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28 Apr 1997

STUDENT GUIDE

SYS: CHCS INTERFACE MANAGEMENT

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D/SIDDOMS

CHCS

COMPOSITE HEALTH CARE SYSTEM

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LIST OF EFFECTIVE PAGES

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SYS: CHCS INTERFACE MANAGEMENT

Student Guide Overview

I. STUDENT GUIDE

The Student Guide is provided for classroom use. At the discretion of the site, the guides may be retained by the students when the class is over, or the guides may need to remain in the classroom for use by other sessions of the same class. Additional materials may be available to support the class presentation. These materials will often be a benefit at workcenters. Some of the materials will be reproduced and provided as handouts.

The Student Guide contains the following sections:

Student Guide Overview

This section contains an overview of the Student Guide, class specifications, and conventions used in the documentation.

Modules

Each module is in its own stand-alone division. Each module contains the following sections:

Section 1. Module Outline

Slightly edited, this section is the same as in the Presenter's Guide. It contains the presentation objectives, topics, activities, and steps.

Practices

These are the same practices that appear in the Presenter's Guide; however, the evaluation criteria are not included in the Student Guide.

Section 2. Master Practice

This is the same Master Practice that appears in the Presenter's Guide; however, the evaluation criteria are not included in the Student Guide.

Index

This is an index of key words.

Section 3. Reference Materials

This section contains all of the Reference Materials that appear in the Presenter's Guide.

In addition to the Student Guide, students should be provided with a handout containing class-specific Quick Reference Guides extracted from the Reference Materials.

II. CLASS SPECIFICATIONS

SYS: CHCS Interface Management

COURSEWARE NUMBERS:	DS-45TD-7002/DS-45TD-8001
OVERVIEW:	This class presents the configuration, management, and troubleshooting of the interfaces between CHCS and the systems that exchange data with CHCS.
CLASS LENGTH:	27 hours
TARGET AUDIENCE:	– Network Specialists – Hardware Specialists – Software Specialists – Computer Operators – System Specialist – CHCS Administrators
PREREQUISITES:	– ORT: CHCS Orientation – SYS: VMS CHCS Computer Operator; Module 9 - VMS Commands and Utilities – Appropriate functional or technical training – Experience using CHCS
RECOMMENDED CLASSES:	– SYS: VMS Hardware Specialist; Module 12 - Network Management Tools (supports CHCS Interface Management, Module 12 - Manage the Interface Connections)
ASSUMPTIONS:	– CHCS Version 4.5 – ETU Version 3.0

SYS: CHCS Interface Management (continued)

Module 1 - Overview of CHCS Interface Systems

Module Overview:	This module introduces you to the systems that exchange data with CHCS.
Module Length:	1.5 hour
Target Audience:	– Network Specialists – Hardware Specialists – Software Specialists – Computer Operators – System Specialists – CHCS Administrators
Objectives:	– Objective 1: Define the functions of the CHCS interface systems. Practice 1 – Objective 2: Identify the communication protocols used by the interfaces. Practice 2 – Objective 3: Identify the roles and responsibilities of CHCS personnel. No practice
Outbound References:	– MCSC Error Management Guide, SAIC. – SYS: VMS CHCS Computer Operator, SAIC/ CHCS Doc. TC-4.5-0450/TC-4.5-0451. – SYS: VMS Hardware Specialist, SAIC/CHCS Doc. TC-4.5-0548/TC-4.5-0549. – SYS: VMS Software Specialist, SAIC/CHCS Doc. TC-4.5-0550/TC-4.5-0551.

SYS: CHCS Interface Management (continued)

Module 2 - Manage the DEERS Interface

Module Overview:	This module presents information necessary to configure and troubleshoot the DEERS interface.
Module Length:	2 hours
Target Audience:	– Software Specialists – Computer Operators – System Specialists
Objectives:	– Objective 1: Identify the components of the DEERS interface. Practice 1 – Objective 2: Monitor the interface connection. Practice 2 – Objective 3: Manage the interface process. Practice 3 – Objective 4: Manage and analyze the error logs. Practice 4 – Objective 5: Manage the transmission statistics file. Practice 5 – Objective 6: Manage the site parameters. Practice 6 – Objective 7: Troubleshoot the DEERS interface. Practice 7

SYS: CHCS Interface Management (continued)

Module 3 - Transport Files Using FTP or ETU

Module Overview: This module introduces you to the procedures to FTP a file, as well as configure and troubleshoot the interface to external systems that use FTP or ETU for file transfer.

Module Length: 4 hours

Target Audience:
- Network Specialists
- Hardware Specialists
- Software Specialists
- Computer Operators
- System Specialists

Objectives:
- Objective 1: Use FTP to transport a file to an external system.
  Practice 1
- Objective 2: Configure parameters and transport files for RCMAS.
  Practice 2
- Objective 3: Identify the parameters and procedures to transport files to the biometric agencies.
  Practice 3
- Objective 4: Identify parameters and procedures to transport files to EAS.
  Practice 4
- Objective 5: Identify parameters and procedures to transport files to STARS/FL
  Practice 5
- Objective 6: Troubleshoot file transport.
  Practice 6

Outbound References:
- Electronic Transfer Utility User's Guide, SAIC/CHCS Doc. TC-5-5019.
- SYS: VMS Software Specialist, SAIC/CHCS Doc. TC-4.5-0550/TC-4.5-0551; Module 15 - Troubleshooting.

SYS: CHCS Interface Management (continued)

Module 4 - Describe the GIS and HL7 Interface Systems

Module Overview:	This module defines the roles of the Health Level 7 (HL7) data format and the CHCS Generic Interface System (GIS) in communicating with external systems.
Module Length:	1.5 hour
Target Audience:	– Software Specialists – System Specialists
Objectives:	– Objective 1: Define the role of HL7 as a standard interface between CHCS and external systems. Practice 1 – Objective 2: Define the role of the GIS interface in CHCS. Practice 2
Outbound References:	– CHCS HL7 Implementation Specification for CHCS Version 4.5, SAIC/CHCS Doc. TC-4.5-0045. – SYS: VMS Hardware Specialist, SAIC/CHCS Doc. TC-4.5-0548/TC-4.5-0549.

SYS: CHCS Interface Management (continued)

Module 5 - Manage the GIS

Module Overview:	This module presents the capabilities and usage of the GIS via the options on the GIS Menu. These options are used to configure, monitor, and troubleshoot all interfaces that use the HL7 data format.
Module Length:	8.5 hours
Target Audience:	– Software Specialists – Computer Operators – System Specialists
Objectives:	– Objective 1: Define the GIS site parameters. Practice 1 – Objective 2: Manage the GIS transactions. Practice 2 – Objective 3: Manage the GIS background processes. Practice 3 – Objective 4: Manage the GIS errors. Practice 4 – Objective 5: Manage GIS auditing. Practice 5 – Objective 6: Troubleshoot the GIS interface. Practice 6
Outbound References:	– CHCS HL7 Implementation Specification for CHCS Version 4.5, SAIC/CHCS Doc TC-4.5-0045. – SYS: VMS Software Specialist, SAIC/CHCS Doc. TC-4.5-0550/TC-4.5-0551; Module 6 - CHCS Tools and the Systems Manager Menu (EVE).

SYS: CHCS Interface Management (continued)

Module 6 - Manage the MDIS Interface

Module Overview:	This module presents information necessary to configure and troubleshoot the MDIS interface.
Module Length:	1 hour
Target Audience:	– Software Specialists – System Specialists
Objectives:	– Objective 1: Identify the components of the MDIS interface. Practice 1 – Objective 2: Manage the MDIS interface. Practice 2
Outbound References:	– CHCS/MDIS Interface Control Document (Draft), SAIC, September 1996.

Module 7 - Manage the CliniComp Interface

Module Overview:	This module presents information necessary to configure and troubleshoot the CliniComp interface.
Module Length:	1 hour
Target Audience:	– Software Specialists – System Specialists
Objectives:	– Objective 1: Identify the components of the CliniComp interface. Practice 1 – Objective 2: Manage the CliniComp interface. Practice 2
Outbound References:	– CHCS HL7 Implementation Specification for CHCS Version 4.5, SAIC/CHCS Doc. TC-4.5-0045. – CliniComp Implementation Guideline, SAIC Doc. TC-4.5-5001.

SYS: CHCS Interface Management (continued)

Module 8 - Manage the NMIS Interface

Module Overview:	This module presents information necessary to configure and troubleshoot the NMIS interface.
Module Length:	1 hour
Target Audience:	– Software Specialists – System Specialists
Objectives:	– Objective 1: Identify the components of the NMIS interface. Practice 1 – Objective 2: Manage the NMIS interface. Practice 2
Outbound References:	– Nutrition Management Information System Interface Requirements, RQMTS-95-36, SAIC, October 1995. – CHCS HL7 Implementation Specification for CHCS Version 4.5, SAIC/CHCS Doc. TC-4.5-0045.

SYS: CHCS Interface Management (continued)

Module 9 - Manage the DII Interface

Module Overview: This module presents information necessary to configure and troubleshoot the DII interface.

Module Length: 1 hour

Target Audience:
- Software Specialists
- System Specialists

Objectives:
- Objective 1: Identify the components of the DII interface.
  Practice 1
- Objective 2: Manage the DII interface.
  Practice 2

Outbound References:
- CHCS HL7 Implementation Specification for CHCS Version 4.5, SAIC/CHCS Doc. TC-4.5-0045.
- Instrument Manager User's Manual, Version 4.0, Data Innovations, Inc., 18938RE2 October 1995.
- Setup Guide for Data Innovations, Inc., Lab System Interface (DII LSI), Version 1.0, SAIC, 17 January 1995.
- SYS: Lab Automated Instruments, SAIC/ CHCS Doc. TC-4.5-0584/TC-4.5-0585.

Module 10 - Manage the DBSS Interface

Module Overview: This module presents information necessary to configure and troubleshoot the DBSS interface.

Module Length: 1 hour

Target Audience:
- Software Specialists
- System Specialists

Objectives:
- Objective 1: Identify the components of the DBSS interface.
  Practice 1
- Objective 2: Manage the DBSS interface.
  Practice 2

SYS: CHCS Interface Management (continued)

Module 10 - Manage the DBSS Interface (continued)

Outbound References:
- CHCS HL7 Implementation Specification for CHCS Version 4.5, SAIC/CHCS Doc. TC-4.5-0045.
- Interface Control Document for the Composite Health Care System (CHCS) to the Defense Blood Standard System (DBSS), 18155NC2, SAIC, 8 Jul 1996.

Module 11 - Manage the CoPath Interface

Module Overview: This module presents information necessary to configure and troubleshoot the CoPath interface.

Module Length: 1 hour

Target Audience:
- Software Specialists
- System Specialists

Objectives:
- Objective 1: Identify the components of the CoPath interface.
  Practice 1
- Objective 2: Manage the CoPath interface.
  Practice 2

Outbound References:
- CHCS/CoPath Interface Control Document, 1868INC2, SAIC, September 1996.
- CHCS HL7 Implementation Specification for CHCS, Version 4.5, SAIC/CHCS Doc. TC-4.5-0045.

Module 12 - Manage the Interface Connections

Module Overview: This module presents the physical connections between CHCS and the various external systems covered in this class. The procedures to troubleshoot communication between CHCS and the external systems are also presented.

Module Length: 3.5 hours

SYS: CHCS Interface Management (continued)

Module 12 - Manage the Interface Connections (continued)

Target Audience:
- Network Specialists
- System Specialists
- Hardware Specialists

Objectives:
- Objective 1: Define the physical connections to external systems.
  Practice 1
- Objective 2: Troubleshoot communication to external systems.
  Practice 2

All outbound references are available in the SAIC Health Care Technology Sector (HCTS) Library. Contact your site or military department (MILDEP) representative to obtain documents from the HCTS Library.

CLASS SETUP PROCEDURES

The following procedures can be performed before the class begins. Procedures that must be performed at a specific point in the class (either after a module completes, or in the middle of a demonstration) are detailed in a Note to Presenter at the point where they must be performed.

Module 3 - Transport Files Using FTP or ETU

In order to complete the demonstration and practices for Objectives 1 and 2, ASCII files should be pre-positioned within VMS on a remote and a local node, as indicated. Confirm that these files are in place before presenting Module 3. You must log onto VMS using the presenter and each student account in order to see the VMS files prepositioned for that user.

Files are copied, not moved, during Module 3. Therefore, you do not need to move files back to the originating system after completing Module 3. The files remain on the originating system.

TC42VD (remote system)

Presenter:

- REMOTE1.INF

Student 1:

- QUOTE1.INF
- POETRY1.INF

Student 2:

- QUOTE2.INF
- POETRY2.INF

Student 3:

- QUOTE3.INF
- POETRY3.INF

Student 4:

- QUOTE4.INF
- POETRY4.INF

Student 5:

- QUOTE5.INF
- POETRY5.INF

Student 6:

- QUOTE6.INF
- POETRY6.INF

Student 7:

- QUOTE7.INF
- POETRY7.INF

Student 8:

- QUOTE8.INF
- POETRY8.INF

Student 9:

- QUOTE9.INF
- POETRY9.INF

Student 10:

– QUOTE10.INF
– POETRY10.INF

TC42VE (local system)

Presenter:

– LOCAL1.INF
– HCP0000.DAT
– MSID0000.DAT

Student 1:

– HCP0001.DAT
– MSID0001.DAT

Student 2:

– HCP0002.DAT
– MSID0002.DAT

Student 3:

– HCP0003.DAT
– MSID0003.DAT

Student 4:

– HCP0004.DAT
– MSID0004.DAT

Student 5:

– HCP0005.DAT
– MSID0005.DAT

Student 6:

– HCP0006.DAT
– MSID0006.DAT

Student 7:

– HCP0007.DAT
– MSID0007.DAT

Student 8:

– HCP0008.DAT
– MSID0008.DAT

Student 9:

– HCP009.DAT
– MSID009.DAT

Student 10:

– HCP0010.DAT
– MSID0010.DAT

You should also occasionally delete all versions of the following files:

TC42VD (remote system)

Delete the following files from the TC42VD (remote) node. Masters for these files reside on TC42VE:

– LOCAL1.INF
– HCP####.DAT
– MSIDR####.DAT

TC42VE (local system)

Delete the following files from the TC42VE (local) node. Masters for these files reside on TC42VD:

– REMOTE1.INF

– POETRY#.INF

– QUOTE#.INF

Module 6 - Manage the GIS Interface

The baseline version of the training database has activated the background processes and transaction types for the interfaces covered in this class. These interfaces must be activated in order to match the displays and perform the tasks included in Modules 5 through 11.

If any change packages have been installed, the background processes and transaction types for all interfaces will be reset to inactive. These interfaces should be reactivated prior to teaching Module 5. Perform the following procedure:

1. Log onto MUMPS on the current training node.

2. Initiate the Interface Activation utility.

   MUMPS Prompt> **D EN^INHPSAM**

   Select Username: **INT,USER**

3. Activate the Anatomic Pathology interface:

   Select Interface Application: **AP**

   Select Action: **ACTIVATE**

   The system displays a warning that modifying the status of interfaces can have dramatic effects.

   Confirm that you wish to continue: **Y**

   Confirm that you are absolutely positive you wish to continue: **Y**

4. Repeat steps 2 and 3 for the following interfaces, one at a time: DBSS, CliniComp, LSI, MDIS, and NMIS.

III. CONVENTIONS

GENERIC CONVENTIONS

■ designates objectives. The activities following the solid box support that objective.

❑ designates subobjectives. The activities following the open box support that subobjective.

ALL CAPS AND BOLD text at the left margin indicates a topic. A topic appears within the text of an objective or subobjective and can include information that is independent or supportive of an objective or subobjective.

Initial Caps and Bold text at the left margin indicates a level 1 subtopic. A level 1 subtopic appears within the text of a topic. It includes information that is supportive of the topic.

> **Initial Caps and Bold** text at one indent indicates a level 2 subtopic. A level 2 subtopic appears within the text of a level 1 subtopic and includes information that is supportive of the level 1 subtopic.
>
> > **Initial Caps and Bold** text at two indents indicates a level 3 subtopic. A level 3 subtopic appears within the text of a level 2 subtopic and includes information that is supportive of the level 2 subtopic.

▲ designates a procedure. Numbered steps following the solid triangle support that procedure.

Bullets (•) with an action verb indicate activity steps.

Following a prompt, text in **ALL CAPS AND BOLD** indicates specific data to be entered (typed or selected from the screen) by the student. This specific (or constant) data is usually the same for all students or for the activity.

Variable data is represented by **[text in square brackets]**. Variable data can be data provided on the appropriate data card, or it can be data that you choose to support the scenario. This variable data is different for each student.

The complete menu path is always included each time a menu option is accessed, starting at the subsystem primary menu. The synonym for the menu where the last objective or activity ended is listed in **bold**. If the last activity was a practice, the lowest menu common to both the practice and the current objective is listed in **bold**.

Primary Menu → ME → IOP

Scenarios appear in italics for easy recognition.

CLASS-SPECIFIC CONVENTIONS

Since this class needs to use square brackets as part of the literal data entry, variable data in a command string is represented by text in italics. Brackets will not be used for variable data in a command string.

SYS:
CHCS INTERFACE MANAGEMENT

Module 1 -
Overview of CHCS Interface Systems

SYS: CHCS INTERFACE MANAGEMENT

Module 1 - Overview of CHCS Interface Systems

Section 1. Module Outline

I. INTRODUCTION

OVERVIEW OF CHCS INTERFACE MANAGEMENT

Welcome to CHCS Interface Management.

The purpose of this class is to explain the function, configuration, and management of the various systems that interface with CHCS. The class is designed for site personnel who will configure and manage the interfaces between these systems and CHCS.

This class is scheduled to last approximately 26 hours.

The target audience includes:

– Network Specialists

– Hardware Specialists

– Software Specialists

– Computer Operators

– System Specialists

– Administrators.

Prerequisites include:

– ORT: CHCS Orientation

– SYS: VMS CHCS Computer Operator; Module 9 - VMS Commands and Utilities

– Appropriate functional or technical training

– Experience using CHCS.

Recommended classes include:

– SYS: VMS Hardware Specialist; Module 12 - Network Management Tools (supports CHCS Interface Management, Module 12 - Manage the Interface Connections).

This class is structured as follows:

– Module 1 presents an overview of all the external systems that exchange data with CHCS.

– Subsequent modules address configuration and management of each of the interfaces. These interface-specific modules are grouped according to the method used to manage each interface, as follows:

  * Management of interfaces with their own management utilities (Module 2 - Manage the DEERS Interface)

  * Management of interfaces that exchange data through File Transfer Protocol (FTP) (Module 3 - Transport Files Using FTP or ETU)

  * Management of interfaces whose data conform to Health Level 7 (HL7) standards. This group of modules begins with two modules (Modules 4 and 5) dedicated to using the CHCS Generic Interface System (GIS), a generic tool for managing all HL7 interfaces. Subsequent Modules 6 through 11 address management concerns specific to each HL7 interface.

– The last module of the class (Module 12 - Manage the Interface Connections) discusses managing and troubleshooting the physical connections to each external system that exchanges data with CHCS.

Note: Refer to the Class Specifications for a more complete description of the class.

All class materials may be ordered from the Health Care Technology Sector (HCTS) Library. Contact your site or military department (MILDEP) representative.

Practices will follow the demonstration or lecture. A Master Practice will be given at the end of each module to demonstrate proficiency in the objectives presented.

OVERVIEW OF MODULE

The purpose of this module is to introduce you to the systems that exchange data with CHCS. For each system, the following will be presented:

- Description of the external system and how it is used
- The CHCS functionalities that interface with the external system
- The nature of the data that is exchanged
- The communication protocols used to exchange that data.

This module is scheduled to last approximately 1.5 hours.

DISCUSS OBJECTIVES

- Objective 1: Define the functions of the CHCS interface systems.
- Objective 2: Identify the communication protocols used by the interfaces.
- Objective 3: Identify the roles and responsibilities of CHCS personnel.

INTRODUCE OUTBOUND REFERENCES

The following documentation is referred to in this module:

- MCSC Error Management Guide, SAIC.
- SYS: VMS CHCS Computer Operator, SAIC/CHCS Doc. TC-4.5-0450/ TC-4.5-0451.
- SYS: VMS Hardware Specialist, SAIC/CHCS Doc. TC-4.5-0548/ TC-4.5-0549.
- SYS: VMS Software Specialist, SAIC/CHCS Doc. TC-4.5-0550/ TC-4.5-0551.

II. PRESENTATION

■ Objective 1: DEFINE THE FUNCTIONS OF THE CHCS INTERFACE SYSTEMS

❑ SUMMARIZE THE TYPES OF INTERFACES

DISCUSS THE EXCHANGE OF DATA BETWEEN CHCS AND EXTERNAL SYSTEMS

CHCS exchanges data with many external computer systems. Some external systems are used by the staff at the medical treatment facility (MTF), while others are used by government agencies outside the MTF. Some data transfers occur in one direction (unidirectional), usually from CHCS to the external system. Other transfers are two way (bidirectional), with data moving from CHCS to the external system, and from the external system back to CHCS.

CHCS notifies these systems when specific transactions take place, such as registration of a new patient; or when changes are made to the CHCS master files. CHCS master files act as the central repository of codes used by CHCS to identify healthcare components, such as providers, drugs, laboratory tests, zip codes, patient race/religion/marital status, etc., for these external systems.

- Refer to Figure 1-1: Exchange of Data Between CHCS and External Systems.

DISCUSS LOCATION OF THE INTERFACES

Systems at the MTF

The following systems reside at the MTF. They complement CHCS, collecting data from CHCS and providing additional functionality to CHCS. These systems are used by many of the same users as the CHCS system.

– Expense Assignment System (EAS)

– Local Retrospective Case Mix Analysis System (RCMAS)

– CoPath

– CliniComp

– Defense Blood Standard System (DBSS)

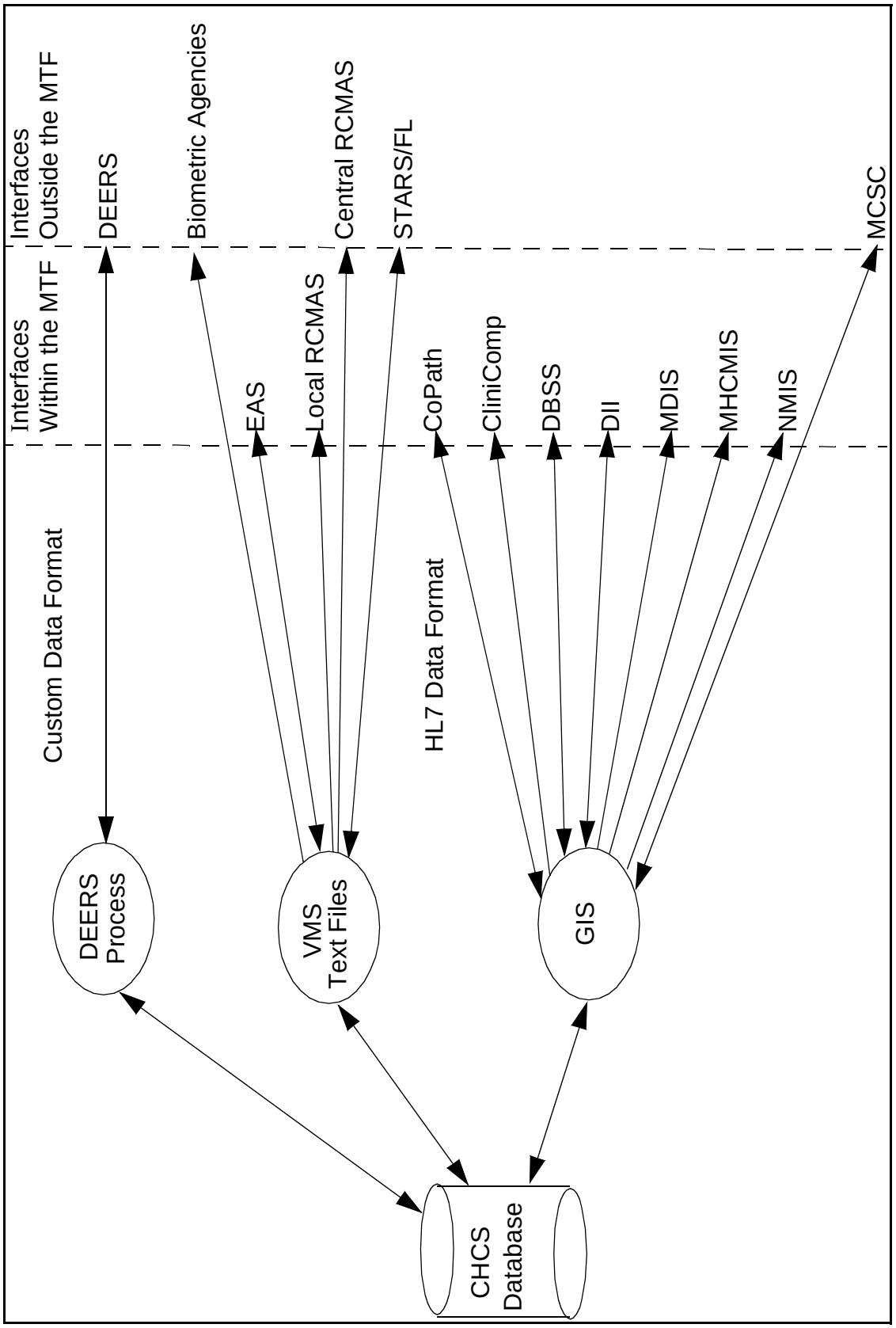

Figure 1-1. Exchange of Data Between CHCS and External Systems

– Data Innovations, Incorporated (DII)

– Medical Diagnostic Imaging System (MDIS)

– Military Health Care Management Information System (MHCMIS)

– Nutrition Management Information System (NMIS).

Systems Outside the MTF

The following systems reside outside of the MTF. They collect data from CHCS for purposes entirely separate from the daily operation of the MTF.

– Defense Enrollment Eligibility Reporting System (DEERS)

– Biometric agencies

– Central RCMAS

– Standard Accounting and Reporting System/Field Level (STARS/FL)

– Managed Care Support Contractors (MCSC).

DISCUSS DATA FORMAT

Data exchanged between CHCS and the external systems is in one of the following formats:

– **HL7**. HL7 is a standard for the electronic interchange of certain key sets of data, such as clinical, financial, and administrative information, among independent healthcare computer systems.

• Refer to Module 4 - Describe the HL7 and GIS Interface Systems, for additional information on the HL7 data format standard.

– **Custom**. Custom data does not adhere to any industry standard for format. This data is formatted according to requirements from the external system.

DISCUSS MANAGEMENT OF THE INTERFACES

Data exchange with an external system can be managed using any of three methods:

– **Dedicated Interface Menus.** The interface may be managed from menu options used only with that interface.

– **Generic Interface System (GIS).** Any interfaces that use the HL7 data format standard are managed from the Interface Menu (GIS) option. Any option on this menu can be used with multiple interfaces.

– **FTP.** If an external system does not use the HL7 data format, data can be exchanged with that system using text files and FTP. FTP can be used either directly, from Multinet, or through the Electronic Transfer Utility (ETU). ETU automates the steps of FTP.

MHCMIS is an exception to this interface management scheme. It uses all three management methods: 1) The GIS creates a text file in HL7 format. 2) That text file is automatically sent to MHCMIS using FTP. 3) The parameters for the automatic FTP transmission are configured through an interface menu dedicated to MHCMIS.

Dedicated Interface Menus

The following interfaces are managed from dedicated interface menus on the Manage External Interfaces Menu (INT):

– DEERS. All activity is managed from the DEERS Menu (DEER) option.

Systems Manager Menu (EVE) → SM → INT → DEER

– MHCMIS.FTP transmissions are managed from the Manage MHCMIS Data Extraction Menu (MHCM).

Systems Manager Menu (EVE) → SM → INT → MHCM

GIS Menu

The following interfaces transmit data in the HL7 format. They are all managed from options on the Interface Menu (GIS):

Systems Manager Menu (EVE) → SM → INT → GIS

– CliniComp

– CoPath

– DBSS

– DII

– MDIS

– MHCMIS

– NMIS

– MCSC.

Systems Exchanging Data Through FTP

The following interfaces use FTP to exchange data with CHCS:

– **Biometric Agencies**. Directly through MultiNet, or automatically through ETU.

– **EAS**. Directly through MultiNet, or automatically through ETU.

– **MHCMIS**. Automatically through dedicated background processes for MHCMIS. The Manage MHCMIS Data Extraction Menu (MHCM) provides options to manage the background processes.

– **RCMAS**. Directly through MultiNet. ETU does not support RCMAS.

– **STARS/FL**. Directly through MultiNet, or automatically through ETU.

❑ DESCRIBE INDIVIDUAL INTERFACES

• Refer to Table 1-1: Summary of Systems That Interface With CHCS.

Table 1-1. Summary of Systems That Interface With CHCS

Interface	Direction	CHCS Functionality	Description of Data	Data Format	Comm Protocol	Within MTF
Biometric Agencies	Unidirectional: from CHCS	Outbound: PAD	From CHCS: SIDR for biometric statistics	Custom	FTP	No
CliniComp	Unidirectional: from CHCS	Outbound: LAB, PAD, RAD	From CHCS: ADT data, registration information; radiology results, laboratory results from clinical chemistry	HL7	TCP sockets	Yes
CoPath	Bidirectional	Outbound: PAD, Order Entry Inbound: LAB	From CHCS: Patient registration, anatomic pathology orders, modifications to unaccessioned orders From CoPath: Anatomic pathology orders, accession numbers, certified test results	HL7	TCP sockets	Yes

Table 1-1. Summary of Systems That Interface With CHCS (continued)

Interface	Direction	CHCS Functionality	Description of Data	Data Format	Comm Protocol	Within MTF
DBSS	Bidirectional	Outbound/ Inbound: LAB, PAD	From CHCS: Patient demographic data and merge notifications; accessioned blood bank orders for blood bank donations, tests, and transfusions. From DBSS: Results and status of blood bank orders; patient data updates and merge notifications	HL7	TCP sockets	Yes
DEERS	Bidirectional	Outbound/ Inbound: PAD, PAS, PHR	From CHCS: Patient demographics. From DEERS: Patient eligibility for medical treatment	Custom	Telnet	No
DII	Bidirectional for bidirectional instruments; Unidirectional for unidirectional instruments	Outbound/ Inbound: LAB	From CHCS: Test requests to bidirectional lab instruments. From DII: Test results from bi- and unidirectional lab instruments.	HL7	TCP sockets	Yes

Table 1-1. Summary of Systems That Interface With CHCS (continued)

Interface	Direction	CHCS Functionality	Description of Data	Data Format	Comm Protocol	Within MTF
EAS	Bidirectional	Outbound: DTS, Order Entry, PAD, PAS, PHR, LAB, RAD Inbound: WAM	From CHCS: Workload data: inpatient, outpatient, LAB, PHR, RAD, ancillary, and support services From EAS: ASD and SAS detail files	Custom	FTP	Yes
MCSC	Bidirectional: for Provider Network and OHI data Unidirectional: from CHCS for Provider Network, Enrollment, Health Care Finder, and patient data	Outbound:, PAS, PAD Inbound: PAS, PAD	From CHCS: Provider Network (contract and direct care providers), OHI, Enrollment, Health Care Finder, and patient data From MSC: Provider Network (contract providers) and OHI data, master file notifications	HL7	TCP sockets	No
MDIS	Unidirectional: from CHCS	Outbound: PAD, PAS, RAD, Order Entry	From CHCS: Patient registration, ADT, appointments, and schedules; RAD orders and results, master files	HL7	DDP	Yes

Table 1-1. Summary of Systems That Interface With CHCS (continued)

Interface	Direction	CHCS Functionality	Description of Data	Data Format	Comm Protocol	Within MTF
MHCMIS	Unidirectional: from CHCS	Outbound: PAD, PAS, PHR, LAB, RAD, Order Entry	From CHCS: Clinical data for outpatient billable events, including patient demographics, patient insurance, and event identification, such as drug and order classifications.	HL7	FTP	Yes
NMIS	Unidirectional: from CHCS	Outbound: PAD, Order Entry	From CHCS: ADT, discharges, administrative transfers, bed exchanges, patients going to and returning from absence; diet orders	HL7	TCP sockets	Yes
RCMAS	Unidirectional: from CHCS	Outbound: PAD	From CHCS: Monthly and interim SIDR files, Health Care Provider data	Custom	FTP	Yes
STARS/FL	Bidirectional	Outbound: Dietetics, Order Entry, PAD, PAS, PHR, LAB, RAD Inbound: WAM	From CHCS: Workload data: inpatient, outpatient, LAB, PHR, RAD, ancillary, and support services From STARS/FL: Master Element Table	Custom	FTP from CHCS to STARS/FL Diskette from STARS/FL to CHCS	No

DESCRIBE THE BIOMETRIC AGENCY INTERFACE

Description of the System

Biometric data consists of medical and biologic observations to be statistically analyzed. This biometric data is stored in Standard Inpatient Data Records (SIDR). Following are the government agencies that collect biometric data for each of the services:

- **Navy - Naval Medical Information Management Center (NMIMC)**. NMIMC places the data into its database, then forwards it to Vector Research.
- **Army - Patient Administration Systems and Biostatistics Activity (PASBA)**. PASBA places the data into its database, then forwards it to Vector Research.
- **Air Force - Vector Research**. Vector Research receives biometric data directly from the Air Force.

These agencies reside outside the MTF.

Data Exchange and Format

CHCS uses a unidirectional interface to communicate with the biometric agencies. Data can be transmitted using either FTP or ETU. The service dictates the data transfer method. In most cases, sites use ETU to send data to PASBA and NMIMC, and FTP to send data to Vector Research. The format of SIDR data is customized for the destination system; it is not in any standard data format.

CHCS Functionalities Affected

The following CHCS functionalities send data to the biometric agencies:

- **Patient Administration (PAD)**. Generates a flat file containing the monthly SIDR data.

DESCRIBE THE COPATH INTERFACE

Description of the System

CoPath is a complete information management system for anatomic pathology provided by Collaborative Medical Systems. It is used by the anatomic pathology staff (pathologists, technologists, technicians, and administrative staff) to enter, accession, and maintain orders and results for anatomic pathology tests. CoPath includes modules for many types of anatomic pathology tests, including surgical pathology, cytology, autopsy, and histology. CoPath provides standard reports, permanent online storage, and quality assurance.

Data is exchanged with CoPath using the anatomic pathology commercial off-the-shelf (APCOTS) interface.

CoPath resides within the MTF.

Data Exchange and Format

CHCS and CoPath communicate using a bidirectional interface. CHCS specialists use the Interface Menu (GIS) to manage communication with CoPath. CoPath data is in the standard HL7 message format.

CHCS Functionalities Affected

The following CHCS functionalities send data to CoPath:

– **PAD**. Provides data on new patient registration, patient merge, and patient admission, disposition, and transfer (ADT), to CoPath. All patient registration takes place on CHCS, not on CoPath. Data is downloaded from CHCS to CoPath for all patients.

– **Order Entry.** Provides the following data to CoPath:

  * Orders for anatomic pathology tests

  * Modifications to anatomic pathology orders, if the order has not yet been accessioned on the CoPath system. Accessioning is the process by which a patient sample is received and logged in the laboratory.

  Anatomic pathology orders may be entered on either CoPath or CHCS. If entered on CHCS, the order is transmitted to CoPath, where it is accessioned.

An order entered on CHCS can only be modified on CHCS if it has not yet been accessioned on CoPath.

The CoPath system sends data to the following CHCS functionalities:

– **Laboratory (LAB).** The following data is received:

  * Information on anatomic pathology orders entered and accessioned on CoPath. An accessioned order is automatically created on CHCS.

  * Order status, accession number, and certified results for anatomic pathology tests.

Once accessioned, the accession number is transmitted to CHCS, along with the new order status. All anatomic pathology orders are resulted and certified on the CoPath system. The result and new order status are transmitted to CHCS as well.

Certified results from CoPath can be reviewed and printed through the following CHCS options:

– Interim and Cumulative reports

– Referral Reports (RFR)

– Lab Referral Reports (REF)

– Review New Results (RNR) option, if the results are flagged as a priority result.

DESCRIBE THE CLINICOMP INTERFACE

Description of the System

The CliniComp clinical information system (CIS) is used by nurses and physicians in emergency rooms, intensive care units (ICUs), and/or wards, to track patient vital signs. CliniComp integrates inpatient data collected from physiological and bedside monitoring equipment, such as intravenous pumps, blood pressure devices, fetal monitor devices, electrocardiograms (EKGs), and ventilators, with patient data, laboratory results, and radiology results from CHCS. Nurses use the system to automate patient charting, and to generate task lists and change of shift reporting. Physicians in the emergency room, ICU, and wards use the system to monitor patient laboratory results, record patient progress information, and view graphical trending of clinical data for one or more patients. CliniComp also provides administrative reports and a reference library.

The CliniComp system resides within the MTF.

Data Exchange and Format

A unidirectional interface is used to communicate from CHCS to CliniComp. CHCS provides the Interface Menu (GIS) to manage communication to CliniComp. Data is transmitted to CliniComp in standard HL7 message format.

To maintain the integrity of patient information, all clinical chemistry results are entered and amended only through CHCS functionality. Results for tests designated as sensitive, such as HIV testing, are not transmitted to CliniComp.

The CliniComp system, as well as other outboard systems, has the responsibility to map its patient database to the unique CHCS patient identifier. Maintaining this identifier allows automatic mapping of future clinical chemistry results, registration updates, and ADT notifications from CHCS to the interfaced system.

CHCS Functionalities Affected

The following CHCS functionalities send inpatient data to CliniComp:

- **LAB.** Provides clinical chemistry test results to CliniComp. Sensitive results are reported as “Refer to CHCS.” No results are sent for anatomic pathology, microbiology, or blood bank.

- **PAD**. Provides the following data to CliniComp:

  * ADT data

  * Registration information.

- **Radiology (RAD).** Provides all test results to CliniComp. Test results include radiology exam and order information.

Master file data is also transmitted to CliniComp.

DESCRIBE THE DEFENSE BLOOD STANDARD SYSTEM (DBSS) INTERFACE

Description of the System

The DBSS maintains laboratory orders and results for the blood bank. These orders are typically blood donations, blood bank testing, or requests for a transfusion.

DBSS resides within the MTF.

Data Exchange and Format

A bidirectional interface is used to communicate with DBSS. CHCS provides the Interface Menu (GIS) option to manage communication with DBSS. Data is transmitted between CHCS and DBSS in the standard HL7 message format.

CHCS Functionalities Affected

The following CHCS functionalities send data to DBSS:

– **LAB.** Sends accessioned blood bank orders to DBSS. All orders are entered and accessioned on CHCS.

– **PAD**. Sends demographic data updates and patient merge notifications to DBSS. Once a merge notification is received, DBSS must reconcile the patient records.

DBSS sends data to the following CHCS functionalities:

– **LAB.** The results and status of orders submitted to the blood bank.

– **PAD.** Medical Expense and Performance Reporting System (MEPRS) workload data; updates of noncritical patient data (address and phone number); and notifications when DBSS detects a potential need for the merge of a CHCS record.

Data from DBSS can be reviewed and printed through the following CHCS options:

– PLI, RNR, RES, RVO, IOD, and PRR options

– Telephone Consult

– Order Inquiry

– Interim, Cumulative, Referral, and Priority Notification reports

– CHCS MEPRS reports.

DESCRIBE THE DEFENSE ENROLLMENT ELIGIBILITY REPORTING SYSTEM DEERS INTERFACE

Description of the System

DEERS is a database of more than 12 million records containing medical service eligibility and demographic data for active-duty and retired service members, their family members, and others eligible for Department of Defense (DOD) benefits. These records include all persons currently or previously entitled to DOD benefits under the Uniformed Service Health Care Reform Act.

Government MTFs use the DEERS database to validate that a particular patient is eligible for medical treatment. DEERS was implemented by the DOD to improve the control and distribution of care, to minimize project costs, and to minimize fraudulent use of military health benefits at government MTFs. The original scope of the system has expanded to include eligibility information for other DOD benefits, databases for other DOD health services, and interface capability with other DOD and non-DOD systems.

The following directly interface with DEERS:

– CHCS

– Automated Central Tumor Registry (ACTUR)

– Civilian Health and Medical Program of the Uniformed Services (CHAMPUS)

– Fiscal Intermediary Discrepancy Reporting System (FIDRS)

– Medical/Dental Records Tracking System (MDRTS)

– Reportable Disease Data Base (RDDB).

The DEERS database is located in the Auburn Hills Information Processing Center (AHIPC) Customer Information Control System (CICS) in Auburn Hills, Michigan.

Data Exchange and Format

A bidirectional interface is used to communicate between CHCS and DEERS. CHCS provides the DEERS Menu (DEERS) to manage communication with DEERS. Data transmitted between CHCS and DEERS is customized for the destination system; it is not in any standard data format.

CHCS exchanges data with DEERS for the following functions:

- Direct care, CHAMPUS, and Medicare eligibility
- Registration
- Privacy log updates
- Address changes
- Managed Care Program (MCP) enrollments/disenrollments
- Non-Availability statement (NAS) candidate lists
- NAS issues
- NAS cancellations
- NAS monthly reports
- NAS statistical reports.

An NAS is issued when treatment cannot be rendered by the MTF. The treatment must be provided by an outside provider.

The DEERS link immediately processes interactive requests, new patient registration requests, new admission requests, and civilian health care provider (HCP) outpatient prescription requests. The DEERS interface must be active at the MTF.

CHCS Functionalities Affected

The following CHCS functionalities confirm patient eligibility using DEERS:

- **PAD**. Performs eligibility and registration checks when new patients are registered in CHCS or admitted to the MTF.

– **Patient Appointment and Scheduling (PAS**). Performs eligibility queries for prebooked appointments. The MCP functionality within PAS performs eligibility and registration checks for enrollment, appointment booking in Healthcare Finder, and NAS processing for various data.

– **Pharmacy (PHR)**. Performs eligibility checks when patients are registered in the MTF using mini-registration.

CHCS updates the DEERS database with current demographic data.

DESCRIBE THE DATA INNOVATIONS, INCORPORATED (DII) INTERFACE

Description of the System

DII provides an intelligent front end for exchanging test requests and results with automated laboratory instruments within the MTF. DII will replace the PDP 11/53 laboratory instrument interface used at many sites.

Most instruments require input and generate output in a nonstandard data format unique to that instrument. As the automated instruments generate test results, the DII system intercepts the nonstandard data, translates the data into the HL7 format standard, then forwards the data to CHCS. The same translation takes place in reverse for test requests sent from CHCS to the instruments: the DII system accepts HL7 data from CHCS, converts it to the nonstandard format used by the destination instrument, then forwards the data to that instrument. The DII system provides other queueing, reporting, message routing, and troubleshooting capabilities as well.

The DII system resides within the MTF.

Data Exchange and Format

Some lab instruments communicate bidirectionally; they receive test requests from CHCS, and send test results to CHCS. Other lab instruments communicate unidirectionally; test requests must be manually entered on the instrument front panel, but test results are sent to CHCS. DII supports both types of communication.

CHCS provides the Interface Menu (GIS) to manage communication with DII. Data is transmitted to DII in the standard HL7 message format.

CHCS Functionalities Affected

The following CHCS functionalities send data to DII:

– **LAB.** Test requests are sent to DII for only those instruments that can communicate bidirectionally.

DII sends data to the following CHCS functionalities:

– **LAB**. Test results are received for all automated instruments on the DII box.

DESCRIBE THE EXPENSE ASSIGNMENT SYSTEM (EAS) INTERFACE

Description of the System

The Army, Navy, and Air Force use EAS to monitor workload, expense, and manpower data and calculate budgets for the MTFs. This system resides within the MTF.

Data Exchange and Format

A bidirectional interface is used to communicate between CHCS and EAS. Data can be transmitted using either FTP or ETU; most sites use ETU. Data transmitted between CHCS and EAS is customized for the destination system; it is not in any standard data format.

CHCS Functionalities Affected

CHCS collects inpatient, outpatient, and ancillary MEPRS workload data using MEPRS codes. Functional users manage both EAS and STARS/FL targeted workload data from within CHCS using the Workload Assignment Module (WAM).

All CHCS subsystems send data to EAS through WAM, as follows:

– Inpatient data from PAD

– Outpatient data from PAS

– Order entry

– LAB

- RAD
- PHR
- Dietetics (DTS).

EAS requires data from CHCS that does not originate from within CHCS, as follows:

- Ancillary workload data used in conjunction with CHCS order entry and processing in the following subsystems:
  * LAB
  * RAD
  * PHR
  * DTS.

  This data may be obtained from a CHCS interface to an external system, or may be manually entered into the WAM workload templates.
- Support services workload data, such as housekeeping and laundry services, that is not collected by any CHCS functionality. This data is manually entered into the WAM workload templates.

EAS sends CHCS the following data:

- Account Subsystem Definition (ASD) detail file
- Stepdown Assignment Statistic (SAS) detail file.

The data in these files is automatically entered into core files within WAM to be used for MEPRS reporting guidelines. This data is not distributed into any other CHCS subsystem.

DESCRIBE THE MANAGED CARE SUPPORT CONTRACTORS (MCSC) INTERFACE

Description of the System

Tri-Service Health Care (TRICARE) is the initiative to implement managed care across all military services. MCP is a network of contracted HCPs who deliver discounted healthcare services to military beneficiaries eligible for direct care, CHAMPUS, or Medicare.

CHCS exchanges enrollment, provider network, other health insurance (OHI), Health Care Finder, and patient demographic data with HCPs participating in the MCP. Those providers' services are managed by the MCSC, who use the data from CHCS to process claims for many different purposes, depending on the services provided.

MCSC was originally referred to as TRICARE Support Contractors (TSC).

Data Exchange and Format

Both unidirectional and bidirectional interfaces are used to communicate between CHCS and the MCSC.

The following data is exchanged bidirectionally with the MCSC:

– Provider Network - contract providers only

– OHI.

The following data is exchanged unidirectionally from CHCS to the MCSC:

– Provider Network - direct care providers only

– Enrollment

– Health Care Finder

– Patient information (registration, demographics, etc.).

CHCS uses the Interface Menu (GIS) to manage communication with the MCSC. MCSC data is transmitted in the standard HL7 message format.

Note: The MCSC interface is not yet activated at sites. CHCS version 4.5 includes the capability to communicate with MCSC. However, the hardware and architecture of the interface are not yet finalized.

- Refer to the MCSC Error Management Guide, for additional information on the MCSC interface.

CHCS Functionalities Affected

The following CHCS functionalities send data to the MCSC:

– **PAS**. The following categories of MCP data are sent:

  * **Provider Network** - Includes MCP groups, MCP providers within a group, places of care for the group and for an individual provider, and agreements for a group and provider.

  * **OHI** - Includes insurance information for only those beneficiaries eligible for CHAMPUS, whether or not they are enrolled.

  * **Enrollment** - Includes beneficiary enrollment data and changes to primary care manager (PCM) data.

  * **Health Care Finder** - Includes referrals, appointments, and appointment refusals.

  PAS may also send a small number of appointments to the MCSC.

– **PAD.** The following categories of data are sent:

  * **OHI** - Includes insurance information for only CHAMPUS-eligible beneficiaries, whether or not they are enrolled.

  * **Patient Demographics** - Includes registration, merging, and other updates to patient records.

The MCSC sends data to the following CHCS functionalities:

– **PAS**. The following categories of MCP data are sent:

  * **Provider Network** - Includes the same data elements that are sent to the MCSC (MCP groups, MCP providers within a group, places of care for the group and for an individual provider, and agreements for a group and provider) except for notifications when providers, places of care, provider

and group agreements, or appointment types are inactivated for MCSC providers.

* **OHI** - Includes insurance information for only those beneficiaries eligible for CHAMPUS, whether or not they are enrolled.

– **PAD.** The following categories of data are received by MCP:

* **OHI** - Includes insurance information for only those beneficiaries eligible for CHAMPUS, whether or not they are enrolled.

– **File Notifications.** MCSC is the only interface to send patient and master file notifications to CHCS. However, MCSC does not register new patients; patient registration is only performed from within CHCS. Patient and master file notifications are used by all subsystems.

DESCRIBE THE MEDICAL DIAGNOSTIC IMAGING SYSTEM (MDIS) INTERFACE

Description of the System

MDIS is a Picture Archiving and Communications System (PACS). PACS is an electronic system for archiving and viewing radiological films.

PACS provides the following advantages over films:

– No films to maintain or lose

– No chemical development required

– Can be remotely viewed and interpreted, an advantage for a small hospital without a radiologist.

MDIS acts as a shared file server for radiological images. It provides a high-speed image pathway for accepting images from acquisition devices, such as computer radiography, film digitizers, and other sources of medical images that are compliant with the American College of Radiology-National Electrical Manufacturers Association (ACR-NEMA) standard. MDIS then shares those images with medical workstations, as well as with film or 35mm slide output devices, for diagnostic and clinical review by physicians.

MDIS resides within the MTF.

Data Exchange and Format

A unidirectional interface is used to communicate from CHCS to MDIS. CHCS provides the Interface Menu (GIS) to manage communication with MDIS. However, the GIS does not actually send data to MDIS. MDIS extracts the data from the GIS. Data is provided for MDIS in the standard HL7 message format.

CHCS Functionalities Affected

The following CHCS functionalities provide data for MDIS:

– **PAD**. Provides the following information:

  * Patient registration data
  * ADT data
  * Master file updates.

– **PAS.** Provides the following information:

  * Patient schedules.

– **RAD.** Provides the following information:

  * Patient arrivals
  * Exam results
  * RAD schedule information.

– **Order Entry.** Provides the following information:

  * A new RAD order is activated in CHCS
  * A RAD order is modified in CHCS
  * A RAD order is canceled in CHCS
  * A RAD order is placed on hold or reactivated
  * A RAD order is renewed.

All RAD orders and patient registrations are entered on CHCS only, not on MDIS. RAD orders are resulted through CHCS as well.

DESCRIBE THE MILITARY HEALTH CARE MANAGEMENT INFORMATION SYSTEM (MHCMIS) INTERFACE

Description of the System

MHCMIS generates ad hoc reports used by management and staff at DOD MTFs. The database acts as a central repository for inpatient, outpatient, financial, statistical, and summary data from an assortment of MTF computer systems.

In addition to CHCS, the following systems send data to MHCMIS:

– DEERS

– CHAMPUS

– Defense Medical Information System (DMIS)

– EAS

MHCMIS resides within the MTF.

Data Exchange and Format

A unidirectional interface is used to communicate from CHCS to MHCMIS. CHCS provides the Interface Menu (GIS) and the Manage MHCMIS Data Extraction Menu (MHCM) to manage communication to MHCMIS. Data is transmitted to MHCMIS in the standard HL7 message format.

MHCMIS is managed through two menus because the data transmission is a two-step process:

– The GIS converts the data to HL7 format and sends it to a virtual memory system (VMS) American Standard Code for Information Interchange (ASCII) file. This portion of the transmission is managed through the Interface Menu (GIS).

– The VMS ASCII file is sent to MHCMIS through FTP. This transfer is automated through a CHCS background process that uses parameters defined through the Manage MHCMIS Data Extraction Menu (MHCMIS).

CHCS Functionalities Affected

CHCS sends clinical data for outpatient billable events to MHCMIS. This data includes patient demographics, patient insurance, and event identification, such as drug and order classifications.

MHCMIS messages are generated from the following five subsystems, plus order entry:

– Patient demographics and ADT data from PAD

– PAS

– PHR

– LAB

– RAD

– Order entry.

DESCRIBE THE NUTRITION MANAGEMENT INFORMATION SYSTEM (NMIS) INTERFACE

Description of the System

Dieticians use NMIS to provide nutritional care and services to patients during their hospitalization. Dieticians use the NMIS to perform the following tasks:

– Process patient menus

– Calculate diets based on the most recent physician's diet order

– Conduct nutritional screening of all new admission

– Prioritize care

– Provide timely nutrition intervention to patients

– Manage food inventories

– Forecast production

– Keep an account of food costs.

NMIS resides within the MTF.

Data Exchange and Format

A unidirectional interface is used to communicate from CHCS to NMIS. CHCS uses the Interface Menu (GIS) to manage communication with NMIS. Data is transmitted in the standard HL7 message format.

CHCS Functionalities Affected

The following CHCS functionalities send data to NMIS:

– **PAD.** Provides the following data to NMIS:

  * Updates to any of the ADT functions
  * Bed exchanges
  * Patients going to and returning from absence.

– **Order Entry.** Provides dietetics information to NMIS when the following activities take place:

  * A diet order is created and activated
  * An existing diet order is placed on hold, reactivated from hold, cancelled, discontinued, or modified.

  One message is sent for each diet order, which may consist of several meals. A message is not sent for each meal of the diet order.

Only inpatient data is transmitted to NMIS.

DESCRIBE THE RETROSPECTIVE CASE MIX ANALYSIS SYSTEM-OPEN SYSTEM ENVIRONMENT (RCMAS-OSE) INTERFACE

Description of the System

RCMAS-OSE is a government-owned, patient-level system. It compares MTF workload, utilization, and practice patterns to expected workload and utilization while automatically adjusting for the case mix and demographics of the MTF.

There are two levels to RCMAS:

- **Local.** The local RCMAS resides at the MTF. It connects directly to CHCS, as well as other MTF systems, and collects data generated by the MTF and its catchment area.

- **Central.** The central RCMAS resides in Fort Detrick, Maryland. This system collects both direct care and CHAMPUS data from all of the local Medical Health Service System (MHSS) RCMAS systems. When the site has a local RCMAS system, that system exchanges data with the central RCMAS system. If the site does not have a local RCMAS system, CHCS exchanges data directly with the central RCMAS system through the Defense Information System Network (DISN).

CHCS provides SIDR and HCP data to RCMAS.

In addition, the DMIS provides the following data to RCMAS:

- MTF direct care

- CHAMPUS episodes

- Population

- NAS

- Uniformed Services treatment facilities (USTFs)

- Civilian normative.

