IHS Support for HL7 Interfaces
(BHL)
Version 1.0

Installation Guide

July 1997

Preface

The Indian Health Service (IHS) Support for Health Level Seven (HL7) Interfaces software package (BHL) provides a way for Resource and Patient Management System (RPMS) applications to exchange health-care data with commercial off-the-shelf and other applications using the HL7 protocol. This package utilizes the Department of Veteran Affairs (VA) Decentralized Hospital Computer Program (DHCP) HL7 system. This installation guide has been written for Site Managers and other information systems personnel who will be responsible for the installation and maintenance of the BHL software package.

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Indian Health Service (IHS) Support for Health Level Seven (HL7) Interfaces Version 1.0 Installation Guide

1. Introduction

The IHS HL7 package consists of a set of routines that are installed concurrently with the DHCP HL7 Package (see section 3 for Resource Requirements). Documentation for the IHS code consists of the Installation Guide (this document) and the Technical Manual.

Please refer to the DHCP HL7 Version 1.6 User Manual, Security Guide, Developer's Manual, Installation Guide, Release Notes, and Technical Manual for additional information as required. For general information on common programming conventions, please refer to the *Users Guide to Computing.*

2. Contents of Distribution

bhl_0100.r	Routines
bhl_010i.pdf	Installation Guide (this document)
bhl_010t.pdf	Technical Manual

3. Resource Requirements

The following minimum package versions are required in order to install this version of IHS HL7:

Kernel 7.3 Toolkit

If you are installing the HL7 package as an adjunct to the Community Health Representative (CHR) package, the Kermit Protocol option must be installed. Refer to the Kernel Toolkit V 7.3 Installation Guide for the proper procedures and requirements.

DHCP HL7 1.6

See the DHCP HL7 Installation Guide for requirements (minimum versions and resource consumption) prior to installing the DHCP HL7 package.

NOTE: Two of the routines in this package have been modified by IHS to call a third HL-routine instead of a VA routine. The modified routines are HLCSMM and HLDTIWU3; the change is to make a call to HLZFUNC instead of VASITE. The modifications in HLCSMM and HLDTIWU3, and the routine HLZFUNC must be present for the HL7 package to work correctly in the IHS environment.

The DHCP HL7 package consists of the following files:

hl__0160.r	Routines
hl__016d.pdf	Developer's Manual
hl__016i.pdf	Installation Guide
hl__016n.pdf	Release Notes
hl__016s.pdf	Security Guide
hl__016t.pdf	Technical Manual
hl__016u.pdf	User Manual

4. Common Installation Instructions

The IHS HL7 package relies on the DHCP HL7 1.6 package for proper operation. Therefore, the DHCP HL7 1.6 package must be installed prior to, or concurrently with, the IHS HL7 package. This Guide assumes that the DHCP HL7 1.6 package and the IHS HL7 package will be installed concurrently. The steps described in this section must be completed in order to lay the foundation for an interface between RPMS and non-RPMS systems. Refer to the DHCP HL7 1.6 Installation Guide, as necessary, to complete the following steps.

As noted in the DHCP HL7 1.6 Installation Guide, these packages can be loaded into either a Test UCI (T) or a Production UCI (P) by following these steps. Users do not need to be off the system when installing these packages if global placement (Step 1 in the DHCP HL7 1.6 Installation Guide) is accomplished in advance. Installation will normally take five (5) minutes or less.

1. Perform Steps 1 through 6 of the Installation Instructions in the DHCP HL7 1.6 Installation Guide. (See the example of Step 6 in Section 5.1.)

2. Delete BHL* routines. (See the example in Section 5.2.)

3. Perform Step 7 in the DHCP HL7 1.6 Installation Guide. NOTE: The HL7 routines are to be loaded from the file <hl__0160.r>. (See the example in Section 5.3.)

4. Perform Step 8 in the DHCP HL7 1.6 Installation Guide. NOTE: There will be two discrepancies between the calculated checksums and the expected checksums; this is due to the IHS modifications in the VA programs ^HLCSMM and ^HLDTIWU3. If there are any discrepancies OTHER THAN THESE, please call the HL7 Help Desk in Tucson: (520) 295-2533 or (520) 295-2534. (See the example in Section 5.4.)

5. Perform Steps 9 through 11 in the DHCP HL7 1.6 Installation Guide. Examples of some of these steps are provided in the Installation Guide. (See also the examples of steps 10 and 11 in Section 5.5.)

6. Load the BHL* routines. NOTE: The BHL* routines are to be loaded from the file <bhl_0100.r>. (See the example in Section 5.6.) This step will restore 18 routines.

7. Run the BHL integrity routine.   D ^BHLINTEG   NOTE: Please call the HL7 Help Desk in Tucson, (520) 295-2533 or (520) 295-2534, if any routines fail the integrity check.

8. Run the BHLINIT routine to initialize the IHS HL7 files.   D ^BHLINIT   (See the example in Section 5.7.)

9. Perform Steps 12 through 14 in the DHCP HL7 1.6 Installation Guide. (See the example of step 13 in Section 5.8.)

10. Delete the BHLIN* routines.

11. Run the post-initialization routine.   D ^BHLPOST   (See the example in Section 5.9.)

12a. If you are installing this package in conjunction with the CHR Package, please refer to the CHR Interface Installation Section (Section 6), for the remainder of the installation instructions.

