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STAR 2000™

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Any comments or suggestions regarding this publication are welcomed and should be forwarded to the attention of

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Preface

The *STAR Pharmacy ATC Interface Guide* provides technical and user information about STAR Pharmacy's interface with the Baxter™ automatic dispensing (ATC) machine. The ATC is a machine that dispenses, labels, and seals medication doses in a small cellophane package. The doses are dispensed in order by medication type and administration time.

The ATC interface enables STAR Pharmacy to pass patient and order information to the ATC machine.

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.

Table of Contents

Table of Illustrations

Introduction

This guide contains technical and user information about functions available on the STAR Pharmacy ATC Online Interface menu.

Chapter 1: Overview/Description

This chapter provides a general description of the ATC interface software and its features and functions.

Chapter 2: Installation

This chapter provides information about system requirements for hardware and software and discusses the installation roles of Baxter, McKesson installers, and the facility. It includes information about two functions that the facility uses during installation: the Parameters function and the Assign Mnemonics to Formulary Items function.

Chapter 3: User Functions

This chapter documents how to use the functions on the ATC Interface Utilities menu, including tasks such as turning the interface on and off, retransmitting Fill transactions, turning the audit on and off, viewing the error log, and performing file transfers.

Chapter 4: Troubleshooting

This chapter explains error messages and their solutions. It also explains how to interpret patterns in audits in order to correct problems.

Chapter 5: Technical Notes

This chapter contains technical information about the function flow and the interface's components. It also includes information about the interface and STAR Pharmacy labels, dispensing lists, and charge functions.

Chapter 1 - OVERVIEW/DESCRIPTION

NON-TECHNICAL FUNCTIONAL OVERVIEW

McKesson's ATC Interface enables STAR Pharmacy users to communicate and exchange information with a Baxter Pharmaceuticals automatic dispensing (ATC) machine. To use the ATC interface, you must sign an agreement for installation of the ATC interface.

The Baxter ATC machine is an automated medication distribution machine that can be connected to pharmacy management systems, such as STAR Pharmacy. STAR Pharmacy transmits patient-specific information to the ATC machine. When the operator requests that filling begin, the ATC machine automatically dispenses, labels, and packages each patient order in a strip of unit dose packages, which are pre-sorted by administration time or medication type.

In a multifacility environment where the formulary is split by facility, each facility must have its own ATC machine and corresponding interface program on the STAR Pharmacy central processing unit (CPU). If more than one facility shares the formulary, then a single interface program communicates with a single ATC machine.

FEATURES/FUNCTIONS

The ATC Interface menu contains the following functions:

TURN ONLINE INTERFACE ON/OFF
This function enables you to turn the interface on and off. For information on this function, see "Chapter 3 - USER FUNCTIONS".

RETRANSMIT FILL TRANSACTIONS
This function enables you to retransmit queued Fill transactions that have not been transmitted to the ATC in case a transaction is inadvertently lost during transmission. For information on this function, see "Chapter 3 - USER FUNCTIONS".

TURN AUDIT ON/OFF
This function enables you to turn the auditing feature on and off. For information on this function, see "Chapter 3 - USER FUNCTIONS".

VIEW AUDIT
This function enables you to view an interface audit file on your screen. For information on this function, see "Chapter 3 - USER FUNCTIONS".

VIEW ERROR LOG
This function enables you to view Fill transactions that were not successfully transmitted and to print the error log if you choose. For information on this function, see "Chapter 3 - USER FUNCTIONS".

FILE TRANSFER
This function enables you to create an ASCII file on a diskette or the hard drive of a PC. This function downloads all specified Fill transactions in their proper format. You can view all transactions that have been queued to the ATC. ATC users can then initiate the actual filling by using the Fill function on the ATC machine. For information on this function, see "Chapter 3 - USER FUNCTIONS".

PARAMETERS
This function enables you to add or edit the parameters for the ATC interface. For information on this function, see "Chapter 2 - INSTALLATION".

ASSIGN MNEMONICS TO FORMULARY ITEMS
This function enables you to assign an ATC mnemonic code to each formulary item dispensed by the ATC. For information on this function, see "Chapter 2 - INSTALLATION".

Chapter 2 - INSTALLATION

SYSTEM REQUIREMENTS

Your hardware and software needs depend on whether you use the Online Interface or the File Transfer method of interface, or both. The following subsection provides information about these two methods.

Preliminary Considerations

The *Online Interface* method is the more efficient of the two. The Online Interface method requires that an asynchronous communications line connect the ATC PC to a port on the STAR system. An Online Interface program that runs on the STAR CPU continuously reads Fill transactions from a queue and transmits them to the ATC machine for processing. The advantage of this method is that Fill transactions from the STAR system are processed instantly and automatically by the ATC; no manual intervention is necessary. If you use only the Online Interface method, you do not need McKesson's WEM.

If the Online Interface is turned off or the communications link is down, Fill transactions accumulate in the queue until the interface is brought up and/or communications are restored. If, however, the STAR CPU is down, the Online Interface goes down also.

The *File Transfer* method is primarily intended to be a backup method for use when the Online Interface is down, but it can also be used exclusively. The File Transfer method uses WEM to download Fill transactions to PC disk drive; thus, if you use the File Transfer method, WEM is required.

If you use the File Transfer method, it is recommended (but not required) that the PC that drives the ATC be connected to a port on the STAR system, and that WEM be installed there. In this way, the DOS file that contains the Fill transactions can be downloaded directly to the PC for processing by the ATC. If the ATC PC is not or cannot be cabled to a STAR port, you must use a floppy disk to manually transfer the DOS file from the destination PC to the ATC PC.

You cannot use the File Transfer method to transfer *Dispense Now* Fill transactions.

