

STAR 2000™



STAR LABORATORY REFERENCE GUIDE HL7 Interface for Advanced Blood Bank

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Preface

The STAR HL7[®] (Health Level Seven[®]) Interface is one volume in the STAR Laboratory Reference Guide series. It provides information concerning how to build, implement, and use the STAR Laboratory HL7 Interface.

The *General Information Volume* is prerequisite reading for all other volumes of the *STAR Laboratory Reference Guide*. Successful use of the of the STAR HL7 interface depends upon your knowledge of the concepts covered in the *General Information Volume*.

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 ENTER, SHIFT, CTRL, and ALT, appear in this document in uppercase (capital) letters. Symbol keys display according to the key name, followed by the symbol on the key 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 display as the names of each key in the chord with a hyphen (-) between each (for example, CTRL-ALT-DEL). You should press the keys in the order indicated.

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 display in **boldface** 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 display at the bottom of many STAR screens when the system requests an entry or displays a message. Prompts display in this document italicized and indented from the rest of the text. For 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
 - N for Numerals only
 - C for Characters (including punctuation)
 - AC for Letters and Punctuation only (no numbers)
 - NC for Numerals and Punctuation only (no letters)
 - AN for Numerals and Letters only (no punctuation)
 - Z is the requirement indicator of the field:
 - R if an entry is required to complete the function
 - O if an entry is Optional to complete the function
 - C if an entry is Conditionally required or optional
 - For YY-Z field types, where YY is:
 - 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.
 - 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.
 - DATE for a field subject to the date entry conventions described in the *General Information Volume*.
 - 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

STAR Laboratory supports three Advanced Blood Bank (ABB) interfaces. One interface is for use with the Mediware LifeLine® Blood Bank system, another interface is for use with the Mediware Hemocare® Blood Bank system, and the final interface is for use with HL7 technology.

This document describes the network link between the STAR Laboratory ABB Interface and the HL7 Interface. The information presented is specific to the HL7 Interface.

Chapter 1: Maintenance Processors

This chapter describes flag, test, result, and menu set-up requirements to implement the HL7 interface.

Appendix A: Testing Criteria

This appendix provides a guide for testing the interface between STAR Laboratory and the HL7 system once the system has been built and the interface is active.

Appendix B: Hardware Requirements

This appendix describes hardware requirements for installation of the HL7 system.

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INTRODUCTION

This chapter describes flag, test, result, and menu setup requirements to implement the HL7 Blood Bank Interface.

Section Organization

The Maintenance Processors section consists of:

- Maintenance - General Test
- HL7 Blood Bank Interface Processors

The Maintenance - General Test section describes processors for creating and maintaining the following data:

- Result Components
- Basic Test Information
- Result and Normals

The HL7 Blood Bank Interface Processors are designed specifically for the HL7 interface. They include:

- Blood Products
- Blood Product Result Statuses
- Blood Bank Test/HL7 Result Mapping
- Blood Bank Product Result Status Cross-reference
- Blood Bank Test/HL7 Result Mapping Report
- HL7 Blood Bank Interface Parameters

FLAGS - GENERAL DEPARTMENT

The Flags - General Department processor allows you to select one of four ABB interface options: LifeLine (a.k.a. Western Star), Hemocare, HL7, or None. When you select the Flags - General Department option from the Flags/Utilities maintenance processor, the following screen is displayed:

```

                                General Hospital Maintenance Functions Processor
                                Fri Jul 15, 2005 10:56 am

Department Flags for HBOC Laboratory
1 Lab LIVE                      2 Advanced Micro Live
  Yes                           Yes
3 Printer Matrix                4 Table Display of Sections
  Yes                           No
5 Adv Bld Bank Interface        6 Reference Lab Interface  7 Canc Uncoll Midnight
  HL7                           Yes                           Yes
8 Charge Scheme                 9 Misc Charges to HIS      10 Default Charge Location
  Accession                     Yes                           LABORATORY NSA
11 Duplicate/Conflict Checking  12 Dup/Conf Collection Retention
  Yes                           1 day
13 Clinical Questions Active    14 Report Clinical Questions
  Yes                           No
15 Panic Notification
  Yes

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

```

Field Explanations

5. ADV BLD BANK INTERFACE (1-A-C)

This field activates the ABB interface for the department. The options are LifeLine (that is, Western Star) (W), Hemocare (H), HL7 (L), or None (N). When you select this field, the following prompt is displayed:

Select ABB interface Western Star(W) Hemocare(H) HL7(L) or None(N) [N]--

The default setting is *None*.

Impact

Selecting *HL7(L)* activates the HL7 ABB Interface for the department.

MAINTENANCE - GENERAL TEST

Implementation of the HL7 ABB interface requires specific parameters to be established in the General Test maintenance processors. To define and build a test that is ordered and resulted across the HL7 interface, the following conditions must be met:

- Result components must be defined for serological test and blood product results.
- Crossmatch and non-crossmatch blood product result components must be defined with the special processing option *Units X-Matched Processing*.
- A Blood Bank Comment component must be defined for order and accessioning comment processing.

Result Components

Within the Maintenance Processors on STAR Laboratory, select the General Test Maintenance option. Next, select the Result Components processor. The following prompt is displayed:

Enter 'T' for test, '' component #, component name ('-' for table)--*

Enter the name of the new result component. Use uppercase and lowercase when necessary. The following prompt is displayed:

Add result component 'nnnnnn' (Y/N)?--

To add the code, press ENTER or enter Y.

General Hospital Maintenance Functions Processor			
Laboratory		Fri Jul 15, 2005 10:58 am	
A - Result Components			
		Component # - 10747A	
1 Result Component Name	2 Short Name	3 Units of measure	
ABO/Rh romplastin	ABO/Rh		
4 Specimen Type	5 QC Constituent Code (CAP)		
1 - Blood			
6 Descriptive Method	7 Lookup/CK	5 Exclusion	8 Delta
	Yes		7 days Chng
9 Valid Values	10 Valid Range		
Sex	Not Defined		
11 Panic Values	12 Normal Ranges		
Age/Sex	Not Defined		
13 Result Processing	14 Number of Decimals		
15 Edit By	16 Edit Date/Time		
	02/16/04 11:48am		
Enter field number or '/' starting field number--			

Define each result component using the preceding processor.

For detailed information on each field on this screen, refer to Chapter 6: Supporting Test Files in the *Maintenance Functions Volume I* of the *STAR Laboratory Reference Guide*.

