   = returns a field from a message segment

54.2   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. DSM SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

3. Shutdown all Logical Links and incoming and outgoing filers, and the Link Manager. Use the options:
   - Filer and Link Management Options ->

- SA Stop All Messaging Background Processes
- LM TCP/IP Link Manager Start/Stop
- For DSM sites ONLY, disabled all HL7 UCX Services for this installation.

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:
  - 2   Verify Checksums in Transport Global
  - 3   Print Transport Global
  - 4   Compare Transport Global to Current System
  - 5   Backup a Transport Global
  - 6   Install Package(s)
  - INSTALL NAME: HL*1.6*64
  - Answer 'NO' to 'Want KIDS to INHIBIT LOGONS during the install?'.
  - Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

6. Startup all Logical Links and incoming and outgoing filers. Use the Filer and Link Management Options -> RA Restart/Start All Links and Filers (Note that links that do not have "autostart" enabled will need to be restarted manually) For DSM sites ONLY, if you previously disabled an HL7 UCX Service for this installation, you may now enable it.

7. DSM Sites: Rebuild your mapped set if necessary.

8. Start Link Manager using the option: "TCP/IP Link Manager Start/Stop."

54.3   Routine Information

The following routines are included in this patch. The second line of each of these routines now looks like: ;;1.6;HEALTH LEVEL SEVEN;<patchlist>;JUL 17,1995

Checksum

Routine	Old	New	2nd Line
LCSAC	2497076	2564816	**43,64**
HLCSTCP	5155167	5175308	**19,43,49,57,58,64**

Routine	Old	New	2nd Line
HLCSTCP1	4965932	5081718	**19,43,57,64**
HLCSTCP2	11299763	11197019	**19,43,49,57,63,64**
HLCSUTL	6479348	6969973	**2,19,58,64**
HLMA2	7530649	7925412	**19,43,57,58,64**
HLTF0	3173064	3232637	**12,19,64**
HLUTIL	2643574	3175738	**36,19,57,64**

List of preceding patches: 57, 58, 63

Sites should use CHECK^XTSUMBLD to verify checksums.

Routine Information
Routine Name: HLCSTCP
Routine Checksum:

Routine Name: HLCSTCP1
Routine Checksum:

Routine Name: HLCSTCP2
Routine Checksum:

Routine Name: HLCSUTL
Routine Checksum:

Routine Name: HLTF0
Routine Checksum:

Routine Name: HLUTIL
Routine Checksum:

Routine Name: HLMA2
Routine Checksum:

Routine Name: HLCSAC
Routine Checksum:

54.4   Documentation

$$MSGSTAT^HLUTIL(X)   ;message status
Input value: X = message id

Return value: status^status updated^error msg.^error type pointer^queue position or
# of retries^# open failed^ack

Timeout status:

      0 = message doesn't exist

      1 = pending transmission

      1.5 = being tranmitted

      1.7 = awaiting response, # of retries

      2 = awaiting application ack

      3 = successfully completed

      4 = error

      8 = being generated

      9 = awaiting processing

$$MSGACT^HLUTIL(X,HLIENACT) ;outgoing message action
input value: X = message id

HLIENACT = 1-cancel; 2-requeue

return value: 1 = action successful

      0 = action failed

$$CHKLL^HLUTIL(X)   ;check setup of Logical Link

input value: X = institution number or name

return value: 1 = setup OK

      0 = LL setup incorrect

**$$FLD^HLCSUTL(NODE,FLD) ;This function will return the value for the
field**
input value: NODE = HLNODE from the HLNEXT call, passed by reference FLD =
number, field position in segment

note: HL("FS") must be defined

return value: value for the field in this segment

55.0 HL*1.6*65 SEQ #56: Enhance System Link Monitor

Associated patches

(v)HL*1.6*49   install with patch   `HL*1.6*65'

(v)HL*1.6*59   install with patch   `HL*1.6*65'

(v)HL*1.6*64   install with patch   `HL*1.6*65'

Category
Data Dictionary
Routine
Input Template

55.1   Description

This patch addresses the following issues:

- Corrects problem creating an acknowledgement message MSH for a serial connection.

- Enhancements to the System Link Monitor. Display is now alphabetical and views can also be defined. Use the 'Site Parameter Edit' option to create Link Monitor VIEWS. See Documentation below for example.

- New computed field in file 773, MESSAGE SIZE. This field counts the number of characters in a message. It can be used in FileMan reports.

- Update the INITIAL MESSAGE field in file 773 for a response to a Direct Connect message. This is for the Remote Data View project.

55.2   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. DSM SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

3. Shutdown all Logical Links and incoming and outgoing filers, and the Link Manager. Use the options:
   - Filer and Link Management Options ->
   - SA   Stop All Messaging Background Processes
   - LM   TCP/IP Link Manager Start/Stop

- For DSM sites ONLY, disabled all HL7 UCX Services for this installation.

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:

- Verify Checksums in Transport Global
- Print Transport Global
- Compare Transport Global to Current System
- Backup a Transport Global
- Install Package(s)
- INSTALL NAME: HL*1.6*65
- Answer 'NO' to 'Want KIDS to INHIBIT LOGONS during the install?'.
- Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

6. Startup all Logical Links and incoming and outgoing filers. Use the Filer and Link Management Options -> RA Restart/Start All Links and Filers (Note that links that do not have "autostart" enabled will need to be restarted manually) For DSM sites ONLY, if you previously disabled an HL7 UCX Service for this installation, you may now enable it.

7. DSM Sites: Rebuild your mapped set if necessary.

8. Start Link Manager using the option: "TCP/IP Link Manager Start/Stop."

55.3   Routines

Routine Information
The following routines are included in this patch. The second line of each of these routines now looks like: ;;1.6;HEALTH LEVEL SEVEN;<patchlist>;JUL 17,1995

Checksum

Routine	Old	New	2nd Line
HLCSHDR	7637619	7573404	**37,19,57,59,65**
HLCSMON	10703763	11036657	**34,40,48,49,65**
HLCSMON1	5535017	3592657	**15,40,49,65**

Routine	Old	New	2nd Line
HLCSUTL	6969973	7737730	**2,19,58,64,65**
HLMA2	7925412	7999576	**19,43,57,58,64,65**

List of preceding patches: 49, 59, 64

Sites should use CHECK^XTSUMBLD to verify checksums.

Routine Information
Routine Name: HLCSHDR
Routine Checksum:

Routine Name: HLCSMON
Routine Checksum:

Routine Name: HLCSMON1
Routine Checksum:

Routine Name: HLCSUTL
Routine Checksum:

Routine Name: HLMA2
Routine Checksum:

55.4   Documentation

ADPACs and Site Managers now have the ability to define what links they wish to see in the System Link Monitor. As an example, a site may wish to define a view of all the links that are in their VISN. They would name this view, VISN 99.

```
Select OPTION NAME: HL MAIN MENU        HL7 Main Menu


          Systems Link Monitor
          Filer and Link Management Options ...
          Message Management Options ...
          Interface Developer Options ...
          Site Parameter Edit

Select HL7 Main Menu Option: SITE Parameter Edit




                        Edit HL7 Site Parameters                 Page 1 of 2
------------------------------------------------------------------------------

                        Current Domain: TEST.KERNEL.ISC-SF.VA.GOV
                  Current Institution: TEST ACCOUNT
Is this a Production or Test Account? training
              Mail Group for Alerts: HL7



System Link Monitor VIEWS
-------------------------
VISN 99        <<==========create new view name
```

Go to next page to edit Background Process Parameters

```
 _____
  Are you adding 'VISN 99' as a new LINK MONITOR VIEWS? No// YES




                        Edit HL7 Site Parameters                 Page 1 of 2
------------------------------------------------------------------------------

    +--------------------System Link Monitor View----------------------+
    |                    NAME: VISN 99                                  |
Is t|                                                                   |
    | LOGICAL LINK          DISPLAY ORDER                               |
    | ------------          -------------                               |
    | VASFC                      1                                      |
    | VAPAL                           <<=======add Link, order is optional |
Syst|                                                                   |
----|                                                                   |
VISN|                                                                   |
    +-------------------------------------------------------------------+
```

Go to next page to edit Background Process Parameters

56.0 HL*1.6*66 SEQ #57: Undefined in HLSUB, Use New Mail API

Associated patches
(v)HL*1.6*51   <<= must be installed BEFORE `HL*1.6*66'
(v)HL*1.6*59   <<= must be installed BEFORE `HL*1.6*66'
(v)HL*1.6*63   <<= must be installed BEFORE `HL*1.6*66'
(v)HL*1.6*64   <<= must be installed BEFORE `HL*1.6*66'
(v)HL*1.6*65   <<= must be installed BEFORE `HL*1.6*66'
(v)XU*8*168   <<= must be installed BEFORE `HL*1.6*66'

Category
Routine

56.1   Description

Please note the following
This patch requires patch XU*8.0*168 HL7 date fix. Also, this patch corrects the interpretation of midnight when converting FileMan to HL7 date/time formats and vice versa. In addition, the Vista HL7 Functions $$HLDATE^HLFNC(X,Y) and $$FMDATE^HLFNC(X) now call the Kernel functions $$FMTHL7^XLFDT(X) and $$HL7TFM^XLFDT(X) respectively. Furthermore, ZULU offsets are added to HL7 date/time formats whenever time is included.

Also, please install this patch prior to installing patch RG*1*4. This patch is needed by the CPRS Remote Data Views. If RG*1*4 is already installed, install this patch as soon as possible.

Future patch XM*7.1*51, which will change the domain names for all sites which have requested it, will not be released until all sites have installed HL*1.6*66.

This patch addresses the following issues:
- ISA-0600-10916: Correct problem with HLDATE^HLFNC when midnight is used.

- CHS-0499-43088: Corrects a problem with Mailman Logical Links when mail group has no members. Updated to use new Mailman API's and send a message to the HL7 mail group.

- ISF-0600-61155: Prevents an UNDEFINED when the subscription control number is not passed into GET^HLSUB.

- ISB-0600-32294: Prevents the loss of the 'AC' cross reference on pending messages.

- WIM-0700-20527: Problem on systems link monitor. Patch HL*1.6*65 introduced some new enhancements to the HL7 System Link Monitor. However, this patch also introduced a new bug that prevented users from backing up a screen when in 'Screened' mode. This patch corrects this problem with the monitor.

- General variable cleanup in routine HLTP3 associated with Dynamic Addressing and Enhanced Headers. This patch fixes the Invalid Message Control ID in MSA Segment that was encountered with patch RG*1*4 CPRS REMOTE DATA VIEWS.

- Related NOISes:
  ELP-0700-72334   Undefined Variable @ SF+14~HLTPCK2A
  LAS-0700-62279   MESSAGE ERROR FROM NEW ORLEANS
  BIR-0700-32233   Undefined Variable
  MUR-0800-30482   <UNDEF(ECODE)>SF+14^HLTPCK2A
  PRE-0800-60365 $ZE= <UNDEFINED>SF+14^HLTPCK2A

  This patch fixes the undefined variable at SF+14^HLTPCK2A. This was first encountered after the staff at New Orleans VAMC changed their domain entry to include the '.MED' in front of the '.VA.GOV' suffix. Afterwards, sites receiving CIRN/HL7 messages from New Orleans would encounter this error. In addition, this patch changes the way that it performs a FileMan lookup of the Domain Name. Previously, it was only based only on the .01/Name field. After this patch is installed, the lookup process will work with either the Name or Synonym.

- Related NOISes:

  AUG-0800-32024   LINK HAS NEGATIVE NUMBERS
  AUG-0800-31661   HL7 INTERFACE NOT WORKING
  AUS-0800-N0079   Negative Numbers on Monitor
  ISB-0800-30179   Entries in the 'AC' x-ref but with a status of 3

  This patch fixes the problem where sites encountered negative numbers in the 'TO SEND' column of the HL7 System Link Monitor.

  These negative numbers were a result of the HL7 code inadvertently changing the status of messages to 'SUCCESSFULLY COMPLETED' in the wrong file. Although the 'AC' cross-reference existed for these messages, the status of 'SUCCESSFULLY COMPLETED' prevented these message from being delivered.

  In addition, the use of $$REPROC^HLUTIL(IEN, routine) extrinsic function after this patch is installed, will update the DATE/TIME PROCESSED field(#100) in the HL7 MESSAGE ADMINISTRATION file (#870).

56.2   Routine Information

The following routines are included in this patch. The second line of each of these routines now looks like: ;;1.6;HEALTH LEVEL SEVEN;<patchlist>;JUL 17,1995

Checksum

Routine	Old	New	2nd Line
HLCSMM	2836421	2312930	**17,35,57,66**
HLCSMON	11036657	11192960	**34,40,48,49,65,66**
HLCSTCP2	11197019	11334736	**19,43,49,57,63,64,66**
HLFNC	5785780	5669016	**38,42,51,66**
HLMA	7929932	7962943	**19,43,58,63,66**
HLSUB	5552075	5558527	**14,57,58,59,66**
HLTP3	14649677	14792516	**19,43,57,58,59,66**
HLTP31	1651062	1770560	**57,58,66**
HLTPCK2A	15611547	16050022	**19,57,59,66**
HLUTIL	3175738	3187029	**36,19,57,64,66**

List of preceding patches: 51, 58, 59, 63, 64, 65

Sites should use CHECK^XTSUMBLD to verify checksums.

External patch dependency: XU*8.0*168   HL7 date fix.

Routine Information
Routine Name: HLSUB
Routine Checksum:

Routine Name: HLFNC
Routine Checksum:

Routine Name: HLCSMM
Routine Checksum:

Routine Name: HLCSMON
Routine Checksum:

Routine Name: HLCSTCP2
Routine Checksum:

Routine Name: HLTP3
Routine Checksum:

Routine Name: HLMA
Routine Checksum:

Routine Name: HLTPCK2A
Routine Checksum:

Routine Name: HLTP31
Routine Checksum:

Routine Name: HLUTIL
Routine Checksum:

56.3   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. DSM SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

3. Shutdown all Logical Links and incoming and outgoing filers, and the Link Manager. Use the options:
    - Filer and Link Management Options ->
        - o   SA   Stop All Messaging Background Processes
        - o   LM   TCP/IP Link Manager Start/Stop
    - For DSM sites ONLY, disabled all HL7 UCX Services for this installation.

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:
    - Verify Checksums in Transport Global
    - Print Transport Global
    - Compare Transport Global to Current System
    - Backup a Transport Global
    - Install Package(s)

- INSTALL NAME: HL*1.6*66
- Answer 'NO' to 'Want KIDS to INHIBIT LOGONS during the install?'.
- Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

6. Startup all Logical Links and incoming and outgoing filers. Use the Filer and Link Management Options -> RA Restart/Start All Links and Filers (Note that links that do not have "autostart" enabled will need to be restarted manually) For DSM sites ONLY, if you previously disabled an HL7 UCX Service for this installation, you may now enable it.

7. DSM Sites: Rebuild your mapped set if necessary.

8. Start Link Manager using the option: "TCP/IP Link Manager Start/Stop."

57.0 HL*1.6*67 SEQ #58: Should I say HELO?

Associated patches
(v)HL*1.6*66   <<= must be installed BEFORE `HL*1.6*67'

Category
Routine

Data Dictionary

Other

Enhancement (Mandatory)

57.1   Description

> **Attention**: Read this patch. If you are a Cache/NT site, you might have to perform manual edits.

Patch HL*1.6*67

NOIS: PUG-0800-52938

Test Site: Milwaukee, WI; Puget Sound HCS; Grand Junction, CO

When sending HL7 transactions to other VA sites over TCP links, Cache/NT sites must send an initial HELO to overcome buffering issues. However, the initial HELO is not part of the HL7 standard, and may cause a reject error when sent to a COTS system.

This patch adds a new field, SAY HELO, to file 870, HL LOGICAL LINK, so that for every logical link, the Cache/NT site can decide whether or not to send the initial HELO. The default will be NO, since it is not part of the HL7 standard.

The form HL7 LOGICAL LINK has been updated to include this field.   Only Cache/NT sites should set it, since it does not apply to other sites, and will be ignored at other sites.

At Cache/NT sites with patch HL*1.6*39 (which distributed VA Logical Link definitions) installed, the post-init will go through file 870, HL LOGICAL LINK, and for every TCP link to a VA site (if the name of the link starts with 'VA', OR if the link is 'MPIVA'), set SAY HELO to YES.

It will show you which links it has set. You should review the list and manually correct any which shouldn't have been set, or set any that were missed.

The post-init will NOT run at:

- Cache/NT sites which have not installed patch HL*1.6*39.

- non-Cache/NT sites.

Here's the new field:

STANDARD DATA DICTIONARY #870 -- HL LOGICAL LINK FILE STORED IN ^HLCS(870,

| Data Element | Name Title | Global Location | Data Type |

870,400.07   SAY HELO   400;7 SET

             'Y' FOR YES;

             'N' FOR NO;

Last Edited: NOV 02, 2000

Help-Prompt: Send initial HELO for Cache/NT TCP links?

Description: This field is applicable only to Cache/NT sites with TCP links. If you are not a Cache/NT site, or this is not a TCP link, this field does not apply, AND will be ignored. If this TCP link is for a VA site, answer YES. If this TCP link is for a COTS system, answer NO. This is the default.

Technical Descr: When sending HL7 transactions to other VA sites over TCP links, Cache/NT sites must send an initial HELO to overcome buffering issues. However, the initial HELO is not part of the HL7 standard, and may cause a reject error when sent to a COTS system.