You cannot use the File Transfer function and the Online Interface at the same time on the same port. While the File Transfer process is taking place, the Online Interface cannot transmit transactions. When the Online Interface is running, you cannot use the File Transfer function to transfer Fill transactions.

Hardware

For the facility to use the Online Interface, the PC that controls the ATC must be cabled to a dedicated port on STAR Pharmacy through an asynchronous communications link.

Software

You must have the 8.0 release of STAR Pharmacy or higher.

For the facility to use the File Transfer function, McKesson's WEM package must be installed on the PC that communicates with the STAR system.

THE INSTALLATION PROCESS

In order to install the ATC interface, the facility must have signed the agreement with McKesson. Installation involves Baxter, McKesson, and the facility.

Baxter's Role in Installing the ATC machine

To use the ATC interface, you must have a functional Baxter ATC machine. It is the responsibility of Baxter to calibrate the canisters. The drugs should be loaded into the proper canisters, and the drug mnemonics assigned through the ATC software. This installation phase must be completed or be near completion before McKesson can perform its installation tasks.

McKesson's Role in Installation

The McKesson installer does the following:

- Adds the menu element to the selected menu and sets the security levels
- Defines the ATC setting in the Misc, HBO - Rx Modules Active parameter and the settings in the interface's Parameter function
- Adds the ATC Interface purge step to Midnight Processing
- Sets up the interface to be IPL'ed automatically, if the facility desires it
- Checks the configuration of the Baxter ATC machine

These tasks are described in more detail in the following subsections.

ADDING THE MENU ELEMENT

The McKesson installer must add the menu element PIATCINT to the menus that the facility selects.

The installer then must set the security levels for the interface functions as designated by the facility. The following security levels are suggested by McKesson:

Function	Suggested Security Levels
Turn Online Interface On/Off	Technician or higher
Retransmit Fill Transactions	Technician or higher
Turn Audit On/Off	Director only
View Audit	Director only
View Error Log	Technician or higher
File Transfer	Technician or higher

Function	Suggested Security Levels
Parameters	Director only
Assign Mnemonics to Formulary Items	Pharmacist or higher

SETTING PARAMETERS

The McKesson installer must set the ATC Interface field to Active on the Misc, HBO - Rx Modules Active parameter screen. This field is McKesson-controlled and can be changed only by McKesson.

The McKesson installer must then use the Parameter function to set the ATC interface parameters to the settings selected by the facility. The ATC Answerback parameter and the Device Number parameter can be set only by McKesson personnel. The facility can reset the remaining parameters after installation. For field explanations for the Parameter screen, see the field explanations in the Setting the ATC Interface Parameters subsection.

ADDING THE ATC INTERFACE PURGE STEP TO MIDNIGHT PROCESSING

The installer needs to add the ATC Interface Purge step to Midnight Processing, as follows:

Program:	^PIATCPG
Description:	ATC Interface Purge
Background:	Yes
Priority:	02

SETTING UP THE INTERFACE TO BE IPL'ED

If the facility wants the ATC interface to be initiated automatically each time the STAR Pharmacy system is IPL'ed, the installer must add A^PIATCINT as an IPL-time job under System Setup.

If the facility does not want the ATC interface to be automatically initiated, the user must initiate it manually each time the system is IPL'ed by using the Turn Online Interface On/Off function, described in “Chapter 3 - USER FUNCTIONS”.

CHECKING THE CONFIGURATION OF THE ATC MACHINE

To interface to STAR Pharmacy, the ATC system must be configured as follows:

Configuration Settings for the HPS Interface	
Baud Rate	9600 *
Parity	E *
Data Bits	7 *
Stop Bits	1 *
STX	002
PSOH	001
PETB	023
MSOH	001
METB	018
ETX	003
ACK (incoming)	006
NACK (outgoing)	021
Protocol	0
Drug Mnemonic Mode	0
Wake-up	1
Flag Fixed Length Records	0
Response Timer-Control	1 **
Response Timer-Data	3 **
Log Errors to File	1 **

* These settings must match the settings for the port that are defined through the STAR Pharmacy Port Modification Utilities.

** You may adjust these settings as necessary to improve communications efficiency.

Sign-on Bytes
Byte 1 006

Transmission Terminator Bytes
None

Outgoing [ACK] Bytes
Byte 1 006

Outgoing [NAK] Bytes
Byte 1. 021

Configuration Settings for File Transfer	
Flag for PRN Dosage Review (Y/N)	N
Flag for PRN Package format (Y/N)	N
Flag for Cart Exchange Mode (Y/N)	N
Cart Exchange Hour (00-23)	00
Sig Code Flag (Y/N)	Y
NEW/DCW Support (Y/N)	Y
Drug Mnemonic Length (00-15 00=var)	15
PAT NAME position/length (PPPLL)	00120
PAT ID position/length (PPPLL)	02112
PAT LOC position/length (PPPLL)	03312
DRUG MNEMONIC position/length (PPPLL)	04515
ADM DATE position/length (PPPLL)	06006
SIG CODE position/length (PPPLL)	06608
ADM TIME position/length (PPPLL)	06604
DOSAGE position/length (PPPLL)	07402
NEW/DCW position/length (PPP05)	07605
FUTURE position/length (PPPLL)	00000
FUTURE position/length (PPPLL)	00000
Complete RECORD LENGTH (LLL)	081

Facility's Role in Installation

The facility must set the parameters for the ATC interface and assign mnemonics to the formulary items. To perform these tasks, you must first select the ATC Interface Utilities from a STAR menu, as described in “Chapter 3 - USER FUNCTIONS”.