12b. If you are installing this package in conjunction with a commercial, off-the-shelf (COTS) Pharmacy System, please refer to the COTS Pharmacy Interface Installation Section (Section 7), for the remainder of the installation instructions.

13. If the HL and BHL packages were loaded into a production UCI, move the BHL* and HL* routines to all systems as necessary. (Refer also to Step 15 in the DHCP HL7 1.6 Installation Guide.)

14. Enable Journalling for HL* globals. (Refer also to Step 16 in the DHCP HL7 1.6 Installation Guide.)

5. Sample Session for Common Installation

This section provides screen examples for some of the steps in Section 4, Common Installation Instructions.

5.1 Perform Steps 1 through 6 of the Installation Instructions in the DHCP HL7 1.6 Installation Guide

Step 6. **Delete HLIN* routines.** *NOTE: We recommend that all HL* routines be deleted from the working area to ensure a clean restoration from the UNIX file. The example below shows the deletion of all HL* routines.*

```
> D ^%RDEL

         MSM - Routine Delete Utility
             23-OCT-96 11:39 AM

Routine selector: HL*

         221 routines selected.

Routine selector: <RETURN>

Delete Selected Routines? <N> Y

Deleting ...
HLCHK      HLCS       HLCS1      HLCSDL     HLCSDL1    HLCSDL2    HLCSDR     HLCSDR1
HLCSDR2    HLCSFMN    HLCSFMN0   HLCSFMN1   HLCSHDR    HLCSIN     HLCSLNCH   HLCSMM
HLCSMM1    HLCSMON    HLCSMON1   HLCSORA1   HLCSORA2   HLCSORAT   HLCSOUT    HLCSQUE
HLCSQUE1   HLCSQUED   HLCSRE1    HLCSREP    HLCSREQ    HLCSRES    HLCSRQ     HLCSRV
HLCSTERM   HLCSUTL    HLCSUTL1   HLCSUTL2   HLDTIW01   HLDTIW02   HLDTIW03   HLDTIW04
HLDTIW05   HLDTIW2A   HLDTIW2B   HLDTIW2C   HLDTIWP0   HLDTIWP1   HLDTIWP2   HLDTIWP3
HLDTIWP4   HLDTIWP5   HLDTIWP6   HLDTIWU0   HLDTIWU1   HLDTIWU2   HLDTIWU3   HLDTIWU4
HLDTIWU5   HLFNC      HLFNC1     HLFNC2     HLFNC3     HLINI001   HLINI002   HLINI003
HLINI004   HLINI005   HLINI006   HLINI007   HLINI008   HLINI009   HLINI00A   HLINI00B
HLINI00C   HLINI00D   HLINI00E   HLINI00F   HLINI00G   HLINI00H   HLINI00I   HLINI00J
HLINI00K   HLINI00L   HLINI00M   HLINI00N   HLINI00O   HLINI00P   HLINI00Q   HLINI00R
HLINI00S   HLINI00T   HLINI00U   HLINI00V   HLINI00W   HLINI00X   HLINI00Y   HLINI00Z
HLINI010   HLINI011   HLINI012   HLINI013   HLINI014   HLINI015   HLINI016   HLINI017
HLINI018   HLINI019   HLINI01A   HLINI01B   HLINI01C   HLINI01D   HLINI01E   HLINI01F
HLINI01G   HLINI01H   HLINI01I   HLINI01J   HLINI01K   HLINI01L   HLINI01M   HLINI01N
HLINI01O   HLINI01P   HLINI01Q   HLINI01R   HLINI01S   HLINI01T   HLINI01U   HLINI01V
HLINI01W   HLINI01X   HLINI01Y   HLINI01Z   HLINI020   HLINI021   HLINI022   HLINI023
HLINI024   HLINI025   HLINI026   HLINI027   HLINI028   HLINI029   HLINI02A   HLINI02B
HLINI02C   HLINI02D   HLINI02E   HLINI02F   HLINI02G   HLINI02H   HLINI02I   HLINI02J
HLINI02K   HLINI02L   HLINI02M   HLINI02N   HLINI02O   HLINI02P   HLINI02Q   HLINI02R
HLINI02S   HLINI02T   HLINI02U   HLINI02V   HLINI02W   HLINI02X   HLINI02Y   HLINIS
HLINIT     HLINIT1    HLINIT2    HLINIT3    HLINIT4    HLINIT5    HLLM       HLLM1
HLLP       HLMA       HLMA0      HLMA1      HLMA2      HLNTEG     HLNTEG0    HLONI001
HLONI002   HLONI003   HLONI004   HLONI005   HLONI006   HLONI007   HLONI008   HLONI009
HLONI010   HLONI011   HLONIT     HLONIT1    HLONIT2    HLONIT3    HLPOST     HLPOST16
HLPOSTQ    HLPRE16    HLSERV     HLTASK     HLTF       HLTF0      HLTF1      HLTP
HLTP0      HLTP01     HLTP1      HLTP2      HLTPCK1    HLTPCK1A   HLTRANS    HLUOPT
HLUOPT1    HLUTIL1    HLUTIL2    HLUTIL3    HLZFUNC
```