> **Note**: This patch should be installed during off hours, when activity is at a minimum. It requires HL7 patch HL*1.6*66.

57.2   Routines

The second line of the routine now looks like:

;;1.6;HEALTH LEVEL SEVEN;**[patch list]**;JUL 17,1995

Name	Before Checksum	After Checksum	Patch List
HLCSTCP2	11334736	11552851	19,43,49,57,63,64,66,67
HLPAT67	* new *	2870677	67

Checksums produced by CHECK^XTSUMBLD

This patch introduces the following new routine:

HLPAT67 is a post-init and has no user-callable entry points.

Routine Information
Routine Name: HLCSTCP2
Routine Checksum:

Routine Name: HLPAT67
Routine Checksum:

57.3   Installation

> **Note**: This patch should be installed during off hours, when
> activity is at a minimum. It requires HL7 patch HL*1.6*66.

1. Users may be on the system during the installation of this patch.

2. DSM Sites: If any of these routines is mapped, disable mapping for the
   affected routine(s).

3. You do not need to stop TaskMan. Shutdown all Logical Links and incoming
   and outgoing filers, and the Link Manager. Use the options:
   - Filer and Link Management Options ->
   - SA   Stop All Messaging Background Processes
   - LM   TCP/IP Link Manager Start/Stop

4. DSM sites: Disable all HL7 UCX Services for this installation.

5. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu to load
   the KIDS package into a Transport global on your system.

6. On the KIDS Installation menu, use the following options to install the
   Transport Global:
   - Verify Checksums in Transport Global
   - Print Transport Global
   - Compare Transport Global to Current System
   - Backup a Transport Global
   - Install Package(s)
   - Select INSTALL NAME: HL*1.6*67   Loaded from Distribution
     <date/time>
   - Install Questions for HL*1.6*67
   - Want KIDS to INHIBIT LOGONS during the install? YES// NO
   - Want to DISABLE Scheduled Options, Menu Options, and Protocols?
     YES// NO
   - Enter the Device you want to print the Install messages.

- You can queue the install by enter a 'Q' at the device prompt.
- Enter a '^' to abort the install.
- DEVICE: HOME// <Do NOT queue it!>

7. Cache/NT sites: Once the patch is installed, review the list of HL LOGICAL LINKs whose SAY HELO field was set to YES by the post-init, and make sure they were all links to VA sites, and that no TCP links to VA sites were left out. (If the name started with 'VA' it was considered a VA site.)

9. Startup all Logical Links and incoming and outgoing filers. Use the Filer and Link Management Options -> RA Restart/Start All Links and Filers (Note: Links which do not have "autostart" enabled will need to be restarted manually)

10. DSM Sites: If you previously disabled an HL7 UCX Service for this installation, you may now enable it.

11. DSM Sites: Rebuild your mapped set if necessary.

12. Start Link Manager using the option: "TCP/IP Link Manager Start/Stop."

58.0 HL*1.6*68: SEQ #59: Clean Up HLCSMM

Associated patches
(v)HL*1.6*66 must be installed BEFORE `HL*1.6*68'

Category
Routine
Informational

58.1   Description

Patch HL*1.6*68

NOIS: MIW-0900-41651

Test Site: Milwaukee, WI; Grand Junction, CO

This patch 'news' variables in routine ^HLCSMM so that they do not leak out and cause problems. ^HLCSMM uses MailMan to send HL7 messages for MailMan type Logical Links.

The following improvements are also made:

- Ignores domain closures and security key requirements, so that it will send to FOC-AUSTIN, even if that domain is closed or has a security key.

- Sites may again use the auto-startup feature for MailMan type Logical Links. If DUZ is 0 or undefined, DUZ will be set to .5 (POSTMASTER), for the purpose of sending the messages.

- Error message has been improved. If the message is not sent for some reason, the error message will clearly state the reason why. Sites are reminded to ensure that the mail group which receives error messages is populated. To do this:

  W $$PARAM^HLCS2. Piece 8 should be the name of a mail group. You should be in that mail group. This group receives error messages if there's any problems in creating the HL7 MailMan messages. The subject is "Error handing HL7 message off to Mailman".

> **Note**: This patch should be installed during off hours, when activity is at a minimum. It requires HL7 patch HL*1.6*66.

58.2   Routines

The second line of the routine now looks like:

;;1.6;HEALTH LEVEL SEVEN;**[patch list]**;JUL 17,1995

Name	Before Checksum	After Checksum	Patch List
HLCSMM	2312930	3644711	17,35,57,66,68

Checksums produced by CHECK^XTSUMBLD

This patch introduces no new routines.

Routine Information
Routine Name: HLCSMM
Routine Checksum:

58.3   Installation

> **Note**: This patch should be installed during off hours, when activity is at a minimum. It requires HL7 patch HL*1.6*66.

1. Users may be on the system during the installation of this patch.

2. DSM Sites: If any of these routines is mapped, disable mapping for the affected routine(s).

3. You do not need to stop TaskMan. Shutdown all Logical Links and incoming and outgoing filers, and the Link Manager. Use the options:
    - Filer and Link Management Options ->
    - SA   Stop All Messaging Background Processes
    - LM   TCP/IP Link Manager Start/Stop

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu to load the KIDS package into a Transport global on your system.

5. On the KIDS Installation menu, use the following options to install the Transport Global:
    - Verify Checksums in Transport Global
    - Print Transport Global
    - Compare Transport Global to Current System
    - Backup a Transport Global
    - Install Package(s)
    - Select INSTALL NAME: HL*1.6*68   Loaded from Distribution <date/time>
    - Install Questions for HL*1.6*68
    - Want KIDS to INHIBIT LOGONS during the install? YES// NO

- Want to DISABLE Scheduled Options, Menu Options, and Protocols? YES// NO
- Enter the Device you want to print the Install messages.
- You can queue the install by enter a 'Q' at the device prompt.
- Enter a '^' to abort the install.
- DEVICE: HOME// <Do NOT queue it!>

6. Startup all Logical Links and incoming and outgoing filers. Use the Filer and Link Management Options -> RA   Restart/Start All Links and Filers (Note: Links which do not have "autostart" enabled will need to be restarted manually)

7. DSM Sites: Rebuild your mapped set if necessary.

8. Start Link Manager using the option: "TCP/IP Link Manager Start/Stop."

59.0HL*1.6*70 SEQ #60: New HLSEVEN.COM file for AXP/DSM Sites

Category: Informational

59.1   Description

This patch addresses the following issues:

HIN-1000-42056 HLCIRN Listener not working properly

> **Note**: For AXP/VMS DSM SITES only.

HLSEVEN has uncovered a VMS TCP/IP problem regarding DSM not being able to open a BG device for use. This problem is related to multi-processor CPU systems (i.e. ES40, 4100) with more than one CPU. It is not VMS or UCX (TCPIP) version specific, as we have identified the problem on systems running VMS 6.2-1H3 to VMS 7.2.1 and also UCX version 4.2 ECO 3 as well as TCPIP version 5.0A. A condition can occur where the server site will fail to open the BGnnnn: device and the HLSEVEN.LOG will report the following errors:

 %DSM-F-OPENERR, error opening device or file

 -DSM-E-ERRCODE, Error Code = 0

 -SYSTEM-F-BADPARAM, bad parameter value

VistA uses two types of "listen services , HLSEVEN and XMINETMM. Tests have shown that the XMINETMM service is also prone to the same symptoms as seen by the HLSEVEN service. These tests were run on the FORUM system and have produced retries during heavy activity periods. Therefore, the AXP, HLSEVEN and Mailman teams have agreed to jointly release the following Alert and Informational patches.

AXP Alert*117

HL*1.6*70

XM*7.1*165

The following is an excerpt from Compaq Engineering acknowledging our findings and their description of the problem.

Compaq
Engineering thinks the problem here is a race between the INETACP, which has just created the process via $CREPRC(), and the process just created.

The INETACP doesn't relinquish its ownership of the BG device for the accepted connection (which it passes in SYS$NET process logical) until sometime after $CREPRC() returns success status. If the process gets to run first it may have trouble assigning this BG momentarily.

This situation only occurs for listen services; nolisten services (like FTP) are handled very differently.

Although this problem has been acknowledged, Compaq is reluctant to issue a patch to the current version of TCPIP V5.0 due to its complexity. They have agreed to provide a fix in a future release. This future release should be TCPIP Services for VMS version 5.1, due sometime later this year (2001). As an interim "work-around solution, new HLSEVEN.COM and XMINET_ALPHA.COM command procedures have been written to compensate for this "race condition.

HLSEVEN.COM Descriptions
This command procedure have been edited to check the status of the BG device prior to entering DSM. They contain two IF-THEN-ELSE statements. The first is a loop to count to 10. The command procedures will terminate after 10 tries to gain access to the BG device. The second is a loop to test the bit mask status [stat=f$getdvi(""x'","STS")] of the BG device. It was found that with a bit mask value of 65552, DSM could not open the BG device but a bit mask value of 16 allowed DSM to open the BG device. If the bit mask value is not equal to 16, then the command procedures will wait one second and try again.

Typical log file entries
Note - New log files will not be generated if the HLSEVEN.LOG file version number has reached 32767. To generate new log files, delete all HLSEVEN.LOG files and new ones will be generated starting with version 1. Please also note that empty log files may be normal. If the current log file for the latest connection is still open and the connection is still active, the file will be empty and nothing will be displayed. Very busy HLSEVEN service may see this and they can also generate failure to purge error messages. Keeping more log files in the purge statement in the command procedures can avoid purge error messages - adjust accordingly.

```
Successful connection with no retries
$type hlseven.log
$!HLSEVEN.COM-for incoming connect requests
$!------------------------------------------------------------
 $ set noon        !Don't stop
 $ set noverify    !change as needed
 Opening _BG8534:
 _BG8534: is now ready for use - entering DSM
   HLSEVEN     job terminated at  2-NOV-2000 07:55:38.44
 $


 Unsuccessful connection after maximum retries

 $type hlseven.log
 $!HLSEVEN.COM-for incoming connect requests
 $!------------------------------------------------------------
 $ set noon        !Don't stop
 $ set noverify    !change as needed
 Opening _BG8215:
 1> _BG8215: not ready!
 2> _BG8215: not ready!
3> _BG8215: not ready!
 4> _BG8215: not ready!
 5> _BG8215: not ready!
 6> _BG8215: not ready!
 7> _BG8215: not ready!
 8> _BG8215: not ready!
 9> _BG8215: not ready!
 10> _BG8215: not ready!
 Could not open _BG8215: - exiting
   HLSEVEN     job terminated at  2-NOV-2000 07:50:40.84
 $


 A successful connection after 2 retries

 $type hlseven.log
 $!HLSEVEN.COM-for incoming connect requests
 $!------------------------------------------------------------
 $ set noon        !Don't stop
$ set noverify    !change as needed
 Opening _BG8215:
 1> _BG8215: not ready!
 2> _BG8215: not ready!
 _BG8215: is now ready for use - entering DSM
   HLSEVEN     job terminated at  2-NOV-2000 07:50:40.84
 $
```

List of Test Sites
San Francisco VAMC
Boston VAMC
Hines VAMC
Denver VAMC
Bay Pines VAMC

59.2   Routines

No routines in this patch.

59.3   Installation Instructions

The HLSEVEN.COM command procedure is included below, and can be copied & pasted into a VMS file directly from this message. Alternatively, the HLSEVEN.COM file (HL71_6P70.COM) will be available for downloading from the [.SOFTWARE] directory at the following ftp sites:

Hines   152.129.1.110

Albany   152.127.1.5

Salt Lake City   152.131.2.1

Disable the UCX HLSEVEN service

$ UCX DISABLE SERVICE HLSEVEN (UCX Version 4.2) or $ TCPIP DISABLE SERVICE HLSEVEN (TCPIP Version 5.0A)

Using either method, place this new HLSEVEN.COM procedure in the SYS$LOGIN directory of the HLSEVEN user. Be sure to edit accordingly.

Copy and Paste Method
$ SET DEFAULT USER$:[HLSEVEN] or equivalent of the HLSEVEN user.

Copy file from below into your Windows buffer by highlighting the entire text of the HLSEVEN.COM file below.

 $ CREATE HLSEVEN.COM

Paste the contents of your windows buffer and use CTRL Z to close file.

Then edit HLSEVEN.COM to reflect your correct ien from your previous version of HLSEVEN.COM file or from file 870 in VistA.

Using FTP Method
To retrieve from [.SOFTWARE] directories listed above:

```
$FTP 152.127.1.5
220 ISC1A2.ISC-ALBANY.MED.VA.GOV FTP Server (Version 5.0) Ready.
Connected to 152.127.1.5.
Name (152.127.1.5:dsmmgr): ANONYMOUS
331 Guest login OK, send ident as password.
Password:
230 Guest login OK, access restrictions apply.
FTP> SET DEF [.SOFTWARE]
250-CWD command successful.
250 New default directory is VA4$:[ANONYMOUS.SOFTWARE]
FTP> ascii

200 TYPE set to ASCII.
FTP> get HL71_6P70.COM HLSEVEN.COM
200 PORT command successful.
150 Opening data connection for VA4$:[ANONYMOUS.SOFTWARE]HL71_6P70.COM;
(152.127.1.6,3281)
226 Transfer complete.
local: SYS$:[DSMMGR]HLSEVEN.COM;1  remote: HL71_6P19.COM
144638 bytes received in 00:00:00.04 seconds (3284.83 Kbytes/s)
FTP> EXIT
221 Goodbye.
$

Edit HLSEVEN.COM to reflect your correct ien from your previous version of
HLSEVEN.COM file or from file 870 in VistA.

$ COPY HLSEVEN.COM USER$:[HLSEVEN] or equivalent of the HLSEVEN user.
```

Before enabling the HLSEVEN service, be sure to check the file ownership and protection.

Enable the UCX HLSEVEN service $ UCX ENABLE SERVICE HLSEVEN (UCX Version 4.2) or $ TCPIP ENABLE SERVICE HLSEVEN (TCPIP Version 5.0A)

Please note that Mailman puts a leading space before the "$" of each DCL command line in the HLSEVEN.COM file as documented. If you choose to cut and paste the file from this message, you will need to edit it to remove the spaces before enabling the HLSEVEN service.

 *** Cut here ***

```
$!HLSEVEN.COM - for incoming connect requests
$!--------------------------------------------------------------
$ set noon        !Don't stop
$ set noverify    !change as needed
$! set verify     !change as needed
$ purge/keep=5 sys$login:*.log !Purge log files only
$ set proc/priv=(share)  !Required for MBX device
$ x=f$trnlnm("sys$net")  !This is our MBX device
$!
$ write sys$output "Opening "+x !This can be viewed in the log file
$! Check status of the BG device before going to DSM
$ cnt=0
$ CHECK:
$ stat=f$getdvi("''x'","STS")
$ if cnt .eq. 10
$ then
$ write sys$output "Could not open ''x' - exiting"
$ goto EXIT
$ else
$       if stat .ne. 16
$       then
$       cnt=cnt+1
$       write sys$output "''cnt'> ''x' not ready!"
$       wait 00:00:01 !Wait one second to assure connection
$       goto CHECK
$       else
$       write sys$output "''x' is now ready for use - entering DSM"
$!--------------------------------------------------------------
$! **Be sure this command line is correct for your system
$! **and if access control is enabled, that this account has
$! **access to this uci,vol & routine. The number 999 should be replaced
$! **with the internal entry number in file 870 for this Logical Link
$!
$ dsm/env=dsmmgr/uci=vah/vol=rou/data="''x'^999" EN^HLCSTCP
$!--------------------------------------------------------------
$       endif
$ endif
$ EXIT:
$ logout/brief
```

*** end cut here ***

> **Important:** This HLESEVEN.COM file is a generic file to be
> used and EDITED by all VMS/DSM sites. Please refer to the
> comment lines in the command procedure. This command
> procedure will not work as distributed, it must be edited first to
> reflect your sites ien (internal entry number) in file 870 for this
> logical link.

60.0HL*1.6*73 SEQ #61: SystemLink Monitor Blank Screen

Associated patches:
(v)HL*1.6*66   <<= must be installed BEFORE `HL*1.6*73'

Category
Routine

60.1   Description

Test sites
Alexandria, Sheridan, Greater Los Angeles Regional ealthcare (West Los Angeles)

NOIS
NOL-0600-72179

Note: This patch requires that KIDS build HL*1.6*66 be installed

This patch fixes a problem where users of the 'Systems Link Monitor [HL MESSAGE MONITOR]' menu option sometimes experience a blank screen (screen freezes) from which they cannot escape when another user is editing one of the entries in the HL Logical Link file (#870) at the same time.

Patch HL*1.6*73 makes sure that instead of freezing the System Link Monitor Screen, the user is given a warning which shows those links which are locked. Information regarding the possibility that some of the reported totals might be slightly off, is displayed. After the warning is displayed, the option works as usual..

Displayed Warning (actual link names will vary):

Editing of logical link data is occurring right now. For this reason, some of the information on the 'System Link Monitor' report might not be accurate for the following node(s)...

        JDS MAIL (IEN #14)

        VABAC (IEN #219)

60.2   Routines

Routines: HLCSMON

The second line of this routine now looks like:

  ;;1.6;HEALTH LEVEL SEVEN;34,40,48,49,65,66,73;Oct 13, 1995

CHECK^XTSUMBLD results:

Routine Name	Before Patch	After Patch	Patch List
HLCSMON	11192960	10178025	**34,40,48,49,65,66,73**

Sites should use CHECK^XTSUMBLD to verify checksums.