SETTING THE ATC INTERFACE PARAMETERS

The Parameters function enables you to add or edit the parameters for the ATC interface.

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

```
                General Hospital Parameters Processor
                                                Thu Apr 21, 1994 02:46 pm
ATC Interface Parameters for: Model Hospital A
 1 Mnemonic Length   2 Functions Active
   5 characters        Start Medication,Restart Medication,et al
 3 Device Number   4 Wait Interval      5 ATC Answerback     6 Queue Retention
   2                 5 seconds           15 seconds           3 days
 7 Immed Charges?  8 PC Dest Drive     9 PC Directory        10 Dispense PRNs?
   No                C                   \ATC\                  No

11 Active Stations
   1E,CCU,RXA

12 Stock Locations for Dispense Now Doses
   RXI




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

Field Explanations

1. MNEMONIC LENGTH (2-N-R)
This field contains the maximum length of ATC mnemonics. The number must be between 2 and 15, inclusive, and be consistent with the Drug Mnemonic Length parameter on the ATC system. The default is 5 characters.

2. FUNCTIONS ACTIVE (TABLE LOOKUP-O)
This field contains the names of the functions active for the interface. You can select as many as you want. Updates take place immediately.

The available function groups from which to choose are:

- Start Medication, Restart Medication
- Revise Medication, Demand Medication, Resume Medication, Verify Medication Order
- Update Labels
- Charge Functions
- Fill List
- Update List
- Check List
- Fill Screen, Check Screen
- Post Functions

If you do not select a function, it does not queue Fill transactions to the interface. If you want, you can bring the interface Live one function at a time or turn functions on or off as needed.

3. DEVICE NUMBER (3-N-R)
This field contains the port number of the ATC machine. This field is McKesson-controlled. To change it, you must contact your McKesson representative.

4. WAIT INTERVAL (2-N-R)
This field specifies the number of seconds that the interface waits before checking the input queue. It must be a number between 1 and 60, inclusive. The default is 5.

NOTE: Setting this field too low may cause the interface to use an excessive amount of CPU resources. Setting it too high may cause a lag time between the time doses are requested and the time the ATC machine receives the request.

5. ATC ANSWERBACK (2-N-R)
This field contains the number of seconds that the system waits for a response from the ATC machine before assuming the ATC is not responding. It must be a number between 1 and 30, inclusive. This field is McKesson-controlled. To change it, you must contact your McKesson representative.

6. QUEUE RETENTION (2-N-R)
This field contains the number of days that the system retains queued fill transactions, audit file entries, and error log entries before purging them. It must be a number between 2 and 30, inclusive. The default is 3.

The nightly purge program uses this parameter to determine which Fill transactions, audit file entries, and audit file entries to purge from the queue.

7. IMMED CHARGES? (1-A-R)
This field specifies whether charge transactions are processed immediately by the ATC. If this field contains Yes, the ATC immediately processes Fill transactions generated by the Charge function. If it contains No, the transactions accumulate on the ATC and are processed when the ATC operator uses the Fill from Mainframe function. The default is No.

8. PC DEST DRIVE (1-A-O)
This field specifies the destination drive on the PC to be used during file transfer for transferred ATC file data. The drive can be A, B, C, or D. This field is usually set to the C drive, which is the hard disk drive.

9. PC DIRECTORY (U-C-O)
This field specifies the directory and, if one exists, a subdirectory for file transfers. The File Transfer function sends ATC file data to this location. Set this field to \ATC\, which is the default, because the ATC program looks for the file in this location.

Examples of valid entries include:

```
\
\ATC\
\ATC\SUBDIR\
```

10. DISPENSE PRNS (1-A-R)
This field determines whether the interface can dispense orders that have PRN schedules.

11. ACTIVE STATIONS (U-A-O) or (TABLE LOOKUP-O)
This field contains the codes for all active nurse stations. Enter the codes for the active nurse stations, or enter a hyphen (-) and select from the table, or press ENTER to select All.

12. STOCK LOCATIONS FOR DISPENSE NOW DOSES (U-A-O) or (TABLE LOOKUP-O)
This field contains the codes for stock locations that use the ATC for Dispense Now doses. Enter the codes for the stock locations, or enter a hyphen (-) and select from the list of stock locations. If a stock location code is not listed, that stock location cannot queue Fill transactions.

ASSIGNING MNEMONICS TO FORMULARY ITEMS

The Assign Mnemonics to Formulary Items function enables you to assign an ATC mnemonic code to each formulary item dispensed by the ATC. The ATC uses a scheme of mnemonics to identify individual formulary items. The ATC user can configure the Drug Mnemonic Length to be between 1 and 15 characters, inclusive. When STAR Pharmacy transmits a transaction to the ATC, the mnemonic code is sent as part of the transaction so that the ATC can identify the item and dispense it from the correct bin.

In a multifacility environment where the formulary is shared by more than one facility, the ATC mnemonic codes are applicable to each facility. If the formulary is split by facility, each facility can assign ATC mnemonic codes to its own formulary items.

Only one user can access this function at a time. If a second user attempts to use it, the system displays the File or Table in Use! message and prevents access.

NOTE: The ATC system requires that no mnemonic code can be a substring of another mnemonic code. For example, *Valium* and *Valium100* cannot exist as mnemonic codes on the same system because *Valium* is a substring of *Valium100*. When an ATC mnemonic is entered, STAR Pharmacy verifies that it is not a duplicate of or a substring of any existing mnemonic code.

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

(A)ssign mnemonic to formulary, or view (C)ross-reference table?--

If you enter A, the system displays the standard formulary inquiry prompt:

Enter drug name, '-'mnemonic, formulary code or ''product #--*

After you make your selection, the system displays a screen with the selected formulary item at the top and a Mnemonic field for the item.