Basic Test Information

Within the Maintenance Processors on STAR Laboratory, select Maintenance-General Test. In a multidepartment environment, the Laboratory Department table is displayed for selection. Enter the option number corresponding to your laboratory department. The Laboratory Test Maintenance Functions menu is displayed for selection. Select the Main Information/Labels processor.

Enter test code or first letters--4700

Enter the desired test code. In this example, the code 4700 was entered corresponding to the Crossmatch Blood 2 Units test.

General Hospital Maintenance Functions Processor	
Community Lab	Fri Jul 15, 2005 10:59 am
Section - Blood Bank	
Bay - BBL-Blood Bank Tests	
CROSSMATCH BLOOD 2 UNITS Options	Test Code - 4700
(1) ALLSTAR Information	
(2) Basic Test Information	
(3) Special Test Information	
(4) Collection Labels	
(5) Accession Labels	
(6) Interdepartment Referral/Sendout Labels	
Enter option(s) to edit, Lab(L) or all(A)--	

Enter the Basic Test Information option number.

Once you select the Basic Test Information option, the following screen is displayed:

General Hospital Maintenance Functions Processor			
Community Lab		Fri Jul 15, 2005 11:00 am	
Section - Blood Bank			
Bay - BBL-Blood Bank Tests			
Basic Test Information		Test Code - 4700	
1 Test Name	2 Short Name	3 Test Type	
CROSSMATCH BLOOD 2 UNITS	XM-2D	-> Adv Bld Bnk	
4 Default Sect	5 Possible Specimens	6 Default Specimen	
BBL	1	1 Blood	
7 Specimen Collect Requirements	8 Max Spec Age	9 Order Category/Sample Size	
		R,A,S	
10 Performing Bay(s),Section(s)		11 Orderable Test	
12-BBL		Table & Code	
12 History Cardfile	13 Cardfile Print Queue	14 Range Heading	
		Default	
15 Misc Charge Pro Fee	16 Pro Fee Processing		
(1) General (2) Advanced Microbiology (3) Surgical Pathology (4) Advanced Blood Bank			
Enter option [1] --			

Field Explanations

3. TEST TYPE

Upon accessing this field, the list of test types is displayed at the lower part of the screen as shown. You must indicate the test as an ABB test before you can continue with the build.

NOTE: The Test Type field is the only field on this screen which requires specific entry instructions for the ABB system. For detailed information on each field in this screen, refer to Chapter 5: Main Test Information in the *Maintenance Functions Volume I* of the *STAR Laboratory Reference Guide*.

Results and Normals

UNITS CROSSMATCHED

A result component called Units Crossmatched or Number of Units must be defined in the Result Components table on STAR Laboratory. This component should then be assigned as a result for all ABB tests involving a blood product distribution.

NOTE: Add this component only once to an individual ABB test regardless of how many units are orderable for the test. This component is used for Blood Product Availability processing.

Once the Units Crossmatched result component is defined, assign the Special Processing feature Units X-Matched Processing to it. To do this, perform these steps:

1. Select the Maintenance-General Test option from the Laboratory Maintenance Functions menu.
2. Select the Result and Normals processor from the Laboratory Test Maintenance Functions.
3. Enter the desired test code. The list of previously defined results for the selected test is displayed. You can then add new or edit existing results.
4. To edit a result, enter **E**. To add a result, enter **A** and indicate the result component to add by entering the component number or a hyphen (-) and selecting from the table.

Once the desired result is accessed, the following screen is displayed:

General Hospital Maintenance - General Test Processor		
Community Lab	Fri Jul 15, 2005 11:05 am	
Section - Blood Bank	BBL - Cross Match Bay	
CROSSMATCH BLOOD 1 UNIT Results and Normals	Test Code - 4701	
Component Name: Units Crossmatched		Component #: 10956A
1 Required/Optional Required	2 External/Internal External	3 History Cardfile No
4 Special Processing Units X-Matched Processing		
5 Workload **	6 Addendum Only	
* COMPONENT PARAMETERS - DISPLAY ONLY *		
7 Delta Check Not Defined	8 Valid Range Not Defined	9 Valid Values Not Defined
10 Panic Values Not Defined	11 Normal Ranges Not Defined	
12 Recall Management		
Enter field number or '/' starting field number--		

Field Explanations

4. SPECIAL PROCESSING

By assigning the Units X-Matched Processing result type to this field, this ABB test can be manually resultued on STAR Laboratory. After selecting this field for editing, select the Units X-Matched Processing option from the table at the bottom of the screen.

For detailed information on each field on this screen, refer to Chapter 6: Supporting Test Files in the *Maintenance Functions Volume I* of the *STAR Laboratory Reference Guide*.

BLOOD BANK COMMENT

Blood Bank Comment is another result component that must be added to every ABB test. It must be defined as a result component and added to every test to accommodate blood bank result comment processing. Special Processing is defined as Word Proc - All Std Result Text as shown in the following screen:

General Hospital Maintenance - General Test Processor		
Community Lab	Fri Jul 15, 2005 11:05 am	
Section - Blood Bank	Bay - BLB-ROUTINE	
CROSSMATCH 1 UNIT RBC Results and Normals	Test Code - 3540	
Component Name: Blood Bank Comment		Component #: 11093A
1 Required/Optional	2 External/Internal	3 History Cardfile
Optional	External	No
4 Special Processing		
Word Proc - All Std Result Text		
5 Workload	6 Addendum Only	
	No	
* COMPONENT PARAMETERS - DISPLAY ONLY *		
7 Delta Check	8 Valid Range	9 Valid Values
Not Defined	Not Defined	Not Defined
10 Panic Values	11 Normal Ranges	
Not Defined	Not Defined	
12 Recall Management	13 Number of Decimals	
Enter field number or '/' starting field number--		

HL7 BLOOD BANK INTERFACE PROCESSORS

When you select the Maintenance - Adv Bld Bank Int option on the Laboratory Maintenance Functions menu, the HL7 processors are displayed on the following screen when the Advanced Blood Bank flag is defined as HL7:

General Hospital Maintenance Functions Processor	
HBOC Laboratory	Thu Jul 07, 2005 02:58 pm
Blood Bank Interface Maintenance Functions	
Page:01	
(1) A - Blood Bank Product Result Statuses	
(2) A - Blood Products	
(3) B - Blood Bank Product Result Status Cross-reference	
(4) B - Blood Bank Test/HL7 Result Mapping	
(5) C - Blood Bank Test/HL7 Result Mapping Report	
(6) C - Product Detail Reporting	
(7) Maintenance Types - ABB Int	
(8) Maintenance Types List - ABB Int	
(9) Y - HL7 Blood Bank Interface Parameters	
(10) Z - HL7 Blood Bank Interface Utilities	
Enter choice--	

Blood Bank Product Result Statuses

The Blood Product Result Statuses processor allows you to define and build the needed blood bank statuses that exist on the Blood Bank system. The description of the statuses built on STAR Laboratory must match what is built on the Blood Bank system.