5.2 Delete BHL* routines

>**D ^%RDEL**

```
        MSM - Routine Delete Utility
            23-OCT-96  2:11 PM

Routine selector: BHL*

        22 routines selected.

Routine selector: <RETURN>

Delete Selected Routines? <N> Y

Deleting ...
BHLBACK   BHLBCH    BHLBCH1   BHLBCH2   BHLBLNCH  BHLBPS    BHLBPS1   BHLBPSND
BHLDLR    BHLIN001  BHLIN002  BHLIN003  BHLIN004  BHLINIS   BHLINIT   BHLINIT1
BHLINIT2  BHLINIT3  BHLINIT4  BHLINIT5  BHLPTDMO  BHLTMP
>
```

5.3 Perform Step 7 in the DHCP HL7 1.6 Installation Guide

Step 7.   Load DHCP HL7 software tape.

>**D ^%RR**

          MSM - Routine Restore Utility

Enter input device <HFS>: **<RETURN>** Host File Server
File Name >: **/usr/spool/uucppublic/hl__0160.r**
Routine(s) saved at 11:51 AM 22-JAN-96
Header comment is: HEALTH LEVEL SEVEN VERSION 1.6 OCTOBER 13, 1995 WITH IHS
MODIFICATIONS
Selective restore? (allows rename) <N>: **<RETURN>** NO
Restoring...

```
HLCHK     HLCS      HLCS1     HLCSDL    HLCSDL1   HLCSDL2   HLCSDR    HLCSDR1
HLCSDR2   HLCSFMN   HLCSFMN0  HLCSFMN1  HLCSHDR   HLCSIN    HLCSLNCH  HLCSMM
HLCSMM1   HLCSMON   HLCSMON1  HLCSORA1  HLCSORA2  HLCSORAT  HLCSOUT   HLCSQUE
HLCSQUE1  HLCSQUED  HLCSRE1   HLCSREP   HLCSREQ   HLCSRES   HLCSRQ    HLCSRV
HLCSTERM  HLCSUTL   HLCSUTL1  HLCSUTL2  HLDTIW01  HLDTIW02  HLDTIW03  HLDTIW04
HLDTIW05  HLDTIW2A  HLDTIW2B  HLDTIW2C  HLDTIWP0  HLDTIWP1  HLDTIWP2  HLDTIWP3
HLDTIWP4  HLDTIWP5  HLDTIWP6  HLDTIWU0  HLDTIWU1  HLDTIWU2  HLDTIWU3  HLDTIWU4
HLDTIWU5  HLFNC     HLFNC1    HLFNC2    HLFNC3    HLINI001  HLINI002  HLINI003
HLINI004  HLINI005  HLINI006  HLINI007  HLINI008  HLINI009  HLINI00A  HLINI00B
HLINI00C  HLINI00D  HLINI00E  HLINI00F  HLINI00G  HLINI00H  HLINI00I  HLINI00J
HLINI00K  HLINI00L  HLINI00M  HLINI00N  HLINI00O  HLINI00P  HLINI00Q  HLINI00R
HLINI00S  HLINI00T  HLINI00U  HLINI00V  HLINI00W  HLINI00X  HLINI00Y  HLINI00Z
HLINI010  HLINI011  HLINI012  HLINI013  HLINI014  HLINI015  HLINI016  HLINI017
HLINI018  HLINI019  HLINI01A  HLINI01B  HLINI01C  HLINI01D  HLINI01E  HLINI01F
HLINI01G  HLINI01H  HLINI01I  HLINI01J  HLINI01K  HLINI01L  HLINI01M  HLINI01N
HLINI01O  HLINI01P  HLINI01Q  HLINI01R  HLINI01S  HLINI01T  HLINI01U  HLINI01V
HLINI01W  HLINI01X  HLINI01Y  HLINI01Z  HLINI020  HLINI021  HLINI022  HLINI023
HLINI024  HLINI025  HLINI026  HLINI027  HLINI028  HLINI029  HLINI02A  HLINI02B
HLINI02C  HLINI02D  HLINI02E  HLINI02F  HLINI02G  HLINI02H  HLINI02I  HLINI02J
HLINI02K  HLINI02L  HLINI02M  HLINI02N  HLINI02O  HLINI02P  HLINI02Q  HLINI02R
HLINI02S  HLINI02T  HLINI02U  HLINI02V  HLINI02W  HLINI02X  HLINI02Y  HLINIS
HLINIT    HLINIT1   HLINIT2   HLINIT3   HLINIT4   HLINIT5   HLLM      HLLM1
HLLP      HLMA      HLMA0     HLMA1     HLMA2     HLNTEG    HLNTEG0   HLONI001
HLONI002  HLONI003  HLONI004  HLONI005  HLONI006  HLONI007  HLONI008  HLONI009
HLONI010  HLONI011  HLONIT    HLONIT1   HLONIT2   HLONIT3   HLPOST    HLPOST16
HLPOSTQ   HLPRE16   HLSERV    HLTASK    HLTF      HLTF0     HLTF1     HLTP
HLTP0     HLTP01    HLTP1     HLTP2     HLTPCK1   HLTPCK1A  HLTRANS   HLUOPT
HLUOPT1   HLUTIL1   HLUTIL2   HLUTIL3   HLZFUNC
```