Routine Information
Routine Name: HLCSMON
Routine Checksum:

60.3   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. DSM SITES: Review your mapped set. If the HLCSMON routine is mapped, it should be removed from the mapped set at this time.

3. Shutdown all Logical Links and incoming and outgoing filers, and the Link Manager. Use the options:
    - Filer and Link Management Options ->
    - SA   Stop All Messaging Background Processes
    - LM   TCP/IP Link Manager Start/Stop

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:
    - Verify Checksums in Transport Global
    - Print Transport Global
    - Compare Transport Global to Current System
    - Backup a Transport Global
    - Install Package(s)
    - INSTALL NAME: HL*1.6*73
    - Answer 'NO' to 'Want KIDS to INHIBIT LOGONS during the install?'.
    - Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

6. Startup all Logical Links and incoming and outgoing filers. Use the Filer and Link Management Options -> RA Restart/Start All Links and Filers (Note

that links that do not have "autostart" enabled will need to be restarted manually)

7. DSM Sites: Rebuild your mapped set if necessary.

8. Start Link Manager using the option: "TCP/IP Link Manager Start/Stop."

61.0 HL*1.6*72 SEQ #62 Free-Text Data Stored in Pointer Field

Associated patches

(v)HL*1.6*59   <<= must be installed BEFORE `HL*1.6*72'

Category:

Routine

61.1   Description

Test sites

Grand Junction, Sheridan, Greater Los Angeles Regional Healthcare (West Los Angeles)

NOIS:

ISH-1000-42878

> **Note**: This patch requires that KIDS build HL*1.6*59 be installed.

Frequently, free-text information is stored in two pointer fields in the HL7 Message Administration file (#773). These fields are the Message Type field (#15) and the Event Type field (#16). This patch fixes this problem, ensuring that these fields are populated with internal entry numbers.

The HLCSHDR1 routine is included in this patch. The second line of this routine now looks like:

   ;;1.6;HEALTH LEVEL SEVEN;19,57,59,72;Oct 13, 1995

   CHECK^XTSUMBLD results:

Routine Name	Before Patch	After Patch	Patch List
HLCSHDR1	8586633	8150415	**19,57,59,72**

Sites should use CHECK^XTSUMBLD to verify checksums.

Routine Information

Routine Name: HLCSHDR1

Routine Checksum:

61.2   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. DSM SITES: Review your mapped set. If the HLCSMON routine is mapped, it should be removed from the mapped set at this time.

3. Shutdown all Logical Links and incoming and outgoing filers, and the Link Manager. Shutdown all Logical Links and incoming and outgoing filers, and the Link Manager. Use the options:

    - Filer and Link Management Options ->

    - SA   Stop All Messaging Background Processes

    - LM   TCP/IP Link Manager Start/Stop

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:
    - Verify Checksums in Transport Global
    - Print Transport Global
    - Compare Transport Global to Current System
    - Backup a Transport Global
    - Install Package(s)
        o INSTALL NAME: HL*1.6*72
    - Answer 'NO' to 'Want KIDS to INHIBIT LOGONS during the install?'.
    - Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

6. 6. Startup all Logical Links and incoming and outgoing filers. Use the Filer and Link Management Options -> RA   Restart/Start All Links and Filers (Note that links that do not have "autostart" enabled will need to be restarted manually)

7. DSM Sites: Rebuild your mapped set if necessary.

8. Start Link Manager using the option: "TCP/IP Link Manager Start/Stop."

62.0 HL*1.6*69 SEQ #63: Wrong Processing Routine Being Executed for VistA Hl7 Apps

Category: Routine

62.1   Description

Test sites: Birmingham, North Texas NCS (Dallas), Grand Junction, Milwaukee, Sheridan

This patch addresses the following issues:

1.   ISH-1000-42883 wrong processing routine being executed for VistA HL7 apps

2.   SDC-1100-60210 Problem with HL7/Radiology link

Note: This patch requires that KIDS build HL*1.6*66 be installed.

The wrong processing routine is being executed (EN^RGADT) for non-MPI/PD applications. This causes a MPI/PD exception to be generated and sent to Forum.

This problem was originally identified in Milwaukee when the Dictaphone application tried to execute a MPI/PD processing routine (EN^RGADT).

Most recently, the problem appeared at the Birmingham VAMC. Some user inactivated a Lab interface application which caused an endless loop creating application acks that were never received/processed because the VistA HL7 application was inactivated.

The problem lies in the CONT^HLTP3 subroutines, the HL("EIDS") variable, defining the subscribing protocol, is not defined.   The software sets the HL("EIDS") variable to HLEIDS. The value of HLEIDS is not reliable, in most cases the variable has not been properly set/killed.

In addition, the inbound filers were not locking the cross-reference ^HLMA("AC","I",... in order to flush to global cache buffers.

In this case, the HL7 link receiving a message for an application kills the cross-reference(entry in the inbound tcp/ip queue), releases other locks, the inbound filers kicks in and grabs the lock at a different parent level ^HLMA(ien), checks for the existence of ^HLMA("AC","I",LLien,MSGien) and since no locking was performed on this cross-reference, this piece of code thinks this entry exists. Hence, the inbound filers begin to process this message, finds variables left around from a previous message(MPI/PD or HL7 itself), invokes code that uses these variables to set other HL7 variables when these variables itself are not setup properly. This in turn causes the code to call the MPI/PD application which in turn fires off exception messages to Forum.

These problems may be triggered by an inbound HL7 message that was not properly constructed in terms of the HL7 MSH segment. The VistA HL7 software needs from the MSH segment, the Sending/Receiving Application names, Message Type, Event Type and Version ID. The HL7 Protocol setups may also have triggered this problem if the data in the MSH segment of an inbound message does not match the interface definition setups.

Therefore, sites will still need to correct problems with their local interfaces. This patch only prevents the wrong application from being executed.

62.2   Routines

Routine Information
The following routines are included in this patch. The second line of each of these routines now looks like:

  ;;1.6;HEALTH LEVEL SEVEN;<patchlist>;Oct 13, 1995

  CHECK^XTSUMBLD checksum results:

Routine Name	Before Patch	After Patch	Patch List
HLTP3	14792516	15038079	19,43,57,58,59,66,69

List of preceding patches: HL*1.6*66

Sites should use CHECK^XTSUMBLD to verify checksums.

Routine Information
Routine Name: HLTP3
Routine Checksum

62.3   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. DSM SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

3. Shutdown all Logical Links and incoming and outgoing filers, and the Link Manager. Use the options:
    - Filer and Link Management Options ->
    - SA   Stop All Messaging Background Processes
    - LM   TCP/IP Link Manager Start/Stop

- For DSM sites ONLY, disable all HL7 UCX Services for this installation.

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:

    - Verify Checksums in Transport Global
    - Print Transport Global
    - Compare Transport Global to Current System
    - Backup a Transport Global
    - Install Package(s)
        o INSTALL NAME: HL*1.6*69
    - Answer 'NO' to 'Want KIDS to INHIBIT LOGONS during the install?'.
    - Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

6. Startup all Logical Links and incoming and outgoing filers. Use the Filer and Link Management Options -> RA Restart/Start All Links and Filers (Note that links that do not have "autostart" enabled will need to be restarted manually) For DSM sites ONLY, if you previously disabled an HL7 UCX Service for this installation, you may now enable it.

7. DSM Sites: Rebuild your mapped set if necessary.

8. Start Link Manager using the option: "TCP/IP Link Manager Start/Stop."

63.0 HL*1.6*76 SEQ #64: Cache out of order acknowledgements

Associated patches:
(v)HL*1.6*65 must be installed BEFORE `HL*1.6*76'

(v)HL*1.6*67 must be installed BEFORE `HL*1.6*76'

Category
Routine

63.1   Description

The test sites for Patch HL*1.6*76 are
White River Junction VAMC.

Butler VAMC.

Tuscaloosa VAMC.

Wilmington VAMC.

San Francisco VAMC.

Loma Linda VAMC

This Patch Addresses the Following NOIS Calls
ISH-0700-41306   Enhanced Message Header issue: 'AA' received before 'CA'

BRX-0701-12759   VANJHL7 in error state

BRX-0701-12760   Undefined error CHKMSG+6^HLCSTCP2

POR-0701-52464   problem with VANJH LINK

BHS-0701-12356   VABED Link

ERI-0701-22675   Possible run-away HL7 job on Sun 7/29/01

63.1.1   Patch Parts

This patch is composed of the following five parts
1. Part 1 addresses out of order HL7 acknowledgements on Cache' systems.

2. Part 2 addresses non-persistent TCP/IP client links, which are not maintaining a connection during the retention period.

3. Part 3 addresses the near SACC routine size limit (10K) of the HL7 routine HLCSTCP2.

4. Part 4 addresses direct connect handling network errors properly. Read errors encountered through the direct connect were affecting both the Institution File Redesign (IFR) clean-up and the activation of Integrated Billing (IB).

5. Part 5 addresses direct connect handling of M LOCKS.

63.1.1.1 Part 1

 - The out of order HL7 acknowledgements on Cache' systems are related to the inconsistent use of OPEN parameters between client and server (listener) processes. These acknowledgements are communicating over a TCP/IP socket on Cache' systems.

The VISTA HL7 package makes use of the following Kernel APIs to open a TCP/IP socket:

1. CALL^%ZISTCP -- Used by the client. This API uses STREAM mode.

2. LISTEN^%ZISTCP -- Used by the single-threaded listener. This API uses packet mode.

3. LISTEN^%ZISTCPS -- Used by the multi-threaded listener. This API uses packet mode.

When initiated from Cache' to DSM systems, HL7 messages should look like this:

Order	Cache' DSM
1	client sends message----------------> listener
2	client <--------------------listener sends Commit ACK
3	listener <------------------client sends Application Response
4	listener sends Commit ACK------------> client

However, with the inconsistent parameters used by the Kernel APIs, listed above, the following HL7 message scenario occurs:

Order	Cache' DSM
1	client sends message----------------> listener
4	client <--------------------listener sends Commit ACK
2	listener <------------------client sends Application Response
3	listener sends Commit ACK------------> client

Notice that the Commit ACK (Order #4) for the initial message (Order #1) arrives after the application response message (Order #2). This is happening because the client process is using stream mode (Kernel API CALL^%ZISTCP). Steam mode is causing the initial message to wait for the full timeout to expire on the READ before the client process actually sees what was just read. Therefore, if the READ TIMEOUT is set to 30 seconds, the client will sit on the READ command for the entire 30 seconds while the listener process receives the application response as soon as it is available.

63.1.1.2   Part 2

The second part of this patch will help reduce the OPEN failure rate that may be related to rapid OPENS and CLOSES by maintaining the connection during the retention period.

63.1.1.3   Part 3

This patch creates the new HL7 routine HLCSTCP3 to accommodate the spillover in excess of 10K from HLCSTCP2.

63.1.1.4   Part 4

The Institution File Redesign (IFR) Patch XU*8*206 may encounter problems with the clean-up process if network problems are present. During the clean-up, IFR will download the Master Institution File from FORUM. This is done via an HL7 feature called "direct connect". The VISTA HL7 developers have discovered a problem when read errors are encountered across the wide area network when using the direct connect. Once this read error is encountered, it causes an error in the direct connect and the connection is dropped and the IFR clean-up encounters an error. When this happens, the direct connect does not clear the cross reference it created. Subsequently, when the clean-up is restarted, an I/O problem will be encountered. Patch HL*1.6*76 addresses these issues by passing back to the calling application information regarding any error it encounters. Furthermore, it cleans up the cross reference it created and closes the device before returning to the calling application. In addition, the post-init routine HLPAT76 will find all incomplete messages that were affected by READ errors prior to this patch. This post-init will set the status of these messages so that they do not affect other messages in the queue.

63.1.1.5   Part 5

After the Integrated Billing (IB) patch IB*2*150 was activated, many sites encountered several entries in their Lock Table. This was a result of the direct connect locking ^HLMA global nodes and never releasing the locks.

This IB patch utilizes an Integrated Billing Background Filer to send several HL7 messages. To achieve this, this filer calls the direct connect API to send these

messages.   However, each HL7 message sent adds two entries into the Lock Table causing some sites to fill up their Lock Table.

This HL7 patch fixes this problem by having the direct connect API properly release the locks when it no longer needs them.

63.2   Routines

Routine Information
The following routines are included in this patch. The second line of each of these routines now looks like:

   ;;1.6;HEALTH LEVEL SEVEN;<patchlist>;JUL 17,1995

Checksum

Routine	Old	New	2nd Line
HLCSTCP2	11552851	11428718	**19,43,49,57,63,64,66,67,76**
HLCSTCP3	new	1935770	**76**
HLMA2	7999576	8028267	**19,43,57,58,64,65,76**
HLPAT76	new	1888010	**76**

List of preceding patches: 65, 67

Sites should use CHECK^XTSUMBLD to verify checksums.

This patch introduces the following new routines: HLCSTCP3 and HLPAT76.

Routine HLPAT76 is a post-init and has no user-callable entry points. Post-init will identify all incomplete messages associated with TCP links   These incomplete messages are a result of Network errors encountered by the DIRECT CONNECT API These messages will be removed from the outbound TCP queue.

Routine Information
Routine Name: HLCSTCP2
Routine Checksum:

Routine Name: HLCSTCP3
Routine Checksum:

Routine Name: HLPAT76
Routine Checksum:

Routine Name: HLMA2
Routine Checksum:

63.3   Installation Instructions

1. Users are allowed to be on the system during this installation.

2. DSM SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

3. Use the VISTA HL7 Filer and Link Management options, listed below, to shutdown (1) all Logical Links, (2) the incoming and outgoing filers, and (3) the Link Manager. Use the options:
    - Filer and Link Management Options ->
    - SA   Stop All Messaging Background Processes
    - LM   TCP/IP Link Manager Start/Stop
    - DSM SITES ONLY: Disable all HL7 UCX Services for this installation.

4. Use the option INSTALL/CHECK MESSAGE located on the PackMan menu to load the KIDS package onto your system.

5. Patch HL*1.6*76 has now been loaded into a Transport global on your system. The next step is to use KIDS to install the Transport global. To do this, follow the KIDS menu path to the Installation menu: KIDS Kernel Installation & Distribution System Installation On the Installation menu, use the following options:
    - Verify Checksums in Transport Global
    - Print Transport Global
    - Compare Transport Global to Current System
    - Backup a Transport Global
    - Install Package(s)
    - INSTALL NAME: HL*1.6*76
    - Answer 'NO' to 'Want KIDS to INHIBIT LOGONS during the install?'.
    - Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

6. Follow the HL7 menu path to the option Restart/Start All Links and Filers to startup all Logical Links and incoming and outgoing filers:
    - Filer and Link Management Options ->
    - RA Restart/Start All Links and Filers

> **Note**: Links that do not have "Autostart" enabled will need to be restarted manually)

- DSM SITES ONLY: If you previously disabled an HL7 UCX Service for this installation, you may enable it now enable it.

7. DSM SITES: Rebuild your mapped set if necessary.

8. Start Link Manager using the option: TCP/IP Link Manager Start/Stop.

64.0 HL*1.6*80 SEQ #65: Invalid Processing ID when Production or Training Mode

Associated patches
(v)HL*1.6*65 must be installed BEFORE `HL*1.6*80'

(v)HL*1.6*72   <<= must be installed BEFORE `HL*1.6*80'

Category
Routine

64.1   Description

Test sites
Grand Junction, Greater Los Angeles Regional

Healthcare (West Los Angeles),

Health Eligibility Center (HEC)

San Francisco, Oakland CIOFO

NOIS
ISF-0900-60520, ATG-0101-32967

> Note: This patch requires that KIDS build HL*1.6*65 and KIDS build HL*1.6*72 be installed.

The MSH segment of an HL7 message holds a PROCESSING ID field. Under most circumstances, the value of this PROCESSING ID field should be obtained from the PROCESSING ID field of the HL7 package parameters. However, the HL7 package parameters can be overridden, and the PROCESSING ID can instead by obtained from the protocol used during the process of message creation. Prior to this patch, the PROCESSING ID was always based on the protocol; under no circumstances was the PROCESSING ID obtained from the HL7 package parameters. This patch fixes this problem, and now the PROCESSING ID is built correctly from the parameters or the protocol.

In addition to the invalid use of a local variable, HLCSHDR1 contained an invalid global reference to ^HL(772) that has now been corrected to reference ^HLMA.

64.2   Routines

The VA Kernel checksums for the routines being changed (calculated using CHECK^XTSUMBLD) are listed below.

Routine Name	Checksum Before Patch	Checksum After Patch	Patch List
HLCSHDR	7573404	8289859	**37,19,57,59,65,80**
HLCSHDR1	8150415	7760350	**19,57,59,72,80**

Sites should use CHECK^XTSUMBLD to verify checksums after patch installation.

Routine Information
Routine Name: HLCSHDR
Routine Checksum:

Routine Name: HLCSHDR1
Routine Checksum:

64.3   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. DSM SITES: Review your mapped set. If any of the routines being changed are mapped, they should be removed from the mapped set at this time.

3. Shutdown all Logical Links and incoming and outgoing filers, and the Link Manager using the Filer and Link Management options listed below. Stop All Messaging Background Processes [HL STOP ALL] TCP/IP Link Manager Start/Stop [HL START/STOP LINK MANAGER] DSM SITES: Disable all HL7 UCX Services for this installation.