Select the **Blood Bank Product Result Statuses** option on the Blood Bank Interface Maintenance Functions menu and the following screen is displayed:

```
General Hospital Maintenance - Adv Bld Bank Int Processor
HBOC Laboratory                      Tue Jul 12, 2005 01:05 pm
Blood Bank Product Result Statuses

Enter Blood Bank product result status code or add(A) -- |
```

Enter a code not previously defined and the following screen is displayed prompting you to add the code:

```
General Hospital Maintenance - Adv Bld Bank Int Processor
HBOC Laboratory                      Tue Jul 12, 2005 01:04 pm
Blood Bank Product Result Statuses

Add this code `23`? (Y/N) [Y]-- |
```

If you enter **N**, you are taken back to the *Blood Bank Product Result Status Code* screen. If you enter **Y**, the following screen is displayed:

```
General Hospital Maintenance - Adv Bld Bank Int Processor
HBOC Laboratory                      Tue Jul 12, 2005 01:09 pm
Blood Bank Product Result Statuses
( 1)Code      : 23
( 2)Description :
( 3)Edit by   :
( 4)Edit date :

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

Field Explanations

1. CODE (DISPLAY ONLY)

The code you added fills this field. This field cannot be edited.

2. DESCRIPTION (25-A-R)

The description of the code fills this field. The field accepts up to 25 characters. When this field is accessed, the following prompt is displayed:

Enter description-

3. EDIT BY

This field automatically updates with your ID code once you accept the screen. Otherwise, it contains the ID of the last person who edited the screen.

4. EDIT DATE

This field automatically updates with the date of the change and/or addition once you accept the screen. Otherwise, it contains the date of the last changed to the screen.

EDIT

At the prompt *Blood Bank product result status code or add(A)--*, if a dash (-) is entered and previous result status codes have been defined, the following screen is displayed for you to choose a result status code for editing:

```

      General Hospital Maintenance - Adv Bld Bank Int Processor
HBOC Laboratory                      Tue Jul 12, 2005 01:15 pm
Blood Bank Product Result Statuses

Page:01          Blood Bank Product Result Statuses for LAB
( 1) 1-Ready to Issue
( 2) 2-Transfused Product
( 3) 3-Return Product
( 4) 4-Returned
( 5) 5-Cancelled Product
( 6) 6-Cancelled Test
( 7) 7-Completed Mod
( 8) 8-Completed Test
( 9) 9-Completed Service
(10) 10-In Progress Product
(11) 11-Invalid Test
(12) 12-Issued Accessory
(13) 13-Issued Derivative
(14) 14-Issued Product
(15) 15-Return Accessory
(16) 16-Return Derivative

Enter choice--

                        next pg(/ or PG DN)  Search(TAB)

```

Once you have chosen a code, the *Add a code* screen is displayed for editing purposes. When editing the field for a previously defined code, the prompt *Enter new description-* is displayed.

```

      General Hospital Maintenance - Adv Bld Bank Int Processor
HBOC Laboratory                      Tue Jul 12, 2005 01:15 pm
Blood Bank Product Result Statuses

( 1)Code           : 1
( 2)Description    : Ready to Issue

( 3)Edit by       : Dey,Jeffrey A
( 4)Edit date     : 04/22/04 09:40am

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

```

DELETE

Choose a code from the table or enter a code at the *Enter Blood Bank product result status code or add(A)--* prompt. Then press ENTER and the following screen is displayed:

```
General Hospital Maintenance - Adv Bld Bank Int Processor
HBOC Laboratory                                     Tue Jul 12, 2005 01:21 pm
Blood Bank Product Result Statuses
( 1)Code      : 2
( 2)Description : Transfused Product

( 3)Edit by   : Dey,Jeffrey A
( 4)Edit date : 04/22/04 09:41am

Delete? (N)--
```

If you enter **N**, the *Blood Bank Product Result Statuses* screen is displayed again. If you enter **Y** to delete, the following screen is displayed:

```
General Hospital Maintenance - Adv Bld Bank Int Processor
HBOC Laboratory                                     Tue Jul 12, 2005 01:21 pm
Blood Bank Product Result Statuses
( 1)Code      : 2
( 2)Description : Transfused Product

( 3)Edit by   : Frip, Anna
( 4)Edit date : 04/22/04 09:41am

Enter delete(D) from file or file(F) as deleted [F]-- |
```

Enter **D** and the result status code is permanently removed. Enter **F** and the result status code remains, but is not used by the system.

If the result status code is filed as *Deleted*, it does not display in the table of defined codes, but can be reactivated. To reactivate the result status code, enter it at the *Enter Blood Bank product result status code or add(A)--* prompt.

Once the screen is accepted, the system files the defined result status code or the deletion.

Blood Products

The Blood Products processor is used to assist you in mapping incoming blood bank product results correctly.

Select the **Blood Products** option on the Blood Bank Interface Maintenance Functions menu and the following screen is displayed:

```
General Hospital Maintenance Functions Processor
HBOC Laboratory                               Tue Jul 12, 2005 10:22 am
Blood Products

Enter Blood Product code-- |
```

NOTE: The codes and descriptions entered must match the Blood Bank system.

Enter a code not previously defined and the following screen is displayed prompting you to add the code.

```
General Hospital Maintenance Functions Processor
Laboratory                                   Tue Jul 12, 2005 10:23 am
Blood Products

Add this code `CRYO`? (Y/N) [Y]-- |
```

If you enter **N**, you are taken back to the *Blood Product* screen. If you enter **Y**, the following screen is displayed:

```
General Hospital Maintenance - Adv Bld Bank Int Processor
HBOC Laboratory                      Tue Jul 12, 2005 10:25 am
Blood Products
( 1)Code       : CRYO
( 2)Description : Cryoprecipitate

( 3)Edit by    : Smith, Janey
( 4)Edit date  : 03/29/05 08:44am

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

Field Explanations

1. CODE (DISPLAY ONLY)

The code you added fills this field. This field cannot be edited.