```
   General Hospital Assign Mnemonics to Formulary Items Processor
                                                Tue Apr 26, 1994 05:16 pm

 119 PENICILLIN VK 250MG TABLET* WARNER CHILCOTT                    (PEN250)
 1 Mnemonic
->




Enter mnemonic--
```

Enter or add the mnemonic code for the drug; the code cannot be longer than the number in the Mnemonic Length field on the Parameters screen. After you enter the code, the system:

- Updates the formulary item with mnemonic information
- Updates the cross-reference data
- Displays *Filed!*

If you enter C, the system displays an alphabetic cross-reference table of all mnemonics defined for the chosen facility:

```
   General Hospital Assign Mnemonics to Formulary Items Processor
                                                Tue Apr 26, 1994 05:16 pm

Page:01              Cross-reference Mnemonic Table for
                   All Facilities Which Share the Formulary
( 1) 3-335 PEN G POTASSIUM 5MMU INJECTION 1/VIAL 5MMU 10'S
( 2) AMOX-5 AMOXIL 250MG CAPSULE 100/U/D 10X10*
( 3) FAM20-120 PEPCID 20MG TABLET 100/U/D 100'S*
( 4) MOT-106 MOTRIN 400MG TABLET 100/U/D 100'S*
( 5) NAP-110 NAPROSYN 250MG TABLET 100/U/D 100'S*




Press NL--
```

After you press ENTER, the system returns you to the formulary inquiry prompt. Press ENTER again, and the system displays the following prompt:

Print hardcopy? [N]--

If you enter Y to print, the system prints a copy of the Cross-reference Mnemonic Table.

Chapter 3 - USER FUNCTIONS

ATC INTERFACE UTILITIES MAIN MENU

When you select ATC Interface Utilities from a STAR menu, the system displays the following screen:

```
          General Hospital ATC Interface Utilities Processor
                                                  Wed Apr 20, 1994 05:20 pm
ATC Interface Utilities Input Options

             Option No.  Option
             ----------------------------------------
                 1       Turn Online Interface On/Off
                 2       Retransmit Fill Transactions
                 3       Turn Audit On/Off
                 4       View Audit
                 5       View Error Log

                 6       File Transfer

                 7       Parameters
                 8       Assign Mnemonics to Formulary Items




Enter option number--
```

The use of the Parameters function and the Assign Mnemonics to Formulary Items function is described in “Chapter 2 - INSTALLATION”. Tasks involving the remaining functions are discussed in the following subsections.

TURNING THE ONLINE INTERFACE ON/OFF

The Turn Online Interface On/Off function enables you to turn the interface on and off. When the interface is off, Fill transactions can accumulate in the queue. When on, the interface reads through the queue, beginning with the first transaction. After all transactions have been transmitted, the interface waits for the amount of time specified in the Wait Interval field on the Parameters screen before it checks the queue for more transactions. Technical information about the function flow appears in "Chapter 5 - TECHNICAL NOTES".

If you access this function while the interface is off, the prompt asks if you want to start the interface. If the interface is on, the prompt asks if you want to stop it. Enter **Y** for Yes or **N** for No. If you stop the interface, the system displays a *Stopping interface!* message. If you choose to start the interface, the system displays a *Starting interface!* message.

NOTE: When you turn off the interface, the interface is not immediately terminated: it is terminated at the end of the time cycle defined by the Wait Interval field on the Parameters screen.

RETRANSMITTING FILL TRANSACTIONS

The Retransmit Fill Transactions function enables you to retransmit queued Fill transactions that have not been transmitted to the ATC machine. This function is used in case a transaction is inadvertently lost during transmission between the interface and the ATC machine. You can retransmit transactions as many times as necessary.

The retransmission takes place in the foreground, and you can see each transaction as it is retransmitted. This function temporarily suspends the operation of the interface; after the retransmission is complete, the interface becomes active again.

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

Select transactions by (R)ange (first-last) or by (T)ime interval?--

To select a number of individual transactions by identifying the first and last transactions in the range, enter **R**. To select a group of transactions by date, enter **T**.

Selecting by Range

If you enter R, the system prompts you to identify a range of transactions. Enter the start date and time for the range at the following prompt in MMDDYY HHMM format:

Enter beginning date/time to display [010101 000]--

The system then displays a list of queue transactions that begins with the entered date and time:

```
        General Hospital Retransmit Fill Transactions Processor
                                                Thu Apr 21, 1994 10:40 am

Page:01                         Queue transactions
     Date/Time  Name                Acct          Sta-Rm-Bed Fn Ord Mnemonic
( 1) 04/18/94 0605 WORTHINGTON,PAUL   9406000001   RXA-101-01 FL   1 FAM20
( 2) 04/18/94 0605 WORTHINGTON,PAUL   9406000001   RXA-101-01 FL   1 FAM20
( 3) 04/19/94 0605 WORTHINGTON,PAUL   9406000001   RXA-101-01 FL   1 FAM20
( 4) 04/19/94 0605 WORTHINGTON,PAUL   9406000001   RXA-101-01 FL   1 FAM20
( 5) 04/20/94 0601 ANDERSON,CLARK     9326500001   1E-2105-02 FL   7 FAM20
( 6) 04/20/94 0601 ANDERSON,CLARK     9326500001   1E-2105-02 FL   7 FAM20
( 7) 04/20/94 0605 WORTHINGTON,PAUL   9406000001   RXA-101-01 FL   1 FAM20
( 8) 04/20/94 0605 WORTHINGTON,PAUL   9406000001   RXA-101-01 FL   1 FAM20
( 9) 04/21/94 0605 WORTHINGTON,PAUL   9406000001   RXA-101-01 FL   1 FAM20
(10) 04/21/94 0605 WORTHINGTON,PAUL   9406000001   RXA-101-01 FL   1 FAM20