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. This is done using the 'Installation' menu's 'Install Package(s) [XPD INSTALL BUILD]' menu option. When using this menu option to install the HL*1.6*80 build, you will be asked several questions. The questions, and the answers you should supply, are shown below.

   - INSTALL NAME: <HL*1.6*80>
   - Want KIDS to INHIBIT LOGONS during the install? <NO>
   - Want to DISABLE Scheduled Options, Menu Options, and Protocols? <NO>

6. Startup all Logical Links and incoming and outgoing filers using the Filer and Link Management Option's 'Restart/Start All Links and Filers [HL TASK RESTART]' menu option. (Note that links that do not have "autostart" enabled

will need to be restarted manually.) DSM SITES: If you previously disabled a HL7 UCX Service for this installation, you may enable it now.

7. DSM sites should rebuild their mapped routine set if necessary.

8. Start Link Manager using the 'TCP/IP Link Manager Start/Stop [HL START/STOP LINK MANAGER]' menu option.

65.0 HL*1.6*77 SEQ #66: Direct Connect Read and Write Errors

Associated patches:
(v)HL*1.6*76   install with patch   `HL*1.6*77'

Category
Routine

65.1   Description

Test sites
Grand Junction, El Paso, San Francisco, Big Spring White River Junction

NOIS
ELP-0801-70936, GRJ-0801-51450, MAN-0701-12428,

> Note: This patch requires that KIDS build HL*1.6*76 be installed.

Patch HL*1.6*76 fixed problems encountered when a recent Integrated Billing patch
was released. (There was no problem with the Integrated Billing (IB) patch. But after
the patch, IB used some parts of the HL7 package differently than before.) After
patch HL*1.6*76 was installed, READ and WRITE errors remained, but were more
specific to Cache sites. Patch HL*1.6*77 fixes these errors.

65.2   Routines

The VA Kernel checksums for the routines included in this patch (calculated using
CHECK^XTSUMBLD) are listed below.

Routine Name	Before Patch	After Patch	Patch List
HLCSTCP2	11428718	12129232	**19,43,49,57,63,64,66, 67,76,77**
HLCSTCP3	1935770	2092970	**76,77**

Sites should use CHECK^XTSUMBLD to verify checksums after patch installation.

Routine Information
Routine Name: HLCSTCP2
Routine Checksum:

Routine Name: HLCSTCP3
Routine Checksum:

65.3   Installation Instructions

Notice: Do not proceed unless patch HL*1.6*76 has been installed.

1. Users are allowed to be on the system during the installation.

2. AXP/DSM SITES: Review your mapped routine set. If any of the routines listed in the ROUTINE SUMMARY section are mapped, they should be removed from the mapped set at this time.

3. Shutdown all Logical Links, incoming and outgoing filers, and the Link Manager using the Filer and Link Management options listed below.

    • Stop All Messaging Background Processes [HL STOP ALL]

    • TCP/IP Link Manager Start/Stop [HL START/STOP LINK MANAGER]

    • AXP/DSM SITES ONLY: Disable all HL7 UCX Services for this installation.

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. This patch is now loaded into a transport global on your system. The next step is to use KIDS to install the Transport global. This is done using the 'Installation' menu's 'Install Package(s) [XPD INSTALL BUILD]' menu option. When using this menu option to install the patch build, you will be asked several questions. The questions, and the answers you should supply, are shown below.

    • INSTALL NAME: <HL*1.6*77>

    • Want KIDS to INHIBIT LOGONS during the install? <NO>

    • Want to DISABLE Scheduled Options, Menu Options, and Protocols? <NO>

6. Start up all Logical Links and incoming and outgoing filers using the Filer and Link Management Option's 'Restart/Start All Links and Filers [HL TASK RESTART]' menu option. (Note that links that do not have "autostart" enabled will need to be restarted manually.) AXP/DSM SITES ONLY: If you previously disabled an HL7 UCX Service for this installation, you may enable it now.

7. AXP/DSM Sites: After the patch has been installed, rebuild your map set, if necessary.

8. Start Link Manager using the 'TCP/IP Link Manager Start/Stop [HL START/STOP LINK MANAGER]' menu option.

66.0HL*1.6*81 SEQ #67: Correct setup for sites using DNS and HL7

Category: Informational

66.1 Description:

This Patch Addresses the Following NOIS Call:

ISB-0901-31233, HL7 DNS uses and helpful Websites

Problem Scenario:
Through monitoring the HL7 Network between Veterans Affairs Medical Centers (VAMC) and the Master Patient Index (MPI), a need has arisen for clarification on the use of HL7 and Domain Name Servers (DNS). Mainly, the IP address where the HL7 Listener is running at the sites must match the IP address associated with the HL7 domain name in the DNS.

Patch Solution:
The express purpose of this Informational Patch is to make sites aware of the HL7 Frequently Asked Questions (FAQ) web site. It addresses information on DNS support as it relates to HL7. Specifically, it provides information on how to ensure that sites are correctly set up to use the DNS with respect to HL7. This is addressed in the FAQ beginning at the question "How do I correctly set up my site to use DNS?".

Here is the URL for the HL7 FAQ web site:

http://vaww.vista.med.va.gov/hl7/hl7_faq.htm.

Note: Even though this is an informational patch, please be sure to install it so the FORUM Patch tracking system gets updated.

66.2 Installation Instructions

1. Users are allowed to be on the system during the installation.

2. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

3. This patch is now loaded into a transport global on your system. The next step is to use KIDS to install the Transport global. To do this, use the 'Installation [XPD INSTALLATION MENU]' menu. On this menu, use the following options in the order shown below:
   - Print Transport Global
   - Install Package(s)

- When using the 'Install Package(s)' option to install the patch build, you will be asked the following questions. The questions asked and the answers you should supply are shown below:

- INSTALL NAME: HL*1.6*81

- Want KIDS to INHIBIT LOGONS during the install? <NO>

- Want to DISABLE Scheduled Options, Menu Options, and Protocols? <NO>

67.0 HL*1.6*75 SEQ #68: Starting Logical Link After Error

Associated patches:
(v)HL*1.6*57   <<= must be installed BEFORE `HL*1.6*75'

Category:
Routine

Enhancement (Mandatory)

67.1   Description

The test sites for Patch HL*1.6*75 are Bay Pines VAMC, Palo Alto VAMC, and San Francisco VAMC.

67.1.1   Patch Description

Currently if the System Link Monitor displays a client logical link in an Error STATE and you use the HL START option to attempt to start it back up, the option forces you to stop the process before you can re- enable it to continue the communication process.

> **Note**: Entries in the HL LOGICAL LINKS file (#870) that are in an Error STATE can be identified on the System Link Monitor by the word Error in the STATE column.

The following is a screen capture of the HL7 System Link Monitor with a client logical link in an Error STATE.

HL7 System Link Monitor

```
============================================================================
            SYSTEM LINK MONITOR for ISC SALT LAKE CITY (T System)


            MESSAGES   MESSAGES   MESSAGES   MESSAGES   DEVICE
    NODE    RECEIVED   PROCESSED  TO SEND    SENT       TYPE      STATE


    VADAN   38         38         38         38         NC        Error



    Incoming filers running => 1              TaskMan running
    Outgoing filers running => 1              Link Manager running

    Select a Command:
 (N)EXT  (B)ACKUP  (A)LL LINKS  (S)CREENED  (V)IEWS  (Q)UIT  (?) HELP:
============================================================================
```

The following screen capture shows the two steps required to re-enable the client logical link (VADAN) shown in the previous screen capture.

Step 1 (Screen Capture Begins Here)

```
=========================================================================
     Select Communications Server Option:  Start/Stop Links

     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:    VADAN

     The LLP was last started on APR 14, 2000 11:20:58.

     Okay to shut down this job? YES

     The job for the VADAN Lower Level Protocol will be shut down.
 =========================================================================
```

(Screen Capture Ends Here For Step 1)

Step 2 (Screen Capture Begins Here)

```
=========================================================================

     Select Communications Server Option:  Start/Stop Links

     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:    VADAN

     The LLP was last shutdown on APR 17, 2000 13:32:47.
     This LLP has been enabled!
 =========================================================================
```

(Screen Capture Ends Here For Step 2)

Before this patch (Patch HL*1.6*75), using the option Start/Stop Links to re-enable a client logical link in an Error STATE was a two-step process. After this patch has been installed, using the option Start/Stop Links to re-enable a client logical link in an Error STATE will become a one-step process. However, this will only apply to client logical links in which the SHUTDOWN LLP field is set to YES while in an Error STATE. (See the following explanation "Description of What Causes an Error State" for more information on Error States.)

Description of What Causes an Error State
Error STATEs can be related to retransmissions. If the number of retry attempts has been exceeded, an alert is sent and the word Error appears in the STATE column on the System Link Monitor for that client logical link. This relates to the EXCEED RE-TRANSMIT ACTION field (#200.021) in the HL LOGICAL LINKS file. If the EXCEED RE-TRANSMIT ACTION field is set to Restart, the client logical link

quits and the Link Manager queues (restarts) the link. If the EXCEED RE-TRANSMIT ACTION field is set to Shutdown, then the client logical link quits and the Link Manager will not attempt to restart the Link. In this particular case, the SHUTDOWN LLP field (#14) is set to YES in the HL LOGICAL LINKS file.

The other condition in which the value Error gets stuffed in the STATE field (#4) is when the client logical link gets an unexpected error. If the client logical link encounters an error other than the expected errors: OPENERR, NOTOPEN, DEVNOTOPN, WRITE, or READ, it logs the error in the error trap and shuts down the client logical link.

In this case, the SHUTDOWN LLP field is set and the client logical link has to be restarted manually.

This Patch Addresses The Following Issue
E3R #14227, MAKE HL START ALITTLE SMARTER [#31168789]

67.2   Routines

Routine information
The following routine is included in this patch. The second line of the routine now looks like this:

;;1.6;HEALTH LEVEL SEVEN;<patchlist>;Oct 13, 1995

Checksum

Routine	Old		2nd Line
HLCSLNCH	12643769	13101795	**6,19,43,49,57,75**

List of preceding patches: 57

Sites should use CHECK^XTSUMBLD to verify checksums.

Routine Information
Routine Name: HLCSLNCH
Routine Checksum:

67.3   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. DSM SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

3. Use the INSTALL/CHECK MESSAGE option on the PackMan menu. This option will load the KIDS package onto your system.

4. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. To do this, on the KIDS menu under Installation, use the following options:

    - 2 Verify Checksums in Transport Global

    - 3 Print Transport Global

    - 4 Compare Transport Global to Current System

    - 5 Backup a Transport Global

    - 6 Install Package(s)

    - INSTALL NAME: HL*1.6*75

    - Answer NO to the prompt 'Want KIDS to INHIBIT LOGONS during the install?'.

    - Answer NO to the prompt 'Want to DISABLE Scheduled Options, Menu Options'.

5. DSM Sites: Rebuild your mapped set if necessary.

68.0 HL*1.6*82 SEQ #69: Errors in HLL('Links')

Associated patches
(v)HL*1.6*76 must be installed BEFORE `HL*1.6*82'

Category
Routine

68.1   Description

Patch HL*1.6*82

NOIS: ISF-0600-61085

Test Sites: FO-OAKLAND, GRAND JUNCTION VAMC, SAN FRANCISCO VAMC

If you call the APIs GENERATE^HLMA or DIRECT^HLMA, with HLL("LINKS") pre-set, but incorrectly, the API should return an error, but it doesn't. This patch ensures that an error is returned, before any message is created.

If HLL("LINKS") is set in the routing logic or the entry action of a protocol during the APIs GENERATE^HLMA or DIRECT^HLMA, and any of the protocols in HLL("LINKS") is not a subscriber type protocol, the message is created, but an error is returned.

> Note: This patch should be installed during off hours, when activity is at a minimum. It requires HL7 patch HL*1.6*76.

68.1.1   Routines

The second line of the routine now looks like:

 ;;1.6;HEALTH LEVEL SEVEN;**[patch list]**;JUL 17,1995

Name	Checksum Before	Checksum After	Patch List
HLCS2	10270936	10941124	14,40,43,49,57,58,82
HLMA	7962943	9200711	19,43,58,63,66,82
HLMA2	8028267	8331015	19,43,57,58,64,65,76,82

* Checksums produced by CHECK^XTSUMBLD

This patch introduces no new routines.

Routine Information:
Routine Name: HLCS2
Routine Checksum:

Routine Name: HLMA
Routine Checksum:

Routine Name: HLMA2
Routine Checksum:

68.2   Installation

> **Note**: This patch should be installed during off hours, when activity is at a minimum. It requires HL7 patch HL*1.6*76.

1. Users may be on the system during the installation of this patch.

2. DSM Sites: If any of these routines is mapped, disable mapping for the affected routine(s).

3. Shutdown all Logical Links and incoming and outgoing filers, and the Link Manager. Use the options:

    - Filer and Link Management Options ->

    - SA   Stop All Messaging Background Processes

    - LM   TCP/IP Link Manager Start/Stop

4. DSM sites: Disable all HL7 UCX Services for this installation.

5. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu to load the KIDS package into a Transport global on your system.

6. On the KIDS:Installation menu, use the following options to install the Transport Global:
    - 2 Verify Checksums in Transport Global
    - 3 Print Transport Global
    - 4 Compare Transport Global to Current System
    - 5 Backup a Transport Global
    - 6 Install Package(s)
    - Select INSTALL NAME: HL*1.6*82   Loaded from Distribution <date/time>
    - Install Questions for HL*1.6*82

- Want KIDS to INHIBIT LOGONS during the install? YES// NO
- Want to DISABLE Scheduled Options, Menu Options, and Protocols? YES// NO
- Enter the Device you want to print the Install messages.
- You can queue the install by enter a 'Q' at the device prompt.
- Enter a '^' to abort the install.
- DEVICE: HOME// <Do NOT queue it!>

7. Startup all Logical Links and incoming and outgoing filers. Use the Filer and Link Management Options -> RA Restart/Start All Links and Filers (Note: Links which do not have "autostart" enabled will need to be restarted manually)

8. DSM Sites: If you previously disabled an HL7 UCX Service for this installation, you may now enable it.

9. DSM Sites: Rebuild your mapped set if necessary.

10. Start Link Manager using the option: "TCP/IP Link Manager Start/Stop."

69.0 HL*1.6*83 SEQ #70: Delete Subscription Termination Date

Associated patches
(v)HL*1.6*66 must be installed BEFORE `HL*1.6*83'

Category
Routine

69.1   Description

Patch HL*1.6*83

NOIS: ISA-0800-11764

Test Sites: FO-ALBANY, Grand Junction VAMC, San Francisco VAMC

If VistA HL7 is processing an HL7 message, and calls the API UPD^HLSUB to add/update a subscription, and the 5th parameter indicates that the termination date should be deleted, and there's already a subscription with a termination date, it fails to delete the termination date. This patch fixes that.

> **Note**: This patch should be installed during off hours, when activity is at a minimum. It requires HL7 patch HL*1.6*66.

69.2   Routines

The second line of the routine now looks like:

;;1.6;HEALTH LEVEL SEVEN;**[patch list]**;JUL 17,1995

Name	Before Checksum	After Checksum	Patch List
HLSUB	5558527	5395528	14,57,58,59,66,83

* Checksums produced by CHECK^XTSUMBLD

This patch introduces no new routines.

Routine Information:
Routine Name: HLSUB
Routine Checksum:

69.3   Installation

> **Note**: This patch should be installed during off hours, when activity is at a minimum. It requires HL7 patch HL*1.6*66.

1. Users may be on the system during the installation of this patch.

2. DSM Sites: If any of these routines is mapped, disable mapping for the affected routine(s).

3. Shutdown all Logical Links and incoming and outgoing filers, and the Link Manager. Use the options:
    * Filer and Link Management Options ->
    * SA   Stop All Messaging Background Processes
    * LM   TCP/IP Link Manager Start/Stop

4. DSM sites: Disable all HL7 UCX Services for this installation.

5. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu to load the KIDS package into a Transport global on your system.

6. On the KIDS:Installation menu, use the following options to install the Transport Global:
    * 2 Verify Checksums in Transport Global
    * 3 Print Transport Global
    * 4 Compare Transport Global to Current System
    * 5 Backup a Transport Global
    * 6 Install Package(s)
    * Select INSTALL NAME: HL*1.6*83   Loaded   from   Distribution <date/time>
    * Install Questions for HL*1.6*83
    * Want KIDS to INHIBIT LOGONS during the install? YES// NO
    * Want to DISABLE Scheduled Options, Menu Options, and Protocols? YES// NO
    * Enter the Device you want to print the Install messages.
    * You can queue the install by enter a 'Q' at the device prompt.
    * Enter a '^' to abort the install.
    * DEVICE: HOME// <Do NOT queue it!>

7. Startup all Logical Links and incoming and outgoing filers. Use the Filer and Link Management Options -> RA   Restart/Start All Links and Filers (Note: Links which do not have "autostart" enabled will need to be restarted manually)

8. DSM Sites: If you previously disabled an HL7 UCX Service for this installation, you may now enable it.

9. DSM Sites: Rebuild your mapped set if necessary.

10. Start Link Manager using the option: "TCP/IP Link Manager Start/Stop."

70.0 HL*1.6*79 SEQ #71: New HL7/Capacity Management API

Category
Routine

70.1   Description

Test sites:
North Florida/South Georgia HCS (Gainesville/Lake City), MPI, White River, VA Connecticut HCS (West Haven/Newington)

NOIS: None

Builds
This is new software, and no previous KIDS builds are required prior to loading and installing this patch.