2. DESCRIPTION (25-A-R)

The description of the code fills this field. The field accepts up to 25 characters. When this field is accessed, the following prompt is displayed:

Enter description-

3. EDIT BY

This field automatically updates with your ID code once you accept the screen. Otherwise, it contains the ID of the last person who edited the screen.

4. EDIT DATE

This field automatically updates with the date of the change and/or addition once you accept the screen. Otherwise, it contains the date of the last changed to the screen.

EDIT

At the prompt *Enter Blood Product code--*, if a dash (-) is entered and previous codes have been defined, the following screen is displayed for you to choose a code for editing:

```

                                General Hospital Maintenance Functions Processor
HBOC Laboratory                      Tue Jul 12, 2005 11:01 am
Blood Products

Page:01                      Blood Products for LAB
( 1) FFP-Fresh Frozen Plasma
( 2) RBC-Red Blood Cells

Enter choice--
```

Once you have chosen a code, the *Add a code* screen is displayed for editing purposes. When editing the field for a previously defined code, the prompt *Enter new description--* is displayed.

DELETE

Choose a code from the table or enter a code at the *Enter Blood Product code--* prompt. The following screen is displayed:

```

                                General Hospital Maintenance - Adv Bld Bank Int Processor
HBOC Laboratory                      Tue Jul 12, 2005 11:04 am
Blood Products
( 1)Code       : RBC
( 2)Description : Red Blood Cells

( 3)Edit by    : Frey, Lynne A
( 4)Edit date  : 04/28/04 11:44am

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

Press ENTER and the following prompt is displayed:

Delete (N)?--

If you enter **N**, the *Blood Products* screen is displayed again. If you enter **Y** to delete, the following screen is displayed:

```
General Hospital Maintenance Functions Processor
HBOC Laboratory                               Tue Jul 12, 2005 11:01 am
Blood Products
( 1)Code      : FFP
( 2)Description : Fresh Frozen Plasma

( 3)Edit by   : Dey,Jeffrey A
( 4)Edit date  : 09/09/04 10:37am

Enter delete(D) from file or file(F) as deleted [F]-- |
```

Enter **D** and the code is permanently removed. Enter **F** and the code is filed as deleted and remains in the system, but is not used by the system.

If the code is filed as *Deleted*, it does not display in the table of defined codes, but can be reactivated. To reactivate the code, enter the code at the *Enter Blood Product code--* prompt.

Once the screen is accepted, the system files the defined blood product code or the deletion.

Blood Bank Product Result Status Cross-reference

The Blood Bank Product Result Status Cross-reference processor is needed to file Blood Product Availability (BPA) information. It allows you to choose the STAR Laboratory result status and then map it to the Blood Bank system status built in the Blood Bank Product Result Statuses processor. If a status sent across the interface has not been mapped using this processor, the blood product result message is not processed into the BPA file. More than one blood bank result status can be cross-referenced to a single STAR Laboratory results status.

Select the **Blood Bank Product Result Status Cross-reference** option on the Blood Bank Interface Maintenance Functions menu and the following screen is displayed:

```

                                General Hospital Maintenance Functions Processor
HBOC Laboratory                      Tue Jul 12, 2005 02:23 pm
Blood Bank Product Result Status Cross-reference

                                STAR Laboratory Product Result Statuses                      Page:01

( 1) 1-Available
( 2) 2-Issued
( 3) 3-Transfused
( 4) 4-Expired
( 5) 5-Cancelled
( 6) 6-Quarantine

Enter choice--
```

NOTE: If there are no result statuses defined in the Blood Bank Product Result Statuses processor, the following error is displayed:

Department has not defined Blood Bank Product Result Statuses File.

The table of STAR Laboratory result statuses used by BPA is displayed. Choose only one option at a time to define the cross-reference and the following screen is displayed:

```

                                General Hospital Maintenance Functions Processor
HBOC Laboratory                      Tue Jul 12, 2005 02:23 pm
Blood Bank Product Result Status Cross-reference

1 STAR Laboratory Product Result Status
   Issued

2 Blood Bank Product Result Statuses

3 Edit By                      4 Edit Date

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

Field Explanations

1. STAR LABORATORY PRODUCT RESULT STATUS (DISPLAY ONLY)

This field auto fills with the chosen STAR Laboratory result status.

2. BLOOD BANK PRODUCT RESULT STATUSES (TABLE DISPLAY)

When this field is accessed, a table of user defined results statuses is displayed:

```

                                General Hospital Maintenance Functions Processor
HBOC Laboratory                      Tue Jul 12, 2005 02:23 pm
Blood Bank Product Result Status Cross-reference

  1 STAR Laboratory Product Result Status
    Issued

  2 Blood Bank Product Result StatUSES
->

Page:01                      Blood Bank Product Result StatUSES      ##=Current Choices
( 1) 1-Ready to Issue                (11) 11-Invalid Test
( 2) 2-Transfused Product            (12) 12-Issued Accessory
( 3) 3-Return Product                (13) 13-Issued Derivative
( 4) 4-Returned                      (14) 14-Issued Product
( 5) 5-Cancelled Product              (15) 15-Return Accessory
( 6) 6-Cancelled Test                 (16) 16-Return Derivative
( 7) 7-Completed Mod                  (17) 17-Return Product
( 8) 8-Completed Test                 (18) 18-Completed
( 9) 9-Completed Service              (19) 19-Canceled
(10) 10-In Progress Product           (20) 20-Issued

Enter choices (e.g. 1,7,5-9) or '-'choices to remove--
                                end select(NL)  next pg(/ or PG DN)  Search(TAB)

```

Choose an option or multiple options from the table and the field fills with *Defined*. This is a required field.

3. EDIT BY

This field automatically updates with your ID code once you accept the screen. Otherwise, it contains the ID of the last person who edited the screen.

4. EDIT DATE

This field automatically updates with the date of the change and/or addition once you accept the screen. Otherwise, it contains the date of the last changed to the screen.

Once all required fields are defined, the following screen is displayed:

General Hospital Maintenance Functions Processor	
HBOC Laboratory	Tue Jul 12, 2005 02:23 pm
Blood Bank Product Result Status Cross-reference	
1 STAR Laboratory Product Result Status	
Issued	
2 Blood Bank Product Result Statuses	
Defined	
3 Edit By	4 Edit Date
Accept this screen? (Y/N/D) [Y]--	

If you enter **Y** or the default, the following message is displayed at the bottom of the screen:

Filed!

If you enter **N**, the following prompt is displayed at the bottom of the screen:

Enter field number or '/' starting field number-

If you enter **D**, the Product Result Status Cross-reference is deleted.