Select first transaction--
```

Enter the number of the first transaction you want to transfer. If you press ENTER, the system uses the last beginning date and time that was entered.

The system then displays a list with the selected transaction as the first one. The headings are:

Date/Time	The date and time of the transaction
Name	The patient's name
Acct	The patient's account number
Sta-Rm-Bed	The patient's station, room, and bed location
Fn	The function that submitted the transaction. The following codes are used:

CG Charge
CL Check List
CS Check Screen
DM Demand Medication
FL Fill List
FS Fill Screen
LU Update Label
PD Post Discharged Patient
PM Post Medication
RS Restart Medication
RV Revise Medication Order
SM Start Medication Order
UL Update List
VR Verify Medication Order
XF Patient Room Transfer

In response to the Select Last Transaction prompt, enter the number of the last transaction for the range.

The system then displays a screen that shows the first transaction and the last transaction with the following prompt:

Retransmit all specified transactions? (Y/N)--

If you enter Y to retransmit, the system displays the specifics of each transaction and suspends the interface in order to transmit to the ATC machine. If the retransmission is successful, the system displays the *Retransmission complete!* message and reactivates the interface.

If the system is unable to temporarily suspend the interface, the following message is displayed:

Unable to retransmit at this time!

If the ATC does not respond within the time limit specified in the ATC Answerback parameter, the system displays the *Timeout* message.

If the ATC rejects the transaction, the system displays the *NAK* message. The function attempts to send the transmission up to six times. If retransmission is not successful, the system displays the *Retransmission not possible!* message.

Selecting by Time

If you enter T, the system prompts you to define a time period. Enter the start date and time in a MMDDYY HHMM format at the *Enter start date and time* -- prompt.

Enter the stop date and time in a MMDDYY HHMM format at the *Enter stop date and time* -- prompt. The system then displays a prompt like the following:

Retransmit all transactions between 04/03/93 0100 and 04/04/93 0100? (Y/N)--

To retransmit the transactions, enter **Y**. The system displays the *Retransmitting!* message and notifies you that it is trying to suspend the online interface. When it has completed retransmitting, the system displays the *Retransmission complete!* message. The system then returns you to the original Retransmitting prompt.

NOTE: If you do not manually purge queued Fill transactions, the system purges them during Midnight Processing, based on the number of days specified in the Queue Retention field on the Parameters screen.

AUDITING THE INTERFACE

The Turn Audit On/Off function enables you to turn the auditing feature on and off. The interface can provide transaction records for each task it performs, but in general such audits are not necessary or desired because the resulting file requires extra disk space. This function is used mostly as a debugging tool by Support personnel.

Stopping the Audit

When you select this function and both the interface and the audit are running, the system displays the following prompt:

Audit is running-- stop auditing? (Y/N)--

If you enter Y, auditing is stopped and the system displays the *Stopping audit!* message.

Starting the Audit

When you select this function and the interface is on but the audit is not running, the system displays the following prompt:

Audit is not running-- start auditing? (Y/N)--

To start auditing, enter **Y**. The system displays the following prompt:

Purge previous audit file(s)? (Y/N)--

If you enter Y, the system purges all previous audit files before starting the audit.

If you enter N, the system does not purge the previous audit files and displays the *Starting audit!* message.

NOTE: If you do not manually purge audit file entries, the system purges them during Midnight Processing, based on the number of days specified in the Queue Retention field on the Parameters screen.

VIEWING THE AUDIT

The View Audit function enables you to view an ATC interface audit file on your screen. If you want, you can print a hard copy of the audit. This function is usually used as a debugging tool along with the Turn Audit On/Off function.

When you access this function and an audit file exists, the system displays it on the screen in page format, with the transaction audits in chronological order. To page forward, enter a forward slash (/). To page backward, enter a forward slash followed by a P (**/P**).

```
                General Hospital View Audit Processor
                                                 Thu Apr 21, 1994 02:11 pm
Page:01                    ONLINE INTERFACE AUDIT TRAIL
14:11:14  --------------- Interface Initiated ----------------
14:11:14  Xmt  ACK
14:11:14  Rcv  NAK  247
14:11:15  Xmt  ACK
14:11:15  Rcv  ACK
14:11:15  Xmt  SMITH,JOHN           U2345214 2331-01 VALIUM
14:11:15  Rcv  ACK
14:11:16  Xmt  ACK
14:11:16  Rcv  ACK
14:11:16  Xmt  SMITH,JOHN           U2345214 2331-01 ACETAMINOPHEN
14:11:16  Rcv  ACK
14:11:17  ---------------- Interface Terminated ---------------