Site personnel can access clinical and management information in the RCMAS database using standard and ad hoc reports. Information retrieved includes observed versus expected workload, utilization, and CHAMPUS costs. This information is reviewed to determine quality assurance, resource management, care management, and utilization for the MTF.

Data Exchange and Format

A unidirectional interface is used to communicate from CHCS to RCMAS. Data must be transmitted using FTP, as ETU does not yet support data transfer to RCMAS. RCMAS data is in a custom format.

The CHCS PAD subsystem contains the options to build, recreate, transmit/retransmit, and print reports associated with the RCMAS monthly data. The PAD

transmit/retransmit options use the Kermit protocol to transmit the file. However, most sites use FTP instead of Kermit, as FTP is faster and more reliable.

The same computer that runs MHCMIS also runs the local RCMAS system. However, the two systems are entirely separate. CHCS generates different files for separate transmission to both RCMAS and MHCMIS. The two systems share only a physical processor and physical connection to CHCS. Therefore, sites without a MHCMIS system will not have a local RCMAS system.

CHCS Functionalities Affected

The following CHCS functionalities send data to RCMAS:

– **PAD.** Prepares the following holding files for RCMAS:

  * Monthly SIDR
  * Interim SIDR
  * HCP.

  The monthly and interim SIDR files contain the same demographic and biometric data that is sent to the biometric agencies.

DESCRIBE THE STANDARD ACCOUNTING AND REPORTING SYSTEM/ FIELD LEVEL (STARS/FL) INTERFACE

Description of the System

The Navy uses STARS/FL to monitor workload, expense, and manpower data and to calculate budgets for the MTFs. STARS/FL resides in Mechanicsburg, Pennsylvania.

Data Exchange and Format

A bidirectional interface is used to communicate between CHCS and STARS/FL. Data can be transmitted from CHCS to STARS/FL using either FTP or ETU; most sites use ETU. Data is received from STARS/FL through diskette; this data cannot be transmitted through FTP. The format of STARS/FL data is customized for the destination system; it is not in any standard data format.

CHCS Functionalities Affected

CHCS collects inpatient, outpatient, and ancillary MEPRS workload data using MEPRS codes. Functional users manage both EAS and STARS/FL workload data from within CHCS using WAM.

All CHCS subsystems send data to STARS/FL through WAM, as follows:

- Inpatient data from PAD
- Outpatient data from PAS
- Order entry
- LAB
- RAD
- PHR
- DTS.

STARS/FL also requires data from CHCS that does not originate from within CHCS, as follows:

- Ancillary workload data used in conjunction with CHCS order entry and processing in the following subsystems:
  * LAB
  * RAD
  * PHR
  * DTS.

  This data may be obtained from a CHCS interface to an external system, or may be manually entered into the WAM workload templates.
- Support services workload data, such as housekeeping and laundry services, that is not collected by any CHCS functionality. This data is manually entered into the WAM workload templates.

STARS/FL provides a Master Element Table to CHCS. The data in this table is manually pulled each year into core files within WAM to be used for MEPRS reporting guidelines. This data is not distributed into any other CHCS subsystem.

INTRODUCE THE MANAGE EXTERNAL INTERFACES MENU

1. Log on to CHCS and access the Systems Manager Menu (EVE).

Username:	**[site username]**	Access:	**INTUSER**
Password:	**[site password]**	Verify:	**INTUSERV**
Area:	**A**		

2. Access the Manage External Interfaces Menu (INT) option on the Site Manager Menu.

Systems Manager Menu (EVE) → SM → INT

Discuss the Display

The Manage External Interfaces Menu displays the following submenus:

– **Interface Menu (GIS).** All options for managing the Generic Interface System.

• Refer to Module 5 - Manage the GIS, for further detail.

– **DEERS Menu (DEER).** All options for managing the DEERS interface.

• Refer to Module 2 - Manage the DEERS Interface, for further detail.

– **BD/URS Menu (BDR).** All options for managing the Biometric Data/Upward Reporting System (BD/URS) interface. This interface was used to send SIDR data to the biometric agencies. However, since SIDR data is now sent to the biometric agencies through FTP, this menu is no longer used, and is not covered in this class.

– **UCAPERS Menu (UCA)**. All options for managing the Uniform Chart of Accounts Personnel System (UCAPERS) interface to the Workload Management System for Nursing (WMSN). This menu is not covered in this class.

– **Manage MHCMIS Data Extraction (MHCM).** Options for configuring MHCMIS parameters and transmitting data through FTP. This menu is not covered in this class.

3. Return to the Systems Manager Menu (EVE) and log off.

Practice 1 - Define the functions of the CHCS interface systems.

PRACTICE GUIDELINES

The information you need to complete each practice is supplied in the instructions and scenarios.

Notify the presenter when directed to do so in the practice. This allows the presenter to verify that you have successfully completed an activity.

You may use any reference materials available in the classroom to complete your practices.

You may ask questions or request assistance at any time during the practices.

The practices for this class must be completed in the order in which they are presented. Please complete all parts of each practice before proceeding.

Students 1-10

Practice 1 - Define the functions of the CHCS interface systems.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the instructions below

A. Circle the interface(s) in the list below that do not reside within the MTF.

- APCOTS
- Biometric agencies
- CliniComp
- DBSS
- DEERS
- DII
- EAS
- MDIS
- MHCMIS
- NMIS
- RCMAS
- STARS/FL
- MCSC

Students 1-10 (continued)

B. Match the list of interfaces with the interface management method.

		Management Method		Interfaces
_____	1.	Interface Menu (GIS)	A.	DEERS
_____	2.	Manual or automated FTP	B.	APCOTS CliniComp DBSS DII MDIS MHCMIS NMIS MCSC
_____	3.	Specific interface menu on the Manage External Interfaces Menu (INT)	C.	Biometric agencies EAS RCMAS STARS/FL

Notify the presenter when you have completed this practice.

■ Objective 2: IDENTIFY THE COMMUNICATION PROTOCOLS USED BY THE INTERFACES

DEFINE A COMMUNICATION PROTOCOL

The term protocol refers to a set of rules designed to control the exchange of data between two communicating parties.

The following communication protocols enable CHCS to communicate with other systems:

– Transmission Control Protocol (TCP) Sockets

– Telnet

– FTP

– Distributed data processing (DDP)

All of these protocols are fully compliant with the International Standards Organization (ISO) Open Systems Interconnect Model (OSI). This model defines seven standard layers of communication, and the activities performed at each of those layers.

DEFINE HOW A PROTOCOL IS DETERMINED

The communication protocol for any particular interface is determined two ways:

– If TCP sockets are used, this communication method is written into the CHCS program that communicates with that system.

– If TCP sockets are not used, the communication method is dictated by location of the external system and the hardware used to connect to that system. The DEERS interface is an exception to this rule. The CHCS DEERS application software uses the Telnet program to communicate with DEERS.

DISCUSS TRANSMISSION CONTROL PROTOCOL/INTERNET PROTOCOL

The Transmission Control Protocol/Internet Protocol (TCP/IP) is a suite of protocols developed under the auspices of the Defense Advanced Research Project Agency (DARPA). The protocols of TCP/IP provide a common set of communication rules for routing data between interconnected computer systems on a local area network (LAN), or between autonomous networks on a wide area network (WAN). It enables two-way communication between:

– Diverse operating systems on connecting networks.

– Any type of network that supports TCP/IP.

Following are several of the protocols that make up the TCP/IP suite:

– TCP

– Internet Protocol (IP)

– Telnet

– FTP

– Internet Control Message Protocol (ICMP)

– Address Resolution Protocol (ARP)

– User Datagram Protocol (UDP)

– Trivial File Transfer Protocol (TFTP)

– Simple Network Management Protocol (SNMP)

– Simple Mail Transport Protocol (SMTP).

Define IP

IP provides the routing function and is the foundation of TCP/IP. It sends and receives packets of information over the physical network.

IP does not confirm that a data packet arrived at its destination, and does not check the data for errors.

Define TCP

TCP supplies the error checking facilities not supplied by IP. TCP validates the data transported by IP for loss, damage, duplication, delay, and misordering of packets. TCP provides reliable, process-to-process data transport, and guarantees that data is not duplicated between the source and destination.

TCP also provides a congestion control feature to guard against overloaded network or hosts, and guarantees that large amounts of data are transferred so that the destination host receives all the data in the order that the source host sends it.

Discuss TCP Sockets

A socket is a logical link between TCP and an application program. The application program uses the socket to communicate with TCP. The socket provides a standard interface into the capabilities of TCP.

When the application program wants to communicate to TCP, it asks the network operating system to create a socket for that communication session. The application program obtains a unique socket number for every protocol connection requested.

Once the application program has established a socket connection to TCP, the protocols of the TCP/IP suite handle the transport of data between the application program and the data destination.

CHCS uses TCP sockets to transfer data to the following systems:

- CliniComp
- CoPath
- DBSS
- DII
- NMIS
- MCSC.

Define Telnet

Telnet is an application program that is part of the TCP/IP protocol suite. It allows a user or application program to remotely connect to any system that has an IP address. Once on the remote system, the user or program can execute commands as if locally logged onto that system

CHCS uses telnet to transfer data to the following system:

– DEERS

Define FTP

FTP is part of the TCP/IP protocol suite. It is used to transfer binary and text files between computers which support TCP/IP, but may or may not have compatible operating systems.

FTP allows a user or application program to log on to a remote host and perform file operations, including listing remote directories, copying files, and renaming and deleting remote files. CHCS uses batch files to establish an FTP connection on a remote system and transfer data.

CHCS specialists use FTP to transfer data to the following systems:

– Biometric agencies

– EAS

– MHCMIS

– RCMAS

– STARS/FL.

In many cases, the specialists use the FTP capability built into ETU. However, ETU does not yet support data exchanges with RCMAS; and the FTP exchange with MHCMIS is handled by background processes managed through the Manage MHCMIS Data Extraction Menu (MHCM).

- Refer to Module 3 - Transport Files Using FTP or ETU, for additional information on FTP and ETU.

DISCUSS DISTRIBUTED DATA PROCESSING (DDP)

The DDP protocol communicates between MUMPS hosts within a LAN. DDP has guaranteed data transmission.

DDP is not a routable protocol, so it can only be used for communication within a single LAN. However, MDIS is on the CHCS LAN.

CHCS uses DDP to communicate with MDIS.

- Refer to SYS: VMS Hardware Specialist, Module 3 - Network Concepts and Terminology, for more information on the networking protocols used with CHCS.

Practice 2 - Identify the communication protocols used by the interfaces.

PRACTICE

Students 1-10

Practice 2 - Identify the communication protocols used by the interfaces.

INSTRUCTIONS: This practice will take approximately 5 minutes. Match the list of interfaces to the communication protocol used by those interfaces.

	Protocol		**Interfaces**
_____	1. TCP sockets	A.	DEERS
_____	2. Telnet	B.	Biometric agencies EAS MHCMIS RCMAS STARS/FL
_____	3. FTP	C.	MDIS
_____	4. DDP	D.	APCOTS CliniComp DBSS DII NMIS MCSC

■ Objective 3: IDENTIFY THE ROLES AND RESPONSIBILITIES OF CHCS PERSONNEL

DISCUSS THE INTERFACE RESPONSIBILITIES OF SITE PERSONNEL

Interface management involves configuring parameters for proper communication; either monitoring the background processes, files, queues, and errors involved in the automated exchange of data, or manually transporting the files to be exchanged; communicating with functional supervisors about data problems in their functionality; and resolving problems when they arise.

Tasks and responsibilities allocated to specific personnel may vary from one site to another. The division of duties depends on the size of the site and characteristics of the MTF. At a typical medium or large facility, several staff members may share responsibility of the interface management tasks. Smaller sites may not require such diverse division of assignments.

Site Manager or Administrator Responsibilities

The site manager or administrator has no daily interface management tasks.

The site manager or administrator performs the following tasks as needed:

– Coordinates with other vendors for installation of external systems

– Obtains and provides CHCS IP addresses to the administrators of the external interfaces; and IP addresses for the external systems to the CHCS network specialist.

Functional Supervisors

Functional supervisors perform the following interface management tasks each day:

– Monitor Error Logs on the interface application

– If the external system resides within a functional area, monitor the interface status from the external system.

Functional supervisors perform the following interface management tasks as needed:

– Respond to user queries about data missing from a functional screen form, report, or file. If the data is expected to arrive from an external interface, report the problem to the software specialist.

Computer Operator Responsibilities

The computer operator performs the following interface management tasks each day:

– Monitors the status of the interface (background processes, error messages, growth of queues) through options on the Manage External Interfaces Menu (INT)

– Monitors the front panels of interface and communication hardware in the computer room

– Receives calls from CHCS users who are not seeing data in their functionality that they expect to receive from an interface

– Reports any suspected problems to the software specialist.

The computer operator works very closely with the software specialist to perform the following interface management tasks as needed:

– At the request of the software specialist, starts or stops any of the interfaces using options on the Manage External Interfaces Menu (INT).

• Refer to SYS: VMS CHCS Computer Operator, Module 1 - Computer Operator Roles and Responsibilities, for additional information on the responsibilities of the computer operator.

Software Specialist Responsibilities

The software specialist performs the following interface management tasks each day:

– Monitors the growth of the GIS Universal Interface file (UIF) and Interface Error files from MUMPS

– Receives calls from the administrators of external systems who are not seeing data they expect to receive from their interface to CHCS, or who are receiving errors messages from CHCS.

– Troubleshoots any anomalies discovered by, or referred by, the computer operator.

The software specialist performs the following interface management tasks as needed:

– Installs and updates site parameters for each interface

– Interprets status messages

– Interprets Error Log entries on CHCS

– Starts or stops the interfaces.

• Refer to SYS: VMS Software Specialist, Module 1 - Software Specialist Class Overview, for additional responsibilities of the software specialist.

Hardware Specialist or Network Specialist Responsibilities

Either the hardware specialist or network specialist performs the following interface management tasks each day:

– Monitors the network management system for network performance problems or failed communication components.

Either the hardware specialist or network specialist performs the following interface management tasks as needed:

– Installs, configures, and troubleshoots the network connections used by the interfaces

– Maintains the integrity of the communication equipment used by the interfaces

– Ensures that the interface communication channel is functioning, whether that channel is within the LAN or across the WAN.

General requirements, procedures and responsibilities which ensure the reliability and availability of the CHCS hardware are contained in the Generic Maintenance Plan. This plan provides guidance to the Military Departments (MILDEPs) and the CHCS Program Office.

- Refer to SYS: VMS Hardware Specialist, Module 1 - Hardware Specialist Responsibilities and CHCS Overview, for additional responsibilities of the hardware specialist.

System Specialist

The system specialist performs all tasks performed by the software specialist, hardware specialist, and network specialist. The system specialist may or may not perform tasks performed by the computer operator, depending on the size of the site and the government personnel available for support.

Problem Resolution

If an interface problem should arise, site staff would follow the procedures outlined in the appropriate troubleshooting objectives of this class.

DISCUSS TASKS FOR MANAGING THE INDIVIDUAL INTERFACES

DEERS

The main responsibilities for the DEERS interface are:

– Configure parameters for the interface, including the frequency of data purges.

– Start and stop the interface.

– Interpret the DEERS status messages.

– Interpret entries in the Error Log and Transmission Statistics List.

ETU

Files are transmitted to the following interfaces using the ETU front end to the FTP protocol:

– Biometric agencies (from all services except Air Force)

– EAS

– STARS/FL.

TaskMan is an integral component of the ETU interfaces. Once CHCS functionality creates export files, TaskMan places the files into an export directory in VMS. TaskMan status should be monitored to ensure proper interface function.

ETU must be configured with the remote system address, transfer time, and other parameters associated with each external system that uses ETU. Once configured, ETU automatically initiates file transfers between VMS import/export directories and the external systems. The success or failure of each transmission is recorded in the Master Transmission Log file.

ETU automatically deletes files that are more than seven days old. Therefore, system staff should check the Master Transmission Log twice a week, so failed transmissions can be remedied before the files are deleted by ETU. No other Error Logs or statistics need to be monitored.

ETU activities are driven by configuration parameters; no interface processes are constantly running in the background. Once ETU parameters are configured and TaskMan is running, the interface does not need to be stopped, started, or monitored.

FTP

Files are transmitted to the following interfaces using FTP directly (i.e., not through ETU or the MHCMIS background process):

– RCMAS

– Air Force transmissions to the biometric agencies.

No maintenance or monitoring activities are associated with FTP. The success of a file transmission is displayed on the specialist's screen at the time of the transmission attempt. All file directories must be manually managed and purged.

GIS

Messages are transmitted to the following interfaces using the Interface Menu (GIS):

– CliniComp

– CoPath

– DBSS

- DII
- MDIS
- MHCMIS
- NMIS
- MCSC.

The following interface responsibilities are managed through this menu:

- Configure the interface parameters
- Start, stop, and monitor the background process
- Monitor errors, statistics, and throughput
- Monitor and manage transactions in the UIF and various background processing queues
- Monitor transaction status
- Resend transactions as necessary.

Practice - There is no practice for this objective.

III. CLOSURE

Do you have any questions about the concepts covered in Module 1 - Overview of CHCS Interface Systems?

In summary, the following content was presented:

– Defining the functions of the CHCS interface systems.

– Identifying and defining the communication protocols used in the interface system.

– Identifying the roles and responsibilities of CHCS personnel.

This concludes Module 1. You now have the opportunity to demonstrate proficiency in the topics or skills presented.

Following the Master Practice, there will be a 10-minute break.

Thank you for attending.

Master Practice - Module 1.

SYS: CHCS INTERFACE MANAGEMENT

Module 1 - Overview of CHCS Interface Systems

Section 2. Master Practice

MASTER PRACTICE GUIDELINES

This Master Practice enables the presenter to verify that you have successfully completed the objectives for this class.

The information you need to complete the Master Practice is supplied in the instructions.

You may use any reference materials available in the classroom to complete the Master Practice.

Unless otherwise directed by the presenter, please work alone to complete the Master Practice.

Notify the presenter when directed to do so in the Master Practice. This allows the presenter to verify that you have successfully completed an activity.

You have approximately 10 minutes to complete this Master Practice.

SYS: CHCS INTERFACE MANAGEMENT

Module 1 - Overview of CHCS Interface Systems

Students 1-10

Scenario 1 - Identify the interface systems.

INSTRUCTIONS: Match the interface name to the description.

		Description		Interface
_____	1.	This system is used to validate patient eligibility and demographic data for active-duty and retired service members, their dependents, and others eligible for DOD benefits.	A.	Biometric agencies
			B.	CliniComp
			C.	CoPath
			D.	DBSS
_____	2.	Radiologists at the MTF use this system for digital archiving and online viewing of radiological films.	E.	DEERS
			F.	DII
_____	3.	Nurses and physicians at the MTF use this system to track patient vital signs.	G.	EAS
			H.	MDIS
_____	4.	The Navy uses this interface to obtain workload, expense, and manpower data for MTF budgeting.	I.	MHCMIS
			J.	NMIS
_____	5.	All three government services use this interface to obtain workload, expense, and manpower data for MTF budgeting.	K.	RCMAS
			L.	STARS/FL
_____	6.	Dieticians at the MTF use this system to provide nutritional care and services to inpatients.	M.	MCSC

SYS: CHCS INTERFACE MANAGEMENT

Module 1 - Overview of CHCS Interface Systems

Students 1-10 (continued)

	Description		Interface
_____ 7.	The government uses this system to compare MTF workload, utilization, and practice patterns to normative sources while adjusting for the case mix and demographics of the MTF.	A.	Biometric agencies
_____ 8.	Medical and biologic (SIDR) data is sent to this system for statistical analysis by the government.	B.	CliniComp
_____ 9.	MTF management uses this system to generate ad hoc reports on data from an assortment of computer systems.	C.	CoPath
_____10.	The MTF laboratory uses this system to process donations and requests for blood.	D.	DBSS
_____11.	This system exchanges test requests and results with automated laboratory instruments at the MTF.	E.	DEERS
_____12.	Anatomic pathology staff at the MTF use this system to enter and maintain orders and results for anatomic pathology tests.	F.	DII
_____13.	This system exchanges data with health care providers enrolled in the Managed Care Program.	G.	EAS
		H.	MDIS
		I.	MHCMIS
		J.	NMIS
		K.	RCMAS
		L.	STARS/FL
		M.	MCSC

Notify the presenter when you are done.

SYS: CHCS INTERFACE MANAGEMENT

Module 1 - Overview of CHCS Interface Systems

Section 3. Reference Materials

There are no reference materials for this module.

SYS:
CHCS Interface Management

Module 2 -
Manage the DEERS Interface

SYS: CHCS INTERFACE MANAGEMENT

Module 2 - Manage the DEERS Interface

Section 1. Module Outline

I. INTRODUCTION

Welcome to the module on Manage the DEERS Interface.

The purpose of this module is to familiarize site operations staff with the management of the DEERS interface.

This module is scheduled to last approximately 2 hours.

DISCUSS OBJECTIVES

– Objective 1: Identify the components of the DEERS interface.

– Objective 2: Monitor the interface connection.

– Objective 3: Manage the interface process.

– Objective 4: Manage and analyze the Error Logs.

– Objective 5: Manage the transmission statistics file.

– Objective 6: Manage the site parameters.

– Objective 7: Troubleshoot the DEERS interface.

II. PRESENTATION

■ Objective 1: IDENTIFY THE COMPONENTS OF THE DEERS INTERFACE

Scenario: *To verify that the DEERS interface is processing correctly, you submit an interactive DEERS check you know should be returned as "eligible."*

DISCUSS DEERS/CHCS INTERFACE CONFIGURATIONS

Overview of the External System

- Refer to Figure 2-1: Typical DEERS Configuration.

The Defense Enrollment Eligibility Reporting System (DEERS) validates that a particular patient is eligible for medical treatment. The DEERS database is located in the Auburn Hills, Michigan Information Processing Center (AHIPC) in the Electronic Data Systems (EDS) offices.

Discuss Interface Equipment

CHCS sites all over the world can connect to the EDS DEERS database in two ways:

– Defense Information System Network (DISN)

– Leased phone line.

Most CHCS sites connect to EDS DEERS database through the DISN wide area network (WAN). The connection between a CHCS database and the EDS DEERS database is routed through the CHCS network based on the Internet Protocol (IP) network address of the DEERS McData gateway. When the data is received by the McData box on EDS system, it converts the incoming telnet session to a TN3270 systems network architecture (SNA) session. This process is reversed for outgoing data.

A few CHCS sites connect to the EDS DEERS database through leased telephone lines, or use a combination of these two interface configurations. These CHCS sites need a protocol converter that translates the American Standard Code for Information Interchange (ASCII) data from the CHCS Digital Equipment Corporation (DEC) Virtual Memory System (VMS) to the extended binary coded decimal interchange code (EBCDIC) data of the DEERS IBM MVS/ESA system.

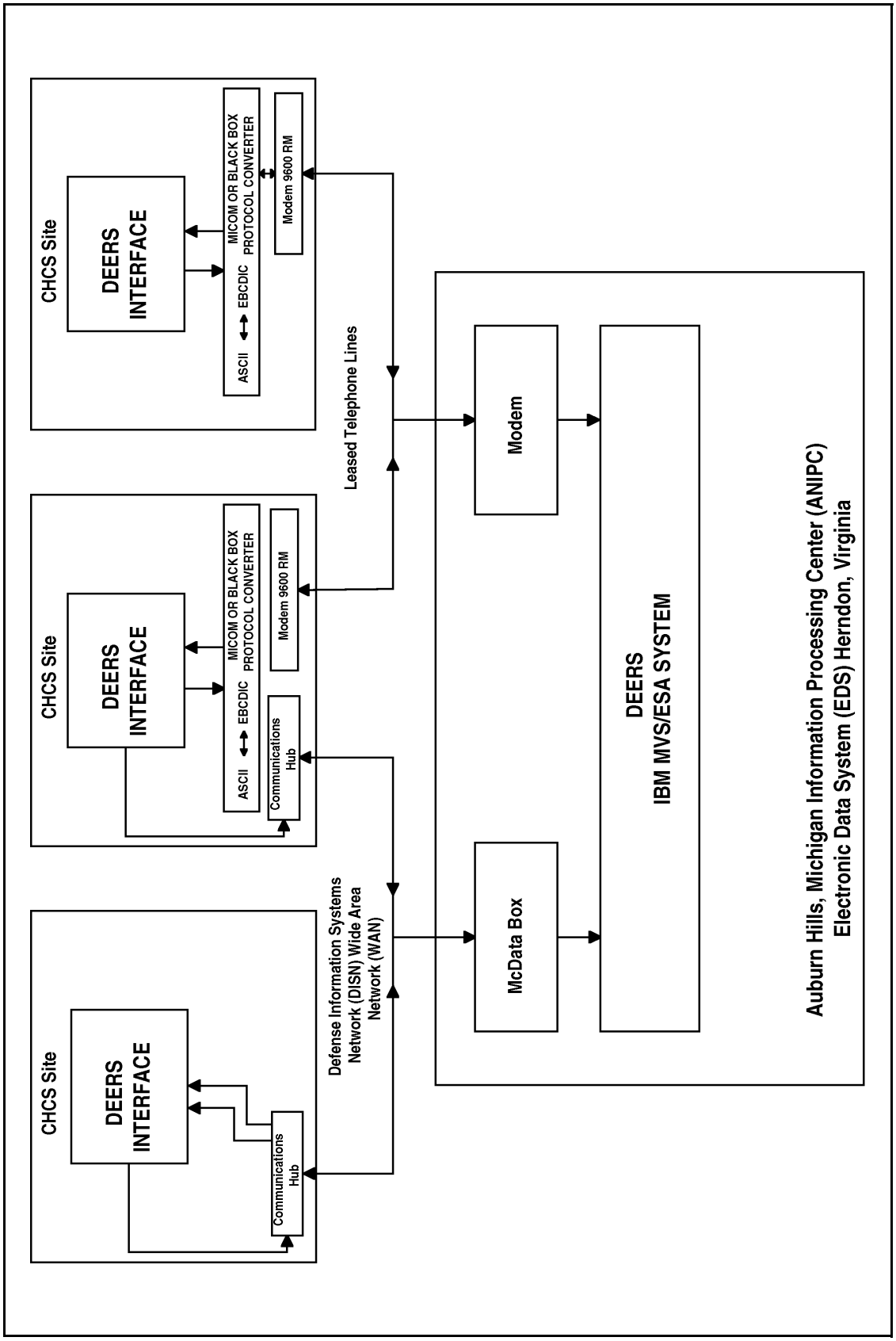

Figure 2-1. Typical DEERS Configuration

Typically, a Micom or black box protocol converter is connected to Racal-Milgo Omnimode 96 modem which transmits data over the leased telephone line.

DISCUSS DEERS SERVER PROCESSES

- Refer to Figure 2-2: DEERS Interface Processes.

DEERS requests are generated throughout any given day depending on the use of CHCS at a site. A DEERS request is generated when patients are registered, admitted to the medical treatment facility (MTF), booked for an appointment, enrolled in the managed care program (MCP), given a nonavailability statement (NAS) for outside care, or given an outpatient prescription.

The CHCS Patient Administration (PAD), MCP, Patient Appointment Scheduling (PAS), and Pharmacy (PHR) subsystems place DEERS requests in the CHCS/ DEERS Transmission Queue file. A CHCS/DEERS server processes the requests in the transmission queue.

A CHCS/DEERS server is a Digital Standard Mumps (DSM) process that runs on CHCS. Each DEERS process periodically checks the CHCS/DEERS Transmission Queue file and processes any DEERS requests waiting to be processed. A single DEERS server can process only one request at a time. It must wait for the EDS DEERS database to process the request and transmit the requested data to CHCS using the same CHCS/DEERS communication link. When the CHCS/ DEERS server is not processing requests in the DEERS transmission queue, it returns to hibernating (HIB) status.

If a CHCS/DEERS server encounters a problem processing the request, the problem is recorded in the DEERS Error Trap file. This is also called the CHCS/ DEERS Error Log.

The DISN WAN can support multiple communication links between a CHCS site and the EDS DEERS system. Each communication link has a separate CHCS/ DEERS server process. When traffic increases between CHCS and DEERS, another CHCS/DEERS server process can be started to handle the increased workload. If a site elects to communicate with DEERS using both leased lines and the DISN WAN, the site can start two or three DEERS processes.

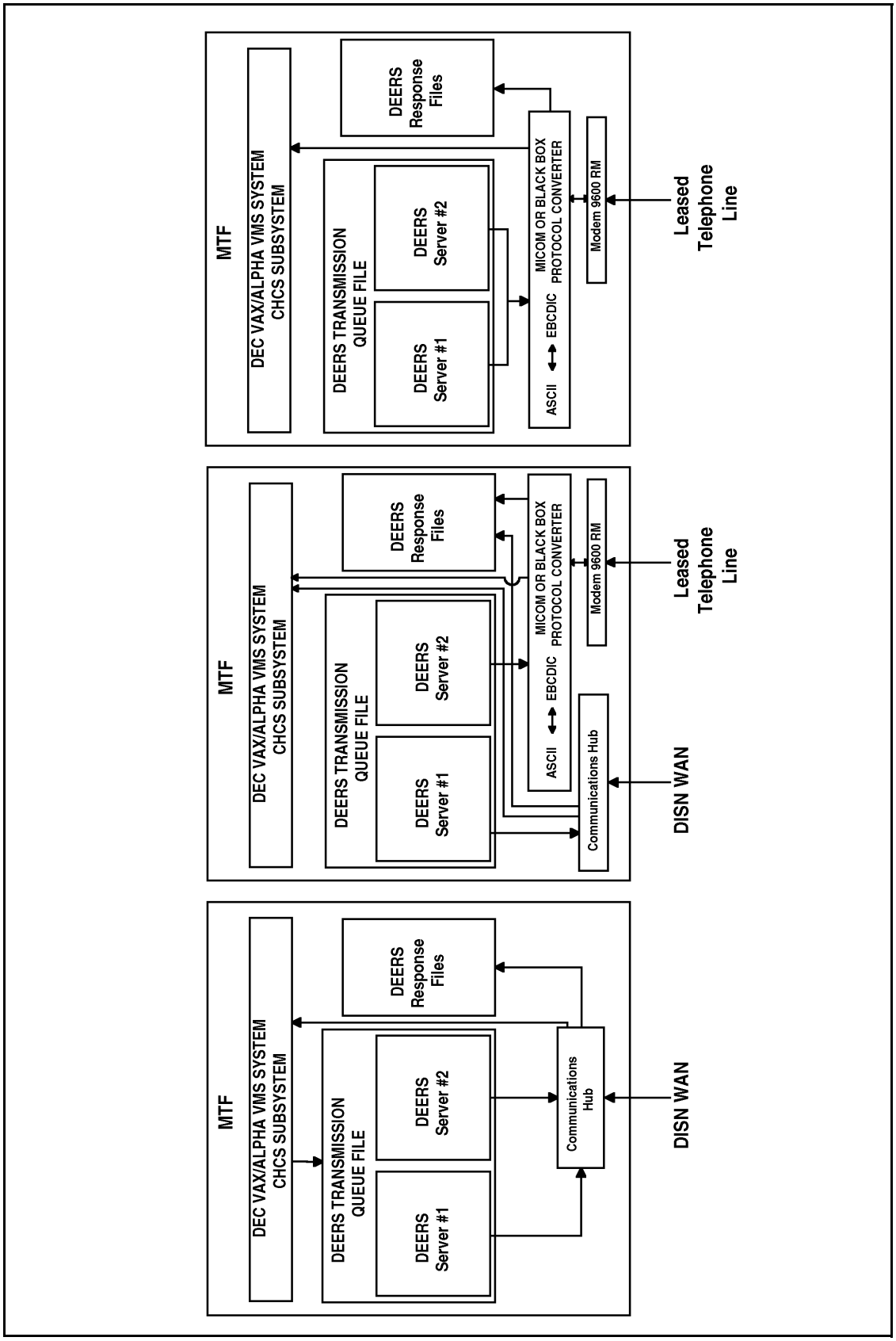

Figure 2-2. DEERS Interface Processes

DISCUSS CHCS/DEERS PROCESSING PRIORITIES

A CHCS/DEERS server processes each request in the transmission queue based on the processing priority of the request. This priority determines which DEERS requests are processed before others. Transactions with a lower-priority number are processed before transactions with a higher-priority number.

Each type of DEERS request has a primary and secondary processing priority.

- Refer to Table 2-1: CHCS/DEERS Processing Priorities.

Table 2-1. CHCS/DEERS Processing Priorities

Transaction Name	Primary Priority	Secondary Priority
Registration	10	70
Eligibility	20	70
Eligibility/Registration	20	70
NAS Candidate List	30	110
NAS Conditional (K)	40	110
NAS Conditional (J)	50	110
NAS Routine	50	100
NAS Cancel	60	110
Reciprocal Disenroll-ment	70	71
Enroll/Disenrollment (all subtypes)	90	91
Address/Log Update	95	96
Address/Log/Organ Donor Update	95	96
NAS Monthly Report	100	120
NAS Statistical Report	100	120
BD/URS[1]	200	201

[1] BD/URS = Biometric Data/Upward Reporting System.

FM-00728

The primary priority is used when the DEERS request is processed interactively. The secondary priority is used if the request is processed non-interactively.

When an interactive request is placed in the transmission queue, a CHCS/DEERS server immediately wakes up and processes the request. When a non-interactive request is placed in the transmission queue, the CHCS/DEERS server process(es) remain in hibernation until it is time to perform a task check. The time between task checks is determined by CHCS/DEERS site parameter (Task Check) that has a default of 60 seconds.

A DEERS request is processed as an interactive request when a CHCS user has issued the request through a CHCS option and is waiting for the response from the EDS DEERS database. This type of interaction occurs during the registration process in the PAD, MCP, or PHR subsystems. New patient registration requests, new admission requests, and civilian health care provider (HCP) outpatient prescription requests are also initially treated as interactive priority requests.

A DEERS request is processed as a non-interactive request when no user is waiting for a response. Entering an address update or performing a batch enrollment request are examples of a non-interactive requests.

When the response to an interactive request is not received within the specified maximum number of seconds a user can wait for the response, the request is assigned secondary processing priority and is processed as a non-interactive request. The maximum wait time is controlled by a CHCS/ DEERS site parameter (Length of Wait) that has a recommended default of 15 seconds. Interactive requests can also become non-interactive requests when the communications link to the EDS DEERS database is not available, or when a user initiates a DEERS check and specifies the request can be processed “in batch mode.”

Requests that change from interactive to non-interactive processing are categorized as “Batch” requests. This term can be a little misleading, since the CHCS/DEERS servers eventually process all DEERS requests individually, never in batch groups. However, a relatively high number of “Batch” requests (requests that changed from interactive to non-interactive processing) may indicate that the interface is not working as efficiently as it should.

DISCUSS CHCS/DEERS FILES

A number of CHCS files enable the DEERS interface. Familiarity with these files is recommended in case errors occur and troubleshooting is required.

- Refer to Reference Materials, Quick Reference Guide: FileMan Files Used by DEERS.

These CHCS files fall into four main categories:

– DEERS response files

– DEERS parameters and tables

– DEERS transmission files

– DEERS performance and statistics.

Some of these files require programmer read access to be seen through FileMan.

DEERS Response Files

The eligibility information returned from EDS DEERS is saved in the CHCS Patient file. It remains there until an updated eligibility or registration check is performed.

The CHCS/DEERS server process also saves the data returned from EDS DEERS in one of several CHCS/DEERS response files. This information is used in several CHCS subsystem reports. The data saved in these files depends on the type of DEERS response.

- Refer to Table 2-2: CHCS/DEERS Response Files.

Table 2-2. CHCS/DEERS Response Files

Type	Files	File Contents
Elig/Reg	DEERS Elig/Reg Responses	- Direct care eligibility - Registration
Log/Address	DEERS Address/Log Response	- Privacy log updates - Address changes - Organ donor updates
NAS	DEERS NAS Responses DEERS NAS Report Responses	- NAS issues - NAS cancellations - NAS monthly reports - NAS statistical reports
Enrollment	DEERS MCP Enrollment Responses DEERS Reciprocal Disenrollment Responses	- MCP enrollments. - MCP disenrollments. - Reciprocal Disenrollment response

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Data is retained in these files for the period determined by a purge parameter associated with each file. The parameter is usually set to 2 or 3 days.

DEERS Parameters and Tables

- Refer to Table 2-3: CHCS/DEERS Parameters and Tables Files, for a list of tables that support the DEERS interface.

The CHCS/DEERS interface is governed by parameters that are recorded in the CHCS/DEERS Site parameters file.

Table 2-3. CHCS/DEERS Parameters and Tables Files

File	File Contents
DEERS Site Parameters	DEERS Site Parameters for a particular MTF site.
DEERS Eligibility Code	Eligibility codes provided and used by DEERS.
DEERS Eligibility End Reason	Eligibility end reason codes that are returned in a DEERS eligibility and registration response.
DEERS Eligibility Override Code	Codes that indicate why a patient was registered when the DEERS requests indicated the patient was ineligible.
DEERS Discrepancy Codes	List of discrepancy codes that may be returned in DEERS response.
DEERS Response Format	Table of all DEERS responses. It determines where the response data and formats are stored.
DEERS Transmission Format	Table of all DEERS transmissions and the format for DEERS requests. The posting utility uses this table.
DEERS Hardware	Information about hardware used by the interface software.
DEERS Purge List	Table of FileMan files that contain DEERS responses. The purging utility uses this table to delete old responses.
DEERS Sponsor Status	List of DEERS sponsor status codes.
DEERS Branch of Service	List of DEERS branch of service codes.
Request Source Identification	Table of all possible CHCS functionalities that can post a DEERS request.

FM-00730

DEERS Transmission Files

- Refer to Table 2-4: CHCS/DEERS Transmission Files.

Table 2-4. CHCS/DEERS Transmission Files

File	File Contents
DEERS Transmission Queue	All transmissions to be sent to the EDS DEERS database.
DEERS Task	List of routines to be tasked nightly by the DEERS interface software through TaskMan.

FM-00731

DEERS Performance and Statistics

- Refer to Table 2-5: CHCS/DEERS Performance and Statistics Files.

Table 2-5. CHCS/DEERS Performance and Statistics Files

File	File Contents
DEERS Error Trap (usually referred to as the Error Log)	All hardware and software errors encountered by the DEERS servers.
DEERS Transmission Statistics	Information about the number of DEERS requests performed and what functionality sent each request.

FM-00732

▲ DEMONSTRATE ACCESSING THE DEERS MENU

1. Log on to CHCS.

Username:	**[site username]**	Access:	**INTUSER**
Password:	**[site password]**	Verify:	**INTUSERV**
Area:	**A**		

2. Access the DEERS Menu (DEER) option on the Manage External Interfaces Menu.

Systems Manager Menu (EVE) → SM → INT → DEER

Discuss DEERS Menu Options

INT – Interactive DEERS Eligibility Check. Issues an interactive DEERS eligibility check on a patient.

DSP – Display DEERS Status. Displays the current status of the CHCS/DEERS interface software.

ACT – Activation Information. Displays or prints the CHCS/DEERS device, network address for the WAN, link activation number, and control unit number (for use with the protocol converter) for each server. This option is used for quick reference to activate the link.

MON – Monitor DEERS. Monitors the CHCS/DEERS process.

STR – Start DEERS. Sends a command to TaskMan to start the CHCS/DEERS process. You must be assigned the XDQMGR security key to access this option.

SHU – Shutdown DEERS. For the shutdown to take effect, TaskMan must be running, since using this option sends a command to TaskMan to halt the DEERS process. You must be assigned the XDQMGR security key to access this option.

EDS – Edit DEERS Site Parameters. Enters or modifies CHCS/DEERS parameters. To access this option, you must have the XDQMGR security key.

Some fields in the CHCS/DEERS Site Parameters file do not appear on the screen when accessed through the menu. They are only available through FileMan.

These fields should be edited in coordination with the Tri-Service Medical System Support Center (TMSSC).

EDP – Edit Purge Parameters. Modifies the purge parameters for CHCS/DEERS-related files. You must be assigned the XDQMGR security key to access this option.

PRE – Print Error Log. Prints the CHCS/DEERS Error Log.

PRS – Print Statistics File. Prints the CHCS/DEERS Transmission Statistics file.

PGE – Purge Error Log. Deletes entries in the CHCS/DEERS Error Log. You must be assigned the XDQMGR security key to access this option.

PGS – Purge Statistics File. Deletes entries in the CHCS Transmission Statistics file. You must be assigned the XDQMGR security key to access this option.

▲ DEMONSTRATE HOW TO CHECK FOR DEERS ELIGIBILITY

TheInteractive DEERS Eligibility Check (INT) option allows you to check patient eligibility status. You can submit an interactive request whether or not a patient is registered in the CHCS database.

1. Access the Interactive DEERS Eligibility Check (INT) option on the DEERS Menu.

   Systems Manager Menu (EVE) → SM → INT → **DEER** → INT

2. Select the patient name.

   Select PATIENT NAME: **100200222**

   Enter the patient's Social Security number (SSN) as the unique patient identifier.

   OK? YES// **<Return>**

3. Review patient data.

   Patient Name: OSMOND,NANCY N **<Return>**

   Date of Birth: 01 Aug 1976 **<Return>**

   Sponsor SSN: 100200222 **<Return>**

   Family Member Prefix: 20 **<Return>**

   Eligibility Start Date: **<Return>**

   Eligibility End Date: **<Return>**

4. Select **File/Exit**

   The system begins to process the request. If the process did not have to be processed immediately, you could enter B for Batch to reprioritize the request for non-interactive processing. This categorizes the request as a batch request.

The system displays the information returned from DEERS. The Direct Care field identifies patients eligible for medical care at the MTF. Note that this patient is not eligible for medical care.

5. Return to the DEERS Menu.

   Select to (V)iew more DEERS data, (H)istorical DEERS, (P)rint, or (Q)uit: Q// **<Return>**

STUDENT LOGON

- Discuss logon (i.e., username, password, area, access, and verify codes).
- Log on to the training software and use specified data.

Practice 1 - Identify the components of the DEERS interface.

PRACTICE GUIDELINES

The information you need to complete each practice is supplied in the instructions and scenarios.

Notify the presenter when directed to do so in the practice. This allows the presenter to verify that you have successfully completed an activity.

You may use any reference materials available in the classroom to complete your practices.

You may ask questions or request assistance at any time during the practices.

Device identifiers are site-specific, and will be provided by the presenter.

Information is only specified for those fields and prompts which require specific data entry. To advance past fields/prompts which are not specified, enter data you know to be correct, or press <Return>.

The practices for this class must be completed in the order in which they are presented. Please complete all parts of each practice before proceeding.

Student 1

Username:	**[site username]**	Access:	**INTUSERA**
Password:	**[site password]**	Verify:	**INTUSERAV**
Area:	**[A or B]**		

Practice 1 - Identify the components of the DEERS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *To verify the DEERS interface is working correctly, you check DEERS eligibility on a patient you know is eligible for care.*

a. Identify the Components of the DEERS Interface

Mark the following statements as true or false.

_____ 1. A protocol converter and a modem are required to transmit DEERS data over the DISN WAN.

_____ 2. A site can communicate with EDS DEERS through the DISN WAN, leased telephone lines, or both.

_____ 3. A DEERS server is a DSM process.

_____ 4. Only one DEERS server can run at a time.

_____ 5. A “batched” DEERS request is one that was initially submitted as an interactive request and changed to a non-interactive request.

_____ 6. If a user indicates an eligibility transaction can be “batch processed,” it will be processed after a non-interactive address/log update transaction.

_____ 7. The DEERS Error Log may contain errors related to hardware problems or poor network performance.

_____ 8. When the response to an interactive request is not received within the specified maximum number of seconds in the Length of Wait parameter, the request is assigned the appropriate secondary processing priority.

Student 1 (continued)

_____ 9. The Maximum Error Entries parameter identifies how many errors the DEERS process can endure before it fails.

_____10. A DEERS server in HIB status indicates something is wrong with the server.

b. Check DEERS Eligibility

1. Access the Interactive DEERS Eligibility Check (INT) option on the DEERS Menu.

2. Select the patient name.

   Select PATIENT NAME: **100200238**

3. Review patient data.

4. Select **File/Exit**

Notify the presenter when the eligibility data is displayed.

5. Return to the DEERS Menu.

Student 2

Username:	**[site username]**	Access:	**INTUSERB**
Password:	**[site password]**	Verify:	**INTUSERBV**
Area:	**[A or B]**		

Practice 1 - Identify the components of the DEERS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *To verify the DEERS interface is working correctly, you check DEERS eligibility on a patient you know is eligible for care.*

a. Identify the Components of the DEERS Interface

Mark the following statements as true or false.

_____ 1. A protocol converter and a modem are required to transmit DEERS data over the DISN WAN.

_____ 2. A site can communicate with EDS DEERS through the DISN WAN, leased telephone lines, or both.

_____ 3. A DEERS server is a DSM process.

_____ 4. Only one DEERS server can run at a time.

_____ 5. A “batched” DEERS request is one that was initially submitted as an interactive request and changed to a non-interactive request.

_____ 6. If a user indicates an eligibility transaction can be “batch processed,” it will be processed after a non-interactive address/log update transaction.

_____ 7. The DEERS Error Log may contain errors related to hardware problems or poor network performance.

_____ 8. When the response to an interactive request is not received within the specified maximum number of seconds in the Length of Wait parameter, the request is assigned the appropriate secondary processing priority.

Student 2 (continued)

_____ 9. The Maximum Error Entries parameter identifies how many errors the DEERS process can endure before it fails.

_____10. A DEERS server in HIB status indicates something is wrong with the server.

b. Check DEERS Eligibility

1. Access the Interactive DEERS Eligibility Check (INT) option on the DEERS Menu.

2. Select the patient name.

   Select PATIENT NAME: **100200238**

3. Review patient data.

4. Select **File/Exit**

Notify the presenter when the eligibility data is displayed.

5. Return to the DEERS Menu.

Student 3

Username:	**[site username]**	Access:	**INTUSERC**
Password:	**[site password]**	Verify:	**INTUSERCV**
Area:	**[A or B]**		

Practice 1 - Identify the components of the DEERS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *To verify the DEERS interface is working correctly, you check DEERS eligibility on a patient you know is eligible for care.*

a. Identify the Components of the DEERS Interface

Mark the following statements as true or false.

_____ 1. A protocol converter and a modem are required to transmit DEERS data over the DISN WAN.

_____ 2. A site can communicate with EDS DEERS through the DISN WAN, leased telephone lines, or both.

_____ 3. A DEERS server is a DSM process.

_____ 4. Only one DEERS server can run at a time.

_____ 5. A “batched” DEERS request is one that was initially submitted as an interactive request and changed to a non-interactive request.

_____ 6. If a user indicates an eligibility transaction can be “batch processed,” it will be processed after a non-interactive address/log update transaction.

_____ 7. The DEERS Error Log may contain errors related to hardware problems or poor network performance.

_____ 8. When the response to an interactive request is not received within the specified maximum number of seconds in the Length of Wait parameter, the request is assigned the appropriate secondary processing priority.

Student 3 (continued)

_____ 9. The Maximum Error Entries parameter identifies how many errors the DEERS process can endure before it fails.

_____10. A DEERS server in HIB status indicates something is wrong with the server.

b. Check DEERS Eligibility

1. Access the Interactive DEERS Eligibility Check (INT) option on the DEERS Menu.

2. Select the patient name.

   Select PATIENT NAME: **100200238**

3. Review patient data.

4. Select **File/Exit**

Notify the presenter when the eligibility data is displayed.

5. Return to the DEERS Menu.

Student 4

Username:	**[site username]**	Access:	**INTUSERD**
Password:	**[site password]**	Verify:	**INTUSERDV**
Area:	**[A or B]**		

Practice 1 - Identify the components of the DEERS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *To verify the DEERS interface is working correctly, you check DEERS eligibility on a patient you know is eligible for care.*

a. Identify the Components of the DEERS Interface

Mark the following statements as true or false.

_____ 1. A protocol converter and a modem are required to transmit DEERS data over the DISN WAN.

_____ 2. A site can communicate with EDS DEERS through the DISN WAN, leased telephone lines, or both.

_____ 3. A DEERS server is a DSM process.

_____ 4. Only one DEERS server can run at a time.

_____ 5. A “batched” DEERS request is one that was initially submitted as an interactive request and changed to a non-interactive request.

_____ 6. If a user indicates an eligibility transaction can be “batch processed,” it will be processed after a non-interactive address/log update transaction.

_____ 7. The DEERS Error Log may contain errors related to hardware problems or poor network performance.

_____ 8. When the response to an interactive request is not received within the specified maximum number of seconds in the Length of Wait parameter, the request is assigned the appropriate secondary processing priority.

Student 4 (continued)

_____ 9. The Maximum Error Entries parameter identifies how many errors the DEERS process can endure before it fails.

_____10. A DEERS server in HIB status indicates something is wrong with the server.

b. Check DEERS Eligibility

1. Access the Interactive DEERS Eligibility Check (INT) option on the DEERS Menu.

2. Select the patient name.

   Select PATIENT NAME: **100200238**

3. Review patient data.

4. Select **File/Exit**

Notify the presenter when the eligibility data is displayed.

5. Return to the DEERS Menu.

Student 5

Username:	**[site username]**	Access:	**INTUSERE**
Password:	**[site password]**	Verify:	**INTUSEREV**
Area:	**[A or B]**		

Practice 1 - Identify the components of the DEERS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *To verify the DEERS interface is working correctly, you check DEERS eligibility on a patient you know is eligible for care.*

a. Identify the Components of the DEERS Interface

Mark the following statements as true or false.

_____ 1. A protocol converter and a modem are required to transmit DEERS data over the DISN WAN.

_____ 2. A site can communicate with EDS DEERS through the DISN WAN, leased telephone lines, or both.

_____ 3. A DEERS server is a DSM process.

_____ 4. Only one DEERS server can run at a time.

_____ 5. A “batched” DEERS request is one that was initially submitted as an interactive request and changed to a non-interactive request.

_____ 6. If a user indicates an eligibility transaction can be “batch processed,” it will be processed after a non-interactive address/log update transaction.

_____ 7. The DEERS Error Log may contain errors related to hardware problems or poor network performance.

_____ 8. When the response to an interactive request is not received within the specified maximum number of seconds in the Length of Wait parameter, the request is assigned the appropriate secondary processing priority.

Student 5 (continued)

_____ 9. The Maximum Error Entries parameter identifies how many errors the DEERS process can endure before it fails.

_____10. A DEERS server in HIB status indicates something is wrong with the server.

b. Check DEERS Eligibility

1. Access the Interactive DEERS Eligibility Check (INT) option on the DEERS Menu.

2. Select the patient name.

   Select PATIENT NAME: **100200238**

3. Review patient data.

4. Select **File/Exit**

Notify the presenter when the eligibility data is displayed.

5. Return to the DEERS Menu.

Student 6

Username:	**[site username]**	Access:	**INTUSERF**
Password:	**[site password]**	Verify:	**INTUSERFV**
Area:	**[A or B]**		

Practice 1 - Identify the components of the DEERS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *To verify the DEERS interface is working correctly, you check DEERS eligibility on a patient you know is eligible for care.*

a. Identify the Components of the DEERS Interface

Mark the following statements as true or false.

_____ 1. A protocol converter and a modem are required to transmit DEERS data over the DISN WAN.

_____ 2. A site can communicate with EDS DEERS through the DISN WAN, leased telephone lines, or both.

_____ 3. A DEERS server is a DSM process.

_____ 4. Only one DEERS server can run at a time.

_____ 5. A “batched” DEERS request is one that was initially submitted as an interactive request and changed to a non-interactive request.

_____ 6. If a user indicates an eligibility transaction can be “batch processed,” it will be processed after a non-interactive address/log update transaction.

_____ 7. The DEERS Error Log may contain errors related to hardware problems or poor network performance.

_____ 8. When the response to an interactive request is not received within the specified maximum number of seconds in the Length of Wait parameter, the request is assigned the appropriate secondary processing priority.

Student 6 (continued)

_____ 9. The Maximum Error Entries parameter identifies how many errors the DEERS process can endure before it fails.

_____10. A DEERS server in HIB status indicates something is wrong with the server.

b. Check DEERS Eligibility

1. Access the Interactive DEERS Eligibility Check (INT) option on the DEERS Menu.

2. Select the patient name.

   Select PATIENT NAME: **100200238**

3. Review patient data.

4. Select **File/Exit**

Notify the presenter when the eligibility data is displayed.

5. Return to the DEERS Menu.

Student 7

Username:	**[site username]**	Access:	**INTUSERG**
Password:	**[site password]**	Verify:	**INTUSERGV**
Area:	**[A or B]**		

Practice 1 - Identify the components of the DEERS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *To verify the DEERS interface is working correctly, you check DEERS eligibility on a patient you know is eligible for care.*

a. Identify the Components of the DEERS Interface

Mark the following statements as true or false.

_____ 1. A protocol converter and a modem are required to transmit DEERS data over the DISN WAN.

_____ 2. A site can communicate with EDS DEERS through the DISN WAN, leased telephone lines, or both.

_____ 3. A DEERS server is a DSM process.

_____ 4. Only one DEERS server can run at a time.

_____ 5. A “batched” DEERS request is one that was initially submitted as an interactive request and changed to a non-interactive request.

_____ 6. If a user indicates an eligibility transaction can be “batch processed,” it will be processed after a non-interactive address/log update transaction.

_____ 7. The DEERS Error Log may contain errors related to hardware problems or poor network performance.

_____ 8. When the response to an interactive request is not received within the specified maximum number of seconds in the Length of Wait parameter, the request is assigned the appropriate secondary processing priority.

Student 7 (continued)

_____ 9. The Maximum Error Entries parameter identifies how many errors the DEERS process can endure before it fails.

_____10. A DEERS server in HIB status indicates something is wrong with the server.

b. Check DEERS Eligibility

1. Access the Interactive DEERS Eligibility Check (INT) option on the DEERS Menu.

2. Select the patient name.

   Select PATIENT NAME: **100200238**

3. Review patient data.

4. Select **File/Exit**

Notify the presenter when the eligibility data is displayed.