221 Routines restored.

5.4 Perform Step 8 in the DHCP HL7 Installation Guide

>   **Step 8.   Run Integrity routine(s).**

>**D ^HLNTEG**

Checksum routine created on 2951013.161539 by KERNEL V7.3

```
HLCHK     ok
HLCS      ok
HLCS1     ok
HLCSDL    ok
HLCSDL1   ok
HLCSDL2   ok
HLCSDR    ok
HLCSDR1   ok
HLCSDR2   ok
HLCSFMN   ok
HLCSFMN0  ok
HLCSFMN1  ok
HLCSHDR   ok
HLCSIN    ok
HLCSLNCH  ok
HLCSMM    Calculated 2780898, off by 51350
HLCSMM1   ok
HLCSMON   ok
HLCSMON1  ok
HLCSORA1  ok
HLCSORA2  ok
HLCSORAT  ok
HLCSOUT   ok
HLCSQUE   ok
HLCSQUE1  ok
HLCSQUED  ok
HLCSRE1   ok
HLCSREP   ok
HLCSREQ   ok
HLCSRES   ok
HLCSRQ    ok
HLCSRV    ok
HLCSTERM  ok
HLCSUTL   ok
HLCSUTL1  ok
HLCSUTL2  ok
HLDTIW01  ok
HLDTIW02  ok
HLDTIW03  ok
HLDTIW04  ok
HLDTIW05  ok
HLDTIW2A  ok
HLDTIW2B  ok
HLDTIW2C  ok
HLDTIWP0  ok
HLDTIWP1  ok
HLDTIWP2  ok
HLDTIWP3  ok
```

```
HLDTIWP4  ok
HLDTIWP5  ok
HLDTIWP6  ok
HLDTIWU0  ok
HLDTIWU1  ok
HLDTIWU2  ok
HLDTIWU3  Calculated 4205647, off by 2050668
HLDTIWU4  ok
HLDTIWU5  ok
HLFNC     ok
HLFNC1    ok
HLFNC2    ok
HLFNC3    ok
HLLM      ok
HLLM1     ok
HLLP      ok
HLMA      ok
HLMA0     ok
HLMA1     ok
HLMA2     ok
HLPOST    ok
HLPOST16  ok
HLPOSTQ   ok
HLPRE16   ok
HLSERV    ok
HLTASK    ok
HLTF      ok
HLTF0     ok
HLTF1     ok
HLTP      ok
HLTP0     ok
HLTP01    ok
HLTP1     ok
HLTP2     ok
HLTPCK1   ok
HLTPCK1A  ok
HLTRANS   ok
HLUOPT    ok
HLUOPT1   ok
HLUTIL1   ok
HLUTIL2   ok
HLUTIL3   ok
```

5.5 Perform Steps 9 through 11 in the DHCP HL7 1.6 Installation Guide

Step 10. **Run the HLINIT routine to initialize the DHCP HL7 package files.**

NOTE: This example was taken from a new installation of the DHCP HL7 package. If you are upgrading from DHCP HL7 V. 1.5 to V. 1.6, some of the displays may be different. However, the user input remains the same.

>**D ^HLINIT**

```
This version (#1.6) of 'HLINIT' was created on 13-OCT-1995
        (at ALBANY CAMPUS DEVELOPMENT, by VA FileMan V.21.0)

I AM GOING TO SET UP THE FOLLOWING FILES:

   101       PROTOCOL  (Partial Definition)
Note:  You already have the 'PROTOCOL' File.

   770       HL7 NON-DHCP APPLICATION PARAMETER

   771       HL7 APPLICATION PARAMETER

   771.1     HL7 FIELD  (including data)
I will OVERWRITE your data with mine.

   771.2     HL7 MESSAGE TYPE  (including data)
I will OVERWRITE your data with mine.

   771.3     HL7 SEGMENT TYPE  (including data)
I will OVERWRITE your data with mine.

   771.4     HL7 DATA TYPE  (including data)
I will OVERWRITE your data with mine.

   771.5     HL7 VERSION  (including data)
I will OVERWRITE your data with mine.

   771.6     HL7 MESSAGE STATUS  (including data)
I will OVERWRITE your data with mine.

   771.7     HL7 ERROR MESSAGE  (including data)
I will OVERWRITE your data with mine.

   771.8     HL7 STANDARD  (including data)
I will OVERWRITE your data with mine.

   772       HL7 MESSAGE TEXT

   773       HL7 MESSAGE ADMINISTRATION

   779.001   HL7 EVENT TYPE CODE  (including data)
I will OVERWRITE your data with mine.

   779.002   HL7 ACKNOWLEDGMENT CODE  (including data)
I will OVERWRITE your data with mine.

   779.003   HL7 ACCEPT/APPLICATION ACK CONDITION  (including data)
I will OVERWRITE your data with mine.
```

```
   779.004   COUNTRY CODE   (including data)
I will OVERWRITE your data with mine.

   869.1     HL LOWER LEVEL PROTOCOL TYPE   (including data)
I will MERGE your data with mine.

   869.2     HL LOWER LEVEL PROTOCOL PARAMETER

   869.3     HL COMMUNICATION SERVER PARAMETERS

   870       HL LOGICAL LINK
```