Press NL (exit)--
                                 next page(/)
```

The following process takes place each time a Fill transaction is sent to an ATC. STAR Pharmacy begins the communication by transmitting an ACK (acknowledgement) to the ATC. In return, the ATC transmits an ACK to STAR Pharmacy. Upon receiving the acknowledgement, STAR Pharmacy transmits a Fill transaction, which includes information about the patient and the medication. If the Fill data is formatted properly and is successfully received by the ATC, the ATC responds with a final ACK.

To end the viewing, press ENTER. The system then displays an option to print:

Print Hardcopy? [N]--

If you enter Y to print, the system spools a hard copy of the audit trail to the printer. The printed format is similar to that of the screen.

For information about using audits to identify and correct problems, see “Chapter 4 - TROUBLESHOOTING”.

VIEWING THE ERROR LOG

The View Error Log function enables you to view Fill transactions that were not successfully transmitted and to print the error log if you choose.

The Online Interface Error Log then displays the errors. You can page forward by entering a forward slash (***/***), or page backward by entering a forward slash followed by a P (***/P***).

To finish viewing, press ENTER. The system then displays an option to print:

Print Hardcopy? [N]--

If you enter Y to print, the system prints a hard copy of the error log on the designated printer.

NOTE: Transactions remain in the error log for the length of time specified in the Queue Retention field on the Parameters screen. At the end of the time period, the system purges the errors from the log at Midnight Processing.

TRANSFERRING FILES

The File Transfer function enables you to create an ASCII file on a diskette or the hard drive of a PC. This function uses WEM to download all specified Fill transactions in their proper format. This function is designed to be used as a backup, but it can be used exclusively, if you want. For information about the differences between the Online Interface method and the File Transfer function, see the preliminary considerations part of "Chapter 2 - INSTALLATION".

Through this function you can view all transactions that have been queued to the ATC: a flag indicates whether individual transactions have been transferred. You can then select either a range of transactions by date or time or a group of individual transactions. After the file has been transferred, ATC users can use the Fill ATC-FILE Orders function to fill from the ATC machine.

NOTE: The system does not prevent you from selecting transactions that have already been transmitted to the ATC machine.

The file must be an ASCII file in at least a DOS 3.1 format. If you are transferring to a diskette, the diskette needs to be double-sided, single density 360KB, or higher capacity.

To use this function, the interface must be off. If you try to access this function with the interface on, the system displays the following error message:

File transfer cannot run while online interface is running!

When you access this function with the interface off, the system displays the following prompt:

Select transactions by (R)ange (first-last) or by (T)ime interval?--

NOTE: The ATC interface cannot transmit transactions while file transfers are taking place.

Selecting by Range

If you enter R, the system prompts you to identify a range of transactions. Enter the start date and time for the range at the following prompt in MMDDYY HHMM format:

Enter beginning date/time to display [010101 0000]--

If you press ENTER, the system uses the last beginning date and time that was entered.

The system then displays a list of queue transactions that begins with the entered date and time. Enter the number for the first transaction you want to transfer.

The system then displays a list with the selected transaction as the first one. In response to the Select Last Transaction prompt, enter the number of the last transaction for the range.

The system then displays the first and last transactions on the screen with the following prompt:

Transfer all specified transactions? (Y/N)--

If you enter Y for Yes, the system displays the *Transferring!* message and displays each transaction on the screen as it is received by the ATC. The system then returns you to the original File Transfer prompt.

Selecting by Time

If you enter T, the system prompts you to define a time period. Enter the start date and time in a MMDDYY HHMM format at the *Enter start date and time*-- prompt.

Enter the stop date and time in a MMDDYY HHMM format at the *Enter stop date and time*-- prompt.

The system then displays a prompt like the following:

Transfer all transactions between 04/03/93 0100 and 04/04/93 0100? (Y/N)--

To transfer the transaction, enter **Y**. The system displays the *Transferring!* message and displays each transaction on the screen as it is received by the ATC. The system then returns you to the original File Transfer prompt.

Chapter 4 - TROUBLESHOOTING

ERROR MESSAGES

The following table shows error messages and the corresponding problem and solution.

Error Message	Problem/Solution
C Rx ATC Interface aborted at HH:MM--another job has interface locked!*	This indicates that another ATC interface or File Transfer job was running when this job was initiated. Only one can run at a time; the second must abort.
C Rx ATC Interface aborted at HH:MM--interface port in use by another job!*	The interface port is defined by the Device Number field on the Parameters screen. Use jobwatch to find out which job is using the device, and try again when the job is finished.
Interface port in use by another job!	The interface port is defined by the Device Number field on the Parameters screen. Use jobwatch to find out which job is using the port, and try again when the job is finished.
Retransmission not possible!	For some reason STAR Pharmacy is unable to communicate with the ATC. • Check the cabling between the systems. • Make sure that the ATC software is running. • Make sure the port characteristics on STAR Pharmacy match the HPS configuration on the ATC (see Section 2: Installation) • Make sure the Device Number field on the Parameters screen is defined properly.
Unable to transmit at this time!	The Retransmit function must suspend the ATC interface program before it can retransmit any transactions; if the ATC interface is busy, the Retransmit function may not be able to suspend it. In such cases, turn the interface off by using the Turn Online Interface On/Off function.

ANALYZING PROBLEMS THROUGH AUDITS

You can analyze problems that appear within audits to help determine and correct problems with transmitting data from STAR Pharmacy to the ATC. Various problems can hamper the transmission of data, including problems with hardware, cabling, timing, and configuration.

The following examples show improper communication patterns as revealed in the audit, the possible source of the problem, and the suggested solution.

Problems with Timeouts

The following audit pattern reveals a problem with timing:

```
13:36:31  Xmt ACK
13:36:41  Timeout
13:36:41  Xmt ACK
13:36:51  Timeout
```

In this case, STAR Pharmacy is trying to communicate with the ATC, but the ATC is not responding within the length of time specified in the ATC Answerback field on the Parameters screen.

Possible cause	Solution
The ATC Software was not running at the time the ATC interface was transmitting.	Initiate the ATC software.
A hardware problem exists.	Have an engineer check the cabling between the two systems.

Problems with Timeouts on the Fill Transaction Transmission

The following audit pattern shows a problem with timing.