5. Return to the DEERS Menu.

Student 8

Username:	**[site username]**	Access:	**INTUSERH**
Password:	**[site password]**	Verify:	**INTUSERHV**
Area:	**[A or B]**		

Practice 1 - Identify the components of the DEERS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *To verify the DEERS interface is working correctly, you check DEERS eligibility on a patient you know is eligible for care.*

a. Identify the Components of the DEERS Interface

Mark the following statements as true or false.

_____ 1. A protocol converter and a modem are required to transmit DEERS data over the DISN WAN.

_____ 2. A site can communicate with EDS DEERS through the DISN WAN, leased telephone lines, or both.

_____ 3. A DEERS server is a DSM process.

_____ 4. Only one DEERS server can run at a time.

_____ 5. A “batched” DEERS request is one that was initially submitted as an interactive request and changed to a non-interactive request.

_____ 6. If a user indicates an eligibility transaction can be “batch processed,” it will be processed after a non-interactive address/log update transaction.

_____ 7. The DEERS Error Log may contain errors related to hardware problems or poor network performance.

_____ 8. When the response to an interactive request is not received within the specified maximum number of seconds in the Length of Wait parameter, the request is assigned the appropriate secondary processing priority.

Student 8 (continued)

_____ 9. The Maximum Error Entries parameter identifies how many errors the DEERS process can endure before it fails.

_____10. A DEERS server in HIB status indicates something is wrong with the server.

b. Check DEERS Eligibility

1. Access the Interactive DEERS Eligibility Check (INT) option on the DEERS Menu.

2. Select the patient name.

   Select PATIENT NAME: **100200238**

3. Review patient data.

4. Select **File/Exit**

Notify the presenter when the eligibility data is displayed.

5. Return to the DEERS Menu.

Student 9

Username:	**[site username]**	Access:	**INTUSERI**
Password:	**[site password]**	Verify:	**INTUSERIV**
Area:	**[A or B]**		

Practice 1 - Identify the components of the DEERS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *To verify the DEERS interface is working correctly, you check DEERS eligibility on a patient you know is eligible for care.*

a. Identify the Components of the DEERS Interface

Mark the following statements as true or false.

_____ 1. A protocol converter and a modem are required to transmit DEERS data over the DISN WAN.

_____ 2. A site can communicate with EDS DEERS through the DISN WAN, leased telephone lines, or both.

_____ 3. A DEERS server is a DSM process.

_____ 4. Only one DEERS server can run at a time.

_____ 5. A “batched” DEERS request is one that was initially submitted as an interactive request and changed to a non-interactive request.

_____ 6. If a user indicates an eligibility transaction can be “batch processed,” it will be processed after a non-interactive address/log update transaction.

_____ 7. The DEERS Error Log may contain errors related to hardware problems or poor network performance.

_____ 8. When the response to an interactive request is not received within the specified maximum number of seconds in the Length of Wait parameter, the request is assigned the appropriate secondary processing priority.

Student 9 (continued)

_____ 9. The Maximum Error Entries parameter identifies how many errors the DEERS process can endure before it fails.

_____10. A DEERS server in HIB status indicates something is wrong with the server.

b. Check DEERS Eligibility

1. Access the Interactive DEERS Eligibility Check (INT) option on the DEERS Menu.

2. Select the patient name.

   Select PATIENT NAME: **100200238**

3. Review patient data.

4. Select **File/Exit**

Notify the presenter when the eligibility data is displayed.

5. Return to the DEERS Menu.

Student 10

Username:	**[site username]**	Access:	**INTUSERJ**
Password:	**[site password]**	Verify:	**INTUSERJV**
Area:	**[A or B]**		

Practice 1 - Identify the components of the DEERS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *To verify the DEERS interface is working correctly, you check DEERS eligibility on a patient you know is eligible for care.*

a. Identify the Components of the DEERS Interface

Mark the following statements as true or false.

_____ 1. A protocol converter and a modem are required to transmit DEERS data over the DISN WAN.

_____ 2. A site can communicate with EDS DEERS through the DISN WAN, leased telephone lines, or both.

_____ 3. A DEERS server is a DSM process.

_____ 4. Only one DEERS server can run at a time.

_____ 5. A “batched” DEERS request is one that was initially submitted as an interactive request and changed to a non-interactive request.

_____ 6. If a user indicates an eligibility transaction can be “batch processed,” it will be processed after a non-interactive address/log update transaction.

_____ 7. The DEERS Error Log may contain errors related to hardware problems or poor network performance.

_____ 8. When the response to an interactive request is not received within the specified maximum number of seconds in the Length of Wait parameter, the request is assigned the appropriate secondary processing priority.

Student 10 (continued)

_____ 9. The Maximum Error Entries parameter identifies how many errors the DEERS process can endure before it fails.

_____10. A DEERS server in HIB status indicates something is wrong with the server.

b. Check DEERS Eligibility

1. Access the Interactive DEERS Eligibility Check (INT) option on the DEERS Menu.

2. Select the patient name.

   Select PATIENT NAME: **100200238**

3. Review patient data.

4. Select **File/Exit**

Notify the presenter when the eligibility data is displayed.

5. Return to the DEERS Menu.

■ Objective 2: MONITOR THE INTERFACE CONNECTION

Scenario: *You log on to the system and receive a message that the DEERS link is down. You check the DEERS Status and Monitor DEERS screens.*

▲ DEMONSTRATE HOW TO DISPLAY DEERS STATUS

The Display DEERS Status (DSP) option provides a concise view of DEERS activity. Note the time indicator in the upper right corner of the screen. The active display is updated every 2 seconds, providing the most current information about the interface.

The CHCS/DEERS interface should be monitored regularly. Use this option to monitor DEERS.

1. Access the Display DEERS Status (DSP) option on the DEERS Menu.

   Systems Manager Menu (EVE) → SM → INT → **DEER** → DSP

   The display identifies the current number of DEERS requests, the number of active servers, information from the Error Log, and status information on all active DEERS servers.

   Active servers are highlighted. A server is considered active after it has been started. If a server is not highlighted, it is inactive; the server process has been shut down.

   For each server, the server identification number, DSM process status, and DEERS server status is displayed.

- Refer to Reference Materials, Quick Reference Guide: CHCS/DEERS Status Messages.

2. Return to the DEERS Menu.

   Select '^' to QUIT: **<^>**

▲ DEMONSTRATE HOW TO MONITOR THE DEERS PROCESS

1. Access the Monitor DEERS (MON) option on the DEERS Menu.

   Systems Manager Menu (EVE) → SM → INT → **DEER** → MON

   The Monitor DEERS screen is different from the DEERS Status screen, since it only displays information current at the moment the option was selected. The screen is not updated on an on-going basis.

   The Monitor DEERS screen provides detailed information about the DEERS Transmission Queue file. It shows the number of requests by priority: Interactive, Non-Interactive, Batch. It also shows the number of requests by type: NAS, Log/Address, Elig/Reg, Enrollment, BD/URS.

   Note: A placeholder identifies the number of Other Health Insurance Insurance (OHI). This will not be used until a future CHCS release.

   As with the CHCS/DEERS Status display, the CHCS Monitor DEERS display provides information from the Error Log and status information about the CHCS/DEERS servers.

   The monitor scans the DEERS queue to obtain the information displayed on the screen. If thousands of DEERS requests are in the queue, the monitor will not perform well.

2. Return to the DEERS Menu.

   Select '^' to QUIT: **<^>**

Practice 2 - Monitor the interface connection.

PRACTICE

Students 1-10

Practice 2 - Monitor the interface connection.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *You need to determine whether the DEERS servers are up or down.*

1. Access the Display DEERS Status (DSP) option on the DEERS Menu.

Notify the presenter when the DEERS information is displayed.

2. Return to the DEERS Menu.

■ Objective 3: MANAGE THE INTERFACE PROCESS

Scenario: *To resolve a problem with DEERS, you need to shut down one of the CHCS/DEERS server processes, then restart the process.*

▲ DEMONSTRATE HOW TO SHUT DOWN A CHCS/DEERS SERVER

1. Access the Shutdown DEERS (SHU) option on the DEERS Menu.

   Systems Manager Menu (EVE) → SM → INT → **DEER** → SHU

2. Select the server.

   Use the **up-arrow** or **down-arrow** keys to position the cursor next to server 001.

   Only highlighted servers (servers that are currently running) can be selected.

   Press **<Select>** to select the server to be deactivated.

   An asterisk (*) appears next to the server number. You may select numerous servers.

   Pressing <Select> again deselects the server.

3. Press **<Return>** to activate the selections.

4. Return to the DEERS Menu.

   Select '^' to QUIT: **<^>**

▲ DEMONSTRATE HOW TO VERIFY THAT A CHCS/DEERS SERVER HAS BEEN SHUT DOWN

You can use the Display DEERS Status (DSP) or the Monitor DEERS (MON) option to verify that the CHCS/DEERS server has been shut down.

1. Access the Display DEERS Status (DSP) option on the DEERS Menu.

   Systems Manager Menu (EVE) → SM → INT → **DEER** → DSP

2. Return to the DEERS Menu.

   Select '^' to QUIT: **<^>**

▲ DEMONSTRATE HOW TO START UP A CHCS/DEERS SERVER

1. Access the Start DEERS (STR) option on the DEERS Menu.

   Systems Manager Menu (EVE) → SM → INT → **DEER** → STR

   The Start DEERS Server(s) screen displays.

2. Select the server.

   Use the **up-arrow** or **down-arrow** keys to position the cursor next to server 001.

   Only highlighted servers (servers that are not currently running) can be selected.

   A hibernating server is a server that is started but inactive. You cannot start a hibernating server; however, you can shut it down.

   Press **<Select>** to select the server to activate.

   An asterisk (*) appears next to the server number. You may select more than one server.

   Pressing <Select> again deselects a server.

3. Press **<Return>** to activate the selection.

4. Return to the DEERS Menu.

   Select '^' to QUIT: **<^>**

▲ DEMONSTRATE HOW TO VERIFY THAT A CHCS/DEERS SERVER HAS BEEN STARTED

You can use the Display DEERS Status or (DSP) the Monitor DEERS (MON) option to verify that the DEERS server has been shut down.

1. Access the Display DEERS Status (DSP) option on the DEERS Menu.

   Systems Manager Menu (EVE) → SM → INT → **DEER** → DSP

2. Return to the DEERS Menu.

   Select '^' to QUIT: **<^>**

Practice 3 - Manage the interface process.

PRACTICE

Students 1-10

Practice 3 - Manage the interface process.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *As part of a system shutdown procedure, you need to shut down DEERS. Later, when the system is restarted, you start DEERS.*

a. Shut Down a DEERS Server

1. Access the Shutdown DEERS (SHU) option on the DEERS Menu.
2. Select server 2.
3. Press **<Return>** to activate the selections.
4. Return to the DEERS Menu.

b. Verify That the DEERS Server Has Been Shut Down

1. Access the Display DEERS Status (DSP) option on the DEERS Menu.

Notify the presenter when the DEERS Status screen is displayed.

2. Return to the DEERS Menu.

c. Start Up a DEERS Server

1. Access the Start DEERS (STR) option on the DEERS Menu.
2. Select server 2.
3. Press **<Return>** to activate the selection.
4. Return to the DEERS Menu.

d. Verify That the DEERS Server Has Been Started Up

1. Access the Display DEERS Status (DSP) option on the DEERS Menu.

Notify the presenter when the DEERS Status screen is displayed.

2. Return to the DEERS Menu.

■ Objective 4: MANAGE AND ANALYZE THE ERROR LOGS

Scenario: *You are troubleshooting a DEERS problem and need to consult the DEERS Error Log.*

▲ DEMONSTRATE HOW TO PRINT THE ERROR LOG

Errors are logged when the DEERS interface cannot send messages correctly. This can be due to hardware problems or poor network performance.

Review the error message logs and initiate an action to resolve data discrepancies.

The Error Log contains DEERS transmission errors.

1. Access the Print Error Log (PRE) option on the DEERS Menu.

   Systems Manager Menu (EVE) → SM → INT → **DEER** → PRE

2. Specify the target dates.

   Earliest DATE/TIME OF ERROR: FIRST// **T-1**

   You can enter a particular day and time using the usual formats (i.e., T-1@0600), or press <Return> to begin with the first error.

   If you entered a start day/time, the following prompt displays.

   Latest DATE/TIME OF ERROR: LAST// **<Return>**

   You can enter a particular day and time using the usual formats (i.e., T-1@0600), or press <Return> to end with the last error.

3. Specify the target servers.

   Start with SERVER: FIRST// **1**

   You can enter a server number or press <Return> to see error messages for all servers.

   If you enter a server number, the following prompt displays.

   Go to SERVER: LAST// **<Return>**

   You can enter a server number or press <Return>.

For example, if you entered server 2 in step 4, you could enter server 2 here to see error messages for server 2 only.

4. Specify the print device.

   DEVICE: **<Return>**

   Enter the device on which you want the errors to print. Press <Return> to print the errors on your screen.

   RIGHT MARGIN: 80// **<Return>**

- Refer to Figure 2-3: Sample DEERS Error Log.

```
DEERS Error Log LIST                    Oct 1996@1057      PAGE 1

Date/Time Of Error: 26 Oct 1996@140803                  Server:1

Hardware Not Responding As Expected

COUNT     1
```

FM-00154

Figure 2-3. Sample DEERS Error Log

The errors are displayed in reverse chronological order. The log displays the time that the error occurred, the server that generated the error, and the error.

If the file contains no errors, the count is 0.

5. Return to the DEERS Menu.

   Press RETURN To Continue: **<Return>**

- Refer to Reference Materials, Quick Reference Guides: DEERS Error Messages, and DEERS Status Messages.

▲ DEMONSTRATE HOW TO VERIFY THE ERROR LOG PURGE

Generally, you do not need to use the Purge Error Log (PGE) option. The Error Log is automatically purged nightly. A maximum number of errors remains in the log based on a DEERS site parameter (Maximum Error Entries) that has a default of 100. You can use the Purge Error Log option to confirm the file was recently purged. If you use the Purge Error Log option to delete errors, you should first print the Error Log.

1. Access the Purge Error Log (PGE) option on the DEERS Menu.

   Systems Manager Menu (EVE) → SM → INT → **DEER** → PGE

   The Purge screen displays.

- Refer to Figure 2-4: Purge Screen - Confirmation.

```
The DEERS Error Log was last purged on Wed, 27 Oct 1996
13:48:26 and has 0 entries.
```

FM-00156

Figure 2-4. Purge Screen - Confirmation

2. Discontinue the purge.

   Purge the DEERS Error Log file? NO// **<Return>**

   You return to the DEERS Menu.

Practice 4 - Manage and analyze the Error Logs.

PRACTICE

Students 1-10

Practice 4 - Manage and analyze the Error Logs.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *You wish to print an Error Log for server 2 to see if any errors are listed for today.*

1. Access the Print Error Log (PRE) option on the DEERS Menu.
2. Specify the target dates.
3. Specify the target servers.
4. Specify the print device.

   DEVICE: **<Return>**

Notify the presenter when the Error Log is displayed.

5. Return to the DEERS Menu.

■ Objective 5: MANAGE THE TRANSMISSION STATISTICS FILE

Scenario: *You need a printed copy of the DEERS Transmission Statistics file to help troubleshoot a DEERS problem.*

▲ DEMONSTRATE HOW TO PRINT THE STATISTICS FILE

The DEERS Transaction Statistics file contains information on which functionalities submitted DEERS requests to the DEERS Transmission Queue.

1. Access the Print Statistics File (PRS) option on the DEERS Menu.

   Systems Manager Menu (EVE) → SM → INT → **DEER** → PRS

2. Specify the target dates.

   Earliest DATE/TIME: FIRST// **T-1**

   You can enter a particular day and time using the usual formats (i.e., T-1@0600), or press <Return> to begin with the first transaction.

   If you entered a start day/time, the following prompt displays.

   Latest DATE/TIME: LAST// **<Return>**

   You can enter a particular day and time using the usual formats (i.e., T-1@0600), or press <Return> to end with the last transaction.

3. Specify the print device.

   DEVICE: **<Return>**

   Enter the device on which you want the errors to print. Press <Return> to print the errors on your screen.

   RIGHT MARGIN: 80// **<Return>**

4. Return to the DEERS Menu.

   Press RETURN To Continue: **<Return>**

- Refer to Figure 2-5: Sample DEERS Transmission Statistics.

```
DEERS TRANSMISSION STATISTICS LIST     7 Oct 1996@1057 PAGE 1

Date/Time: 26 Oct 1996@140803     Total: 535

ADDRESS/LOG UPDATE            sub-total: 512

MCP REGISTRATION                          234

PAD REGISTRATION                          278

ELIGIBILITY                   sub-total: 1023

PAS PRE-BOOK APPT                        1000

PAD INTERACTIVE                            23
```

FM-00157

Figure 2-5. Sample DEERS Transmission Statistics

DISCUSS HOW TO PURGE THE TRANSMISSION STATISTICS FILE

Use the Purge Statistics File (PGS) option to delete the entries in the Transmission Statistics file.

Do NOT use this option unless directed to do so by the TMSSC.

This option works the same way as the Purge Error Log option.

Practice 5 - Manage the Transmission Statistics file.

PRACTICE

Students 1-10

Practice 5 - Manage the Transmission Statistics file.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *You wish to find out whether more DEERS transmissions have occurred so far today related to MCP or PAD registrations.*

1. Access the Print Statistics File (PRS) option on the DEERS Menu.
2. Specify the target date.
3. Specify the print device.

   DEVICE: **<Return>**

Notify the presenter when the transmission statistics are displayed.

4. Return to the DEERS Menu.

■ Objective 6: MANAGE THE SITE PARAMETERS

Scenario: *You need to check the link activation number for a particular DEERS server. Also, you are converting from a DEERS link based on a Micom protocol converter to one based on the WAN. You remove the Micom-based server and replace it with a WAN server.*

▲ DEMONSTRATE HOW TO REVIEW THE DEERS SITE PARAMETERS

The DEERS site parameters are site specific. They are defined at the time the DEERS interface is initialized. Modifications are rarely required. At new sites, the site name is "UNKNOWN." In that case, you need to edit the parameters file using the FileMan Enter/Edit File Entries option.

- Refer to Reference Materials, Quick Reference Guide: DEERS Site Parameters.

1. Access the Edit DEERS Site Parameters (EDS) option on the DEERS Menu.

   Systems Manager Menu (EVE) → SM → INT → **DEER** → EDS

   You are prompted for the site name.

2. Select DEERS SITE PARAMETERS SITE NAME: **TRAIN** (TRAINING MEDICAL TREATMENT FACILITY)

   The DEERS Site Parameters screen displays.

   Use the up-arrow and down-arrow keys to move the cursor from field to field.

   Press <Help> or enter a double question mark (??) for information on the current field. Press <Help> a second time for a list of the available function keys.

3. Select the server.

   Use the **up-arrow** and **down-arrow** keys to position the cursor on server 2, then press **<Return>**

   A continuation screen displays with parameters associated with server 2.

4. Return to the DEERS Site Parameters screen: **<PF1> down-arrow** key, then **<Return>**

5. Select the DMIS ID.

   Select the first DMIS ID on this list.

   A continuation screen displays the DEERS Site ID associated with the DMIS ID.

6. Press **<Prev>** to return to the DEERS Parameters screen.

7. Press **<Return>** to return the DEERS Menu.

▲ DEMONSTRATE HOW TO REMOVE A SERVER

1. Access the Edit DEERS Site Parameters (EDS) option on the DEERS Menu.

   Systems Manager Menu (EVE) → SM → INT → **DEER** → EDS

2. Select DEERS SITE PARAMETERS SITE NAME: **TRAIN**

3. Select the server.

   Use the **down-arrow** key to position the cursor on server 2.

   Press **<Return>** to select the server.

4. Remove the server.

   Press **<Remove>** at the continuation screen.

   Are you sure that you want to delete the entire '2' Entry? **Y**

5. File the changes:

   Press **<Do>**

   You return to the DEERS Menu.

Note: You can deactivate a server by setting the Switch field to NO.

▲ DEMONSTRATE HOW TO ADD A SERVER

1. Access the Edit DEERS Site Parameters (EDS) option on the DEERS Menu.

   Systems Manager Menu (EVE) → SM → INT → **DEER** → EDS

   You are prompted for the site name.

2. Select DEERS SITE PARAMETERS SITE NAME: **TRAIN** (TRAINING MEDICAL TREATMENT FACILITY)

3. Select the server.

   Use the **down-arrow** key to position the cursor below the last number on the first screen.

   Enter a number for the server: **2**

   The second DEERS Site Parameters Continuation screen displays, allowing you to complete the fields for this new server.

4. Enter server parameters.

   SWITCH: **Y**

   SERVER SPECIFIC HARDWARE: **VAX WAN MCDATA**

   If the DEERS server connects to the EDS DEERS database through the DISN WAN, you need to select virtual address extension (VAX) WAN McData or Alpha WAN McData depending on whether your site has a VAX or Alpha configuration.

   If the DEERS server connects to the EDS DEERS database through a protocol converter and leased telephone line you need to identify the model of the protocol converter (e.g., either Micom or Black Box. In this case, you also need an entry for DEERS DEVICE.

   DEERS DEVICE: **<Return>**

   NETWORK ADDRESS: **161.14.4.3**

   The address in the Network Address field is the Internet Protocol (IP) address of the McData box assigned to the site.

   CONTROL UNIT NUMBER: **<Return>**

   LINK ACTIVATION NUMBER: **<Return>**

COMMAND PORT DEVICE: **<Return>**

CPU NODE IDENTIFIER: **<Return>**

Return to the first screen: **<Return>**

5. Review the DMIS ID.

   Press **<Return>**

6. File the data: **<Do>**

   A message displays as a reminder that your changes do not take effect until the DEERS interface has been shut down and restarted.

   Press RETURN To Continue: **<Return>**

   You return to the DEERS Menu.

▲ DEMONSTRATE HOW TO REVIEW PURGE PARAMETERS

Use the Edit Purge Parameters (EDP) option to review the purge parameters for the DEERS response files listed in Table 2-6.

- Refer to Table 2-6: Recommended Purge Settings for CHCS/DEERS Response Files.

Table 2-6. Recommended Purge Settings for CHCS/DEERS Response Files

File	Days
DEERS Address/Log Responses	1
DEERS BD/URS Responses	1
DEES ELIG/REG Responses	2
DEERS MCP Enrollment Responses	2
DEERS NAS Report Responses	30
DEERS NAS Responses	1
DEERS Reciprocal Disenrollment Responses	3

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We strongly recommend that the purge parameters for the DEERS Response file not be changed from the recommended (default) settings. Functionalities such as MCP depend on the timely purge of this data. If the settings are increased, disks may be overwhelmed with data.

1. Access the Edit Purge Parameters (EDP) option on the DEERS Menu.

   Systems Manager Menu (EVE) → SM → INT → **DEER** → EDP

2. Select DEERS PURGE LIST FILE NAME: **?**

   Enter a question mark (?) to view the list of files from which to choose.

   Select DEERS PURGE LIST FILE NAME: **DEERS ADDRESS/LOG RESPONSES**

   The DEERS Purge List screen displays.

3. Enter the number of days a DEERS response can remain in this file: 1 **<Return>**

   The recommended setting appears as the default.

   Enter a whole number between 1 and 365. This is the number of days an entry remains in this file before it is purged.

4. Return to the DEERS Menu.

   Select DEERS PURGE LIST FILE NAME: **<Return>**

   Press **<Return>**

Practice 6 - Manage the site parameters.

PRACTICE

Students 1-10

Practice 6 - Manage the site parameters.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *You need to remove a server that connects to DEERS via a Micom protocol converter, then add a server that connects to the EDS DEERS database over the DISN WAN.*

a. Remove a DEERS Server

1. Access the Edit DEERS Site parameters (EDS) option on the DEERS Menu.
2. Select the DEERS SITE PARAMTERS SITE NAME: **TRAIN**
3. Select server 2.
4. Remove the server.
5. File the changes.

b. Verify That the DEERS Server Has Been Removed

1. Access the Display DEERS Status (DSP) option on the DEERS Menu.

Notify the presenter when the DEERS Status screen is displayed.

2. Return to the DEERS Menu.

c. Add a DEERS Server

1. Access the Edit DEERS Site Parameters (EDS) option on the Systems Manager Menu (EVE).
2. Select DEERS SITE PARAMETERS SITE NAME: **TRAIN**
3. Select server 2.

Students 1-10 (continued)

4. Enter the server parameters.

   SWITCH: **Y**

   SERVER SPECIFIC HARDWARE: **VAX WAN MCDATA**

   NETWORK ADDRESS: **161.14.4.3**

5. Review the DMIS ID.

d. Verify That the DEERS Server Has Been Added

1. Access the Display DEERS Status (DSP) option on the DEERS Menu.

Notify the presenter when the DEERS Status screen is displayed.

2. Return to the DEERS Menu.

■ Objective 7: TROUBLESHOOT THE DEERS INTERFACE

Scenario: *A user called to report that DEERS is not processing interactive requests.*

DISCUSS TYPICAL DEERS INTERFACE PROBLEMS

The DEERS interface can have many types of problems. To make things more confusing, sometimes one symptom can be caused by more than one kind of problem.

Problem Categories

- Refer to Table 2-7: Problem Categories for the DEERS Interface, for types of problems with DEERS, along with their usual causes.

Table 2-7. Problem Categories for the DEERS Interface

Problem Area	Causes
1. CHCS/EDS link down	CHCS/EDS connectivity, DISN down
2. Network connectivity or bandwidth	Site network hardware or software problems
3. DEERS database	EDS DEERS files closed or database is corrupted
4. CHCS/DEERS parameters	CHCS DMIS ID, IP address, node address wrong or missing (usually after a hardware or software upgrade)
5. EDS-related parameters	EDS site IP address is wrong or missing
6. TaskMan	Bad CHCS TaskMan transactions, TaskMan server stopped, DEERS server stopped, server errored out
7. CHCS/DEERS software	CHCS software bugs (usually after an upgrade)

FM-00734

DISCUSS TROUBLESHOOTING PROBLEMS WITH THE DEERS INTERFACE

In order to troubleshoot problems with the DEERS interface, you must first collect problem information. To do this, use the available data collection tools. The most important tool for many problems is the telephone. For user-reported problems, use the phone to collect all available information from the user about:

– Task being undertaken (options being used, data being entered)

– System characteristics (slow, stopped)

– Unusual or missing data

– Error messages displayed.

For network-related problems, collect the following information prior to reporting the problem:

– At what time did the network problems start?

– What error messages displayed on the DEERS monitor?

– Can native DEERS users access DEERS?

– What steps have you taken to resolve the problem?

When DEERS' users log directly onto the DEERS database, this connection is called native DEERS, or NDEERS. Other important data collection tools include the DEERS Error Trap (also called the DEERS Error Log), the Transmission Statistics file, and the Display DEERS Status (DSP) and Monitor DEERS (MON) options.

Beyond the site, you can get troubleshooting help, when appropriate, from your TMSSC representative.

1.0 Network Problems

CHCS/DEERS network problems can be caused by a variety of problems:

– The EDS or site link to the DISN WAN may be down.

– Network performance problems may be to blame.

– Problems with communications hardware, such as the McData box or a protocol converter, can look like network problems. The most common DEERS

problems relate to communications devices or the link; the EDS DEERS database is up about 99% of the time.

1.1 CHCS/EDS Link Down

The following errors occur as the result of the EDS link being down.

1.1.1 System Hangs at First Step of DEERS Logon

1.1.1.1 DEERS Link Down

This is a common problem.

Call TMSSC to request that EDS cycle the site logical units (LUs). The CHCS/DEERS server should be shut down prior to recycling the LUs to help reestablish the link. Restart the DEERS server after the LUs have been recycled. A list of designated LUs are assigned for each facility. Make sure you are ready with your site name and LU numbers from the DEERS Site Parameters file (TDCD*xxxx*, where *xxxx* are the last four characters of the LU designator).

1.1.1.2 McData Box Connection Problem

If recycling the LUs does not work, a connection problem with the McData box may be to blame.

To test the McData box:

1. Invoke the telnet command at the VMS ($) prompt;

   $telnet *DEERS server network address*

   This address is specified in the DEERS server Network Address field.

   If the telnet connects, the McData Welcome screen displays.

2. Press <Return> to exit the Welcome screen.

   If you can connect to your LU, nothing is wrong with the McData box. If you are not connected, the message displays, “Connection dropped by foreign host.”

3. Press <Ctrl>-<W> to exit the LU session.

4. Enter D (for disconnect)

5. Enter at Are you sure you want to disconnect? Y

   You return to the VMS ($) prompt.

Call TMSSC to request that EDS reset the LU. The CHCS/DEERS server should be shut down for approximately 10 minutes prior to recycling to help reestablish the link. Make sure you are ready with your site name and LU numbers from the DEERS Site Parameters file.

If the McData box connection is good and recycling the LUs did not work, call the TMSSC for help.

1.2 Network Connectivity or Bandwidth

The following errors occur as the result of connectivity or bandwidth problems.

1.2.1 "Hardware not responding as expected."

The interface software displays this error message when it receives an unexpected response, based on the transmission sent.This is often a result of data loss during transmission. Many events may cause this error to occur:

– Power outages of any hardware, such as a protocol converter, modem, VAX, or any routers from your site to DEERS

– Lengthy delays on the communications link because of input/output (I/O) bottlenecks

– Poor communication quality, both in the network or a protocol converter.

This is a "normal" error. This is expected because of the nature of the communications link. If it happens more than 50 times per day, you should report it to TMSSC and your local network administrator.

1.2.2 "DEERS Took too long to respond."

In the CHCS/DEERS Site Parameters file, the EXTERNAL RESPONSE TIME field specifies a maximum response time in seconds. If a DEERS response equals or exceeds this time, this error message displays. This message is only posted when DEERS returns a proper response.

This is a another "normal" error. This is expected because of the nature of the communications link. Use Multinet to monitor network performance. If DEERS

takes longer than 15 seconds to respond more than 10 times on two consecutive days, this is a network problem that you should report to the TMSSC.

1.2.3 "AUTO+12 XDW1:4, %DSM-E-READERR, read error on _NTY *device number*"

The site gets this error when the interface is trying to receive information from the EDS McData box or the site is trying to use more lines than allocated (usually eight or less).

1.2.3.1 McData Box Connection Problem

This is a common error.

As discussed earlier, to test the McData box:

1. Invoke the telnet command at the VMS ($) prompt;

   $telnet *DEERS server network address*

   This address is specified in the DEERS server Network Address field.

   If the telnet connects, the McData Welcome screen displays.

2. Press <Return> to exit the Welcome screen.

   If you can connect to your LU, nothing is wrong with the McData box. If you are not connected, the message displays, "Connection dropped by foreign host."

3. Press <Ctrl>-<W> to exit the LU session.

4. Enter D (for disconnect)

5. Enter at Are you sure you want to disconnect? Y

   You return to the VMS ($) prompt.

Call the TMSSC to request that EDS reset the LU. Make sure you are ready with your site name and LU numbers from the DEERS Site Parameters file (TDCD*xxxx*, where *xxxx* are the last four characters of the LU designator).

1.2.3.2 Site Trying to Use Too Many Lines

1. If the connection is good to the LU, check the number of lines in use by the site.

   Do this from SY_ADMIN or the VMS ($) prompt.

   a. From SY_ADMIN:

      (1) Access the SHOW DEVICE option on the Node Menu.

      SY_ADMIN → Operations → VMS → Node → Show Device

      (2) Enter at Device: /FULL /PAGE NTY

      If you perform this procedure often, you can add a menu item to the SY_ADMIN Custom Menu to invoke the entire command for you.

   OR

   b. From the VMS ($) prompt: SHOW DEVICE /FULL /PAGE NTY

   A list displays of the NTY devices currently open.

2. Advance through the list. Count the number of NTY processes that indicate "DEERS *CPU*."

   The presence of more of these processes than the site has allocated DEERS lines can cause the DATASET HANGUP error.

3. Shut down DEERS and reset the DEERS line(s) by invoking a SHOW TERMINAL NTY*x* command, where *x* is the number of the NTY device.

   Do this from SY_ADMIN or the VMS ($) prompt.

   a. From SY_ADMIN:

      (1) Access the SHOW TERMINAL option on the Node Menu.

      SY_ADMIN → Operations → VMS → Node → Show Terminal

      (2) Enter at Terminal: NTY*x*

      Replace *x* with the number of the NTY process(es) displayed in the original DEERS error message.

   OR

b. From the VMS ($) prompt: SHOW TERMINAL NTY*x*

The line should reset and free the LU.

4. Restart DEERS and rebuild the transmission tables.

This also can reset DEERS parameters which may be wrong.

a. From the VMS ($) prompt:

$DSM

>D STARTUP^XDWRQST (CHCS-DEERS System Startup)

OR

b. From SY_ADMIN:

(1) Access CHCS from SY_ADMIN.

SY_ADMIN → Application → CHCS

(2) Access the Start DEERS (STR) option on the DEERS Menu.

Systems Manager Menu (EVE) → SM → INT → DEER → STR

5. Check the Error Log.

If you still have the problem, call the network specialist to check your local area network (LAN) connections.

If the local connections are good, call the TMSSC.

1.2.4 "We tried to do an eligibility check on a known eligible patient. The patient check came back as ineligible."

The error returned on both servers was "CICS error, DEERS files closed." DEERS was stopped and restarted to try to rectify the problem. Then the site started getting the ineligibility message.

If just one known eligible patient came back as ineligible, data could be corrupted. If all known eligible patients are now ineligible, you have a database problem. The most likely problem is that the XDW (8907.3) node specifying the database to use is not pointing to the production database.

1.2.4.1 Faulty File Setting

Use FileMan to check the CHCS/DEERS HARDWARE file settings for the hardware type the site is running.

1. Access CHCS from SY_ADMIN.

   SY_ADMIN → Application → CHCS

2. Access the Inquire to File Entries (IFE) option on the FileMan Menu.

   Systems Manager Menu (EVE) → FM → IFE

3. Display the contents of the Logon Step field for your hardware type.

   This field identifies the database type to use. For this example, the hardware type is a VAX WAN McData box. Enter the hardware type your site uses.

   Output from what file: DEERS HARDWARE

   Select DEERS HARDWARE: VAX WAN MCDATA

   Another one: <Return>

   Standard CAPTIONED output? YES// NO

   First Print FIELD: LOGON STEPS

   First Print LOGON STEPS SUB-FIELD: LOGON STEP

   Then Print LOGON STEPS SUB-FIELD: <Return>

   Then Print FIELD: <Return>

   Heading: DEERS HARDWARE LIST// <Return>

   Footnote: <Return>

   DEVICE: <Return>

   RIGHT MARGIN: 80// <Return>

- Refer to Figure 2-6: DEERS Hardware List.

```
DEERS HARDWARE LIST              24 Jun 2001@1440    PAGE 1
LOGON STEP
-------------------------------------------------------------

T VT100
LOGOUT
RAPT
```

Figure 2-6. DEERS Hardware List

Notice that the logon step field entry contains RAPT (T for training). That means the hardware type is set to use the training database. You need to reset the hardware type to RAPP (P for production).

To reset the hardware type:

1. Access the Shutdown DEERS (SHU) option on the DEERS Menu.

   Systems Manager Menu (EVE) → SM → INT→ DEER → SHU

2. Restart DEERS and rebuild the transmission tables.

   a. From the VMS ($) prompt:

      $DSM

      >D STARTUP^XDWRQST (CHCS-DEERS System Startup)

   OR

   b. From SY_ADMIN:

      (1) Access CHCS from SY_ADMIN.

      SY_ADMIN → Application → CHCS

      (2) Access the Start DEERS (STR) option on the DEERS Menu.

      Systems Manager Menu (EVE) → SM → INT → DEER → STR

      Note: This routine initializes the TOOLS DEERS software into a new environment. STARTUP can be run more than once, and only after files and routines have been loaded.

Begin startup? YES// <Return>

The message displays, “Compiling DEERS transmissions.”

Is this a test or development environment? (Answer NO for sites): NO

Be sure to answer NO. Data will then be delivered to the DEERS production environment. Answering YES will deliver data to the DEERS test or development environments, resulting in an inaccurate eligibility check.

Note: The LOGON STEP field is set to RAPP or RAPT at this step.

The message displays, “Startup completed.”

The LOGON STEP field is now set to RAPP and your site can access the production database.

2.0 Database Problems

The following problems are a result of database problems within CHCS or at EDS.

2.1 “DEERS CICS error - DEERS files closed.”

The CHCS/DEERS interface displays this error when the EDS DEERS front end processor is not functioning because the EDS DEERS files are closed or because corrupted data exists on the EDS DEERS database.

The site cannot prevent this error. EDS recompiles its database each day and closes the DEERS files. You can minimize this error by informing users when the EDS DEERS files are closed. If the DEERS files should not be closed, contact TMSSC.

3.0 Parameter Problems

Parameter problems can result from incorrect settings in any one of several CHCS/DEERS files, the kernel site parameters, or EDS site-related parameters.

3.1 CHCS/DEERS-Related Parameters

Problems with the CHCS/DEERS-related parameters can be traced to:

– CHCS/DEERS Site Parameters file

– Kernel Site Parameters file

– Network parameters in Multinet.

3.1.1 "DEERS is saying that nobody is eligible."

The site reports that DEERS indicated that all patients are ineligible. The ineligibility comment was "Invalid MTF Site Code."

1. Access the Edit DEERS Site Parameters (EDS) option on the DEERS Menu

   Systems Manager Menu (EVE) → SM → INT → DEER → EDS

2. Check the MTF Site ID field in the DEERS Site Parameters file.

3. If the MTF Site ID is incorrect, enter the correct ID.

3.1.2 "Changes to the CHCS/DEERS Site Parameters file do not seem to change the DEERS server."

The servers gather parameter information during startup. Shut down, then restart the servers to have them use the changed parameters

1. Access the Shutdown DEERS (SHU) option on the DEERS Menu.

   Systems Manager Menu (EVE) → SM → INT→ DEER → SHU

2. Access the Start DEERS (STR) option on the DEERS Menu.

   Systems Manager Menu (EVE) → SM → INT→ DEER → STR

3.1.3 "Our site is unable to receive data."

The site specialist contacts TMSSC, who in turn, contacts EDS. EDS determines whether it had information to send that could not reach the site. This indicates a problem at the site or on the network. Because the McData box address is preset at the site, EDS probably has changed the address of its McData box and you have not entered the new address in Multinet.

Call TMSSC to determine if the EDS address of the McData box has changed.

Contact the site network specialist with the new address.

3.1.4 "DEERS is coming up with all SSNs invalid."

The site uses SSNs to identify patients for DEERS lookup. All entries come back with a comment that the SSN is invalid and there are no errors in the Error Trap.

3.1.4.1 The site recently upgraded its version of CHCS

There was no problem with the SSNs before the upgrade. Because the problem occurs with all the SSNs, this is a site database problem.

3.1.4.2 The site accessed DEERS using the training database

In the training database, the SSNs are correct, but not for MTF patients. You need to restart DEERS and access the production database.

To reset the hardware type:

1. Access the Shutdown DEERS (SHU) option on the DEERS Menu.

   Systems Manager Menu (EVE) → SM → INT→ DEER → SHU

2. Restart DEERS and rebuild the transmission tables.

   a. From the VMS ($) prompt:

      $DSM

      >D STARTUP^XDWRQST (CHCS-DEERS System Startup)

   OR

   b. From SY_ADMIN:

      (1) Access CHCS from SY_ADMIN.

      SY_ADMIN → Application → CHCS

      (2) Access the Start DEERS (STR) option on the DEERS Menu.

      Systems Manager Menu (EVE) → SM → INT → DEER → STR

   Begin startup? YES// <Return>

   The message displays, "Compiling DEERS transmissions."

   Is this a test or development environment? (Answer NO for sites): NO

The LOGON STEP field is now set to RAPP and your site can access the production database.

3.2 EDS-Related Parameter

EDS DEERS has several parameters to identify the CHCS site ID, the logical units associated with the site, and site IP addresses. Each of those settings must be correct in order to get successful DEERS transmissions.

3.2.1 "We're getting an Invalid Patient FMP message for all DEERS checks."

An interactive check came back with all fields blank and the comment patient is ineligible because of invalid family member prefix (FMP) code. No errors were in the Error Trap.

The site purged the DEERS log, shut down DEERS, and ran the DEERS restart (D STARTUP^XDWRQST) with no change.

If this is happens to all DEERS checks and you are getting a response from DEERS, the problem is at EDS. The EDS system has a field to specify the site ID number. If this happens to one patient, the CHCS patient record does not match the DEERS system patient record.

Test to see if the problem occurs for more than one patient.

If the problem happens to more than one patient, call the TMSSC to check if the EDS site ID field is correct.

4.0 TaskMan Problems

The CHCS/DEERS interface needs TaskMan to schedule and initiate tasks. When there are problems with TaskMan, DEERS may not run correctly.

4.1 "The DEERS Server is not running and the DEERS request will not clear."

The process cycles around but does not clear. The problem is linked to a particular request. Each cycle resubmits an entry in the DEERS Transmission Queue file (and fills up journal files at an alarming rate).

1. Watch the process.

   It may jump from server to server and never get processed.

   Access CHCS from SY_ADMIN.

   SY_ADMIN → Application → CHCS

   Access the Monitor DEERS (MON) option on the DEERS Menu.

   Systems Manager Menu (EVE) → SM → INT → DEER → MON

2. If the process does not clear, exit the DEERS Monitor and shut down the servers.

   Systems Manager Menu (EVE) → SM → INT → DEER → SHU

3. Display the DEERS Transmission Queue global from the DSM (>) prompt.

   $DSM

   > DP^DI

4. Access FileMan to kill the request with the oldest time stamp.

   Select Option: 1 (Enter Edit Files)

   Input to what file: DEERS TR

   Choose 1-3: 2

   Select DEERS TRANSMISSION QUEUE// <Return>

   Edit which FIELD: ALL// .01

   Then edit FIELD: <Return>

   Select DEERS TRANSMISSION QUEUE TIME OF REQUEST: ?

   A list of the entries in the queue displays. The following list is an example. You may have many more entries at your site.

   Answer with DEERS TRANSMISSION QUEUE TIME OF REQUEST:

   Choose from:
   22 Jun 2001@150435
   22 Jun 2001@150528
   22 Jun 2001@150538

22 Jun 2001@150555
22 Jun 2001@150606

You may enter a new DEERS TRANSMISSION QUEUE, if you wish.

Timestamp of when the request is posted in the queue.

Note: The first entry on the list is the oldest.

Select DEERS TRANSMISSION QUEUE TIME OF REQUEST: *first entry on the list*

TIME OF REQUEST: *first entry on the list*// @

Are you sure you want to delete the entire
'*first entry on the list*>' DEERS TRANSMISSION QUEUE? Y

5. Exit FileMan.

6. Start up the DEERS servers.

   a. From the VMS ($) prompt:

      $DSM

      >D STARTUP^XDWRQST (CHCS-DEERS System Startup)

   OR

   b. From SY_ADMIN:

      SY_ADMIN → Application → CHCS

      Access the Start DEERS (STR) option on the DEERS Menu.

      Systems Manager Menu (EVE) → SM → INT → DEER → STR

Caution: Always be extremely careful when deleting data from the database. If you have any question about the relationship of the data you wish to remove to other elements in the database, please call TMSSC for assistance.

5.0 CHCS/DEERS Software Problems

Software-related problems take several forms. The most common are software bugs (usually following a software upgrade).

5.1 Software Bugs

When you identify a problem related to a software bug, you should report it to TMSSC. A change package (CP) may already be available to fix the problem. Following an upgrade, make sure that you have loaded any software fixes that might have accompanied the baseline package. The following are examples of the process, not necessarily specific problems you will encounter.

5.1.1 "The file transfer between DEERS and the Organ Donor system is not working."

Your site recently upgraded to the next CHCS version.

This was not a problem before the upgrade. There were no errors in the Error Trap. Restarting DEERS made no difference.

Your site may not have the latest quick fix (QF) or CP installed.

Log on to the SY_LOAD software from your site and determine if you have CPs waiting to be loaded. If there are, ask the software specialist or system specialist use SY_LOAD to transfer the CP(s), and print the accompanying installation instructions. Using the installation instruction, install the CP(s), then test to see if the problem is fixed.

If no CPs are outstanding, or if this does not fix the problem, call TMSSC.

Practice 7 - Troubleshoot the DEERS interface.

PRACTICE

Students 1-10

Practice 7 - The DEERS Troubleshooting Game

INSTRUCTIONS: The following practice is a role play game. It will take approximately 30 minutes.

DISCUSS THE GAME RULES

- The students work together as a group of site specialists to address a problem set by a scenario statement. One student is selected as "Senior Specialist" to be the spokesperson for the group.

- As a group the students select questions they would like to ask to narrow the focus to the problem area.

- When the group feels ready it should propose an appropriate specialist action. The action may involve doing something on the site system, or reporting a problem or observations to TMSSC.

- Students may consult any of their course materials or the training system during the game.

- The students must arrive at an appropriate action or solution within 20 questions to win the game. The instructor keeps a running tally of the questions on the white board.

- There are 5 types of specialist questions:

  * User Questions

    User questions are stated as though the specialist is talking to a user on site. For example, "User: Have you seen any garbage characters on your screen today?"

  * System Questions

    System questions are stated as though the specialist is exercising a particular option or command. For example, "System: Select the System Status option from the Site Manager Menu. Are any of the processes in a CEF state?

Students 1-10 (continued)

* TMSSC Questions

  TMSSC questions are stated as through the specialists were talking to a representative at the support center. For example, "TMSSC: Is the DISN down today?" If the group is stuck, they may use a TMSSC question to ask for a hint on how to proceed. For example, "TMSSC, what do you suggest I do next?"

* Specialist Action

  A specialist action is stated as though the specialists were taking an action to resolve the problem. For example, "The Specialist logs a problem call with TMSSC indicating a possible software problem."

- The instructor will respond to the student questions as the user, the system or TMSSC to guide the students to an appropriate specialist action. The practice evaluation criteria identifies responses to expected questions. The instructor does not intentionally mislead the students or respond as though there were more than the one problem. In addition, the instructor can respond in the following ways:

  * If a question is addressed to a user, the system or TMSSC when they would not normally know the answer instructor will respond "I don't know". An inappropriate question counts against the 20 questions.

  * If a question addressed to the system does not identify what option or command to use the instructor will respond "Does not compute". An incomplete question counts against the 20 questions.

  * If a question is not related to the scenario, the instructor may respond as "There is no indication of a problem", "The system is running normally" or "This display does not show anything unusual." An off-target question counts against the 20 questions.

  * If the action statement is not an appropriate response to the scenario the instructor may respond as "That is not the appropriate action in this case."

  * The students may provide an action statement before the 20th question, but these count as two questions. When the students select an appropriate action, the instructor replies "You Win!".

  * If the students are not able to identify an appropriate specialist action by the 20th question, the instructor identifies the appropriate response and what questions would have helped to narrow the problem focus.

Students 1-10 (continued)

* As time allows the class can replay the game with another scenario statement.

BEGIN GAME

Scenario A: *The error message "DEERS Took to long to respond" is displayed.*

Scenario B: *Patients are getting an invalid MTF message.*

Scenario C: *A known eligible patient is being reported as ineligible.*

III. CLOSURE

Do you have any questions about the concepts covered in this Module 2 - Manage the DEERS Interface?

In summary, the following content was presented:

– Identifying the components of the DEERS interface.

– Monitoring the interface connection.

– Managing the interface process.

– Managing and analyzing the Error Logs.

– Managing the Transmission Statistics file.

– Managing the site parameters.

– Troubleshooting the DEERS interface.

Remember that Quick Reference Guides are included in the Reference Materials, and may be used to complete the Master Practice.

This concludes Module 2. You now have the opportunity to demonstrate proficiency in the topics or skills presented.

Thank you for attending.

Master Practice - Module 2.

SYS: CHCS INTERFACE MANAGEMENT

Module 2 - Manage the DEERS Process

Section 2. Master Practice

MASTER PRACTICE GUIDELINES

This Master Practice enables the presenter to verify that you have successfully completed the objectives for this class.

The information you need to complete the Master Practice is supplied in the instructions and scenarios.

You may use any reference materials available in the classroom to complete the Master Practice.

Device identifiers are site-specific, and will be provided by the presenter.

Unless otherwise directed by the presenter, please work alone to complete the Master Practice.

Notify the presenter when directed to do so in the Master Practice. This allows the presenter to verify that you have successfully completed an activity.

You have approximately 15 minutes to complete this Master Practice.

SYS: CHCS INTERFACE MANAGEMENT

Module 2 - Manage the DEERS Process

Scenario 1 - Manage the DEERS process.

INSTRUCTIONS: Follow the directions below.

Scenario: *You need to remove a DEERS server which connects to DEERS through Micom protocol converter, then add a server which connects to DEERS over the DISN WAN.*

a. Shut Down a DEERS Server

1. Access the Shutdown DEERS (SHU) option on the DEERS Menu.
2. Select the server.

   Select the server number assigned by your presenter.
3. Press **<Return>** to activate the selections.
4. Return to the DEERS Menu.

b. Remove a DEERS Server

1. Access the Edit DEERS Site parameters (EDS) option on the DEERS Menu.
2. Select the DEERS SITE PARAMETERS SITE NAME: **TRAIN**
3. Select the server.

   Select the server assigned by your presenter.
4. Remove the server.
5. File the changes.

c. Verify That the DEERS Server Has Been Shut Down and Removed

1. Access the Display DEERS Status (DSP) option on the DEERS Menu.

Notify the presenter when the DEERS Status screen is displayed.

2. Return to the DEERS Menu.

SYS: CHCS INTERFACE MANAGEMENT

Module 2 - Manage the DEERS Process

Scenario 1 (continued)

d. Add a DEERS Server

1. Access the Edit DEERS Site Parameters (EDS) option on the DEERS Menu.
2. Select DEERS SITE PARAMETERS SITE NAME: **TRAIN**
3. Select the server.

   Select the server number assigned by the presenter.
4. Enter server parameters

   SWITCH: **Y**

   SERVER SPECIFIC HARDWARE: **VAX WAN MCDATA**

   NETWORK ADDRESS: **161.14.4.3**
5. Review DMIS ID.

e. Start Up a DEERS Server

1. Access the Start DEERS (STR) option on the DEERS Menu.
2. Select the server.

   Enter the number assigned by the presenter.

   Select the server number assigned by your presenter.
3. Press **<Return>** to activate the selection.
4. Return to the DEERS Menu.

f. Verify That the Deers Server Has Been Added and Started Up

1. Access the Display DEERS Status (DSP) option on the DEERS Menu.

Notify the presenter when the DEERS Status screen is displayed.

2. Return to the DEERS Menu.

SYS: CHCS INTERFACE MANAGEMENT

Module 2 - Manage the DEERS Process

Scenario 2 - Troubleshoot the DEERS interface.

INSTRUCTIONS: Follow the directions below.

Scenario: *Your site is experiencing many typical DEERS-related problems.*

1. The system hangs at the first step of the DEERS logon process and you suspect the EDS link is down. Recycling the LUs does not work. What should you look at next?

   _____

2. How do you check the MTF Site ID field in the DEERS Site Parameter file?

   _____

   _____

3. What must you do prior to troubleshooting DEERS interface problems?

   _____

4. A process cycles around but doesn't clear. It is linked to a particular request, and each cycle resubmits an entry in the DEERS Transmission Queue file. What type of problem should you suspect?

   _____

5. What type of network problems does the error message "DEERS took too long to respond" indicate?

   _____

6. DEERS was stopped and restarted after an error returned on both servers "CICS error, DEERS files closed." Users complained that all known eligible patients checks came back as ineligible. What is the most likely problem?

   _____

   _____

SYS: CHCS INTERFACE MANAGEMENT

Module 2 - Manage the DEERS Process

Scenario 2 (continued)

7. All DEERS checks are coming back with blank fields and the comment "Patient is ineligible because of invalid FMP code." There are no errors in the Error Trap. You purged the DEERS log and ran the DEERS restart with no change. What is the problem and how will you solve it?

   _____

   _____

8. What should you do when you identify a problem related to software bugs?

   _____

SYS: CHCS INTERFACE MANAGEMENT

Module 2 - Manage the DEERS Interface

Section 3. Reference Materials

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FILEMAN FILES USED BY DEERS

- **Hardware (8907.3)**

  Contains information about every type of hardware used by the interface software, including the logon and logout procedures.

- **Purge List (8907.4)**

  Contains a table of FileMan files that contain DEERS responses. The purging utility uses this table to delete old responses from the DEERS response files.

- **Sponsor Status (8907.5)**

  Contains the list of DEERS sponsor status codes, and is provided by DEERS.

- **Branch of Service (8907.6)**

  Contains the list of DEERS branch of service codes, and is provided by DEERS.

- **Request Source Identification (8907.7)**

  Contains a table of all possible CHCS functionalities that can post a DEERS request. The interface software uses this table to track the number of DEERS checks posted by each functionality. (This information is used by the Transmission Statistics file.)

- **Performance Data (8907.8)**

  Contains the performance data accumulated when the Performance Statistics field in the DEERS Site Parameters file is set to record information.

SYS | FILEMAN FILES USED BY DEERS

FILEMAN FILES USED BY DEERS (continued)

- **Tasks (8907.9)**

  Contains a list of routines to be tasked nightly by the DEERS interface software through TaskMan.

- **Transmission Queue (8908)**

  Contains all transmissions to be sent to the DEERS database.

- **Error Trap (8908.1)**

  Contains all the hardware and software errors encountered by the DEERS interface.

- **Transmissions Statistics (8908.2)**

  Contains information about the number of DEERS requests performed and what functionality sent each request.

- **Eligibility/Registration Responses (8909)**

  Contains the responses from eligibility and registration DEERS requests.