When all required fields are defined, if the chosen status has already been cross-referenced, the following prompt is displayed:

Delete? (N)--

If you enter **Y**, the cross-references are deleted and *Deleted!* is displayed at the bottom of the screen. You are then taken back to the Blood Bank main menu screen.

If you enter **N**, the following prompt is displayed:

Enter field number or '/' starting field number-

Once the screen is accepted, the product status cross-references or the deletions are filed and available for use.

Blood Bank Test/HL7 Result Mapping

The Blood Bank Test/HL7 Result Mapping processor is used to assist you in mapping incoming blood bank test results correctly.

Select the **Blood Bank Test/HL7 Result Mapping** option on the Blood Bank Interface Maintenance Functions menu and the following screen is displayed:

```

General Hospital Maintenance Functions Processor
HBOC Laboratory                               Tue Jul 12, 2005 01:58 pm
Blood Bank Test/HL7 Result Mapping

Enter test code, first letters`` or `` for table--

```

Enter a Blood Bank test code, the first letters of a Blood Bank test code description, or a hyphen (-) and the table of defined Blood Bank test codes is displayed. If a non-Blood Bank test code is entered, the error message

Error: nnnn not an Advanced Blood Bank test type!

is displayed where nnnn is the name of the test entered.

Enter a hyphen (-) and the following screen is displayed. The table of defined Blood Bank test codes that have been previously mapped is displayed with an at (@) sign preceding the test code and description.

```

General Hospital Maintenance Functions Processor
HBOC Laboratory                      Tue Jul 12, 2005 01:58 pm
Blood Bank Test/HL7 Result Mapping

Page:01                      HL7 Blood Bank Interface Tests    @=defined
( 1) @ 3652-ANTIBODY SCREEN*
( 2) 3661-CORD BLOOD WORKUP
( 3) @ 3540-CROSSMATCH 1 UNIT RBC
( 4) 3600-CROSSMATCH RBC, 2 UNITS
( 5) @ 3662-DAT WORKUP
( 6) @ 3721-FFP X1
( 7) @ 3650-HCTEST1
( 8) 8535-IR-TYPE & SCREEN
( 9) 3671-REPEAT ABO/RH 1
(10) 3672-REPEAT ABO/RH 3
(11) @ 3651-TYPE & RH
(12) 3301-TYPE & SCREEN
(13) 3653-TYPE & SCREEN*
(14) @ 3535-TYPE AND SCREEN
(15) 3701-XMATCH RBC X1
(16) 3703-XMATCH RBC X3

Enter choice--

```

ADD/EDIT

Once you have chosen a Blood Bank test code, the following screen is displayed:

```

General Hospital Maintenance Functions Processor
HBOC Laboratory                      Tue Jul 12, 2005 01:58 pm
Blood Bank Test/HL7 Result Mapping

1 STAR Laboratory Test              2 Blood Bank Test Cross-reference
HCTEST1                            3650
3 Blood Product                     4 Edit By              5 Edit Date
                                   Smith, Janey           07/23/04 1407
6 STAR Laboratory Component         HL7 Result Cross-reference
10841A ABO/Rh                      ABO_INTEP
10856A *Antibody Screen            AS
10842A *Direct Coombs
10361A *Antibody ID
11019A *ABO2
11020A *ABS2
11021A *DAT2
10857A No. of units

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

```

Field Explanations

1. STAR LABORATORY TEST (DISPLAY ONLY)

The description of the test code being mapped is automatically displayed in this field. This field cannot be edited.

2. BLOOD BANK TEST CROSS-REFERENCE (10-AN-O)

When mapping a previously undefined Blood Bank test code, this field fills with the entered test code. This is not a required field.

Some blood bank systems require a different test code for their blood bank tests instead of the STAR SIM code. This field allows for that type of cross reference. The Horizon Blood Bank® recognizes the STAR SIM code. The prompt *Enter HL7 Blood Bank Test Cross-reference []--* allows you to enter up to 10 alphanumeric characters to be used as a cross reference.

3. BLOOD PRODUCT (TABLE DISPLAY)

The Blood Product table for tests associated with blood products is displayed in this field. If there are no blood products defined, the following message is displayed when this field is accessed:

No Blood Bank blood products defined!

If the Blood Bank test being mapped is not associated with a blood product, this field remains blank.

General Hospital Maintenance Functions Processor			
HBOC Laboratory		Tue Jul 12, 2005 02:01 pm	
Blood Bank Test/HL7 Result Mapping			
1 STAR Laboratory Test	2 Blood Bank Test Cross-reference		
HCTEST1	3650		
3 Blood Product	4 Edit By	5 Edit Date	
->	Willis, Angie	07/23/04 1407	
6 STAR Laboratory Component	HL7 Result Cross-reference		
10841A ABO/Rh	ABO_INTEP		
10856A *Antibody Screen	AS		
Page:01	Blood Products		
(1) CRYO-Cryoprecipitate			
(2) FFP-Fresh Frozen Plasma			
(3) RBC-Red Blood Cells			
Enter choice--			

4. EDIT BY

This field automatically updates with your ID code once you accept the screen. Otherwise, it contains the ID of the last person who edited the screen.

5. EDIT DATE

This field automatically updates with the date of the change and/or addition once you accept the screen. Otherwise, it contains the date of the last changed to the screen.

6. STAR LABORATORY COMPONENT/HL7 RESULT CROSS-REFERENCE (SCROLLING SCREEN)**STAR LABORATORY COMPONENT COLUMN (DISPLAY ONLY)**

This column auto fills with all components defined for the test code. The column cannot be edited.

NOTE: Previously defined STAR components, with the same component number and version letter, auto fill and if edited, changes are reflected on the same STAR component on other tests.

HL7 RESULT CROSS-REFERENCE COLUMN (10-AN-O)

When this column is accessed, the following prompt is displayed:

General Hospital Maintenance Functions Processor	
HBOC Laboratory	Tue Jul 12, 2005 02:01 pm
Blood Bank Test/HL7 Result Mapping	
1 STAR Laboratory Test	2 Blood Bank Test Cross-reference
HCTEST1	3650
3 Blood Product	4 Edit By
	Willis,Angie
	5 Edit Date
	07/23/04 1407
6 STAR Laboratory Component	HL7 Result Cross-reference
10841A ABO/Rh	ABO_INTEP
10856A *Antibody Screen	AS
10842A *Direct Coombs	
10361A *Antibody ID	
11019A *ABO2	
11020A *ABS2	
11021A *DAT2	
10857A No. of units	
Enter HL7 Result Cross-reference Code--	
F1Prev Page F2Next Page F5Delete F6 Reset F7 Exit ?	