Overview
A new application programming interface (API) has been created for calculating the volume of HL7 activity at a site over a user-defined period of time. It has been created for the Capacity Management (CM) team; however, it can be used by sites as well. This new API is $$CM^HLUCM.

The $$CM^HLUCM API calculates the volume of HL7 activity over a period of time. The information collected includes the following:

- Total number characters in the messages.
- Total Number of messages.
- Total time elapsed for transmission of messages.

The $$CM^HLUCM entry point calculates HL7 activity totals as mentioned above. These totals are further subtotaled by:

1. Message Time of Transmission or Receipt. (Time entries are rounded to the hour.)

    - Time data is subtotaled by namespace, and within namespace by protocol.

2. Message Namespace.

- Namespace data is subtotaled by whether the message is incoming or outgoing, and further subtotaled by namespace and numberspace.

- Namespace data is also subtotaled by whether the message originated locally or remotely, and further subtotaled by namespace and numberspace.

3. Message Protocol.

- Protocol data is subtotaled by namespace and protocol.

70.1.1   Syntax

The syntax for the Capacity Management HL7 API is:

$$CM^HLUCM(START,END,NAMESPACE,PROTOCOL,SAVE,CONDITION,ER RORS)

When the $$CM^HLUCM entry point is invoked, it returns a three-piece string of data containing totals from all messages found matching the parameter-defined criteria. The information returned is "Total number of characters ^ Total number of messages ^ Total seconds to transmit and receive messages." When the $$CM^HLUCM API is invoked it also stores these totals in the ^TMP global. In addition to the totals stored in ^TMP, additional subdivisions of the totals (mentioned in the OVERVIEW section), are stored.

70.1.2   Input Parameters

The input parameters used by the $$CM^HLUCM entry point are listed and explained below.

70.1.2.1   **Parameter Explanation**

Start: This is a FileMan date. It sets the beginning point for the time range for the calculation of the HL7 activity totals.

End: This is also a FileMan date. It sets the ending point for the time range for the calculation of HL7 activity totals.

Namespace: This refers to the namespace of a message.   The namespace of a message is determined by the following steps:

- Finding the PROTOCOL file (#101) entry associated with a message.
- Finding the PACKAGE file (#9.4) entry associated with the PROTOCOL file entry.
- Finding the namespace in the PACKAGE file entry.

The NAMESPACE parameter can be passed in several different ways as explained in the "INPUT PARAMETERS: ADDITIONAL DISCUSSION - NAMESPACE" section of this patch description.

Protocol: This is the protocol of a message. The PROTOCOL parameter can be passed in several different ways as explained in the "INPUT PARAMETERS: ADDITIONAL DISCUSSION - PROTOCOL" section.

Save: This parameter is free-text data, and specifies the initial subscript to be used when storing ^TMP data. If $$CM^HLUCM is invoked, and "TYPE" is passed as the value of the SAVE parameter, data will be stored in the ^TMP("TYPE",$J,...) global.

Condition: This parameter can be "EITHER" or "BOTH". CONDITION refers to the namespace and the protocol of a message. If the "EITHER" condition is specified, a message will be counted if "either" of the following conditions is met:

- NAMESPACE parameter is satisfied (this is discussed in length later in this patch description), or the

- PROTOCOL parameter is satisfied.

- If the BOTH condition is specified, a message will be counted only if "both" the NAMESPACE and PROTOCOL parameters are satisfied.

Errors: This parameter must be passed by reference. It specifies the array name location for error information to be stored.

70.1.2.2   Input Parameters: Additional Discussion

The input parameters of the $$CM^HLUCM API were listed in detail in the "INPUT PARAMETERS" section of this patch description. Discussion of these parameters, using the information just provided regarding entry point output as necessary background, will now be resumed.

70.1.2.3   Input Parameters: Additional Discussion - Namespace

There are four different ways to specify namespaces to be included when creating totals. These are:

1. Pass in "1" to specify that all namespaces are to be included, and that subtotals should be created by individual namespace(s). (If you'll refer back to the sample data in "OUTPUT: HR SUBSCRIPT" of this patch description, you can see that each namespace was placed in the ^TMP("TOTALS",$J,"HR",...) global data because a "1" was passed in the namespace parameter.)

2. Pass in "2" to specify that all namespaces are to be included, but no subtotaling by namespaces should be done. Totals should be lumped together. To further explain the results of passing a "2" in the namespace parameter position consider the following example.

When $$CM^HLUCM(3010416,3010416.0005,2,1,"TOTALS","EITHER",.ERR) is called the following data in the NMSP subscript of the ^TMP global was created:

^TMP("TOTALS",549492684,"NMSP") = 290060^805^792

^TMP("TOTALS",549492684,"NMSP","IO") = 290060^805^792

^TMP("TOTALS",549492684,"NMSP","IO","O") = 290060^805^792

^TMP("TOTALS",549492684,"NMSP","IO","O","ZZZ") = 290060^805^792

^TMP("TOTALS",549492684,"NMSP","IO","O","ZZZ","3010416.00") = 290060 ^805^792

^TMP("TOTALS",549492684,"NMSP","IO","O","ZZZ","3010416.00","VAFC ADT-A08-SCHED SERVER~4654") = 383^1^578

^TMP("TOTALS",549492684,"NMSP","IO","O","ZZZ","3010416.00","VAFH A08~4620") = 289677^804^214

^TMP("TOTALS",549492684,"NMSP","LR") = 290060^805^792

^TMP("TOTALS",549492684,"NMSP","LR","L") = 290060^805^792

^TMP("TOTALS",549492684,"NMSP","LR","L","ZZZ") = 290060^805^792

^TMP("TOTALS",549492684,"NMSP","LR","L","ZZZ","3010416.00") = 290060 ^805^792

^TMP("TOTALS",549492684,"NMSP","LR","L","ZZZ","3010416.00","VAFC ADT-A08-SCHED SERVER~4654") = 383^1^578

^TMP("TOTALS",549492684,"NMSP","LR","L","ZZZ","3010416.00","VAFH A08~4620") = 289677^804^214

> **Note:** in the preceding example, no namespaces are specified and that all individual namespaces have been lumped together in the ZZZ "namespace."

To further illustrate the effect when either the namespace or the protocol parameter value of "2" is passed into the API, notice the results below when the protocol value is passed as a "2". (This is getting a little ahead of ourselves, because we are discussing the namespace parameter. However, when a "2" is passed into the API in the protocol parameter position, it has the same effect as when a "2" is passed into the namespace position: data is "lumped" together under "ZZZ" rather than individual namespaces or protocols.).

When $$CM^HLUCM(3010416,3010416.0005,2,2,"TOTALS","EITHER",.ERR) is called the following data in the NMSP subscript was created.

^TMP("TOTALS",549492684,"NMSP") = 290060^805^792

^TMP("TOTALS",549492684,"NMSP","IO") = 290060^805^792

^TMP("TOTALS",549492684,"NMSP","IO","O") = 290060^805^792

^TMP("TOTALS",549492684,"NMSP","IO","O","ZZZ") = 290060^805^792

^TMP("TOTALS",549492684,"NMSP","IO","O","ZZZ","3010416.00")   =
290060^805^792

^TMP("TOTALS",549492684,"NMSP","IO","O","ZZZ","3010416.00","ZZZ")
=290060^805^792

^TMP("TOTALS",549492684,"NMSP","LR") = 290060^805^792

^TMP("TOTALS",549492684,"NMSP","LR","L") = 290060^805^792

^TMP("TOTALS",549492684,"NMSP","LR","L","ZZZ") = 290060^805^792

^TMP("TOTALS",549492684,"NMSP","LR","L","ZZZ","3010416.00")   =
290060^805^792

^TMP("TOTALS",549492684,"NMSP","LR","L","ZZZ","3010416.00","ZZZ")
=290060^805^792

The listing of data in the preceding section, where namespace was passed as "2" and
protocol was passed as "1", contains multiple protocols. This data does not. As an
example, refer to the "LR","L" subscript section of the data from both examples. The
first example "itemizes" the "VAFC ADT-A08-SCHED SERVER~4654" (383
characters, 1 message, 578 seconds) AND "VAFH A08~4620" (289,677 characters,
804 messages, 214 seconds) protocols. In this last example, these protocols have
been lumped together in the ZZZ "protocol" (290,060 characters, 805 messages, 792
seconds.)

There are four different ways to specify namespaces to be included when
$$CM^HLUCM. The first two - passing a "1" or "2" - have already been discussed.
The additional ways of specifying namespaces are explained next.

   3. Pass in "0^namespace" in order to search for one specific namespace. An
example call would be:

$$CM^HLUCM(3010416,3010416.0005,"0^DG",2,"TOTALS","EITHER",.ERR).

   4. Specify namespaces by creating a local variable array and passing in the array by
reference. An example call, using this technique, is shown below. The call is
functionally identical to passing in "0^DG", but this method allows the inclusion of
multiple namespaces.

   >K NAMESPACE

   >S NAMESPACE("DG")=""

>W
$$CM^HLUCM(3010416,3010416.0005,.NAMESPACE,2,"TOTALS","EITHER",.E
RR)

70.1.2.4 INPUT PARAMETERS: ADDITIONAL DISCUSSION - PROTOCOL

There are four different ways to specify protocols to be included when calling
$$CM^HLUCM. These are:

1. Pass in "1" to specify that all protocols are to be included. (See the preceding
   "INPUT PARAMETERS: ADDITIONAL DISCUSSION -NAMESPACE"
   section for additional explanation.)

2. Pass in "2" to specify that all namespaces are to be included, but no subtotaling
   by namespaces should be done. (See the preceding "INPUT PARAMETERS:
   ADDITIONAL DISCUSSION - NAMESPACE" section for additional
   explanation.)

3. Pass in "0^protocol name" or "0^protocol IEN" (i.e., the internal entry number
   (IEN) of the PROTOCOL file entry) in order to search for one specific
   protocol. (See the preceding "INPUT PARAMETERS: ADDITIONAL
   DISCUSSION - NAMESPACE" section for additional explanation.)

4. Specify protocols by creating a local variable array and passing in the array by
   reference. The local array subscripts can be either the protocol name or the
   protocol IEN. (See the preceding "INPUT PARAMETERS: ADDITIONAL
   DISCUSSION - NAMESPACE" section for additional explanation.)

70.1.3 Output

When $$CM^HLUCM is invoked, it returns a three-piece string of data. In addition,
all the messages found in the specified date range matching the NAMESPACE and
PROTOCOL parameter specifications are used to calculate subtotals that are stored in
the ^TMP global.

The following example shows the syntax of this call and the resulting output:

>W $$CM^HLUCM(3010416,3010416.0005,1,1,"TOTALS","EITHER",.ERR)
290060^805^792

> **Note**: Additional information regarding the input parameters - in
> particular, the "1" found in the NAMESPACE and PROTOCOL
> parameter positions - is provided later in this patch description.

Notice in the previous example, the API returned the value "290060^805^792". This
refers to the number characters in all matching messages, the number of messages,
and the total processing time for these messages. To better explain this:

- 805 matching messages were found between 4/16/2001 and 4/16/2001@00:05. (The value 805 is the second piece of data.)

- These 805 messages held 290,060 total characters. (The value 290,060 is the first piece of data.)

- It took a total of 792 seconds to transmit or receive the 805 messages. (The value 792 is the third piece of data.)

In addition to these three pieces of data, this call created other data, stored in the ^TMP global, in which subtotals by various criteria can be found. This data is shown in the following example:

1 ^TMP("TOTALS",$J) = 290060^805^792

----

2 ^TMP("TOTALS",$J,"HR") = 290060^805^792

3 ^TMP("TOTALS",$J,"HR","TM") = 290060^805^792

4 ^TMP("TOTALS",$J,"HR","TM","U") = 290060^805^792

5 ^TMP("TOTALS",$J,"HR","TM","U","3010416.00") = 290060^805^792

6 ^TMP("TOTALS",$J,"HR","TM","U","3010416.00","DG") = 289677^804^214

7 ^TMP("TOTALS",$J,"HR","TM","U","3010416.00","DG","VAFH A08~4620") =

    289677^804^214

8 ^TMP("TOTALS",$J,"HR","TM","U","3010416.00","SD") = 383^1^578

9 ^TMP("TOTALS",$J,"HR","TM","U","3010416.00","SD","VAFC ADT-A08-SC

    HED SERVER~4654") = 383^1^578

----

10 ^TMP("TOTALS",$J,"NMSP") = 290060^805^792

11 ^TMP("TOTALS",$J,"NMSP","IO") = 290060^805^792

12 ^TMP("TOTALS",$J,"NMSP","IO","O") = 290060^805^792

13 ^TMP("TOTALS",$J,"NMSP","IO","O","DG") = 289677^804^214

14 ^TMP("TOTALS",$J,"NMSP","IO","O","DG","3010416.00") = 289677^804^

214

15 ^TMP("TOTALS",$J,"NMSP","IO","O","DG","3010416.00","VAFH A08~

   4620") = 289677^804^214

16 ^TMP("TOTALS",$J,"NMSP","IO","O","SD") = 383^1^578

17 ^TMP("TOTALS",$J,"NMSP","IO","O","SD","3010416.00") = 383^1^578

18   ^TMP("TOTALS",$J,"NMSP","IO","O","SD","3010416.00","VAFC   ADT-A08-

   SCHED SERVER~4654") = 383^1^578

                    ----

19 ^TMP("TOTALS",$J,"NMSP","LR") = 290060^805^792

20 ^TMP("TOTALS",$J,"NMSP","LR","L") = 290060^805^792

21 ^TMP("TOTALS",$J,"NMSP","LR","L","DG") = 289677^804^214

22 ^TMP("TOTALS",$J,"NMSP","LR","L","DG","3010416.00") = 289677^804^

   214

23 ^TMP("TOTALS",$J,"NMSP","LR","L","DG","3010416.00","VAFH A08~

   4620") = 289677^804^214

24 ^TMP("TOTALS",$J,"NMSP","LR","L","SD") = 383^1^578

25 ^TMP("TOTALS",$J,"NMSP","LR","L","SD","3010416.00") = 383^1^578

26   ^TMP("TOTALS",$J,"NMSP","LR","L","SD","3010416.00","VAFC   ADT-A08-

   SCHED SERVER~4654") = 383^1^578

----

27 ^TMP("TOTALS",$J,"PROT") = 290060^805^792

28 ^TMP("TOTALS",$J,"PROT","PR") = 290060^805^792

29 ^TMP("TOTALS",$J,"PROT","PR","P") = 290060^805^792

30   ^TMP("TOTALS",$J,"PROT","PR","P","VAFC   ADT-A08-SCHED
SERVER~4654")

= 383^1^578

31   ^TMP("TOTALS",$J,"PROT","PR","P","VAFC   ADT-A08-SCHED
SERVER~4654"

,"SD") = 383^1^578

32   ^TMP("TOTALS",$J,"PROT","PR","P","VAFC   ADT-A08-SCHED
SERVER~4654"

,"SD","3010416.00") = 383^1^578

33 ^TMP("TOTALS",$J,"PROT","PR","P","VAFH A08~4620") = 289677

^804^214

34 ^TMP("TOTALS",$J,"PROT","PR","P","VAFH A08~4620","DG") = 289677^

804^214

35 ^TMP("TOTALS",$J,"PROT","PR","P","VAFH A08~4620","DG",

"3010416.00") = 289677^804^214

> **Note**: Row numbers have been artificially placed in front of each
> global node to facilitate the discussion of the ^TMP global output.
> Separator lines have also been added to the global data shown
> above for the same reason.

70.1.3.1   Output: HR Subscript

ROW #1 in the global data above holds the grand totals for the call to

$$CM^HLUCM. The data in this row, ^TMP("TOTALS",$J), is the same as the
value returned by the call to the $$CM^HLUCM API.

ROWS #2-9 hold the totals for all messages divided by the time of transmission.
The subscripts found in these rows are explained as follows:

- HR - Initial subscript for time-sorted data. (This is a constant value; it will
  always be "HR".)

- TM - Second subscript for time-sorted data. (This is also a constant value
  subscript. It was added to keep the structure of this global the same as the
  other global sections mentioned below.)

- U - This subscript specifies whether the message totals are from TCP (T), Mailman (M), or Unknown (U) activity. In this example, the data is from "Unknown" activity.

- 3010416.00 - Specifies the time of message transmission rounded to the hour.

- DG,SD - Namespaces of message totals in the above example.

- VAFH A08~4620 & VAFC ADT-A080SCHED SERVER~4654 - PROTOCOL file entries. ("VAFH A08" is the name of entry "4620" in the PROTOCOL file.)

The following is a detailed explanation of ROWS 2# through #9. The structure of this global is identical to that found in the "OUTPUT: NMSP SUBSCRIPT" and "OUTPUT: PROT SUBSCRIPT" sections of this patch description. (These sections can be found later in this document.) So, the comments about structure made next are applicable to all sections of the ^TMP("TOTALS",$J) global.

ROW #2 holds the grand total for all entries in the ^TMP("TOTALS",$J,"HR") section. The totals of this node will always equal the grand total in the ^TMP("TOTALS",$J) node (i.e., ROW #1).

ROW #4 holds the subtotals for all messages transmitted or received during the first hour of 4/1/2001 with a designation of "U" meaning "UNKNOWN."