- **MCP Enrollment Responses (8909.1)**

  Contains the responses from enrollment of DEERS requests.

- **NAS Report Responses (8909.2)**

  Contains the responses from Non-Availability Statement (NAS) Report DEERS requests.

- **Address/Log Responses (8909.3)**

  Contains the responses from address and log update DEERS requests.

- **NAS Responses (8909.4)**

  Contains the responses from NAS query and issuance DEERS requests.

- **BD/URS Responses (8909.5)**

  Contains the responses from BD/URS DEERS requests.

SYS | FILEMAN FILES USED BY DEERS

CHCS/DEERS STATUS MESSAGES

- **Cannot Clear Buffer**

  The WAN must be sent a control sequence which clears the buffer before a transmission is sent. If the proper control sequence is not returned, this message displays, indicating a hardware problem. This is usually caused by packet loss.

- **Cannot Clear Buffer to Send Transmission**

  The protocol converter has a buffer that is cleared before any transmission is sent. If the DEERS interface software cannot clear the buffer, a hardware problem exists.

- **Controlled Shutdown**

  The DEERS server has gracefully shut down at the request of a user. It is not running at the present time. No DEERS checks are being done.

- **Could Not Clear Out Echoed Transmission**

  When using the WAN, the transmission is echoed back before the response is received. If the echo could not be processed correctly, this message displays, indicating a hardware problem. This is usually caused by packet loss.

- **Could Not Read In Response**

  When using the WAN, if the terminating character for the response is not found, this message displays. This indicates a hardware problem. This is usually caused by packet loss.

CHCS/DEERS STATUS MESSAGES (continued)

- **DEERS Server Starting**

  TaskMan has just started the DEERS server. Tables and variables are set up for the DEERS server.

- **Did Not Receive Proper Response**

  The DEERS interface software does not recognize the response returned from DEERS. Since the interface software is now table driven from FileMan files, either the DEERS file tables have been altered or a hardware problem exists.

- **Hibernating**

  When the DEERS server has nothing in the transmission queue to send, it hibernates. It will wake up when either a user posts an interactive request, or it has reached the maximum hibernation time.

- **Initiating Connection Via WAN**

  The DEERS server is performing a TELNET to DEERS while this is being displayed.

- **Initiating Logon To DEERS**

  The DEERS server is logging on to the DEERS database via the protocol converter.

- **Initiating Logon To DEERS Via Network**

  The DEERS server is logging on to the DEERS database via the WAN.

- **Logging Out of DEERS**

  The DEERS server is sending the commands to log off the DEERS database. Once all of the logout commands have been sent, the server shuts down.

- **Looking for Something to Process**

  The DEERS server has completed the logon process to DEERS and checks the transmission queue for requests to process.

- **Maximum Repetitive Port/System Errors**

  The maximum repetitive error value has been exceeded. This automatically shuts down the DEERS server. The limit of errors is defined in the DEERS Hardware file, with each hardware type having its own threshold.

- **No DEERS Device Has Been Defined - Shutting Down**

  In the DEERS Site Parameters file, the device field for this DEERS server has not been defined. If you are using a protocol converter, this field must be defined before the server can start.

- **No NETWORK ADDRESS Has Been Defined - Shutting Down**

  In the DEERS Site Parameters file, the network address field for this DEERS server has not been defined. If you are using the WAN, this field must be defined before the server can start.

- **Not Receiving Proper Responses From DEERS Front End Processor**

  If the DEERS server improperly logged off DEERS, this might be displayed when it is restarted. In this instance, nothing is wrong, and the DEERS server can process requests. However, this message indicates that the banner from the DEERS front-end processor was not encountered when it was expected during the logon procedure.

CHCS/DEERS STATUS MESSAGES (continued)

- **Not Receiving Proper Responses From DEERS McDATA Box**

  After a TELNET connection has been performed, the DEERS interface software logs on to the McDATA box. If inappropriate responses are received, this message is displayed.

- **Not Receiving Proper Responses From Protocol Converter**

  The DEERS server sends a control character sequence to the protocol converter that forces it to follow a specified terminal type. Receiving improper responses after this sequence has been sent indicates a hardware problem.

- **Processing *transaction type* Request**

  The DEERS server is sending a request to DEERS, waiting for the response, and storing the response into the local database.

- **Request Sent To TaskMan To Start DEERS Server @ *dd mmm yyyy hh:mm:ss***

  The interface software posts this status when a request to start a server is posted to TaskMan. This is useful when TaskMan is not running or is very slow, because it reduces the number of times a user might try to request a DEERS server to be started. Remember that a server is unselectable once it has started. If multiple requests are made to start a server, TaskMan posts a DSM error for every duplicate process it tries to start.

- **Trying To Open *port name***

  The device assigned to a protocol converter is owned by another process.

- **Trying To Lock DEERS Error Log File To Log An Error**

  Before a DEERS server can post an error to the DEERS error log, it must prevent any other process from modifying the file. This message indicates that the process maintaining the DEERS error log file most likely is running. As soon as the process completes, the server can continue.

- **Port/System Error During Logon -- Will Retry In *n* Seconds**

  This message displays if a DEERS server experiences a port or system error after it starts. The DEERS server attempts to log on to the specified hardware every 60 seconds.

- **Port/System Error -- Shutting Down**

  A port or system error occurred which caused the DEERS server to shut down.

- **Unable To Load System Variables**

  When a DEERS server starts, it loads file tables and initializes variables. If the file tables are corrupted, this message displays.

- **WAN Error: *error condition* - Shutting Down**

  The utility that establishes the TELNET connection reported an error.

DEERS ERROR MESSAGES

- **Hardware Not Responding As Expected**

  The interface receives a response that it is not expecting. Events which can cause this error include:

  – Power outages of any hardware, such as the protocol converter, modem, VAX, or routers to the DEERS site.

  – Lengthy delays on the communication link.

  – Poor communication quality.

- **DEERS CICS Error - DEERS Files Closed**

  The DEERS Customer Information Control System (CICS) front end processor is not working. This error can be caused by the following events:

  – DEERS systems close their files and prevent CHCS from accessing information.

  – Corrupted data exists on the DEERS interface.

- **Port or System Errors**

  All port (read, write, data-set hangup, etc.) and system errors are generated by the interface software.

- **DEERS Took Too Long To Respond**

  The DEERS response time is equal to or has exceeded the time set in the EXTERNAL RESPONSE TIME field in the DEERS Site Parameter file.

SYS | DEERS ERROR MESSAGES

DEERS SITE PARAMETERS

General DEERS Site Parameters

- **Active Site Parameters**

  Whether this site is activated. The DEERS Site Parameters file can support multiple site configurations. However, the interface software can activate only one site at a time. To make an entry active, all other entries must be marked inactive.

- **Site ID**

  MTF number provided by the DEERS project office. The DEERS database uses this number to identify which site is sending DEERS requests. If this number is provided in hexadecimal format, you must convert it to decimal format before entering it into this field.

- **Maximum Error Entries**

  Number of entries allowed to remain in the DEERS Error Log file. The DEERS purge routine is scheduled to run every night. The number entered in this field sets the number of most recent errors the DEERS Error Log routine can retain in this file. For example, if set to 0, all errors are purged each night. If set to 100, all but the last 100 errors are purged each night. Enter a whole number between 0 and 9999999999. Recommended setting is 100.

- **Length of Wait**

  Time the system waits for a response to an interactive DEERS request. The default is 15 seconds. If this time is exceeded, the request is treated as a non-interactive DEERS request.

DEERS SITE PARAMETERS (continued)

- **Task Check**

  Frequency at which the DEERS server(s) check the DEERS transmission queue for DEERS requests in numbers of seconds. A DEERS server hibernates when no DEERS transmissions are in the queue. When a non-interactive request is posted, the interface software sends it when the DEERS server wakes up. When an interactive request is posted, the server immediately “wakes up” and processes it.

  This is a whole number between 1 and 300. If the task check is set to 60, the DEERS server(s) checks every 1 minute for any requests in the transmission queue. A 60 second interval is recommended.

  If the WAN has not sent a transmission for several minutes, the DEERS WAN software automatically drops the line. When a WAN server wakes up because the task check time has expired, the WAN connection is restored.

- **Debug Mode**

  Field used by the TMSSC and CHCS developers for debugging. Use of this field can negatively impact performance.

- **Training Environment**

  Whether this is a simulated or live environment. Set to NO for the live environment. When set to YES, the DEERS interface software searches the appropriate DEERS response files for pre-positioned data and only simulates the live DEERS database.

- **Transaction Statistics**

  Frequency of transaction report. The interface software records who sent each DEERS transmission. This information is stored in the DEERS Transmission Statistics file. Reports can be generated through the options on the DEERS Menu.

Enter Daily, Weekly, or Monthly. Recommended setting is Monthly.A null entry is equivalent to monthly.

- **Outpatient Visit**

  Percentage of outpatient visits checked for eligibility. This field is used by the PAS prebooked appointment functionality. Requirements state that PAS must perform eligibility checks on no less than 25% of outpatient visits.

  Enter a whole number between 0 and 100.

- **CIV Prescription**

  The Civilian (CIV) prescription parameter is not currently in use. The Pharmacy functionality performs eligibility checks on 100% of its civilian prescriptions. This is hardcoded into the Pharmacy software.

- **Admission**

  The Admission parameter is not currently in use. The PAD functionality performs eligibility checks on 100% of its inpatient admissions. This is hardcoded into the PAD software.

- **External Response Time**

  Frequency at which DEERS response is monitored. By contract, DEERS has 7 seconds to respond to a DEERS request. This is from the time the request is sent until the first character of the response is returned.

  The default is 8 seconds which is the recommended setting. When DEERS takes 8 or more seconds to respond to a request, an error message is posted to the DEERS Error Log file. When this field is set to 0, this functionality is turned off.

SYS **DEERS SITE PARAMETERS**

DEERS SITE PARAMETERS (continued)

- **MCP Red Max Error**

  Threshold value that, when exceeded, shuts down the MCP reciprocal disenrollment functionality.

  The recommended setting appears as the default. The site has the option to override the entry.

Individual Server Parameters

- **Server**

  Number of the DEERS server. It displays on the DEERS monitor and status screens. This number allows the system to distinguish between multiple DEERS servers. It can be a whole number between 1 and 999.

  If the server is running, the system does not allow you to modify the site parameters. The following message displays on the DEERS Site Parameters Continuation screen:

- **Switch**

  Whether the server is activated. Set to YES to activate the server. The server cannot be started if this field is set to NO.

- **Server Specific Hardware**

  Type of hardware used by this server. The entry in this field points to the DEERS Hardware file. If server is linked via a protocol converter identify the model of the converter: Black Box, Micom. If the server is linked via the DISN WAN select an entry that is appropriate to your site configuration: VAX WAN, or Alpha WAN.

- **DEERS Device**

  Type of device connected to the protocol converter. An entry in this field is necessary when a protocol converter is used. This device must be defined in the CHCS Device file.

- **Network Address**

  Network address used by the DEERS server. Domain names and IP addresses are allowable. If possible, use the domain name provided to your site. This data must be defined before a DEERS server can use the WAN. No entry is required if a protocol converter is used.

- **Control Unit Number**

  Number assigned to the protocol converter by the DEERS project office to identify the link to DEERS. It is information only and is not required.

- **Link Activation Number**

  Telephone number of the DEERS support center. It is for information only and is used to request that the link be reactivated when the link has gone down.

- **Command Port Device**

  Device that connects to the command port on the protocol converter if the server uses a protocol converter. This entry is optional. This field points to an entry in the Device file.

- **CPU Node Identifier**

  Node on which the DEERS server executes. The entry identifies the node on which the port(s) are defined or the node on which the WAN is available. This field points to an entry in the Device file.

DEERS SITE PARAMETERS (continued)

DMIS Parameters

- **DMIS ID**

  The Defense Medical Information System Identification Code (DMIS ID) that identifies a specific site when there are multiple DEERS sites within an MTF. When the PAD application initiates a DEERS request, it provides the CHCS-DEERS interface with a DMIS ID to identify the inpatient division. The CHCS-DEERS interface converts the DMIS ID into the appropriate DEERS site ID before sending the transaction to DEERS.

  The DMIS ID must be identified in the DMIS ID file (#8103)

- **Site ID**

  ID assigned to the inpatient division of a multiple inpatient division CHCS site. DEERS uses the site ID to identify each division.

SYS:
CHCS INTERFACE MANAGEMENT

Module 3 -
Transport Files
Using FTP or ETU

SYS: CHCS INTERFACE MANAGEMENT

Module 3 - Transport Files Using FTP or ETU

Section 1. Module Outline

I. INTRODUCTION

Welcome to the module on Transport Files Using FTP or ETU.

The purpose of this module is to familiarize you with File Transport Protocol (FTP) or Electronic Transfer Utility (ETU) parameters used to transport files to external systems that do not have their own management menus.

This module is scheduled to last approximately 3 hours.

The target audience includes:

- Computer Operators
- Hardware Specialists
- Network Specialists
- Software Specialists.

DISCUSS OBJECTIVES

- Objective 1: Use FTP to transport a file to an external system.
- Objective 2: Configure parameters and transport files for RCMAS.
- Objective 3: Identify the parameters and procedures to transport files to the biometric agencies.
- Objective 4: Identify the parameters and procedures to transport files to the Standard Accounting and Reporting System/Field Level (STARS/FL).
- Objective 5: Identify the parameters and procedures to transport files to the Expense Assignment System (EAS).
- Objective 6: Troubleshoot file transport.

INTRODUCE OUTBOUND REFERENCES

The following documentation is referred to in this module:

– Electronic Transfer Utility User's Guide, SAIC/CHCS Doc. TC-5-5019.

– SYS: VMS Software Specialist, SAIC/CHCS Doc. TC-4.5-0550/TC-4.5-0551; Module 15 - Troubleshooting.

II. PRESENTATION

TRANSPORTING FILES OVERVIEW

Each month, data is compiled and forwarded to the Defense Medical Information System (DMIS) to improve the delivery of health care, reduce costs, manage workload, and facilitate decision making. Much of this data supports the migration of the CHCS "legacy" system to the Corporate Executive Information System (CEIS).

In this module, you will use File Transport Protocol (FTP) to transfer the data from these holding files to the following systems:

– Biometric Agencies

– Expense Assignment System (EAS)

– Retrospective Case Mix Analysis System (RCMAS)

– Standard Accounting and Reporting System/Field Level (STARS/FL).

FTP resides on any system that supports the Transmission Control Protocol/ Internet Protocol (TCP/IP) suite. In many cases, site specialists use the FTP capability built into the CHCS SY_ADMIN Menu to perform their file transfers. This menu option is called ETU, or the Electronic Transfer Utility. This menu-driven FTP utility allows you to schedule file transfers, change transmission parameters, create a transmittal log, and delete old files that have been transmitted.

- Refer to Reference Materials, Electronic Transfer Utility User's Guide, for information on using ETU (also available as an outbound reference).

EQUIPMENT CONFIGURATION OVERVIEW

Each CHCS site has standard telecommunications architecture compatible with the Medical Health Service System (MHSS), although the actual equipment configuration varies according to the needs at each site. Terminal servers or host modules on the Ethernet backbone support local user devices. Many of these devices use TCP/IP to connect to local systems, as well as remote systems on the Defense Information System Network (DISN).

This module will discuss the internal and external equipment associated with each interface system.

DISCUSS RESPONSIBILITIES OF SITE OPERATIONS PERSONNEL

This module will discuss specific responsibilities of site operations personnel as each system is demonstrated. In general, you will:

– Maintain an accurate list of file transfer locations and other applicable file transfer information for your site.

– Transfer files at the appropriate time to the correct location.

– Check export/import directories (FTP) or transmittal logs (ETU) twice each week.

– Schedule file transfers during off-peak hours to minimize impact on system performance.

– Maintain a troubleshooting log.

• Refer to Module 1 - Overview of CHCS Interface Systems, for detailed discussion of site personnel responsibilities.

■ Objective 1: USE FTP TO TRANSPORT A FILE TO AN EXTERNAL SYSTEM

DESCRIBE FILE TRANSFER PROTOCOL (FTP)

Overview of the External System

FTP transfers binary and text files between computers which support TCP/IP, but which may not have compatible operating systems. FTP allows you or an application program, such as ETU, to log on to a remote host and perform file operations.

- Refer to Figure 3-1: Typical FTP Client/Server Configuration.

FTP consists of two pieces of software:

– FTP client, which runs on the system requesting the service (the local system)

– FTP server, which runs on the system providing the service (the remote system).

The network, using TCP, is the medium by which the two communicate. TCP/IP support is added to CHCS virtual memory system (VMS) systems through MultiNet. UNIX systems to which you may transfer CHCS files use TCP/IP as their default networking system.

Discuss Interface Equipment

At CHCS sites, local user devices, such as system console terminals (e.g., VT510 terminals) or PC computer systems with terminal emulation software, connect to the wide area network (WAN) through the ethernet backbone to access the FTP client.

Local area transport (LAT) line terminals cannot perform FTP operations.

Discuss FTP Sites

A computer that allows others to access files via FTP is referred to as an FTP site. FTP sites can be private or public. They are accessed using the fully qualified domain name of the system or an IP address.

Private sites, such as CHCS sites, require a username and password to log on.

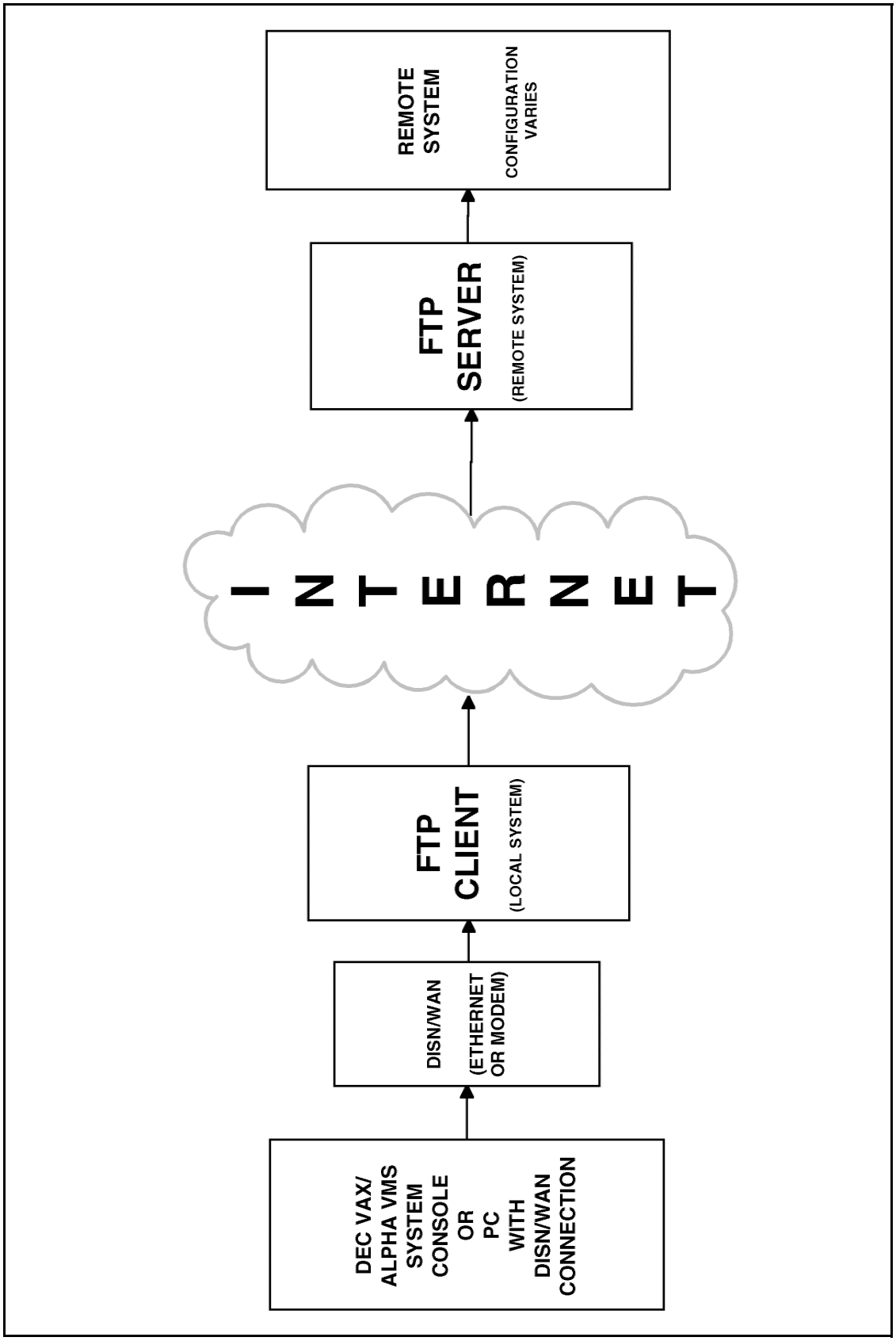

Figure 3-1. Typical FTP Client/Server Configuration

Public or “anonymous” sites allow you to enter anonymous as your username and to use your e-mail address or guest as your password. Many government agencies maintain public FTP sites to disseminate information.

Discuss Security Issues

All CHCS sites maintain a C2 level of file security. In the interests of patient confidentiality and system security, you must adhere to the following security guidelines when using FTP:

– If you encounter a firewall or are unable to obtain access to a system to which you normally transfer files, contact the TMSSC before attempting a workaround.

– Never set up an “automatic FTP logon” for any computer needing a private username and password. While UNIX and VMS allow you to create procedures of file manipulation commands and give instructions for automatically logging into a remote computer, placing your password in a file compromises system security. ETU, which is an automatic FTP logon utility, is configured to meet the C2 level of security.

– Never FTP CHCS data to public sites.

– Never FTP nonwork-related software or files onto CHCS systems.

DISCUSS THE FTP PROCESS

- Refer to Figure 3-2: Message Flow From FTP Client to FTP Server.

FTP is a complex program because you can manipulate files and file structures in many different ways. With practice, it becomes much less frustrating.

Discuss FTP Configuration Parameters

Before you can FTP a file, you must:

– Obtain access to the local FTP client.

– Check that the file to be transferred already exists in your local directory.

– Obtain the remote server address and IP port.

– Obtain access to the remote FTP server.

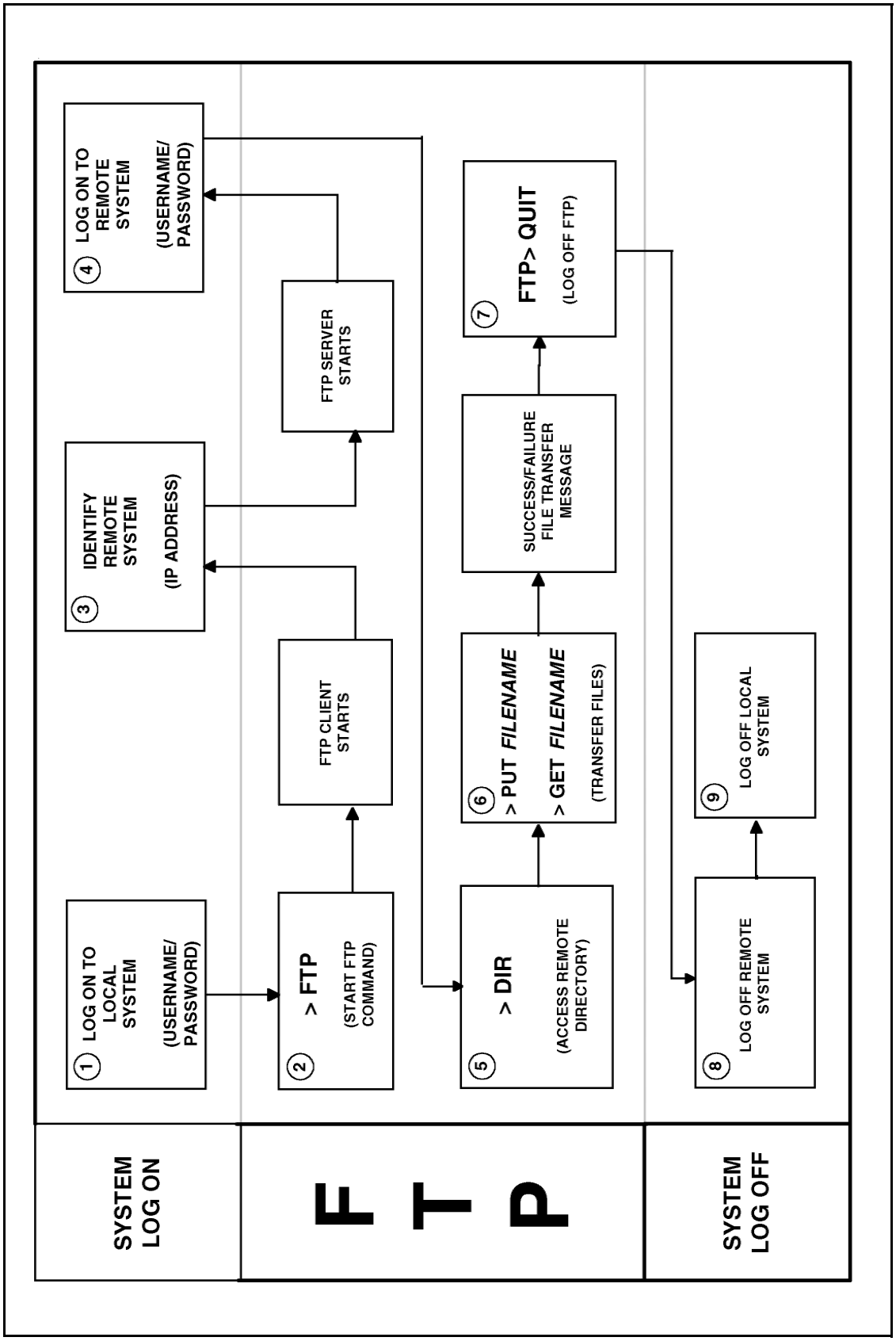

Figure 3-2. Message Flow From FTP Client to FTP Server

No particular background processes are associated with FTP.

▲ DEMONSTRATE FTP

The standard FTP session consists of the following basic steps:

1. Access the local system: **TC42VE.SAIC.COM**

2. Log on to the local system.

   Username: **[site username]**

   Password: **[site password]**

   You must be assigned a username and password to access the VMS prompt at your site.

   For the purpose of this demonstration, the logon is to the TC42VE environment, which automatically loads SY_ADMIN. Exit SY_ADMIN to start FTP at the VMS ($) prompt. The TC42VE environment is the local system.

3. Start FTP.

   $**ftp**
   This demonstration uses the TC42VD environment for the remote system. The remote machine name is: TC42VD.SAIC.COM.

4. Identify the remote system.

   ftp >**OPEN TC42VD.SAIC.COM**

   Specify the FTP server by fully qualified domain name or IP address. Using fully qualified domain names is recommended because IP addresses may change whenever hardware is upgraded or moved.

   FTP connects to the remote machine. The system may display the server name, port number, network software type and version number, and date/time information.

- Refer to Figure 3-3: Sample FTP Logon (VMS to UNIX).

5. Access the remote site.

   When FTP connects with the remote system, you must identify yourself with a username and password assigned to you by the remote site.

[remote system]> **user**

Foreign Username: **[site username]**

Password: **[site password]**

On a VMS system, FTP logon begins with the user command.

On a UNIX system, FTP logon begins automatically. If logon fails due to an incorrect username or password, you can restart the FTP session by entering the user command.

Your logon determines which remote files you can access.

When you transfer files:

– From the remote system to your local system, you can only retrieve those files to which you have access.

– From your local system to the remote system, you can only place files in the location or directory that is accessed by your logon account.

Responding to the “Name:” prompt with <Return> sends the username that you are using on the local system to the remote system. If your username is the not the same on the remote system, the logon fails.

```
$ ftp
TC42VD.SAIC.COM MultiNet FTP user process V3.5(117)
FTP> open ftp.hctg.saic.com
Connection opened (Assuming 8-bit connections)
<hpsvr1 FTP server (Version 1.7.109.12 Tue Aug 29 21:23:00 GMT 1995)
ready.
HPSVR1.HCTG.SAIC.COM>user fry
<Password required for fry.
Password:
<User fry logged in.
< ascii
HPSVR1.HCTG.SAIC.COM>dir
<Opening ASCII mode data connection for /bin/ls.total 764
drwxrwxr-x   2 fry      hctg        1024 Jun 24 14:03 .SharedX
drwxrwxr-x   7 fry      hctg        1024 Aug 22 07:32 .clarity
-rw-r--r--   1 fry      hctg         536 Aug  9  1995 .cshrc
-rw-r--r--   1 fry      hctg         378 Apr  5 12:26 .login
drwx------   3 fry      hctg        1024 Aug 22 07:40 .netscape
-rw-rw-r--   1 fry      hctg      119140 Jan  9  1996 doc1
<Transfer complete.
HPSVR1.HCTG.SAIC.COM>get doc1
  To local file: test.doc
<Opening BINARY mode data connection for doc1 (119140 bytes).
<Transfer complete.
HPSVR1.HCTG.SAIC.COM>quit
Goodbye.
```

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Figure 3-3. Sample FTP Logon (VMS to UNIX)

The remote system confirms your logon and displays the directory for your account. FTP usually tells you which operating system is used on the remote system.

Although your site may use only the VMS operating system, at some point you may need to FTP to a remote site that uses the UNIX operating system. This occurs particularly if you are troubleshooting file transfers to the systems discussed later in this module. You may even need to access IBM mainframes using the MVS (not VMS) operating system.

FTP commands for both VMS and UNIX have similar purposes and operate nearly the same way.

UNIX is case sensitive. All UNIX file transfer commands are in lower case, including the command for FTP (ftp).

VMS is not case sensitive, so either uppercase or lowercase commands may be used.

The MVS (not VMS) operating system used on IBM mainframes is not case sensitive.

- Refer to Figure 3-4: Sample FTP Logon (UNIX to VMS).

6. Access the remote directory.

   [remote system]> **DIR**

   Enter DIR to display the directory for the remote system on your screen. VMS lists the files in your logon directory on the remote system. The directory may be lengthy. Most systems use <Ctrl>-<S> to pause the display. Use <Ctrl>-<Q> to restart.

   To change the directory for a remote VMS system, enter CD [directory name]. Enter PWD if you want to see the path of the current working directory.

   Directory commands may be VMS or UNIX, depending on the operating system of the remote machine. Make a habit of checking directories during FTP sessions to make sure the files are reaching their desired location.

   FTP may display the port number being used for this command and the IP address of the remote system.

   At this point, some systems may provide you with additional information, such as system down time, useful control codes, or additional logon characters needed by the remote system to interface with your FTP client.

7. Set the transfer mode.

   [remote system]> **ASCII**

   Some systems display a default file transfer mode at logon. If you wish to change the default, enter the desired mode of file transfer: American Standard Code for Information Interchange (ASCII) or binary.

```
$ ftp
ftp> open tc42vd
Connected to tc42vd.saic.com.
220 TC42VD.SAIC.COM MultiNet FTP Server Process V3.5(15) at Thu 22-Aug-96
9:04AM
-PDT
Name (tc42vd:fry): sy_mgr2
331 User name (sy_mgr2) ok. Password, please.
Password:
230 User SY_MGR2 logged into DISK$LOG:[SY_MGR2] at Thu 22-Aug-96 9:04AM-
PDT, job20e00283.
Remote system type is VMS.
ftp> dir
200 Port 10.36 at Host 204.115.179.245 accepted.
150 List started.
DISK$LOG:[SY_MGR2]
DCL_SESSION.LOG;1          13  24-JUN-1996 15:53 [150,3] (RWED,RWED,RE,)
FTP_SERVER.LOG;2            6  22-AUG-1996 09:04 [150,3] (RWED,RWED,RE,)
LOGIN.COM;1                 3   2-APR-1996 20:51 [SYADMIN] (RWED,RE,RE,)
SESSION.LOG;1               1  24-JUN-1996 15:53 [150,3] (RWED,RWED,RE,)
Total of 23 blocks in 4 files.
226 Transfer completed.
ftp> get session.log;1 test2.log
200 Port 10.39 at Host 204.115.179.245 accepted.
150 ASCII retrieve of DISK$LOG:[SY_MGR2]SESSION.LOG;1 started.
226 Transfer completed.  153 (8) bytes transferred.
153 bytes received in 0.08 seconds (1.87 Kbytes/s)
ftp> bye
221 QUIT command received. Goodbye.
```

FM-00748

Figure 3-4. Sample FTP Logon (UNIX to VMS)

Discuss Formats for Exchanged Data

ASCII. The ASCII file transfer mode is actually “text” mode. Transfers are treated as sets of characters. The client and server try to ensure that the transferred characters have the same meaning on the target computer as they did on the source computer. ASCII mode uses the most significant bit as a parity bit in checking errors of FTP transfers.

Binary. The binary file transfer mode means that the bit sequence of the file is preserved so that the original and the copy are identical, bit-for-bit. Image is sometimes used as a synonym for binary.

If you transfer a binary file in ASCII mode, the translation may still take place, but the data will become damaged, making the file unusable.

Compressed Files. To reduce the cost of storage and transmission time, large files are stored in compressed format. Data compression programs are used to reduce file size by as much as 60%. When the file is compressed, it is given a file suffix (e.g., .zip). Compressed files are binary files and must be treated accordingly during the file transfer. When the file reaches the target system, it is uncompressed using the compression utility on that system. Compression utilities vary from system to system.

Hundreds of compressed file modes are in use, though only one, .gzip, is used at CHCS sites. For other sites, compressed file utility information is usually found in files named READ.ME.

Note: You must compress and uncompress the file using the same utility.

Formats for exchanged data and file compression specific to a given interface are discussed with that interface.

If you specify a file transfer mode, the remote system displays a confirmation.

8. Transfer the files from the remote system to the local system.

   [remote system]> **GET REMOTE1.INF**

   To Local File: **<Return>**

   The file from the remote system is copied into a local file with the same name.

   FTP can transfer files bidirectionally using the GET and PUT commands. Use the same commands in lower case for UNIX systems.

Discuss the GET Command

The GET command can retrieve a file from the remote machine and place it on the local machine. The system confirms the transfer.

The GET command has the syntax:

ftp> GET *[source-file] [destination-file]*

where the source file is the name of the existing file, and the destination file is the name of the newly created copy. The destination filename is optional; if it is omitted, the copy is given the same name as the source file.

9. Transfer the files from the local system to the remote system.

   [remote system]> **PUT LOCAL1.INF**

   To Remote File: **<Return>**

   The file from the local system is copied into a remote file with the same name.

Discuss the PUT Command

The PUT command can take a file on the local system (the one initiating the transfer) and put it on the remote machine. The system confirms the transfer.

The PUT command has the syntax:

ftp> PUT *[source-file] [destination-file]*

You can use both the GET command and the PUT command during the same FTP session.

If you are not sure of the filename, you can use “wildcards.” An asterisk (*) can take the place of a string of characters or file extensions.

The GET and PUT commands transfer only one file at a time.

- Refer to Figure 3-5: Transfer Single Files With FTP.

```
FTP>tc42vd.saic.com
Connection opened (Assuming 8-bit connections)
<TC42VD.SAIC.COM MultiNet FTP Server Process V3.5(15) at Tue 8-Oct-96
TC42VD.SAIC.COM>user
  Foreign username: sy_oper1
<User name (sy_oper1) ok. Password, please.
Password:
<User SY_OPER1 logged into DISK$LOG:[SY_OPER1] at Tue 8-Oct-96 11:13AM-
PDT, TC42VD.SAIC.COM>put poetry1.inf
  To remote file:
<VMS Store of DISK$LOG:[SY_OPER1]POETRY1.INF;2 started.
<Transfer completed.  192 (8) bytes transferred.
TC42VD.SAIC.COM>get poetry1.inf
  To local file:
<VMS retrieve of DISK$LOG:[SY_OPER1]POETRY1.INF;2 started.
<Transfer completed.  192 (8) bytes transferred.
TC42VD.SAIC.COM>quit
<QUIT command received. Goodbye.
```

FM-00749

Figure 3-5. Transfer Single Files With FTP

Discuss Multiple File Transfer

- Refer to Figure 3-6: Sample Multiple File Transfer.

```
ftp> mput drfun.*.gif
mput drfun.intel.inside.gif? y
200 PORT command successful.
150 Opening BIINARY mode data connection...
226 Transfer complete.
mput drfun.ms-bob.gif? n
mput drfun.spring.fossil.gif? y
200 PORT command successful.
150 Opening BINARY mode data connection....
226 Transfer complete.
```

FM-00750

Figure 3-6. Sample Multiple File Transfer

To transfer multiple files, use m for “multiple” in this syntax:

ftp> MGET *[list of source files]*

The MGET command moves the files from the remote system to the local system. You confirm the transfer of each file.

ftp> MPUT *[list of source files]*

The MPUT command takes the files in the list and moves them to the remote system. You confirm the transfer of each file.

Enter the PROMPT command to disable prompting while transferring large groups of files in VMS. When the transfer is complete, reenter the PROMPT command to reenable prompting.

You cannot transfer an entire VMS directory unless the files within the directory have been prepared for that type of transfer by the system administrator at the remote site. This is not true of UNIX. You can gather UNIX files in a single file using the tar command. The .tar file is packaged under a parent directory and compressed. After retrieving the files, you uncompress them, and use the tar command to extract the files. Remember, UNIX commands are in lower case.

10. Access the destination directory.

    [remote system]> **LOCAL-DIR**

    The local directory on a VMS system displays with this command.

    Make sure that files have reached the correct location by checking the destination directory:

    – If you GET files from the remote system, check the local system directory.

    – If you PUT files from the local system onto the remote system, check the remote system directory.

11. Log off the remote system.

    [remote system]> **QUIT**

    Once the files are transferred, log off FTP. Enter QUIT or BYE to exit.

    Note that you are still logged onto your local system.

12. Log off the local system.

    $LOGOUT

DISCUSS STANDARD OPERATING PROCEDURES

FTP should be used during off-peak hours whenever possible to minimize the impact on system operations and performance.

Before you use FTP, make sure you have the following information:

– Correct IP address or fully qualified domain name of the remote system

– Username and password of the system

– Location, name, and file type (text or binary) to be transferred or received

– Byte size of the file.

After you transfer the files, verify the following:

– File placed on the correct system (local or remote) and in the correct directory

– Location, name, and file type (text or binary) of transferred or received file

– Byte size of the file matches the transferred or received file.

Practice 1 - Use FTP to transport a file from an external system.

PRACTICE GUIDELINES

The information you need to complete each practice is supplied in the instructions and scenarios.

Notify the presenter when directed to do so in the practice. This allows the presenter to verify that you have successfully completed an activity.

You may use any reference materials available in the classroom to complete your practices.

You may ask questions or request assistance at any time during the practices.

Device identifiers are site-specific, and will be provided by the presenter.

The practices for this class must be completed in the order in which they are presented. Please complete all parts of each practice before proceeding.

Student 1

Practice 1 - Use FTP to transport a file from an external system.

INSTRUCTIONS: This practice will take approximately 15 minutes. Follow the specifics below.

a. Define Terms

Complete the sentence with the correct word or phrase.

1. FTP client runs on the _____system requesting the service.
2. The _____file transfer mode means that the bit sequence of the file is preserved so that the original and the copy are identical, bit for bit.
3. To reduce the cost of storage and transmission time, large files are stored in _____ format. The utility used by CHCS is called _____.
4. You would use the _____command to take a file on the local system and transfer it to the remote machine.
5. You would use the _____ command to transfer a file from the remote machine and place it on the local machine.

b. Transport a File from an External System

1. Access the local system: **TC42VE.SAIC.COM**
2. Log on to the local system with the username and password provided.
3. Start FTP.

   $**FTP**

4. Access the remote system.

   ftp>**OPEN TC42VD.SAIC.COM**

5. Log on to the remote site

   [remote system]>**user**

   Remember, since you are using a VMS system, type user to log on.

Student 1 (continued)

6. Set the transfer mode

   [remote system]>**ASCII**

7. Transfer the files from the remote system (TC42VD) to the local system (TC42VE).

   [remote system]>**GET QUOTE1.INF**

   [remote system]>**GET POETRY1.ING**

8. Display the destination directory.

   [remote system]>**LOCAL-DIR**

9. Log off the remte system.

   [remote system]>**QUIT**

10. From the local system, display each file:

    $**type QUOTE1.INF**

    $**type POETRY1.INF**

Notify the presenter when the files are displayed on the screen.

11. Log off the local system.

    $ **LOG OUT**

Student 2

Practice 1 - Use FTP to transport a file from an external system.

INSTRUCTIONS: This practice will take approximately 15 minutes. Follow the specifics below.

a. Define Terms

Complete the sentence with the correct word or phrase.

1. FTP client runs on the _____system requesting the service.
2. The _____file transfer mode means that the bit sequence of the file is preserved so that the original and the copy are identical, bit for bit.
3. To reduce the cost of storage and transmission time, large files are stored in _____ format. The utility used by CHCS is called _____.
4. You would use the _____command to take a file on the local system and transfer it to the remote machine.
5. You would use the _____ command to transfer a file from the remote machine and place it on the local machine.

b. Transport a File from an External System

1. Access the local system: **TC42VE.SAIC.COM**
2. Log on to the local system with the username and password provided.
3. Start FTP.

   $**FTP**

4. Access the remote system.

   ftp>**OPEN TC42VD.SAIC.COM**

5. Log on to the remote site

   [remote system]>**user**

   Remember, since you are using a VMS system, type user to log on.

Student 2 (continued)

6. Set the transfer mode

   [remote system]>**ASCII**

7. Transfer the files from the remote system (TC42VD) to the local system (TC42VE).

   [remote system]>**GET QUOTE2.INF**

   [remote system]>**GET POETRY2.ING**

8. Display the destination directory.

   [remote system]>**LOCAL-DIR**

9. Log off the remte system.

   [remote system]>**QUIT**

10. From the local system, display each file:

    $**type QUOTE2.INF**

    $**type POETRY2.INF**

Notify the presenter when the files are displayed on the screen.

11. Log off the local system.

    $ **LOG OUT**

Student 3

Practice 1 - Use FTP to transport a file from an external system.

INSTRUCTIONS: This practice will take approximately 15 minutes. Follow the specifics below.

a. Define Terms

Complete the sentence with the correct word or phrase.

1. FTP client runs on the _____system requesting the service.
2. The _____file transfer mode means that the bit sequence of the file is preserved so that the original and the copy are identical, bit for bit.
3. To reduce the cost of storage and transmission time, large files are stored in _____ format. The utility used by CHCS is called _____.
4. You would use the _____command to take a file on the local system and transfer it to the remote machine.
5. You would use the _____ command to transfer a file from the remote machine and place it on the local machine.

b. Transport a File from an External System

1. Access the local system: **TC42VE.SAIC.COM**
2. Log on to the local system with the username and password provided.
3. Start FTP.

   $**FTP**

4. Access the remote system.

   ftp>**OPEN TC42VD.SAIC.COM**

5. Log on to the remote site

   [remote system]>**user**

   Remember, since you are using a VMS system, type user to log on.

Student 3 (continued)

6. Set the transfer mode

   [remote system]>**ASCII**

7. Transfer the files from the remote system (TC42VD) to the local system (TC42VE).

   [remote system]>**GET QUOTE3.INF**

   [remote system]>**GET POETRY3.ING**

8. Display the destination directory.

   [remote system]>**LOCAL-DIR**

9. Log off the remte system.

   [remote system]>**QUIT**

10. From the local system, display each file:

    $**type QUOTE3.INF**

    $**type POETRY3.INF**

Notify the presenter when the files are displayed on the screen.

11. Log off the local system.

    $ **LOG OUT**

Student 4

Practice 1 - Use FTP to transport a file from an external system.

INSTRUCTIONS: This practice will take approximately 15 minutes. Follow the specifics below.

a. Define Terms

Complete the sentence with the correct word or phrase.

1. FTP client runs on the _____system requesting the service.
2. The _____file transfer mode means that the bit sequence of the file is preserved so that the original and the copy are identical, bit for bit.
3. To reduce the cost of storage and transmission time, large files are stored in _____ format. The utility used by CHCS is called _____.
4. You would use the _____command to take a file on the local system and transfer it to the remote machine.
5. You would use the _____ command to transfer a file from the remote machine and place it on the local machine.

b. Transport a File from an External System

1. Access the local system: **TC42VE.SAIC.COM**
2. Log on to the local system with the username and password provided.
3. Start FTP.

   $**FTP**

4. Access the remote system.

   ftp>**OPEN TC42VD.SAIC.COM**

5. Log on to the remote site

   [remote system]>**user**

   Remember, since you are using a VMS system, type user to log on.

Student 4 (continued)

6. Set the transfer mode

   [remote system]>**ASCII**

7. Transfer the files from the remote system (TC42VD) to the local system (TC42VE).

   [remote system]>**GET QUOTE4.INF**

   [remote system]>**GET POETRY4.ING**

8. Display the destination directory.

   [remote system]>**LOCAL-DIR**

9. Log off the remte system.

   [remote system]>**QUIT**

10. From the local system, display each file:

    $**type QUOTE4.INF**

    $**type POETRY4.INF**

Notify the presenter when the files are displayed on the screen.

11. Log off the local system.

    $ **LOG OUT**

Student 5

Practice 1 - Use FTP to transport a file from an external system.

INSTRUCTIONS: This practice will take approximately 15 minutes. Follow the specifics below.

a. Define Terms

Complete the sentence with the correct word or phrase.

1. FTP client runs on the _____system requesting the service.
2. The _____file transfer mode means that the bit sequence of the file is preserved so that the original and the copy are identical, bit for bit.
3. To reduce the cost of storage and transmission time, large files are stored in _____ format. The utility used by CHCS is called _____.
4. You would use the _____command to take a file on the local system and transfer it to the remote machine.
5. You would use the _____ command to transfer a file from the remote machine and place it on the local machine.

b. Transport a File from an External System

1. Access the local system: **TC42VE.SAIC.COM**
2. Log on to the local system with the username and password provided.
3. Start FTP.

   $**FTP**

4. Access the remote system.

   ftp>**OPEN TC42VD.SAIC.COM**

5. Log on to the remote site

   [remote system]>**user**

   Remember, since you are using a VMS system, type user to log on.

Student 5 (continued)

6. Set the transfer mode

   [remote system]>**ASCII**

7. Transfer the files from the remote system (TC42VD) to the local system (TC42VE).

   [remote system]>**GET QUOTE5.INF**

   [remote system]>**GET POETRY5.ING**

8. Display the destination directory.

   [remote system]>**LOCAL-DIR**

9. Log off the remte system.

   [remote system]>**QUIT**

10. From the local system, display each file:

    $**type QUOTE5.INF**

    $**type POETRY5.INF**

Notify the presenter when the files are displayed on the screen.

11. Log off the local system.

    $ **LOG OUT**

Student 6

Practice 1 - Use FTP to transport a file from an external system.

INSTRUCTIONS: This practice will take approximately 15 minutes. Follow the specifics below.

a. Define Terms

Complete the sentence with the correct word or phrase.

1. FTP client runs on the _____system requesting the service.
2. The _____file transfer mode means that the bit sequence of the file is preserved so that the original and the copy are identical, bit for bit.
3. To reduce the cost of storage and transmission time, large files are stored in _____ format. The utility used by CHCS is called _____.
4. You would use the _____command to take a file on the local system and transfer it to the remote machine.
5. You would use the _____ command to transfer a file from the remote machine and place it on the local machine.

b. Transport a File from an External System

1. Access the local system: **TC42VE.SAIC.COM**
2. Log on to the local system with the username and password provided.
3. Start FTP.

   $**FTP**

4. Access the remote system.

   ftp>**OPEN TC42VD.SAIC.COM**

5. Log on to the remote site

   [remote system]>**user**

   Remember, since you are using a VMS system, type user to log on.

Student 6 (continued)

6. Set the transfer mode

   [remote system]>**ASCII**

7. Transfer the files from the remote system (TC42VD) to the local system (TC42VE).

   [remote system]>**GET QUOTE6.INF**

   [remote system]>**GET POETRY6.ING**

8. Display the destination directory.

   [remote system]>**LOCAL-DIR**

9. Log off the remte system.

   [remote system]>**QUIT**

10. From the local system, display each file:

    $**type QUOTE6.INF**

    $**type POETRY6.INF**

Notify the presenter when the files are displayed on the screen.

11. Log off the local system.

    $ **LOG OUT**

Student 7

Practice 1 - Use FTP to transport a file from an external system.

INSTRUCTIONS: This practice will take approximately 15 minutes. Follow the specifics below.

a. Define Terms

Complete the sentence with the correct word or phrase.

1. FTP client runs on the _____system requesting the service.
2. The _____file transfer mode means that the bit sequence of the file is preserved so that the original and the copy are identical, bit for bit.
3. To reduce the cost of storage and transmission time, large files are stored in _____ format. The utility used by CHCS is called _____.
4. You would use the _____command to take a file on the local system and transfer it to the remote machine.
5. You would use the _____ command to transfer a file from the remote machine and place it on the local machine.

b. Transport a File from an External System

1. Access the local system: **TC42VE.SAIC.COM**
2. Log on to the local system with the username and password provided.
3. Start FTP.

   $**FTP**

4. Access the remote system.

   ftp>**OPEN TC42VD.SAIC.COM**

5. Log on to the remote site

   [remote system]>**user**

   Remember, since you are using a VMS system, type user to log on.

Student 7 (continued)

6. Set the transfer mode

   [remote system]>**ASCII**

7. Transfer the files from the remote system (TC42VD) to the local system (TC42VE).

   [remote system]>**GET QUOTE7.INF**

   [remote system]>**GET POETRY7.ING**

8. Display the destination directory.

   [remote system]>**LOCAL-DIR**

9. Log off the remte system.

   [remote system]>**QUIT**

10. From the local system, display each file:

    $**type QUOTE7.INF**

    $**type POETRY7.INF**

Notify the presenter when the files are displayed on the screen.

11. Log off the local system.

    $ **LOG OUT**

Student 8

Practice 1 - Use FTP to transport a file from an external system.

INSTRUCTIONS: This practice will take approximately 15 minutes. Follow the specifics below.

a. Define Terms

Complete the sentence with the correct word or phrase.

1. FTP client runs on the _____system requesting the service.
2. The _____file transfer mode means that the bit sequence of the file is preserved so that the original and the copy are identical, bit for bit.
3. To reduce the cost of storage and transmission time, large files are stored in _____ format. The utility used by CHCS is called _____.
4. You would use the _____command to take a file on the local system and transfer it to the remote machine.
5. You would use the _____ command to transfer a file from the remote machine and place it on the local machine.

b. Transport a File from an External System

1. Access the local system: **TC42VE.SAIC.COM**
2. Log on to the local system with the username and password provided.
3. Start FTP.

   $**FTP**

4. Access the remote system.

   ftp>**OPEN TC42VD.SAIC.COM**

5. Log on to the remote site

   [remote system]>**user**

   Remember, since you are using a VMS system, type user to log on.

Student 8 (continued)

6. Set the transfer mode

   [remote system]>**ASCII**

7. Transfer the files from the remote system (TC42VD) to the local system (TC42VE).

   [remote system]>**GET QUOTE8.INF**

   [remote system]>**GET POETRY8.ING**

8. Display the destination directory.

   [remote system]>**LOCAL-DIR**

9. Log off the remte system.

   [remote system]>**QUIT**

10. From the local system, display each file:

    $**type QUOTE8.INF**

    $**type POETRY8.INF**

Notify the presenter when the files are displayed on the screen.

11. Log off the local system.

    $ **LOG OUT**

Student 9

Practice 1 - Use FTP to transport a file from an external system.

INSTRUCTIONS: This practice will take approximately 15 minutes. Follow the specifics below.

a. Define Terms

Complete the sentence with the correct word or phrase.

1. FTP client runs on the _____system requesting the service.
2. The _____file transfer mode means that the bit sequence of the file is preserved so that the original and the copy are identical, bit for bit.
3. To reduce the cost of storage and transmission time, large files are stored in _____ format. The utility used by CHCS is called _____.
4. You would use the _____command to take a file on the local system and transfer it to the remote machine.
5. You would use the _____ command to transfer a file from the remote machine and place it on the local machine.

b. Transport a File from an External System

1. Access the local system: **TC42VE.SAIC.COM**
2. Log on to the local system with the username and password provided.
3. Start FTP.

   $**FTP**

4. Access the remote system.

   ftp>**OPEN TC42VD.SAIC.COM**

5. Log on to the remote site

   [remote system]>**user**

   Remember, since you are using a VMS system, type user to log on.

Student 9 (continued)

6. Set the transfer mode

   [remote system]>**ASCII**

7. Transfer the files from the remote system (TC42VD) to the local system (TC42VE).

   [remote system]>**GET QUOTE9.INF**

   [remote system]>**GET POETRY9.ING**

8. Display the destination directory.

   [remote system]>**LOCAL-DIR**

9. Log off the remte system.

   [remote system]>**QUIT**

10. From the local system, display each file:

    $**type QUOTE9.INF**

    $**type POETRY9.INF**

Notify the presenter when the files are displayed on the screen.

11. Log off the local system.

    $ **LOG OUT**

Student 10

Practice 1 - Use FTP to transport a file from an external system.

INSTRUCTIONS: This practice will take approximately 15 minutes. Follow the specifics below.

a. Define Terms

Complete the sentence with the correct word or phrase.

1. FTP client runs on the _____system requesting the service.
2. The _____file transfer mode means that the bit sequence of the file is preserved so that the original and the copy are identical, bit for bit.
3. To reduce the cost of storage and transmission time, large files are stored in _____ format. The utility used by CHCS is called _____.
4. You would use the _____command to take a file on the local system and transfer it to the remote machine.
5. You would use the _____ command to transfer a file from the remote machine and place it on the local machine.

b. Transport a File from an External System

1. Access the local system: **TC42VE.SAIC.COM**
2. Log on to the local system with the username and password provided.
3. Start FTP.

   $**FTP**

4. Access the remote system.

   ftp>**OPEN TC42VD.SAIC.COM**

5. Log on to the remote site

   [remote system]>**user**

   Remember, since you are using a VMS system, type user to log on.