The information entered must match the information defined in the blood bank system as sent in an OBX message. For example, if an Antibody Screen is defined in the blood bank system as ABSCR, then ABSCR must be used here.

All components that have results can be defined in this fashion. Any component defined with *No. of Units* processing cannot be defined and this column must remain blank for that component.

Once all needed fields are defined, the following prompt is displayed:

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

DELETE

If you enter a **D** at the *Accept this screen? (Y/N/D) [Y]-* prompt, the following screen is displayed for a test that has not been previously accepted:

General Hospital Maintenance Functions Processor			
Laboratory		Tue Jul 12, 2005 02:03 pm	
Blood Bank Test/HL7 Result Mapping			
1 STAR Laboratory Test	2 Blood Bank Test Cross-reference		
HCTEST1	3650		
3 Blood Product	4 Edit By	5 Edit Date	
6 STAR Laboratory Component	HL7 Result Cross-reference		
10841A ABO/Rh	ABORH		
10856A *Antibody Screen	ABSCR		
10842A *Direct Coombs	DAT		
10361A *Antibody ID	ABID		
11019A *ABO2			
11020A *ABS2			
11021A *DAT2			
10857A No. of units			
Delete test cross-reference of 3652-ANTIBODY SCREEN*? (Y/N) [N]--			

If you enter **N** or the default HL7 Result Cross-reference Code, then you are taken back to the Blood Bank Test/HL7 Result Mapping screen to enter another test code for mapping and no mapping is filed.

If you enter **Y**, any mapping information not used by other tests is deleted and *Deleted!* is displayed.

Press ENTER at the *Enter field or "/" starting field number--* prompt and the following screen is displayed for a test with information that has been filed:

General Hospital Maintenance Functions Processor			
HBOC Laboratory		Tue Jul 12, 2005 02:05 pm	
Blood Bank Test/HL7 Result Mapping			
1 STAR Laboratory Test	2 Blood Bank Test Cross-reference		
HCTEST1	3650		
3 Blood Product	4 Edit By	5 Edit Date	
	Willis,Angie	07/23/04 1407	
6 STAR Laboratory Component	HL7 Result Cross-reference		
10841A ABO/Rh	ABO_INTEP		
10856A *Antibody Screen	AS		
10842A *Direct Coombs			
10361A *Antibody ID			
11019A *ABO2			
11020A *ABS2			
11021A *DAT2			
10857A No. of units			
Delete? (N)--			

If you enter **N** or the default, you are taken to the Blood Bank Test/HL7 Result Mapping screen to enter another test code for mapping. If you enter **Y**, the following prompt is displayed:

Delete test cross-reference of 3701-XMATCH RBC X1? (Y/N) [N]-

If you enter **N** or the default, you are taken to the Blood Bank Test/HL7 Result Mapping screen to enter another test code for mapping. If you enter **Y**, any mapping information not used by other tests is deleted and the message *Deleted!* is displayed.

Once the screen is accepted, HL7 mapping or deletion for the entered test code is filed and available for use.

Blood Bank Test/HL7 Result Mapping Report

The Blood Bank Test/HL7 Result Mapping Report allows you to evaluate what Blood Bank tests are defined for transmission of results.

Select the **Blood Bank Test/HL7 Result Mapping Report** option on the Blood Bank Interface Maintenance Functions menu and the following screen is displayed:

General Hospital Maintenance - Adv Bld Bank Int Processor		
HBOC Laboratory		Tue Jul 12, 2005 02:32 pm
Blood Bank Test/HL7 Result Mapping Report		
1 Department	2 Test Codes	3 Hardcopy
4 Printer		
Enter field number or '/' starting field number--		

Field Explanations

1. DEPARTMENT (TABLE DISPLAY)

When this field is accessed, the following screen is displayed with a table of defined departments. You can choose only one department.

General Hospital Maintenance - Adv Bld Bank Int Processor		
HBOC Laboratory	Tue Jul 12, 2005 02:32 pm	
Blood Bank Test/HL7 Result Mapping Report		
1 Department	2 Test Codes	3 Hardcopy
->		
4 Printer		
Page:01	Lab Departments	
(1) LAB-HBOC Laboratory	(4) S10-CERNER LAB	
(2) LB2-LABORATORY 2	(5) SRB-SACEY'S TEST	
(3) LB3-LABORATORY 3		
Enter option --		

You must generate a new report for each department. The department you are currently working in defaults in this field and it can be edited.

2. TEST CODES (TABLE DISPLAY)

When this field is accessed, the following prompt is displayed:

Enter test code(s), all(A) or `` for table [A]--

You can enter one code or multiple test codes separated by commas, enter **A** for All, or choose from the table of Blood Bank test code types. The field fills with *All*, test code and name, or *Multiple* for more than one test code.

Test codes entered must exist in the lab test file for the selected department or the following error is displayed:

Error: nnnn code not found!

where nnnn is the entered test code number.

Test codes available to be entered must be defined as Blood Bank test code types or the following error is displayed:

Error: nnnn not an Advanced Blood Bank test type!

where nnnn is the entered test code number.

3. HARDCOPY (1-A-R)

When this field is accessed, the following prompt is displayed:

Hardcopy? (Y/N)[N]--

If you enter **N** or the default, the report is displayed on the screen. The Printer field fills with *None Selected*.

If you enter **Y**, the report prints to a printer.

4. PRINTER (TABLE DISPLAY)

When this field is accessed, a table of printers defined for LGR reports is displayed if the Hardcopy field is defined as *Yes*.

```

General Hospital Maintenance - Adv Bld Bank Int Processor
HBOC Laboratory                      Tue Jul 12, 2005 02:32 pm
Blood Bank Test/HL7 Result Mapping Report

1 Department                        2 Test Codes                        3 Hardcopy
                                                                         Yes

4 Printer
-> 4 West - Far wall (Port #2)

Default GENERAL REPORTS printer
4 West - Far wall (port # 2)

Alternate Printers
( 1) Port # 191 - ( )
( 2) Port # 55 - 4th floor mail room (Epson protocol
( 3) Port # 77 - EPL (Zebra II Protocol
( 4) Port # 122 - ( )
( 5) Port # 194 - Pittsburgh Region (Kyocera Laser

Enter option number of alternate printer [Port #2]--

```

Impact

Once all required fields are defined, the following prompt is displayed:

Accept the screen (Y/N)? [Y]--

If you enter **Y** or the default, the report is printed or displayed.