ROW #5 holds the subtotals for all messages transmitted during the first hour of 4/1/2001 (i.e., 3010416.00). For the sake of brevity in this documentation, the total of this row equals the total of ROW #2, because only one hour was included in this example. If instead of one hour, multiple hours had been included, there would be multiple subtotal nodes for each hour, and the sum of these subtotals would equal ROW #2. This can be seen more clearly in the next section of this patch description "OUTPUT: NMSP SUBSCRIPT".

ROW #6 holds the subtotals for all messages with the "DG" namespace:

289677 characters in 804 messages that were transmitted or received in 214 total seconds.

ROW #7 holds the subtotals for all messages with the "DG" namespace, for protocol "VAFH A08~4620".

ROW #8 holds the subtotals for all messages with the "SD" namespace.

ROW #9 holds the subtotals for all messages with the "SD" namespace, for protocol "VAFC ADT-A08-SCHED SERVER~4654".

> **Note:** the totals of ROW #6 (289,677 characters, 804 messages, 214 seconds) and ROW #8 (383 characters, 1 message, 578 seconds) equal the grand totals (290,060 characters, 805 messages, 792 seconds) returned for this section.

70.1.3.2   Output: NMSP Subscript

Refer to ROWS 10-26, the "NMSP", or namespace, section in the ^TMP("TOTALS",$J) global. The subscripts in this section are explained as follows:

NMSP - Initial subscript for namespace data.

   IO - There are two subdivisions within this section:

      1. Incoming (I)/Outgoing (O)/Unknown (U).

      2. Local (L)/Remote (R)/Unknown (U).

      This IO subscript holds the Incoming/Outgoing subtotals.

   LR - The LR subscript holds the Local/Remote subtotals.

The other subscripts in this section that are not mentioned are individual namespaces and protocols.

70.1.3.3 OUTPUT: PROT SUBSCRIPT

Refer to ROWS 27-35, the subscripts in the protocol-related section of the ^ "TOTALS",$J) global are explained as follows:

PR - There are no variable subsections in this sections (similar to the Local/Remote and the Incoming/Outgoing subtotals found in the previous section "OUTPUT: NMSP SUBSCRIPT.") This means that the PR subscript will never change. (It was added to keep the data structure compatible with all other sections.)

P - This variable also is a placeholder like PR, and will not change.

The other subscripts in this section that are not specifically mentioned are individual namespaces and protocols.

70.1.4   API RULES OF OPERATION

There are several rules that are followed by the software when collecting data. These rules are explained in detail on the following pages of this patch description.

70.1.4.1 API Rules Of Operation: Either Condition

These rules are followed by the software when the "EITHER" CONDITION input parameter is specified:

1. If an explicit namespace(s) and a protocol(s) is specified, all entries will be counted where the namespace or the protocol matches. Both namespace(s) and protocol(s) do not need to match. (For example, if the "0^DG" namespace and the "0^4625" protocol are passed, all entries for the "DG" namespace will be counted no matter what the associated protocol is. And, all messages associated with the PROTOCOL file entry 4625 will be counted no matter what the associated namespace.)

2. If an explicit namespace(s) is specified, and if the protocol is "all" - specified by passing "1" or "2" - all "DG" entries, but only "DG" entries will be counted no matter what the associated protocol. (This is a slightly different than rule #1 above, and will usually return smaller totals. Rule #2 is a way to ask for "all DGs, but DGs only", where rule #1 is a way to ask for "all DGs AND all 4625s".)

> **Note**: If all namespaces are specified, and a specific protocol(s) specified, (which is the opposite of the rule #2 example), the same logic is used. (If all namespaces are requested by passing a "1" or a "2", and the protocol specified is "0^4625", only PROTOCOL file entry 4625 will be included.)

3. If all namespaces and all protocols are specified, every message found will be included. If the namespace of an entry cannot be determined it will be arbitrarily counted under the ZZZ "namespace." If the associated protocol of a message cannot be determined, it will be similarly counted under the ZZZ "protocol." This ensures that all entries, even those with missing namespaces and protocols are counted.

70.1.4.2 API RULES OF OPERATION: BOTH CONDITION

These rules are followed when the "BOTH" CONDITION parameter is specified:

1. If an explicit namespace(s) and protocol(s) is specified, entries will be counted only when the entry's namespace and protocol both match. (For example, if the "0^DG" namespace and the "0^4625" protocol are passed, entries will be counted when the message is associated with the "DG" namespace, and the message's associated protocol is PROTOCOL file entry 4625.)

2. The BOTH condition requires that the namespace(s) and the protocol(s) be specified. Under no circumstances can either namespace or protocol be specified "all."

70.1.4.3 API RULES OF OPERATION: DEFAULTS

Some input parameters are required, while others are not. Default values are usually assigned to those parameters that are not required if they are not explicitly passed into the entry point. This is explained in the table below.

PARAMETER   REQUIRED   DEFAULT   COMMENTS

START   YES

END   YES

NAMESPACE   NO   1   "All", with subtotals

PROTOCOL   NO   1   "All", with subtotals

SAVE   NO   "TOTALS"   If not passed data will be stored in ^TMP("TOTALS",$J,...)

CONDITION   NO   "EITHER"

ERRORS   NO   If "ERRORS" is not passed by reference, no error information   will be returned

70.2   Error Messages

Checks are made of the validity of the parameters passed into the $$CM^HLUCM entry point before any processing occurs. If the parameters are not correct, processing aborts immediately, and the reasons for failure are returned in the ERRORS("failure reason") local array.

All possible failure reasons are listed below:

- BOTH NAMESPACES(S) AND PROTOCOL(S) MUST BE PASSED SPECIFICALLY

- CAN'T FIND PROTOCOL

- INVALID END TIME

- INVALID NAMESPACE PARAMETER

- INVALID PROTOCOL PARAMETER

- INVALID START TIME

70.3   Helpful Tips

It is recommended that users of the $$CM^HLUCM entry point experiment on a small time period until they are comfortable with the entry point, and understand how to pass parameter values properly. After every call to $$CM^HLUCM, examine the

resulting ^TMP global data. Compare the ^TMP global data created by calls with differing parameters.

The $$CM^HLUCM entry point does not record the internal entry numbers (IENs) of the messages found in the HL7 MESSAGE TEXT file (#772) and the HL7 MESSAGE ADMINISTRATION file (#773). However, users of this entry point may make use of a developer debugging "backdoor" to capture these internal entry numbers for examination. To do so, follow these steps:

1. Set ^TMP($J,"HLUCM")="DEBUG GLOBAL".

2. Call $$CM^HLUCM in the normal manner to find all matching messages.

When this is done, the following occurs:

- File #772 and #773 entries, including internal entry numbers, are stored in ^TMP($J,"HLUCMSTORE","E").

- ^TMP($J,"HLUCM") is killed after $$CM^HLUCM execution is complete. (It must be reset each time before calling $$CM^HLUCM.)

Debugging data is stored in ^TMP($J,"HLUCMSTORE","E") after $$CM^HLUCM processing completes, as shown below:

^TMP($J,"HLUCMSTORE","E",27244211,772,"IO","O")=""

^TMP($J,"HLUCMSTORE","E",27244211,772,"LR","L")=""

^TMP($J,"HLUCMSTORE","E",27244211,772,"TM","U")=""

^TMP($J,"HLUCMSTORE","E",27244211,773,2483957)=""

In the preceding example, 27244211 is File #772's IEN. 2483957 is file #773's IEN. File #773's entry 2483957 is linked with File #772 entry 27244211. The "IO", "LR", etc., subscripts are identical to the subscripts used in ^TMP(SAVE,$J) data.

> **Warning:** Use of this developer "backdoor" creates a large amount of information. Use this technique only for small periods of time.

70.4   Routines

The VA Kernel checksums for the routines included in this patch (calculated using CHECK^XTSUMBLD) are listed below.

Checksums

Routine Name	Before Patch	After Patch	Patch List

Routine Name	Before Patch	After Patch	Patch List
HLUCM	----	8711789	79
HLUCM001	----	6749680	79
HLUCM002	----	4284229	79

Sites should use CHECK^XTSUMBLD to verify checksums after patch installation.

70.5   Installation Instructions

1. Users are allowed to be on the system during the installation. No actions need to be taken relative to links and filers.

2. Use the INSTALL/CHECK MESSAGE option on the PackMan menu to load the HL*1.6*79 KIDS package onto your system. This loads the patch into a transport global on your system.

3. Use KIDS to install the Transport global. To do this, use the 'Installation [XPD INSTALLATION MENU]' menu. You should use each of the following 'Installation' menu options in the order shown below. Options 2-5 perform necessary preparatory work prior to the actual installation of the software on your system. Using the 'Install Package(s)' menu option is the final step, and installs the software.

   - Verify Checksums in Transport Global
   - Print Transport Global
   - Compare Transport Global to Current System
   - Backup a Transport Global
   - Install Package(s)
   - When using the 'Install Package(s)' menu option to install the patch build, you will be asked several questions. The questions asked, and the answers you should supply, are shown below.
   - INSTALL NAME: <HL*1.6*79>
   - Want KIDS to INHIBIT LOGONS during the install? <NO>
   - Want to DISABLE Scheduled Options, Menu Options, and Protocols? <NO>

4. After completion of the steps listed above the routines HLUCM, HLUCM001, and HLUCM002 will have been installed as working routines on your system.

71.0HL*1.6*62 SEQ #72: Reduce calls to Kernel API

Associated patches
(v)HL*1.6*28 must be installed BEFORE `HL*1.6*62'
(v)HL*1.6*34 must be installed BEFORE `HL*1.6*62'
(v)HL*1.6*47 must be installed BEFORE `HL*1.6*62'

Category
Routine
Data Dictionary
Other

71.1   Description

Patch HL*1.6*62

NOIS: LAS-0100-61912, GRJ-0400-51133, HIN-0501-42418, NJH-0601-21196

Test Sites: Grand Junction, CO; San Francisco, CA

This patch increases the amount of time between checks to see if the filers have been asked to stop. In most cases, the check is performed at most once a minute.

For serial connections, this patch also improves the efficiency of the inbound filers. A whole file cross reference has been added to message STATUS field of the IN QUEUE multiple of the HL LOGICAL LINK FILE, #870. The inbound filers can now go directly to the logical links which have inbound messages pending, instead of constantly checking each logical link to see if any messages are pending.

The post-init for this patch will go through file 870 and fire the new xref.

Here is the updated field with its new xref:

```
* ** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
STANDARD DATA DICTIONARY #870.019 -- IN QUEUE SUB-FILE
STORED IN ^HLCS(870,
DATA          NAME                    GLOBAL        DATA
ELEMENT       TITLE                   LOCATION      TYPE
-----------------------------------------------------------------
870.019,1   STATUS                     0;2 SET
                            'P' FOR PENDING;
                            'D' FOR DONE PROCESSING;
                            'S' FOR STUB RECORD;
          LAST EDITED:    MAY 08, 2000
          HELP-PROMPT:    This is the status of an individual message in
                          the queue. These statuses control the flow and
                          processing of the message.
          DESCRIPTION:    Status of a particular message. Can be Stub,
                          Pending, or Done.  These statuses control the
                          processing of a message. For example, a stub
                          record is created when a message is enqueued,
                          and cannot be processed until its status is
                          changed from 'stub' to 'pending'.  Changing
                          this status is the last thing the Low Layer
                          Protocol does after reading in a message.
                          Finally, once the message has been processed,
                          its status is changed to 'done'.
          CROSS-REFERENCE:  870^AISTAT
                          1)= S ^HLCS(870,"AISTAT",$E(X,1,30),DA(1),DA)=""
                            2)= K ^HLCS(870,"AISTAT",$E(X,1,30),DA(1),DA)
                          Used to quickly identify links with messages
                          in any status, thus improving performance.
* * ** * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
```

The option, HL PURGE TRANSMISSIONS, is updated to improve the description and to set the SCHEDULING RECOMMENDED field to YES.

Here's the updated option:

```
 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
 NAME: HL PURGE TRANSMISSIONS            MENU TEXT: Purge Messages
 TYPE: run routine                       CREATOR: DIMICELI,RON
 PACKAGE: HEALTH LEVEL SEVEN
 DESCRIPTION:   This option purges entries from the HL7 message files:
  773 - HL7 MESSAGE ADMINISTRATION
  772 - HL7 MESSAGE TEXT

These files contain a record of all outgoing HL7 transmissions and their
status.  Messages are purged if they are in a certain status and are acertain
number of days old.  The default parameters (number of days) are taken from
fields in file 869.3, HL COMMUNICATION SERVER PARAMETERS.  The fields should
be set such that a balance is struck between the need to
 keep disk space from filling up and the need to keep messages around long
enough so that they can be investigated in case problems arise.  Please see
the descriptions of these fields for more information:
    41 - PURGE COMPLETED MESSAGES
    42 - PURGE AWAITING ACK MESSAGES
    43 - PURGE ALL MESSAGES

Note: That the number of days in field 43 must be greater than or equal to
the number of days in field 42, which must be greater than or equal to the
number of days in field 41.  If any of the fields violates this rule, then
the default values of these fields will be used, instead.
To purge entries in an error status, run this option directly and answer
'Yes' to the question about purging them.  It is recommended that entries in
an error status be reviewed before purging.  For this reason, such messages
are NOT purged by automatically recurring scheduled runs of this option.

It is recommended that this option be scheduled to run once a day to keep the
files from getting too large.  On TaskMan's 'Edit Option Schedule', the TASK
PARAMETERS field is ignored.  Instead, the parameters are taken from the
fields in file 869.3, noted above.
ROUTINE: PURGE^HLUOPT1                    TIMESTAMP: 55644,54515
 SCHEDULING RECOMMENDED: YES              UPPERCASE MENU TEXT: PURGE MESSAGES
  * * * * * * * * * * * * * * * * *  * * * * * * * * * * * * * * * * *
```

> **Note**: This patch should be installed during off hours, when activity is at a minimum. It requires HL7 patches HL*1.6*28, *34, & *47.

71.2   Routines

The second line of the routine now looks like:

;;1.6;HEALTH LEVEL SEVEN;**[patch list]**;JUL 17,1995

Name	Before Checksum	After Checksum	Patch List
HLCSDR1	10571563	8554313	2,22,27,30,34,62

Name	Before Checksum	After Checksum	Patch List
HLCSDR2	5218053	4813200	2,9,62
HLCSIN	2517664	4825867	2,30,14,19,62
HLCSOUT	4118513	4765416	25,30,62
HLCSUTL2	2181860	2309661	18,28,62
HLPAT62	*NEW*	236063	62
HLUOPT1	13112533	12526225	10,13,21,36,19,47, 62

 * Checksums prodced by CHECK^XTSUMBLD

This patch introduces the following new routine:

HLPAT62 - post-init for this patch has no user-callable entry points

Routine Information:
Routine Name: HLCSDR1
Routine Checksum:

Routine Name: HLCSDR2
Routine Checksum:

Routine Name: HLCSIN
Routine Checksum:

Routine Name: HLCSOUT
Routine Checksum:

Routine Name: HLCSUTL2
Routine Checksum:

Routine Name: HLUOPT1
Routine Checksum:

Routine Name: HLPAT62
Routine Checksum:

71.3   Installation

> **Note**: This patch should be installed during off hours, when activity is at a minimum. It requires HL7 patches HL*1.6*28, *34, & *47.

1. Users may be on the system during the installation of this patch.

2. DSM Sites: If any of these routines is mapped, disable mapping for the affected routine(s).

3. Shutdown all Logical Links and incoming and outgoing filers, and the Link Manager. Use the options:
    - Filer and Link Management Options ->
    - SA   Stop All Messaging Background Processes
    - LM   TCP/IP Link Manager Start/Stop

4. DSM sites: Disable all HL7 UCX Services for this installation.

5. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu to load the KIDS package into a Transport global on your system.

6. On the KIDS Installation menu, use the following options to install the Transport Global:
    1. 2 Verify Checksums in Transport Global
    2. 3 Print Transport Global
    3. 4 Compare Transport Global to Current System
    4. 5 Backup a Transport Global
    5. 6 Install Package(s)
    6. Select INSTALL NAME: HL*1.6*62   Loaded from Distribution <date/time>
    7. Install Questions for HL*1.6*62
    8. Want KIDS to Rebuild Menu Trees Upon Completion of Install? YES// YES
    9. Want KIDS to INHIBIT LOGONS during the install? YES// NO
    10. Want to DISABLE Scheduled Options, Menu Options, and Protocols? YES// NO
    11. Enter the Device you want to print the Install messages.
    12. You can queue the install by enter a 'Q' at the device prompt.
    13. Enter a '^' to abort the install.
    14. DEVICE: HOME// <Do NOT queue it!>

7. Startup all Logical Links and incoming and outgoing filers. Use the Filer and Link Management Options -> RA Restart/Start All Links and Filers (Note: Links which do not have "autostart" enabled will need to be restarted manually)

8. DSM Sites: If you previously disabled an HL7 UCX Service for this installation, you may now enable it.

9. DSM Sites: Rebuild your mapped set if necessary.

10. Start Link Manager using the option: "TCP/IP Link Manager Start/Stop."

72.0 HL*1.6*78 SEQ #73: Batch Trailer Segment Has Hard-Coded Field Separator

Associated patches
(v)HL*1.6*19   <<= must be installed BEFORE `HL*1.6*78'

Category
Routine

72.1   Description

Test Sites: San Francisco VAMC, Bay Pines VAMC, Nashville VAMC

NOIS: ISH-0701-40476, Incorrect field separator in BTS segment

Note: This patch requires that KIDS build HL*1.6*19 be installed.

