

STAR 2000™



STAR PHARMACY pharmLINK™ for Windows™ Interface Guide

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Preface

The *STAR Pharmacy pharmLINK™ for Windows™ Interface Guide* provides installation, user, and technical information about the interface between STAR Pharmacy and DADE MicroScan® Inc's pharmLINK for Windows and pharmLink Plus.

The pharmLINK for Windows product allows the pharmacy to track patient therapeutic information. You can use the system to correlate patient therapies with microbiology culture and sensitivity information from the MicroScan's Data Management System (DMS).

STAR users on Release 8.0 or later can use the interface to transmit selected ADTs, selected allergies and selected pharmacy orders from STAR Pharmacy to pharmLINK. No information is transmitted from pharmLINK to STAR Pharmacy.

The STAR interface to pharmLINK supports a single facility per pharmLINK PC. However, this interface supports multiple interface lines to multiple pharmLINK PCs. In addition, you can define this interface to use a modem connection.

NOTE: If the hospital has a patient care system other than STAR Patient Care, a customization is required. A modification must be made in the interface between STAR Pharmacy and the hospital's patient care system to send ADTs to pharmLINK.

Documentation Conventions

Documentation for McKesson's STAR 2000™ line of products follows these conventions:

Revisions

Text revisions are indicated by a change bar in the left margin. Paragraphs that contain grammatical changes that do not affect content are not marked.

Canadian Documentation

This volume may include documentation for Canadian users of this product. Complete sections of Canadian text are identified by "CN" and "CN Only."

Key Names

Named keys, such as SHIFT, CTRL, ALT, and ENTER, are displayed in this document in uppercase (capital) letters. A symbol key is written as text in this document followed by the symbol in parentheses, such as hyphen (-) and asterisk (*).

Key Chords

Key chords are key entries that require you to hold down one or more keys (typically, CTRL, ALT, or SHIFT) before pressing another key. In this document, key chords are displayed as the names of each key in the chord separated by a hyphen (-) (for example, CTRL-ALT-DEL).

Enter

ENTER is a key on a computer keyboard used to complete an entry on a STAR system. (This key may also be referred to as NEW LINE or NL in the STAR system.)

Data Entries

Letters or words you enter in response to the system are displayed in **bold** letters in this document. For example: Enter **Y** for Yes or **N** for No.

Selecting an Entry

This document often instructs you to "select an entry." The method you use to select an entry depends on whether you are using STAR from a terminal or IBM-compatible personal computer. Entry methods include:

- Entering the option number
- Using your arrow keys to highlight the option and pressing ENTER
- Clicking on the option using a mouse or other pointing device (PC only)

For more information about these options, see the *General Information Volume*.

Prompts

System prompts are displayed at the bottom of many STAR screens when the system requests an entry or displays a message. In this document, these prompts are indented and the text italicized, as shown in the following example:

Enter patient name--

Field Characteristics

STAR product documentation provides field explanation codes, in addition to a narrative description for each field on a screen. These codes display the maximum length of your entry in the field, the type of entry you make in the field, and whether the field is required. This information displays in the following format:

- DISPLAY ONLY for a field you cannot edit.
 - For X-YY-Z field types, where:
 - X is the maximum number of characters permitted in the field:
 - P for a field length determined by a Parameter
 - T for a field length determined by a Table
 - U for a field having an Undefined length
 - YY is the type of entry technique permitted in the field:
 - A for Letters only
 - AC for Letters and Punctuation only (no numbers)
 - AN for Numerals and Letters only (no punctuation)
 - C for Characters (including punctuation)
 - N for Numerals only
 - NC for Numerals and Punctuation only (no letters)
 - Z is the requirement indicator of the field:
 - C if an entry is Conditionally required or optional
 - O if an entry is Optional to complete the function
 - R if an entry is required to complete the function
- NOTE:** Facilities can designate that certain fields be Required. STAR product documentation does not display R for fields designated as Required by a facility.
- For YY-Z field types, where YY is:
 - DATE for a field subject to the date entry conventions described in the *General Information Volume*.
 - SPECIAL FORMAT for a field having data entry requirements not conforming to standard format. The field definition contains the specific data entry requirements for the field.
 - TABLE LOOKUP for a field that enables you to select from a displayed table. See the *General Information Volume* for more information regarding this entry technique.
 - TIME for a field subject to the time entry conventions described in the *General Information Volume*.

NOTE: For use of the Z position in this format, refer to the explanations for Z under X-YY-Z.

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Introduction

This guide contains technical and user information about the pharmLINK interface that is accessed through functions available on STAR Pharmacy.

Chapter 1: Overview/Description

This chapter provides a general description of the pharmLINK software and the STAR pharmLINK interface and its functions.

Chapter 2: System Requirements

This chapter provides the hardware and software requirements needed for STAR Pharmacy and pharmLINK.

Chapter 3: Installation

This chapter provides McKesson installers with information about installing the pharmLINK interface in STAR Patient Care and STAR Pharmacy. It provides information about the Communication Line Definition function on the Generic Interface Utilities processor. You use the pharmLINK Interface Parameters function (described in the User Functions chapter) to define additional parameters for the interface.

Chapter 4: User Functions

This chapter documents the user functions for the pharmLINK interface, including the pharmLINK Interface Parameters.

Chapter 5: Troubleshooting

This chapter describes solutions for problems that may occur when you use the pharmLINK interface.

Chapter 6: Technical Notes

This chapter contains information about communications protocol, data definition, and record layouts.

Chapter 1 - OVERVIEW/DESCRIPTION

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NON-TECHNICAL FUNCTIONAL OVERVIEW

STAR users on Release 8.0 or later can use the interface to transmit selected ADTs, selected allergies and selected pharmacy orders from STAR Pharmacy to pharmLINK. No information is transmitted from pharmLINK to STAR Pharmacy.

To send ADT information through the interface, the McKesson installer defines the interface on both STAR Pharmacy and STAR Patient Care. If your hospital has a patient care system other than STAR Patient Care, a modification must be made in the interface between STAR Pharmacy and your patient care system to send ADTs to pharmLINK.

The STAR interface to pharmLINK supports a single facility per pharmLINK PC. However, this interface supports multiple interface lines to multiple pharmLINK PCs. You can define the interface to use a modem connection.

DADE Microscan Inc's pharmLINK for Windows product allows the pharmacy to track patient therapeutic information. The system can be used to correlate patient therapies with microbiology culture and sensitivity information from the MicroScan Data Management System (DMS). You must have the HPS Interface for pharmLINK software from Baxter™.

The pharmLINK for Windows system enables a pharmacist to do the following:

- Compare the cost and effectiveness of a patient's current therapy with possible alternative therapies.
- Generate a list of patients whose current therapy is either ineffective or untested (based on the sensitivity data from DMS).
- Intervene on therapies that may be ineffective or not as cost effective as other therapies.
- Generate reports that reflect the financial impact of interventions.
- Generate user-defined database reports.

FEATURES/FUNCTIONS

The interface between STAR Pharmacy and pharmLINK enables you to do the following:

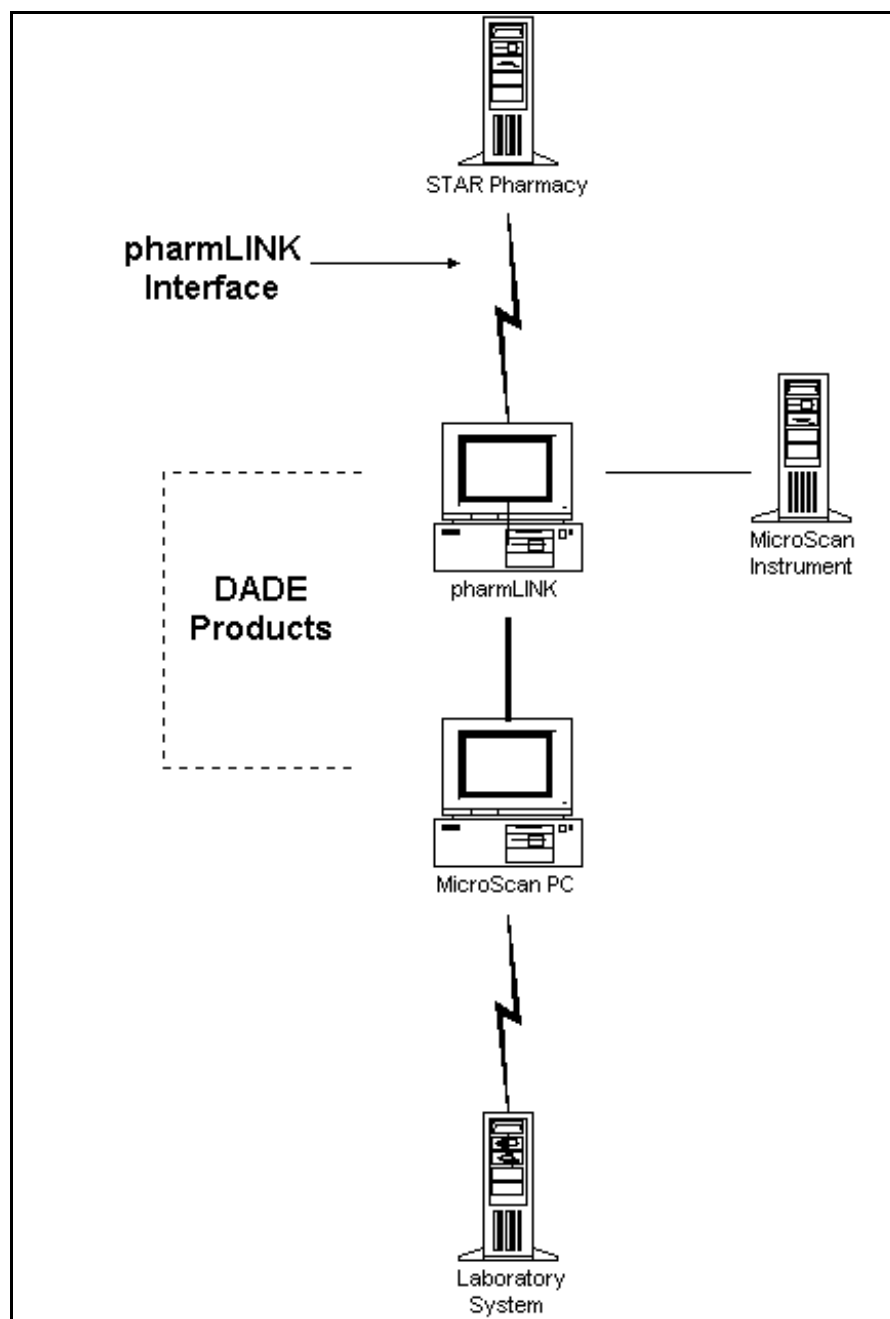
- Define on STAR Pharmacy the specific formulary items for which pharmacy orders are transmitted to pharmLINK.
- Define on STAR Pharmacy the routes of administration for which valid orders are transmitted to pharmLINK.
- Define on STAR Pharmacy the nurse stations and patient types for which patient information and pharmacy orders are transmitted to pharmLINK.
- Define the patient ID number as the unit number or account number.
- Define on STAR Pharmacy the adverse drug classes (allergies) that are transmitted to pharmLINK.

Only patient demographics, allergies, and orders that are defined as valid on STAR Pharmacy are sent to pharmLINK. The interface is compatible with American Society for Testing and Materials (ASTM) standards.

Transactions are queued on STAR Pharmacy for transmission to pharmLINK as real-time processing rather than batch.

The following example shows the relationships among STAR Pharmacy, the pharmLINK interface, pharmLINK for Windows, MicroScan Data Management System, and the laboratory system.

Figure 1.1 Example of Relationship among Components



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STAR MINIMUM REQUIREMENTS

Software

The pharmLINK interface is available in STAR Pharmacy 8.0 and later.

PHARMLINK MINIMUM REQUIREMENTS

Hardware

The following minimum hardware is required to use pharmLINK for Windows:

- PC using 80286, 80386 or higher microprocessor (80386 or higher is recommended)
- VGA monitor
- 2 MB of RAM (4 MB is recommended)
- 1 serial port not used by the mouse
- 40MB hard disk space
- Mouse or other Windows®-compatible pointing device

Software

The following software is required to use pharmLINK for Windows:

- Microsoft® Windows version 3.1 or later
- MS-DOS Version 3.3 or higher (MS-DOS 6.1 or higher is recommended)
- HPS Interface for pharmLINK software from Baxter
- pharmLINK system software

NOTE: In order to take advantage of the pharmLINK product, the laboratory *must* use the Baxter MicroScan instrument in the microbiology section. This instrument is used to identify organisms and perform sensitivities.

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INSTALLING THE PHARMLINK INTERFACE

McKesson installers define the pharmLINK interface both on STAR Patient Care and STAR Pharmacy. pharmLINK is installed on STAR Patient Care so that admission, discharge, and transfer (ADT) information can be sent. You use the pharmLINK Interface Parameters function to define additional parameters for the interface.

After the information is defined on both STAR Patient Care and STAR Pharmacy, the information goes to pharmLINK through one line. Only one port is required.

The hospital can choose from the following configurations:

- A single communication line sending patient and order information for a single facility to a single pharmLINK PC
- Multiple communication lines sending patient and order information for multiple facilities to multiple pharmLINK PCs

NOTE: If the facility has a patient care system other than STAR Patient Care, a modification must be made between STAR Pharmacy and the other patient care system to send the ADT information to pharmLINK.

The McKesson installer uses the user questionnaire completed by the facility to set parameters that determine the following:

- The facilities that are installing the interface
- The port number used for the attachment to the interface and the type of termserver card if connecting to a LAN
- The spooler report names for the interface audit and for the Line Clear report
- The number of days, from 4 to 10, the interface audit information is retained on STAR Pharmacy
- The information about the modem, if used, including the modem's phone numbers and the number of retries when dialing
- Whether the pharmacy and patient care systems reside on the same central processing unit (CPU)

Defining the pharmLINK Interface in STAR Patient Care

The McKesson installer uses the Communication Line Definition Processor in STAR Patient Care to install the pharmLINK interface on STAR Patient Care.

COMMUNICATION LINE DEFINITION

This function allows installers to specify facility, ports, protocol routines, format routines, and so on, when implementing the pharmLINK interface.

After you choose this option, the system displays the following prompt:

Enter communication code--

Enter **PHL** as the code. The system displays the existing Communication Line Definition Processor for the pharmLINK interface.

If you enter a code that does not exist, the system displays the following prompt:

Add this code '___'?(Y/N) [Y]--

The default is Yes. If you enter Y, the system displays the Communication Line Definition Processor. If you enter N, the system displays the original *Enter communication code* prompt.

General Hospital Communication Line Definition Processor			
Mon Apr 24, 2000 12:03 pm			
Communication Code: PHL			
1 Description	2 Facilities	3 Port	4 Status
PHARMLINK	A	214	
5 Protocol Routine	^PIRXLKO		
6 Lab SIM Departments	7 Rad SIM Departments	8 Rx SIM Departments	
9 Interface Audit Report Name	10 Audit Zblock	11 Audit Global	
1E-1 East Census and Messages		No	
12 Dump Queue Report Name	13 Queue Zblock	14 DCU Ports	
15 Outgoing Transactions	16 Outgoing table/s	17 Format Routine	18 PCM
A,a,N,B,C,d,D,I,R,T,V,M		AIRXLKE	No
19 Incoming Transactions	20 Incoming table/s	21 Process Routine	22 HL7
			No
23 Line Out	24 IMNET		
Enter field number or '/' starting field number--			

The following fields either display information or require the installer to define them for the pharmLINK interface.