Student 10 (continued)

6. Set the transfer mode

   [remote system]>**ASCII**

7. Transfer the files from the remote system (TC42VD) to the local system (TC42VE).

   [remote system]>**GET QUOTE10.INF**

   [remote system]>**GET POETRY10.ING**

8. Display the destination directory.

   [remote system]>**LOCAL-DIR**

9. Log off the remte system.

   [remote system]>**QUIT**

10. From the local system, display each file:

    $**type QUOTE10.INF**

    $**type POETRY10.INF**

Notify the presenter when the files are displayed on the screen.

11. Log off the local system.

    $ **LOG OUT**

■ Objective 2: CONFIGURE PARAMETERS AND TRANSPORT FILES FOR RCMAS

DISCUSS THE RCMAS INTERFACE

Overview of the External System

The Retrospective Case Mix Analysis System-Open System Environment (RCMAS-OSE) is a government-owned, patient-level system used to compare medical treatment facility (MTF) workload, utilization, and practice patterns to normative sources while automatically adjusting for the case mix and demographics of the MTF. It is commonly referred to as RCMAS.

Site personnel can access clinical and management information in the RCMAS database using standard and ad hoc reports. Information retrieval includes observed versus expected workload, utilization, and Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) costs. This information is reviewed to determine quality assurance and resource utilization management for the MTF.

Describe the Central and Local Repositories for RCMAS Data

RCMAS files are composed of Standard Inpatient Data Record (SIDR) and health care provider (HCP) data generated as a flat file by the Patient Administration (PAD) subsystem of CHCS. RCMAS files are transmitted via FTP to the local RCMAS server, which is shared by the Military Health Care Management Information System (MHCMIS). A local RCMAS server provides the site with access to current SIDR data.

SIDR and HCP data is loaded from the local RCMAS server onto the Central Repository for RCMAS data, which resides on a Sequent Multiplatform Processor at Vector Research, Inc. Vector Research, Inc., collects, compiles, and forwards this data to DMIS for analysis. Data from the central RCMAS server is also sent to the Corporate Executive Information System (CEIS).

If a site does not have a MHCMIS server, it will not have a local RCMAS server. In this case, all RCMAS data from the site is sent directly to the Central RCMAS Repository for data processing.

Discuss Interface Equipment

The local RCMAS server is located on the same Data General Avion 5225 fileserver as MHCMIS, which uses the UNIX operating system. The RCMAS device is site-defined using the RCMAS parameters option on the System Definition Menu. Because the system is located at the MTF, the destination IP address, logon, and password are site specific.

DISCUSS RCMAS INTERFACE PROCESS

The RCMAS interface is a unidirectional interface. Data is collected from CHCS files in PAD to create the SIDR and HCP files which are pushed onto the local RCMAS server in expanded SIDR format.

SIDR data generated from this process is collected for the biometric agencies at the same time to avoid redundant disk hits. Biometric agencies receive SIDR data in a slightly different format. Transporting SIDR data to the biometric agencies is discussed in the following objective.

Discuss Master File Notification Messages

No master file notifications are sent to RCMAS.

Discuss Interface Process for RCMAS Files

- Refer to Figure 3-7: Message Flow From CHCS to RCMAS.

  1. Configure the RCMAS transfer parameters through the RCMAS Parameter Enter/Modify (RCP) option within the PAD software.

  2. The following options on the Inpatient Record Miscellaneous Functions Menu (IPM) trigger the creation of the SIDR and Health Care Provider holding files. The menu path is:

     Systems Manager Menu (EVE) → CA → PAD → IRM → IPM

     The Inpatient Record Miscellaneous Functions Menu contains the following options:

     – The Transmit/Retrans ALL Type SIDR /Create RCMAS files (TRA)

     – Transmit/Retrans ‘D’ Type SIDR/Create RCMAS Files (TRD)

     – Transmit/Retran SIDR by Reg #/Create RCMAS Files (TRR).

When the SIDR data collection process runs, admissions and disposition data is retrieved, formatted, and saved according to a date range specified by the user.

At the same time, data is collected and updated on HCPs who have been coded as procedure HCPs, added or inactivated HCPs, or who have changes to any one of the data elements since the last HCP file was built.

Selecting any of these RCMAS file options creates two holding files: SIDR holding file (#8014) and Health Care Provider holding file (#8004).

These holding files may also be built on an on-demand or interim basis. The creation of these holding files is transparent to the user.

Relevant file information is saved in the SIDR and HCP holding files, while the actual SIDR and HCP data records are saved in a VMS flat file. The VMS flat files are deleted when the next SIDR and HCP holding files are built.

The Transmit/Retrans ALL SIDR/Create RCMAS Files (TRA) option is scheduled to run on the 5th of the month during off-peak hours to collect data for the previous month. The interim options are frequently used because of processing backlogs at the sites.

3. An entry is made to the transmission log stored in the SIDR Transmission file (#8001.01). Transmission data is stored in the ^SIDTRAN global maintained by the ^SIDRDR routine

   The CHCS software then transfers SIDR and HCP data collection to TaskMan. The job is assigned a task number, and the user's terminal is freed up.

4. A VMS ASCII file is created for each of the two holding files and placed for transmission in the export directory/file path defined by the site using the RCMAS Parameter (Enter/Modify) Option. The data is stored in the ^SIDREC global.

5. Users enrolled in the RCMAS mail group receive a mail bulletin indicating that the monthly SIDR and HCP holding files have been built and are ready for transmission.

6. The operator or software specialist runs FTP to transfer the two VMS data files from the export directory to RCMAS.

7. RCMAS receives the SIDR and HCP files. RCMAS does not send an acknowledgment of files received.

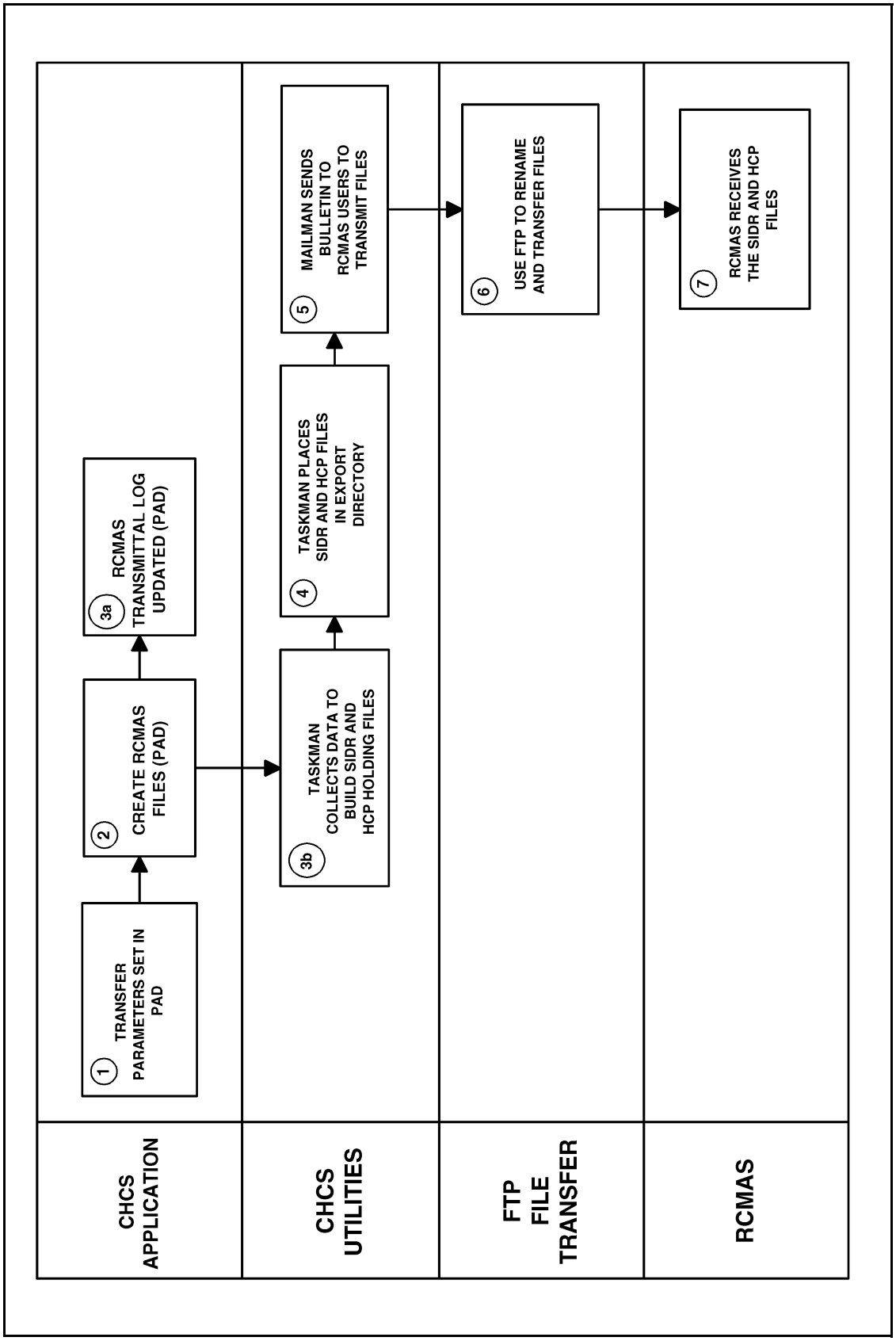

Figure 3-7. Message From CHCS to RCMAS

The SIDR and HCP holding files are kept in CHCS for retransmission or until the next monthly or interim SIDR and HCP holding files are built. Existing SIDR and HCP holding files are overwritten when new holding files are built.

The file transfer procedure repeats at intervals determined by the site, at least once each month.

Discuss Update of CHCS Files

CHCS files that provide data for SIDR transmission to RCMAS include:

– Patient file (#2)

– Provider file (#6).

Files that are updated when data is sent from CHCS to RCMAS include:

– SIDR Holding file (#8014)

– Health Care Provider Holding file (#8004)

– SIDR Transmission file (#8001.01).

Discuss Standard Operating Procedures

– To create the monthly RCMAS file, the DGINPRSUP security key must be assigned to the PAD functionality user.

– All users responsible for transmitting the monthly SIDR holding file to RCMAS-OSE should be enrolled in the “RCMAS” mail group. By enrolling in this mail group, you receive a mail bulletin indicating that the monthly SIDR holding file has been built and is ready for transmission.

– If you are new to the site, verify the IP address, logon and password of the RCMAS system.

– Verify the transmission by checking the transmission log from the SIDR/ RCMAS-OSE Interface (SRI) option on the Inpatient Record Miscellaneous Functions Menu:

Systems Manager Menu (EVE) → CA → PAD → IRM → IPM → SRI

MANAGE THE RCMAS INTERFACE

Scenario: *You received a MailMan message that RCMAS files are ready to transmit. Use FTP to transmit the files.*

Discuss FTP Configuration Parameters for Transporting SIDR and HCP Files to RCMAS

The following must be in place before SIDR and HCP files can be sent to RCMAS:

– SIDR and HCP holding files must be built.

– TaskMan must be running.

– The operator must have a logon ID, password, and IP address for the site RCMAS system.

– The operator must define parameters for the RCMAS device using the RCMAS Parameter (Enter/Modify) (RCP) option on the System Definition Menu as follows:

Systems Manager Menu (EVE) → CA → PAD → SDM → RCP

- Refer to Figure 3-8: RCMAS Parameters.

```
DIVISION: DIV A - TRAINING HOSPITAL                    DIVISION RCMAS
PARAMETERS


  RCMAS File Transfer Mode: FTP

               RCMAS Device: NL:

                 RCMAS Node:


 RCMAS File Path/Directory:DISK$ENVIRONMENTS:[ENVMGRV6]
```

FM-00751

Figure 3-8. RCMAS Parameters

Discuss RCMAS Parameter Settings

– **RCMAS File Transfer Mode.** The options are Kermit and FTP. FTP is the recommended setting.

– **RCMAS Device.** You cannot execute the RCMAS transmit option until the RCMAS device is defined. RCMAS uses the same device as MHCMIS.

– **RCMAS Node.** If the RCMAS node file is defined, users execute the RCMAS transmit option from that node only. If the RCMAS node is not defined, users can execute the RCMAS transmit option from any node.

– **RCMAS file/path directory.** Monthly SIDR, Interim SIDR, and Health Care Provider files will be created for RCMAS and placed in this directory. The file directory path must be complete and valid. The file protection must be set for read and write, or a bulletin will be generated that indicates a problem opening the file.

  If this optional parameter is not defined, the files will be created in the default TaskMan directory.

▲ DEMONSTRATE USING FTP TO TRANSFER SIDR AND HCP FILES TO RCMAS

NOTE: Residual RCMAS transfer files are not addressed by ETU and must be purged manually.

1. Access the local system: **TC42VE.SAIC.COM**

2. Log on to the local system.

   Username: **[site username]**

   Password: **[site password]**

   You must be assigned a username and password to access the VMS ($) prompt at your site.

3. Start FTP.

   $**ftp**

4. Identify the remote system.

   ftp >**OPEN TC42VD.SAIC.COM**

   The RCMAS system is piggy-backed onto the MHCMIS system at each site. This remote machine name is site specific.

5. Log on to the remote system.

   When FTP connects with the RCMAS system, you must identify yourself with a username and password assigned to you by the administrator of the RCMAS system.

   FTP from VMS begins with the logon:

   [remote system]> **user [site username]**

   Password: **[site password]**

6. Access the local RCMAS directory.

   ftp> lcd [/ *directory*]

   The lcd command accesses the local directory. Enter a slash (/) to move to the specified directory regardless of your current position.

   When transmitting files from your site, access the local directory containing the RCMAS files to be transmitted. This directory is site specific.

   Note: You do not need to change to another directory to transmit files in this training class.

   Two VMS files are sent to RCMAS in the following format:

   HCP####.DAT

   MSID####.DAT

   where #### equals the DMIS ID of the site.

   Note the byte size of each file.

7. Transfer the RCMAS files.

   ftp> **put HCP0000.DAT**

   To Remote File: **<Return>**

   The Health Care Provider file is transferred to the directory on the RCMAS system. The name of the file remains the same.

   The remote system confirms the transfer.

   ftp> **put MSID0000.DAT MSIDR0000.DAT**

   The SIDR file is transferred to the directory on the RCMAS system. The name of the file must be changed for this system.

   Because the name is changed, the mput command cannot be used to FTP these files.

   The remote system confirms the transfer.

8. Access the remote RCMAS directory.

   ftp> **dir *.DAT**

   RCMAS uses the UNIX operating system. A list of files appears. Verify that the RCMAS files transferred properly by checking the names and file byte size.

9. Log off FTP.

10. Log off your system.

Practice 2 - Configure parameters and transport files for RCMAS.

PRACTICE

Student 1

Practice 2 - Configure parameters and transport files for RCMAS.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

a. Define Terms

Write T or F to indicate whether the statement is True or False.

_____ 1. Selecting any of the RCMAS file options in the PAD functionality creates two holding holding files: SIDR Holding file and Health Care Provider file.

_____ 2. The Data General Avion 5225 fileserver is dedicated solely to RCMAS.

_____ 3. If you are responsible for transmitting RCMAS files, you should be enrolled in the RCMAS mail group so that you receive bulletins indicating when the files are ready for transmission.

_____ 4. Existing SIDR and HCP holding files are saved when new holding files are built.

b. Configure Parameters and Transport Files for RCMAS

1. Access the local system: **TC42VE.SAIC.COM**
2. Log on to the local system with the username and password provided.
3. Start FTP.

   $**ftp**

4. Access the remote system.

   ftp> **OPEN TC42VD.SAIC.COM**

5. Transfer the RCMAS files.

   FTP> put **HCP0001.DAT**

   FTP>put **MSID0001.DAT** MSIDR0001.DAT

Student 1 (continued)

6. Display the remote RCMAS directory

Notify the presenter when the directory is displayed on the screen.

7. Log off FTP and both systems.

Student 2

Practice 2 - Configure parameters and transport files for RCMAS.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

a. Define Terms

Write T or F to indicate whether the statement is True or False.

_____ 1. Selecting any of the RCMAS file options in the PAD functionality creates two holding holding files: SIDR Holding file and Health Care Provider file.

_____ 2. The Data General Avion 5225 fileserver is dedicated solely to RCMAS.

_____ 3. If you are responsible for transmitting RCMAS files, you should be enrolled in the RCMAS mail group so that you receive bulletins indicating when the files are ready for transmission.

_____ 4. Existing SIDR and HCP holding files are saved when new holding files are built.

b. Configure Parameters and Transport Files for RCMAS

1. Access the local system: **TC42VE.SAIC.COM**
2. Log on to the local system with the username and password provided.
3. Start FTP.

   $**ftp**

4. Access the remote system.

   ftp> **OPEN TC42VD.SAIC.COM**

5. Transfer the RCMAS files.

   FTP> put **HCP0002.DAT**

   FTP>put **MSID0002.DAT** MSIDR0001.DAT

Student 2 (continued)

6. Display the remote RCMAS directory

Notify the presenter when the directory is displayed on the screen.

7. Log off FTP and both systems.

Student 3

Practice 2 - Configure parameters and transport files for RCMAS.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

a. Define Terms

Write T or F to indicate whether the statement is True or False.

_____ 1. Selecting any of the RCMAS file options in the PAD functionality creates two holding holding files: SIDR Holding file and Health Care Provider file.

_____ 2. The Data General Avion 5225 fileserver is dedicated solely to RCMAS.

_____ 3. If you are responsible for transmitting RCMAS files, you should be enrolled in the RCMAS mail group so that you receive bulletins indicating when the files are ready for transmission.

_____ 4. Existing SIDR and HCP holding files are saved when new holding files are built.

b. Configure Parameters and Transport Files for RCMAS

1. Access the local system: **TC42VE.SAIC.COM**
2. Log on to the local system with the username and password provided.
3. Start FTP.

   $**ftp**

4. Access the remote system.

   ftp> **OPEN TC42VD.SAIC.COM**

5. Transfer the RCMAS files.

   FTP> put **HCP0003.DAT**

   FTP>put **MSID0003.DAT** MSIDR0001.DAT

Student 3 (continued)

6. Display the remote RCMAS directory

Notify the presenter when the directory is displayed on the screen.

7. Log off FTP and both systems.

Student 4

Practice 2 - Configure parameters and transport files for RCMAS.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

a. Define Terms

Write T or F to indicate whether the statement is True or False.

_____ 1. Selecting any of the RCMAS file options in the PAD functionality creates two holding holding files: SIDR Holding file and Health Care Provider file.

_____ 2. The Data General Avion 5225 fileserver is dedicated solely to RCMAS.

_____ 3. If you are responsible for transmitting RCMAS files, you should be enrolled in the RCMAS mail group so that you receive bulletins indicating when the files are ready for transmission.

_____ 4. Existing SIDR and HCP holding files are saved when new holding files are built.

b. Configure Parameters and Transport Files for RCMAS

1. Access the local system: **TC42VE.SAIC.COM**
2. Log on to the local system with the username and password provided.
3. Start FTP.

   $**ftp**

4. Access the remote system.

   ftp> **OPEN TC42VD.SAIC.COM**

5. Transfer the RCMAS files.

   FTP> put **HCP0004.DAT**

   FTP>put **MSID0004.DAT** MSIDR0001.DAT

Student 4 (continued)

6. Display the remote RCMAS directory

Notify the presenter when the directory is displayed on the screen.

7. Log off FTP and both systems.

Student 5

Practice 2 - Configure parameters and transport files for RCMAS.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

a. Define Terms

Write T or F to indicate whether the statement is True or False.

_____ 1. Selecting any of the RCMAS file options in the PAD functionality creates two holding holding files: SIDR Holding file and Health Care Provider file.

_____ 2. The Data General Avion 5225 fileserver is dedicated solely to RCMAS.

_____ 3. If you are responsible for transmitting RCMAS files, you should be enrolled in the RCMAS mail group so that you receive bulletins indicating when the files are ready for transmission.

_____ 4. Existing SIDR and HCP holding files are saved when new holding files are built.

b. Configure Parameters and Transport Files for RCMAS

1. Access the local system: **TC42VE.SAIC.COM**
2. Log on to the local system with the username and password provided.
3. Start FTP.

   $**ftp**

4. Access the remote system.

   ftp> **OPEN TC42VD.SAIC.COM**

5. Transfer the RCMAS files.

   FTP> put **HCP0005.DAT**

   FTP>put **MSID0005.DAT** MSIDR0001.DAT

Student 5 (continued)

6. Display the remote RCMAS directory

Notify the presenter when the directory is displayed on the screen.

7. Log off FTP and both systems.

Student 6

Practice 2 - Configure parameters and transport files for RCMAS.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

a. Define Terms

Write T or F to indicate whether the statement is True or False.

_____ 1. Selecting any of the RCMAS file options in the PAD functionality creates two holding holding files: SIDR Holding file and Health Care Provider file.

_____ 2. The Data General Avion 5225 fileserver is dedicated solely to RCMAS.

_____ 3. If you are responsible for transmitting RCMAS files, you should be enrolled in the RCMAS mail group so that you receive bulletins indicating when the files are ready for transmission.

_____ 4. Existing SIDR and HCP holding files are saved when new holding files are built.

b. Configure Parameters and Transport Files for RCMAS

1. Access the local system: **TC42VE.SAIC.COM**
2. Log on to the local system with the username and password provided.
3. Start FTP.

   $**ftp**

4. Access the remote system.

   ftp> **OPEN TC42VD.SAIC.COM**

5. Transfer the RCMAS files.

   FTP> put **HCP0006.DAT**

   FTP>put **MSID0006.DAT** MSIDR0001.DAT

Student 6 (continued)

6. Display the remote RCMAS directory

Notify the presenter when the directory is displayed on the screen.

7. Log off FTP and both systems.

Student 7

Practice 2 - Configure parameters and transport files for RCMAS.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

a. Define Terms

Write T or F to indicate whether the statement is True or False.

_____ 1. Selecting any of the RCMAS file options in the PAD functionality creates two holding holding files: SIDR Holding file and Health Care Provider file.

_____ 2. The Data General Avion 5225 fileserver is dedicated solely to RCMAS.

_____ 3. If you are responsible for transmitting RCMAS files, you should be enrolled in the RCMAS mail group so that you receive bulletins indicating when the files are ready for transmission.

_____ 4. Existing SIDR and HCP holding files are saved when new holding files are built.

b. Configure Parameters and Transport Files for RCMAS

1. Access the local system: **TC42VE.SAIC.COM**
2. Log on to the local system with the username and password provided.
3. Start FTP.

   $**ftp**

4. Access the remote system.

   ftp> **OPEN TC42VD.SAIC.COM**

5. Transfer the RCMAS files.

   FTP> put **HCP0007.DAT**

   FTP>put **MSID0007.DAT** MSIDR0001.DAT

Student 7 (continued)

6. Display the remote RCMAS directory

Notify the presenter when the directory is displayed on the screen.

7. Log off FTP and both systems.

Student 8

Practice 2 - Configure parameters and transport files for RCMAS.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

a. Define Terms

Write T or F to indicate whether the statement is True or False.

_____ 1. Selecting any of the RCMAS file options in the PAD functionality creates two holding holding files: SIDR Holding file and Health Care Provider file.

_____ 2. The Data General Avion 5225 fileserver is dedicated solely to RCMAS.

_____ 3. If you are responsible for transmitting RCMAS files, you should be enrolled in the RCMAS mail group so that you receive bulletins indicating when the files are ready for transmission.

_____ 4. Existing SIDR and HCP holding files are saved when new holding files are built.

b. Configure Parameters and Transport Files for RCMAS

1. Access the local system: **TC42VE.SAIC.COM**
2. Log on to the local system with the username and password provided.
3. Start FTP.

   $**ftp**

4. Access the remote system.

   ftp> **OPEN TC42VD.SAIC.COM**

5. Transfer the RCMAS files.

   FTP> put **HCP0008.DAT**

   FTP>put **MSID0008.DAT** MSIDR0001.DAT

Student 8 (continued)

6. Display the remote RCMAS directory

Notify the presenter when the directory is displayed on the screen.

7. Log off FTP and both systems.

Student 9

Practice 2 - Configure parameters and transport files for RCMAS.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

a. Define Terms

Write T or F to indicate whether the statement is True or False.

_____ 1. Selecting any of the RCMAS file options in the PAD functionality creates two holding holding files: SIDR Holding file and Health Care Provider file.

_____ 2. The Data General Avion 5225 fileserver is dedicated solely to RCMAS.

_____ 3. If you are responsible for transmitting RCMAS files, you should be enrolled in the RCMAS mail group so that you receive bulletins indicating when the files are ready for transmission.

_____ 4. Existing SIDR and HCP holding files are saved when new holding files are built.

b. Configure Parameters and Transport Files for RCMAS

1. Access the local system: **TC42VE.SAIC.COM**
2. Log on to the local system with the username and password provided.
3. Start FTP.

   $**ftp**

4. Access the remote system.

   ftp> **OPEN TC42VD.SAIC.COM**

5. Transfer the RCMAS files.

   FTP> put **HCP0009.DAT**

   FTP>put **MSID0009.DAT** MSIDR0001.DAT

Student 9 (continued)

6. Display the remote RCMAS directory

Notify the presenter when the directory is displayed on the screen.

7. Log off FTP and both systems.

Student 10

Practice 2 - Configure parameters and transport files for RCMAS.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

a. Define Terms

Write T or F to indicate whether the statement is True or False.

_____ 1. Selecting any of the RCMAS file options in the PAD functionality creates two holding holding files: SIDR Holding file and Health Care Provider file.

_____ 2. The Data General Avion 5225 fileserver is dedicated solely to RCMAS.

_____ 3. If you are responsible for transmitting RCMAS files, you should be enrolled in the RCMAS mail group so that you receive bulletins indicating when the files are ready for transmission.

_____ 4. Existing SIDR and HCP holding files are saved when new holding files are built.

b. Configure Parameters and Transport Files for RCMAS

1. Access the local system: **TC42VE.SAIC.COM**
2. Log on to the local system with the username and password provided.
3. Start FTP.

   $**ftp**

4. Access the remote system.

   ftp> **OPEN TC42VD.SAIC.COM**

5. Transfer the RCMAS files.

   FTP> put **HCP00010.DAT**

   FTP>put **MSID00010.DAT** MSIDR0001.DAT

Student 10 (continued)

6. Display the remote RCMAS directory

Notify the presenter when the directory is displayed on the screen.

7. Log off FTP and both systems.

■ Objective 3: IDENTIFY THE PARAMETERS AND PROCEDURES TO TRANSPORT FILES TO THE BIOMETRIC AGENCIES

DISCUSS THE BIOMETRIC AGENCY INTERFACE

Biometric data consists of medical and demographic information to be statistically analyzed for each inpatient episode. This information is generated through the PAD functionality at the MTF, as discussed in the previous objective. SIDR files are transmitted using either FTP or ETU. The following government agencies outside the MTF collect biometric data for each of the services:

– Army - Patient Administration Systems and Biostatistics Activity (PASBA)

– Navy - Naval Medical Information Management Center (NMIMC)

– Air Force - Vector Research, Inc.

Vector Research, Inc., compiles the data from all of the services, then creates a dynamic update tape which is sent to DMIS.

❑ IDENTIFY THE PARAMETERS AND PROCEDURES TO TRANSPORT FILES TO VECTOR RESEARCH, INC. - U.S. AIR FORCE

Overview of the Vector Research, Inc. - U.S. Air Force Interface

Vector Research, Inc., in Arlington, Virginia, compiles biometric data generated by Air Force MTFs as SIDR files to update the Air Force historical inpatient database. The Vector interface is unidirectional.

Discuss Interface Equipment

The destination system is a Sequent Multiprocessor, using the UNIX operating system. The destination domain name is FTDETRCK-OSE1.ARMY.MIL.

Discuss the Vector Research, Inc., Interface Process

- Refer to Figure 3-9: Message Flow From CHCS to Vector Research, Inc.

Data is sent to Vector as an ASCII format file using the following procedure:

1. PAD functionality data is compiled daily. This information is placed in the SIDR files.

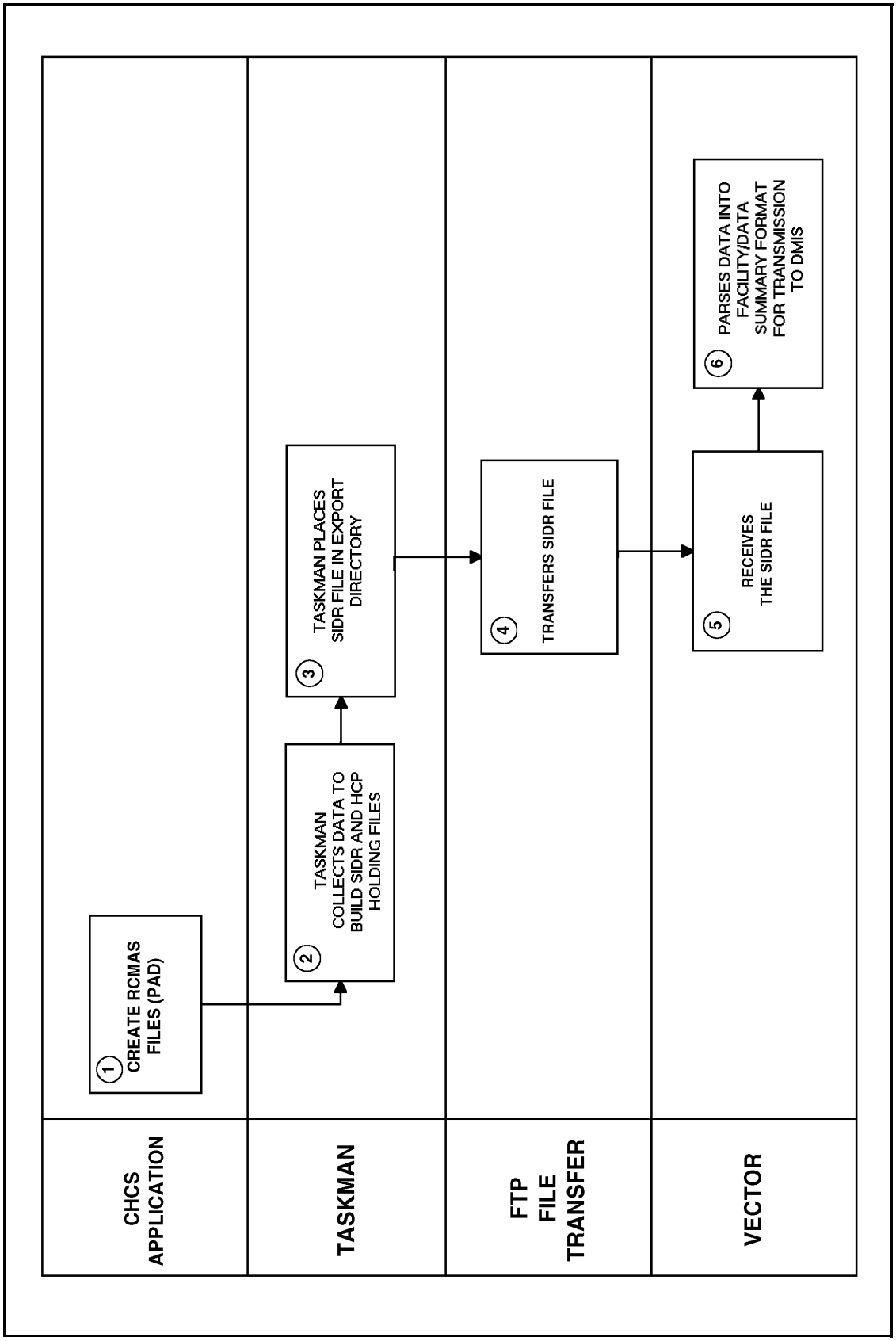

Figure 3-9. Message Flow From CHCS to Vector Research, Inc.

2. During the first week of the month, PAD personnel generate a SIDR file for the previous month using the Transmit/Retrans ALL SIDR/Create RCMAS File (TRA) option:

   Systems Manager Menu (EVE) → CA → PAD → IRM → IPM → TRA

   HCPs are flagged, and the HCP file is created when the monthly SIDR file is created.

3. The generation of the SIDR file triggers a TaskMan task.

4. TaskMan retrieves the file from PAD functionality and places it in an export directory defined by the functionality.

5. The software specialist uses FTP to transfer the SIDR file from the export directory to the default directory established by logging on at Vector.

6. Vector retrieves the data from its system.

7. Vector parses the SIDR data into the standard Facility/Data/Summary file format used by ETU to make the files compatible with Army and Navy SIDR data.

8. If the transmission is successful, you receive a confirmation message via e-mail indicating the name of the received file and the number of records transmitted. If the transmission is not successful, you are notified to retransmit.

9. Vector compiles the monthly SIDR data for the Air Force historical database.

10. Vector sends a dynamic data update containing monthly Tri-Service SIDR data to DMIS via tape.

The FTP transfer of SIDR files repeats at least once each month. Sites may choose to transfer files more often to reduce processing backlog.

Discuss Update of CHCS Files

No CHCS files are updated in the transfer of SIDR data to Vector.

CHCS files that provide data for SIDR transmission to Vector include:

– Patient file (#2)

– Provider file (#6).

SIDR files are created at the same time as RCMAS files, and the same data is used.

Discuss Standard Operating Procedures

The first time you FTP your data, or if you are new to the position, contact Vector prior to transmission. You will need to:

- Confirm the IP address, logon ID, and password.
- Provide your e-mail address so that a confirmation message can be sent.
- On the 5th day of each month, transmit the SIDRs for the previous month. For example, the November 1996 file should be created and FTPd no later than 5 December 1996.
- Check confirmation e-mail messages sent by Vector and resolve any problems promptly.

MANAGE THE VECTOR INTERFACE

Scenario: *You just transmitted the RCMAS files, so the SIDR files are also ready to transmit. Use FTP to transmit the files.*

Discuss FTP Configuration Parameters for Transporting SIDR Files to Vector

The following must be in place before SIDR files can be sent to Vector:

– SIDR Holding file must be ready to transmit,

– The operator must have a logon ID, password, and IP address for the Vector system.

DISCUSS USING FTP TO TRANSFER FILES TO VECTOR

NOTE: Residual Vector transfer files are not addressed by ETU and must be purged manually.

1. Log on to VMS on your local system.

   Username: [site username]

   Password: [site password]

   You must be assigned a username and password to access the VMS prompt at your site.

2. Start FTP.

   $ftp

3. Identify the remote system.

   ftp > OPEN FTDETRCK-OSE1.ARMY.MIL

   This is the domain name of the remote system at Vector as of July 1996. Alternatively, you can combine steps (1) and (2) by entering FTP FTDETRCK-OSE1.ARMY.MIL at the VMS $ prompt.

4. Access the remote site.

   When FTP connects with the remote system, you must identify yourself with a username and password assigned to you by the remote site.

FTP from VMS begins with the logon:

REMOTE-MACHINE-NAME> user SIDRAF

Password: ALL4WON (Password is entered, but does not echo)

The username and password are the same for all Air Force sites.

The account logon provides access to a directory specifically setup by Vector to receive Air Force SIDR files.

5. Access the local directory containing the SIDR files.

ftp> lcd [/ directory]

The lcd command accesses the local directory. Enter a slash (/) to move to the specified directory regardless of your current position.

From your account, access the local directory containing the SIDR files to be transmitted. This directory is site specific.

The SIDR file is sent to Vector in the following format:

FILENAME: SIDR_AAAA_BBBB_MMYY.DAT

where

AAAA = Your site DMIS ID

BBBB = Your site MTF code

MMYY = Month and year of data

EXAMPLE:

August 1995 SIDR data being FTPd from Vandenburg AFB would have the following filename:

SIDR_0018_0670_0895.DAT

Note the file byte size.

6. Transfer the SIDR file.

ftp> put SIDR_AAAA_BBBB_MMYY.DAT

The file is not parsed into Facility/Data/Summary segments.

The remote system confirms the transfer.

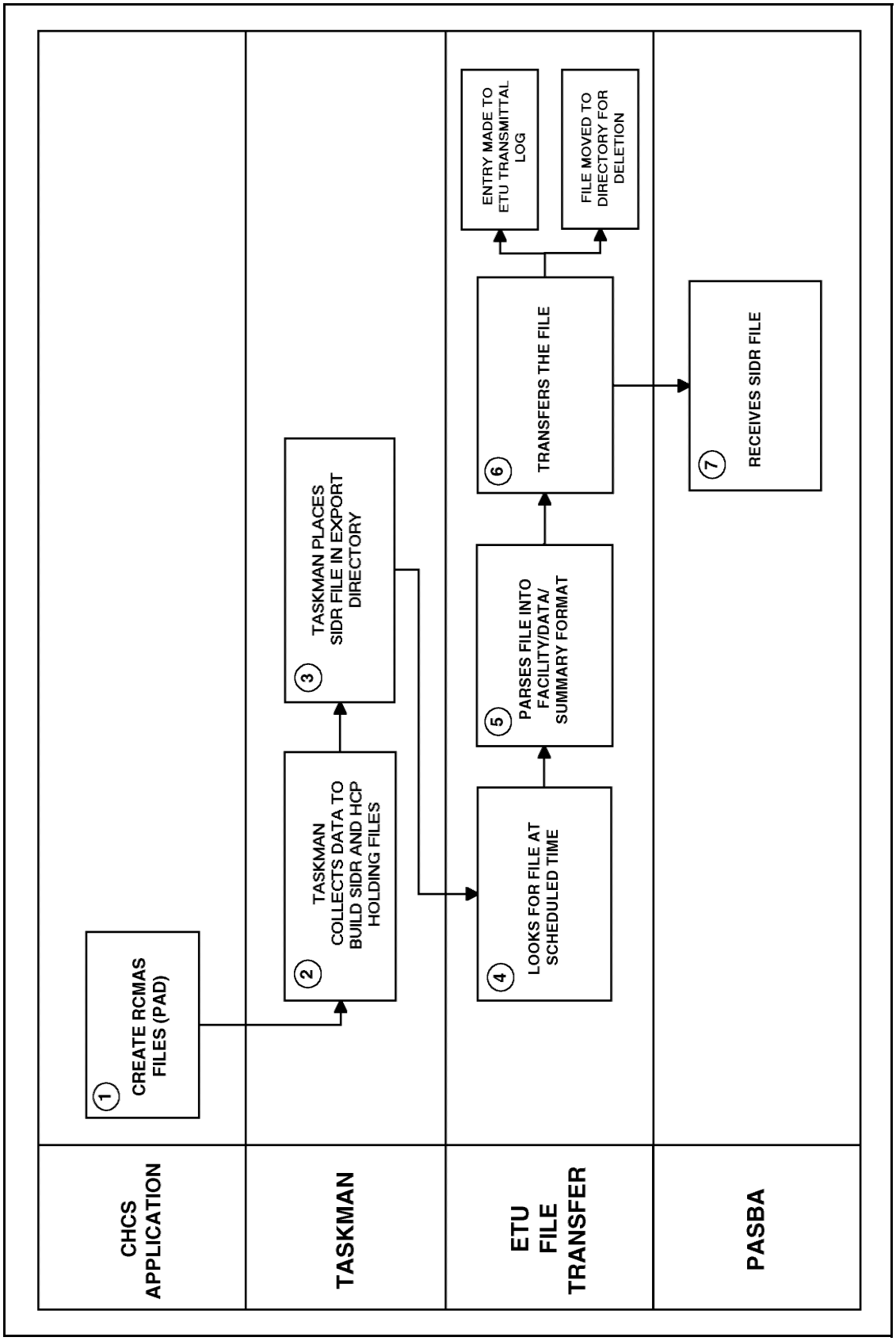

Figure 3-10. Message Flow From CHCS to PASBA

7. Access the remote SIDR directory.

   ftp> **dir *.DAT**

   Vector uses a UNIX operating system. A list of files appears. Verify that the SIDR file transferred properly by checking the name and file byte size.

8. Log off FTP.

9. Log off your system.

❑ IDENTIFY THE PARAMETERS AND PROCEDURES TO TRANSPORT FILES TO PASBA - U.S. ARMY

Overview of the External System

PASBA is the central repository for biostatistical data generated from the PAD functionality SIDR files created at Army MTFs. Twice each month, Army facilities send SIDR data via ETU to the PASBA mainframe computer at Fort Sam Houston, Texas.

Discuss Interface Equipment

The destination system is an IBM mainframe, Model 3090, using the MVS/ESA operating system. The destination domain name at PASBA is FTSMHSTN-HSC5.ARMY.MIL.

Discuss the PASBA Interface Process

- Refer to Figure 3-10: Message Flow From CHCS to PASBA.

SIDR data is sent to PASBA as an ASCII format file via ETU using the following procedure:

1. PAD functionality data is compiled daily. This information is placed in the SIDR and HCP holding files waiting to be transmitted.

2. During the first week of each month, PAD personnel generate a SIDR file for the previous month using the Transmit/Retrans ALL SIDR/Create RCMAS File (TRA) option:

   Systems Manager Menu (EVE) → CA → PAD → IRM → IPM → TRA

3. The generation of the SIDR file triggers a TaskMan task.

4. TaskMan retrieves the file from PAD functionality and places it in the export directory defined in SY_EXP_DIR.

5. If the file transfer has been scheduled by either the CHCS administrator or software specialist, ETU transfers the SIDR file to PASBA using the location parameters configured for the remote site.

   If the file transfer has not been scheduled, the software specialist manually transfers the file using ETU. Scheduling is recommended.

6. ETU looks in the export directory. When it finds export data, it parses and separates the SIDR data into the standard Facility/Data/Summary file format.

7. ETU transmits the three files and creates corresponding entries in the master transmittal log.

8. ETU moves the transmitted file into the directory defined in SY_DEL_DIR. The files are automatically deleted after seven days.

9. If the transmission is successful, you may receive a confirmation message via e-mail from PASBA indicating the name of the received file and the number of records transmitted.

   If the transmission is not successful, you are notified to retransmit. You can also check your transmission against the ETU transmittal log.

10. PASBA compiles the monthly SIDR data for the Army's inpatient database.

11. A copy of the data is sent by PASBA to Vector Research, Inc., to be compiled with Air Force and Navy data prior to transmission to DMIS.

The file transfer process is repeated in the middle of the month using the Transmit/Retransmit 'D' Type SIDR/Create RCMAS file (TRD) option:

Systems Manager Menu (EVE) → CA → PAD → IRM → IPM → TRD

The FTP transfer of SIDR files repeats at least once each month. Interim SIDR files may be transmitted midmonth. Sites may choose to transfer files more often to reduce processing backlog.

Discuss Update of CHCS Files

No CHCS files are updated in the transfer of SIDR data to PASBA.

CHCS files that provide data for SIDR transmission to PASBA include:

– Patient file (#2)

– Provider file (#6).

SIDR files are created at the same time as RCMAS files, and the same data is used.

Discuss Standard Operating Procedures

– During the first week of the month, transmit the SIDRs for the previous month. For example, the November 1996 file should be created and FTPd no later than 5 December 1996.

– Transmit interim, 'D' type, SIDR files in the middle of the month.

– Check the ETU file transmittal log at least once a week. Files that have not been sent remain in the directories defined in SY_EXP_DIR for seven days before they are deleted.

– Check confirmation e-mail messages sent by PASBA and resolve any problems promptly.

MANAGE THE PASBA INTERFACE

Scenario: *You just transmitted the RCMAS files, so the SIDR files are also ready to transmit. Use ETU to transmit the files.*

Discuss How to Configure ETU Parameters for Transporting SIDR Files to PASBA

> **NOTE:** Residual PASBA files are automatically purged from the CHCS System 14 days after transfer byETU.

The SIDR Holding file must be ready to transmit before SIDR files can be sent to PASBA.

The parameters for transporting files to PASBA are configured for you within the SY_ADMIN ETU file transfer utility.

To view the preconfigured settings:

1. Access the Update Location Parameters option on the Electronic Transfer Utility Menu.

   SY_ADMIN → File → Transfer → Update Location Parameters

2. Enter type of update (A)dd, (E)dit, (D)elete: E// <Return>

3. Press <Return> to confirm the following location parameters:

   Enter number of descriptive name for transfer parameters: 1 // 1
   Enter Name or IP address for remote system: // FTSMHSTN-HSC5.ARMY.MIL
   Enter User ID for remote system: joeuser // b044bb
   Enter Password for remote system: //
   Enter Receiving directory at remote system: //
   Enter Sending directory at remote system: //
   Enter Files to be exported: // sidr*a9999* SIDR*A9999*

   > **Note:** 9999 in the name of files to export represents the DMIS ID of the reporting MTF.

   Enter Files to be imported: //
   Enter Maximum retransmits: 1 //
   Enter ASCII or binary transfer: ASCII //
   Enter File compression mode: none //
   Enter Transmission log transfer option: none //
   Enter Hour for automatic scheduled transmission: // 0

Note the following parameters:

IP Address, User ID. At the time this document was written, there was a single IP address and common logon. The IP address will change when the

hardware is upgraded, and individual site logon accounts may be put into use at that time. Confirm the IP address and account logon with the chief PAD officer.

Password. Not echoed.

Files to be exported. This is the SIDR filename generated by the PAD functionality. The 'A' signifies Army SIDR files. The files are renamed by ETU when they are parsed and separated into the Facility/Data/Summary file format.

Hour for automatic scheduled transmission. The hour shown is midnight.

NOTE: Automatic SIDR and WWR file transfer times are site specific; however, recommend SIDR files be transferred at midnight and WWR files at 1am.

4. Press <Return> to confirm the following file mask settings.

```
SIDR Facility File:
Enter File mask: SXX.RUF0000.-.HDR.D*^.T%+ //
Lines executed prior to transmission:
Enter Line 1: QUOTE SITE SPECIAL VB //
Enter Line 2: QUOTE STRU F //
Enter Line 3: //

SIDR Data File:
Enter File mask: SXX.RUF0000.-.DATA.D*^.T%+ //
Lines executed prior to transmission:
Enter Line 1: QUOTE SITE SPECIAL VB //
Enter Line 2: QUOTE STRU F //
Enter Line 3: //

SIDR Summary File:
Enter File mask: SXX.RUF0000.-.TLR.D*^.T%+ //
Lines executed prior to transmission:
Enter Line 1: QUOTE SITE SPECIAL VB //
Enter Line 2: QUOTE STRU F //
Enter Line 3: //
```

Note the following parameters:

File mask. Unlike SIDR files sent to other services, the file mask for each of the SIDR Facility, Data, and Summary segments sent to PASBA includes an abbreviation for the segment, rather than a single letter.

EXAMPLE:

Segment Name	Alpha Character Used	PASBA Abbreviation
Facility	F	HDR (for “Header”)
Data	D	DATA (for “Data”)
Summary	S	TLR (for “Trailer”)

5. Return to the Electronic Transfer Utility Menu.

Discuss Using ETU to Transfer SIDR Files to PASBA

1. Access the Transmit Files (choose location) option on the Electronic Transfer Utility Menu.

   SY_ADMIN → File → Transfer → Transmit Files (choose location)

2. Enter the name of the location whose transfer parameters you will be using.

   Enter a descriptive name for transfer parameters: // ?

   Enter the name of the predefined location transfer parameters. If you want to see a list of names, type a question mark (?). ETU lists all the names that contain at least one file to transmit.

   The possible transfer parameters for exportable files are:

   1. EAS_FILES
   2. SIDR_TO_NMIMC
   3. SIDR_TO_PASBA
   4. STARS_FILES
   5. WWW_TO_NMIMC

   Enter number of descriptive name for transfer parameters 1// 3

3. Transmit the file(s) by accepting the default.

- Refer to Figure 3-11: SIDR Filename Mask: PASBA.

```
The PASBA SIDR file name specifications are as follows:
     SXX.RUF0000.   B     XXXX.   XXX .DYYMMDD   .THHMM   XX
     1              2      3      4       5        6     7

Where:
      1)    SXX.RUF0000.="SXX.RUF0000." required identifying file prefix,
      2)     B=branch of service:  "A"=Army "F"=Air Force "N"=Navy,
      3)     DMIS ID of the reporting Medical Treatment Facility (MTF),
      4)     Facility="HDR" Data="DATA" Summary="TLR" [i]
      5)     .DYYMMDD=".D" and YY=Year, MM=Numeric Month, DD=Numeric Day,
      6)     .THHMM=".T" and HH=Hour, MM=Minute,
      7)     XX=Transmittal number.
```

FM-00752

Figure 3-11. SIDR Filename Mask: PASBA

ETU then converts the CHCS specified filenames for each file type to the name needed by the remote/receiving system. The conversion occurs through the use of the file mask fields.

4. Return to the Electronic Transfer Utility Menu.

❑ IDENTIFY THE PARAMETERS AND PROCEDURES TO TRANSPORT FILES TO NMIMC - U.S. NAVY

Overview of the External System

NMIMC is the central repository for biostatistical data generated from the PAD functionality SIDR files created at Navy MTFs. Once each month, Navy facilities send SIDR data and Worldwide Workload Report (WWW) data via the file transfer option on the SY_ADMIN Menu (ETU) to NMIMC.

Discuss Interface Equipment

The destination system is an Amdahl mainframe (an IBM mainframe clone), using the MVS/ESA operating system. The destination domain name at NMIMC for this system is NMIMC.MED.NAVY.MIL.

An AT&T3B2 server running the UNIX operating system is used as an alternate system. Its domain name isIMC212.MED.NAVY.MIL.

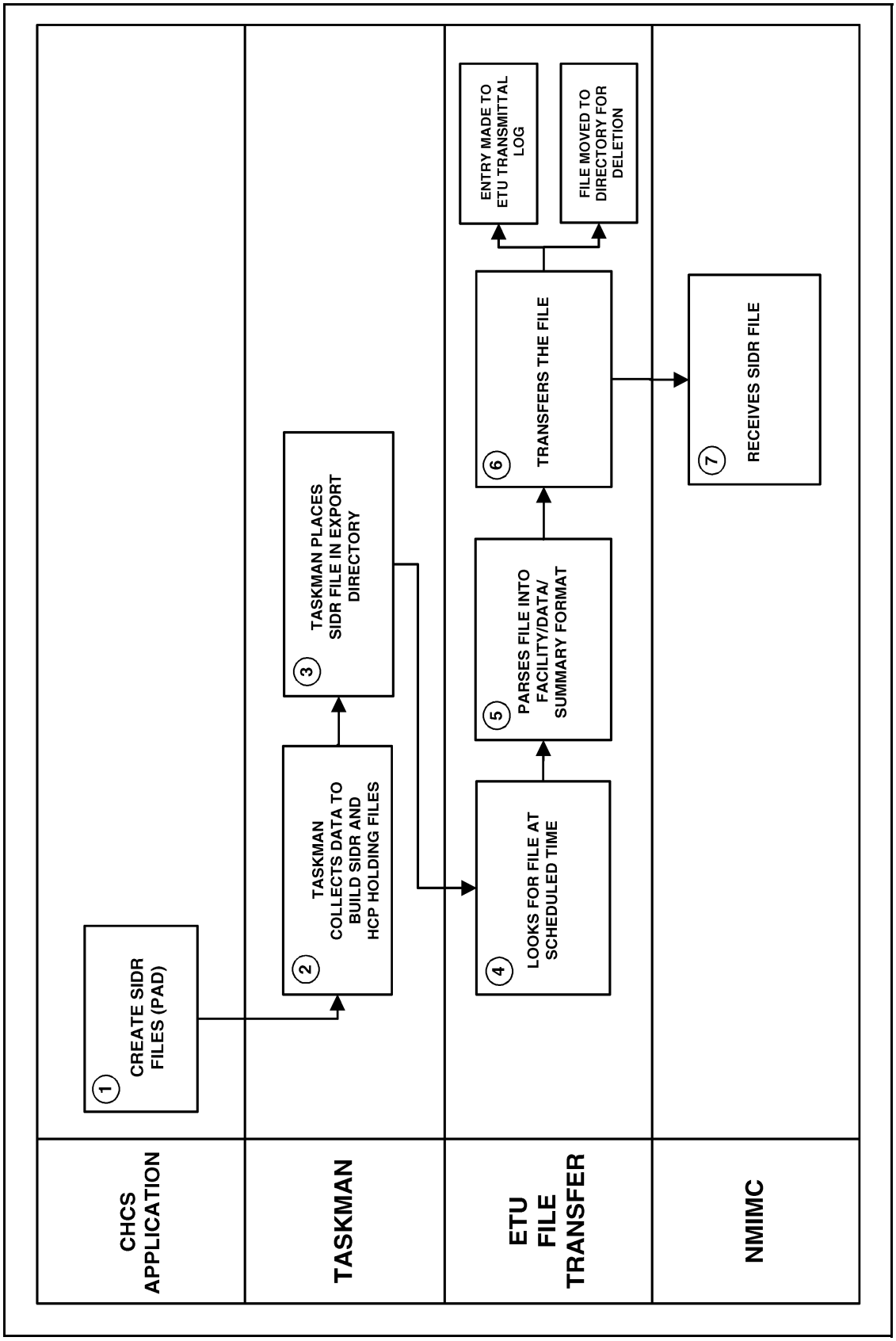

Figure 3-12. Message Flow From CHCS to NMIMC: SIDR Files

Discuss the NMIMC Interface Process: SIDR Files and WWW Files

Two data sets are sent to NMIMC for processing: SIDR data and the WWW Report. The generation of SIDR data was discussed in detail in the previous objective.

The WWW Report is a Tri-Service report that consolidates and replaces the Army Medical Summary Report, Navy Workload Report, and the Air Force Report of Patients. All services now receive all sections of the report, which is a statistical summary of various workload reporting elements.

Discuss the SIDR-to-NMIMC Interface Process

- Refer to Figure 3-12: Message Flow From CHCS to NMIMC: SIDR Files.