```
13:36:40  Xmt  ACK
13:36:41  Rcv  ACK
13:36:41  Xmt  SMITH,JOHN     012321292921CCU 210-01    TYLENOL
13:36:51  Timeout
```

This pattern indicates that the systems are communicating, but the ATC is not responding to the Fill transaction transmission within the length of time specified in the ATC Answerback field on the Parameters screen.

Possible Cause	Solution
STAR Pharmacy is not allowing enough time for the ATC to process the Fill transaction.	Either the value in the ATC Answerback field on the Parameters screen needs to be increased, or the Response Timer-Data parameter under the HPS Configuration on the ATC needs to be decreased.

Problems with NAKs on the Fill Transaction Transmission

The following audit pattern shows a problem with timing.

```
13:36:40   Xmt  ACK
13:36:41   Rcv  ACK
13:36:41   Xmt  SMITH,JOHN     012321292921CCU 210-01    TYLENOL
13:36:51   Rcv   NAK  21
```

This pattern indicates that the systems are communicating, but the Fill transaction is not being accepted (NAK) by the ATC. The number following the NAK is the ASCII character that was received by STAR Pharmacy.

Possible Cause	Solution
The ATC system has not been configured properly to accept Fill transactions from STAR Pharmacy.	Make sure the HPS Configuration settings on the ATC are properly set. Contact your Baxter representative, if necessary.
If this happens intermittently, a hardware problem may be corrupting the Fill transactions during transmission.	Have an engineer check the cabling between the two systems.

Chapter 5 - TECHNICAL NOTES

Illustrations

FUNCTION FLOW

The function flow for the ATC interface program is as follows:

1. The program cycles continually through the following steps: the program

   A. Checks to see if the interface has been instructed to terminate. If it has, it terminates itself.

   B. Checks the queue for new Fill transactions. For each transaction in the queue, it performs step 2.

   C. Waits for the length of time specified in the Wait Interval field and then returns to Step 1.

2. The program runs through the Fill transactions in the queue, beginning with the first transaction after the last one that was successfully transmitted. For each transaction in the queue, the program

   A. Determines whether the interface has been instructed to terminate. If it has, it returns to step 1A.

   B. Transmits an ACK (acknowledgement) to the ATC machine and waits for the ATC to respond with an ACK. If it gets no response from the ATC, or if it receives any other response besides an ACK, then the program returns to step 2A.

   C. Transmits the transaction to the ATC machine and waits for an ACK from the ATC that acknowledges that the transaction has been successfully received. If it gets no response, or if it receives any response besides an ACK, the program returns to step 2A.

   D. Marks the transaction as successfully transmitted, updates the most recently transmitted counter, and returns to step 2.

For information about problems that may occur in this process, see Section 4: Troubleshooting.

MISCELLANEOUS INFORMATION

The following sections contain information about ATC interface programs, screens, menu libraries, and menus.

Interface Programs

The following programs are specific to the interface:

PORVM3	Revise Medication
POSTM7	Start Medication
PRHC1	Fill, Update, Check List Formats
PIATCAU	ATC Interface--Audit
PIATCFT	ATC Interface--File Transfer
PIATCFT1	ATC Interface--File Transfer
PIATCINT	ATC Interface--Online Interface
PIATCPG	ATC Interface--Nightly Queue Purge
PIATCPRM	ATC Interface--Parameters
PIATCQ	ATC Interface--Queuer
PIATCRT	ATC Interface--Retransmit Fill Transactions
PIATCRT1	ATC Interface--Retransmit Fill Transactions
PIATCTM	ATC Interface--Tale Maintenance
PIATCVA	ATC Interface--View Audit

Screens

The following screens are specific to the ATC interface:

pihatcpm	ATC Interface--Parameters Screen
pihatctm	ATC Interface--Tale Maintenance Screen

Menu Library and Menus

The menu library for the ATC interface is PIATCINT. The menu for the ATC interface is pimatc.

LABELS, FILL TRANSACTIONS, AND THE ATC INTERFACE

The following STAR Pharmacy functions can print Dispense Now labels for doses charged against a cart currently on the floor and also print update labels for doses charged against a cart that is king prepared for exchange:

- Start Medication
- Revise Medication
- Demand Medication
- Resume Medication
- Restart Medication
- Verify Medication Order

If the drug is an ATC drug andthe Online Interface is running, these functions can also send a Fill transaction to the ATC machine, if the following conditions are met:

- The ATC interface is active.
- The function is specified in the Functions Active field on the Parameters screen. For more information, see the material on the Parameters screen in Section 2: Installation.
- The drug has a mnemonic defined for the ATC interface at the formulary level. For more information on assigning mnemonics, see Section 2: Installation.
- The Chg - Med/Sol Charge Indicator parameter sets the system to charge for this type of Dispense Now dose (such as Scheduled or PRN, Bulk and Traditional or All) or Fill List dose (for Update Labels). For more information, see the section on hospital-maintained parameters in the *Tables and Parameters Volume* of the *STAR Pharmacy Reference Guide*.
- The dispensing location is an active entry from the dispensing location table.

If the Online Interface is not running when the Dispense Now or Update Label doses are dispensed, the doses are queued. After it is initiated again, the interface attempts to process all doses that were dispensed while it was not running.

NOTE: You cannot use the File Transfer function to transfer Fill transactions queued by these functions. You must use the Online Interface instead.

DISPENSING LISTS AND THE ATC INTERFACE

The following sections provide information about the ATC interface and some of the Dispensing Management functions.

NOTE: The Dispensing Management functions check the Functions Active field on the Parameters screen only once--at the beginning of a dispensing job. If you change functions in the Functions Active field while a dispensing job is executing, the change does not go into effect until after the job is complete.

Cart Fill List, Cart Update List, or Cart Check List Functions

A Fill instruction from the Cart Fill List, Cart Update List, or Cart Check List functions triggers the queuing of a Fill transaction to the ATC machine under the following conditions:

- The ATC interface is active.
- The function is specified in the Functions Active field on the Parameters screen. For more information, see the material on the Parameters screen in Section 2: Installation.
- The drug has a mnemonic defined for the ATC interface at the formulary level. For more information on assigning mnemonics, see Section 2: Installation.
- The nurse station is specified in the Active Stations field on the Parameters screen. For more information, see the material on the Parameters screen in Section 2: Installation.
- The Chg - Med/Sol Charge Indicator parameter sets the system to charge for this type of Fill List dose, such as Scheduled or PRN, Bulk and Traditional or All. For more information, see the section on hospital-maintained parameters in the *Tables and Parameters Volume* of the *STAR Pharmacy Reference Guide*.
- The list indicates that a quantity of the drug is to be filled at this time.
- The PRN parameter is sent to No.

If all these conditions are met, the Cart Fill List, Update List, or Check List reports mark all items to be dispensed from the ATC machine with *ATC* in parentheses. Figure 5.1 shows a Medication Check List report in which an order (0008) is marked *(ATC)*. For more information on these reports, see the section on preparation and dispensing management in the *Inpatient Processing Module* of the *STAR Pharmacy Reference Guide*.

Figure 5.1 Cart Check List With ATC Indicator