Field Explanations

COMMUNICATION CODE (DISPLAY ONLY)

This field displays *PHL*, the communication code for pharmLINK.

1. DESCRIPTION (19-AN-R)

This field defaults to PHARMLINK, when you enter **PHL** at the previous prompt. For the interface to operate correctly, this field must contain PHARMLINK.

2. FACILITIES (TABLE LOOKUP-R)

Enter the facility for which pharmLINK is active. Only one facility can be processed per pharmLINK interface or PC.

3. PORT (3-N-R)

Enter the number for the physical port over which the data is to be transmitted to pharmLINK. This field is required in Patient Care but is not used when the system transmits ADTs, so it does not matter what number you enter.

4. STATUS (DISPLAY ONLY)

This field indicates whether pharmLINK is active or inactive.

5. PROTOCOL PROGRAM (16-A-R)

Enter **^PIRXLKO**, which is the protocol program used in STAR Pharmacy.

9. INTERFACE AUDIT REPORT NAME (TABLE LOOKUP-R)

Select a report name. This field is required in Patient Care but is not used for the pharmLINK interface, so it does not matter which number you enter.

15. OUTGOING TRANSACTIONS (TABLE LOOKUP-R)

Enter the numbers that correspond to the following transaction types. These are the transactions that are sent to pharmLINK.

<u>Code</u>	<u>Transaction Type</u>
A	Admission
a	Automatic Daily Discharge - for O/P Auto Discharge
N	Cancel Admission/Registration
B	Cancel Discharge
C	Clinical/Financial Patient Revision (includes Change Patient Type and Assign Bed)
D	Discharge
d	Date Adjustment - for Revise Admission/Discharge Dates
I	Merge Patients
R	Registration
T	Transfer Patient
V	Transfer Visit
M	Unit Number Change

After you enter these choices, the system displays their codes in this field.

17. FORMAT ROUTINE (16-A-R)

Enter **^AIRXLKE**, which is the Patient Care-specific routine or line tag that manages formatting ADT transactions.

18. PCM (1-A-O)

Enter **N** for No because the interface is not for Horizon Clinical Documentation™ (or Horizon Expert Documentation™, if applicable).

22. HL7 (1-A-O)

Enter **N** for No because the interface is not HL7®-compliant.

Defining the pharmLINK Interface in STAR Pharmacy

The McKesson installer uses the Communication Line Definition Processor to install the pharmLINK interface on STAR Pharmacy.

NOTE: You must use the same code to define the pharmLINK interface on STAR Pharmacy that is used to define the interface on STAR Patient Care.

Select System Management - Pharmacy, and then select the Interface Utilities option. The system displays the Interface Utilities Processor, as shown in the following screen:

General Hospital Interface Utilities Processor	
Mon Jul 22, 2002 10:17 am	
Interface Utilities Input Options	
Option No.	Option

1	ATC Interface Utilities
2	Horizon Clinical Documentation Interface Utilities
3	Micromedex Access Utilities
4	Kinetics Access Utilities
5	pharmLINK Interface
6	HL7 Interface Functions
7	Generic Interface Utilities
8	Robot Interface Parameters

Enter option number--

Select the Generic Interface Utilities option. The system displays the following screen:

```

      General Hospital Generic Interface Utilities Processor
                                Mon Apr 24, 2000 10:29 am
Generic Interface Utilities Input Options

      Option No.  Option
      -----
           1      Communication Line Definition
           2      Communication Line Control
           3      Communication Line Clear
           4      Communication Audit

           5      Send Formulary
           6      Send Patient
           7      Send Patient Orders
           8      Send Tables

           9      Test Inbound HL7 Messages
          10      Communication Line Status

Enter option number--
```

Select the Communication Line Definition function.

COMMUNICATION LINE DEFINITION

This function allows McKesson installers to specify facility, ports, protocol routines, format routines, and the types of Pharmacy data to send to pharmLINK.

After you choose Communication Line Definition on the Generic Interface Utilities processor, the system displays the following prompt:

Enter communication code--

Enter **PHL**, which is the code for the pharmLINK interface. The system displays the following prompt:

Add this code '___'?(Y/N) [Y]--

Enter **Y** or press ENTER. The system displays the Communication Line Definition Processor. If you enter N, the system displays the original *Enter communication code* prompt.

The Communication Line Definition processor is shown as follows:

General Hospital Communication Line Definition Processor									
Communication Code: PHL					Mon Apr 24, 2000 10:49 am				
					Updated last by: 99999 on 12/09/99 1059				
1 Description	2 Facilities	3 Port	4 Status	5 Protocol Program					
PHARMLINK	A,B	3	Active	^PIRXLKO					
6 Interface Audit Report Name	7 Audit Program	8 Audit Global	9 Log						
2 North Census and Messages		Yes	No						
10 Audit Retn	11 ECS Prefix	12 Format Program	13 Process Routine	14 Modem					
5 days	5	^PIRXLKF		No					
15 Primary Phone	16 Secondary Phone	17 Retries	18 Line Clear Report Name						
			2 North Census and Messages						
19 Line Clear Program	20 Orders	21 Med Orders	22 Sol Orders						
	All Orders	Yes	See Table						
23 Sol Bottles	24 Status Changes	25 Allergies	26 Formulary						
No	When effective	Yes	Don't Send						
27 Charge Solns?	28 Charge Meds?	29 HL7	30 Tables						
See Table	See Table	No	No						

Enter field number or '/' starting field number--

Field Explanations

COMMUNICATION CODE (DISPLAY ONLY)

This field displays the communication code for pharmLINK.

1. DESCRIPTION (19-AN-R)

This field defaults to PHARMLINK, when you enter **PHL** at the previous prompt. For the interface to operate correctly, this field must contain PHARMLINK.

2. FACILITIES (TABLE LOOKUP-R)

Enter the facility for which the pharmLINK interface is active. The interface supports only one facility per pharmLINK PC.

When you access this field, the system displays the following prompt:

Select facilities to be interfaced--

Enter your selection. To end your selection, press ENTER.

3. PORT (3-N-R)

Enter the number for the physical port over which the data is transmitted to pharmLINK.

When you access this field, the system displays the following prompt:

Enter new port number being used for this interface--

4. STATUS (DISPLAY ONLY)

This field indicates whether pharmLINK is active or inactive.

5. PROTOCOL PROGRAM (16-A-R)

Enter **^PIRXLKO**. This program monitors the line to, receives data from, and transmits data to pharmLINK.

When you access this field, the system displays the following prompt:

Enter new protocol program (include "^")--

6. INTERFACE AUDIT REPORT NAME (TABLE LOOKUP-O)

Select the report name to be used by the Audit Program field.

When you access this field, the system displays the following prompt:

Select the spooler report name to be used for an audit--

7. AUDIT PROGRAM (16-A-O)

Leave this field blank.

8. AUDIT GLOBAL (1-A-O)

Enter **Y** for Yes.

When you access this field, the system displays the following prompt:

Create an audit global of interface transactions? (Y/N) [Y]--

9. LOG (1-A-O)

This field determines if data errors are reported on the Console Log. Once you access this field, the following prompt is displayed:

Report errors? (Y/N) [N]--

Enter **Y** to report errors on the console log. Enter **N** to stop errors from printing on the console log.

If you access the Log field but have not entered an Interface Audit report name, the following message displays:

Error: Audit Report must be set up to remove data errors from console log!

To define an audit report you must choose a printer from the list under the field Interface Audit Report Name.

10. AUDIT RETN (2-N-O)

Enter the number of days that the information in the Audit Global is to be retained. During implementation and testing, enter **10**. After Live, enter **5-7** days. The minimum number of days is 4 and the maximum number is 10. You can access this field only if the Audit Global field is set to Yes.

When you access this field, the system displays the following prompt:

Enter new number of days to retain interface audit records (4-10)--

11. ECS PREFIX (3-AN-O)

Leave this field blank.

12. FORMAT PROGRAM (16-A-R)

Enter **^PIRXLKF**. This program formats the transactions according to the specifications provided by pharmLINK.

When you access this field, the system displays the following prompt:

Enter new program to format outgoing transactions (include "^")--

13. PROCESS ROUTINE (16-A-O)

Leave this field blank.

14. MODEM (1-A-O)

If you are using a modem to connect to the pharmLINK PC, enter **Y** for Yes to define the communication line as a modem line. If you are not using a modem, enter **N**.

15. PRIMARY PHONE (15-AN-O)

If you are using a modem to connect to the pharmLINK PC, enter the primary modem phone number. The system uses this number for calling the third-party claims processor.

16. SECONDARY PHONE (15-AN-O)

If you are using a modem to connect to the pharmLINK PC, enter the secondary modem phone number, if there is one. The system uses this number for calling the third-party claims processor if the primary modem number cannot be accessed.

17. RETRIES (2-A-O)

If you are using a modem, enter the number of times you want the system to redial before logging a communication failure message. If both primary and secondary numbers are available and 2 retries are indicated, the system dials the primary number twice, and then the secondary number twice, before logging a communication failure message.

18. LINE CLEAR REPORT NAME (TABLE LOOKUP-O)

Select a report name for the Process Routine field to use.

If a Line Clear Report Name and a Line Clear Program are defined, the system generates an audit report for removed transactions. If a Line Clear Report Name and a Line Clear Program are *not* defined, the system does not generate an audit report for the removed transactions.

When you access this field, the system displays the following prompt:

Select the spooler report name to be used if the queue is dumped--

19. LINE CLEAR PROGRAM (16-A-O)

Enter the line clear program name. This program deletes any transactions that are in the queue to be sent to pharmLINK. The Communication Line Clear function executes this program.

As the transactions are deleted, this program prints a log record of the queued transactions on the report defined in the Line Clear Report Name field.

If a Line Clear Report Name and a Line Clear Program are *not* defined, the system does not generate an audit report for the removed transactions.

When you access this field, the system displays the following prompt:

Enter line clear program (include "^")--

20. ORDERS (1-N-R)

Select *All Orders* as the type of order to send to pharmLINK. Only the valid orders subset is sent to pharmLINK. When you access this field, the system displays the following:

- (1) *No Orders*
- (2) *All Orders*
- (3) *Formulary Only*
- (4) *Ambulatory Care*

Which orders should be sent--

21. MED ORDERS (1-A-O)

Enter **Y** to send medication orders to pharmLINK. When you access this field, the system displays the following prompt:

Send medication orders? (Y/N)--

You cannot access this field if you selected No Orders in the Orders field.

22. SOL ORDERS (TABLE LOOKUP-O)

Select *All* to send solution orders to pharmLINK. When you access this field, the system displays the following prompt:

Enter solution type code or '-' for list [All]--

You cannot access this field if you selected No Orders in the Orders field.

23. SOL BOTTLES (1-A-O)

Enter **N** in this field. When you access this field, the system displays the following prompt:

Send bottle information for solutions? (Y/N)--

24. STATUS CHANGES (1-N-O)

Select to send orders when effective. When you access this field, the system displays the following prompt:

- (1) *Don't Send*
- (2) *Send when entered*
- (3) *Send when effective*

When should status changes be sent--

25. ALLERGIES (1-A-O)

Enter **Y** so that allergy information is sent to pharmLINK. When you access this field, the system displays the following prompt:

Send patient allergies? (Y/N)--

26 FORMULARY (1-A-R)

Enter **N** to not send formulary items. When you access this field, the system displays the following prompt:

Send formulary items? (Y/N)--

27. CHARGE SOLNS? (TABLE LOOKUP-O)

Use this field to define that the interface charges for solutions for the specific station.

When you access this field, the system displays the Station Locations table:

Page:01		Station Locations		##=Current Choices
(1) 1 EAST	[Yes]	(4) LABORATORY NSA	[Yes]	
(2) CORONARY CARE UNIT	[Yes]	(5) LAB NURSING STATION	[Yes]	
(3) INTENSIVE CARE UNIT	[Yes]	(6) Laboratory NSB	[Yes]	
Enter choices (e.g. 1,7,5-9) or '-'choices to remove--				
end selection(NL) next page(/)				

Enter the numbers of the locations you want to change. The system then displays a prompt specific to the location.

Should the pharmLINK interface charge for solution bottles for station '1E'? (Y/N)--

To define the interface to charge for solution bottles for the specific station, enter **Y**.

After you enter your choice, the system displays the *Filed!* message.

28. CHARGE MEDS? (TABLE LOOKUP-O)

Use this field to define that the interface charges for medications for the specific station.

When you access this field, the system displays the Station Locations table:

Page:01		Station Locations		##=Current Choices	
(1)	1 EAST	[Yes]	(4)	LABORATORY NSA	[Yes]
(2)	CORONARY CARE UNIT	[Yes]	(5)	LAB NURSING STATION	[Yes]
(3)	INTENSIVE CARE UNIT	[Yes]	(6)	Laboratory NSB	[Yes]
Enter choices (e.g. 1,7,5-9) or '-'choices to remove--					
end selection(NL) next page(/)					

Enter the numbers of the location you want to change. The system then displays a prompt specific to the location.

Should the pharmLINK interface charge for medications for station '1E'? (Y/N)--

To define the interface to charge for medications for the specific station, enter **Y**. After you enter your choice, the system displays the Filed! message.

29. HL7 (1-A-O)

Enter **N**. When you access this field, the system displays the following prompt:

Is this an HL7 interface? (Y/N)--

30. TABLES (TABLE LOOKUP-O)

Leave blank so that no tables are sent.

After you complete the fields, the system displays the following prompt:

Accept this screen? (Y/N/D) [Y]--

To accept, enter **Y** or press ENTER. To select not to accept, enter **N**.

To delete, enter **D**. The system displays the following prompt:

Are you sure you want to delete? (Y/N)--

To confirm the deletion, enter **Y**. To select not to delete, enter **N**.

NETWORKING JOBSTARTS

The McKesson installer defines this jobstart on the STAR Patient Care CPU if Patient Care and STAR Pharmacy are on separate CPUs and the facility plans to use the pharmLINK interface.

The function of this jobstart is to send ADT transactions that affect pharmLINK from the STAR Patient Care CPU to the STAR Pharmacy CPU.