SIDR data is sent to NMIMC as an ASCII format file via ETU using the following procedure:

1. PAD functionality data is compiled daily. This information is placed in the SIDR file.

2. During the first week of each month, PAD personnel generate a SIDR file for the previous month using the Transmit/Retrans ALL SIDR/Create RCMAS File (TRA) option:

   Systems Manager Menu (EVE) → CA → PAD → IRM → IPM → TRA

   HCPs are flagged and the HCP file is created when the monthly SIDR file is created.

3. The generation of the SIDR file triggers a TaskMan task.

4. TaskMan retrieves the file from PAD functionality and places it in the export directory defined in SY_EXP_DIR, the export directory for all ETU file transfers.

5. If the file transfer has been scheduled by either the CHCS administrator or software specialist, ETU transfers the SIDR file to NMIMC using the location parameters configured for the remote site.

   If the file transfer has not been scheduled, the software specialist manually transfers the file using ETU. Scheduling is recommended.

6. ETU looks in the export directory. When it finds export data, it parses and separates the SIDR data into the standard Facility/Data/Summary file format.

7. ETU transmits the three files and creates corresponding entries in the master transmittal log.

8. ETU moves the transmitted file into the directory defined in SY_DEL_DIR. The files are automatically deleted after seven days.

9. If the transmission is successful, you may receive a confirmation message via e-mail from NMIMC, indicating the name of the received file and the number of records transmitted.

   If the transmission is not successful, you are notified to retransmit. You can also check your transmission against the ETU transmittal log.

10. NMIMC compiles the monthly SIDR data for the Navy's inpatient database.

11. SIDR data tapes for the current and previous fiscal years are dynamically updated, then sent by NMIMC to Vector Research, Inc., to be compiled with Air Force and Army data prior to transmission to DMIS.

The FTP transfer of SIDR files repeats at least once each month. Sites may choose to transfer files more often to reduce processing backlog.

Discuss Update of CHCS Files

No CHCS files are updated in the transfer of SIDR data to NMIMC.

CHCS files that provide data for SIDR transmission to NMIMC include:

– Patient file (#2)

– Provider file (#6).

SIDR files are created at the same time as RCMAS files, and the same data is used.

MANAGE THE NMIMC INTERFACE: SIDR FILES

Scenario: *You just transmitted the RCMAS files, so the SIDR files are also ready to transmit. Use ETU to transmit the files.*

Discuss ETU Configuration Parameters for Transporting SIDR Files to NMIMC

The SIDR Holding file must be ready to transmit before SIDR files can be sent to NMIMC.

Some ETU parameters for transporting files to NMIMC are configured for you within ETU, which provides some default prompting.

To view the settings:

1. Access the Update Location Parameters option on the Electronic Transfer Utility Menu

   SY_ADMIN → File → Transfer → Update Location Parameters

2. Enter type of update (A)dd, (E)dit, (D)elete: E// <Return>

   Note: 9999 in the name of files to export represents the DMIS ID of the reporting MTF.

3. Press <Return> to confirm the following location parameters:

   Enter a descriptive name for transfer parameters // SIDR_TO_NMIMC
   Enter Name or IP address for remote system: // NMIMC.MED.NAVY.MIL
   Enter User ID for remote system: joeuser // your_logon
   Enter Password for remote system: //
   Enter Receiving directory at remote system: //
   Enter Sending directory at remote system: //
   Enter Files to be exported: // sidr*n9999* SIDR*N9999*
   Enter Files to be imported: //
   Enter Maximum retransmits: 1 //
   Enter Ascii or binary transfer: ASCII //
   Enter File compression mode: none //
   Enter Transmission log transfer option: none //
   Enter Hour for automatic scheduled transmission: // 0

Note the following parameters:

User ID and Password. Individual logon accounts are used for each site. Confirm the account logon with the chief PAD officer or NMIMC.

Files to be exported. This is the SIDR filename generated by the PAD functionality. The 'N' signifies Navy SIDR files. The files are renamed by ETU when they are parsed into the Facility/Data/Summary file format.

Hour for automatic scheduled transmission. The hour shown is midnight.

4. Press <Return> to confirm the following file mask settings.

   SIDR Facility File:
   Enter File mask: 'DSC2AQC.CHN-.#F+.D*' //
   Lines executed prior to transmission:
   Enter Line 1: QUOTE SITE VOL=PROD03 LR=70 BL=70 //
   Enter Line 2: //

   SIDR Data File:
   Enter File mask: 'DSC2AQC.CHN-.#D+.D*' //
   Lines executed prior to transmission:
   Enter Line 1: QUOTE SITE VOL=PROD03 LR=221 BL=1326 TR PRI=100 SEC=25 //
   Enter Line 2: //
   SIDR Summary File:
   Enter File mask: 'DSC2AQC.CHN-.#S+.D*' //
   Lines executed prior to transmission:
   Enter Line 1: QUOTE SITE VOL=PROD03 LR=31 BL=31 //
   Enter Line 2: //

Note the following parameters:

File mask. The file mask for each of the SIDR Facility, Data, and Summary segments sent to NMIMC is the same, except for a single alpha character indicating the type of file segment.

EXAMPLE:

Segment Name	Alpha Character Used
Facility	F
Data	D
Summary	S

5. Return to the Electronic Transfer Utility Menu.

Discuss Using ETU to Transfer SIDR Files to NMIMC

NOTE: Residual NMIMC files are automatically purged from the CHCS System 14 days after transfer byETU.

1. Access the Transmit Files (choose location) option on the Electronic Transfer Utility Menu.

   SY_ADMIN → File → Transfer → Transmit Files (choose location)

2. Enter the name of the location whose transfer parameters you will be using.

   Enter a descriptive name for transfer parameters: // ?

   Enter the name of the predefined location transfer parameters. If you want to see a list of names, type a question mark (?). ETU lists all the names that contain at least one file to transmit.

   The possible transfer parameters for exportable files are:

   1. EAS_FILES
   2. SIDR_TO_NMIMC
   3. SIDR_TO_PASBA
   4. STARS_FILES
   5. WWW_TO_NMIMC

   Enter number of descriptive name for transfer parameters 1// 2

3. Transmit the file(s) by accepting the default.

- Refer to Figure 3-13: SIDR Filename Mask: NMIMC.

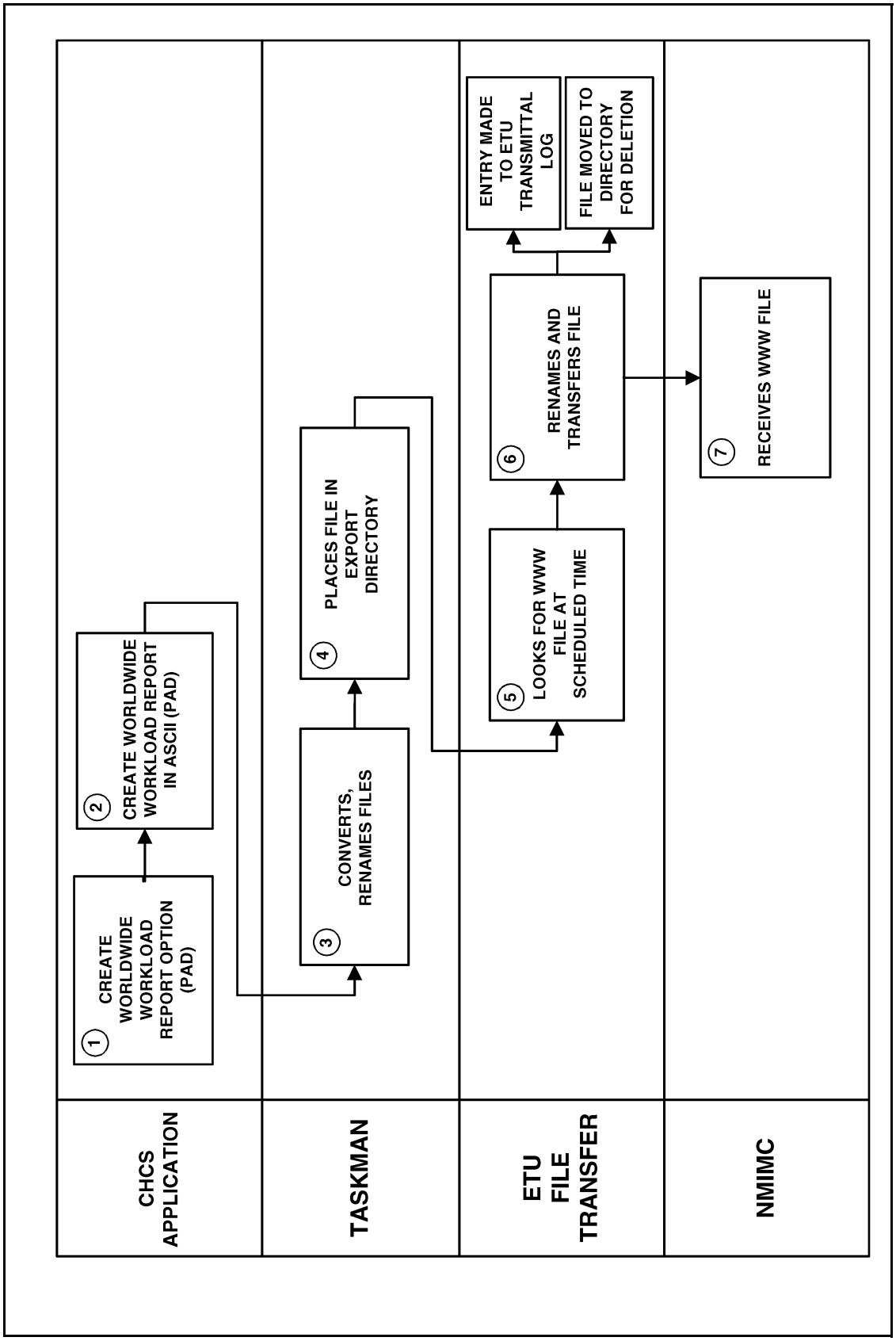

Figure 3-14. Message Flow From CHCS to NMIMC: WWW Files

```
The NMIMC SIDR file name specifications are as follows:
  DSC2AQC.CHN          B    XXXX.     XXXX      T     XX.     DYYMM
      1                2      3        4        5     6         7
      Where:
      1)     DSC2AQC.CHN=”DSC2AQC.CHN” required identifying file prefix,
      2)     B=branch of service:  “A”=Army “F”=Air Force “N”=Navy,
      3)     DMIS ID of the reporting Medical Treatment Facility (MTF),
      4)     For Biometric monthly data=”BIO”
             For D type interim data=”DREG”
             For Outpatient SIDR data=”OUT”
             For Individual register number data=”REG”
             For Casualty SIDR data=”SREG”
      5)     Facility=”F” Data=”D” Summary=”S”
      6)     XX=Transmittal number,
      7)     DYYMM=”D” and YY=Year, MM=Numeric Month.
```

FM-00753

Figure 3-13. SIDR Filename Mask: NMIMC

ETU then converts the CHCS specified filenames for each file type to the name needed by the remote/receiving system. The conversion occurs through the use of the file mask fields.

4. Return to the Electronic Transfer Utility Menu.

Discuss the WWW-to-NMIMC Interface Process

- Refer to Figure 3-14: Message Flow From CHCS to NMIMC: WWW Files.

The Worldwide Workload Report (WWW) file is transmitted as an ASCII file to NMIMC using the following procedure:

1. PAD personnel enter and update inpatient, outpatient, and/or ancillary data into the CHCS database daily.

   All workload data is reviewed, updated, and/or corrected by the appropriate staff before generating the end of the month workload report. Workload data from the following file areas is used: Admission/ Disposition/Transfer, Absent Status, Patient Category, MEPRS Codes, Patient Location Information, and ICU.

2. During the first week of each month, PAD personnel access Worldwide Workload Report-Print/Reprint for the previous month from the following menu path:

Systems Manager Menu (EVE) → CA → PAD → IRM → WLR

At the Select Worldwide Workload Report MONTH/YEAR prompt, the PAD user enters the date for the previous month and year to create the report. The month and year selected cannot be a date in the future or a date more than 18 months in the past.

An error message displays prior to printing the report if end of day processing is outstanding. Six sections of the report display. The PAD user compiles all sections of the report.

3. The PAD user accesses the Create Worldwide Workload Report in ASCII format (CMF) option on the Inpatient Record Menu.

   Systems Manager Menu (EVE) → CA → PAD → IRM → CMF

   The PAD user selects the default output device, which should be the name of a VMS file. Other options include mag tape device, spool device, or some other flat file.

4. The creation of the WWW ASCII file triggers a TaskMan task. TaskMan converts the file to ASCII format with the WKLDname.DAT extension.

5. TaskMan places the ASCII file in the export directory defined in SY_EXP_DIR, the export directory for all ETU file transfers.

6. If the file transfer has been scheduled by either the CHCS administrator or software specialist, ETU transfers the SIDR file to NMIMC using the location parameters configured for the remote site.

   If the file transfer has not been scheduled, the software specialist manually transfers the file using ETU. Scheduling is recommended.

7. ETU looks in the export directory at the scheduled time. When it finds WWW export data, it transmits the file and creates an entry in the transmittal log.

   Note: WWW data is not parsed like SIDR data.

8. ETU moves the transmitted file into the directory defined in SY_DEL_DIR. The files are automatically deleted after seven days.

9. If the transmission is successful, you may receive a confirmation message through e-mail from NMIMC indicating the name of the received file and the number of records transmitted.

If the transmission is not successful, you are notified through e-mail or by phone to retransmit. You can also check your transmission against the ETU transmittal log.

10. NMIMC compiles the WWW data.

The file transfer process is repeated each month or as often as necessary to reduce processing backlog.

Discuss Update of CHCS Files

No CHCS files are updated in the transfer of WWW data to NMIMC.

CHCS files that provide data for WWW transmission to NMIMC include:

– Patient file (#2)

– Provider file (#6).

MANAGE THE NMIMC INTERFACE: WWW FILES

Scenario: *It is the beginning of the month and PAD personnel have WWW export data ready for transmission to NMIMC. Use ETU to transmit the files.*

Discuss ETU Configuration Parameters for Transporting WWW Files to NMIMC

The WKLDname.DAT extension file must be in the export directory defined in ETU before WWW files can be sent to NMIMC.

To view the ETU settings:

1. Access the Update Location Parameters option on the Electronic Transfer Utility Menu.

   SY_ADMIN → File → Transfer → Update Location Parameters

2. Enter type of update (A)dd, (E)dit, (D)elete: E// <Return>

   Note: 9999 in the Name of Files to Export represents the DMIS ID of the reporting MTF.

3. Press <Return> to confirm the following location parameters:

   Enter a descriptive name for transfer parameters // WWW_TO_NMIMC

Enter Name or IP address for remote system: // NMIMC.MED.NAVY.MIL
Enter User ID for remote system: joeuser // your_logon
Enter Password for remote system: //
Enter Receiving directory at remote system: //
Enter Sending directory at remote system: //
Enter Files to be exported: // wkld*n9999* WKLD*N9999*
Enter Files to be imported: //
Enter Maximum retransmits: 1 //
Enter Ascii or binary transfer: ASCII //
Enter File compression mode: none //
Enter Transmission log transfer option: none //
Enter Hour for automatic scheduled transmission: // 1
Enter File mask: 'DSC2AQC.CHN-.#+.D*' //
Lines executed prior to transmission:
Enter Line 1: QUOTE SITE VOL=PROD03 LR=47 BL=4700 TR PRI=100 SEC=25 //
Enter Line 2: //

Note the following parameters:

User ID and Password. Individual logon accounts are used for each site. Confirm the account logon with the PAD officer or NMIMC.

Files to be exported. This is the WWW filename generated by the PAD functionality. The 'N' signifies Navy SIDR files. The files are renamed by ETU and given the .DAT extension.

Hour for automatic scheduled transmission. The hour shown is 0100 hours.

File Mask. Only one file mask is needed because WWW data does not need to be parsed into the Facility/Data/Summary format like SIDR data.

4. Return to the Electronic Transfer Utility Menu.

DISCUSS USING ETU TO TRANSFER WWW FILES TO NMIMC

NOTE: Residual WWW files are automatically purged from the CHCS System 14 days after transfer byETU.

1. Access the Transmit Files (choose location) option on the Electronic Transfer Utility Menu.

   SY_ADMIN → File → Transfer → Transmit Files (choose location)

2. Enter the name of the location whose transfer parameters you will be using.

   Enter a descriptive name for transfer parameters: // ?

   Enter the name of the predefined location transfer parameters. If you want to see a list of names, type a question mark (?). ETU lists all the names that contain at least one file to transmit.

   The possible transfer parameters for exportable files are:

   1. EAS_FILES
   2. SIDR_TO_NMIMC
   3. SIDR_TO_PASBA
   4. STARS_FILES
   5. WWW_TO_NMIMC

   Enter number of descriptive name for transfer parameters 1// 5

   Enter the number of the transfer parameters you wish to use or press <Return> to accept the default. In this example, the WWW transfer parameters are chosen.

   Once a name is chosen, the system displays all the parameters associated with that name. A prompt displays after the parameters.

3. Transmit the file(s) by accepting the default.

- Refer to Figure 3-15: WWW Filename Mask.

```
The NMIMC WWW file name specifications is as follows:
     DSC2AQC.CHN      B       XXXX.     WKLD         XX.         DYYMM
     1                2        3          4          5             6
      Where:
      1)     DSC2AQC.CHN=”DSC2AQC.CHN” required identifying file prefix,
      2)     B=branch of service:  “A”=Army “F”=Air Force “N”=Navy,
      3)     DMIS ID of the reporting Medical Treatment Facility (MTF),
      4)     WKLD=”WKLD”
      5)     XX=Transmittal number,
      6)     DYYMM=”D” and YY=Year, MM=Numeric Month.
```

FM-00754

Figure 3-15. WWW Filename Mask

ETU then converts the CHCS specified filename to the name needed by the remote/receiving system. The conversion occurs through the use of the file mask field.

4. Return to the Electronic Transfer Utility Menu.

Discuss Standard Operating Procedures

Each MTF has its own logon account and password for transmission of both the SIDR and WWW data. If you are new to the site, verify that you are using the correct logon account and password for that site.

– On the 5th day of each month, transmit the SIDRs for the previous month. For example, the November 1996 file should be created and FTPd no later than 5 December 1996.

– Schedule the transmission of the WWW files to NMIMC on the last day of the month at 0100 hours.

– Check the SY_ADMIN file transmittal log at least once a week. Files that have not been sent remain in the directory defined in SY_EXP_DIR for seven days before they are purged.

– Check confirmation e-mail messages sent by NMIMC and resolve any problems promptly.

Practice 3 - Identify the parameters and procedures to transport files to the biometric agencies.

PRACTICE

Students 1-10

Practice 3 - Identify the parameters and procedures to transport files to the biometric agencies.

INSTRUCTIONS: This practice will take approximately 10 minutes. Draw a flow diagram showing the message flow of SIDR files from CHCS to the biometric agency associated with your branch of the military.

CHCS APPLICATION	
TASKMAN	
ETU/FTP FILE TRANSFER	
BIOMETRIC AGENCY	

SYS-01245

Navy - Message Flow from CHCS to NMIMC

Notify the presenter when you have completed this practice.

■ Objective 4: IDENTIFY THE PARAMETERS AND PROCEDURES TO TRANSPORT FILES TO THE STANDARD ACCOUNTING AND REPORTING SYSTEM/FIELD LEVEL (STARS/FL)

DISCUSS THE STARS/FL INTERFACE

Overview of the External System

STARS/FL is a Navy accounting system that supports all Navy activities worldwide. STARS/FL is used to supplement cost accounting and workload data provided from EAS. Data from the two systems support NASDI. NASDI is now encompassed by the WAM.

You may hear support personnel use the terms EAS, STARS/FL, NASDI, and WAM interchangeably.

Discuss Interface Equipment

STARS/FL resides on an AT&T3B2 Model 600G system, which uses the MVS operating system. The system IP address is 163.240.18.15. Because the organization managing STARS/FL does not yet have a configured domain name server, a domain name is not available for the STARS/FL system.

DISCUSS THE STARS/FL INTERFACE PROCESS

The collection and data transfer procedure from CHCS to STARS/FL is very similar to that of EAS. Like EAS, STARS/FL is a bidirectional interface.

Discuss Interface Process for Outbound Data

- Refer to Figure 3-16: Message Flow From CHCS to STARS/FL.

  NOTE: First run the STARS/FL **BEFORE** the EAS ASCII file. It is critical that the STARS/FL file run first, because the EAS file transmission changes the template status from (A)pproved to (T)ransmitted.

ETU transfers ASCII flat file format data to the STARS/FL system in the following steps:

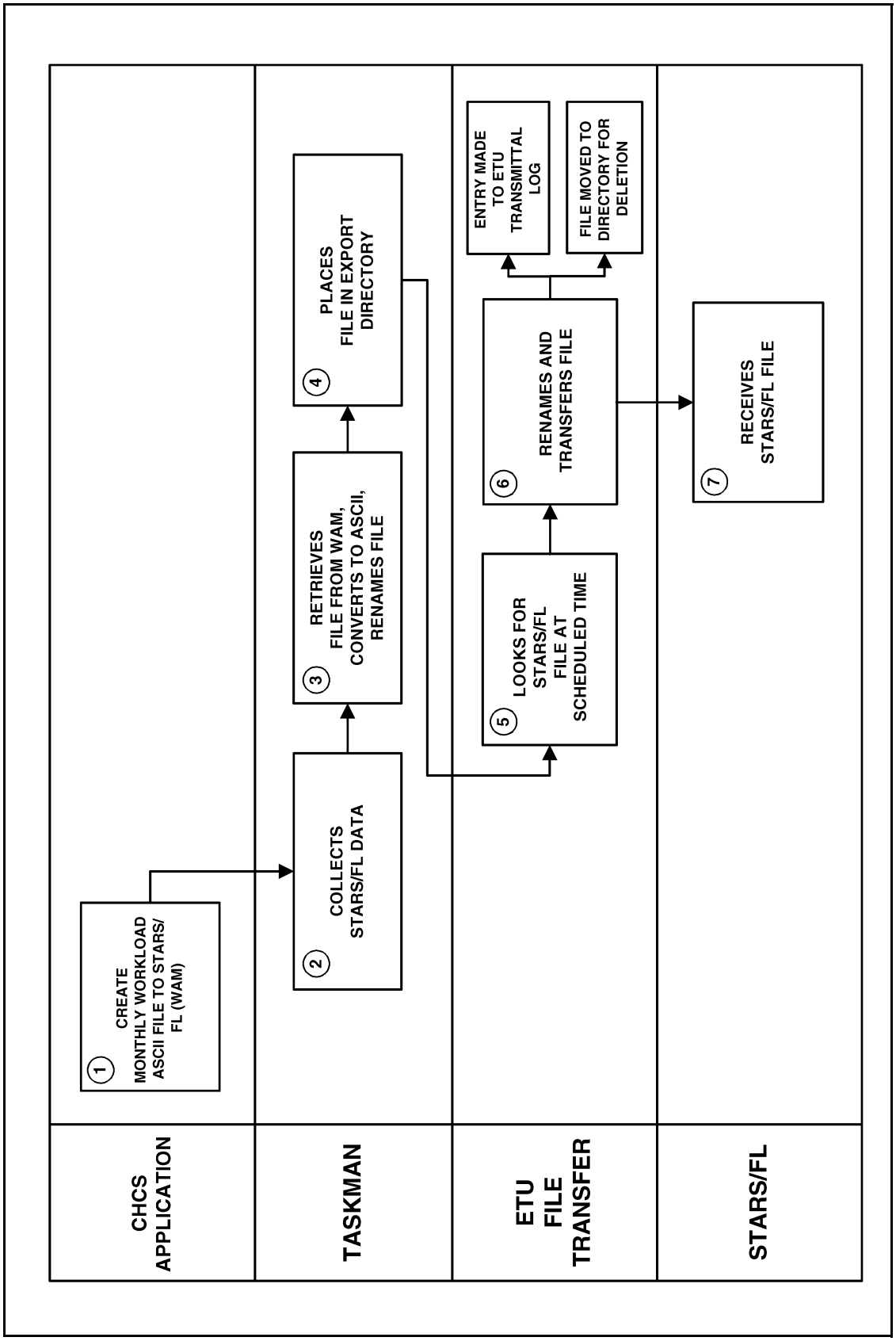

Figure 3-16. Message Flow From CHCS to STARS/FL

1. The NASDI Core file (#8185) provides the SAS data and related Performing MEPRS and Requesting MEPRS for each service, and CAC for Navy sites.

   This data is used to validate requests for workload information that is to be collected through WAM. The following files are sent by CHCS to the MTF monthly:

   – The ASD file, which is an existing EAS table containing fourth-level MEPRS codes,

   – Stepdown Assignment Statistics (SAS, #8185.1) file.

   The Master Data Element file (STARS/FL only, #8185.2) is updated annually.

   The NASDI STARS/FL Master Data Elements File contains CAC/JON data set requirements that are used by the WAM subsystem for Navy sites only. The information in this file defines workload data that is collected by the WAM each night and transmitted to the STARS/FL system each month.

2. Workload numbers are collected and tabulated, then fed into various CHCS-generated MEPRS workload reports and into the WAM templates.

3. WAM pulls the workload numbers generated for the MEPRS reports into SAS and/or CAC categories. CAC is used for ancillary and non-ancillary workload transmitted to STARS/FL systems.

4. The WAM subsystem evaluates the data received for both EAS and STARS/FL, and provides error information on records in the input data stream that did not pass validation tests.

5. After ensuring that reports generated from the workload templates are accurate and exceptions are checked, the workload coordinator approves the templates for transmission to STARS/FL. This is done at the beginning of each month for the previous month.

6. From the WAM Menu, functionality users choose the Create Monthly Workload ASCII File to STARS/FL option from the Workload Assignment Module Menu:

   Systems Manager Menu (EVE) → CA → DAA → WAM

7. The Create Monthly Workload ASCII File to STARS/FL option triggers a TaskMan task. The task is scheduled during off-peak hours.

8. TaskMan retrieves the file from WAM functionality and converts it to ASCII before placing it in the export directory defined in SY_EXP_DIR, the export directory for all ETU file transfers.

9. If the monthly file transfer has been scheduled by either the CHCS administrator or software specialist, then ETU transfers the STARS/FL file using the location parameters configured for the remote site. If the monthly file transfer has not been scheduled, the software specialist manually transfers the file using ETU. Scheduling is recommended for the monthly file transfer.

10. ETU looks in the export directory. When it finds export data to the STARS/FL system, it transmits the files to STARS/FL and creates an entry in the transmittal log indicating byte size and date to serve as file acknowledgment to the software specialist. No other acknowledgment is sent by STARS/FL.

11. The WAM workload coordinator verifies that the file status for monthly workload data has changed from “approved” to “transmitted” in WAM. If data is still waiting for approval or transmission after the end of the month, the coordinator receives a warning bulletin. The STARS/FL Subsystem Workload Report prints workload amount totals for each CAC and workload job order number (WJON) transmitted by ASCII file.

    Every SAS does not have a CAC/JON. Hence, STARS/FL does not report exactly the same workload as the EAS/SAS workload report.

12. ETU moves the transmitted STARS/FL file into the directory defined in SY_DEL_DIR. These files are deleted after seven days.

The STARS/FL data transfer procedure is repeated each night once activated, or more often to reduce processing backlog.

Discuss Update of CHCS Files

Files that are updated when CHCS data is sent to the EAS interface include:

– SAS Detail file (#8185.1)

– ASD file.

Discuss Interface Process for Inbound Data

- Refer to Figure 3-17: Message Flow From STARS/FL to CHCS.

ETU transfers data from the STARS/FL system to CHCS in the following steps:

1. EAS populates CAC-JON files in the WAM functionality with workload data each night.

2. ETU looks for the updated file at the time scheduled through the ETU software.

3. ETU transfers the file to the designated import directory.

   ETU makes an entry to the ETU transmittal log, and also moves the file to the directory for deletion.

4. The CHCS administrator or the software specialist uses options on the Schedule/Unschedule TaskMan Tasks Menu to initialize and schedule the updates:

   Systems Manager Menu (EVE) → TM → STT

   DOD ASD Update

   DOD CAC-JON Update

   DOD SAS Detail Update

   These menu options trigger TaskMan to check the DIR.APPL.IMP directory for ASD, SAS, and JON file data to populate CHCS files with MEPRS codes.

   ASD files are processed first. The nightly CAC/JON Update is scheduled for transmission to EAS at 2200 hours. SAS Detail files are run last.

5. The nightly CAC-JON Update option populates the monthly NASDI STARS/FL Master Data Elements file with the OB-UIC code, WJON-SN, CAC, MEPRS codes, and WJON-UIC.

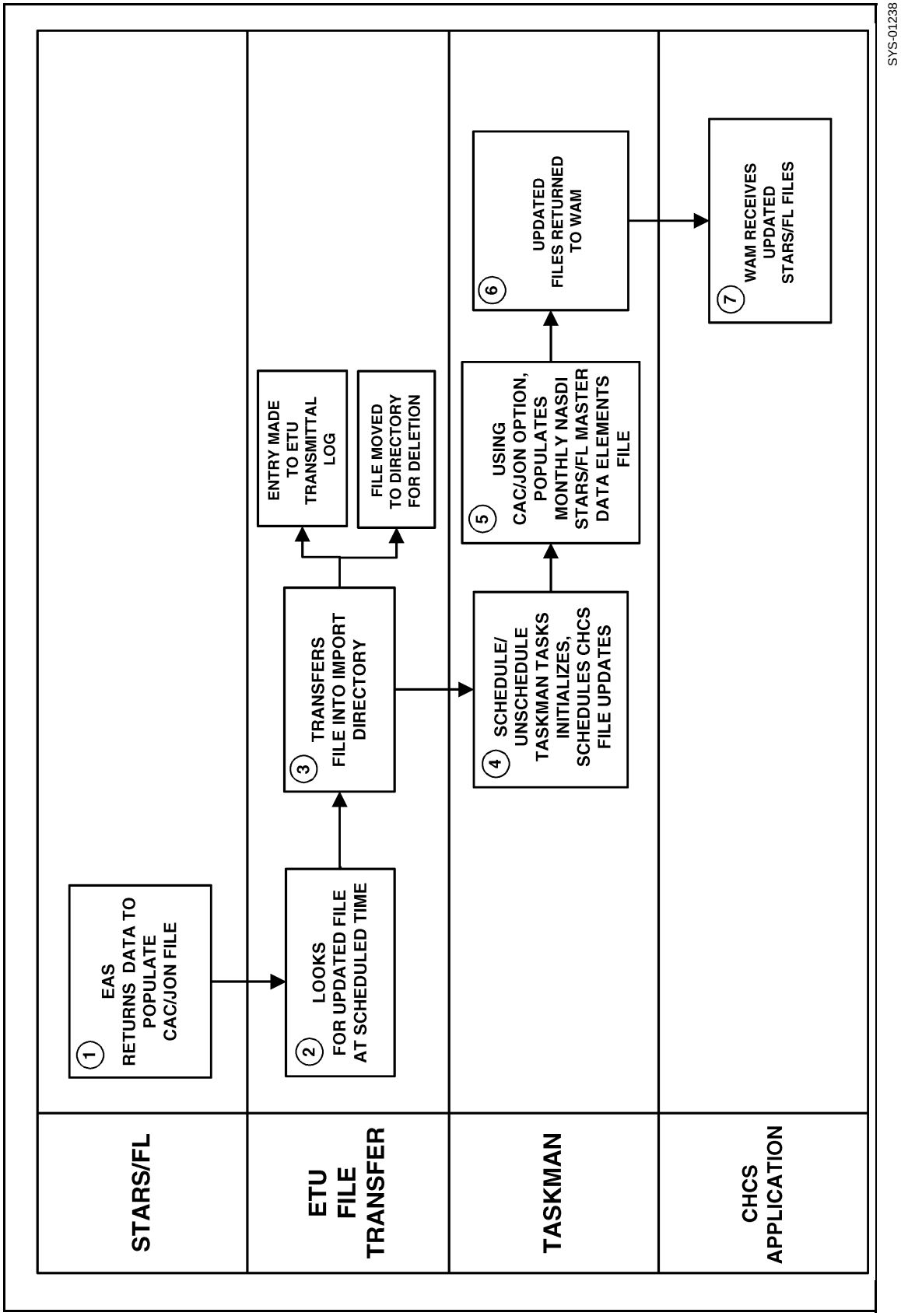

Figure 3-17. Message Flow From STARS/FL to CHCS

6. The ASD, SAS, and CAC-JON files are returned to WAM and CHCS functionalities to determine what data to collect from CHCS into the templates.

   The WAM coordinator checks the WAM Exception Report for exception messages resulting from the incoming file transmission and the exceptions generated from the SAS and CAC/JON Enter/Edit options.

   The CAC/JON files provide initial and subsequent data updates which are automatically stored in the NASDI STARS/FL Master Data Element file.

7. The STARS/FL Central Repository sends the STARS/FL Master Data Element file to WAM annually or as needed. This data is maintained for 12 months after the inactivation date for historical reporting purposes.

The STARS/FL data transfer procedure is repeated each month once activated.

Discuss Update of CHCS Files

CHCS files that are updated when data is received from the STARS/FL include:

– Master Data Element file (#8185.2).

Several files are provided by DMIM as references for WAM:

– NASDI Core file (#8185),

– NASDI Business Rules file (#8185.3).

Discuss Standard Operating Procedures

If you are new to the site, make sure you are using the correct logon account and password for that site to transfer STARS/FL files.

The workload file creation log is stored on CHCS as a control mechanism for 12 months.

At least twice each week, check the SY_ADMIN (ETU) file transmittal log:

– Check for files that have not been transmitted. Files that have not been sent remain in the directory defined in SY_DEL_DIR for seven days before they are purged.

– On the 2nd day of each month, transmit the monthly STARS/FL ASCII file for the previous month. For example, the November 1996 file should be created on 1 December 1996 and sent via ETU no later than 2 December 1996.

MANAGE THE STARS/FL INTERFACE

Scenario: *The ETU transmittal log shows several STARS/FL files that have not been transmitted. Use ETU to retransmit the files.*

Dicuss Configuration of ETU Parameters for Transporting STARS/FL Files to the STARS Central Repository

> **NOTE:** Residual STARS/FL files are automatically purged from the CHCS System 14 days after transfer by ETU.

The parameters for transporting STARS/FL files are configured for you within the SY_ADMIN file transfer utility.

To view the preconfigured settings for exporting STARS/FL files:

1. Access the Update Location Parameters option on the Electronic Transfer Utility Menu.

   SY_ADMIN → File → Transfer → Update Location Parameters

2. Enter type of update (A)dd, (E)dit, (D)elete: E// <Return>

3. Press <Return> to confirm the following location parameters:

   Enter a descriptive name for transfer parameters // STARS_FILES
   Enter Name or IP address for remote system: // 163.240.18.15
   Enter User ID for remote system: joeuser // your_logon
   Enter Password for remote system: //
   Enter Receiving directory at remote system: //
   Enter Sending directory at remote system: //
   Enter Files to be exported: // wrk99999* WRK99999*
   Enter Files to be imported: //
   Enter Maximum retransmits: 1 //
   Enter Ascii or binary transfer: ASCII //
   Enter File compression mode: none //
   Enter Transmission log transfer option: none //
   Enter Hour for automatic scheduled transmission: // 2
   Enter File mask: 'LXFASH2.CHCS.N-.D=' //
   Lines executed prior to transmission:
   Enter Line 1: QUOTE SITE TR PRI=5 SEC=5 REC=FB LR=125 BL=1250 //

Enter Line 2: //

Note: 99999 is the UIC Code.

Note the following parameters:

User ID and Password. Each MTF has a unique username and password which allows automatic access to the receiving directory at the remote system.

Files to be exported. When the STARS/FL file is created, it is given a filename specification that identifies the unit identification code (UIC) and month generated.

- Refer to Figure 3-18: STARS/FL Workload ASCII Filename, for the filename specification used when the STARS/FL file is created.

```
 The STARS Workload ASCII file name specification is as follows:
           WRK      XXXXX     .MMM
            1         2         3
Where:
1)    WRK=”WRK” required identifying file prefix,
2)    Operating Budget Unit Identification Code(UIC)associated with
      the group identification,
3)    .MMM=Alphabetic Month (JAN, FEB, MAR,...)
```

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Figure 3-18. STARS/FL Workload ASCII Filename

At ETU transfer runtime, the ETU will convert the filename again for the remote system.

Hour for automatic scheduled transmission. The default scheduled time is 0200 hours.

File mask. For STARS Retransmitted Workload files sent to the STARS Central Repository, the CHCS name specification is different from the external name.

- Refer to Figure 3-19: Retransmitted STARS/FL Workload ASCII Filename, for the file mask.

```
The EAS  Workload ASCII file name specification is as follows:
      T     XXXX     YMM.DD     V
      1     2          3        4
      Where:
      1)     T=Type of data:  "W"=Original data, "X"=Updated data,
      2)     DMIS ID of the reporting Medical Treatment Facility (MTF),
      3)     Y=Fiscal year, MM=Numeric Fiscal Month, DD=Fiscal Day,
      4)     V=Alphabetic transmission version.
```

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Figure 3-19. Retransmitted STARS/FL Workload ASCII Filename

4. Return to the Electronic Transfer Utility Menu.

DISCUSS USING ETU TO TRANSFER STARS/FL FILES TO THE STARS CENTRAL REPOSITORY

1. Access the Transmit Files (choose location) option on the Electronic Transfer Utility Menu.

   SY_ADMIN → File → Transfer → Transmit Files (choose location)

2. Enter the name of the location whose transfer parameters you will be using.

   Enter a descriptive name for transfer parameters: // ?

   Enter the name of the predefined location transfer parameters. If you want to see a list of names, type a question mark (?). ETU lists all the names that contain at least one file to transmit.

   The possible transfer parameters for exportable files are:

   1. EAS_FILES
   2. SIDR_TO_NMIMC
   3. SIDR_TO_PASBA
   4. STARS_FILES
   5. WWW_TO_NMIMC

Enter number of descriptive name for transfer parameters 1// 4

Enter the number of the transfer parameters you wish to use or press <Return> to accept the default.

3. Transmit the file(s) by accepting the default.

   ETU converts the CHCS specified filename to the name needed by the remote/receiving system using the file mask specified in the configuration parameters.

- Refer to Figure 3-20: STARS/FL Workload Filename Mask.

```
The STARS Workload file name specification is as follows:
       LXFASH2.CHCS.N     XXXXX     .DYDDD
       1                  2         3
Where:
1)   LXFASH2.CHCS.N=”LXFASH2.CHCS.N” required identifying file prefix,
2)   Operating Budget UIC associated with the group identification,
3)  .DYDDD=”.D” and Julian Date of transmission.
```

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Figure 3-20. STARS/FL Workload Filename Mask

When the STARS Workload ASCII file is retransmitted, the filename specification is given the suffix “A” after the transmission date to indicate that the file is being retransmitted.

4. Return to the Electronic Transfer Utility Menu.

Practice 4- Identify the parameters and procedures to transport files to STARS/FL.

PRACTICE

Students 1-10

Practice 4 - Identify the parameters and procedures to transport files to STARS/FL.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Write T or F to indicate whether the statement is True or False.

_____ 1. NASDI is the term used to indicate a subset of the STARS/FL interface.

_____ 2. WAM evaluates the data received for both EAS and STARS/FL and provides error information on records in the input data stream that did not pass validation tests.

_____ 3. The STARS/FL file is created without user intervention whenever the EAS file is created.

_____ 4. STARS/FL reports exactly the same workload as the EAS/SAS Workload Report.

_____ 5. The software specialist checks the WAM exception report for exception messages resulting from incoming file transmission.

■ Objective 5: IDENTIFY THE PARAMETERS AND PROCEDURES TO TRANSPORT FILES TO THE EXPENSE ASSIGNMENT SYSTEM (EAS)

DISCUSS THE EAS INTERFACE

Overview of the External System

EAS is used by the Army, Navy, and Air Force to monitor workload, expenses, and manpower data and to calculate budgets for the MTFs. In addition, the Navy uses STARS/FL to supplement their workload data. The Navy Accounting System Data Interface (NASDI) is the umbrella term for EAS and STARS/FL. STARS/FL is discussed in the following objective.

EAS and STARS/FL both support the Workload Assignment Module (WAM). You may hear support personnel using the terms EAS, STARS/FL, NASDI, and WAM interchangeably.

Discuss Interface Equipment

Each MTF has an EAS system in the computer room, connected to the CHCS network via the Office Automation Local Area Network (LAN):

– AT&T 3B2 servers with AT&T605 terminals are used to access the EAS server at most Air Force sites.

– Everex 486 Servers or Everex Pentium 90 Servers with 386 PC (or higher) clients are used by Army and Navy sites.

– Some Army sites execute EAS on the AT&T 3B2, as well as an Everex system.

All EAS systems use the UNIX operating system.

The IP address varies for each site. Anonymous logon is used to access the account.

DISCUSS THE EAS INTERFACE PROCESS

The EAS system is a bidirectional interface used in conjunction with the Medical Expense Performance Reporting System (MEPRS). WAM collects information via MEPRS codes associated with each patient-related procedure or process.

Discuss Interface Process for Outbound Data

- Refer to Figure 3-21: Message Flow from CHCS to EAS.

Outbound data from CHCS is sent to EAS using the following process:

1. The NASDI Core file (#8185) provides the SAS data and related Performing MEPRS and Requesting MEPRS for each service, and Cost Account Code (CAC) for Navy sites.

   This data is used to validate requests for workload information that is to be collected through WAM. The following files are sent by CHCS to the MTF on a monthly basis:

   – The Account Subset Definition (ASD) file, which is an existing EAS table containing fourth-level MEPRS codes,

   – Stepdown Assignment Statistics (SAS) file (#8185.1).

   The Master Data Element file (STARS/FL only, #8185.2) is updated annually.

2. Workload numbers are collected and tabulated, then fed into various CHCS-generated MEPRS workload reports and into the WAM templates.

   These workload templates include such data as occupied bed days, clinic visits, and lab procedures. This data is extracted from the CHCS database and used to populate these editing templates. Data that can be used to populate the WAM workload data templates is placed there using the initialization template function.

3. WAM pulls the workload numbers generated for the MEPRS reports into SAS and/or CAC categories.

4. WAM evaluates the data received for EAS and provides error information on records in the input data stream that did not pass validation tests.

5. After ensuring that reports generated from the workload templates are accurate and exceptions are checked, the workload coordinator approves the templates for transmission to EAS. This is done at the beginning of each month for the previous month.

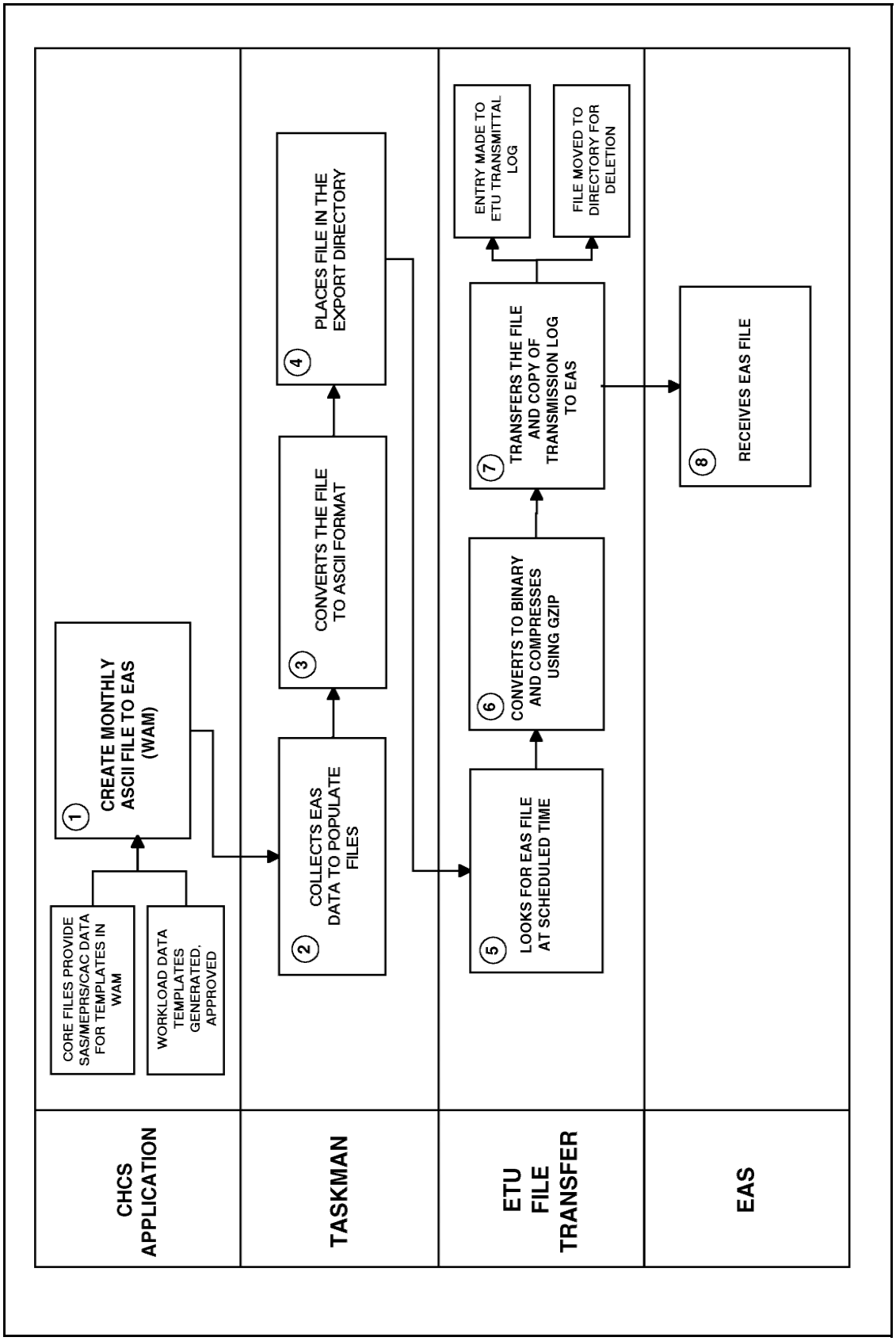

Figure 3-21. Message Flow from CHCS to EAS

6. From the WAM Menu, functionality users choose the Create Monthly Workload ASCII File to EAS option from the Workload Assignment Module Menu:

   Systems Manager Menu (EVE) → CA → DAA → WAM

   Once CHCS files are set to EAS, they cannot be modified, they can only be overwritten.

7. The Create Monthly Workload ASCII File to EAS option triggers a TaskMan task. The task is central processing unit (CPU) intensive and must be scheduled during off-peak hours.

8. TaskMan retrieves the file from WAM functionality and converts it to ASCII before placing it in the export directory defined in SY_EXP_DIR, the export directory for all ETU file transfers.

9. If the monthly file transfer has been scheduled by either the CHCS administrator or software specialist, ETU transfers the EAS file using the location parameters configured for the remote site.

   If the monthly file transfer has not been scheduled, the software specialist manually transfers the file using ETU. Scheduling is recommended for the monthly file transfer. Scheduling is required for the nightly EAS file transfers.

10. ETU looks in the export directory. When it finds export data to the EAS system, it compresses it using gzip.

11. ETU transmits the files to EAS and creates an entry in the transmittal log, indicating byte size and date to serve as file acknowledgment.

    The file status for this monthly workload data changes from approved to transmitted in WAM. If data is still waiting for approval or transmission after the end of the month, the WAM workload coordinator receives a warning bulletin.

    WAM users are responsible for resolving data errors in the monthly EAS SAS Workload Report built in WAM from the SAS file that was transmitted or will be transmitted to EAS.

12. ETU moves the outgoing transmitted EAS file into the directory defined in SY_DEL_DIR. These files are deleted after seven days.

The EAS data transfer procedure is repeated each night once activated, or more often to reduce processing backlog.

Discuss Update of CHCS Files

Files that are updated when data is sent from CHCS to the EAS interface include:

– SAS Detail file (#8185.1)

– ASD file.

Discuss Interface Process for Inbound Data

- Refer to Figure 3-22: Message Flow From EAS to CHCS.

  NOTE: First create and run the STARS/FL **BEFORE** the EAS ASCII file. It is critical that the STARS/FL file run first, because the EAS file transmission changes the template status from (A)pproved to (T)ransmitted. Since the STARS/FL report is due to higher headquarters on the second day of the month and EAS is not due until the 5th, the STARS/FL file must sent before the EAS file.

  1. Using the monthly ASCII transmission, EAS populates the nightly ASD, SAS, and CAC-Job Order Number (JON) (Navy only) files in the WAM functionality with compressed workload data.

  2. At the same time, ETU looks for the updated EAS Files

  3. ETU File Transfer:

     - Files are transfered to the Import Directory

  4a. Files are converted and uncompressed during the file transfer. In addition:

     - Entry made to ETU Transmittal Log

     - File moved to directory for deletion

  4b. The CHCS administrator or the software specialist uses options from the Schedule/Unschedule TaskMan Tasks Menu to initialize and schedule the updates:

     Systems Manager Menu (EVE) → TM → STT

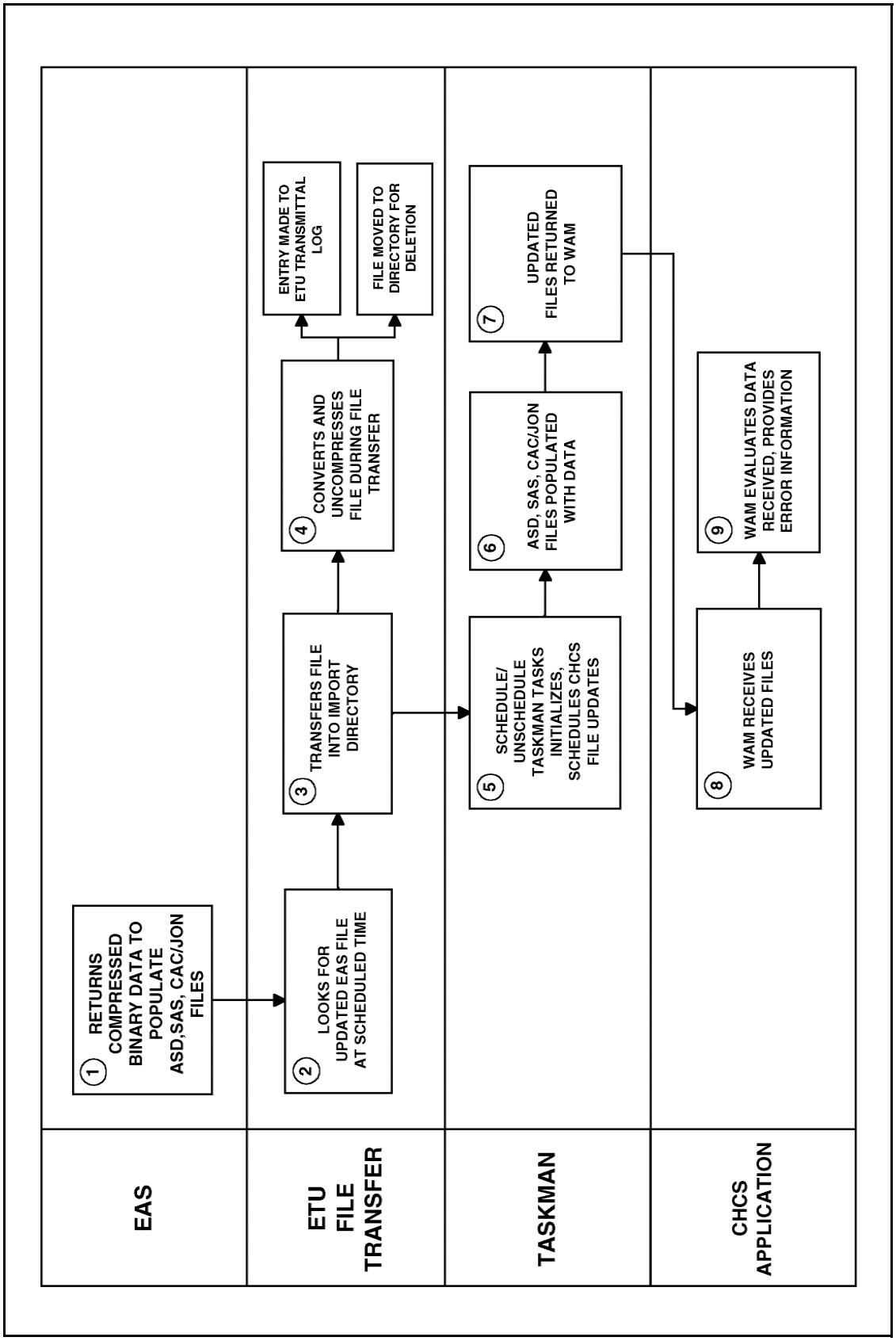

Figure 3-22. Message Flow From EAS to CHCS

DOD ASD Update

DOD CAC-JON Update (Navy only)

DOD SAS Detail Update

5. TaskMan populates files with data each night in the following order: ASD files, STARS/FL Master Data Element file containing the CAC/JON data (Navy only), and SAS Detail Files. Typically, the updates are scheduled as follows:

ASD Update	2000 hours
CAC-JON Update	2200 hours
SAS Detail Update	2200 hours

Workload data includes inpatient, outpatient, laboratory, pharmacy, radiology, and support services. This data is collected to the fourth level MEPRS code by division and identified by DMIS ID code, CAC, and Workload Job Order Number (WJON).

Once scheduled, these menu options check the SY_IMP_DIR directory for ASD, SAS, and JON files.

Before processing the files in the import directory, a copy is placed in the SY_DEL_DIR directory where the files will be purged after seven days. Once the files are processed, the files are deleted from the import directory.

These scheduled options populate CHCS files as follows:

– ASD Update option populates the MEPRS Codes file (#8119) with the fourth-level MEPRS codes.

– The SAS Update option populates the SAS Detail file (#8185.1) with the SAS, Performing MEPRS Codes, and Requesting MEPRS codes for a DMIS ID.