SHALL I WRITE OVER FILE SECURITY CODES? No// **Y** (Yes)
NOTE: This package also contains INPUT TEMPLATES
      SHALL I WRITE OVER EXISTING INPUT TEMPLATES OF THE SAME NAME? Yes// **<RETURN>**
  (Yes)
NOTE: This package also contains OPTIONS
      SHALL I WRITE OVER EXISTING OPTIONS OF THE SAME NAME? Yes// **<RETURN>** (Yes)

ARE YOU SURE EVERYTHING'S OK? No// **Y** (Yes)

Starting Pre-Init
Pre-Init Finished

...HMMM, JUST A MOMENT PLEASE..
....
....

Compiling Cross-Reference(s) of File 101.

...EXCUSE ME, I'M WORKING AS FAST AS I CAN...

```
'ORD11' ROUTINE FILED.
'ORD12' ROUTINE FILED.
'ORD13' ROUTINE FILED.
'ORD14' ROUTINE FILED.
'ORD15' ROUTINE FILED.
'ORD16' ROUTINE FILED.
'ORD17' ROUTINE FILED.
'ORD18' ROUTINE FILED.
'ORD19' ROUTINE FILED.
'ORD110' ROUTINE FILED.
'ORD111' ROUTINE FILED.
'ORD112' ROUTINE FILED.
'ORD1' ROUTINE FILED.............................................................
......
'HL CLEAR COMMUNICATIONS ERROR' Option Filed
'HL CLEAR QUEUE' Option Filed
'HL COMMUNICATIONS SERVER' Option Filed
'HL COPY QUEUE ENTRY' Option Filed
'HL CRE/ED QUEUE TEST ENTRY' Option Filed
'HL CUSTOM REPORT' Option Filed
'HL EDIT APPL PARAM' Option Filed
'HL EDIT COMM SERVER PARAMETERS' Option Filed
'HL EDIT SITE PARAM' Option Filed
'HL FILER MONITOR' Option Filed
'HL INTERFACE WORKBENCH' Option Filed
'HL MAIN MENU' Option Filed
```

```
'HL MANAGE FILERS' Option Filed
'HL MENU 1.5' Option Filed
'HL MENU 1.6' Option Filed
'HL MESSAGE MONITOR' Option Filed
'HL MESSAGE REQUEUER' Option Filed
'HL MS SERVER' Option Filed
'HL PRINT APPL PARAM' Option Filed
'HL PRINT DATA TYPE' Option Filed
'HL PRINT FAILED TRANS' Option Filed
'HL PRINT FIELDS' Option Filed
'HL PRINT MENU' Option Filed
'HL PRINT MSG TYPE' Option Filed
'HL PRINT PENDING TRANS' Option Filed
'HL PRINT SEGMENT' Option Filed
'HL PRINT SITE PARAM' Option Filed
'HL PRINT VERSION' Option Filed
'HL PURGE TRANSMISSIONS' Option Filed
'HL QUEUE MANAGEMENT' Option Filed
'HL SERVER' Option Filed
'HL SHOW COMMUNICATIONS ERROR' Option Filed
'HL START' Option Filed
'HL START DEFAULT FILERS' Option Filed
'HL START ONE INCOMING FILER' Option Filed
'HL START ONE OUTGOING FILER' Option Filed
'HL STOP' Option Filed
'HL STOP ALL INCOMING FILERS' Option Filed
'HL STOP ALL OUTGOING FILERS' Option Filed
'HL STOP ONE INCOMING FILER' Option Filed
'HL STOP ONE OUTGOING FILER' Option Filed
'HL TASK' Option Filed
'HL TRANSMISSION LOG' Option Filed
'HL V16 SERVER' Option Filed...
NOTE THAT FILE SECURITY-CODE PROTECTION HAS BEEN MADE

Initial entry in HL COMMUNICATION SERVER PARAMETER file
(#869.3) has been created.


This version of 'HLONIT' was created on 13-OCT-1995
        (at ALBANY CAMPUS DEVELOPMENT, by OE/RR V.2.5)


    PROTOCOL INSTALLATION

...OK, this may take a while, hold on please..................................
................................................
'HL CS/RQ - DESELECT MESSAGES' Protocol Filed
'HL CS/RQ - SELECT MESSAGES' Protocol Filed
'HL CS/RQ - VIEW MESSAGE' Protocol Filed
'HL CS/RQ MENU - SCREEN 2' Protocol Filed
'HL DT/IW - ACTIVATE/INACTIVATE APPLICATION' Protocol Filed
'HL DT/IW - AI FOR SCREEN 1' Protocol Filed
'HL DT/IW - BLANK 1' Protocol Filed
'HL DT/IW - BLANK 2' Protocol Filed
'HL DT/IW - BLANK 3' Protocol Filed
'HL DT/IW - CA FOR SCREEN 1' Protocol Filed
'HL DT/IW - CC FOR SCREEN 4' Protocol Filed
'HL DT/IW - CL FOR SCREEN 2' Protocol Filed
'HL DT/IW - CREATE APPLICATION' Protocol Filed
'HL DT/IW - CREATE CLIENT PROTOCOL' Protocol Filed
```

```