In the base system, the network definition fields contain the following data:

Field #	Field Name	Completion Instructions
	Jobstart Name	PIPHARM
1	Destination Processor	Pharmacy
2	Module type	Null
3	Run if Same Proc?	No
4	Source Processor Routine	Null
5	Src Include Classes	Null
6	Src Var Check	Null
7	Destination Processor Routine	Enter as ()
8	Check Valid Classes	No
9	Run in Foreground	No
10	Additional Variables	(AN,AT,B%,C%,DP,FD,FM,FV,IN, KF,MR,MQ,OMP,SC,SN1,Y%,ZV)

SETUP INFORMATION FOR PHARMLINK

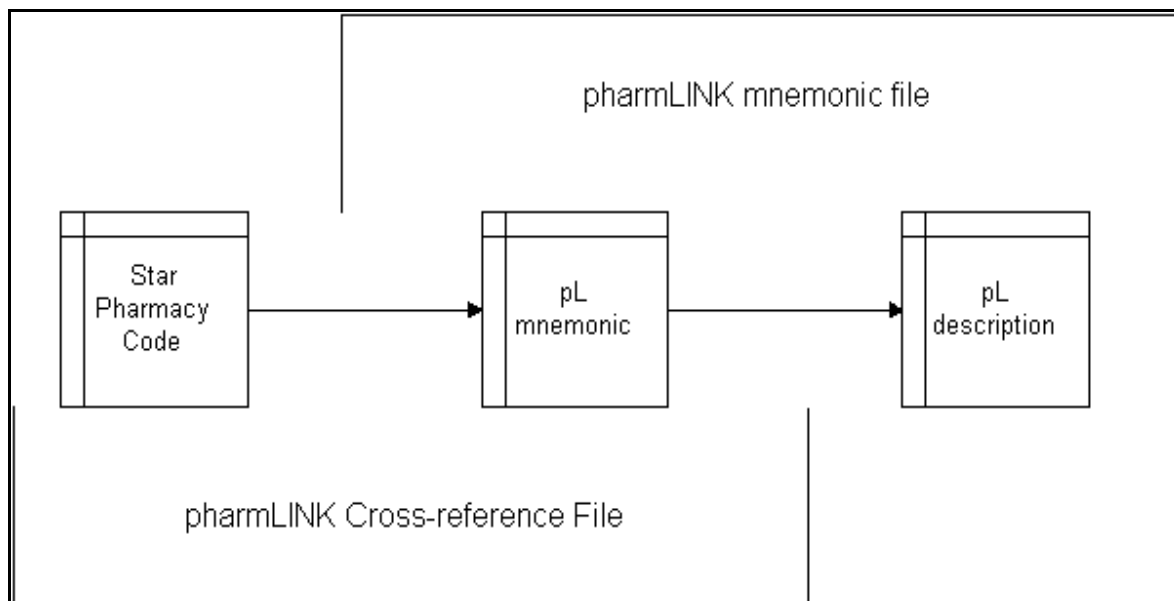
The following notes provide information about defining certain parameters on pharmLINK for proper operation of the STAR interface. For complete details on the implementation procedures for pharmLINK, please refer to the pharmLINK Operator's Manual.

1. Verify that the HPS Interface software has been installed on your pharmLINK system. This is an additional purchase.
2. On pharmLINK, you can define the master system for updating the patient demographics fields that reside on pharmLINK. These parameters are defined in the Patient Field Control Customization Dialog Box. The options are Unused, DMS, pharmLINK, and HPS. Define all fields as HPS.
3. If you select to send outpatient types to pharmLINK, the patient types must be built in the Ward file on pharmLINK and in the cross-reference file. The 3 character code is sent from STAR Pharmacy.
4. Make sure the pharmLINK configuration matches the following requirements of the STAR interface:

Parameters	Defined	Comments
Baud Rate	9600	Supports 1200 -9600
Word Length/Data Bits	8	
Stop Bits	1	
Parity	None	

5. Many of the fields contained in the interface records require cross-references on pharmLINK. Many of the data elements at the patient, allergy, and therapy levels use mnemonic processing. The relationship between a cross-reference and a mnemonic definition is shown in the following figure:

Figure 3.1 Relationship between a Cross-Reference and a Mnemonic Definition



Although many of the mnemonic files are preloaded from the MicroScan, you must build all cross-references between the mnemonic and what STAR Pharmacy sends in the records. As a backup mechanism, if pharmLINK receives a code from STAR Pharmacy that does not exist in the cross-reference file, then the mnemonic file is checked. If the code does not exist, pharmLINK adds it to the mnemonic file and logs a message to the pharmLINK log file.

pharmLINK and MicroScan may share the same mnemonic file; however, their cross-reference files are separate. This is advantageous because the LIS interfaced to the MicroScan may be a non-McKesson system and may require totally different cross-references.

For more detail on building these cross-reference files and mnemonic files, refer to your pharmLINK documentation.

6. To accommodate those cases where a therapy does not have a defined frequency code, you can create a mnemonic entry in the frequency table for None. Also create a cross-reference between None and the mnemonic. STAR Pharmacy sends None when no frequency is defined for a therapy.

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PHARMLINK INTERFACE USER FUNCTIONS

This section provides user information for the functions available after the interface is installed. The following functions are available:

- pharmLINK Interface Parameters
- pharmLINK Build/Audit Report
- Send Patients
- Send Orders
- Interface Audit
- Start/Stop Interface

To access the pharmLINK interface, first select System Management--Pharmacy from the System Management menu. Then select the Interface Utilities option. The system displays the following screen:

General Hospital Interface Utilities Processor	
Mon Jul 22, 2002 10:17 am	
Interface Utilities Input Options	
Option No.	Option
1	ATC Interface Utilities
2	Horizon Clinical Documentation Interface Utilities
3	Micromedex Access Utilities
4	Kinetics Access Utilities
5	pharmLINK Interface
6	HL7 Interface Functions
7	Generic Interface Utilities
8	Robot Interface Parameters

Enter option number--

Select the pharmLINK Interface option.

The system displays the following screen:

```
General Hospital pharmLINK Interface Processor
                               Mon Apr 24, 2000 11:30 am

pharmLINK Interface Input Options

Option No.  Option
-----
    1      pharmLINK Interface Parameters
    2      pharmLINK Build/Audit Report

    3      Send Patients
    4      Send Orders
    5      Interface Audit
    6      Start/Stop Interface

Enter option number--
```

You can use these functions to define the parameters specific to the pharmLINK interface (in addition to those defined using the Communication Line Definition in the Generic Interface Utilities), use the implementation tools, send one or more patients to the interface, send one or more therapy orders to the interface, review the interface audit, and start and stop the interface.

PHARMLINK INTERFACE PARAMETERS

This function enables you to define additional parameters for the interface by facility. The McKesson installer uses the Communication Line Definition function on the Generic Interface Utilities to define the interface on STAR Pharmacy and STAR Patient Care.

You cannot edit the parameters when the interface is active.

NOTE: The relationship between the pharmLINK Interface Parameters and the parameters on the Communication Line Definition are additive. For example, if on the Communication Line Definition screen you selected to send medication orders and to not send any solution orders, then only orders that were medication orders *and* were one of the formulary items defined would be sent.

When you select the pharmLINK Interface Parameters, the system displays the screen for the facility you selected:

General Hospital Processor				Mon Apr 24, 2000 08:16 am
Facility - Model Hospital A				
pharmLINK Interface Parameters - RXB				
1 Patient ID Number	2 Stations	3 Patient Types	4 Allergies	
Unit #	Defined	Defined	Defined	
5 Admin Routes	6 Formulary Items	7 Send Facility		
Defined	Defined	No		
8 Edit By	9 Edit Date			
McNiff, Gerry	12/07/99 09:27 A			
Enter field number or '/' starting field number--				

Field Explanations

1. PATIENT ID NUMBER (1-A-R)

This field defines whether STAR sends the account number or the unit number as the patient ID number. The patient ID number sent from STAR must match the patient ID number used on the MicroScan. If your LIS is STAR Laboratory or another system that uses account numbers, enter **A**. If patients are indexed on your LIS system by unit number, enter **U**.

When you access this field, the system displays the following prompt:

Define Pt ID Number as account #(A) or Unit #(U) ?--

2. STATIONS (TABLE LOOKUP-R)

This field defines the valid nurse stations for which STAR sends patient and therapy information to pharmLINK. If your facility has defined valid nurse stations, this field contains *Defined*. If no valid nurse stations have been defined, this field contains *Not Defined*.

When you access this field, the system displays the following prompt:

Enter the nurse station or '-' for table --

If your facility has already defined valid nurse stations and you enter a hyphen (-), the system displays the Valid Nurse Stations table for the facility. The system displays the following prompt:

Enter option to DELETE or add(A) --

If you enter A, the system displays the following prompt:

Enter the nurse station or '-' for table --

Enter the name of the nurse station you want to add, or enter a hyphen (-) and select from the list. If you enter a hyphen, the system displays the Nurse Station table and the following prompt:

*Enter choices (e.g. 1,7,5-9) or '-'choices to remove--
end selection(NL) next page (/)*

Enter your choices. The system adds the new nurse stations to the Valid Nurse Stations for the facility.

If you enter the number of the station you want to delete, the system displays a prompt specific to that station:

Delete CCU-CORONARY CARE UNIT? [Y] (Y/N)--

If you enter Y to delete, the system displays the message *Deleted!*, and re-displays the Valid Nurse Stations table without the deleted option. If you enter N, the system re-displays the Valid Nurse Stations table prompt.

If you access this field and your facility has not yet defined valid nurse stations, the system displays the following prompt:

Enter the nurse station or '-' for table --

If you enter a hyphen, the system displays the Nurse Stations table for the facility and the following prompt:

*Enter choices (e.g. 1,7,5-9) or '-'choices to remove--
end selection(NL) next page (/)*

Enter your choices. The system adds the new nurse stations to the Valid Nurse Stations table for the facility. After you press ENTER, the field contains *Defined*.

3. PATIENT TYPES (TABLE LOOKUP-R)

This field defines the valid patient types for the facility for which STAR sends patient and therapy information. If your facility has defined valid patient types, this field contains *Defined*. If no valid patient types have been defined, this field contains *Not Defined*.

If you access this field and your facility has already defined valid patient types, the system displays the Valid Patient Types table for the facility and the following prompt:

Enter option to DELETE or add(A) --

If you enter A, the system displays the following prompt:

Enter the patient type or '-' for table --

Enter the patient type, or enter a hyphen (-) and select from the list. If you enter a hyphen, the system displays the Patient Types table and the following prompt:

*Enter choices (e.g. 1,7,5-9) or '-'choices to remove--
end selection(NL) next page (/)*

Enter your choices. The system adds the new patient types to the Valid Patient Types table for the facility.

If you enter the number of the patient type you want to delete, the system displays a prompt specific to that station:

Delete I/P Regular Inpatient Admission? [Y] (Y/N)--

If you enter Y to delete, the system displays the message *Deleted!*, and re-displays the Valid Patient Types table without the deleted option. If you enter N, the system re-displays the Valid Patient Types table prompt.

If you enter a hyphen and your facility has not defined valid patient types, the system displays the Patient Types table. Enter your choices. The system then displays the Valid Patient Types table along with the following prompt:

Enter option to DELETE or add(A) --

If you enter A, the system displays the following prompt:

Enter the patient type or '-' for table --

The system displays the Patient Types table for the facility and the following prompt:

*Enter choices (e.g. 1,7,5-9) or '-'choices to remove--
end selection(NL) next page (/)*

Enter your choices. The system adds the new patient types to the Valid Patient Types table for the facility. After you press ENTER, the field contains *Defined*.

4. ALLERGIES (TABLE LOOKUP-R)

This field defines the valid allergies for the facility. If your facility has defined valid allergies, this field contains *Defined*. If no valid allergies have been defined, this field contains *Not Defined*.

If you access this field and your facility has already defined valid allergies, the system displays the Valid Allergies table and the following prompt.

Enter option to DELETE or add(A) --

If you enter A, the system displays the following prompt:

Enter the Allergy code, partial description or '-' for table --

Enter the code, a partial description, or enter a hyphen (-), and select from the list. If you enter a hyphen, the system displays the Allergy Classes table and the following prompt:

*Enter choices (e.g. 1,7,5-9) or '-'choices to remove--
end selection(NL) next page (/)*

Enter your choices. The system adds the new Allergy Classes to the Valid Allergies table for the facility.

If you enter the number of the allergy type you want to delete, the system displays a prompt specific to that station:

Delete 220-YELLOW FD&C #10? (Y/N)--

If you facility has not defined valid allergies, the system displays the following prompt:

Enter the Allergy code, partial description or '-' for table --

Enter the code, a partial description, or enter a hyphen (-) and select from the list.

If you enter a hyphen, the system displays the Allergy Classes table and the following prompt:

*Enter choices (e.g. 1,7,5-9) or '-'choices to remove--
end selection(NL) next page (/)*

Enter your choices. The system adds the new allergy classes to the Valid Allergies table for the facility. After you press ENTER, the field contains *Defined*.

5. ADMIN ROUTES (TABLE LOOKUP-R)

This field defines for the facility the valid routes of administration of any therapies that STAR sends. If your facility has defined valid admin routes, this field contains *Defined*. If no valid admin routes have been defined, this field contains *Not Defined*.

If you access this field and your facility has already defined valid administration routes, the system displays the Valid Routes of Administration table and the following prompt:

Enter option to DELETE or add(A) --

If you enter A, the system displays the following prompt:

Enter the Route code, partial description or '-' for table lookup --

Enter the code, a partial description, or enter a hyphen (-), and select from the list.

If you enter a hyphen, the system displays the Routes table and the following prompt:

*Enter choices (e.g. 1,7,5-9) or '-'choices to remove--
end selection(NL) next page (/)*

Enter your choices. The system adds the new Routes to the Valid Routes of Administration table for the facility.

If you enter the number of the Route type you want to delete, the system displays a prompt specific to that station:

Delete IM-INTRAMUSCULAR? (Y/N)--

If your facility has not defined valid routes, the system displays the following prompt:

Enter the Route code, partial description or '-' for table lookup --

Enter the code, a partial description, or enter a hyphen (-) and select from the list. If you enter a hyphen, the system displays the Routes table for the facility and the following prompt:

*Enter choices (e.g. 1,7,5-9) or '-'choices to remove--
end selection(NL) next page (/)*

Enter your choices. The system adds the routes to the Valid Routes of Administration table for the facility. After you press ENTER, the field contains *Defined*.

6. FORMULARY ITEMS (TABLE LOOKUP-R)

This field defines for the facility the valid formulary items for orders that STAR sends. If your facility has defined valid formulary items, this field contains *Defined*. If no valid formulary items have been defined, this field contains *Not Defined*.

If you access this field and your facility has already defined valid formulary items, the system displays the Valid Formulary Items table and the following prompt.

Enter option to DELETE or add(A) --

If you enter A, the system displays the following prompt:

Enter the Formulary code, drug name or '-' for table --

Enter the code, the drug name, or enter a hyphen (-), and select from the list. If you enter a hyphen, the system displays the Formulary Items table and the following prompt:

*Enter choices (e.g. 1,7,5-9) or '-'choices to remove--
end selection(NL) next page (/)*

Enter your choices. The system adds the new Formulary Items to the Valid Formulary Items for the facility.

If you enter the number of the formulary item you want to delete, the system displays a prompt specific to that station:

Delete 106-CEFACLOX? (Y/N)--

If you access this field and your facility has not defined valid formulary items, the system displays the following prompt:

Enter the Formulary code, drug name or '-' for table --

Enter the code, a partial description, or enter a hyphen (-) and select from the list. If you enter a hyphen, the system displays the Formulary Items table for the facility and the following prompt:

*Enter choices (e.g. 1,7,5-9) or '-'choices to remove--
end selection(NL) next page (/)*

Enter your choices. The system adds the routes to the Valid Formulary Items table for the facility. After you press ENTER, the field contains *Defined*.

7. SEND FACILITY (1-A-R)

This field determines whether or not to send the Facility code with the Patient Account Number. If this field is empty or **Y**, the information is sent together. If the account number is all that is needed, then respond **N** to the following prompt:

Send Facility with Patient Account Number (Y/N) [Y]--

8. EDIT BY (DISPLAY ONLY)

The system displays the name of the person who last edited the parameters.

9. EDIT DATE (DISPLAY ONLY)

The system displays the date the parameters were last edited.

After you complete the required fields, the system prompts you to accept the screen. To accept the screen, enter **Y** or press ENTER. To edit the screen, enter **N**.

Impact

When you accept this screen, the system files the parameters for the facility. If you have modified the parameters, you must stop and restart the interface for the new parameters to be in effect.