If you enter **N**, the following prompt is displayed:

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

Figure 1.1 Blood Bank Test/HL7 Result Mapping Report

General Hospital Blood Bank Test/HL7 Result Mapping Report Processor		
Tue Jul 20, 2004 10:16 am		
General Hospital Laboratory		
Blood Bank Test/HL7 Result Mapping Report		
Department: LAB	07/20/04	Page 1
Test Code	Description	HL7 Result Cross-reference
3301	TYPE & SCREEN	
	10841A ABO/Rh	ABORH
	10856A Antibody Screen	AS
3505	ANTIBODY IDENTIFICATION	
	10841A *ABO/Rh	ABORH
	10361A Antibody ID	
	10384A *Comment	
	10510A ^Lab Comment	
3535	TYPE AND SCREEN	3535
Press NL--		

Report Layout

Report Header

FACILITY NAME

This field is the facility name and is centered on the report.

REPORT NAME

This field contains the report name on the first line of the report header and is centered on the report.

DEPARTMENT

This field is the department name and is left justified on the report

REPORT DATE

This field is the date and time the report was printed.

PAGE NUMBER

The page number of the report prints on the same line with the Department and Report Date field and is right justified.

Report Body

TEST CODE

This field contains the test code(s) chosen and is left justified.

DESCRIPTION

This field contains the description of the test code(s) chosen and is left justified.

Sort Order

This report is sorted by test code, numerically in ascending order.

Footer

Once no other tests meet the defined criteria, *End of Report!* is displayed at the bottom of the report.

HL7 Blood Bank Interface Parameters

The HL7 Blood Bank Interface Parameters must be defined prior to running the interface. This processor enables you to define interface parameters related to a comment message and any other blood bank specific messages that are not linked to result fields sent by the blood bank system. For example, the messages sent to populate the blood product availability information on STAR are defined here, such as unit number or unit blood type and status information.

Select the **HL7 Blood Bank Interface Parameters** option on the Blood Bank Interface Maintenance Functions menu and the following screen is displayed:

General Hospital Maintenance Functions Processor		
HBOC Laboratory		Thu Feb 08, 2007 11:18 am
Blood Bank Interface Parameters		
1 Word Processing Component 11093A	2 Unit Blood Type UT	3 Lot Number LN
4 Product Identification PI	5 Status Information SI	6 Quantity QY
7 Unit Number UN	8 Crossmatch XM	9 Product Code PC
10 Corrected Results Yes		
11 Edit By Smith, John	12 Edit Date 01/27/07 1505	
Enter field number or '/' starting field number--		

NOTE: Fields 2 through 9 must be unique identifiers. If the same identifier is entered again, the following error message is displayed:

Identifier all ready in use!

Field Explanations

1. WORD PROCESSING COMPONENT (6-AN-R)

This field is for HL7 NTE segments used by most systems for comment information. This is the component number for the Blood Bank Comment component that must be included in every ABB test. When this field is accessed, the following prompt is displayed:

Enter component number to be used for HL7 comment results--

If a component entered is not a valid component, the follow error message is displayed:

Invalid component number!

2. UNIT BLOOD TYPE (20-AN-O)

The identifier in the HL7 message for the ABO/Rh of a blood product unit is displayed in this field. When it is accessed, the following prompt is displayed:

Enter Unit Blood Type identifier--

The identifier entered here cannot be the same as the identifier mapped to an ABO/Rh, ABO, or Rh STAR Laboratory component.

3. LOT NUMBER (20-AN-O)

The identifier in the HL7 message for lot numbers for blood derivatives is displayed in this field. When it is accessed, the following prompt is displayed:

Enter Lot Number identifier--

4. PRODUCT IDENTIFICATION (20-AN-O)

The identifier in the HL7 message for blood product identification or test processing is displayed in this field. When it is accessed, the following prompt is displayed:

Enter Product Identification identifier--

5. STATUS INFORMATION (20-AN-O)

The identifier in the HL7 message for the status of blood products is displayed in this field. When it is accessed, the following prompt is displayed:

Enter Status Information identifier--

6. QUANTITY (20-AN-O)

The identifier in the HL7 message for quantity information for blood derivatives is displayed in this field. When it is accessed, the following prompt is displayed:

Enter Quantity identifier--

7. UNIT NUMBER (20-AN-O)

The identifier in the HL7 message for the unit number for a blood product is displayed in this field. When it is accessed, the following prompt is displayed:

Enter Unit Number identifier--

8. CROSSMATCH (20-AN-O)

The identifier in the HL7 message for crossmatch compatibility information is displayed in this field. When it is accessed, the following prompt is displayed:

Enter Crossmatch identifier-

If multiple Crossmatch component codes are used by the blood bank, they all must share a common character string. For example, Crossmatch (XM), Crossmatch Immediate Spin (XMIS), Crossmatch Pre-Wash (XMPW), where the common character string is XM.

9. PRODUCT CODE (20-AN-O)

The identifier in the HL7 message for product code is displayed in this field. The product code is the unique number used to identify blood product units. When you access this field, the following prompt is displayed:

Enter product code --

10. CORRECTED RESULTS (1-A-R)

The Corrected Results field determines whether corrected results processing is active for non-product results received from the interface. The field requires a Y or N response.

This field must contain Yes for corrected results processing to take place on STAR for non-product results sent by means of the interface.

If you enter **Y**, Yes is displayed in the field and the corrected flag and previous result are displayed or printed in Inquiry processors and patient reports for non-product results received from the interface.

If you enter **N**, No is displayed and the corrected flag/previous results are not displayed or printed for interfaced results corrected on the Blood Bank system.

When you access this field, the following prompt is displayed:

Allow corrected results? (Y/N)-

11. EDIT BY

This field automatically updates with your ID code once you accept the screen. Otherwise, it contains the ID of the last person who edited the screen.

12. EDIT DATE

This field automatically updates with the date of the change and/or addition once you accept the screen. Otherwise, it contains the date of the last changed to the screen.

Once all needed fields are defined, the following prompt is displayed:

Accept the screen (Y/N)? [Y]--

If you enter **Y** or the default, the information is filed. If you enter **N**, the following prompt is displayed

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

Once the screen is accepted, the field definitions are filed.

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TEST OUTLINE

Perform the steps below to test the HL7 Blood Bank Interface. This test outline assumes that the tester is familiar with and has access to STAR Laboratory Reference Guide.