NOIS call ISH-0701-40476 reported the existence of the Circumflex character (^) hard-coded as the field separator in the BTS segment when creating HL7 batch messages. A mismatch in field separator characters will occur in a message if a VistA application specifies a field separator character other than the Circumflex.

This patch removes the dependency on hard-coded field separator characters in VistA HL7. This change will accommodate VistA applications that use field separator characters other than the Circumflex, ensuring that batch messages will have the same field separator character in all their segments.

72.2   Routines

The following routine is included in this patch. The second line of the routine now looks like this:

   ;;1.6;HEALTH LEVEL SEVEN;<PATCHLIST>; Oct 13, 1995.

The VA Kernel checksums for this routine (calculated using CHECK^XTSUMBLD) are listed below:

Checksums

Routine	Before Patch	After Patch	Patch List
HLTF1	9479987	9693677	**5,8,22,25,19,78**

Sites should use CHECK^XTSUMBLD to verify checksums after the patch has been installed.

Routine Information
Routine Name: HLTF1
Routine Checksum:

72.3   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. AXP/DSM SITES: Review your mapped routine set. If any of the routines listed in the ROUTINE SUMMARY section are mapped, they should be removed from the mapped set at this time.

3. Shutdown all Logical Links, incoming and outgoing filers, and the Link Manager using the Filer and Link Management options listed below:

   - Stop All Messaging Background Processes [HL STOP ALL]

   - TCP Link Manager Start/Stop [HL START/STOP LINK MANAGER]

   - AXP/DSM SITES ONLY: Disable all HL7 UCX Services for this installation.

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. This patch is now loaded into a transport global on your system. The next step is to use KIDS to install the Transport global. To do this, use the 'Installation [XPD INSTALLATION MENU]' menu. You should use each of the following 'Installation' menu options in the order shown below:

   - Verify Checksums in Transport Global

   - Print Transport Global

   - Compare Transport Global to Current System

   - Backup a Transport Global

   - Install Package(s)

6. When using the 'Install Package(s)' menu option to install the patch build, you will be asked several questions. The questions asked, and the answers you should supply, are shown below.

   - INSTALL NAME: <HL*1.6*78>

   - Want KIDS to INHIBIT LOGONS during the install? <NO>

- Want to DISABLE Scheduled Options, Menu Options, and Protocols? <NO>

7. Start up all Logical Links and incoming and outgoing filers using the Filer and Link Management Option's 'Restart/Start All Links and Filers [HL TASK RESTART]' menu option. (Note that links that do not have "autostart" enabled will need to be restarted manually.) AXP/DSM SITES ONLY: If you previously disabled an HL7 UCX Servicefor this installation, you may enable it now.

8. AXP/DSM Sites: After the patch has been installed, rebuild your map set, if necessary.

9. Start Link Manager using the 'TCP Link Manager Start/Stop [HL START/STOP LINK MANAGER]' menu option.

73.0 HL*1.6*71   SEQ   #74:   Corrupt   HL7   Message Headers

Associated patches
(v)HL*1.6*64   <<= must be installed BEFORE `HL*1.6*71'

Category
Routine

73.1   Description

Test sites: Bay Pines, Grand Junction, Sheridan, Tampa, Milwaukee, and Iron Mountain

Patch HL*1.6*71 addresses the following NOIS:
- ISH-1100-40056 mpi/pd: commit ack issue, 'MSH' multiple corruption
- MAC-0101-61601 corrupted MSH multiple (773)
- ISA-1101-11782   HL7 MESSAGE TRUNCATED ON REMOTE USER LOGGING

Patch HL*1.6*71 fixes the corruption of the MSH Header where the MSH segment is received a second time after the body of the HL7 message has been received. What occurs is that the current VistA HL7 TCP/IP code attempts to reset itself when incomplete data is received. This usually happens when a timeout has expired and the complete MSH segment has not been received. When this happens, VistA HL7 drops original MSH Header. The original body of the message is now left without the header. Next, the sender of the original message resends a repeat of the original MSH Header and the body again. The outcome is shown below:

1. Message body.

2. Message (MSH) header.

3. Message body.

VistA HL7 now read 1) the Message body and 2) the Message Header as the original message header itself.

After the installation of this patch (HL*1.6*71), VistA HL7 listeners will no longer attempt to reset after timeouts have occurred, once a start block has been received.

This patch also fixes the problem where VistA HL7 will attempt to processan incomplete message.   These incomplete messages are the result of a timeout occurring before the end-block character (<EB>) is reached while reading inbound data. Also, network performance issues may contribute to the occurrence of Read

timeouts. Furthermore, large inbound messages (100 lines or more) with relatively short Read timeouts on the receiving side can also increase the likelihood of receiving incomplete messages. This patch will discard all incomplete messages as if no data had been received. At which point, the sender of the HL7 message needs to resend the message again to ensure guaranteed delivery.

73.2   Routines

The following routines are included in this patch. The second line of each of these routines now looks like:

;;1.6;HEALTH LEVEL SEVEN;<patchlist>;JUL 17,1995

Checksum

Routine	Old	New	2nd Line
HLCSTCP1	5081718	5982461	**19,43,57,64,71**

List of preceding patches: 64

Sites should use CHECK^XTSUMBLD to verify checksums.

Routine Information
Routine Name: HLCSTCP1
Routine Checksum:

73.3   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. DSM SITES: Review your mapped set. If any of the routines listed in the Routine Summary section are mapped, they should be removed from the mapped set at this time.

3. Shutdown all Logical Links and incoming and outgoing filers, and the Link Manager. Use the options:
    - Filer and Link Management Options ->
    - SA   Stop All Messaging Background Processes
    - LM   TCP/IP Link Manager Start/Stop
    - For DSM sites ONLY, disabled all HL7 UCX Services for this installation.

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the Transport global. On the KIDS menu, under the 'Installation' menu, use the following options:

- 2 Verify Checksums in Transport Global

- 3 Print Transport Global

- 4 Compare Transport Global to Current System

- 5 Backup a Transport Global

- 6 Install Package(s)
  - INSTALL NAME: HL*1.6*71

- Answer 'NO' to 'Want KIDS to INHIBIT LOGONS during the install?'.

- Answer 'NO' to 'Want to DISABLE Scheduled Options, Menu Options, and Protocols?'.

6. Startup all Logical Links and incoming and outgoing filers. Use the Filer and Link Management Options -> RA   Restart/Start All Links and Filers (Note that links that do not have "autostart" enabled will need to be restarted manually) For DSM sites ONLY, if you previously disabled an HL7 UCX Service for this installation, you may now enable it.

7. DSM Sites: Rebuild your mapped set if necessary.

8. Start Link Manager using the option: "TCP/IP Link Manager Start/Stop."

74.0 HL*1.6*89 SEQ #75: MPI Direct Connect Undefined Error

Category:
Routine

74.1   Description

Test sites
MPI

NOIS
ISF-0102-62265

Note: This patch requires that KIDS build HL*1.6*43 be installed.

The Master Patient Index (MPI) system sometimes experiences an undefined error at MPIDIRQ+5^MPIDIRQ.   The undefined variable is the local variable TMP("HCSI",$J,1). Inadequate coding in the Health Level Seven (HL7) package's direct connect software is the cause of this problem. Patch HL*1.6*89 fixes this undefined error condition.

The routine HLCSAS is included in this patch. The first and second lines of this routine are shown below.

HLCSAS ;ISCSF/RWF - MPI direct connect server ;02/19/99 11:44

 ;;1.6;HEALTH LEVEL SEVEN;**43,89**;Jul 17,1995

74.2   Routines

The VA Kernel checksum for the routine included in this patch (calculated using CHECK^XTSUMBLD) is listed below.

Checksums

Routine Name	Before Patch	After Patch	Patch List
HLCSAS	2943880	3066068	43,89

Sites should use CHECK^XTSUMBLD to verify checksums after patch installation.

Routine Information
Routine Name: HLCSAS
Routine Checksum:

74.3   Installation Instructions

> **Notice**:   Do not proceed unless patch HL*1.6*43 has been installed.

1. Users are allowed to be on the system during the installation.

2. AXP/DSM SITES: Review your mapped routine set. If the routine listed in the ROUTINE SUMMARY section is mapped, it should be removed from the mapped set at this time.

3. Shutdown all Logical Links, incoming and outgoing filers, and the Link Manager using the Filer and Link Management options listed below.

    - Stop All Messaging Background Processes [HL STOP ALL]

    - TCP/IP Link Manager Start/Stop [HL START/STOP LINK MANAGER]

    - AXP/DSM SITES ONLY: Disable all HL7 UCX Services for this installation.

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. This patch is now loaded into a transport global on your system. The next step is to use KIDS to install the Transport global. This is done using the 'Installation' menu's 'Install Package(s) [XPD INSTALL BUILD]' menu option. When using this menu option to install the patch build, you will be asked several questions. The questions, and the answers you should supply, are shown below.

    - INSTALL NAME: <HL*1.6*89>

    - Want KIDS to INHIBIT LOGONS during the install? <NO>

    - Want to DISABLE Scheduled Options, Menu Options, and Protocols? <NO>

6. Start up all Logical Links and incoming and outgoing filers using the Filer and Link Management Option's 'Restart/Start All Links and Filers [HL TASK RESTART]' menu option. (Note that links that do not have "autostart" enabled will need to be restarted manually.)

    - AXP/DSM SITES ONLY: If you previously disabled an HL7 UCX Service for this installation, you may enable it now.

7. AXP/DSM Sites: After the patch has been installed, rebuild your map set, if necessary.

8. Start Link Manager using the 'TCP/IP Link Manager Start/Stop [HL START/STOP LINK MANAGER]' menu option.

75.0 HL*1.6*92 SEQ #76: Add Logical Link for FHIE

Category
Enhancement ()

75.1   Description

The purpose of this patch is to export the VAFHIE entry in the HL LOGICAL LINK (#870) file. The VAFHIE node is distributed with data in the following fields:

- NODE: VAFHIE
- INSTITUTION: AUSTIN
- LLP TYPE: TCP
- DOMAIN: FHIE.MED.VA.GOV
- EXCEED RE-TRANSMIT ACTION: restart
- ACK TIMEOUT: 240
- TCP/IP ADDRESS: 10.224.50.0
- TCP/IP PORT: 5000
- TCP/IP SERVICE TYPE: CLIENT (SENDER)

The Federal Heath Information Exchange (FHIE) will require this enhancement for viewing data from facilities outside the Veteran's Health Administration (VHA). Patch HL*1.6*92 is distributed as an EMERGENCY patch because it needs to be in place at all facilities to enable FHIE to begin data transmissions by April 25, 2002.

Instructions in patch XM*999*148 must be followed prior to installing patch HL*1.6*92. XM*999*148 is an informational patch with directions for creating the FHIE.MED.VA.GOV domain.

Test Sites
El Paso VAMC

San Francisco VAMC

Puget Sound HCS

Washington VAMC

Routine Summary
The following is a list of the routine(s) included in this patch. The second line of each of these routine(s) will look like:

 ;;1.6;HEALTH LEVEL SEVEN;**[Patch List]**;JUL 17, 1995

CHECK^XTSUMBLD results:

Routine	Before Patch	After Patch
HLP92	N/A	7643045
HLP92ENV	N/A	1183086

Routine Information
Routine Name: HLP92
Routine Checksum:

Routine Name: HLP92ENV
Routine Checksum:

Environment Check Routine HLP92ENV
The environment check routine, HLP92ENV, checks to see if patch XM*999*148 is in place. It does this by checking for the existence of the FHIE.MED.VA.GOV entry in the DOMAIN (#4.2) file. If theentry is not found, the routine aborts with the following message:

```
"No DOMAIN (#4.2) file entry was found for FHIE.MED.VA.GOV.
Follow the instructions in VA MailMan patch XM*999*148 to create
this new entry in the DOMAIN (#4.2) file.  After the new DOMAIN
has been created, re-install patch HL*1.6*92."
```

Pre-Install Routine PRE^HLP92
The pre-install routine, PRE^HLP92, looks for the AUSTIN (Station Number 200) entry in the INSTITUTION (#4) file. If the entry is present, the pre-install is done. If the entry does not exist, it is created. This entry is pointed to from the HL LOGICAL LINK (#870) file by the VAFHIE entry distributed in this patch.

Post-Install Routine PST^HLP92
The post-install routine, PST^HLP92, sets the AUTOSTART (#4.5) field to Enabled for the VAFHIE entry in the HL LOGICAL LINK (#870) file. Then, it examines the system to determine if it is the production or test account. If it is the production account, the post-install is finished. If it is a test account, the TCP/IP ADDRESS (#400.01) and DOMAIN (#.03) fields for the VAFHIE entry in the HL LOGICAL LINK (#870) file are removed to ensure that messaging does not occur from a test account.

When Installing in Test Account
Before installing this patch in your test account, confirm that the default processing ID (#.03) field in the HL communication server parameters (#869.3) file is set up properly according to the instructions for the creation of a mirror account. In programmer mode, enter the following command.

```
>W $$PARAM^HLCS2
45^FO-SLC.MED.VA.GOV^T^51^ISC SALT LAKE CITY^^3^HL7^25^30^85^30
```

If the third piece of the returned data is NOT "T", then the steps for mirroring a test account should be reviewed and updated.

75.2   Installation Instructions

This patch may be loaded with users on the system. You may wish to install it during non-peak hours. Installation will take less than 3 minutes.

1. Use the INSTALL/CHECK MESSAGE option on the Packman menu. [Note: TEXT PRINT/DISPLAY option in the PackMan menu will display the patch text only.]

2. The routines for this patch are new and can be deleted after installation; therefore routine mapping is not an issue for this patch.

3. From the Kernel Installation and Distribution System Menu, select the Installation menu.

4. From this menu, you may elect to use the following options (when prompted for the INSTALL NAME, enter HL*1.6*92).

    a. Backup a Transport Global - this option will create a backup message of any routines exported with the patch. It will NOT backup any other changes such as DDs or templates.

    b. Compare Transport Global to Current System - this option will allow you to view all changes that will be made when the patch is installed. It compares all components of the patch (routines, DDs, templates, etc.).

    c. Verify Checksums in Transport Global - this option will allow you to ensure the integrity of the routines that are in the transport global.

    d. Print Transport Global - this option will allow you to view the components of the KIDS build.

5. Use the Install Package(s) option and select the package HL*1.6*92.

6. When prompted 'Want KIDS to INHIBIT LOGONs during the install? YES//', respond NO.

7. When prompted 'Want to DISABLE Scheduled Options, Menu Options, and Protocols? YES//', respond NO.

8. Routines HLP92ENV and HLP92 can be deleted from your system after successful installation of this patch.

76.0 HL*1.6*91 SEQ #77: New Namespace Field in HL7 Message Text File

Category
Routine
Data Dictionary

76.1   Description

Test sites
Greater Los Angeles Regional Healthcare (West Los Angeles), Grand Junction, Sheridan

NOIS
None

> **Note**: This patch requires that KIDS builds HL*1.6*47, HL*1.6*57, HL*1.6*59, and HL*1.6*82 be installed.

OVERVIEW
The Health Level 7 (HL7) messages sent and received by sites are being increasingly studied for workflow patterns and totals. This evaluation of HL7 data by clients of the HL7 package has resulted in the request for HL7 totals subdivided by the namespace of the message's originating package. Unfortunately, the namespace of a message is not always determinable.

This patch provides a method for HL7 clients to pass their namespace into the HL7 APIs that create messages or acknowledgements. When this is done, the provided namespace will be stored with the message, enabling subsequent totaling by namespace. Additional details of this patch are provided next.

DETAILS
There are three supported HL7 APIs by which HL7 messages are created:

- GENERATE^HLMA(HLEID,HLARYTYP,HLFORMAT,.HLRESLT,HLMTIEN,.HLP)

- GENACK^HLMA1(HLEID,HLMTIENS,HLEIDS,HLARYTYP,HLFORMAT,.HLRESLTA,HLMTIENA,.HLP)

- DIRECT^HLMA(HLEID,HLARYTYP,HLFORMAT,.HLRESLT,HLMTIEN,.HLP)

In all three APIs, the last parameter HLP is passed by reference. Prior to calling these APIs, the client package may set HLP array elements andthen pass these by reference into the API. An example call using the HLP array is shown below.

- <tab>S HLP("SECURITY")=1214315

- <tab>D GENERATE^HLMA(HLEID,HLARYTYP,HLFORMAT,.HLRESLT,HLMTIEN,.HLP)

These APIs, including the HLP pass-by-reference array, are documented in section 12.1.2, 12.1.3, and 12.1.4 of the VistA HL7 Site Manager & Developer Manual.

After patch HL*1.6*91 is installed, an additional HLP array element may be defined before calling these APIs by which the namespace of the client process can be made known to the API code. This additional HLP array element is HLP("NAMESPACE"). An example call using this new array element is shown below.

- <tab>S HLP("NAMESPACE")="DG"

- <tab>S HLP("SECURITY")=1214315

- <tab>D GENERATE^HLMA(HLEID,HLARYTYP,HLFORMAT,.HLRESLT,HLMTIEN,.HLP)

(The array contained in these three APIs is HLP, and this patch documentation consistently refers to HLP. However, since this is a pass-by-reference array, any array name may be selected by the client process calling these APIs.)