PHARMLINK BUILD/AUDIT REPORT

You can use this function to:

- Automate building the valid formulary items and ADR classes in the pharmLINK Interface Parameters by allowing you to select AHFS classes and routes. The system includes a formulary item and its associated ADR classes in the pharmLINK Interface Parameters if at least one of the AHFS classes selected *and* one of the routes selected are associated with the formulary item.
- Generate an audit report to show which formulary items and ADR codes are defined on STAR Pharmacy. This report facilitates the cross-reference build on pharmLINK.

You can perform this function in either the build mode or the audit mode. In the *build* mode, you can build or re-build the list of valid formulary items and ADR classes in the pharmLINK Interface Parameters, and print reports listing the items and ADR classes selected. In the *audit* mode, you can list the items and classes currently defined. The system offers several sort options for the reports created, and also provides the option to list items and ADR classes not selected for inclusion in the pharmLINK Interface Parameters.

When you select the Build/Audit Report function from the pharmLINK Interface Utilities menu, the system asks you to select a facility if you are in a multifacility environment. After selecting a facility, or if you are in a single facility environment, the following screen is displayed:

General Hospital pharmLINK Build/Audit Report Processor					
					Mon Apr 24, 2000 12:55 pm
Facility - Model Hospital A					
pharmLINK Interface Parameters - RXB					
1 Build/Audit Mode	2 AHFS Classes	3 Routes			
Build	Defined	Defined			
4 Item Sort	5 ADR Sort	6 Print Excluded Items?			
Brand Name	Description	Yes			
7 Last Build					
Enter field number or '/' starting field number--					

Field Explanations

1. BUILD/AUDIT MODE (1-A-R)

This field determines if this process builds a new set of formulary items and ADR classes in the pharmLINK Interface Parameters or if it displays the currently defined formulary items and ADR classes. To display a list of currently defined items and ADR

classes, enter **A**. To delete the current formulary items and ADR classes in the pharmLINK Interface Parameters and rebuild, using the new AHFS classes and routes you select, enter **B**.

If this field contains A, the AHFS field and the Routes field are display only.

When you access this field, the system displays the following prompt:

Enter (B)uild formulary items and ADR classes or print (A)udit report? --

2. AHFS CLASSES (TABLE LOOKUP-R)

This field defines the AHFS classes that the system uses when building the formulary items and ADR classes in the pharmLINK Interface Parameters. You cannot access this field if the Build/Audit Mode field is set to Audit. If your facility has defined valid AHFS classes, this field contains *Defined*. If no valid AHFS classes have been defined, this field contains *Not Defined*.

When you access this field and the AHFS classes are defined, the system displays the Valid AHFS Classes table for the facility and the following prompt:

Enter option to DELETE or add(A)--

If you enter A to add, the system displays the following prompt:

Enter the AHFS code or '-' for table lookup--

Enter a code, or enter a hyphen (-) and select from the list. If you enter a hyphen, the systems displays the Available AHFS Classes table for the facility and the following prompt:

*Enter choices (e.g. 1,7,5-9) or '-'choices to remove--
end selection(NL) next page (/)*

Enter your choices.

If a formulary item belongs to one of the AHFS classes you select and has one of the routes in the Routes field as one of its recommended routes, the system includes it as a valid item in the pharmLINK Interface Parameters.

If you select a high-level AHFS class, the system allows you to include formulary items associated with the individual AHFS classes within that class. The system displays a message specific to that high-level class:

System will search for all included classes of code 400400. Accept? (Y/N)--

If you accept, the system displays the Valid AHFS Classes table and the following prompt:

Enter option to DELETE or add(A)--

If you select an AHFS class that is a subset of a higher level class you already selected, the system does not accept your selection and displays a message specific to that class:

Included in class 400400. Press NL.

If you enter an option to delete, the system displays a prompt specific to that class:

Delete 280800-ANALGESICS AND ANTIPYRETICS? (Y/N)--

If you select to delete, the system displays the *Deleted!* message.

When you access this field and the AHFS classes are not defined, the system displays the following prompt:

Enter the AHFS code or '-' for table lookup--

Enter a code, or enter a hyphen (-) and select from the list. If you enter a hyphen, the system displays the Available AHFS Classes table for the facility and the following prompt:

*Enter choices (e.g. 1,7,5-9) or '-' choices to remove--
end selection(NL) next page (/)*

Enter your choices. The system adds the routes to the Valid AHFS Classes table for the facility. After you press ENTER, the field contains *Defined*.

3. ROUTES (TABLE LOOKUP-R)

This field defines the routes that the system uses to select the formulary items and ADR classes that it builds in the pharmLINK interface parameters. You cannot edit this field if the Build/Audit Mode field is set to Audit. If your facility has defined valid routes, this field contains *Defined*. If no valid routes have been defined, this field contains *Not Defined*.

If you access this field and your facility has already defined valid administration routes, the system displays the Valid Routes of Administration table for the facility and the following prompt.

Enter option to DELETE or add(A) --

If you enter A, the system displays the following prompt:

Enter the Route code, '=' for All or '-' for table lookup--

Enter the code, a partial description, or enter a hyphen (-), and select from the list.

If you enter a hyphen, the system displays the Routes table and the following prompt:

*Enter choices (e.g. 1,7,5-9) or '-'choices to remove--
end selection(NL) next page (/)*

Enter your choices. The system adds the new Routes to the Valid Routes of Administration table for the facility.

If you enter the number of the Route type you want to delete, the system displays a prompt specific to that station:

Delete IM-INTRAMUSCULAR? (Y/N)--

If you enter Y to delete, the system displays the *Deleted!* message and then redisplay the Valid Routes of Administration table, which no longer includes the route you deleted.

If you enter this field and your facility has not defined valid routes, the system displays the following prompt:

Enter the Route code, partial description or '-' for table lookup --

Enter the code, a partial description, or enter a hyphen (-) and select from the list. If you enter a hyphen, the system displays the Routes table for the facility and the following prompt:

*Enter choices (e.g. 1,7,5-9) or '-'choices to remove--
end selection(NL) next page (/)*

Enter your choices. The system adds the routes to the Valid Routes of Administration table for the facility. After you press ENTER, the field contains *Defined*.

4. ITEM SORT (1-A-R)

This field defines the sort order for the formulary section of the Build/Audit Report. To sort by formulary code, enter **F**. To sort by brand name, enter **B**. To sort by generic name, enter **G**.

When you access this field, the system displays the following prompt:

Sort formulary items by (F)ormulary code, (B)rand name or (G)eneric name?--

5. ADR SORT (1-A-R)

This field defines the sort order for the ADR class section of the Build/Audit Report. To sort ADR classes by code, enter **C**. To sort them by description, enter **D**.

When you access this field, the system displays the following prompt:

Sort ADR classes by (C)ode or (D)escription?--

6. PRINT EXCLUDED ITEMS (1-A-R)

This field determines if formulary items and ADR classes *not* selected for addition to the pharmLINK Interface parameter are printed on a separate section of the Build/Audit Report. To include these items on the report, enter **Y**. To not include these items, enter **N**.

When you access this field, the system displays the following prompt:

Print excluded items on the report? (Y/N)--

7. LAST BUILD (DISPLAY ONLY)

This field displays the date and time this function was last performed for the facility, as well as the name of the person who performed the function.

After you complete the required fields, the system prompts you to accept the screen. To accept the screen, enter **Y** or press ENTER. To edit the screen, enter **N**.

Impact

When you accept this screen in an Audit mode, the system:

- Prints a report showing the formulary items and ADR classes currently defined in the pharmLINK Interface Parameter for the selected facility.
- Prints a separate section listing items and classes not currently defined in the parameter, if you answered Y to the Print Excluded Items? field.

When you accept this screen in a Build mode, the system:

- Deletes the existing formulary items and ADR classes in the pharmLINK Interface Parameter for the facility selected.
- Reads the formulary for the facility selected and adds formulary items and their associated ADR classes in the pharmLINK Interface Parameter if the formulary item belongs to one of the AHFS classes defined as a selection criteria in the AHFS Classes field, **and** one of the recommended routes for the formulary item is defined as a selection criteria in the Routes field.
- Prints a report showing the formulary items and ADR classes built by this process in the pharmLINK Interface Parameter for the selected facility. The name of the report is PRXLNK_, with the last character being the facility code designation.

- Prints a separate section listing items and classes that were not defined in the parameter, if the Print Excluded Items? field contains Y.

Information about the pharmLINK Build/Audit Report

The report generated by this function may have up to five sections, depending on the criteria you defined:

If this report was generated by the *Build* mode, this page lists the AHFS classes and routes used to select the formulary items and ADR classes that were built. If this report was generated by the *Audit* mode, this page does not print.

Formulary Items

If this report was generated by the *Build* mode, this section lists the formulary items that were selected based on the AHFS class and route criteria defined. The first line of the report header contains *pharmLINK Parameter Build Report*. The second line of the report header contains *Formulary Items*.

If this report was generated by the *Audit* mode, this section lists the formulary items currently defined in the pharmLINK Interface parameter. The first line of the report header contains *pharmLINK Parameter Audit Report*. The second line of the report header contains *Formulary Items*.

ADR Classes

If this report was generated by the *Build* mode, this section lists the ADR classes for the formulary items that were selected based on the AHFS class and route criteria defined. The first line of the report header contains *pharmLINK Parameter Build Report*. The second line of the report header contains *ADR Classes*.

If this report was generated by the *Audit* mode, this section lists the ADR classes currently defined in the pharmLINK Interface parameter. The first line of the report header contains *pharmLINK Parameter Audit Report*. The second line of the report header contains *ADR Classes*.

Excluded Formulary Items

This section prints only if you answered Y to the Print Excluded Items? field.

If this report was generated by the *Build* mode, this section lists the formulary items that were not selected based on the AHFS class and route criteria defined. The first line of the report header contains *pharmLINK Parameter Build Report*. The second line of the report header contains *Excluded Formulary Items*.

If this report was generated by the *Audit* mode, this section lists the formulary items not currently defined in the pharmLINK Interface parameter. The first line of the report

header contains *pharmLINK Parameter Audit Report*. The second line of the report header contains *Excluded Formulary Items*.

Excluded ADR Classes

This section prints only if you answered Y to the Print Excluded Items? field.

If this report was generated by the *Build* mode, this section lists the ADR classes that were not selected based on the AHFS class and route criteria defined. The first line of the report header contains *pharmLINK Parameter Build Report*. The second line of the report header contains *Excluded ADR Classes*.

If this report was generated by the *Audit* mode, this section lists the ADR classes not currently defined in the pharmLINK Interface parameter. The first line of the report header contains *pharmLINK Parameter Audit Report*. The second line of the report header contains *Excluded ADR Classes*.

The following examples show formats of the different sections of the report. The Criteria page example lists the AHFS classes (code and description) and routes (code and description) used to select the formulary items and ADR classes built.

The Formulary Items page example is sorted by formulary code. Regardless of the sort option selected, this page prints the formulary code, item name, display strength, dosage form description, and package size. If the report is sorted by formulary code, the system prints the item trade or generic name according to the Misc, HBO - Trade vs Generic parameter. If the report is sorted by brand name, the system prints the item's brand name. If the report is sorted by generic name, the system prints the item's generic name. The same report format is used for both the included and excluded items section.

The ADR Classes page example is sorted by ADR class description. Regardless of the sort option selected, this page prints the ADR class code and description. The same report format is used for both the included and excluded items section.

Figure 4.1 Criteria Page of the Build Report (PRXLNK)

Model Hospital A	pharmLINK Parameters Build Report	Page: 1
		Date: 1/19/99
		Time: 05:57pm
*** Search Criteria ***		
AHFS Classes		
080400	AMEBICIDES	
080800	ANTHELMINTICS	
081200	ANTIBIOTICS	
081600	ANTITUBERCULOSIS AGENTS	
081800	ANTIVIRALS	
082200	QUINOLONES	
082400	SULFONAMIDES	
082600	SULFONES	
082800	TREPONEMICIDES	
083200	TRICHOMONACIDES	
083600	URINARY ANTI-INFECTIVES	
084000	OTHER ANTI-INFECTIVES	
520404	ANTIBIOTICS (EENT)	
520405	ANTIFUNGALS (EENT)	
520408	SULFONAMIDES (EENT)	
520412	MISCELLANEOUS ANTI-INFECTIVES	
<u>Routes</u>		
IM	Intramuscular	
IV	Intravenous	
ORAL	Oral	

Figure 4.2 Formulary Items of the Build Report (Sorted by Formulary Code) (PRXLNK)

Model Hospital A		pharmLINK Parameters Build Report	Page: 2	
		Formulary Items	Date: 11/14/99	
			Time: 05:57pm	
Form#	Brand Name	Strength	Dosage Form	Pkg
5	AMOXIL	250 MG	CAPSULE	100ea
6	AMOXIL	500 MG	CAPSULE	100ea
7	OMNIPEN	250 MG	CAPSULE	100ea
8	AMPICILLIN	500 MG	CAPSULE	100ea
10	BACTRIM		TABLET	100ea
19	BACTRIM DS		TABLET	100ea
32	CECLOR	250 MG	CAPSULE	100ea
33	CECLOR	500 MG	CAPSULE	100ea
38	CIPRO	250 MG	TABLET	100ea
39	CIPRO	500 MG	TABLET	100ea
73	FLAGYL	250 MG	TABLET	100ea
75	GEOCILLIN	382 MG	TABLET	100ea
95	KEFLEX	500 MG	CAPSULE	100ea
103	MACRODANTIN MCR CRS		CAPSULE MCR	100ea

Figure 4.3 ADR Classes of the Build Report (Sorted by Description) (PRXLNK)

Model	Hospital A	pharmLINK Parameters Build Report	Page: 3
		ADR Classes	Date: 11/14/99
			Time: 05:57pm
Code	Description		
-----	-----		
908	ACYCLOVIR		
838	ALCOHOL		
835	AMINOGLYCOSIDES		
666	BENZYL ALCOHOL		
847	CEPHALOSPORINS		
645	CEPHAMYCINS		
850	CLINDAMYCIN		
546	DEXTROSE		
673	LACTOSE		
842	MACROLIDE ANTIBIOTICS		
754	NITROFURANTOIN		
760	NITROIMIDAZOLE DERIVATIVES		
780	PARABENS		
802	PENICILLIN AND DERIVATIVES		
584	PROPYLENE GLYCOL		
620	QUINOLONES		
701	STRAWBERRY		
339	SULBACTAM		
803	SULFA		
676	SULFITES		
845	TETRACYCLINES		
714	TRIMETHOPRIM		

SEND PATIENTS

This function enables you to send, by facility, all current inpatients to pharmLINK (or to any other interface defined through the Generic Interface Utilities). In addition, you can send the patients for one or more nurse stations or send a single patient.

When you select this function, the system displays the following screen.

General Hospital Send Patients Processor	
Mon Apr 24, 2000 02:07 pm	
Send Patients	
1 Interface	2 Facilities
PHL-pharmLINK Interface	A-General Hospital
3 Single Patient	4 Entire Facility
No	No
5 Nurse Stations	
1E, 1W, 2E, 2W	
6 O/P Types	
No	
Enter field number or '/' starting field number--	

Field Explanations

1. INTERFACE (TABLE LOOKUP-R)

This field defines the interface for which you wish to send patients. Enter the code for the interface, or enter a hyphen (-) to display a list of the defined interfaces.

When you access the field, the system displays the following prompt:

Enter communication code, or '-' to list--

After you select an interface, the system displays the code and the interface description separated by a hyphen (-).

2. FACILITY (TABLE LOOKUP-R)

This field defines the facility for which you want to transmit patients.