– For Navy sites, the CAC-JON Update option populates the NASDI STARS./FL Master Data Elements file (#8185.2) with the OB-UIC code, WJON-SN, CAC, MEPRS Codes, and WJON-UIC.

6. Updated files are returned to WAM.

7. WAM receives the updated files.

8. The WAM coordinator checks the WAM Exception Report for exception messages resulting from the incoming file transmission and the exceptions generated from the SAS and CAC/JON Enter/Edit options. Error reports are generated based upon the file in which the problem was identified. Functionality users are responsible for error resolution. The ASD, SAS, and CAC-JON files are returned to WAM and CHCS functionalities to determine what data to collect from CHCS into the templates.

The EAS data transfer procedure is repeated each night once activated, or more often to reduce processing backlog.

Discuss Update of CHCS Files

CHCS files that are updated when data is received from the EAS interface include:

– SAS Detail file (#8185.1)

– ASD file.

Several files are provided by Defense Medical Information Management (DMIM) as references for the other files:

– NASDI Core file (#8185)

– NASDI Business Rules file (#8185.3).

Discuss Standard Operating Procedures

Each MTF has its own IP address, logon account and password for transmission of the EAS data. If you are new to the site, make sure you are using the correct logon account and password for that site. The EAS point of contact (POC) at your site can provide you with account information.

At least twice each week, check the ETU master transmittal log:

– Check for files that have not been transmitted. Files that have not been sent remain in the directory defined in SY_DEL_DIR for seven days before they are purged.

– On the 3rd day of each month, transmit the monthly EAS ASCII file for the previous month. For example, the November 1996 file should be created on 1 December 1996 and sent via ETU no later than 3 December 1996.

– Verify that the EAS files are transferred as compressed binary files.

– Verify that the transmission log is sent with each transmission.

– Verify that CHCS is extracting the ASD and SAS detail files from EAS each night through ETU.

EXAMPLE:

If a file transmission error indicates the processing of an ASD file received from EAS was terminated due to an invalid header record, notify the EAS POC so that a replacement file can be sent.

MANAGE THE EAS INTERFACE

Scenario: *The ETU transmittal log shows several EAS files that have not been transmitted. Use ETU to retransmit the files.*

Discuss Configuration of ETU Parameters for the EAS Interface

The parameters for transporting EAS files are configured for you within the SY_ADMIN file transfer utility when ETU is set up at your site.

To view the preconfigured settings for sending and receiving EAS files:

1. Access the Update Location Parameters option on the Electronic Transfer Utility Menu.

   SY_ADMIN → File → Transfer → Update Location Parameters

2. Enter type of update (A)dd, (E)dit, (D)elete: E// <Return>

   Note: 9999 in the Name of Files to Export represents the DMIS ID of the reporting MTF.

3. Press <Return> to confirm the following location parameters:

   Enter a descriptive name for transfer parameters // EAS_FILES
   Enter Name or IP address for remote system: // 999.999.999.999
   Enter User ID for remote system: joeuser // anonymous
   Enter Password for remote system: // guest
   Enter Receiving directory at remote system: /chcs/appl/import // pub
   Enter Sending directory at remote system: /chcs/appl/export // pub
   Enter Files to be exported: // w9999* x9999* W9999* X9999*
   Enter Files to be imported: // a9999* s9999* A9999* S9999*
   Enter Maximum retransmits: 1 //
   Enter Ascii or binary transfer: ASCII // binary
   Enter File compression mode: none // gzip

Enter Transmission log transfer option: none // send
Enter Hour for automatic scheduled transmission: // 3
Lines executed prior to transmission:
Enter Line 1: //

Note the following parameters:

IP Address. Each MTF has its own EAS "box," with its own IP address.

User ID and Password. Anonymous logon is used.

Files to be exported. These are the filenames generated by the WAM functionality.

Files to be imported. These are the filenames generated by EAS.

Ascii or binary transfer. EAS files are sent and received in binary transfer mode.

File compression mode. Because EAS files are large, they are compressed with "gzip" and uncompressed using "gunzip."

Transmission log transfer option. EAS is a system that needs the site log files from CHCS and supports file compression. A transmission log is transfered to EAS since this file is used by EAS to determine which files to delete from their system. If a transmission log transfer to EAS is not configured, EAS does not know to delete files that ETU has already retrieved; this can cause ETU to repeatedly retrieve files that have already been processed by CHCS.

Hour for automatic scheduled transmission. The default scheduled time is 0300 hours.

No file mask is used.

4. Return to the Electronic Transfer Utility Menu.

DISCUSS USING ETU TO TRANSFER EAS FILES

NOTE: Residual EAS files are automatically purged from the CHCS System 14 days after transfer byETU.

1. Access the Transmit Files (choose location) option on the Electronic Transfer Utility Menu.

SY_ADMIN → File → Transfer → Transmit Files (choose location)

2. Enter the name of the location whose transfer parameters you will be using.

   Enter a descriptive name for transfer parameters: // ?

   Enter the name of the predefined location transfer parameters. If you want to see a list of names, type a question mark (?). ETU lists all the names that contain at least one file to transmit.

   The possible transfer parameters for exportable files are:

   1. EAS_FILES
   2. SIDR_TO_NMIMC
   3. SIDR_TO_PASBA
   4. STARS_FILES
   5. WWW_TO_NMIMC

   Enter number of descriptive name for transfer parameters 1// <Return>

   Enter the number of the transfer parameters you wish to use or press <Return> to accept the default.

   Once a name is chosen, the system displays all the parameters associated with that name. A prompt displays after the parameters.

3. Transmit the file(s) by accepting the default.

   ETU normally converts the CHCS specified filename to the name needed by the remote/receiving system. However, no name change is needed for EAS files. The specifications for the internal name and the external name are the same, so no file masks are used in the file transfer.

   Two sets of files are being exchanged: 1) The EAS III Workload ASCII file each month, and 2) the set of data contained in the EAS III ASD and SAS Detail files each night.

- Refer to Figure 3-23: EAS Workload Filename.

```
The EAS,  Workload ASCII file name specification is as follows:
      T     XXXX     YMM.DD     V
      1     2           3       4
      Where:
      1)    T=Type of data file:  "W"=Original data, "X"=Updated data,
      2)    DMIS ID of the reporting Medical Treatment Facility (MTF),
      3)    Y=Fiscal year, MM=Numeric Fiscal Month, DD=Fiscal Day,
      4     V=Alphabetic transmission version.
```

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Figure 3-23. EAS Workload Filename

- Refer to Figure 3-24: EAS, ASD, and SAS Detail Filename.

```
The EAS,ASD,and SAS Detail name specification is as follows:
      T     XXXX     YMM.DD
      1     2           3
      Where:
      1)   T=Type of data file:  "A"=ASD file, "S"=SAS detail file,
      2)   DMIS ID of the reporting Medical Treatment Facility (MTF),
      3)   Y=Calendar year, MM=Calendar Fiscal Month, DD=Calendar Day.
```

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Figure 3-24. EAS, ASD, SAS Detail Filename

4. Return to the Electronic Transfer Utility Menu.

Practice 5 - Identify the parameters and procedures to transport files to EAS.

PRACTICE

Students 1-10

Practice 5 - Identify the parameters and procedures to transport files to EAS.

INSTRUCTIONS: This practice will take approximately 10 minutes. Complete the sentence with the correct word or phrase.

1. The EAS interface is _____, and uses the _____operating system. It is connected to the CHCS network via the _____LAN.

2. Both EAS and STARS/FL support the _____Module, which collects information via MEPRS codes associated with each patient-related procedure or process.

3. The Create Monthly Workload ASCII File to EAS option triggers a _____task, which places the file in the export directory. The _____utility automatically transfers the file.

4. When ETU finds export data to the EAS system, it _____the file using gzip.

5. EAS is a system that needs the site log files from CHCS. Sending a _____transfer to EAS is needed since this file is used by EAS to determine which files to delete from their system.

6. EAS files are sent and received in _____transfer mode.

7. EAS populates the nightly ASD, SAS, and CAC-JON (Navy only) files in the following order:_____.

8. ETU purges the directories defined in SY_DEL_DIR, SY_EXP_DIR, and SY_IMP_DIR every _____days. The ETU master transmittal log must be checked at least _____.

9. Each EAS "box" has its own IP address. However, all EAS systems use _____as the User ID and _____as the password.

10. Unlike SIDR files, which are parsed into Facility/Data/Summary format, no _____ are used for the transfer of EAS files.

Notify the presenter when you have completed this practice.

■ Objective 6: TROUBLESHOOT FILE TRANSPORT

DISCUSS FILE TRANSPORT TROUBLESHOOTING

Transporting a file to a remote system involves the following assumptions:

– You have the right file, in the correct format.

– The network hardware at your site is up and running.

– The network software at your site is properly configured for the remote system.

– You have the current username and password for the remote system.

– The network hardware at the remote site is up and running.

– The network software at the remote site is configured to accept your transported file.

When you troubleshoot for file transfer, you must consider the file to be sent/ received, system accounts, network hardware, and network software – for your site and the remote site.

1.0 Files from Functionalities

Files to be transferred to the RCMAS, biometric agencies, EAS, and STARS/FL systems are generated from the PAD and WAM functionalities. Sites often have a processing backlog of at least several months, if not longer.

1.1 Transferred File Too Large

When the file is too large,the connection exceeds its time limit and “times out.”

If this is an EAS file, make sure it is in binary transfer mode and set for “gzip” compression. If not, try using FTP rather than ETU for the transfer. Do not compress files sent to NMIMC, PASBA, or STARS/FL, since these agencies do not have the ability to uncompress the files.

Check the TCP buffer size of the MHSS router, as it may be set too low. Even if a site has a 100-Mbps fiber backbone and no limits set on the router, the DISN connection only allows 56 kbps. An SIDR transmission from a large site, such as Madigan, can exceed 100 MB. FTP transfers such as this may experience timeout errors if the DISN is busy.

Factors limiting file transfer include network bandwidth, network utilization, and file size. Routers and firewalls may also impose further limits on file size.

Retransmit the file. If problems persist, contact the SAIC Product Support Center.

1.2 Incorrect Transferred File

1.2.1 File Not Parsed Properly

You are notified by the biometric agency that files have not transferred.

Verify the file mask settings. These settings are configured for you when ETU is set up at your site, but they may change. You are notified of parameter changes through e-mail. Record this information for future reference.

1.2.2 Wrong SIDR File Sent

You are notified by the biometric agency that the SIDR report was sent instead of the SIDR file.

Contact the PAD coordinator. The SIDR Report is created by the PAD user, but it is not a substitute for the SIDR file. Check to make sure that the SIDR file is being exported to the directory defined in SY_EXP_DIR.

Recreate the SIDR files and retransmit.

1.3 Processing Terminated Messages

The following message displays as a result of processing errors:

ASD Processing Terminated - A0124606.18 - System Error - 19 Jun 1996@1235

Bad data records are ignored during the processing of incoming STARS/FL, SAS, ASD files. The WAM workload coordinator checks this Exception message against the WAM Exception Report so that it can be edited. Errors in data files to be sent to EAS and STARS/FL are usually resolved prior to file transmission.

Once the problem is resolved, retransmit the file.

1.4 Destination Directory Is Full

Notify the POC for that interface.

Once the problem is resolved, retransmit the files.

2.0 Remote System Accounts

The single greatest problem reported by sites is the inability to log on to the remote system. For security reasons, passwords may change as often as every two months. Keep a record, in a secure location, of the following information:

- Remote system IP addresses
- Remote system fully qualified domain names (in case the IP addresses change)
- Username
- Password
- File masks
- Special instructions
- Remote system POC name and phone number
- Date of last update.

2.1 Access Denied to Remote System

2.1.1 Wrong Password

If you are certain that you have the right password, check to make sure the Caps Lock on your keyboard is off. EAS uses the UNIX operating system, so it is case sensitive.

Reenter the logon and password.

Contact the remote system by phone or through e-mail if you are still unable to log on.

2.1.2 Password expired. Access denied.

Whenever a username or password expires, contact the remote system POC for instructions.

> **CAUTION**: Using the username and password from another site places your site files in the wrong account.

Contact the POC by phone or through e-mail.

3.0 Network Hardware

Troubleshoot network hardware problems at your site as you would any other hardware problem. Remember to submit a Malfunction Incident Report, if needed.

- Refer to SYS: VMS Software Specialist; Module 15 - Troubleshooting, for details.

3.1 System Down

When the remote system is down, you cannot connect to remote site even though file transfer parameters are correct.

The remote system may be down. Or the DISN may be down at the remote site area. Schedule the transfer at a later time.

Contact the remote site by phone if the problem persists.

3.2 "Terminal entry point from LAT Device"

This message displays when a file transfer is attempted.

This user is connected via LAT while trying to transfer files. FTP only works from the console or from a telnet connection.

4.0 Network Software

FTP can be affected by firewalls, improperly configured routers, and heavy network traffic.

The SY_ADMIN file transfer option, ETU, is used by most sites for file transfer. It must be properly configured for your site and regularly maintained with updated, accurate parameter information.

If you have a problem transferring a file with ETU, try using FTP instead. If you have a problem with FTP, try using a telnet connection and then FTP.

4.1 ETU File Transmission Failure

This error occurs when ETU reports file transmission failures in the master transmittal log.

The transmission fails.You check your parameters and retransmit. The transmission fails again. The remote site contacts you. They are wondering why you retransmitted the same files.

ETU may report failure of connection, logon, and transmission although the transfer may actually have completed successfully. This report is determined by the ETU product scanning the messages that are produced by the TCP/IP software at the remote site. The wording of these messages can change as TCP/IP software is changed.

If the TCP/IP software is being upgraded, contact TMSSC to coordinate changes.

Once the problem has been resolved, retransmit the files.

4.2 System “Hangs” While Using FTP

The system may pause interminably or “hang” when the following occurs:

4.2.1 Server panic on remote system, incorrect router configurations, or other network problems.

Press <Ctrl>-<C> to stop FTP.

Retransmit the files during off-peak hours.

4.2.2 System hangs during FTP "mget" command and connection terminates.

Turn on "hash" to see how many bytes are received before system times out. Router problems may cause slow file transfers or connection time-outs while transferring many files.

Transfer the files individually if necessary.

Discuss Standard Operating Procedures

- Maintain a troubleshooting log. Record file transfer problems and document their solutions.
- Maintain an accurate record of file transfer parameter information in a secure location.
- Submit Malfunction Incident Reports (MIRs) as necessary to document hardware failures.
- Contact the SAIC Product Support Center for assistance as needed.

Practice 6 - Troubleshoot file transport.

PRACTICE

Students 1-10

Practice 6 - Troubleshoot file transport.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *Welcome to File Transport Jeopardy! Ever wondered what expert troubleshooters ask themselves when a problem arises? Here's your chance to show off your problem-solving skills! Remember, your answer must be in the form of a question.*

The presenter will divide the class into two teams. Each team will be asked to answer the same question. Confer with your teammates and raise your hand when you have the answer.

III. CLOSURE

Do you have any questions about the concepts covered in Module 3 - Transport Files Using FTP or ETU?

In summary, the following content was presented:

– Using FTP to transport a file to an external system.

– Configuring parameters and transporting files for RCMAS, biometric agencies, EAS, and STARS/FL using ETU.

– Troubleshooting file transport.

Remember that sample documents are included in the Reference Materials, and may be used to complete the Master Practice.

This concludes Module 3. You now have the opportunity to demonstrate proficiency in the topics or skills presented.

Thank you for attending.

Master Practice - Module 3.

SYS: CHCS INTERFACE MANAGEMENT

Module 3 - Transport Files Using FTP or ETU

Section 2. Master Practice

MASTER PRACTICE GUIDELINES

This Master Practice enables the presenter to verify that you have successfully completed the objectives for this class.

The information you need to complete the Master Practice is supplied in the instructions and scenarios.

You may use any reference materials available in the classroom to complete the Master Practice.

Device identifiers are site-specific, and will be provided by the presenter.

Unless otherwise directed by the presenter, please work alone to complete the Master Practice.

Notify the presenter when directed to do so in the Master Practice. This allows the presenter to verify that you have successfully completed an activity.

Information is only specified for those fields and prompts which require specific data entry. To advance past fields/prompts which are not specified, enter data you know to be correct, or press <Return>.

The components of the Master Practice should be completed in the order in which they are presented.

SYS: CHCS INTERFACE MANAGEMENT

Module 3 - Transport Files Using FTP or ETU

Student 1

Scenario 1 - Transfer the files using the mget command.

INSTRUCTIONS: Read the directions for the following file transfer.

1. Access the local system from the VMS prompt.
2. Access the remote system.
3. FTP the specified files from the remote system (TC42VD) to the local system (TC42VE):

   QUOTE1.INF **POETRY1.INF**

4. From the remote system, use the "local - dir" command to display your files:
5. Log off the remote system.

Scenario 2 - Transfer and change the name of the file.

INSTRUCTIONS: Read the directions for the following file transfer.

1. From the local system at the VMS prompt, access the remote system.
2. FTP the specified file from the local system (TC42VE) and place it in the remote system (TC42VD): **MSID0001.DAT**
3. When transferring the file, change the name from MSID0001.DAT to MSIDR0001.DAT.
4. Display the remote directory.

Notify the presenter when the directory is displayed.

5. Log off the remote and local systems.

SYS: CHCS INTERFACE MANAGEMENT

Module 3 - Transport Files Using FTP or ETU

Student 2

Scenario 1 - Transfer the files using the mget command.

INSTRUCTIONS: Read the directions for the following file transfer.

1. Access the local system from the VMS prompt.
2. Access the remote system.
3. FTP the specified files from the remote system (TC42VD) to the local system (TC42VE):

   QUOTE2.INF **POETRY2.INF**

4. From the remote system, use the "local - dir" command to display your files:
5. Log off the remote system.

Scenario 2 - Transfer and change the name of the file.

INSTRUCTIONS: Read the directions for the following file transfer.

1. From the local system at the VMS prompt, access the remote system.
2. FTP the specified file from the local system (TC42VE) and place it in the remote system (TC42VD): **MSID0002.DAT**
3. When transferring the file, change the name from MSID0002.DAT to MSIDR0002.DAT.
4. Display the remote directory.

Notify the presenter when the directory is displayed.

5. Log off the remote and local systems.

SYS: CHCS INTERFACE MANAGEMENT

Module 3 - Transport Files Using FTP or ETU

Student 3

Scenario 1 - Transfer the files using the mget command.

INSTRUCTIONS: Read the directions for the following file transfer.

1. Access the local system from the VMS prompt.
2. Access the remote system.
3. FTP the specified files from the remote system (TC42VD) to the local system (TC42VE):

   QUOTE3.INF **POETRY3.INF**

4. From the remote system, use the "local - dir" command to display your files:
5. Log off the remote system.

Scenario 2 - Transfer and change the name of the file.

INSTRUCTIONS: Read the directions for the following file transfer.

1. From the local system at the VMS prompt, access the remote system.
2. FTP the specified file from the local system (TC42VE) and place it in the remote system (TC42VD): **MSID0003.DAT**
3. When transferring the file, change the name from MSID0003.DAT to MSIDR0003.DAT.
4. Display the remote directory.

Notify the presenter when the directory is displayed.

5. Log off the remote and local systems.

SYS: CHCS INTERFACE MANAGEMENT

Module 3 - Transport Files Using FTP or ETU

Student 4

Scenario 1 - Transfer the files using the mget command.

INSTRUCTIONS: Read the directions for the following file transfer.

1. Access the local system from the VMS prompt.
2. Access the remote system.
3. FTP the specified files from the remote system (TC42VD) to the local system (TC42VE):

   QUOTE4.INF **POETRY4.INF**

4. From the remote system, use the "local - dir" command to display your files:
5. Log off the remote system.

Scenario 2 - Transfer and change the name of the file.

INSTRUCTIONS: Read the directions for the following file transfer.

1. From the local system at the VMS prompt, access the remote system.
2. FTP the specified file from the local system (TC42VE) and place it in the remote system (TC42VD): **MSID0004.DAT**
3. When transferring the file, change the name from MSID0004.DAT to MSIDR0004.DAT.
4. Display the remote directory.

Notify the presenter when the directory is displayed.

5. Log off the remote and local systems.

SYS: CHCS INTERFACE MANAGEMENT

Module 3 - Transport Files Using FTP or ETU

Student 5

Scenario 1 - Transfer the files using the mget command.

INSTRUCTIONS: Read the directions for the following file transfer.

1. Access the local system from the VMS prompt.
2. Access the remote system.
3. FTP the specified files from the remote system (TC42VD) to the local system (TC42VE):

   QUOTE5.INF **POETRY5.INF**

4. From the remote system, use the "local - dir" command to display your files:
5. Log off the remote system.

Scenario 2 - Transfer and change the name of the file.

INSTRUCTIONS: Read the directions for the following file transfer.

1. From the local system at the VMS prompt, access the remote system.
2. FTP the specified file from the local system (TC42VE) and place it in the remote system (TC42VD): **MSID0005.DAT**
3. When transferring the file, change the name from MSID0005.DAT to MSIDR0005.DAT.
4. Display the remote directory.

Notify the presenter when the directory is displayed.

5. Log off the remote and local systems.

SYS: CHCS INTERFACE MANAGEMENT

Module 3 - Transport Files Using FTP or ETU

Student 6

Scenario 1 - Transfer the files using the mget command.

INSTRUCTIONS: Read the directions for the following file transfer.

1. Access the local system from the VMS prompt.
2. Access the remote system.
3. FTP the specified files from the remote system (TC42VD) to the local system (TC42VE):

   QUOTE6.INF **POETRY6.INF**

4. From the remote system, use the "local - dir" command to display your files:
5. Log off the remote system.

Scenario 2 - Transfer and change the name of the file.

INSTRUCTIONS: Read the directions for the following file transfer.

1. From the local system at the VMS prompt, access the remote system.
2. FTP the specified file from the local system (TC42VE) and place it in the remote system (TC42VD): **MSID0006.DAT**
3. When transferring the file, change the name from MSID0006.DAT to MSIDR0006.DAT.
4. Display the remote directory.

Notify the presenter when the directory is displayed.

5. Log off the remote and local systems.

SYS: CHCS INTERFACE MANAGEMENT

Module 3 - Transport Files Using FTP or ETU

Student 7

Scenario 1 - Transfer the files using the mget command.

INSTRUCTIONS: Read the directions for the following file transfer.

1. Access the local system from the VMS prompt.
2. Access the remote system.
3. FTP the specified files from the remote system (TC42VD) to the local system (TC42VE):

   QUOTE7.INF **POETRY7.INF**

4. From the remote system, use the "local - dir" command to display your files:
5. Log off the remote system.

Scenario 2 - Transfer and change the name of the file.

INSTRUCTIONS: Read the directions for the following file transfer.

1. From the local system at the VMS prompt, access the remote system.
2. FTP the specified file from the local system (TC42VE) and place it in the remote system (TC42VD): **MSID0007.DAT**
3. When transferring the file, change the name from MSID0007.DAT to MSIDR0007.DAT.
4. Display the remote directory.

Notify the presenter when the directory is displayed.

5. Log off the remote and local systems.

SYS: CHCS INTERFACE MANAGEMENT

Module 3 - Transport Files Using FTP or ETU

Student 8

Scenario 1 - Transfer the files using the mget command.

INSTRUCTIONS: Read the directions for the following file transfer.

1. Access the local system from the VMS prompt.
2. Access the remote system.
3. FTP the specified files from the remote system (TC42VD) to the local system (TC42VE):

   QUOTE8.INF **POETRY8.INF**

4. From the remote system, use the "local - dir" command to display your files:
5. Log off the remote system.

Scenario 2 - Transfer and change the name of the file.

INSTRUCTIONS: Read the directions for the following file transfer.

1. From the local system at the VMS prompt, access the remote system.
2. FTP the specified file from the local system (TC42VE) and place it in the remote system (TC42VD): **MSID0008.DAT**
3. When transferring the file, change the name from MSID0008.DAT to MSIDR0008.DAT.
4. Display the remote directory.

Notify the presenter when the directory is displayed.

5. Log off the remote and local systems.

SYS: CHCS INTERFACE MANAGEMENT

Module 3 - Transport Files Using FTP or ETU

Student 9

Scenario 1 - Transfer the files using the mget command.

INSTRUCTIONS: Read the directions for the following file transfer.

1. Access the local system from the VMS prompt.
2. Access the remote system.
3. FTP the specified files from the remote system (TC42VD) to the local system (TC42VE):

   QUOTE9.INF **POETRY9.INF**

4. From the remote system, use the "local - dir" command to display your files:
5. Log off the remote system.

Scenario 2 - Transfer and change the name of the file.

INSTRUCTIONS: Read the directions for the following file transfer.

1. From the local system at the VMS prompt, access the remote system.
2. FTP the specified file from the local system (TC42VE) and place it in the remote system (TC42VD): **MSID0009.DAT**
3. When transferring the file, change the name from MSID0009.DAT to MSIDR0009.DAT.
4. Display the remote directory.

Notify the presenter when the directory is displayed.

5. Log off the remote and local systems.

SYS: CHCS INTERFACE MANAGEMENT

Module 3 - Transport Files Using FTP or ETU

Student 10

Scenario 1 - Transfer the files using the mget command.

INSTRUCTIONS: Read the directions for the following file transfer.

1. Access the local system from the VMS prompt.
2. Access the remote system.
3. FTP the specified files from the remote system (TC42VD) to the local system (TC42VE):

   QUOTE10.INF **POETRY10.INF**

4. From the remote system, use the "local - dir" command to display your files:
5. Log off the remote system.

Scenario 2 - Transfer and change the name of the file.

INSTRUCTIONS: Read the directions for the following file transfer.

1. From the local system at the VMS prompt, access the remote system.
2. FTP the specified file from the local system (TC42VE) and place it in the remote system (TC42VD): **MSID00010.DAT**
3. When transferring the file, change the name from MSID00010.DAT to MSIDR00010.DAT.
4. Display the remote directory.

Notify the presenter when the directory is displayed.

5. Log off the remote and local systems.

SYS: CHCS INTERFACE MANAGEMENT

Module 3 - Transport Files Using FTP or ETU

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Electronic Transfer Utility User's Guide

SAIC/CHCS Doc. TC-5-5019
01 Jun 1996

Introduction

This file is written for SY-ADMIN 3.0 and supports CHCS Release 4.5.

The *System Electronic Transfer Utility User's Guide* provides operating information for the SY_ETU software. SY_ETU software provides a menu to manage File Transfer Protocol (FTP) transmission and reception of CHCS VAX/Alpha files.

This manual is to be used in conjunction with the *CHCS System Administration User Guide* and the *Computer Operation Manual*.

Use the SY_ADMIN **FILE->TRANSFER** option to manage the Electronic Transfer Utility (ETU). The ETU and its supportive Batch Transfer Utility (BTU) provide your site with the ability to identify and then transfer Standard Inpatient Data Records (SIDR), Worldwide Workload data files, or Standard Accounting and Reporting System/Field Level (STARS/FL) Workload ASCII files to the appropriate reporting agencies via FTP. In addition, ETU and BTU provide the ability to transfer and receive other files to and from any other site, provided that electronic network access is available.

ETU and BTU support the Workload Accounting Module (WAM) subsystem by retrieving incoming data files from and transporting outgoing data files to the Expense Assignment System (EAS) and the STARS/FL Central Repository. In addition to STARS/FL Workload ASCII files, EAS Workload ASCII files can be exported. EAS Accounts Subsystem Definition (ASD) and EAS Stepdown Assignment Statistics (SAS) files can also be exported. You will need to coordinate with EDS to configure transfers of EAS files.

ETU should be invoked by users in the same operating system group. The permanent files that ETU creates are updated in future invocations of ETU. These updates are successful only when the current user of ETU is in the same operating system group as the prior user of ETU. Executing ETU with a privilege of SYSTEM or SYSPRIV causes ownership of some ETU permanent files to be SYSTEM. This can cause unsuccessful update attempts to these files by subsequent unprivileged users.

The remainder of this section introduces the *System ETU User's Guide* organization and use, document conventions, and how to obtain assistance. This section also directs you to other publications which may assist you in further understanding of the System Electronic Transfer Utility software.

Document Organization

This guide is divided into several sections to make it easier to find the specific information required:

How to Use ETU describes how to reach the ETU options and how to use SY_ADMIN in conjunction with ETU.

Transfer Menu describes the ETU options under the SY_Admin File->Transfer menu.

Troubleshooting provides the options used at the direction of the SAIC Support Center to help in their troubleshooting of problems with the ETU links..

Appendix A - Examples provides examples of typical prompts that appear when sending files to various locations.

Appendix B - Data Structures provides details on the file structures used in the ETU software.

Document Conventions

The command descriptions used throughout this document will follow these conventions:

- You are to input the information provided in **bold** typeface.
- Menus and option names will appear in THIS SPECIAL FONT.
- Field names will appear in quotation marks (" ").
- Function and control keys, such as F1, F10, and Ctrl are shown in bold, uppercase, and angle brackets. Some examples are **<F1>** and **<Ctrl>**. **<Ctrl-A>** indicates that you should hold down the **<Ctrl>** key and press **<A>** at the same time.
- Variables for which you supply values are in *italics*.
- Elements in square brackets ([ ]) are optional.
- Output from the VAX is printed in Courier font. Below is an example of a status message displayed by the SY_ETU software:

```
FILES WERE NOT SUCCESSFULLY SENT.
```

NOTE:
A NOTE indicates an important or particularly useful piece of information.

References

Refer to TC-5-9002, *Catalog of Contractor's CHCS Documentation*, for reference documents that provide additional information pertinent to CHCS.

The following references may be helpful in providing further understanding of the components that comprise the System Administration and System Electronic Transfer Utility software.

a. Digital Equipment Corporation (DEC) document set for VAX DSM including:

   1. *VAX DSM Introduction to DSM*
   2. *VAX DSM Release Notes*
   3. *VAX DSM Summary*
   4. *VAX DSM Language Reference Manual*
   5. *VAX DSM Installation and Management Guide*
   6. *VAX DSM Data Base Operation Guide*
   7. *VAX DSM Programmer's Guide*
   8. *VAX DSM Callable Routines Reference Manual*
   9. *VAX DSM Windowing Application Interface Guide for DSM*
   10. *DSM for OpenVMS External Routine Programming Guide*
   11. *DSM-DASC Reference Manual*
   12. DSM-DASC Management Guide
   13. *DSM-DASC Pocket Reference*
   14. *DSM-DASC Handbook*
   15. *DSM Language Pocket Reference*

b. DEC OpenVMS VAX Version 6.1 and OpenVMS Alpha Version 6.1 Documentation:

   1. *OpenVMS DCL Dictionary: A-M*
   2. *OpenVMS DCL Dictionary: N-Z*
   3. *OpenVMS Software Overview*

4. *OpenVMS Guide to System Security*
5. *POLYCENTER Software Installation Utility User's Guide*
6. *OpenVMS System Management Utilities Reference Manual: A-L*
7. *OpenVMS System Management Utilities Reference Manual: M-Z*
8. *OpenVMS System Manager's Manual: Essentials*
9. *OpenVMS System Manager's Manual: Tuning, Monitoring, and Complex Systems*
10. *OpenVMS User's Manual*
11. *Guide to OpenVMS AXP Performance Management*
12. *DECamds User's Guide*
13. *Building Dependable Systems: The OpenVMS Approach*
14. *Guide to VMS Performance Management*
15. *VMScluster Systems for OpenVMS*
16. *DECnet for OpenVMS Guide to Networking*
17. *DECnet for OpenVMS Network Management Utilities*
18. *DECnet for OpenVMS Networking Manual*
19. *OpenVMS System Messages: Companion Guide for Help Message Users*

For DEC OpenVMS and OpenVMS Alpha versions later than 6.1, refer to the Online Documentation Library contained on CD-ROM, QA-03XAA-H8, *Software Library Open VMS AXP LP's CD-ROM Documentation*.

Contacts

If you need assistance, please contact the SAIC CHCS Support Center at 1-800-635-4877.

How to Use ETU

General

Refer to the *CHCS System Administration User's Guide* for instructions on using the SY_ADMIN main window, and the use of the keys on the keyboard.

When You Do Not Have SY_ADMIN Installed

If your site does not have SY_ADMIN installed, the ETU options must be entered from the VMS command line. The following commands correspond to the SY_ADMIN File->Transfer options:

`etu -f`	TRANSMIT A FILE (CHOOSE NAME)
`etu -u`	UPDATE FILE TYPE PARAMETERS
`etu -t <loc>`	TRANSMIT FILES (CHOOSE LOCATION).

`<loc>` is the descriptive name of the transfer parameters. An entry of "**P**" allows you to be prompted for the descriptive name.

`etu -l`	UPDATE LOCATION PARAMETERS
`etu -r <loc>`	RETRIEVE FILES (CHOOSE LOCATION)
`etu -v`	VIEW TRANSMITTAL LOG
`etu -d`	PURGE FILES
`etu -p`	PURGE LOGS

Only one of the operations at a time can be specified with the ETU command. After you enter a command line option, ETU works as described for the SY_ADMIN menu based commands.

The following section, Transfer Menu, explains how to access ETU from the SY_ADMIN menu and provides detailed information about each of the options listed above.

Transfer Menu

FILE

CREATE
DELETE
EDIT
VIEW
PRINT
TRANSFER
EXIT

The SY_ADMIN File->Transfer menu allows you to manage ETU. Use the Transfer menu options as described below:

Transfer

Select the Transfer option to transfer Standard Inpatient Data Record (SIDR) and Workload Assignment Module (WAM) data from your site to the appropriate reporting agency using the File Transfer Protocol (FTP). In addition, you may use this option to send and retrieve files to and from any other site, providing that the site has electronic network access. When you select this option, you will be presented with the Electronic Transfer Utility (ETU) menu.

Upon selecting the **TRANSFER** option from the SY_ADMIN **FILE** menu, you are presented the following menu:

TRANSMIT A FILE (CHOOSE NAME) UPDATE FILE TYPE PARAMETERS TRANSMIT FILES (CHOOSE LOCATION) UPDATE LOCATION PARAMETERS RETRIEVE FILES (CHOOSE LOCATION) VIEW TRANSMITTAL LOG PURGE FILES PURGE LOGS	

Select an option by pressing the highlighted "hot key" for that option or by using the terminal's arrow keys to reach the option and then pressing Return to select the option.

The single file transfer options (**TRANSMIT A FILE (CHOOSE NAME)**, and **UPDATE FILE TYPE PARAMETERS**) are included for backward compatibility to users of prior versions of ETU. The multiple file transfer options (**TRANSMIT FILES (CHOOSE LOCATION)** and **UPDATE LOCATION PARAMETERS**) are the preferred options to transfer one or more files.

Transmit a File (Choose Name)

Select the **TRANSMIT A FILE (CHOOSE NAME)** option to transmit a file when you are using a version of ETU older than 3.1. If you are running ETU version 3.1 or newer, use the **TRANSMIT A FILE (CHOOSE LOCATION)** option. See the **TRANSMIT A FILE (CHOOSE LOCATION)** paragraph.

1. `ENTER THE FILE NAME TO TRANSMIT TO REMOTE SYSTEM: //`

   Enter the name of the file using either an absolute or relative path.

   ETU identifies the type of file (SIDR, Workload, STARS/FL Workload, Other) from the name of the file. The entry of the data file name to transmit is relative to the default directory specified by the logical: `SY_EXP_DIR`. If you enter an absolute path, ETU makes sure that the file exists and that it can access it for reading. If you enter a relative path, ETU makes sure that the file exists relative to the default directory and that it can access it for reading.

   If the file does not exist, the file is not a regular file, or the program cannot read the file, you are presented a message to that effect and are prompted for a filename, again. For example:

```
<FILE NAME>: NO SUCH FILE OR DIRECTORY
ENTER FILE NAME TO TRANSMIT TO REMOTE SYSTEM: //
```

Rather than entering a filename when prompted to do so, you can enter a **<?>** to obtain a picklist of transferrable files in the default directory. Any files ending in .GLS are not shown because they contain CHCS Globals and are not allowed to be transferred. Files are listed from newest to oldest.

```
      Nbr Size  Date            Name
      1.     500  Wed Feb 7 16:48:11WRK00183.JAN
      2.     500  Wed Feb 7 16:48:11WRK00183.0LR
      3.  286517  Wed Jan 9 19:08:30
SIDRD9403000000N2345T05.DAT
      4.      47  Sun Jan 6 19:26:03 WKLD9412N33435T01.DAT
      Enter number of file: //
```

Figure 1. Sample Picklist of Transferrable Files

Each file is preceded by a number, so that you can enter just the number instead of the file name. You can also enter **<?><directory>** to list the files in the specified directory. Again, each file is preceded with a number, so that you can enter the number of the file rather the file name.

2. Once a file has been chosen, update parameter screens similar to those shown in Appendix A, Figures A-1 through A-5 are shown along with the following prompt:

```
(C)HANGE PARAMETERS, (T)RANSFER FILE, (Q)UIT: T//
```

Enter **T** to transfer the file, **C** to change the parameters relevant to exporting a file, or **Q** to quit the transfer action. Refer to the paragraph **UPDATE FILE TYPE PARAMETERS** paragraph for the steps to take in changing parameters.

You must have the proper VMS permission to read the file in order to transmit the file.

After the file is sent, an update is made to the master transmission log file. See Figure 2. At the same time the new log file entries are displayed. Each log file entry indicates the success or failure of each file transmission attempt.

```
Date                User      File          (Size)
->  Remote Site   Ex/ImportStatus Message
-----------------------------------------------------------------
Tue Feb 20 13:50:58 1996joeuserA0638601.23(354)
->  161.14.8.32importTransfer complete
Tue Feb 20 13:50:59 1996joeuserS0638601.23     (36852)
->  161.14.8.32importTransfer complete
Tue Feb 20 14:18:24 1996joeuserA0638601.23(354)
->  161.14.8.32importTransfer complete
```

Figure 2. Transmission Log File

If the file did not complete for any reason, the system displays:

```
<FILE NAME> TRANSFER DID NOT COMPLETE.
```

If the file is not successfully sent under situations where another attempt may be successful, the program attempts to retransmit the file up to the parameter file value for the maximum number of retransmissions.

Prior to actually retransmitting the file the first time, the system displays:

```
FILE TRANSMISSION ATTEMPT #1
```

There is a one minute pause between each attempt. Each retransmission displays:

```
UP TO #N ATTEMPTS WILL BE MADE TO TRANSFER THE FILE IN 60
SECONDS.

WAITING...
```

If the file is not successfully sent in the number of allowed retransmissions, the system displays:

```
FILES WERE NOT SUCCESSFULLY SENT.  NO FURTHER ATTEMPTS
WILL BE MADE.
```

If the file transmission fails because of an invalid host name or IP address, login, format, or parameters, the program does not attempt to retransmit the file.

If any of the SIDR, STARS/FL Workload or Worldwide Workload files are not of standard format, ETU aborts the transmission, and the master transmission log file is

updated to reflect the aborted transmission due to incorrect file format. The system displays:

```
ERROR: [XX] CHARACTERS READ, [YY] CHARACTERS EXPECTED:
```

Update File Type Parameters

Select the **UPDATE FILE PARAMETERS** option to modify the pre-defined parameters for the file transfer when you are using a version of ETU older than 3.1. When you are using ETU version 3.1 or newer, use the **UPDATE LOCATION PARAMETERS** option. Refer to the **UPDATE LOCATION PARAMETERS** paragraph.

The following prompt displays when using the **UPDATE FILE TYPE PARAMETERS** option:

```
ENTER THE TYPE OF FILE (S)IDR, S(T)ARS, (W)ORKLOAD, or (O)THER:
//
```

Enter the type of file you wish to modify. You then receive the prompts shown in Appendix A, Figures A-1 through A-5. In the figures the values before the `//` are the default values and are representative of what you typically see. Enter **@** to clear the default.

Terms used in Appendix A, Figures A-1 through A-5 are defined in the **UPDATE LOCATION PARAMETERS** paragraph.

Transmit Files (Choose Location)

Use the **TRANSMIT FILES (CHOOSE LOCATION)** option to transmit files to a remote system based on the remote system's location. You then choose a file to transfer or choose a destination location to transfer to.

ETU then looks for the file and parses the file name to determine the type of transmittal (SIDR, STARS/FL Workload, Worldwide Workload, or Other). File names beginning with "`sidr`" or "`SIDR`" are determined to be SIDR files. File names beginning with "`wrk`" or "`WRK`" are determined to be STARS/FL Workload files. File names beginning with "`wkld`" or "`WKLD`" are determined to be Worldwide Workload files. All other file names are determined to be Other files (EAS files are considered to be Other files).

Since the SIDR, STARS/FL Workload, and Worldwide Workload files do not have the information in them to distinguish the file generation type or date/time, ETU parses the file name as a means of providing this information. This information is used to rename the files at the destination location according to the destination location specification. The file names are automatically generated and displayed back to you at the time of file creation. You must not change the default names, or ETU may not be able to successfully transfer the files. In the case of EAS files, you must work directly with the EAS site manager to identify the correct configuration setup for EAS file transfers.

Once ETU knows the type of file transfer, it displays user-defined parameters for the file transmittal. You can then use or modify displayed parameters using the **UPDATE LOCATION PARAMETERS**

option. ETU then initiates the transfer to the remote system via FTP and displays the transmission log entries as the files are transmitted. Refer to the **UPDATE LOCATION PARAMETERS** paragraph.

When you select the **TRANSMIT FILES (CHOOSE LOCATION)** option, you receive the following prompt:

```
ENTER A DESCRIPTIVE NAME FOR TRANSFER PARAMETERS: //
```

The possible transfer parameters for exportable files are:

```
1.EAS_FILES
2.SIDR_TO_NMIMC
3.SIDR_TO_PASBA
4.STARS_FILES
5.  WWW_TO_NMIMC
```

Enter the appropriate number, or enter **?** to have a numbered, alphabetical picklist of possible transfer parameters for exportable files and the following prompt displayed. Parameters presented are those that were previously entered with at least one file entered in the "**FILE TO BE EXPORTED FIELD**".

```
ENTER NUMBER OF DESCRIPTIVE NAME FOR TRANSFER PARAMETERS:  1//
```

Enter a number from the displayed list. If the desired entry is not displayed, press Return and choose the **UPDATE LOCATION PARAMETERS** option to update the location parameters for the desired transmission.

Once a choice has been made, the parameters relevant to exporting a file are displayed with the following prompt:

```
(C)HANGE PARAMETERS,(T)RANSFER,(Q)UIT: T//
```

Enter **T** to start the transfer. Enter **C** to update the parameters relevant to exporting a file. Once the changes have been made the transfer begins.

If the transmission is executed via a scheduled job and not executed interactively, the output display is stored in the file "ETU_<SITE>_EXP.LOG in the directory specified by SY_DEL_DIR. <SITE> is the descriptive name for the transfer parameters.

Refer to Appendix A, Figures A-1 through A-5 for examples of the prompts that appear when sending to all locations.

Update Location Parameters

Use the **UPATE LOCATION PARAMETERS** option to edit the remote system's location parameters. When you select this option, you receive the following prompt:

```
ENTER TYPE OF UPDATE (A)DD(E)DIT(D)ELETE: E//
```

If you enter **A**, you receive prompts similar to those shown in Appendix A, Figures A-6 through A-10. Modify the parameters as appropriate. In the figures the default values are representative of what you would see. Enter **@** to clear a default value. Upon subsequent invocations, the data entered previously appear as the default values. The numbers 9999 in the name of files to export in the figures represents the DMIS ID of the reporting MTF.

Terms used in Appendix A, Figures A-1 through A-10 are defined below:

DESCRIPTIVE NAME FOR TRANSFER PARAMETERS

Enter a title for the list of transfer parameters being created, edited, or deleted. It is this title that is listed in picklists within ETU.

RECEIVING DIRECTORY

Enter the directory on the remote system to which the file will be transferred. For transfers to Multiple Virtual Storage (MVS) operating systems (such as NMIMC, PASBA and STARS) this entry should remain blank.

SENDING DIRECTORY

Enter the directory on the remote system from which the file will be transferred. For transfers to MVS operating systems (such as NMIMC, PASBA and STARS) this entry should remain blank.

FILES IMPORTED/EXPORTED

Enter the file names to be imported/exported including wildcards (using the `*` character) in accordance with the following guidelines and table 1.

ETU identifies the type of file (SIDR, STARS/FL Workload, Worldwide Workload, Other) from the name of the file. File names beginning with "`sidr`" or "`SIDR`" are determined to be SIDR files. File names beginning with "`wrk`" or "`WRK`" are determined to be STARS Workload files. File names beginning with "`wkld`" or "`WKLD`" are determined to be Worldwide Workload files. All other file names are determined to be Other files.

Since the SIDR, STARS/FL Workload and Worldwide Workload files do not have the information within them to distinguish the file generation type or date/time, ETU parses the file name as a means of providing this information. This information is used to rename the files at the destination location according to the destination location conventions.

The files' names are automatically generated and displayed back to the user at file creation time. Do not rename the files. ETU may not transfer renamed files successfully.

Table 1. Permissible File Names

File Type	File Names Including Wildcards
SIDR to NMIMC	sidr*n9999 SIDR*N9999*
SIDR to PAS-BA	sidr*a9999* SIDR*A9999*
Worldwide Workload	wkld*n9999* WKLD*N9999*
STARS/FL Workload to STARS/FL Central Repository	wrk88888* WRK88888*
EAS	a9999* s9999* A9999* S9999* w9999* x9999* W9999* X9999*

Note: 88888 represents the Operating Budget UIC associated with the Group Identification.
99999 represents the DMIS ID of the reporting MTF.

NAME OR IP ADDRESS

Enter the fully qualified domain name or IP address that will be used when sending the file to the remote system.

USER ID

Enter the user identification that will be used to log into the remote system. This value is defaulted to the user currently running ETU.

PASSWORD

Enter the password that will be used to log into the remote system.

MAXIMUM RETRANSMITS

Enter the number of times you want the transfer to be re-attempted if earlier attempts have failed. Failed attempts will re-transmit every 60 seconds for the number of times you specify. The maximum number of attempts you can specify is 120.

ASCII OR BINARY TRANSFER

Enter whether the files are to be transferred as text or as binary (executable/media) files. Valid entries for this field are "`ascii`" or "`binary`."

FILE COMPRESSION

File Compression allows you to determine the compression mode used for files to be transferred. If "**none**" is chosen, then no compression is done. If "**gzip**" is chosen, the files are compressed with the utility "`gzip`" before being sent. The files are automatically uncompressed with the utility "`gunzip`" after a file is received. The receiving facility must also have the 'gzip' utility. If it does not, choose "**none**." MVS operating systems do not support "`gzip`."

TRANSMISSION LOG TRANSFER

TRANSMISSION LOG TRANSFER allows you to determine whether or not to transfer a file containing ETU master transmission log entries for that site. The contents of this file will be all transmissions to or from the site since the time the last log entry file was transmitted. Valid entries for the field are "**send**" and "**none**." For transfer to MVS operating system sites, the name of the site log file is not acceptable at the remote location. For these sites this entry should remain at "**none**."

The EAS supports the sending of log files and file compression. Sending a transmission log transfer to EAS is especially important since this file is used by EAS to determine which files to delete from the EAS. If the transmission log transfer to EAS is not configured, ETU will repeatedly retrieve files that have already been processed.

GENERAL PURPOSE LINES

Use the General Purpose Lines option to save text that will be fed to FTP prior to using the FTP put or get commands. Refer to table 2. The lines are fed to FTP for each file that is exported (not just the first file). The lines are fed to FTP once for all files that are imported. ETU invokes FTP with the "`verbose`" toggle option set. Use of "`verbose`" in the general purpose lines disables this setting and can result in ETU not being able to detect success or failure of the transmission.

Pressing Return on a line leaves the line blank. If the line previously had text, this previous text is used as the default entry. An entry of **@** clears the text associated with that line.

Table 2. General Purpose Lines

Type of File Transfer	Line 1	Line 2
SIDR transfers to NMIMC	SIDR Facility Files: QUOTE SITE VOL=PROD03 LR=70 BL=70 SIDR Data Files: QUOTE SITE VOL=PROD03 LR=221 BL=1326 TR PRI=100 SEC=25 SIDR Summary Files: QUOTE SITE VOL=PROD03 LR=31 BL=31	
SIDR transfers to PASBA	SIDR Facility, Data and Summary Files: QUOTE SITE SPECIAL VB	SIDR Facility, Data and Summary Files: QUOTE STRU F
Worldwide Workload transfers to NMIMC	QUOTE SITE VOL=PROD03 LR=47 BL=4700 TR PRI=100 SEC=25	
STARS/FL Workload transfers to STARS/FL Central Repository	QUOTE SITE TR PRI=5 SEC=5 REC=FB LR=125 BL=1250	

FILE MASK

The **FILE MASK** is a naming mask that determines how the file is named on the destination system. Use the **FILE MASK** to name the file on the destination system. Special symbols in this mask will be replaced by appropriate values determined by the naming of the source file. The special symbols used are:

+ Transmission number extracted from name
* YYMM - Year and month of file creation extracted from name

- DMIS ID or UIC code extracted from name
% HHMM - Hour and minute of file creation extracted from name
^ DD - Day of the month of file creation extracted from name
= YDDD - Julian date of tranmission
Transmittal Type (BIO, DREC, OUT, REG, SREC, STRS, WLKD)
_ Ignored (underscore is for internal use)

Once a blank line is entered, prompting for this field ends. A maximum of 10 lines can be entered.

All other symbols appear in the destination name as listed.

Table 3 provides the sending file masks for the various types of files.

Table 3. File Masks

File Type	File Mask
EAS ASD and SAS Detail	Not used
EAS Workload ASCII	Not used
NMIMC SIDR	Facility file: 'DSC2AQC.CHN-.#F+.D*' Data file: 'DSC2AQC.CHN-.#D+.D*' Summary file: 'DSC2AQC.CHN-.#S+.D*'
PASBA SIDR	Facility file: SXX.RUF0000.-HDR.D*^.T%+ Data file: SXX.RUF0000.-.DATA.D*^.T%+ Summary file:SXX.RUF0000.-TLR.D*^.T%+
STARS Workload	'LXFASH2.CHCS.N-.D='
Retransmitted STARS Workload	'LXFASH2.CHCS.N-.D='
NMIMC Worldwide Workload	'DSC2AQC.CHN-.#+.D'

HOUR FOR AUTOMATIC SCHEDULED TRANSMISSION

This is a value between 0 and 23 corresponding to 24-hour time. Once this value is entered, a BTU transmission is scheduled on the local machine to occur at the time specified. If the log file is to be transmitted, the log file is sent directly after the scheduled transmission has occurred.

A BTU import job is scheduled when there are entries in both the "`Files to be imported`" field and in the "`Hours for automatic scheduled transmission`" field.

A BTU export job is scheduled when there are entries in both the "`Files to be exported`" field and in the "`Hour of automatic transmission`" field.

Clearing the "`Hours for automatic transmission`" field causes the export and import jobs to be unscheduled. Clearing the "`Files to be imported`" field causes the import jobs to be unscheduled. Clearing the "`Files to be exported`" field causes the export jobs to be unscheduled. Any changes in these fields cause appropriate changes in the jobs scheduled.

If all transfer parameters are deleted, the master location parameter file is also deleted.

Upon selecting the (**E**)dit or (**D**)elete options, the existing transfer parameters are listed along with the following prompt:

```
1.  EAS_FILES
2.  SIDR_TO_NMIMC
3.  SIDR_TO_PASBA
4.  STARS_FILES
5.   WWW_TO_NMIMC

ENTER NUMBER OF DESCRIPTIVE NAME FOR TRANSFER PARAMETERS: 1//
```

Enter a number from the displayed list corresponding to the transfer parameters to be updated or deleted. Prompts similar to those shown in Appendix A, Figures A-6 through A-10 are then displayed. Modify the parameters as appropriate. In the figures the default values are representative of what you would see. Enter **@** to clear a default value. Upon subsequent invocations, the data entered previously appear as the default values.

Retrieve Files (Choose Location)

Use the Retrieve Files option to retrieve files from a given location. Upon selecting this option, you receive the following prompt:

```
ENTER A DESCRIPTIVE NAME FOR TRANSFER PARAMETERS: //
```

Enter the desired number, if known, or enter **?** to obtain a numbered, alphabetical list of possible transfer parameters for importable files:

```
1.  EAS_FILES
2.  XXX
3.  YYY
4.  ZZZ
```

Enter the number from the displayed list. If the desired entry is not displayed, press Return and choose the **UPDATE LOCATION PARAMETERS** option to update the location parameters for the desired transmission. Once you have made a choice, the parameters relevant to importing are displayed with the following prompt:

```
(C)HANGE PARAMETERS   (T)RANSFER(Q)UIT: T //
```

Enter **C** to update those parameters relevant to importing. Once the changes have been made, the transmission begins. The received files can be found in the directory specified by `SY_IMP_DIR`. If the transmission is executed by a scheduled job and not executed interactively, the output is stored in the file `ETU_<SITE>_IMP.LOG` in the directory specified by the `SY_DEL_DIR` directory. `<SITE>` is the descriptive name for the transfer parameters. As the files are received, updates are made to the transmission log file and to the log file. See Figure 2.

View Transmittal Log

Use the **View Transmittal Log** option to display the transmittal log. A sample log file is shown in Figure 2.

You are responsible for checking both the transmission log and exception files on a regular basis. If any errors have occurred with the processing of incoming files, you should arrange for a resolution of the errors encountered by contacting your counterpart at the sending end of the link. Files transmitted with exceptions listed in the exceptions log may need to be retransmitted.

Purge Files

Select the **PURGE FILES** option to remove files. You receive the following prompt:

```
ENTER FILE NAME TO PURGE: //
```

Enter the file name observing the same file naming conventions used in transmitting a file. You must have permission to remove the file.