'HL DT/IW - CREATE LOGICAL LINK' Protocol Filed
'HL DT/IW - CREATE SERVER PROTOCOL' Protocol Filed
'HL DT/IW - CS FOR SCREEN 3' Protocol Filed
'HL DT/IW - DA FOR SCREEN 1' Protocol Filed
'HL DT/IW - DC FOR SCREEN 4' Protocol Filed
'HL DT/IW - DELETE APPLICATION' Protocol Filed
'HL DT/IW - DELETE CLIENT PROTOCOL' Protocol Filed
'HL DT/IW - DELETE LOGICAL LINK' Protocol Filed
'HL DT/IW - DELETE SERVER PROTOCOL' Protocol Filed
'HL DT/IW - DL FOR SCREEN 2' Protocol Filed
'HL DT/IW - DS FOR SCREEN 3' Protocol Filed
'HL DT/IW - EA FOR SCREEN 1' Protocol Filed
'HL DT/IW - EC FOR SCREEN 4' Protocol Filed
'HL DT/IW - EDIT APPLICATION' Protocol Filed
'HL DT/IW - EDIT CLIENT PROTOCOL' Protocol Filed
'HL DT/IW - EDIT LOGICAL LINK' Protocol Filed
'HL DT/IW - EDIT SERVER PROTOCOL' Protocol Filed
'HL DT/IW - EL FOR SCREEN 2' Protocol Filed
'HL DT/IW - ES FOR SCREEN 3' Protocol Filed
'HL DT/IW - JUMP TO APPLICATION (SCREEN 1)' Protocol Filed
'HL DT/IW - JUMP TO CLIENT (SCREEN 4)' Protocol Filed
'HL DT/IW - JUMP TO LINK (SCREEN 2)' Protocol Filed
'HL DT/IW - JUMP TO NEXT APP (SCREEN 1)' Protocol Filed
'HL DT/IW - JUMP TO NEXT CLIENT (SCREEN 4)' Protocol Filed
'HL DT/IW - JUMP TO NEXT LINK (SCREEN 2)' Protocol Filed
'HL DT/IW - JUMP TO NEXT SERVER (SCREEN 3)' Protocol Filed
'HL DT/IW - JUMP TO NEXT SERVER (SCREEN 5)' Protocol Filed
'HL DT/IW - JUMP TO PREVIOUS APP (SCREEN 1)' Protocol Filed
'HL DT/IW - JUMP TO PREVIOUS CLNT (SCREEN 4)' Protocol Filed
'HL DT/IW - JUMP TO PREVIOUS LINK (SCREEN 2)' Protocol Filed
'HL DT/IW - JUMP TO PREVIOUS SRVR (SCREEN 3)' Protocol Filed
'HL DT/IW - JUMP TO PREVIOUS SRVR (SCREEN 5)' Protocol Filed
'HL DT/IW - JUMP TO SERVER (SCREEN 3)' Protocol Filed
'HL DT/IW - JUMP TO SERVER (SCREEN 5)' Protocol Filed
'HL DT/IW - REBUILD SCREEN 1' Protocol Filed
'HL DT/IW - REBUILD SCREEN 2' Protocol Filed
'HL DT/IW - REBUILD SCREEN 3' Protocol Filed
'HL DT/IW - REBUILD SCREEN 4' Protocol Filed
'HL DT/IW - REBUILD SCREEN 5' Protocol Filed
'HL DT/IW - REMOVE SUBSCRIPTION' Protocol Filed
'HL DT/IW - RS FOR SCREEN 5' Protocol Filed
'HL DT/IW - S2 FOR SCREEN 5' Protocol Filed
'HL DT/IW - SHOW CLIENT PROTOCOLS' Protocol Filed
'HL DT/IW - SHOW LOGICAL LINKS' Protocol Filed
'HL DT/IW - SHOW SERVER PROTOCOLS' Protocol Filed
'HL DT/IW - SUBSCRIBE' Protocol Filed
'HL DT/IW - SUBSCRIBE TO SERVER' Protocol Filed
'HL DT/IW MENU - SCREEN 1' Protocol Filed
'HL DT/IW MENU - SCREEN 2' Protocol Filed
'HL DT/IW MENU - SCREEN 3' Protocol Filed
'HL DT/IW MENU - SCREEN 4' Protocol Filed
'HL DT/IW MENU - SCREEN 5' Protocol Filed
OK, Protocol Installation is Complete.


'HL INTERFACE WORKBENCH - 1' List Template...Filed.
'HL INTERFACE WORKBENCH - 2' List Template...Filed.
'HL INTERFACE WORKBENCH - 3' List Template...Filed.
'HL INTERFACE WORKBENCH - 4' List Template...Filed.
'HL INTERFACE WORKBENCH - 5' List Template...Filed.
```

```
'HL MESSAGE REQUEUER - 1' List Template...Filed.
'HL MESSAGE REQUEUER - 2' List Template...Filed.
'HL MESSAGE REQUEUER - 3' List Template...Filed.


Select output device for file conversion: HOME// ;;9999


- File conversions started on 23-OCT-96 @ 11:44:10 -

Copying entries from HL7 NON-DHCP APPLICATION PARAMETER file (#770)
to HL7 APPLICATION PARAMETER file (#771)

Purging data from HL7 MESSAGE TEXT file (#772)

Converting newly defined fields in HL7 MESSAGE TEXT file (#772)

- File conversions completed on 23-OCT-96 @ 11:44:10 -
```

Step 11.   Add the HL Main Menu option to the menus of appropriate IRM staff.