When you access the field, the system displays a table of the facilities associated with the interface (based on the Communication Line Definition in the Generic Interface Utilities). You can select only one facility. If a facility is associated with the interface, the system automatically completes this field with the facility.

3. SINGLE PATIENT (SPECIAL PROCESSING-O)

Use this field to select a single patient to transmit. When you access the field, the system displays the following prompt:

Send single patient? (Y/N)--

If you enter Y, the system displays the patient lookup processor. Enter the account number, bed code, or first characters of the patient's name. After you indicate a patient, the system displays the patient's name in the field.

If you enter N, the system displays No in the field and moves the cursor to the next field.

NOTE: When you select to transmit a single patient, you cannot access the Entire Facility field. The system displays N/A in the Nurse Stations field and the O/P Types field.

4. ENTIRE FACILITY (1-A-C)

This field enables you to send all active patients for the selected facility to the interface. This field is active only when you enter N in the Single Patient field. If you enter N in the Single Patient field, this field is required.

When you access the field, the system displays a prompt specific to the facility:

Send all active patients for facility A? (Y/N)--

If you enter Y, the system displays Yes in the field and automatically displays All in the Nurse Stations field and the O/P Types field. The screen is complete.

If you enter N, the system displays No in the field and moves the cursor to the Nurse Stations field so that you can select the nurse stations to transmit.

5. NURSE STATIONS (TABLE LOOKUP-C)

This field allows you to send the census for selected nurse stations for the facility to the interface. This field is active only when you enter N in the Single Patient field. If you enter N in the Single Patient field, this field is required.

When you access this field, the system displays the Valid Nurse Stations table along with the following prompt:

Enter options or all(A)--

To select all nurse stations, enter **A**. The system displays All in the field. If you enter the numbers for nurse stations you want to select, the system displays their codes.

6. O/P TYPES (TABLE LOOKUP-C)

This field enables you to send to the interface the facility's active orders for all active outpatients for the selected outpatient types. You can access this field only if the Entire Facility field contains No.

When you access this field, the system displays the Valid Patient Types table along with the following prompt:

Enter options or all(A)--

To select all outpatient patient types, enter **A**. The system displays *All* in the field. if you enter the numbers for patient types you want to select, the system displays the patient type codes you selected.

Impact

After you accept the screen, the system formats patient and allergy transactions for the selected set of patients and sends them to the interface. For the pharmLINK interface, the system sends only patients of the specified patient types who are located at valid nurse stations, as defined in the pharmLINK Interface Parameters.

SEND ORDERS

This function enables you to send pharmacy orders for all active patients to pharmLINK (or to any other interface defined through the Generic Interface Utilities). You can specify to send all orders for one or more nurse stations or for a single patient, or to send a single order.

When you select this function, the system displays the following screen:

General Hospital Send Orders Processor	
Send Orders	Mon Apr 24, 2000 04:59 pm
1 Interface	2 Facilities
RXA - pharmLINK	A - Model Hospital A
3 Single Patient	4 Single Order
5 Entire Facility	6 Nurse Stations
	CCU, ICU
7 O/P Types	
LTC, I/P	
Enter field number or '/' starting field number--	

Field Explanations

1. INTERFACE (TABLE LOOKUP-R)

This field shows the selected interface. Enter the code for the interface, or enter a hyphen (-) and select from the list of the defined interfaces. When you access the field, the system displays the following prompt:

Enter communication code, or '-' to list--

2. FACILITY (TABLE LOOKUP-R)

This field allows you to select the facility for which you wish to send patient orders. When you access the field, the system displays a table of the facilities associated with the interface (based on the communication line definition). You can select only one facility. If a facility is associated with the interface, the system automatically completes this field with the facility.

3. SINGLE PATIENT (SPECIAL PROCESSING-O)

This field allows you to select to send orders for a single patient. When you access the field, the system displays the following prompt:

Send single patient's orders? (Y/N)--

If you enter N, the system displays No in the field, displays N/A in the Single Order field, and moves the cursor to the Entire Facility field. If you enter Y, the system displays the patient lookup processor so you can select the specific patient for whom to transmit orders. After you select a patient, the system displays the patient's name in the field and the cursor moves to the Single Order field.

When you select to send orders for a single patient, the system displays No in the Entire Facility field and N/A in the Nurse Stations field and the O/P Types field.

4. SINGLE ORDER (SPECIAL PROCESSING-O)

This field allows you to select a single order to transmit to the interface. You can access this field only if the Single Patient field contains Yes. If the Single Patient field contains No, the system displays N/A in the field and you cannot edit the field. If the field is active and you access the field, the system displays the following prompt:

Enter order numbers, '-' to list, or All(A)--

You can enter the order number for the order. To display a list of all active orders for the previously defined patient, enter a hyphen (-) and then select. To send all active order for the patient, enter A. The system displays All in the field. If you select one or more orders from the table, the system displays Selected Orders in the field.

5. ENTIRE FACILITY (1-A-C)

This field allows you to send all active orders for the facility's active patients to the interface. This field is required if the Single Patient field contains Yes. When you access the field, the system displays the following prompt:

Send all active patient orders for facility A? (Y/N)--

If you enter Y, the system displays Yes in the field and displays All in the Nurse Stations field and the screen is complete. If you enter N, the system displays No in the field and moves the cursor to the Nurse Stations field so you can select the nurse stations to send.

6. NURSE STATIONS (TABLE LOOKUP-C)

This field allows you to send orders for the selected nurse stations census to the interface. This field is required if the Entire Facility field contains Yes. When you access the field, the system displays the list of the nurse stations for the facility. You can select one or more stations. After you make your selections, the system displays the nurse station codes.

7. O/P TYPES (TABLE LOOKUP-C)

This field enables you to send to the interface the facility's active orders for all active outpatients for the selected outpatient types. This field is required if the Entire Facility field contains No.

When you access this field, the system displays the Valid Patient Types table along with the following prompt:

Enter options or all(A)--

To select all outpatient patient types, enter **A**. The system displays *All* in the field. If you enter the numbers for patient types you want to select, the system displays the patient type codes.

Impact

After you accept the screen, the system formats patient and order transactions and sends only patients of the specified patient type who are located at valid nurse stations and active orders for valid formulary items, as defined in the pharmLINK Interface Parameters.

INTERFACE AUDIT

This function enables you to review the interface transactions queued for transmission, review the audit of transactions that have been transmitted, and to review the error log. You can also retransmit transactions.

When you select the Interface Audit option, the system displays the following prompt:

Enter communication code, or '-' to list--

Enter the code for the interface or enter a hyphen (-) to display a list of the defined interfaces. After you identify the interface, the system displays the following screen:

General Hospital Processor		Mon Apr 24, 2000 05:35 pm
1 Interface	2 Audit Type	
PHL-pharmLINK Interface	Errors	
3 Date		
10/31/99		
4 Search String		
Enter field number or '/' starting field number--		

Field Explanations

1. INTERFACE (DISPLAY ONLY)

This field displays the code and description of the interface you selected.

2. AUDIT TYPE (1-A-R)

This field defines the type of interface audit to display. When you access this field, the system displays the following prompt:

Display transmission (Q)ueue, (A)udit, or (N)otices? [A]--

If you enter Q to display the transmission queue, the system displays Queue in the field. When you accept the screen, the system displays the transmission queue. The transmission queue contains the transactions that have not yet been transmitted to pharmLINK.

If you enter A to display the transmission audit, the system displays Audit in the field. When you accept the screen, the system displays the transactions that have been successfully transmitted to pharmLINK.

If you enter N to display the notices, the system displays Notices in the field. When you accept the screen, the system displays the transmission errors and processing messages.

3. DATE (TABLE LOOKUP-R)

This field defines the date of the transactions to display for review. When you access the field, the system displays a table of the available review dates. If only one date is available for review, the system automatically enters the date. The entries for the table display in MM/DD/YY. The system displays the following prompt for the table:

Enter option to review [MM/DD/YY]--

The default for the prompt is the current date. When you select an option from the table, the system displays the date in the field in MM/DD/YY format.

4. SEARCH STRING (25-C-O)

This field allows you to define a string of characters for the system to search. You can search, for example, for a specific patient name, order, or unit number. When you access this field, the system displays the following prompt:

Enter string to search for--

Impact

When you accept this screen, the system displays a screen with the appropriate interface transactions.

Start/Stop Interface

This function enables you to either activate or inactivate the pharmLINK interface.

NOTE: To edit parameters on the pharmLINK Interface Parameters, you must first inactivate the interface.

Enter the three-character communication code for the interface, or enter a hyphen (-) and select from the list.

At the top of the screen, the status of the interface is displayed as either *Active* or *Inactive*.

INACTIVATING AN INTERFACE

If the status is active, the system displays the following prompt:

Inactivate the pharmLINK? (Y/N) --

If you select **Y** to inactivate the interface, the system displays the following prompt:

pharmLINK will be terminated! Accept? (Y/N)

If you accept, a message informs you that the interface is terminated and the system displays the following prompt:

Enter communication code, or '-' to list --

If you enter N to select not to terminate the interface, the system displays the following prompt:

Enter communication code, or '-' to list --

ACTIVATING AN INTERFACE

If the status is inactive, the system displays the following prompt:

Activate the pharmLINK? (Y/N) --

If you enter Y, the system displays the following message.

pharmLINK will be activated! Accept? (Y/N)

If you accept, a message informs you that the interface is activated and the system displays the following prompt:

Enter communication code, or '-' to list --

If you enter N to select not to activate the interface, the system displays the following prompt:

Enter communication code, or '-' to list --

Chapter 5 - TROUBLESHOOTING

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TROUBLESHOOTING TABLE

The following table provides the actions to take in response to certain problems that may occur.

Problem	Action
No information received on pharmLINK; transactions in the STAR Pharmacy interface queue; no errors in pharmLINK log file.	pharmLINK has a separate communications program. Normally it is initiated as part of the Windows startup. If pharmCOM is not running, no transactions from STAR Pharmacy are processed.
No information received on pharmLINK; transactions in the STAR Pharmacy interface queue; errors in pharmLINK log file.	Refer to the pharmLINK troubleshooting information for possible reasons for communication problems based on the errors in the log file.
Selected therapies not sent by STAR Pharmacy	Check the therapy and make sure there is a generic class code defined for the formulary item.
Selected therapies not sent by STAR Pharmacy	Make sure the formulary item is defined with one of the valid AHFS classes.
Selected patients not sent by STAR Pharmacy	Make sure the patient type or location is one of the valid patient types or locations.

Chapter 6 - TECHNICAL NOTES

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COMMUNICATIONS/PROTOCOL

The transmission method for this interface is serial real-time interface processing using ASTM standards. Therefore, the transactions sent from STAR Pharmacy to pharmLINK are transmitted in half-duplex ASCII text formatted records containing standard variable length delimited fields using the ASTM protocol.

As part of the HPS interface software, Baxter provides a communications module called pharmCOM. When pharmCOM is open and minimized on the pharmLINK PC, transactions sent by the STAR Pharmacy system are processed in real-time mode. When pharmCOM is not running, the transactions are queued on STAR Pharmacy.

Protocols

The communications and protocol are based on standards specified by the American Society for Testing and Materials (ASTM) in ASTM Designation: E 1381-91, *Specification for Low-Level Protocol to Transfer Messages Between Clinical Laboratory Instruments and Computer Systems*. This ASTM specification describes the electronic transmission of digital information by specifying standards for the mechanical connection, methods for establishing communication, error detection, and error recovery. Also specified are the methods for sending and receiving messages.

This specification document needs to be used in conjunction with the ASTM standards document and the *Baxter Diagnostics Inc., Hospital Pharmacy System Interface Datastream Specifications, 9020-5894, Revision A*.

Each frame begins with <STX>. The maximum frame length is 247 characters including frame overhead. Messages of greater than 240 characters are divided between two or more frames. Intermediate frames terminate with <ETB>, checksum, <CR> and <LF> characters. End frames terminate with <ETX>, checksum, <CR> and <LF> characters. The checksum type is SUM-HEX. Multiple records are never combined in a single frame. <ACK>/<NAK> characters are sent after each frame is transmitted.

The first field of each record is always a unique record type ID. Error detection/correction and frame flow control is provided via ACK/NAK protocol and checksum bytes. Since this interface is unidirectional, line bidding (ENQ/ACK protocol) is not required to prevent data collision and is not used. XON/XOFF protocol is used to prevent buffer overflow on pharmLINK.

Checksum Definition

A SUM-HEX checksum is used in the ASTM protocol to detect defective frames. The checksum is a two character hexadecimal code and preceded by <ETB> or <ETX>. Refer to the ASTM standard for more detail on the checksum definition.

Communications Definition

Communications between STAR Pharmacy and pharmLINK is a direct connection with RS-232 DB25. TCP/IP is not supported with this interface because the ASTM standard does not support TCP/IP. The pin configurations are as follows:

Function DB25	Signal Line
Transmit	2
Receive	3
RTS+/- (optional)	4
CTS (optional)	5
DSR (optional)	6
Ground	7
DTR+/- (optional)	20
CD (optional)	8

The port communications parameters are defined as follows:

Parameters	Defined	Comments
Baud Rate	9600	supports 1200 - 9600
Word Length/Data Bits	8	
Stop Bits	1	
Parity	None	

DATA DEFINITION

General Information

- The record layouts are based on standards specified by the American Society for Testing and Materials (ASTM) in *ASTM Designation: E 1394-91, Standard Specification for Transferring Information Between Clinical Instruments and Computer Systems*. This ASTM specification describes the content of the messages by specifying standard messages, the structure of the message, and the data elements contained in the messages. This specification document needs to be used in conjunction with the ASTM standards document and the *Baxter Diagnostics Inc., Hospital Pharmacy System Interface, Datastream Specifications, 9020-5894, Revision A*.
- STAR Pharmacy sends partial records. For example, if the last field applicable for a download operation is field 10 and there are 20 fields in the record, STAR Pharmacy does not send them because it is not required that 10 field delimiters be added to the record before transmission.
- In order to ensure smooth transitions for future releases of the HPS interface, no assumptions have been made about the number of fields per record or end of record positions.
- Fields sent from STAR Pharmacy with a length greater than the listed maximum are truncated by pharmLINK before storage unless such fields are cross-referenced on pharmLINK.
- A field containing only a pair of double quotes (ASCII-34) indicates that the existing contents pertaining to that field definition need to be deleted. Therefore, to erase erroneous data from a previous transmission, double quotes are used as the field data.
- Format codes of (C)-XR or (9)-XR indicate data items that when cross-referenced must use the recommended codes listed in the specification for the MicroScan code. For example, if a patient's sex is downloaded as Male, the MicroScan cross-reference value is M.

Delimiter Definition

In accordance with ASTM standards, delimiters are defined in the Message Header Record. Following are McKesson's standard Delimiter definitions for this interface.

Type	Definition
Field	colon (:)
Repeat	semi-colon (;)
Component	up arrow (^)
Escape	ASCII 27

RECORD LAYOUTS

The following table defines the information provided in all record layouts for this interface:

Format Column

n()	Maximum length of variable field
n(X)	Array of alphanumeric characters (delimited)
9	Numeric format (ASCII format)
n(9)	Numeric value (ASCII format)
(D)	Date format (YYMMDD)
(T)	Time format (HHMMSS)
(C)	Single character field (delimited)
(B)	Boolean field ("Y" or "N", delimited)
(M)	Mnemonic code 8(X) (delimited)
(S)	Record sequence number 4(X) or "L" (delimited)
"xx"	Constants, literals
-XR	May be cross-referenced to free format

Usage Column

D	Download to pharmLINK
U	Upload from pharmLINK
I	Ignored for download
R	Required for download
O	Optional for download
H	Not supported by STAR

Message Header Record

Purpose:Used to identify the computer/laboratory/site and customizable parameters.
(A logical transmission is defined as all information sent up to and including a Message Terminator Record and an <EOT> character.)