Patch HL*1.6*91 creates a new field in the HL7 Message Text file (#772) to store the client process namespace when it is passed as described above. This new field's definition is shown below.

Namespace field Standard Data Dictionary listing
772,16   NAMESPACE   0;13 FREE TEXT

Input Transform: K:$L(X)>4!($L(X)<1)!'(X?1U1.3NU) X

Last Edited: FEB 15, 2002

Help-Prompt: Answer must be 1-4 characters in length, and start with 1 uppercase letter, followed by up to 3 uppercase letters and numerics.

Description: This field must not be filled in manually. It will be filled in automatically by the HL7 processes that create entries in the HL7 Message Text file (#772). In most instances, applications will call GENERATE^HLMA,

GENACK^HLMA, or DIRECT^HLMA. When they do, they will pass by reference into the last OPTIONS (in the documentation) parameter the value of the namespace. The value of the namespace will be in the form of OPTIONS("NAMESPACE")=NAMESPACE.

> Note: The calls to the three APIs mentioned above use the variable HLP to hold the passed in by reference array. So, in the HLMA code (and other code invoked by HLMA), the actual variable used is HLP("NAMESPACE").

This field is populated by UPDATE^HLTF0.

When the client process defines HLP("NAMESPACE") prior to the API call, and passes in the HLP array (as shown in the above example), the defined namespace is stored in the HL7 Message Text file (#772) entry created. The code that actually stores HLP("NAMESPACE") in this file is contained in UPDATE^HLTF0.

All HLP array elements are optional; they are not required when these APIs are called. However, it is strongly recommended that the HLP("NAMESPACE") array element be defined whenever it is possible to determine the proper namespace.

> **Note**: HL7 messaging by the Master Patient Index (MPI) application occurs using the EN^HLCSAC API. The private use of this API by the MPI application is covered by Integration Agreement 3471. It is important that MPI HL7 messages be assigned the correct namespace, and this is done automatically now. There is no need for the MPI application to pass their namespace into the EN^HLCSAC API.

In the future, if this API is opened up to other applications, there is a way to override the MPI namespace saved. If the local variable HLP("NAMESPACE") is defined before calling the EN^HLCSAC API, the value of HLP("NAMESPACE") will be saved in the message as the namespace.

The first and second lines of the routines included in this patch are shown below.

```
HLCSAS1 ;ISCSF/RWF - Read data ;08/24/99  08:06
        ;;1.6;HEALTH LEVEL SEVEN;**43,57,91**;Jul 17,1995
 HLMA    ;AISC/SAW-Message Administration Module ;09/20/2001  12:34
        ;;1.6;HEALTH LEVEL SEVEN;**19,43,58,63,66,82,91**;Oct 13, 1995
 HLMA1   ;AISC/SAW-Message Administration Module (Cont'd) ;04/06/99
          10:56
        ;;1.6;HEALTH LEVEL SEVEN;**19,43,91**;Oct 13, 1995
 HLMA2   ;AISC/SAW-Message Administration Module ;09/20/2001  12:35
        ;;1.6;HEALTH LEVEL SEVEN;**19,43,57,58,64,65,76,82,91**;
          Oct 13, 1995
 HLTF0   ;AISC/SAW,JRP - File Data in Message Text File ;
          05/05/2000 09:01
        ;;1.6;HEALTH LEVEL SEVEN;**12,19,64,91**;Oct 13, 1995
 HLTP1   ;AISC/SAW-Transaction Processor Module (Cont'd) ;04/21/98  09:38
        ;;1.6;HEALTH LEVEL SEVEN;**34,47,91**;Oct 13, 1995
 HLTP4   ;SFIRMFO/RSD - Transaction Processor for TCP ;03/07/2000  17:41
        ;;1.6;HEALTH LEVEL SEVEN;**19,57,59,91**;Oct 13, 1995
```

The VA Kernel checksum for the routine included in this patch (calculated using CHECK^XTSUMBLD) is listed below.

Checksums

Routine Name	Before Patch	After Patch	Patch List
HLCSAS1	1743950	2183617	43,57,91
HLMA	9200711	9200711	19,43,58,63,66,82,91
HLMA1	3849338	3849338	19,43,91
HLMA2	8331015	8331015	19,43,57,58,64,65,76,82,91
HLTF0	3232637	3415603	12,19,64,91
HLTP1	4286011	4286011	34,47,91
HLTP4	7964901	7964901	19,57,59,91

Sites should use CHECK^XTSUMBLD to verify checksums after patch installation.

There are five routines above whose checksums will not change after this patch is installed; HLMA, HLMA1, HLMA2, HLTP1, and HLTP4. The only changes made to these routines is the addition of comment lines documenting the new HLP("NAMESPACE") array element. Since comment lines are not counted in a routine's checksum, the addition of these comment lines do not affect the routine's checksums.

Routine Information
Routine Name: HLMA
Routine Checksum:

Routine Name: HLMA1
Routine Checksum:

Routine Name: HLMA2
Routine Checksum:

Routine Name: HLTF0
Routine Checksum:

Routine Name: HLTP1
Routine Checksum:

Routine Name: HLTP4
Routine Checksum:

Routine Name: HLCSAS1
Routine Checksum:

76.2   Installation Instructions

Notice: Do not proceed unless patches HL*1.6*47, HL*1.6*57, HL*1.6*59, and HL*1.6*82 have been installed.

1. Users are allowed to be on the system during the installation.

2. AXP/DSM SITES: Review your mapped routine set. If the routine listed in the ROUTINE SUMMARY section is mapped, it should be removed from the mapped set at this time.

3. Stop all background processes (logical links and incoming and outgoing filers) using the 'Filer and Link Management Option's 'Stop All Messaging Background Processes [HL STOP ALL]' menu option.

4. Stop the link manager using the 'TCP Link Manager Start/Stop [HL START/STOP LINK MANAGER]' menu option.

5. AXP/DSM SITES ONLY: Disable all HL7 UCX Services for this installation.

6. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

7. This patch is now loaded into a transport global on your system. The next step is to use KIDS to install the Transport global. This is done using the 'Installation' menu's 'Install Package(s) [XPD INSTALL BUILD]' menu option.

When using this menu option to install the patch build, you will be asked several questions. The questions, and the answers you should supply, are shown below.

```
INSTALL NAME: <HL*1.6*91>
Want KIDS to INHIBIT LOGONS during the install?  <NO>
Want to DISABLE Scheduled Options, Menu Options, and Protocols?  <NO>
```

8. Start all background processes (logical links and incoming and outgoing filers) using the Filer and Link Management Option's 'Restart/Start All Links and Filers [HL TASK RESTART]' menu option. (Note that links that do not have "autostart" enabled will need to be restarted manually.)

9. AXP/DSM SITES ONLY: If you previously disabled an HL7 UCX Service for this installation, you may enable it now.

10. AXP/DSM SITES ONLY: After the patch has been installed, rebuild your map set, if necessary.

11. Start the link manager using the 'TCP Link Manager Start/Stop [HL START/STOP LINK MANAGER]' menu option.

77.0 HL*1.6*85 SEQ #78: Error Listing and Disk Full Errors

Category
Routine
Enhancement (Mandatory)

77.1 Description

Test sites

Greater Los Angeles Regional Healthcare (West Los Angeles)

Montana Healthcare System

VA Maryland Healthcare system

NOIS
MON-0102-51257

> **Note**: This patch requires that KIDS build HL*1.6*50 be installed.

77.1.1 Overview

VistA Health Level Seven (HL7) Transmission Control Protocol (TCP) messages that experience problems are assigned an error status. Under unusually adverse circumstances, the number of TCP messages marked withan error status can be quite large.

The 'View Transmission Log (TCP only) [HL VIEW TRANSMISSION LOG]' menu option enables users to view TCP messages that are in the error status. (This option's initial screen displays four sub-options. Select the 'Error Listing' option to display error status messages.) Before displaying the error messages, the option collects information about the error status entries into the ^TMP global. When an excessive number of error status messages exist, the creation of ^TMP global data has resulted in disk full errors.

Before this patch, users could print all error status TCP messages, or select one error status to include in the option's report. After this patch is installed, this functionality remains, but additional controls over the TCP error status messages collected into the ^TMP global, and included on the report have been added.

77.1.2 New Prompts

After this patch is installed, users will now see several new prompts. Some of these new prompts enable the user to control the amount of data collected into the ^TMP global and included on the report. Some new prompts control report format. These new prompts are mentioned and explained below.

77.1.2.1 New prompt: REPORT FORMAT

The terminal dialogue seen by the user for the first new prompt is shown below.

```
    Select the report view now.  There are two report views.  Both
    list the internal entry number from the HL7 Message Administration
    file (#773) entry, message ID, processing date or time, and logical
    link.  The two report views differ in the remainder of the
    information displayed on the report.

       Select one of the following:

            1            Display message, event, & application data
            2            Display error type

    Select data to display: 1//
```

77.1.2.2 New prompt: Errors To Print

There are two new prompts by which users can control the number of errors included on the report. The user is first asked whether they wish to view all error status entries. If they answer NO, they are then asked to specify the number of errors to include on the report. The terminal dialogue seen for both these new prompts is shown below.

```
    Print all errors? No//

 If the user answers 'NO' to the above query, they will see the following
 prompt:

    Enter the maximum number errors to report for every error status.

    Enter maximum number errors/status:  999//
```

77.1.2.3 New prompt: Time Range

The above prompts can be used to limit the number of entries included on the report. In addition, there are two new queries asked users by which they can define the starting and ending times for the report. The terminal dialogue seen when establishing the report time range is shown below.

```
    The first entry at your site is from Aug 29, 1994@16:44.

    Enter START DATE/TIME:  Dec 25, 2001//
    Enter END DATE/TIME:  NOW//
```

In the above example, 'Aug 29, 1994@16:44' is the date and time of the first TCP message at the site. This date and time will differ from site to site. Users may enter any start and end date and time.

77.1.3   More Details

After entering the START DATE/TIME, the search for error status TCP messages starts immediately. Depending on the total number of error status TCP messages that exist, the process of finding eligible messages might take some time. This is true even if only a small number of messages are requested. (The option searches all messages with anerror status to ensure that only the most recent error status TCP messages are included.)

In addition to the new prompts mentioned above, the report content has been enhanced. A new column showing the date or time of the error's occurrence has been added immediately after the message ID column. The column is labeled 'Procd', meaning 'processed time'. When using this option, users will now be required to enter a time range for the report. If the start and stop times of the range are within the same day, the time of processing will be displayed. If the start and stop times encompass more than one day, the date of processing will be displayed.

The first new prompt users will see when using this option is 'Select data to display'. If the user elects to display message, event and application data, the report format includes the requested information; this is the same report format as displayed prior to the patch. At this prompt, if the user elects to display error type information, the last section of the report contains error type information collected from each error status entry.

77.2   Routines

The routines HLCSRPT2, HLCSRPT4, and HLCSRPT5 are included in this patch. The first and second lines of these routine are shown below.

```
HLCSRPT2   ;ISC-SF/RAH-TRANS LOG ERROR LIST ;06/23/99  11:10 AM
           ;;1.6;HEALTH LEVEL SEVEN;**50,85**;Oct 13, 1995
HLCSRPT4   ;OIFO-O/LJA - Error Listing code ;3/18/02 10:19
           ;;1.6;HEALTH LEVEL SEVEN;**85**;Oct 13, 1995
HLCSRPT5   ;OIFO-O/LJA - Error Listing code ;3/18/02 10:19
           ;;1.6;HEALTH LEVEL SEVEN;**85**;Oct 13, 1995
```

The VA Kernel checksum for the routine included in this patch (calculated using CHECK^XTSUMBLD) is listed below.

Routine Name	Before Patch	After Patch	Patch List
HLCSRPT2	18087507	16748679	**50,85**
HLCSRPT4	-----------	11631444	**85**
HLCSRPT5	-----------	4522232	**85**

Sites should use CHECK^XTSUMBLD to verify checksums after patch installation.

Routine Information
Routine Name: HLCSRPT2
Routine Checksum:

Routine Name: HLCSRPT4
Routine Checksum:

Routine Name: HLCSRPT5
Routine Checksum:

77.2.1   Installation Instructions

> **Notice**:   Do not proceed unless patch HL*1.6*50 has been installed. Do not proceed unless you have backed up your current HLCSRPT2 routine.

1. Users are allowed to be on the system during the installation. Do not stop any background jobs, (such as filers), while installing this patch.

2. AXP/DSM SITES: Review your mapped routine set. If the routine listed in the ROUTINE SUMMARY section is mapped, it should be removed from the mapped set at this time.

3. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

4. This patch is now loaded into a transport global on your system. The next step is to use KIDS to install the Transport global. This is done using the 'Installation' menu's 'Install Package(s) [XPD INSTALL BUILD]' menu option. When using this menu option to install the patch build, you will be asked several questions. The questions, and the answers you should supply, are shown below.

```
INSTALL NAME: <HL*1.6*85>
Want KIDS to INHIBIT LOGONS during the install?  <NO>
Want to DISABLE Scheduled Options, Menu Options, and Protocols? <NO>
```

5. AXP/DSM Sites: After the patch has been installed, rebuild your   map set, if necessary.

78.0 HL*1.6*87 SEQ #79: Excessive Generation of Duplicate Messages

Associated Patches
This patch requires that KIDS build HL*1.6*77 be installed.

Category
Routine

78.1   Description

Test sites
Oklahoma City VAMC, Muskogee VAMC, San Francisco VAMC

NOIS
OKL-1201-70586   VA* Logical Links not transmitting

ISF-0700-62124   Duplicate Entries for messages

SDC-0301-60090   Message stuck in 'Awaiting ACK' status

ISF-0400-62120   Excessive Retransmissions

ISH-0900-40469   re-transmissions for a message awaiting an ack

This patch fixes the problem where a TCP client logical link and its corresponding listener logical link lose synchronization. Loss of synchronization creates excessive retransmission of messages and their acknowledgements, causing side effects: one is that the client link gets stuck in a "Reading" state because its TCP receive buffer fills up; another is that the disk on both the sending and the receiving sides fills up at a faster rate.

This patch makes corrections in the way the TCP client logical link retransmits a message when its corresponding acknowledgement does not arrive in time or receives an incorrect acknowledgement. Previous HL7 code allowed the logical link to retransmit a message when the acknowledgement message was incorrect, including an "incorrect msg id" acknowledgement. This patch corrects the code to allow retransmission of a message only when the logical link does not receive an acknowledgement in time (timed out) and ignores incorrect acknowledgements.

78.2   Routines

The following routine is included in this patch. The second line of the routine now looks like this:

;;1.6;HEALTH   LEVEL   SEVEN;**19,43,49,57,63,64,66,67,76,77,87**;JUL 17,1995.

The VA Kernel checksums for this routine (calculated using CHECK^XTSUMBLD) are listed below:

Routine Name	Checksum Before Patch	Checksum After Patch
HLCSTCP2	12129232	12913767

Patch List
19,43,49,57,63,64,66,67,76,77,87;

Sites should use CHECK^XTSUMBLD to verify checksums after the patch has been installed.

Routine Information
Routine Name: HLCSTCP2
Routine Checksum:

78.3   Installation Instructions

1. Users are allowed to be on the system during the installation.

2. AXP/DSM SITES: Review your mapped routine set. If any of the routines listed in the ROUTINE SUMMARY section are mapped, they should be removed from the mapped set at this time.

3. Shutdown all Logical Links, incoming and outgoing filers, and the Link Manager using the Filer and Link Management options listed below:

    *   Stop All Messaging Background Processes [HL STOP ALL]

    *   TCP Link Manager Start/Stop [HL START/STOP LINK MANAGER]

    *   AXP/DSM SITES ONLY: Disable all HL7 UCX Services for this installation.

4. Use the 'INSTALL/CHECK MESSAGE' option on the PackMan menu. This option will load the KIDS package onto your system.

5. This patch is now loaded into a transport global on your system. The next step is to use KIDS to install the Transport global. To do this, use the 'Installation [XPD INSTALLATION MENU]' menu. You should use each of the following 'Installation' menu options in the order shown below:
    *   Verify Checksums in Transport Global
    *   Print Transport Global
    *   Compare Transport Global to Current System

- Backup a Transport Global
- Install Package(s)
- When using the 'Install Package(s)' menu option to install the patch build, you will be asked several questions. The questions asked, and the answers you should supply, are shown below.

```
INSTALL NAME: <HL*1.6*87>
Want KIDS to INHIBIT LOGONS during the install?  <NO>
Want to DISABLE Scheduled Options, Menu Options, and Protocols?  <NO>
```

6. Start up all Logical Links and incoming and outgoing filers using the Filer and Link Management Option's 'Restart/Start All Links and Filers [HL TASK RESTART]' menu option.

> **Note:** Links that do not have "autostart" enabled will need to be restarted manually.

AXP/DSM SITES ONLY: If you previously disabled an HL7 UCX Service for this installation, you may enable it now.

7. AXP/DSM Sites: After the patch has been installed, rebuild your map set, if necessary.

8. Start Link Manager using the 'TCP Link Manager Start/Stop [HL START/STOP LINK MANAGER]' menu option.

79.0 Contact Information

If you have any questions or comments regarding this distribution, please contact the ITSC Help Desk by:

Phone: (505) 248-4371 or

            (888) 830-7280

Fax: (505) 248-4199

Web: http://www.rpms.ihs.gov/TechSupp.asp

Email: RPMSHelp@mail.ihs.gov