>**D P^DI**

VA FileMan 21.0

Select OPTION: **1** ENTER OR EDIT FILE ENTRIES

INPUT TO WHAT FILE: LOCATION// **OPTION**   (2809 entries)
EDIT WHICH FIELD: ALL// **MENU**
     1   MENU   (multiple)
     2   MENU TEXT
CHOOSE 1-2: **1**
   EDIT WHICH MENU SUB-FIELD: ALL// **<RETURN>**
THEN EDIT FIELD: **<RETURN>**

Select OPTION NAME: **EVE**   Systems Manager Menu
Select ITEM: XMMGR// **HL MAIN MENU**   HL7 Main Menu
  Are you adding 'HL MAIN MENU' as a new MENU (the 12TH for this OPTION)? **Y**
  (Yes)
   MENU SYNONYM: **<RETURN>**
  SYNONYM: **<RETURN>**
  DISPLAY ORDER: **<RETURN>**
Select ITEM: **^**

Select OPTION NAME: **<RETURN>**

Select OPTION: **<RETURN>**
>

5.6 Load the BHL* routines

>**D ^%RR**

```
          MSM - Routine Restore Utility

Enter input device <HFS>:    Host File Server
File Name >: /usr/spool/uucppublic/bhl_0100.r
Routine(s) saved at 11:59 AM  24-OCT-96
Header comment is:
Selective restore? (allows rename) <N>: <RETURN> NO
Restoring...

BHLBCH     BHLBCH1    BHLBCH2    BHLBPS     BHLBPS1    BHLIN001   BHLINIS    BHLINIT
BHLINIT1   BHLINIT2   BHLINIT3   BHLINIT4   BHLINIT5   BHLINTEG   BHLPOST    BHLRXPS1
BHLRXPS2   BHLRXPST

18 Routines restored.
>
```

5.7 Run the BHLINIT routine to initialize the IHS HL7 files

>**D ^BHLINIT**

```
This version (#1.0) of 'BHLINIT' was created on 24-OCT-1996
        (at TUCAPD, by VA FileMan V.21.0)


NOTE: This package also contains BULLETINS


ARE YOU SURE EVERYTHING'S OK? No// Y  (Yes)

...EXCUSE ME, HOLD ON.......
'BHLBPS RX-PCC LINK DATA ERROR' BULLETIN FILED -- Remember to add mail groups for
new bulletins.
'BHLBPS RX-PCC MESSAGE ERROR' BULLETIN FILED -- Remember to add mail groups for new
bulletins..
>
```

5.8 Perform Steps 12 through 16 in the DHCP HL7 1.6 Installation Guide

Step 13. **Start the incoming and outgoing filers.**

```
Select OPTION NAME: HL MAIN MENU          HL7 Main Menu


     1       V1.5 OPTIONS ...
     2       V1.6 OPTIONS ...
     3       Activate/Inactivate Application
     4       Print/Display Menu ...
     5       Purge Message Text File Entries

Select HL7 Main Menu Option: 2  V1.6 OPTIONS


     1       Communications Server ...
     2       Interface Workbench
     3       Message Requeuer

Select V1.6 OPTIONS Option: 1  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

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

Select Manage incoming & outgoing filers Option: 1  Start default number of inco
ming & outgoing filers
Incoming filer queued as task number 1689712

Outgoing filer queued as task number 1689713



     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

Select Manage incoming & outgoing filers Option: <RETURN>


    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

Select Communications Server Option: <RETURN>


    1        Communications Server ...
    2        Interface Workbench
    3        Message Requeuer

Select V1.6 OPTIONS Option: <RETURN>


    1        V1.5 OPTIONS ...
    2        V1.6 OPTIONS ...
    3        Activate/Inactivate Application
    4        Print/Display Menu ...
    5        Purge Message Text File Entries

Select HL7 Main Menu Option: <RETURN>

Do you really want to halt? YES// <RETURN>
```

5.9 Run the post-initialization routine

>**D ^BHLPOST**

```
  DELETING UNNECESSARY BHL-NAMESPACE FILES.

No dictionaries were selected.

Now checking for residual ^DD entries within range.


DONE


  DELETING BHL PACKAGE ENTRY.

  BHL post-init is complete.


>
```

6. CHR Interface Installation

Installation of the CHR package, including its post-initialization files, will install all of the required file entries in order to use the HL7 interface. There is no additional installation required within the IHS HL7 package.

7. COTS Pharmacy Interface Installation

To finish the pharmacy interface installation, complete the following steps.