Usage:This record is downloaded from STAR Pharmacy to pharmLINK and is required.

Fld #	Description	Format	ASTM Ref	Usage
1	Record Type ID	"H"	7.1.1	D/R
Comments/Notes: The record type ID is immediately followed by the Delimiter definitions and is not separated by a field delimiter. Refer to ASTM E1394-91, section 7.1.2 for additional information.				
2	Delimiter Definition		7.1.2	D/R
2a	Field Delimiter	1(X)		D/R
2b	Repeat Delimiter	1(X)		D/R
2c	Component Delimiter	1(X)		D/R

Fld #	Description	Format	ASTM Ref	Usage
2d	Escape Delimiter	1(X)		D/R
Comments/Notes: colon (:) semi-colon (;) up arrow (^) binary 27				
3	Message Control ID		7.1.3	I
4	Access Password		7.1.4	I
5	Sender Name or ID	40(X)	7.1.5	D/O
Comments/Notes: Logged to transmission file only; STAR RX is sent				
6	Sender Street Address		7.1.6 I	
7	Reserved Field		7.1.7	I
Comments/Notes: For future use - ASTM				
8	Sender Telephone Number		7.1.8	I
9	Characteristics of Sender		7.1.9	I
10	Receiver ID	40(X)	7.1.10	D/O
Comments/Notes: Logged to transmission file only; pharmLINK sent				
11	Comment or Special Instructions		7.1.11	I
12	Processing ID	1(X)	7.1.12	H
Comments/Notes: Null, P = Production (data stored), D = Debugging (data not stored); not currently supported by pharmLINK, always sent as null.				
13	Version Number	8(X)	7.1.13	D/O
Comments/Notes: Logged to transmission file only; pL 2.0 sent				

Patient Information Record

Purpose: First record of the patient data block. May be followed by an optional Comment Record.

Usage: This record is downloaded from STAR Pharmacy to pharmLINK and is required.

Note: The Patient Information Record is sent each time a Therapy Information Record is sent.

#	Description	Format	ASTM Ref	Usage
1	Record Type ID	"P"	8.1.1	D/R
2	Record Sequence Number	(S)	8.1.2	D
3	Patient ID Number	12(X)	8.1.3	D/R
Comments/Notes: Must be unique. Must be the same as used by the microbiology lab (e.g. Medical Record Number vs. account number). Sent based on the parameter definition on pharmLINK Interface Parameters screen. The facility code is removed from the unit number and the account number.				
4	Lab Assigned Patient ID		8.1.4	I
5	Patient ID No. 3		8.1.5	I
6	Patient Name		8.1.6	D/R
	Patient Last Name	16(X)		D/R
	Patient First Name	16(X)		D/R
	Patient Middle Initial	1(X)		D/O
Comments/Notes: See Note 1 on page 6-15.				
7	Mother's Maiden Name		8.1.7	I
8	Date of Birth	(D)	8.1.8	D/O
Comments/Notes: YYYYMMDD				
9	Patient Gender	(C)-XR	8.1.9	D/O
Comments/Notes: M=Male, F=Female, pharmLINK supports U=Unknown, but not STAR				

#	Description	Format	ASTM Ref	Usage
10	Ethnic Origin	(C)	8.1.10	D/O
Comments/Notes: The single character Race code is sent.				
11	Patient Address		8.1.11	I
12	Reserved Field		8.1.12	I
13	Patient Telephone No.		8.1.13	I
14	Attending Physician		8.1.14	D/O
	Att Phy ID Code	(M)-XR		D/O
	Att Phy Name	16(X)		D/O
15	Special Field 1 (Creatinine)	99.9	8.1.15	H
Comments/Notes: Not supported by STAR.				
16	Special Field 2 (Body Surface Area)	99.99	8.1.16	D/O
Comments/Notes: default units = square meters Sent by STAR in sq. meters.				
17	Patient Height	999.99	8.1.17	D/O
Comments/Notes: default units = centimeters Sent by STAR in cms.				
18	Patient Weight	9999.99	8.1.18	D/O
Comments/Notes: default = kilograms Sent by STAR in kgs.				
19	Patient Diagnosis		8.1.19	
	Diagnosis Code	(M)-XR		D/O
	Diagnosis Description	16(X)		D/O
Comments/Notes: This is the Working Diagnosis, not the Admitting Diagnosis.				
20	Patient Active Medications		8.1.20	I
21	Patient's Diet		8.1.21	I
22	Practice Field No. 1		8.1.22	I
23	Practice Field No. 2		8.1.23	I

#	Description	Format	ASTM Ref	Usage
24	Admission Date and Discharge Date	(D)	8.1.24	D/O
Comments/Notes: See Note 2 on page 6-15.				
25	Admission Status	(C)-XR	8.1.25	D/O
Comments/Notes: I=Inpatient, O=Outpatient; Contract patients are sent as outpatients.				
26	Location		8.1.26	D/O
	Ward Code	(M)-XR		D/O
	Ward Description	16(X)		D/O
	Room Number	5(X)		D/O
Comments/Notes: See Note 6 on page 6-17.				
27	Nature of Alternative Diagnostic Code and Classifiers		8.1.27	I
28	Alternative Diagnostic Code and Classification		8.1.28	I
29	Patient Religion		8.1.29	I
30	Marital Status		8.1.30	I
31	Isolation Status		8.1.31	I
32	Language		8.1.32	I
33	Hospital Service		8.1.33	
	Service Code	(M)		D/O
	Service Description	16(X)		D/O
34	Hospital Institution		8.1.34	
	Hospital Inst Code			
	Hospital Inst Name			
Comments/Notes: (M)-XR 16(X) D/O D/O D/O Send facility code and facility name.				
35	Dosage Category	(C)-XR	8.1.35	H
Comments/Notes: Dosage Range Checking on STAR Pharmacy is based on age, weight, body surface area, etc. It is not performed strictly on age.				

Comment Record

Purpose: Used to transmit additional information on the record immediately preceding it. The Comment Record follows the patient record and transmits additional information for the patient. For STAR, this record is used to send message information for specific ADT events. The events include Merge, Change Unit Number, and Change Account Number.

Usage: This record is downloaded from STAR Pharmacy to pharmLINK and is optional.

#	Description	Format	ASTM Ref	Usage
1	Record Type ID	"C"	11.1.1	D/R
2	Sequence Number	(S)	11.1.2	D/R
3	Comment Source		11.1.3	I
4	Comment Text	150(X)	11.1.4	D/R
Comments/Notes: See Note 3 on page 6-16.				
5	Comment Type	1(X)	11.1.5	D/R
Comments/Notes: This field is null or "G".				

Allergy Record

Purpose:Used to transmit allergy information for the patient defined in the preceding Patient Record. The Allergy Record follows the patient record and transmits additional information for the patient.

Usage:This record is downloaded from STAR Pharmacy to pharmLINK and is required. A single record is formatted and sent for each valid allergy.

Note:This record corresponds to ASTM's Manufacturer Information Record and is completely defined by pharmLINK.

#	Description	Format	ASTM Ref	Usage
1	Record Type ID	"A"	15.1.1	D/R
2	Sequence Number	(S)	15.1.2	D/R
3	Allergy Code/ Antimicrobial Abbreviation	(M)-XR		D/R
Comments/Notes: The Allergy Class code is sent in this field.				
4	Allergy Status	1(X)-XR		D/O
Comments/Notes: Space, null or A=Add, D=Delete				

Therapy Information Record

Purpose: Contains pharmacy order information and is sent each time a valid therapy is either started or stopped or both.

Usage: This record is downloaded from STAR Pharmacy to pharmLINK and is required. A separate record is sent for each valid item in an order.

Note: This record corresponds to ASTM's Manufacturer Information Record and is completely defined by pharmLINK.

#	Description	Format	ASTM Ref	Usage
1	Record Type ID	"M"	15.1.1	D/R
2	Sequence Number	(S)	15.1.2	D/R
3	Order ID	12(X)		D/R
Comments/Notes: See Note 4 on page 6-16. This is the STAR External Order Number.				
4	Antibiotic Code	(M)-XR		D/R
Comments/Notes: This is the formulary item code.				
5	Dose	10(9)		D/R
Comments/Notes: See Note 5 on page 6-16. For both medications and solutions, this information is at the item level. This field contains the numeric valid of the STAR Pharmacy Dosage field and the Administer/Dose field.				
6	Dose Units	(M)-XR		D/R
Comments/Notes: for example— MG,KG,Tab. See Note 5 on page 6-16. This field is defined at the item level for both solutions and medications. This field contains the units for the STAR Pharmacy Dosage field and the Administer/Dose field.				
7	Frequency code	(M)-XR		D/R
Comments/Notes: for example— Q6H,Q8H,bid. This field is defined at the item level for medications and at the order level for solutions. When this field is null, the system sends None.				
8	Route	(M)-XR		D/R
Comments/Notes: for example— IV, IM, PO, IM/VI, etc. This field is defined at the item level for medications and at the order level for solutions.				

#	Description	Format	ASTM Ref	Usage
9	Therapy Start Date	(D)		D/R
Comments/Notes: See Note 7 on page 6-17. This field is defined at the item level for medications and at the order level for solutions.				
10	Therapy Stop Date	(D)		D/O
Comments/Notes: See Note 8 on page 6-17. This field is defined at the item level for medications and at the order level for solutions.				
11	Rationale	(M)-XR		H
Comments/Notes: Not supported by STAR. that is Therapeutic, Empiric, Prophylactic, etc.				
12	Pharmacist Code			D/O
12a	Pharmacist Code	(M)-XR		D/O
12b	Pharmacist Name	16(X)		D/O
Comments/Notes: If the order was entered or verified by a pharmacist, this field contains the associated Employee ID code and name. If the order was entered by a technologist, and verification is not required, this field contains the associated Employee ID code and name. This field is defined at the item level for medications and at the order level for solutions.				
13	Prescribing Physician			D/O
13a	Prescr. Phy Code	(M)-XR		D/O
13b	Prescr. Phy Name	16(X)		D/O
Comments/Notes: This field contains the Ordering Physician information.				
14	Patient Diagnosis			D/O
14a	Diagnosis Code	(M)-XR		D/O
14b	Diagnosis Name	16(X)		D/O
Comments/Notes: Since STAR Pharmacy does not capture the Ordering Diagnosis, the Working Diagnosis at the time of order transmission is sent in this field.				
15	Therapy Free Text	50(X)		D/O
Comments/Notes: The STAR Pharmacy Nursing Comment is sent in this field. This comment is at the order level for solutions and at the item level for medications.				

#	Description	Format	ASTM Ref	Usage
16	Therapy Order Status	1(X)-XR		D/O
Comments/Notes: R=Renew,S=Suspend,D=Discontinue, space or null =new therapy See Note 9 on page 6-17.				

Message Terminator Message

Purpose: Sent after the last data record of the transmission and before the <EOT>.

Usage: This record is downloaded from STAR Pharmacy to pharmLINK and is required.

#	Description	Format	ASTM Ref	Usage
1	Record Type ID	"L"	13.1.1	D/R
2	Record Sequence Number	(S)	13.1.2	D/R
Comments/Notes: Is always "L".				
3	Termination code	1(X)	13.1.3	D/O
Comments/Notes: Null,N=normal termination, T=sender aborted, R=receiver requested abort, E=unknown system error				

Notes on Record Layouts

Note 1: When data is stored on pharmLINK for the Patient Name field), the first name and middle initial is combined into a single data item with a maximum length of 16 characters. The first name is separated from the middle initial by a blank character. If the combined length of the first name and middle initial exceed 16 characters, the extra characters are dropped. Therefore, it is possible to have the middle initial dropped from the record when the first name exceeds 14 characters.

Note 2: This field is a repeat field - adm date[delim]dis date. The admission date is sent in each record. When the patient is discharged, the admission date and the discharge date are sent.

Note 3: Following are the actual contents of the Comment Text depending on the ADT event that triggered the update:

ADT Event	Field Content
Merge	<i>Merge Performed. New Unit # retained! Old Unit # = A123456. Merge on pharmLINK required!</i>
Change Unit Number	<i>Unit Number Changed. Old Unit # = A123456</i>
Patient Revision	<i>SSN Changed due to Patient Revision. Old SSN = 123-45-6789.</i>
Change Unit Number	<i>Corp # Changed due to Change Corp Number. Old Corp # = 456789.</i>
Transfer Visit	<i>Unit Number Changed due to Transfer Visit. Old Unit # = A123456.</i>

Note 4: The Order ID field allows tracking of unique therapy orders to prevent unintentional duplication of therapies. For example, if two Therapy Information Records are sent on an Amikacin order, if the Order ID field is the same, the second record updates the first. If the Order ID field is different, the second record creates a new entry on pharmLINK.

Note 5: The Dose field is transmitted as two values (separated by the defined repeat delimiter) to allow for separate strength and volume measurements. The Dose Units field is equally extended to allow for strength units and volume units (separated by defined repeat delimiter). On STAR Pharmacy, there are two fields defined for dosage. They are Dosage and Administer/Dose. Therefore, the dose field consists of the numeric value of the Dosage field and the Administer/Dose field. Following is an example:

Dosage	5 mg
Administer/Dose	1 tab

Using this example, the Dose and Dose Units fields for the Therapy Information Record are as follows (with the repeat Delimiter defined as '/'):

Dose	5/1
Dose Units	mg/tab

The dosage and administer/dose can also consist of a range. For example:

Dosage	5-10 mg
Administer/Dose	1-2 tabs

When a range is defined, the system takes the high end of each range to send to pharmLINK. This example is transmitted to pharmLINK as follows (with the repeat Delimiter defined as '/'):

Field 5	10/2
Field 6	mg/tabs

Note 6: For *inpatients*, this field contains the nurse station, station description, and room number in the ward code, ward description, and room number fields respectively. No bed number is sent to pharmLINK. For *outpatients*, this field contains the patient type code and the patient type description in the ward code and ward description fields respectively.

Note 7: This field contains the Start Date for the therapy. For medications it is defined at the item level. For solutions it is defined at the order level. When the system processes a Resume Order, the original Start Date is sent rather than the resume date.