```
Model Hospital A                Medication Check List            Page:        3
                                Station ONE EAST                 Date: 07/06/05
                       07/06/05 01:00pm To 07/07/05 01:00pm      Time:  11:56am

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
2101-01                SOMOLIK,LTC                          0418800001       Start
Ord#    Quantity       Drug (Disp/Dose)               Dosage=Adm/Dose        Stop
---- ---------------   ---------------------------------------------       -----
                        >>>>>>>>>>  Fill Process Not Complete  <<<<<<<<<<
0008           Demand   PHENERGAN,50MG/ML IV                                12/15
                        (1ML)                                 50MG=1ML
                         Freq: 4 TIMES PER DAY 44X / Sched: DAILY (WAS QD) 123X
(ATC)                   PHENERGAN INJ
                        Filled by                    Checked by

0042           Demand   EPOGEN,2MU/ML IV                                    05/12
     Extempo-injection(20ML)                                40MU=20ML
                         Freq: DAILY (FREQ QD) 12X / Sched: Once a Week
                      EPOETIN ALFA HUMAN RECOMBINANT ** *Extempo with $5 Add-on Fee **
                        Filled by                    Checked by

0027           Demand   ZANTAC,150MG ORAL                                   05/10
      Extempo-tablet    (1TABLET)                          150MG=1TABLET
                         Freq: TWO TIMES A DAY / Sched: DAILY (WAS QD) 123X 07/08
                        RANITIDINE HCL ** *Extempo with $5 Add-on Fee **
                        >>>>>>>>>> Not Filled <<<<<<<<<<
End of Report
```

Cart Fill Screen and Cart Check Screen Functions

The STAR Pharmacy Cart Fill Screen and Cart Check Screen functions can queue Fill transactions to the ATC machine under the following conditions:

- The ATC interface is active.
- The function is specified in the Functions Active field on the Parameters screen. For more information, see the material on the Parameters screen in Section 2: Installation.
- The drug has a mnemonic defined for the ATC interface at the formulary level. For more information on assigning mnemonics, see Section 2: Installation.
- The nurse station is specified in the Active Stations field on the Parameters screen. For more information, see the material on the Parameters screen in Section 2: Installation.
- The Chg - Med/Sol Charge Indicator parameter sets the system to charge for this type of Fill List dose (such as Scheduled or PRN, Bulk and Traditional or All). For more information, see the section on hospital-maintained parameters in the *Tables and Parameters Volume* of the *STAR Pharmacy Reference Guide*.
- The function screen indicates a quantity of the drug is to be filled at this time.

The field at the bottom of the Cart Fill Screen and Cart Check Screen screens displays *ATC* along with the quantity and drug name. For example:

1 tablet - HYGROTON 25 MG TABLET (ATC)

This reminds the technician or pharmacist not to fill this drug by hand.

NOTE: If the type of order being filled is charged on replacement and the posting functions are among the functions active for the ATC interface, the entry of a return quantity triggers a fill transaction to the ATC for the number of doses necessary to replace the doses not returned. For more information about charge on replacement, see the *Tables and Parameters Volume* of the *STAR Pharmacy Reference Guide*.

CHARGE FUNCTIONS AND THE ATC INTERFACE

Posting a charge using the STAR Pharmacy Charge function triggers the queuing of a Fill transaction to the ATC machine under the following conditions:

- The ATC interface is active.
- The function is specified in the Functions Active field on the Parameters screen. For more information, see the material on the Parameters screen in Section 2: Installation.
- The drug has a mnemonic defined for the ATC interface at the formulary level. For more information on assigning mnemonics, see Section 2: Installation.
- The nurse station is specified in the Active Stations field on the Parameters screen. For more information, see the material on the Parameters screen in Section 2: Installation.
- The dispensing location designated for the charge is listed in the Stock Locations for Dispense Now Doses field on the Parameters screen. For more information, see the material on the Parameters screen in Section 2: Installation.

The Fill transactions that are generated by the Charge function are batch rather than immediate. The transactions accumulate on the ATC machine and are not filled until the ATC user uses the Fill from Mainframe function.

Index

S

T

V

■ Reader Comment Form ■

We value your suggestions for improving our documentation. Please use this form to evaluate the *ATC Interface Guide* for *STAR Pharmacy* for Release 17.0.

Topic	Poor	Fair	Good	Excellent
Organization of information	❑	❑	❑	❑
Accuracy of information	❑	❑	❑	❑
Completeness of information	❑	❑	❑	❑
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Amount of overview information	❑	❑	❑	❑
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