1. Run the BHLRXPST routine.   D ^BHLRXPST   (See the example in Section 8.1.)

2. Using the HL7 Main Menu option, assign a MUMPS device to the BPSLNK Logical Link. (See the example in Section 8.2.)

8. Sample Session for COTS Pharmacy Installation

8.1 Run the BHLRXPST routine

>**D ^BHLRXPST**

```
Enter Facility: SELLS HOSPITAL/CLINIC//  <RETURN>              TUCSON SELLS 01

     I created a PHARM MGR Mail Group entry.  Please add appropriate
     members to this group.

     PHARM MGR Mail Group added to the BHLBPS RX-PCC MESSAGE ERROR Bulletin.
     PHARM MGR Mail Group added to the BHLBPS RX-PCC LINK DATA ERROR Bulletin.


Adding required entries to the HL7 APPLICATION PARAMETER file.
....adding:  BHLBPS
....adding:  VIKRX

Adding required entries to the PROTOCOL file.
....adding:  BHLBPS
....adding:  VIKRX

....Re-indexing the PROTOCOL file.

Adding HL7 Lower Level Protocol Entry.

Adding HL7 Logical Link Entry.

ALL DONE WITH POST-INIT

>
```

8.2 Using the HL Main Menu option, assign a MUMPS device to the BPSLNK Logical Link

NOTE: The example given below includes displays taken from the HL7 workbench. Onscreen, these displays include formatting characteristics that do not translate well to paper. Therefore, what you see on your terminal and what is shown here may not be exactly the same. The computer dialog shown inside the boxes, for example, includes escape sequences for cursor control and screen display, whereas the dialog shown outside the boxes is a simpler, "roll-and-scroll" display.

```
Select OPTION NAME: HL MAIN MENU          HL7 Main Menu

    1       V1.5 OPTIONS ...
    2       V1.6 OPTIONS ...
    3       Activate/Inactivate Application
    4       Print/Display Menu ...
    5       Purge Message Text File Entries

Select HL7 Main Menu Option: 2  V1.6 OPTIONS

    1       Communications Server ...
    2       Interface Workbench
    3       Message Requeuer

Select V1.6 OPTIONS Option: 2  Interface Workbench..
```

```
HL-7 Interface Workbench       Nov 04, 1996 10:21:47       Page:    1 of    1
                               Currently Defined
                                Applications


(1) BHLBPS
 Facility Name: 000101                          Active/Inactive: ACTIVE
  Country Code: USA                          HL7 Field Separator: |
    Mail Group: PHARM MGR                 HL7 Encoding Characters: ^~\&


(2) VIKRX
 Facility Name: 000101                          Active/Inactive: ACTIVE
  Country Code: USA                          HL7 Field Separator: |
    Mail Group: PHARM MGR                 HL7 Encoding Characters: ^~\&


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

```
HL-7 Interface Workbench     Nov 04, 1996 10:21:53        Page:    1 of    1
                               Currently Defined
                                Logical Links

 (1) BPSLNK
 LLP Parameter: BPSLNK
     LLP Type: HLLP  (H)                              Read Timeout: 10
       Device:                                         ACK Timeout: 10
   Version ID: 2.2                       Re-transmission Attempts: 3
   Block Size: <DEFAULT>                      Start Block Character: VT
   Queue Size: 2000                            End Block Character: FS



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

```
Logical Link information
------------------------
Queue Size: 2000// <RETURN>
LLP Parameter: BPSLNK// <RETURN>

LLP Parameters
--------------
LLP Type: HLLP// <RETURN>
Device: BBB78            <- Note: Select appropriate device here.
Version ID: 2.2// <RETURN>
Block Size: <RETURN>
Read Timeout: 10// <RETURN>
ACK Timeout: 10// <RETURN>
Re-transmission Attempts: 3// <RETURN>
Start Block Character: VT// <RETURN>
End Block Character: FS// <RETURN>
```

```
HL-7 Interface Workbench     Nov 04, 1996 10:22:31        Page:    1 of    1
                               Currently Defined
                                Logical Links

 (1) BPSLNK
 LLP Parameter: BPSLNK
     LLP Type: HLLP  (H)                              Read Timeout: 10
       Device: BBB78                                   ACK Timeout: 10
   Version ID: 2.2                       Re-transmission Attempts: 3
   Block Size: <DEFAULT>                      Start Block Character: VT
   Queue Size: 2000                            End Block Character: FS


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

```
HL-7 Interface Workbench    Nov 04, 1996 10:22:34        Page:    1 of    1
                             Currently Defined
                                Applications

 (1) BHLBPS
 Facility Name: 000101                       Active/Inactive: ACTIVE
  Country Code: USA                      HL7 Field Separator: |
    Mail Group: PHARM MGR             HL7 Encoding Characters: ^~\&


 (2) VIKRX
 Facility Name: 000101                       Active/Inactive: ACTIVE
  Country Code: USA                      HL7 Field Separator: |
    Mail Group: PHARM MGR             HL7 Encoding Characters: ^~\&


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

```
    1       Communications Server ...
    2       Interface Workbench
    3       Message Requeuer

Select V1.6 OPTIONS Option: <RETURN>

    1       V1.5 OPTIONS ...
    2       V1.6 OPTIONS ...
    3       Activate/Inactivate Application
    4       Print/Display Menu ...
    5       Purge Message Text File Entries

Select HL7 Main Menu Option: <RETURN>

Do you really want to halt? YES// <RETURN>


Halting at 10:22 am
>
```