Note 8: This field contains the Stop Date for the therapy. For medications, it is defined at the item level. For solutions, it is defined at the order level. pharmLINK uses this field for reporting and as a purge criteria. Whether this field is completed depends on the status of the item or order as described below:

Order Processing Event	Stop Date Field Completion
New Order	No
Add-on Item	No
Restart Order	No
Hold Order	Yes
Resume Order	"" to delete old Stop Date
Discontinue Order	Yes
ATASK Processing to stop orders	Yes
Midnight Processing for discontinued orders	Yes

Note 9: This field contains the Therapy Order Status. For the defined order processing events, the field is defined as follows:

Order Processing Event	Therapy Order Status Field Completion
New Order	null
Add-on Item	null
Revise Order	null

Order Processing Event	Therapy Order Status Field Completion
Restart Order	null
Hold Order	S = Suspend
Resume Order	R = Renew
Discontinue Order	D = Discontinue
ATASK Processing to stop orders	D = Discontinue
Midnight Processing for discontinued orders	D = Discontinue

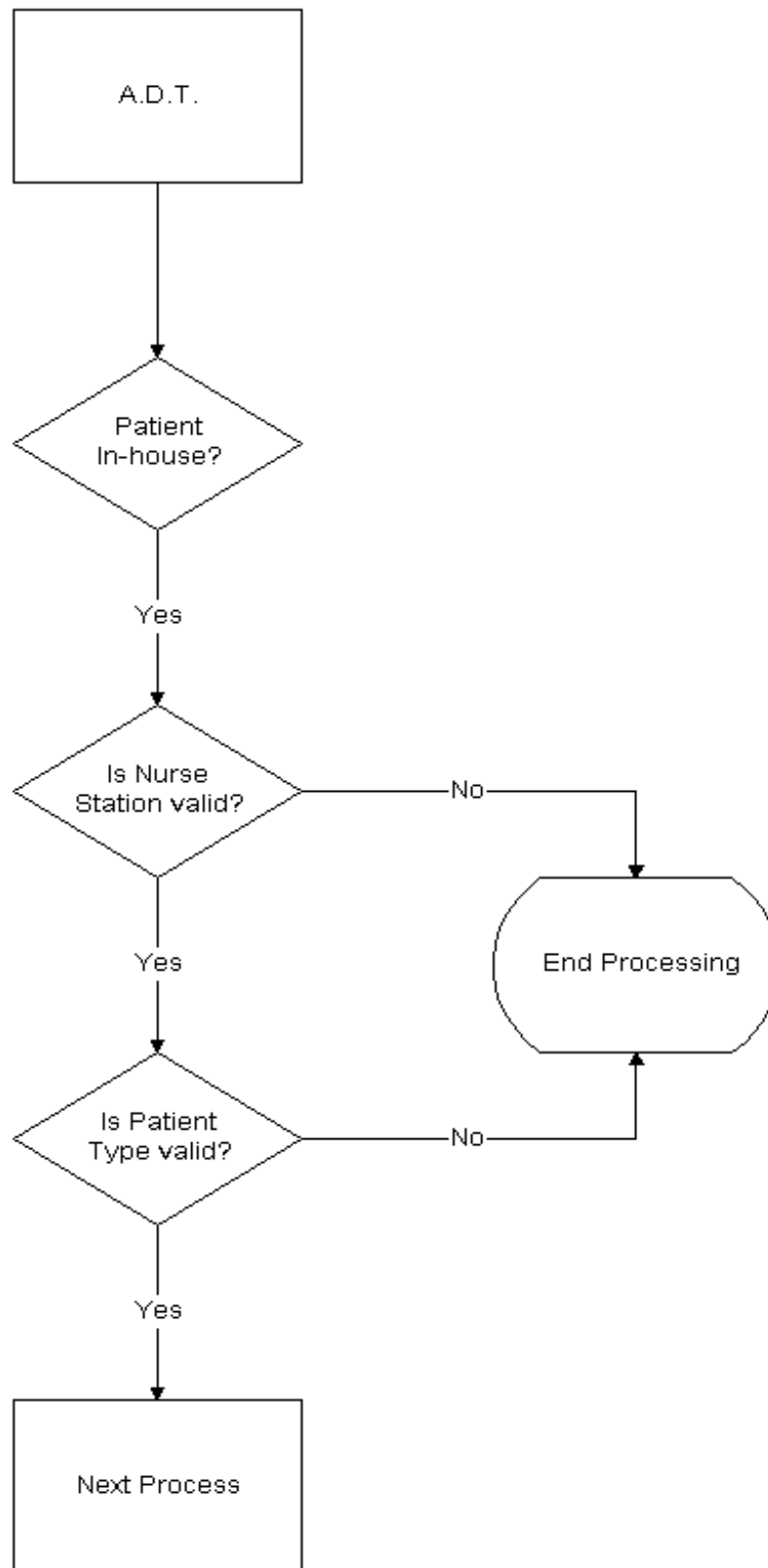
APPLICATION PROCESSING

Based on the information transmitted to pharmLINK, there are three major categories of application events in STAR Pharmacy that trigger interface updates. They are ADT events, Allergy events and Pharmacy Order events. Each of these events, or triggers, is discussed below.

ADT Events

When a patient is admitted, transferred, or discharged, or patient information is modified in some way, there is the need to send an update to pharmLINK if the patient is valid for interface processing. As part of the interface parameters, you can define the valid nurse stations and patient types for which STAR Pharmacy sends patient and therapy information. The following flowchart shows how the system validates whether a patient is valid. This processing is called *Patient Validation*.

Figure 6.1 Patient Validation Flowchart



In addition to the Patient Validation process, the system may perform additional processing for ADT events. Following are the ADT events and the related processing the system performs.

ADMISSION

When a patient is admitted and STAR Pharmacy receives the transaction, if the nurse station and patient type are defined as a valid ones (as defined in the pharmLINK Interface Parameters), the system formats and sends a Patient Information Record (PIR) to the interface queue. All valid patients are sent whether they have pharmacy orders or not, because pharmLINK can generate a report that identifies patients with positive culture results and no corresponding antibiotic orders.

PIR - Key Fields:

24 Admission & Discharge Date

Admission date is completed; discharge date is null

DISCHARGE

When a patient is discharged and STAR Pharmacy receives the transaction, if the current nurse station and patient type are defined as a valid ones, the system formats and sends a PIR to the interface queue. Since all active pharmacy orders are discontinued during Midnight Processing on the day of discharge, no therapy transactions are sent at the time of discharge. During midnight processing, the system sends Therapy Information Records (TIRs) for each active order.

PIR - Key Fields:

24 Admission & Discharge Date

Field contains both admission and discharge date

O/P DISPOSITION

When a patient is dispositioned (Outpatient discharge), if the current patient type is valid for interface processing, the system sends a PIR with Field 24 - Admission Date and Discharge Date defined with both the admission and discharge (disposition) date. Since all active pharmacy orders are discontinued during Midnight Processing on the day of discharge, no therapy transactions are sent at the time of dispositioning. During midnight processing, the system sends a TIR for each active order with the stop date defined as the discharge date at midnight.

PIR - Key Fields:

24 Admission & Discharge Date

Field contains both admission and discharge date

MIDNIGHT PROCESSING - O/P AUTO DISCHARGE

When midnight processing automatically discharges the outpatients, if the patient type is valid for interface processing, the system sends a PIR with Field 24 - Admission Date

and Discharge Date defined with the both the admission and discharge date. STAR Pharmacy discontinues any orders associated with the patient at midnight of the day of discharge.

PIR - Key Field(s):

24 Admission & Discharge Date

Field contains both admission and discharge date

TRANSFER

When the patient is transferred and STAR Pharmacy receives the transaction, the system must evaluate three separate scenarios: both the old and new nurse stations are valid for interface processing, only the new nurse station is valid for interface processing, and only the old nurse station is valid for interface processing. Each of these scenarios requires different processing and is discussed separately. Following is the processing performed by the system in evaluating these scenarios:

Old Station is Valid

If the old nurse station is valid for interface processing and the new nurse station is not, the system sends a PIR with the updated room and bed location. In addition, the system sends TIRs for all active orders with the stop date defined as the date of transfer. Field 15 - Therapy Free Text for each TIR contains the message Order Stopped, Patient transferred to STA-ROOM. By sending the transfer date as the stop date for each therapy, they can now be purged on pharmLINK based on user-defined parameters.

PIR - Key Field(s):

26 Location

Updated station and room

TIR - Key Field(s):

15 Therapy Free Text

contains message above

10 Therapy Stop Date

date of transfer

New Station is Valid

If the old nurse station is not valid for interface processing and the new nurse station is valid, the system sends a PIR as if a new patient and TIRs for all valid active orders as if they are new orders.

PIR - Key Field(s):

26 Location

new station and room

TIR - Key Field(s):

9 Therapy Start Date
original start date

10 Therapy Stop Date
null

Both Stations are Valid

If both the old and new nurse stations are valid for interface processing, the system sends a PIR with the updated station and room.

PIR - Key Field(s):

26 Location
updated station and room

NOTE: Since the frequencies for orders rather than the administration times are sent to pharmLINK, no order revisions are required when a patient is transferred.

CHANGE UNIT NUMBER

You can define the patient ID number on pharmLINK to be either the account number or the unit number. All scenarios are discussed below.

Patient ID Number not Unit

If the patient ID number is defined as the account number, the unit number is not stored on pharmLINK. Therefore, when this event occurs on STAR, no action is required for interface processing.

Patient ID Number is Unit

If the patient ID number is defined as the unit number, the system performs the following:

- Formats and sends a PIR with the new unit number. This is processed on pharmLINK as if it were a new patient.
- If appropriate, formats and sends an Allergy Information Record (AIR).
- Formats and sends a Comment Record (CR) with field 4 - Comment Text defined as *Unit Number Changed. Old Unit # = A1234567*.
- Prints the following message that the event has occurred on the STAR Pharmacy interface audit printer:

MM/DD/YY HHMM

Unit number changed on LAST, FIRST M. Old Unit # = A1234567. New Unit # = A456789.

As a matter of procedure, use the Merge function on pharmLINK to move the existing therapy orders on pharmLINK from the old unit number to the new unit number. STAR Pharmacy sends the new unit number for any new orders placed after this event.

MERGE

Active to Active merges are not allowed by STAR Patient Care. If you perform an Inactive to Inactive merge, no action is required for the interface because all pharmLINK information is inactive. If you perform an Active to Inactive merge, the processing depends on how the patient ID number parameter is defined. Each scenario is discussed below.

Patient ID Number = Account

If the patient ID number is defined as the account number, the unit number is not stored on pharmLINK. Therefore, when this event occurs on STAR, no action is required for interface processing.

Patient ID Number = Unit

If the patient ID number is defined as the unit number, the system must perform the following evaluation. The following summarizes the evaluation the system performs following an Inactive to Active merge when the patient ID number is defined as the unit number:

Retain Active Unit #; Change to Inactive Demographics - Interface Processing I

- Formats and sends a PIR with the revised demographics
- No AIR is required to be sent
- Formats and sends a CR with field 4 - Comment Text defined as *Merge Performed. Demographics updated only! No further action required.*

Change to Inactive Unit #; Retain Active Demographics - Interface Processing II

- Formats and sends a PIR with the new unit number and the current demographics; this is processed on pharmLINK as a new patient
- If appropriate, formats and sends an AIR
- Formats and sends a CR with field 4 - Comment Text defined as *Merge Performed. New Unit # retained! Old Unit # = A123456. Merge on pharmLINK required!*

- Prints following message that the event has occurred on the STAR Pharmacy interface audit printer

MM/DD/YY HHMM

Merge performed on LAST,FIRST M. Old Unit # = A1234567. New Unit # = A456789.

Change to Inactive Unit #; Change to Inactive Demographics - Interface Processing III

- Formats and sends a PIR with the new unit number and updated demographics; this is processed on pharmLINK as a new patient
- If appropriate, formats and sends an AIR
- Formats and sends a CR with field 4 - Comment Text defined as *Merge Performed. New Unit # retained! Old Unit # = A123456. Merge on pharmLINK required!*
- Prints the following message that the event has occurred on the STAR Pharmacy interface audit printer

MM/DD/YY HHMM

Merge performed on LAST,FIRST M. Old Unit # = A1234567. New Unit # = A456789.

As a matter of procedure, use the Merge function on pharmLINK to merge any the existing therapy orders on pharmLINK from the old unit number to the new unit number. STAR Pharmacy sends any new orders placed after this event with the new unit number.

CANCEL ADMISSION

When this event occurs, the system treats it like a discharge and, if the patient is at a valid nurse station or is assigned a valid patient type, sends a PIR with a discharge date. No TIRs are sent since you cannot cancel an admission if there are any pharmacy orders.

PIR - Key Fields:

24 Admission & Discharge Date

Field contains both admission and discharge date

CANCEL DISCHARGE

When this event is processed, if the patient was previously located at a valid nurse station or assigned a valid patient type, the system sends a PIR with double quotes ("") in the discharge date part of the Admission Date and Discharge Date field so the discharge date is deleted. No therapy level processing is required since discharged

patient orders are not discontinued until midnight, and you cannot cancel a discharge after midnight of the day of discharge.

PIR - Key Field(s):

24 Admission & Discharge Date

Field contains admission date and double quotes ("") in the discharge date field.

TRANSFER VISITS

The processing that occurs for this event depends on how the Patient ID parameter is defined. If you are using the account number as the patient ID number, no action is required. If the patient ID number is the unit number and the nurse station and/or patient type associated with the visit is valid for interface processing, the system performs the same processing as is performed for Change Unit Number because the unit number is changing when you move a visit. The processing is as follows:

- Formats and sends a PIR with the new unit number. This is processed on pharmLINK as if it was a new patient.
- If appropriate, formats and sends an Allergy Information Record (AIR).
- Formats and sends a Comment Record (CR) with field 4 - Comment Text defined as *Unit Number Changed due to Transfer Visit. Old Unit # = A1234567*.
- Prints the following message that the event has occurred on the STAR Pharmacy interface audit printer:

MM/DD/YY HHMM

Visit transferred on LAST,FIRST M. Old Unit # = A1234567. New Unit # = A456789.

PATIENT REVISION

If a revision of demographic information is performed on a patient located at a valid nurse station and/or with a valid patient type, the system sends a PIR to pharmLINK.

CHANGE PATIENT TYPE

The Change Patient Type event can include changing a patient from I/P to O/P, O/P to I/P, O/P to O/P, or I/P to I/P. The system performs the following evaluation and processing for all scenarios:

Old and New Patient Types Valid - Interface Processing I

If both the old patient type and/or nurse station and the new patient type and/or nurse station are valid for interface processing, the system sends a PIR with field 25 - Admission Status defined as Inpatient and field 26 - Location defined as the current

new patient type (if not an inpatient or an outpatient in a bed) or the station and room location (if the new type is an inpatient or outpatient in a bed). No updates for the therapy orders are required.

Only Old Patient Type Valid - Interface Processing II

If the old patient type and/or nurse station is valid for interface processing and the new patient type and/or nurse station is not, the system sends a PIR with field 25 - Admission Status defined as Inpatient and field 26 - Location defined as the current new patient type (if not an inpatient or an outpatient in a bed) or the station and room location (if the new type is an inpatient or outpatient in a bed). In addition, the system sends TIRs for all active orders with the Stop Date defined as the date of the change patient type event. Field 15 - Therapy Free Text for each TIR contains the message Order Stopped! Patient type changed to invalid type/nurse station - XXXXX. The system places the patient type code (if not an inpatient or an outpatient in a bed) or the station and room (if the new type is an inpatient or outpatient in a bed) in place of XXXXX.

Only New Patient Type Valid - Interface Processing III

If the old patient type and/or location is not valid for interface processing and the new patient type and/or location is, the system sends a PIR with field 25 - Admission Status defined as Inpatient and field 26 - Location defined as the current new patient type (if not an inpatient or an outpatient in a bed) or the station and room location (if the new type is an inpatient or outpatient in a bed). TIRs are sent for all valid active pharmacy orders.

REVISE ADMISSION DATE

When the admission date is revised for a patient located at a valid nurse station and/or with a valid patient type, the system sends a PIR with Field 24 - Admission Date and Discharge Date defined with the new admission date.

PIR - Key Field(s):

24 Admission & Discharge Date

Admission date is the new date; discharge date is null

ASSIGN BED

When a patient is assigned a bed, if the nurse station is valid for interface processing, the system sends a PIR with the station and room number in Field 26 - Location.