Update of System and Department Maintenance Functions to Reflect the Use of HL7 Functionality

ALL PROCESSORS

Verify each field is defined and it files appropriately.

FLAGS/UTILITIES, GENERAL DEPARTMENT

Verify the prompt in field 5, Adv Bld Bank Interface, has displayed the HL7 option.

TABLE DATA DEPARTMENT, LAB MENU - SECTIONS

Verify *Blood Bank Interface Utilities* is displayed in the functions table to add to a section menu screen.

MAINTENANCE - ADVANCED BLOOD BANK INTERFACE

1. Verify the correct menu options are displayed, depending on what Blood Bank interface is defined.
2. Verify you can add, edit, and delete a result status code.
3. Verify you can add, edit, and delete a blood product code.

Update of the Advanced Blood Bank Interface to Show HL7 Functionality

BLOOD BANK PRODUCT RESULT STATUS CROSS-REFERENCE

1. Verify the ability to link STAR product result statuses to Blood Bank system result statuses and test functionality.
2. Verify the ability to edit existing cross-references.

BLOOD BANK TEST/HL7 RESULT MAPPING

1. Verify that only the defined Blood Bank type test codes are displayed using table lookup.
2. Map a test code and verify mapping.

3. Make edits to test code mapping and verify edits.

BLOOD BANK TEST/HL7 RESULT MAPPING REPORT

1. Verify each field is defined and it files appropriately.
2. Verify the ability to generate a report, both display and print versions.
3. Verify the data on the report is correct. Use various departments and test codes.

Outbound/Inbound Messages Used by the HL7 Interface for Blood Bank Transmissions

INTERFACE TESTING

1. Verify outbound HL7 messages for ADTs, orders, and cancel requests.
2. Verify inbound HL7 messages for orders, test results, and Blood Product information.
3. Verify result and Blood Product Availability information and their statuses are displayed or print correctly on STAR.
4. Verify HL7 error, audit, and queue processing.

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HARDWARE/SOFTWARE REQUIREMENTS

Hardware

DATABASE SERVER

Each operational environment requires a separate, distinct Oracle® Database instance that can be installed to one database computer or spread across separate computers.

Operating System	Requirements	Recommended Requirements
Windows NT® 4 Server	CPU: 400 MHz Memory: 256 MB RAM Disk: determined by data growth Monitor: SVGA 800 x 600 Network: 10 MB Ethernet	CPU: 1 GHz or higher Memory: 256 MB RAM + 2 MB/User Disk: determined by data growth Monitor: SVGA 1024 x 768 Network: 10 MB Ethernet
Windows 2000® Server and Advanced Server	CPU: 400 MHz Memory: 256 MB RAM Disk: determined by data growth Monitor: SVGA 800 x 600 Network: 10 MB Ethernet	CPU: 1 GHz or higher Memory: 256 MB RAM + 2 MB/User Disk: determined by data growth Monitor: SVGA 1024 x 768 Network: 10 MB Ethernet
UNIX®	Determined by the operating system chosen.	Determined by the operating system chosen.

In addition to a computer that meets the above hardware requirements, the following is also required:

- A network connection.
- A fault tolerant disk system and UPS.

System Backup

A backup/restore procedure must be in place for the database server computer and the database data. The backup/restore procedure must perform regular tests to verify the integrity of the system backup and the ability to restore the data if needed.

APPLICATION SERVER

The application server provides a bridge between the client computers, the applications and the associated databases for each operating environment.

Operating System	Requirements	Recommended Requirements
Windows NT 4 Server	CPU: 400 MHz Memory: 128 MB RAM Disk: 8 GB Monitor: SVGA 800 x 600 Network: 10 MB Ethernet	CPU: 1 GHz or higher Memory: 256 MB RAM Disk: 16 GB Monitor: SVGA 1024 x 768 Network: 10 MB Ethernet
Windows NT 4 Terminal Server Edition	CPU: 400 MHz Memory: 128 MB RAM + 8 MB/ User Disk: 8 GB Monitor: SVGA 800 x 600 Network: 10 MB Ethernet	CPU: 1 GHz or higher Memory: 256 MB RAM + 8 MB/ User Disk: 16 GB Monitor: SVGA 1024 x 768 Network: 10 MB Ethernet
Windows 2000 Server	CPU: 400 MHz Memory: 256 MB RAM Disk: 8 GB Monitor: SVGA 800 x 600 Network: 10 MB Ethernet	CPU: 1 GHz or higher Memory: 512 MB RAM Disk: 16 GB Monitor: SVGA 1024 x 768 Network: 10 MB Ethernet
Windows 2000 Advanced Server	CPU: 400 MHz Memory: 256 MB RAM Disk: 8 GB Monitor: SVGA 800 x 600 Network: 10 MB Ethernet	CPU: 1 GHz or higher Memory: 512 MB RAM Disk: 16 GB Monitor: SVGA 1024 x 768 Network: 10 MB Ethernet
Windows 2000 Advanced Server (Used as Terminal Services)	CPU: 800 MHz Memory: 256 MB RAM + 8 MB/ User Disk: 8 GB Monitor: SVGA 800 x 600 Network: 10 MB Ethernet * Depends on the number of concurrent users on the server.	CPU: 2 x 1 GHz or higher Memory: 1024 MB RAM + 8 MB/ User Disk: 16 GB Monitor: SVGA 1024 x 768 Network: 10 MB Ethernet * Recommend 10 Concurrent Users/CPU

In addition to a computer that meets the above hardware requirements, the following is also required:

- A network connection.
- A fault tolerant disk system and UPS.

Software

- Pathways Interface Manager™ is needed to filter non-blood bank orders.
- STAR Laboratory build requires updates to system option and parameters, General Test maintenance, and a new Advanced Blood Bank interface build.

DATABASE SERVER

The following are the software requirements for the database server:

- Oracle supported UNIX, Microsoft Windows NT Server 4.0 with Service Pack 6a applied, or Microsoft Windows 2000 with Service Pack 3 applied.
- Oracle RDBMS Server 8.1.6.x, 8.1.7 or 9i Release 2, including Import and Export utilities. Contact Oracle for the Y2K compliant version of Oracle for UNIX.
- Oracle Server Manager.
- Oracle SQL*Plus.
- The appropriate version of Oracle client software.

APPLICATION SERVER

The following are the software requirements for the application server:

- Microsoft Windows NT Server 4.0 with Service Pack 6a applied or Microsoft Windows 2000 with Service Pack 3 applied.
- The appropriate version of Oracle client software.

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