PIR - Key Field(s):

26 Location

New nurse station and room

REVISE DISCHARGE DATE

No interface processing is performed for this event.

Allergy Events

When allergies are entered on STAR Pharmacy, if the patient is located at a valid nurse station and/or with a patient type, the system performs the *Allergy Validation* process. The Allergy Validation process consists of checking the allergies defined for the patient and if they are included in the valid allergies definition, the system formats and sends a PIR to identify the patient and a single Allergy Information Record (AIR) for each valid allergy to pharmLINK.

Only coded allergies are evaluated for interface processing. No free-form allergies are processed.

All valid allergies are sent to pharmLINK even though currently only three are stored. When pharmLINK receives a fourth or greater allergy, it is discarded and an error is recorded in the log file. If in the future pharmLINK stores more than three allergies, no processing changes are required for McKesson's interface. Valid Allergy Class codes are defined in the pharmLINK Interface Parameters processor.

ADDING ALLERGIES - INTERFACE PROCESSING I

When one or more new allergies are added to a valid patient, the system performs the following processing:

- Formats a PIR for the patient
- Formats an AIR for each valid allergy

AIR - Key Field(s):

4 Allergy Status
null to indicate add

DELETING ALLERGIES - INTERFACE PROCESSING II

When an allergy is deleted from a valid patient, the system performs the following processing:

- Formats a PIR for the patient
- Formats an AIR for each valid allergy

AIR - Key Field(s):

4 Allergy Status
D for delete

Allergies can be entered or revised in the following STAR Pharmacy processors:

- Order Entry
- Profile Maintenance
- Display Profile

Order Events

When pharmacy orders are entered, verified, put on hold, discontinued, canceled, or revised for valid patients, STAR sends an update to pharmLINK. As part of the interface parameters, you can define the formulary items for which you want STAR Pharmacy to send therapy information and any associated updates. The system checks to see if the formulary item is defined to be sent to pharmLINK. Following are the order processing events and the related actions the system performs.

The assumption in this processing documentation is that the system has already determined if the patient is a valid one for interface processing.

NEW ORDERS

When a new order is placed on STAR Pharmacy, depending on the type of personnel placing the order and how the verification parameters are defined for your facility, the order is either held pending verification by a pharmacist or it is processed. If a new order is placed by any personnel where the verification parameters for Start Medication and/or Start Solution are defined as Not Required, Verify After Processing, or Review Only, and the current status of the order is Active or Active/Not Started, the system sends TIRs for all valid items in the order to pharmLINK. When an order is placed by a pharmacist and the verification parameters are defined as Verify Before Processing, the system performs the same action. This processing is also performed when a pharmacist verifies a new order when the verification parameters are defined as Verify Before Processing. Otherwise, the system performs no action in regard to the pharmLINK interface.

When the status of an order becomes Active or Active/Not Started (due to at least one item's having a current start date), all valid items are sent to pharmLINK whether their start dates are in effect or not. The Stop Date and Therapy Order Status fields are sent as null.

NOTE: The *Active/Not Started* status is used only when the verification parameters are defined as *Verify After Processing*.

If the start date for an order/item is today's date, but the start time is prior to midnight, the order status becomes *Active* or *Active/Not Started*.

New Orders can be placed in the following STAR Pharmacy processors:

- Order Entry
- Profile Maintenance
- Verify Order

NOTE: For the pharmLINK interface, no ambulatory orders are processed and sent because ambulatory orders do not require a unit number or account number. Some unique patient identifier is required on pharmLINK.

Orders created due to Specialty Charges are not sent to pharmLINK. These orders are created as discontinued orders.

Manual Items (such as those not in Formulary and not in Product Information File) are not sent to pharmLINK.

Orders using Product Information File (PIF) items are not processed through the interface. If a PIF item needs to be processed through the interface, it needs to be added to the formulary.

NEW ITEMS

Another order processing event is the ability to add an item on to an existing order. This order processing event is only valid for solutions and for medications defined as a multi-item orders. If the current status of the order to which an item is being added is Active and the verification parameters for Start Medication and/or Start Solution are defined as Not Required, Verify After Processing, or Review Only, the system sends a TIR for any new valid items to pharmLINK. When an order is placed by a pharmacist and the verification parameters are defined as Verify Before Processing, the system performs the same action. This processing is also performed when a pharmacist verifies a new item order when the verification parameters are defined as Verify Before Processing because new items are re-queued to the verification queue.

If the status of the item is Active/Not Started due to verification requirements, the item cannot be revised (no new items can be added) and therefore requires no interface processing. If the status of the item is Active/Not Started due to a future start date, no interface processing is required since the order has not yet been sent to pharmLINK.

New items can be added to existing orders in the following STAR Pharmacy processors:

- Revise Medication Order
- Revise Solution Order
- Profile Maintenance, Revise Order

- Verify Orders, when verification is not accepted for *Active/Not Started* order and revision of the order is performed

ORDER REVISION

In the STAR Pharmacy system, both medication and solution orders can be revised. The processing for revising a medication versus revising a solution is different and is discussed separately. All revisions are processed now.

Revise Medication

If the verification parameter is defined as Review Only, Verify After Processing, or Not Required, the system performs the following processing:

Is the Order Status *Active*, *Active/Hold*, or *Active/Not Started*?

If **no** (since the order is not active, it has never been sent to pharmLINK), did you edit the start date of any item on the order so that the order status is now active?

If **yes**, send TIRs for all valid items (whether the individual item has a start date of today or not) on the order with the *Start Date= defined start date*, *Stop Date=null*, and *Therapy Order Status=null* to indicate a new therapy.

If **no**, quit.

If **yes** (since the order is active it has been sent to pharmLINK and therefore all revisions have to be evaluated), did you edit the Dose, Frequency, Route, Prescribing Physician, Prescribing Pharmacist, Pharmacy Comment or Start Date fields for an item on the order (these are all of the pharmLINK specific fields - except stop date)?

If **yes**, send TIRs for each revised item (whether the individual item has a start date of today or not) on the order containing the revised fields and the non-revised fields. The *Therapy Order Status=null*.

If **no**, quit.

NOTE: Since the Order ID field is the same as the first time the TIR was sent, pharmLINK updates the first record with new information in the second record rather than creating a new therapy.

If **yes**, did you edit the stop date so the item is stopped?

If **yes**, is the ASO type a hard stop?

If **yes**, send TIRs for each revised item with *Stop Date=defined stop date* and *Therapy Order Status=D for Discontinue*

If **no**, quit.

If **no**, quit.

If **yes**, did you edit the stop date so the item is now active?

If **yes**, send TIRs for each revised item with *Stop Date=""* (to delete the stop date field) and *Therapy Order Status=R* for Renew.

This same processing is performed when a pharmacist performs the revision and the verification parameter is defined as *Verify Before Processing*. This processing is also performed when a pharmacist verifies a revised medication order when the verification parameters are defined as *Verify Before Processing*.

Revision of medication orders can be performed in the following STAR Pharmacy processors:

- Profile Maintenance, Revise Order
- Revise Medication Order
- Verify Orders, when verification is not accepted for *Active/Not Started* order and revision of the order is performed.

Revise Solution

If the verification parameter is defined as Review Only, Verify After Processing, or Not Required, the system performs the following processing:

Is the Order Status *Active*, *Active/Hold*, or *Active/Not Started*?

If **no** (since the order is not active, it has never been sent to pharmLINK), did you edit the start date of any item on the order so that the order status is now active?

If **yes**, send TIRs for all valid items (whether the individual item has a start date of today or not) on the order with the *Start Date= defined start date*, *Stop Date=null*, and *Therapy Order Status=null* to indicate a new therapy.

If **no**, quit.

If **yes** (since the order is active it has been sent to pharmLINK and therefore all revisions have to be evaluated), did you edit the Frequency, Route, Prescribing Physician, Prescribing Pharmacist, Pharmacy Comment or Start Date fields for the order (these are all of the pharmLINK specific fields - except stop date)?

If **yes**, send TIRs for each valid item (whether the individual item has a start date of today or not) on the order containing the revised fields and the non-revised fields. The *Therapy Order Status=null*.

If **no**, quit.

NOTE: Since the Order ID field is the same as the first time the TIR was sent, pharmLINK updates the first record with new information in the second record rather than creating a new therapy.

If **yes**, did you edit the Dose for any item on the order?

If **yes**, send a TIR for the revised valid item with *Dose=revised dose* and *Therapy Order Status=null*.

NOTE: For solutions, all fields except Dose are at the order level.

If **yes**, did you edit the stop date so the item is stopped?

If **yes**, is the ASO type a hard stop?

If **yes**, send TIRs for each revised item with *Stop Date=defined stop date* and *Therapy Order Status=D* for Discontinue

If **no**, quit.

If **no**, quit.

If **yes**, did you edit the stop date so the item is now active?

If yes, send TIRs for each revised item with *Stop Date=""* (to delete the stop date field) and *Therapy Order Status=R* for Renew.

This same processing is performed when a pharmacist performs the revision and the verification parameter is defined as *Verify Before Processing*. This processing is also performed when a pharmacist verifies a revised solution order when the verification parameters are defined as *Verify Before Processing*.

Revision of medication orders can be performed in the following STAR Pharmacy processors:

- Profile Maintenance, Revise Order
- Revise Solution Order
- Verify Orders, when verification is not accepted for *Active/Not Started* order and revision of the order is performed.

DISCONTINUE ORDER

When an order is discontinued; the verification parameter is defined as Not Required, Verify After Processing, or Review Only; the discontinue date is now effective; the ASO type is a hard stop; and the status of the order was previously Active or Hold (that is, already sent to pharmLINK), the system sends a TIR for each valid item in the order with the Therapy Order Status=D for Discontinue and Stop Date=defined stop date. If a pharmacist discontinues the order and the verification parameter is defined as Verify Before Processing, the system performs the same processing. This processing is also performed when a pharmacist verifies the discontinue order when the verification parameter is defined as Verify Before Processing.

Hard stop discontinues are sent to pharmLINK. Soft stops are not sent.

Orders can be discontinued in the following STAR Pharmacy processors:

- Discontinue Order
- Profile Maintenance, Discontinue Order

HOLD ORDERS

When an order is placed on hold; the verification parameter is defined as Not Required, Verify After Processing, or Review Only; the hold date is now effective; and the previous status of the order was Active (that is, already sent to pharmLINK), the system sends a TIR for each valid item with the Stop Date=hold date and Therapy Order Status=S for Suspend. If a pharmacist places the order on hold and the verification parameter is defined as Verify Before Processing, the system performs the same processing. This processing is also performed when a pharmacist verifies a hold order when the verification parameter is defined as Verify Before Processing.

Orders can be placed on hold in the following STAR Pharmacy processors:

- Hold Order
- Profile Maintenance, Hold Order

RESUME ORDER

When an order is resumed from the hold status; the verification parameter is defined as Not Required, Verify After Processing, or Review Only; the resume date is now effective; and the status of the order was previously Active (that is, already sent to pharmLINK), the system sends a TIR for each valid item with the Therapy Order Status=R for Renew, Stop Date="" (to delete the previous stop date), and Start Date=original start date. If a pharmacist resumes the order and the verification parameter is defined as Verify Before Processing, the system performs the same processing. This processing is also performed when a pharmacist verifies a resume order when the verification parameter is defined as Verify Before Processing.

Orders can be resumed in the following STAR Pharmacy processors:

- Resume Order
- Profile Maintenance, Resume Order

RESTART ORDER

This function copies an old inactive order and creates a new order. Processing for this function is the same as for a new order.

Orders can be restarted using the following STAR Pharmacy processors:

- Restart Order
- Profile Maintenance, Restart Order

CANCEL ORDER

Orders are canceled because the order was wrong, whether it was on the wrong patient or the wrong items were ordered. Cancels are processed now. In other words, you cannot assign a future date to a Cancel request. When an order is canceled, the verification parameter is defined as Not Required, Verify After Processing, or Review Only; the cancel date is now effective; and the status of the order was previously Active or Hold (that is, already sent to pharmLINK); the system sends a TIR for each valid item with Therapy Order Status=D for Discontinue and Stop Date=cancel date. If a pharmacist cancels the order and the verification parameter is defined as Verify Before Processing, the system performs the same processing. This processing is also performed when a pharmacist verifies an order cancellation when the verification parameter is defined as Verify Before Processing.

Orders can be canceled using the following STAR Pharmacy processor:

- Cancel Order
- Profile Maintenance, Cancel Order
- Verify Order, when verification is not accepted for *Active/Not Started* order

REMOVE PENDING STATUS

In STAR Pharmacy, you cannot remove a pending status due to verification. Therefore only pending statuses due to future dates and times can be removed. Since the status change is not effective, the system has not sent the pending status to pharmLINK. Therefore, if you remove a pending status, there is no need to send any updates to pharmLINK.

ORDER VERIFICATION

As order events (new orders, new items, holds, resumes, cancels, and discontinues) are processed, if the events are performed by a technician and the verification parameters are Required Before Processing or Required After Processing, the system places them in the queue for processing. If the verification parameters are Required Before Processing, then after verification by a pharmacist, the system processes each order event as defined by the type. For example, if a pharmacist verifies an order placed on hold by the technician, the system performs the processing described under hold.

If the verification parameters are Required After Processing, depending on the order event, the verifying pharmacist can approve the order event or reject the event. If the order event is approved, no interface action is required since the order event has already been processed.

If the order event is rejected, the system formats and sends a TIR for each valid item. The contents of some of the fields in the TIR are different based on the previous status of the order or item. This processing essentially undoes the previous order event. The following table outlines the system action and content of some of the TIR fields when a pharmacist rejects a verification

:

Order	Pre-Verify Status Event	Verify Action	Therapy Information Record Fields		
			Start Date	Stop Date	Therapy Order Status
Start Med/Sol'n	Active/Not Started	Revise		null	null
			any revised fields need to be sent with this scenario.		
Start Med/Sol'n	Active/Not Started	Cancel		Cancel Date	D for Discontinue
Revision Active	Revise		null	null	
			any revised fields need to be sent with this scenario.		
Resume	Active/Hold	Reject		Hold Date	S for Suspend
Hold	Hold/Active	Reject	Orig Start Date	""	S for Suspend
Discontinue	DC/Active	Reject	Orig Start Date	""	R for Renew
Discontinue	DC/Hold	Reject		Hold Date	S for Suspend

Order	Pre-Verify Status Event	Verify Action	Therapy Information Record Fields		
			Start Date	Stop Date	Therapy Order Status
Cancel	Cancel/ Active	Reject	Orig Start Date	""	R for Renew
Cancel	Cancel/ Hold	Reject		Hold Date	S for Suspend

MIDNIGHT PROCESSING

Midnight Processing in STAR Pharmacy performs many processes. The following process is affected by the pharmLINK interface and the processing performed:

- Discontinue orders for all patients discharged that day.

During this process, the system sends TIRs for all valid items with *Stop Date=current date* and *Therapy Order Status=D* for Discontinue.

TASKING

The main purpose of the tasking process in STAR Pharmacy is to update pending order statuses (when not due to verification) when the appropriate date and time is reached. Order events affected by this process include future start medication/solution, future holds, future resumes, and future discontinues.

When an future order event goes into effect due to status updates by the tasking process, the system performs the corresponding processing based on the event.

NOTE: If the start date for an order is for T+1 or greater, the system sets the effective date and time to midnight of the start date. Therefore, the tasking process updates the status of the order at midnight of the start date.

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■ R e a d e r C o m m e n t F o r m ■

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