Purge Logs

Select the **PURGE LOGS** option to clean out the Transmittal Log. Upon selecting this option you are presented the following prompt:

```
OLDEST DATA IN TRANSMITTAL LOG: N DAYS
```

```
KEEP HOW MANY DAYS WORTH OF LOG DATA? //
```

Enter the number of days worth of data to be retained in the Transmittal Log. Entries older than this date are removed from the log. When the process is complete the following prompt appears:

```
N RECORDS PURGED FROM TRANSMITTAL LOG
```

If all log entries are purged, the Master Transmission Log file is deleted.

Troubleshooting

The following ETU VMS command line options are not for normal field use. Use only under the direction of the SAIC Support Center.

`etu -c <inp>`	Coordinated coexisting transmission (not locked out). `<inp>` is the name of the input file where the coordinated coexisting transmission receives its input. This file is generated by BTU.
`etu -n`	No display of log file header for log entry display
`etu -q`	Quiet mode -- no display prompts, benign messages
`etu -w`	Wait for current transmission to complete
`etu -x <num>`	Problem diagnosis option. `<num>` is a number that translates into a bit mask. Depending upon which bits are set in the number entered, different diagnostic information is displayed to the user. The number can be entered in decimal or hexidecimal form with an "`0x`" prefix. The diagnostic information displayed is determined as follows:

`0x0000`	No information
`0x0001`	Function call trace diagnostics
`0x0002`	Function call results trace diagnostics
`0x0004`	System commands executed internal diagnostics
`0x0008`	Low level routine internals diagnostics
`0x0010`	File transfer diagnostics
`0x0020`	File retrieval diagnostics
`0x0040`	File cleanup diagnostics
`0x0080`	File choice by user diagnostics
`0x0100`	Parameter entry diagnostics
`0x0200`	Scheduling batch and cron jobs diagnostics
`0x0400`	Log files diagnostics
`0x0800`	Lock file diagnostics
`0x1000`	File parsing diagnostics
`0x2000`	FTP diagnostics
`0x4000`	User input diagnostics

The following BTU VMS command line options are not for normal field use. Use only under the direction of the SAIC Support Center.

`btu -l`	Location parameter descriptive name
`btu -q`	Quiet mode -- no display prompts, benign messages
`btu -x <num>`	Problem diagnosis option

Appendix A - Sample Screens

General

This appendix provides examples of typical prompts you see when using the **UPDATE FILE TYPE PARAMETERS** and **UPDATE LOCATION PARAMETERS** options.

Sample Screens:

If you select (S)IDR, then enter **131.158.50.90** as the IP address for the remote system; the rest of the prompts will show the initial default parameters for sending SIDR files to NMIMC:

```
SIDR Facility File:
Enter Receiving directory at remote system: //
Enter Name or IP address for remote system: // 131.158.50.90
Enter User ID for remote system: joeuser // your_login
Enter Password for remote system: //
Enter Maximum retransmits: 1 //
Enter Ascii or binary transfer: ascii //
Enter File compression mode: none //
Enter Transmission log transfer option: none //
Enter File mask: 'DSC2AQC.CHN-.#F+D*'
Lines executed prior to transmission:
Enter Line 1: QUOTE SITE VOL=PROD03  LR=70 BL=70 //
Enter Line 2: //
SIDR Data File:
Enter File mask: 'DSC2AQC.CHN-.#D+.D*' //
Lines executed prior to transmission:
Enter Line 1: QUOTE SITE VOL=PROD03 LR=221 BL=1326 TR PRI=100
SEC=25 //
Enter Line 2: //
SIDR Summary File:
Enter File mask: 'DSC2AQC.CHN-.#S+.D*'
Lines executed prior to the transmission:
Enter Line 1: QUOTE SITE VOL=PROD03 LR=31 BL=31 //
Enter Line 2: //
```

Figure A-1. SIDR File Transfer to NMIMC

If you select (S)IDR, then enter **139.232.10.5** as the IP address for the remote system; the rest of the prompts will show the initial default parameters for sending SIDR files to PASBA:

```
SIDR Facility File:
Enter Receiving directory at remote system: //
Enter Name or IP address for remote system: // 139.232.10.5
Enter User ID for remote system: joeuser // b044bb
Enter Password for remote system: //
Enter Maximum retransmits: 1 //
Enter Ascii or binary transfer: ascii //
Enter File compression mode: none //
Enter Transmission log transfer option: none //
Enter File mask: SXX.RUF0000.-.HDR.D*^.T%+ //
Lines executed prior to transmission:
Enter Line 1: QUOTE SITE SPECIAL VB //
Enter Line 2: QUOTE STRU F //
Enter Line 3: //
SIDR Data File:
Enter File mask: SXX.RUF0000.-.DATA.D*^.T%+ //
Lines executed prior to transmission:
Enter Line 1: QUOTE SITE SPECIAL VB //
Enter Line 2: QUOTE STRU F //
Enter Line 3: //
SIDR Summary File:
Enter File mask: SXX.RUF0000.-.TLR.D*^.T%+ //
Lines executed prior to the transmission:
Enter Line 1: QUOTE SITE SPECIAL VB //
Enter Line 2: QUOTE STRU F //
Enter Line 3: //
```

Figure A-2. SIDR File Transfer to PASBA

If you select S(T)ARS, then enter **163.240.18.15** as the IP address for the remote system; the rest of the prompts will show the initial default parameters for sending STARS/FL files to the STARS/FL Central Repository:

```
Enter Receiving directory at remote system: //
Enter Name or IP address for remote system: // 163.240.18.15
Enter User ID for remote system: joeuser // your_login
Enter Password for remote system: //
Enter Maximum retransmits: 1 //
Enter Ascii or binary transfer: ascii //
Enter File compression mode: none //
Enter Transmission log transfer option: none //
Enter File mask: 'LXFASH2.CHCS.N-.D='
Lines executed prior to transmission:
Enter Line 1: QUOTE SITE TR PRI=5 SEC=5 REC=FB LR=125 BL=1250 //
Enter Line 2: //
```

Figure A-3. STARS/FL File Transfer to STARS/FL Central Repository

If you select (W)orkload, then enter **131.158.50.90** as the IP address for the remote system; the rest of the prompts will show the initial default parameters for Worldwide Workload files to NMIMC:

```
Enter Receiving directory at remote system: //
Enter Name or IP address for remote system: // 131.158.50.90
Enter User ID for remote system: joeuser // your_login
Enter Password for remote system: //
Enter Maximum retransmits: 1 //
Enter Ascii or binary transfer: ascii //
Enter File compression mode: none //
Enter Transmission log transfer option: none //
Enter File mask: 'DSC2AQC.CHN-.#+.D*'
Lines executed prior to transmission:
Enter Line 1: QUOTE SITE VOL=PROD03 LR=47 BL=4700 TR PRI=100
SEC=25 //
Enter Line 2: //
```

Figure A-4. Workload File Transfer to NMIMC

Other file type transfer:

```
Enter Receiving directory at remote system: //
Enter Name or IP address for remote system: //
Enter User ID for remote system: joeuser //
Enter Password for remote system: //
Enter Maximum retransmits: 1 //
Enter Ascii or binary transfer: ascii //
Enter File compression mode: none //
Enter Transmission log transfer option: none //
Lines executed prior to transmission:
Enter Line 1: //
```

Figure A-5. Other File Type Update Parameters Screen

The following prompts show the input that should be entered in order to set up the location parameters for sending SIDR files to NMIMC:

```
Enter a descriptive name for transfer parameters // SIDR_TO_NMIMC
Enter Name or IP address for remote system: //131.158.50.90
Enter User ID for remote system: joeuser //your_login
Enter Password for remote system: //
Enter Receiving directory at remote system: //
Enter Sending directory at remote system: //
Enter Files to be exported: //sidr*n9999* SIDR*N9999*
Enter Files to be imported: //
Enter Maximum retransmits: 1//
Enter Ascii or binary transfer: ascii //
Enter File compression mode: none //
Enter Transmission log transfer option: none //
Enter Hour for automatic scheduled transmission: // 0

SIDR Facility File:
Enter File mask: 'DSC2AQC.CHN-.#F+.D*' //
Lines executed prior to transmission:
Enter Line 1: QUOTE SITE VOL=PROD03 LR=70 BL=70 //
Enter line 2: //

SIDR Data File:
Enter File mask: 'DSC2AQC.CHN-.#D+.D*' //
Lines executed prior to transmission:
Enter Line 1: QUOTE SITE VOL=PROD03 LR=221 BL=1326 TR PRI=100
SEC=25 //
Enter Line 2: //

SIDR Summary File:
Enter File mask: 'DSC2AQC.CHN-.#S+.D*' //
Line executed prior to transmission:
Enter Line 1: QUOTE SITE VOL=PROD03 LR=31 BL=31 //
Enter Line 2: //
```

Figure A-6. SIDR Prompts for Updating Location Parameters for Transfer to NMIMC

The following prompts show the input that should be entered by the user in order to set up the location parameters for sending Worldwide Workload files to NMIMC:

```
Enter a descriptive name for transfer parameters // WWW_TO_NMIMC
Enter Name or IP address for remote system: //131.158.50.90
Enter User ID for remote system: joeuser //your_login
Enter Password for remote system: //
Enter Receiving directory at remote system: //
Enter Sending directory at remote system: //
Enter Files to be exported: // wkld*n9999* WKLD*N9999*
Enter Files to be imported: //
Enter Maximum retransmits: 1//
Enter Ascii or binary transfer: ascii //
Enter File compression mode: none //
Enter Transmission log transfer option: none //
Enter Hour for automatic scheduled transmission: // 1
Enter File mask: 'DSC2AQC.CHN-.#+.D*' //
Lines executed prior to transmission:
Enter Line 1: QUOTE SITE VOL=PROD03 LR=47 BL=4700 TR PRI=100
SEC=25 //
Enter line 2: //
```

Figure A-7. Worldwide Workload Prompts for Updating Location Parameters for Transfer to NMIMC

The following prompts show the input that should be entered in order to set up the location parameters for sending SIDR files to PASBA:

```
Enter a descriptive name for transfer parameters // SIDR_TO_PASBA
Enter Name or IP address for remote system: //139.232.10.5
Enter User ID for remote system: joeuser //b044bb
Enter Password for remote system: //
Enter Receiving directory at remote system: //
Enter Sending directory at remote system: //
Enter Files to be exported: //sidr*a9999* SIDR*A9999*
Enter Files to be imported: //
Enter Maximum retransmits: 1//
Enter Ascii or binary transfer: ascii //
Enter File compression mode: none //
Enter Transmission log transfer option: none //
Enter Hour for automatic scheduled transmission: // 0

SIDR Facility File:
Enter File mask: SXX.RUF0000.-HDR.D*^.T%+ //
Lines executed prior to transmission:
Enter Line 1: QUOTE SITE SPECIAL VB //
Enter line 2: QUOTE STRU F//
Enter Line 3: //

SIDR Data File:
Enter File mask: SXX.RUF0000.-.DATA.D*^.T+ //
Lines executed prior to transmission:
Enter Line 1: QUOTE SITE SPECIAL VB //
Enter Line 2: QUOTE STRU F//
Enter Line 3: //

SIDR Summary File:
Enter File mask: SXX.RUF0000.-TLR.D*^.T%+ //
Line executed prior to transmission:
Enter Line 1: QUOTE SITE SPECIAL VB //
Enter Line 2: QUOTE STRU F //
Enter Line 3: //
```

Figure A-8. SIDR Prompts for Updating Location Parameters for Transfer to PASBA

The following prompts show the input that should be entered in order to set up the location parameters for sending STARS/FL Workload files to the STARS/FL Central Repository:

```
Enter a descriptive name for transfer parameters // TO_STARS
Enter Name or IP address for remote system: //163.240.18.15
Enter User ID for remote system: joeuser //your_login
Enter Password for remote system: //
Enter Receiving directory at remote system: //
Enter Sending directory at remote system: //
Enter Files to be exported: // wrk99999* WRK99999*
Enter Files to be imported: //
Enter Maximum retransmits: 1//
Enter Ascii or binary transfer: ascii //
Enter File compression mode: none //
Enter Transmission log transfer option: none //
Enter Hour for automatic scheduled transmission: // 2
Enter File mask: 'LXFASH2.CHCS.N-.D=' //
Lines executed prior to transmission:
Enter Line 1: QUOTE SITE TR PRI=5 SEC=5 REC=FB LR=125 BL=1250 //
Enter line 2: //
```

Figure A-9. STARS/FL Workload Prompts for Updating Location Parameters for Transfer to STARS/FL Central Repository

The following prompts show the input that should be entered by the user in order to set up the location parameters for sending and receiving EAS III files:

```
Enter a descriptive name for transfer parameters // EAS_FILES
Enter Name or IP address for remote system: //999.999.999.999
Enter User ID for remote system: joeuser //anonymous
Enter Password for remote system: // guest
Enter Receiving directory at remote system: // pub
Enter Sending directory at remote system: // pub
Enter Files to be exported: // a9999* s9999* A9999* S9999*
Enter Files to be imported: // w9999* x9999* W9999* X9999*
Enter Maximum retransmits: 1//
Enter Ascii or binary transfer: ascii // binary
Enter File compression mode: none // gzip
Enter Transmission log transfer option: none // send
Enter Hour for automatic scheduled transmission: // 3
Lines executed prior to transmission:
Enter Line 1: //
```

Figure A-10. EAS Prompts for Updating Location Parameters

NOTE:
It is recommended that the location parameters set up for sending and receiving EAS III files, as described above, be done twice to accommodate the WAM module, once for the export files and once for the import files. Performing the location parameters set up twice allows different times to be entered for import and export files at the `Enter Hour for Automatic Scheduled transmission:` prompt. The recommended export time for the EAS Workload ASCII files is 3 a.m.(or some time in the early morning after midnight). The recommended import time for the EAS update files is 5 p.m. The reason for the different times is that the monthly ASCII files sent to EAS will most likely be transmitted by WAM users sometime during the day or evening, so an early morning time such as 3 a.m. is appropriate for sending the file to the EAS system. The import files, however, involve a different process. The files are first moved into the import directory (at the time set for ETU); then, tasks on CHCS incorporate the EAS update files from the import directory at 8 p.m. and 10 p.m. Therefore, a 5 p.m. import time lessens the gap of time when EAS files are picked up by the ETU and available for incorporation in the WAM module.

Appendix B - Data Structures

Permanent Files

All files can be found in the directory determined by the logical, `SY_COMMON_DATA`. When any of these files are updated on any node, the updated file is propagated to the other nodes within the configuration.

ETU uses the following files for successful operation:

- Master Location Parameter file
- File type parameter files -- 3 for SIDR, 1 for STARS/FL Workload, 1 for WKLD, 1 for Other
- Location parameter files -- 1 for each location
- Automated transfer files for scheduled jobs -- 1 for each scheduled import, 1 for each scheduled export
- Master Transmittal Log file
- Nine TCP/IP confirmation message files.

a. The Master Location Parameter file contains entries for all locations each with an indication of whether that location allows import, export, or both. This file, named "`btu.rc`," contains single line ASCII text entries such as the following sample:

```
eie PCEIE.eturc e i
midearth.pcchcs SIDR_TEST.eturc e -
midearth.pcchcs STARS_TEST.eturc e -
```

Where the first field is the name or IP address of the remote system, the next field is the name of the location parameter file, the next field is the export qualifier, and the final field is the import qualifier. An export qualifier of "`e`" means that the location is configured for exporting files. An export qualifier of "`-`" means that the location is not configured for exporting files. An import qualifier of "`i`" means that the location is configured for importing files. An import qualifier of "`-`" means that the location in not configured for importing files.

The purpose of both types of parameter files is to store certain default values that must survive between invocations of ETU. The File Type Parameter file stores information for file type transfers, and the Location Parameter file stores information for file location transfers.

b. The format of the File Type Parameter file is a flat binary file containing non-delimited ASCII text records for each piece of data.

These files are named:

```
eturc.facsidr, eturc.datsidr, eturc.sumsidr,
eturc.strs, eturc.wkld, eturc.othr
```

corresponding to the SIDR facility, SIDR data, SIDR summary, STARS/FL Workload, Worldwide Workload and Other files, respectively. The following pieces of data are stored:

Field name	Width	Data type	Comments
remote export directory	80	alphanum	
fully qualified domain name or IP address	80	alphanum	
userid	12	alpha	
password	20	alphanum	encrypted
max. retransmits	4	numeric	
default transmission mode	8	alpha	values: ascii/binary
file compression	8	alpha	values: gzip/none
transmission log option	8	alpha	values: send/none
name mask	40	free text	
general purpose lines	80	free text	x 10 lines

c. The format of the Location Parameter file is an ordered flat ASCII file containing a field identifier, followed by an equals sign (=), followed by quoted ASCII text strings for each piece of data. The order of the entries is essential to correct processing. These files are named by adding a suffix of "`.eturc`" to the descriptive name that the user enters. The following pieces of data are stored:

Field name	Max Width	Data type	Comments
fully qualified domain name or IP address	80	alphanum	
userid	12	alpha	
password	20	alphanum	encoded & encrypted
remote destination dir	80	alphanum	
remove receiving dir	80	alphanum	

export file list 1024 free text
import file list 1024 free text
max. retransmits 4 numeric
default transmission mode 8 alpha values: ascii/binary
file compression 8 alpha values: gzip/none
transmission log option 8 alpha values: send/none
scheduled transmit hour 8 numeric
name mask 40 free text x 3
general purpose lines 80 free text x 10 lines x 3

Three versions of the name mask and general purpose lines are needed to support splitting SIDR files into facility, data, and summary files.

d. The Master Transmittal Log file, named "`etu.log`," is a recording of all transmission attempts using ETU. The file contains a four-line header followed by two-line, newline-terminated strings that contain the date and time, the local user, file name, the file size, the remote location, export/import status, and the transfer status message. Sample content of this file is as follows:

```
Date                    User     File                    (Size)
-> Remote_site          Ex/import  Status_message
-----------------------------------------------------------------------------------------------------------
Thu Jan 18 18:45:34 1996   joeuser   n1a01.exp                    (21)
  -> midearth.pcchcs          export    Transfer complete
Thu Jan 18 18:45:36 1996   joeuser  n1a02.exp                    (21)
-> midearth.pcchcs          export    Transfer complete
Thu Jan 18 18:45:39 1996   joeuser   n1a03.exp                    (21)
-> midearth.pcchcs          export    Transfer complete
```

e. The nine TCP/IP message confirmation files are named:

```
TCPConnectFail.etu
TCPConnectOk.etu
TCPConnectPFail.etu
TCPLoginFail.etu
TCPLoginOk.etu
TCPLoginPFail.etu
TCPTransferFail.etu
TCPTransferOk.etu
TCPTransferPFail.etu
```

Each TCP/IP message confirmation file contains entries of messages that TCP/IP software produces which are then interpreted by ETU to determine success, failure, and pseudo-failure of remote connection, login, and file transmission (both send and receive). Success messages are those messages indicating that the desired action was taken. Failure messages

are those messages indicating that the desired action was not taken, and the type of failure indicates that no further transmission attempts are made.

Pseudo-failure messages are those messages indicating that the desired action was not taken, and the type of failure indicates that further transmission attempts are made. When TCP/IP success messages are received, ETU continues normally. When TCP/IP failure messages are received, ETU aborts transmission. When TCP/IP pseudo-failure messages are received, ETU reattempts transmission to attain success.

The initial versions of these files are supplied as part of software supplied at installation. These files are then intended to be updated as needed at the sites when messages provided within the files are insufficient due to changes in the environment, such as TCP/IP software upgrades.

All TCP/IP message confirmation files contain strings. Each string must exist on a line by itself and each string must be a subset of (case-sensitive, space-sensitive) a message that is produced by TCP/IP. A line beginning with pound (#) will be interpreted as a comment. Blank lines are ignored.

The initial TCP/IP messages in the `TCPConnectFail.etu` are:

```
# This is the file that contains all possible TCP/IP strings
        that can be generated for the following reason:
#    Host Connection Failed
# No additional transmission attempts will be made.
Unknown host
Connection refused
No route to host
```

The initial TCP/IP messages in the `TCPConnectOk.etu` are:

```
# This is the file that contains all possible TCP/IP strings
        that can be generated for the following reason:
# Host Connection Success
# No additional transmission attempts will be made.
Connected to
Connection open
```

The initial TCP/IP messages in the `TCPConnectPFail.etu` are:

```
# This is the file that contains all possible TCP/IP strings
        that can be generated for the following reason:
#    Host Connection Pseudo Failed
# Additional transmission attempts will be made.
Connection timed out
No connection
Service not available
  Remote server has closed connection
```

The initial TCP/IP messages in the `TCPLoginFail.etu` are:

```
# This is the file that contains all possible TCP/IP strings
        that can be generated for the following reason:
#    Host Login Failed
# No additional transmission attempts will be made.
  USERID not valid
  PASSWORD not authorized
  Login failed
```

The initial TCP/IP messages in the `TCPLoginOk.etu` are:

```
# This is the file that contains all possible TCP/IP strings
        that can be generated for the following reason:
#    Host Login Success
# No additional transmission attempts will be made.
  logged in
  USER LOGON COMPLETE
  logged on
  login ok
```

The initial TCP/IP messages in the `TCPLoginPFail.etu` are:

```
# This is the file that contains all possible TCP/IP strings
        that can be generated for the following reason:
#    Host Login Pseudo Failed
# Additional transmission attempts will be made.
  USERID already logged on
```

The initial TCP/IP messages in the `TCPTransferFail.etu` are:

```
#This is the file that contains all possible TCP/IP strings
 that can be generated for the following reason:
#    Host Transfer Failed
#No additional transmission attempts will be made.
 File unavailable, not found, not accessed
 Permission denied
 Truncated to
 Illegal RECFM
 Transfer failed
 No such file
 Requested action not taken
 Error occurred
 Insufficient privilege
 File protection violation
 Invalid data set name
 Unable to create data set
```

```
Transfer aborted
Record size too big
Bytes received - 0
Syntax error in parameters
File not found
```

The initial TCP/IP messages in the `TCPTransferOk.etu` are:

```
#This is the file that contains all possible TCP/IP strings
 that can be generated for the following reason:
#Host Transfer Success
#No additional transmission attempts will be made.
 Transfer complete
 Data transfer completed
 Bytes received.
```

The initial TCP/IP messages in the `TCPTransferPFail.etu` are:

```
#This is the file that contains all possible TCP/IP  strings
 that can be generated for the following reason:
#Host Transfer Pseudo Failed
#Additional transmission attempts will be made.
Data set catalogued but not on volume
```

Temporary Files

The following list shows names of temporary files that are created during the operation of ETU. All of these files have varying formats and sizes. The user of ETU does not need to be concerned with the contents of these files. This list is provided so that the site operators can understand the origins of these files when they appear on their system. All files are created in the directory specified by `SY_DEL_DIR`. All files created are deleted when ETU finishes executing. These files are created with read, write, and delete permission by the system, owner, and group. The ftp_input.PID file is not readable by the group. The PID in the name of the file represents the actual process identification number of the ETU process.

```
delete_list.etu, eturc.datsidrbak, eturc.facsidrbak,
 eturc.othrbak, eturc.strsbak, eturc.sumsidrbak, eturc.wkld-
 bak, etu_input.PID, ftp_input.PID, FTP_OUTPUT.PID,
 imp_list.PID, LK.etu, ls_tmp.PID, ls_choices.PID,
 ls_include.PID, ls_sorted.PID, tmp_rec_loc.PID,
 tmp_tran_loc.PID, tmp_update_del.PID, btu.resortPID
```

Therefore, there is minimal additional disk space usage by ETU.

Site Log File

The contents of this file are all Master Transmission Log file entries indicating transmission attempts to or from the corresponding remote site since the time the last site log file was successfully sent. This file is created and sent to the remote site if the "Transmission log transfer option" is "send."

The site log file name specification is as follows:

```
ETU     XXXX     ####
1       2        3
```

Where:

1. ETU = "ETU" identifies site log file prefix
2. XXXX =First four characters of node name of machine sending site log file, padded with underscores (_) for node names shorter than four characters
3. #### =Number of seconds since first or sixteenth of the month, 12:00 AM, in base 36.

If you specified "gzip" under the "Transmission log option," the site log will also be compressed and a "-gz" extension will be added to the end of the site log file name, accordingly.

Automated File Cleanup

After each location transfer, ETU looks in the directories specified by SY_DEL_DIR, SY_EXP_DIR and SY_IMP_DIR. Any files found in these directories older than seven days are deleted. Successful file deletion is dependent upon the file permission allowing deletion of that file by the process running ETU.

CHCS File Name Specifications

a. The EAS III ASD and SAS Detail name specification is as follows:

```
T     XXXX     YMM.DD
1     2        3
```

Where:

1. T=Type of data file: "A"=ASD file, "S"=SAS detail file
2. DMIS ID of the reporting Medical Treatment Facility (MTF)
3. Y=Calendar year, MM=Calendar Fiscal Month, DD=Calendar Day.

b. The EAS III Workload ASCII File name specification is as follows:

```
T      XXXX      YMM.DD      V
1      2         3           4
```

Where:

1. T=Type of data: "W"=Original data, "X"=Updated data
2. DMIS ID of the reporting Medical Treatment Facility (MTF)
3. Y=Fiscal year, MM=Numeric Fiscal Month, DD=Fiscal Day
4. V=Alphabetic transmission version.

c. The SIDR file name specification is as follows:

```
SIDR      X      YYMMDDTTTT      B      XXXX      TXX      .DAT
1         2      3               4      5         6         7
```

Where:

1. SIDR="SIDR" required identifying file prefix,
2. B=Biometric monthly data
   D=D type interim data
   O=Outpatient SIDR data
   R=Individual register number data
   S=Casualty SIDR data
3. YY=Year, MM=Numeric Month, DD=Day, TTTT=Time
4. B=branch of service: "A"=Army, "F"=Air Force, "N"=Navy
5. DMIS ID of the reporting Medical Treatment Facility (MTF)
6. TXX="T" and the transmittal number XX
7. .DAT="DAT" required file extension.

d. The STARS/FL Workload ASCII file name specification is as follows:

```
WRK      XXXXX      .MMM
1        2           3
```

Where:

1. WRK="WRK" required identifying file prefix
2. Operating Budget UIC associated with the group identification
3. .MMM=Alphabetic Month (JAN, FEB, MAR,...).

e. The retransmitted STARS/FL Workload ASCII file name specification is as follows:

```
WRK      XXXXX   .MMR
1        2        3
```

Where:

1. WRK="WRK" required identifying file prefix
2. Operating Budget UIC associated with the group identification
3. .MM=Numeric Month followed by letter "R".

f. The Worldwide Workload file name specification is as follows:

```
WKLD      YYMM      B      XXXX      TXX      .DAT
1         2         3      4         5        .6
```

Where:

1. WKLD="WKLD" required identifying file prefix,
2. YY=Year, MM=Numeric Month
3. B=branch of service: "A"=Army, "F"=Air Force, "N"=Navy
4. DMIS ID of the reporting Medical Treatment Facility (MTF)
5. TXX="T" and the transmittal number XX
6. .DAT="DAT" required file extension.

External File Name Specifications.

At ETU transfer run-time, the ETU converts CHCS specified file names for each file type to the name needed by the remote/receiving system. The conversion occurs through the use of the "FILE MASK" field. The external name specifications of the files transferred by ETU are as follows:

a. The EAS III ASD and SAS Detail name specification is as follows:

```
T      XXXX      YMM.DD
1      2         3
```

Where:

1. T=Type of data file: "A"=ASD file, "S"=SAS detail file
2. DMIS ID of the reporting Medical Treatment Facility (MTF)
3. Y=Calendar year, MM=Calendar Fiscal Month DD=Calendar Day.

The CHCS name specification for EAS III ASD and SAS Detail files is identical to the external name specification. Therefore, no file mask field is used.

b. The EAS III Workload ASCII File name specification is as follows:

```
T      XXXX      YMM.DD      V
1      2         3           4
```

Where:

1. T=Type of data: "W"=Original data, "X"=Updated data
2. DMIS ID of the reporting Medical Treatment Facility (MTF),
3. Y=Fiscal year, MM=Numeric Fiscal Month, DD=Fiscal Day
4. V=Alphabetic transmission version.

The CHCS name specification for EAS III Workload ASCII Files is identical to the external name specification. Therefore, no file mask field is used.

c. The NMIMC SIDR file name specifications are as follows:

```
DSC2AQC.CHN     B     XXXX.     XXXX     T     XX.     DYYMM
1               2     3         4        5     6       7
```

Where:

1. DSC2AQC.CHN="DSC2AQC.CHN" required identifying file prefix
2. B=branch of service: "A"=Army "F"=Air Force "N"=Navy,
3. DMIS ID of the reporting Medical Treatment Facility (MTF)
4. For Biometric monthly data="BIO"
   For D type interim data="DREG"
   For Outpatient SIDR data="OUT"
   For Individual register number data="REG"
   For Casualty SIDR data="SREG"
5. Facility="F" Data="D" Summary="S"
6. XX=Transmittal number
7. DYYMM="D" and YY=Year, MM=Numeric Month.

For SIDR files sent to NMIMC, the CHCS name specification is different from the external name specification. The following file masks are needed:

'DSC2AQC.CHN-.#F+.D*' for the Facility file
'DSC2AQC.CHN-.#D+.D*' for the Data file
'DSC2AQC.CHN-.#S+.D*' for the Summary file.

d. The PASBA SIDR file name specifications are as follows:

```
SXX.RUF0000.    B    XXXX.    XXX    .DYYMMDD    .THHMM    XX
1               2    3        4      5           6         7
```

Where:

1.SXX.RUF0000.="SXX.RUF0000." required identifying file prefix
2.B=branch of service: "A"=Army "F"=Air Force "N"=Navy
3.DMIS ID of the reporting Medical Treatment Facility (MTF)
4.Facility="HDR" Data="DATA" Summary="TLR"
5..DYYMMDD=".D" and YY=Year, MM=Numeric Month DD=Numeric Day

6..THHMM=".T" and HH=Hour, MM=Minute
7.XX=Transmittal number.

For SIDR files sent to PASBA, the CHCS name specification is different from the external name specification. The following file masks are needed:

```
SXX.RUF0000.-.HDR.D*^.T%+     for the Facility file
SXX.RUF0000.-.DATA.D*^.T%+     for the Data file
SXX.RUF0000.-.TLR.D*^.T%+     for the Summary file.
```

e. The STARS/FL Workload file name specification is as follows:

```
LXFASH2.CHCS.N      XXXXX      .DYDDD
1                   2          3
```

Where:

1.LXFASH2.CHCS.N="LXFASH2.CHCS.N" required identifying file prefix
2.Operating Budget UIC associated with the group identification
3..DYDDD=".D" and Julian Date of transmission.

For STARS/FL Workload files sent to the STARS/FL Central Repository, the CHCS name specification is different from the external name specification. The following file mask is needed:

```
'LXFASH2.CHCS.N-.D='
```

f. The retransmitted STARS/FL Workload ASCII file name specification is as follows:

```
LXFASH2.CHCS.N      XXXXX      .DYDDD      X
1                   2          3           4
```

Where:

1.LXFASH2.CHCS.N="LXFASH2.CHCS.N" required identifying file prefix
2.Operating Budget UIC associated with the group identification
3..DYDDD=".D" and Julian Date of transmission
4.X="A" retransmission indication suffix.

For STARS/FL Retransmitted Workload files sent to the STARS/FL Central Repository, the CHCS name specification is different from the external name specification. The following file mask is needed:

```
'LXFASH2.CHCS.N-.D='
```

g. The NMIMC Worldwide Workload file name specifications are as follows:

```
DSC2AQC.CHN     B     XXXX.     WKLD     XX.     DYYMM
```

```
1                    2      3           4          5        6
```

Where:

1.DSC2AQC.CHN="DSC2AQC.CHN" required identifying file prefix
2.B=branch of service: "A"=Army "F"=Air Force "N"=Navy
3.DMIS ID of the reporting Medical Treatment Facility (MTF)
4.WKLD="WKLD"
5.XX=Transmittal number
6.DYYMM="D" and YY=Year, MM=Numeric Month.

For Worldwide Workload files sent to NMIMC, the CHCS name specification is different from the external name specification. The following file mask is needed:

```
'DSC2AQC.CHN-.#+.D*'
```

Splitting SIDR, STARS/FL Workload and Worldwide Workload Files Into Records

Since the transfer destinations for SIDR, STARS/FL Workload, and Worldwide Workload files are IBM mainframe computers running the MVS operating system, ETU needs to parse these files to insert end-of-record delimiters at regular intervals. For VMS, a carriage return (ASCII 13) character is used. SIDR files are split into three files; STARS/FL Workload and Worldwide Workload files remain single files.

Record lengths for SIDR (in 8 bit characters):

a. Facility file: 70
b. Data file: 221 + (multiple segments)
c. Summary file: 31.

Record lengths for STARS/FL Workload (in 8 bit characters):

STARS/FL Workload data: 125 (multiple segments).

Record lengths for Worldwide Workload (in 8 bit characters):

Workload data: 47 (multiple segments).

SYS:
CHCS INTERFACE MANAGEMENT

Module 4 -
Describe the GIS and HL7 Interface Systems

SYS: CHCS INTERFACE MANAGEMENT

Module 4 - Describe the GIS and HL7 Interface Systems

Section 1. Module Outline

I. INTRODUCTION

Welcome to the module on Describe the GIS and HL7 Interface Systems.

The purpose of this module is to define the roles of the Health Level 7 (HL7) data format, and the CHCS Generic Interface System (GIS), in communicating with external systems.

This module is scheduled to last approximately 1.5 hours.

The target audience for this module is as follows:

– Software Specialists

– System Specialists

DISCUSS OBJECTIVES

– Objective 1: Define the role of HL7 as a standard interface between CHCS and external systems.

– Objective 2: Define the role of the GIS interface in CHCS.

INTRODUCE OUTBOUND REFERENCES

The following documentation is referred to in this module:

– CHCS HL7 Implementation Specification for CHCS Version 4.5, SAIC/CHCS Doc. TC-4.5-0045.

– SYS: VMS Hardware Specialist, SAIC/CHCS Doc. TC-4.5-0548/TC-4.5-0549.

II. PRESENTATION

■ Objective 1: DEFINE THE ROLE OF HL7 AS A STANDARD INTERFACE BETWEEN CHCS AND EXTERNAL SYSTEMS

DISCUSS HL7

HL7 is a data formatting standard used in the electronic interchange of certain key sets of data, such as clinical, financial and administrative information, among independent healthcare computer systems. The goal of standards such as HL7, X12 and others, is to provide rules for the exchange of data that are agreed to by all users of that standard.

HL7 standards are designed to support both central patient care systems as well as distributed environments where data resides in departmental systems. HL7 standards may apply to registration admission, disposition, or transfer (ADT) information, queries, orders, results, billing, clinical observations, charges and payers, and master file notifications.

The HL7 organization was founded in 1987 to develop the healthcare exchange standards that became HL7. In June of 1994, the HL7 organization was designated by the American National Standards Institute (ANSI) as an ANSI-accredited standards developer.

The OSI Model

The Open Systems Interconnect (OSI) model breaks down network communication into seven hierarchical layers. Each layer manages different types of communication tasks. For example, the physical layer manages the transport of electrical signals on the cable; the data link layer manages the resources of the physical channel; the network layer moves data from one network node to another; etc. Layers are explained in the table below.

- Refer to Table 4-1: The OSI Model.

Table 4-1. The OSI Model

Layer	Name	Description
7	Application	Coordinates communication with the application; includes user log on/log off, file transfer, electronic mail, CHCS, and the Generic Interface System (GIS).
6	Presentation	Configures the format of the screen presentation for incoming or outgoing data, performs data compression/expansion and encryption/decryption. CHCS and the GIS function at this layer.
5	Session	Establishes the session and manages requests/responses between a user and an application, such as CHCS. Determines the type of connection (duplex, half-duplex, etc.), notifies upper layers when errors occur.
4	Transport	Delivers data to a specific user. Controls sequence of data flow, manages transmission errors, and ensures that data is received correctly.
3	Network	Routes data from one network node to another. Fragments/defragments data, determines data destination, locates most efficient routing path.
2	Data Link	Handles physical-layer errors and manages the resources of the physical channel.
1	Physical	Defines the electrical and mechanical attributes of the physical channel used to carry data; places data on the physical channel.

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All layers work together to move data from one location to another, across a network. The movement of data involves many separate tasks. Each layer manages a distinct subset of those tasks according to industry standards defined for that layer. These standards guarantee uniformity and interoperability between network products that are designed according to the OSI model.

The OSI Model and HL7

HL7 is called level seven because it controls the format of data at the Application layer (level 7) of the OSI model. Decisions made at this layer include definition of the data to be exchanged, the timing of the exchange, and the communication of application errors between the applications. Specifications at this level are referred to as "abstract message specifications."

HL7 assumes other standards and protocols will handle the lower level communication requirements of OSI layers one through six. For example, HL7 does not specify standards for communicating the character strings from one system to another. This activity is handled by protocols such as Transmission Control Protocol/Internet Protocol (TCP/IP), Local Area Transport (LAT), and Distributed Data Processing (DDP), that reside below layer 7.

- Refer to SYS: VMS Hardware Specialist, for additional information on the OSI model.

DISCUSS THE CHCS IMPLEMENTATION OF HL7

The Composite Health Care System (CHCS) adopts the abstract message approach and encoding rules specification of the HL7 Standard, for all predetermined data interchange between CHCS and external systems. These predetermined data interchange messages are triggered by events affecting patients. For example, when a new patient is registered on CHCS, the event will trigger a message to the external system to add a patient.

As with most standards, compliance with HL7 is voluntary. CHCS adheres to the latest version of HL7. CHCS uses HL7 to communicate to only those external systems that also conform to the HL7 standard.

DISCUSS HL7 MESSAGE FORMAT

Components of a Message

The HL7 standard dictates that messages consist of the following three components:

– **Fields.** The smallest unit of data extracted from a database. Each field has a unique data type. Fields are contained within data segments.

– **Segments.** A group of logically related fields, such as patient demographic data, observation data, etc. Data segments are contained within messages.

– **Messages.** The largest grouping of data. A message contains all of the segments related to a single transaction, all of the fields within the segments, as well as a message control header.

- Refer to Figure 4-1: Components of an HL7 Message.

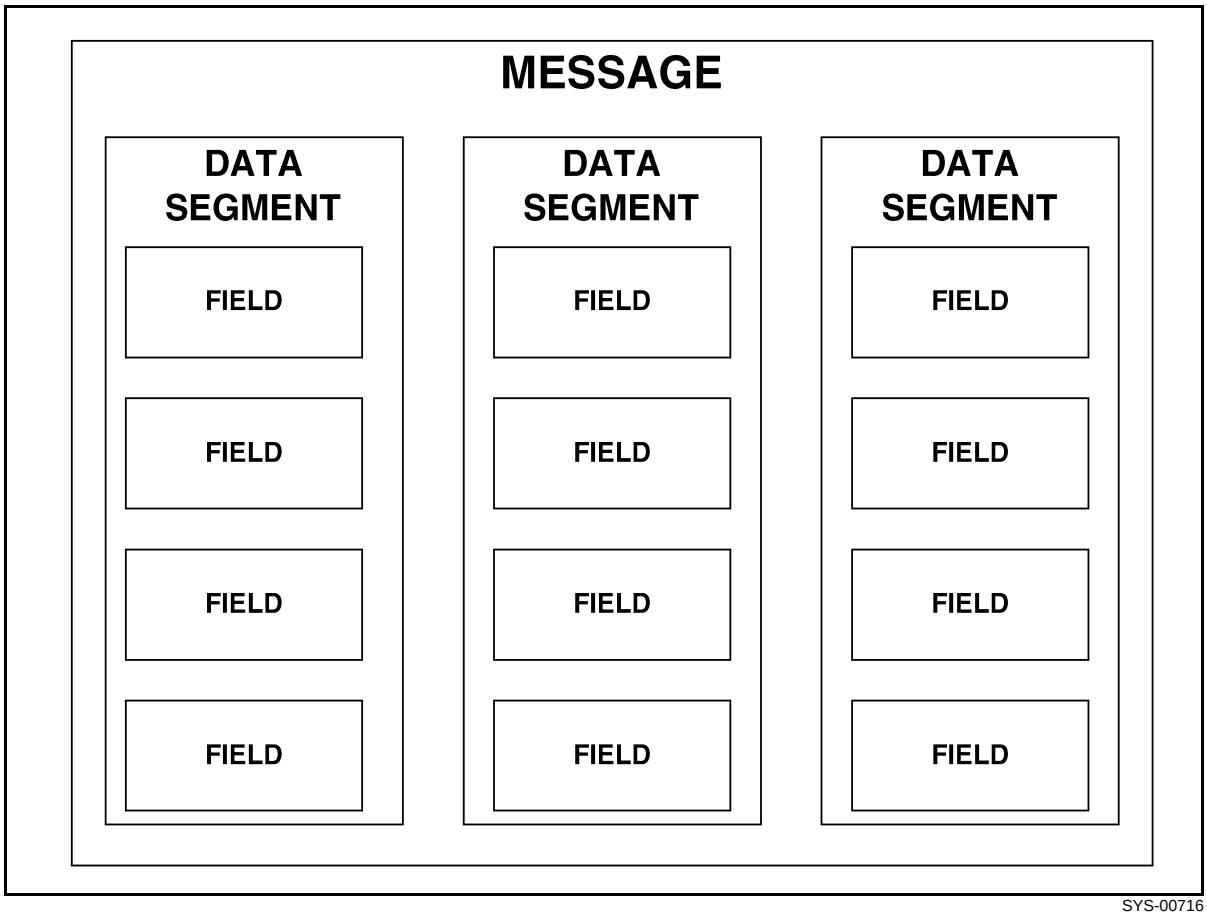

Figure 4-1. Components of an HL7 Message

Field Types

Each field in an interface message must be understood by both the sending and receiving systems. The HL7 standard includes various types of data fields.

Free text data is typically quite similar, if not identical, on various systems, but other types of data may be stored differently. A date, for example, may be stored as 2950614 in a FileMan system, 06141995 in a second, 6/14/95 in a third, etc.

Following are the HL7 data types supported by CHCS:

- Address
- Coded Element
- Coded ID
- Composite
- Composite ID with Check Digit
- Composite Person Name Special
- Composite Quantity with Units
- Date
- Numeric
- Person Name
- Set ID
- String
- Telephone Number
- Text
- Time
- Time Stamp.

Message Types

The specific format of an HL7 message is dictated by the message type, which in turn is dictated by the event that triggered the message. Following is the subset of HL7 message types supported by CHCS:

- New and updated patient demographics, including patient merges
- New and updated ADT activities
- Orders
- Results

– Scheduling data

– Master file notifications (explained below).

Each of these message types has many GIS transaction types. Transaction types are covered further in Objective 2.

Processing of Messages

HL7 messages are sent in chronological order. That is, a message to Admit A Patient will not be sent before a message to Add A Patient, since a patient cannot be admitted before the patient is registered.

Messages may be sent to one or more destinations. When a destination receives the broadcast message, it may keep the information it needs and discards the information it does not.

DISCUSS MASTER FILES

There are two methods by which CHCS sends data to external systems:

– A CHCS file is touched by user activity, triggering a specific type of message to a specific destination

– A CHCS master file is modified by the Department of Defense (DOD), SAIC or the site, triggering a master file notification (MFN) to multiple destinations

Master files are the set of reference files shared by one or more applications or external systems in an open-architecture healthcare environment. Master files only exist within the HL7 standard as a mechanism to keep critical database files synchronized. CHCS master files may be built by either the DOD or SAIC.

MFN transactions support the distribution of changes between various master files on separate online systems. MFNs specify the HL7 transactions needed to transmit master file data from CHCS to external systems.

Common Files

Most CHCS files can be grouped according to the subsystem that maintains the file, such as laboratory, radiology, etc. A few central files, called common files, are accessed by multiple CHCS subsystems, and are therefore maintained by CHCS Data Administration. Some, but not all, master files are also CHCS common. Master file notifications are sent for master files, regardless of whether they are

CHCS common files. For the purpose of data exchange discussions in this class, a file will be identified as either a master file or a CHCS file.

Master File Loading

When an external system is installed and linked to CHCS, CHCS uses MFNs to download patient identification data and other applicable data from master files to that external system. MFNs are sent to only the system being activated, for only the CHCS master files used by that system. Prior to the interface being activated, the SAIC Software Specialist (SWS) runs the loader based on instructions provided by the SAIC Operational Systems Group (OSG). This process requires the user to have programmer access rights.

The master file load sends MFNs for master file entries that have been added or inactivated. CHCS expects the external system to use these messages to populate its master files, then send CHCS an acknowledgment of the update.

Once the master file load is complete and the interface is running, CHCS will begin to send transaction data to the external system for all newly entered transactions. However, CHCS does not send any historical transaction data to any external systems.

Synchronization of Master Files

CHCS master files continue to change, and must be synchronized across the various applications or external systems at any given site. Whenever a user updates any one of the master files, CHCS immediately sends an MFN to the following external systems:

- CliniComp
- CoPath
- Defense Blood Standard System (DBSS)
- Medical Diagnostic Imaging System (MDIS)
- Military Healthcare Management Information System (MHCMIS)
- Managed Care Support Contractor (MCSC).

Synchronization MFNs are not sent to DII or NMIS.

MFNs are sent for changes to all master files; the destination system determines which MFNs it will use. CHCS expects the external systems to select and update

their database from applicable MFNs, and discard all other MFNs. The external system may or may not send an acknowledgment of the update to CHCS. Acknowledgments are discussed below.

In order to maintain CHCS data integrity, the CHCS Patient file and all master files are entered and updated only through CHCS functionality, not from an interfaced system. Consequently, all CHCS patient and master file messages originate only from CHCS, with the exception of MCSC. MCSC has the ability to update a CHCS master file. Where patient registration data may conflict, CHCS is considered the master data source.

Triggering Events for an MFN

Events drive the messages and MFNs sent by CHCS. For example, when a patient is registered in CHCS, patient data is passed to GIS for message formatting. GIS generates an HL7 message and transmits it to all target systems interfacing with CHCS.

After the initial MFN download is complete, an MFN message is immediately sent to all HL7 interfaces when any of the following events occur to any master file entry (record) is:

- Added
- Updated
- Deactivated
- Reactivated.

CHCS Master Files

Following is the list of master files for which CHCS sends Master File Notification messages to external systems.

First are the files provided by the DOD. The contents of these files are dictated by the DOD and cannot be modified at the site, with the exception of the Unit Ship ID and Religion files. For these files, the existing entries cannot be modified, but new entries can be added at the sites, and those new entries can be modified.

Next are files provided by SAIC. Most of these files can be modified by the sites, except for a few standard files. For file entries that cannot be modified (i.e., most DOD files and the SAIC standard files), CHCS Data Administration will send a file update to the sites each quarter. This update will automatically trigger an MFN from CHCS to the applicable external systems for any master file changes.

The following list may change as new interface requirements are established.

DOD Files

- Discharge Type
- Defense Medical Information Systems Identification (DMIS ID) Codes
- Geographic Location
- International Classification of Disease (ICD) Diagnosis Code
- Language
- Marital Status
- Medical Treatment Facility
- Military Grade Rank
- Patient Category
- Provider Specialty
- Race
- Relationship
- Religion (can be appended)
- Source of Admission
- Unit Ship ID (can be appended)
- Zip Code

SAIC Files

- Appointment Status
- Appointment Type
- Defense Enrollment Eligibility Reporting System (DEERS) Sponsor Status
- Department and Service
- Diet
- Drug
- Hospital Location
- Insurance Company
- Laboratory Test
- Managed Care Program (MCP) Agreement Type
- MCP Facility Type
- MCP Primary Care Manager (PCM) Change Assignment Reason
- Medical Center Division
- Medical Expense & Performance Reporting System (MEPRS) Code
- Professional Category
- Provider
- Provider Class
- Radiology Procedures
- Result Category
- Title
- User

DISCUSS TRANSMISSION OF TRANSACTION DATA

In addition to master file changes, CHCS also sends transaction data to external systems in the form of an HL7 message. Transaction data is transmitted between CHCS and the external system after the transaction is complete on the originating system.

Orders and results can be sent from CHCS or received from the applicable external system, depending on the requirements. CHCS sends HL7 messages for the following order types:

– Pharmacy - IV, Prescription, Unit Dose

– Radiology

– Laboratory - Chemistry, Anatomic Pathology, Microbiology

– Dietetics

– Nursing.

As new patient appointments and schedules are made and existing ones are updated, CHCS sends the scheduling messages to interfaced external systems. Certain CHCS data will not be sent to the external system, such as quality control data generated in the laboratory, or data derived from registration of non-human laboratory samples (water fountain, etc.).

DISCUSS MESSAGE ACKNOWLEDGMENT

Some messages always require acknowledgment, and some do not. The requirement for acknowledgment is defined for each message transaction type on a case by case basis mutually agreed to by CHCS and the interface partner.

- Refer to Figure 4-2: Transfer of Acknowledgments on a Bidirectional Interface, for a diagram explaining the transfer of acknowledgments between two systems with a bidirectional interface. The acknowledgments are transmitted in order from left to right in the figure.

CHCS supports two types of acknowledgment:

– **Accept Acknowledgment.** An accept acknowledgment is sent to acknowledge that a system received a message and is ready to receive the next message. An accept acknowledgment indicates receipt only--not whether or not the data could be stored in the application database. Accept acknowledgments are managed by the GIS receiver and transmitter processes. If used, they are sent/received for all messages exchanged with an external system.

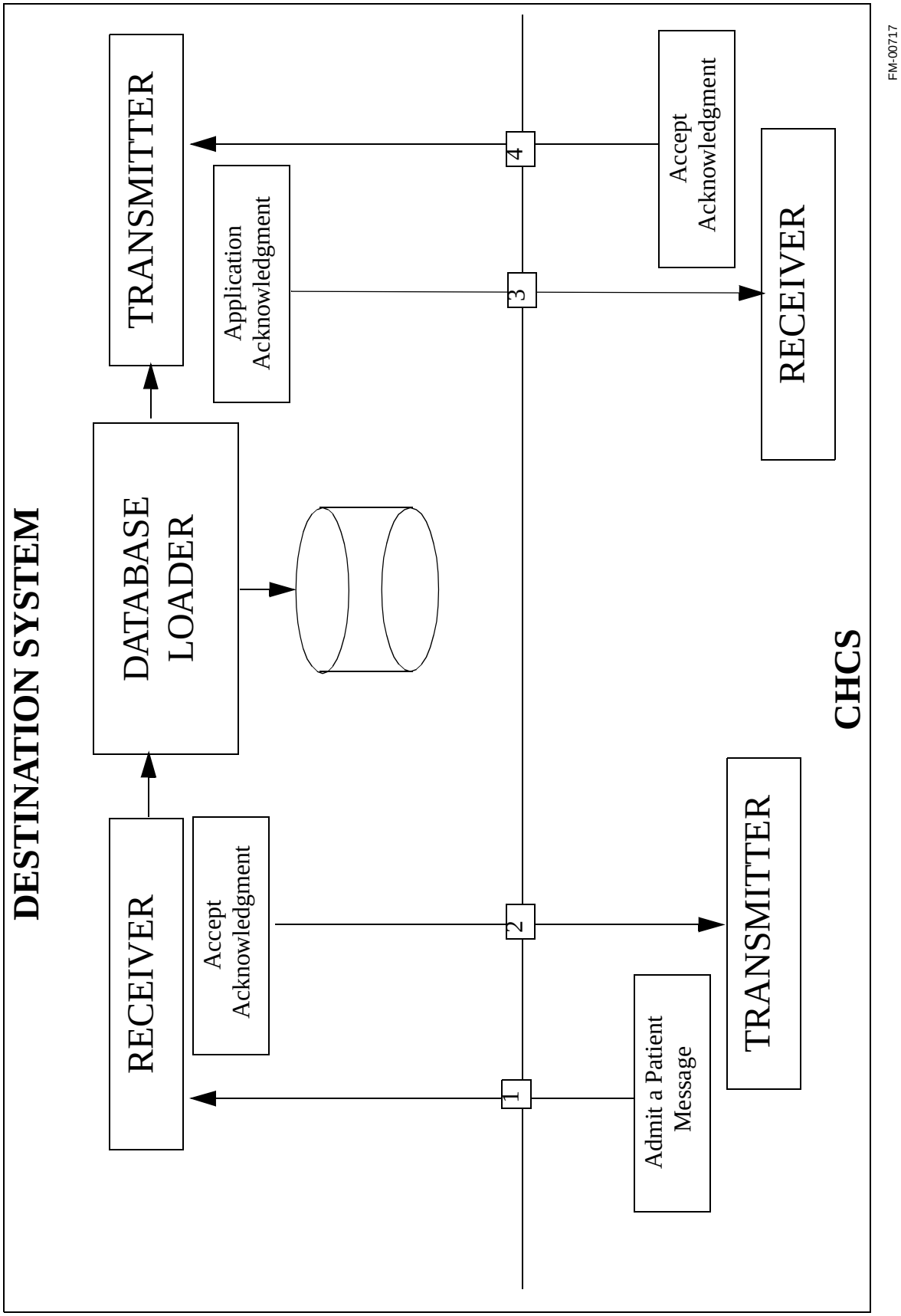

Figure 4-2. Transfer of Acknowledgment on a Bidirectional Interface

An accept acknowledgment may have one of the following statuses:

* **Commit Accept.** The message was received and contained all necessary components.

* **Commit Reject.** The message was received but did not contain all necessary components, and was rejected.

* **Commit Error.** An error occurred during receipt of the message.

– **Application Acknowledgment.** An application acknowledgment is sent only after a message has been received with a status of Commit Accept, and the database loader on the destination system has stored the message in a database. Some messages may send or expect an application acknowledgment; others may not. The message transaction type determines whether that message sends or expects an application acknowledgment.

An application acknowledgment may have one of the following statuses:

* **Application Accept.** The message was successfully stored in the application database.

* **Application Reject.** The message was not successfully stored in the application database.

* **Application Error.** The message generated an error within the application program.

The Commit Reject, Commit Error, Application Reject, and Application Error acknowledgments are collectively referred to as negative acknowledgments. Both inbound and outbound negative acknowledgments are logged as errors in the Interface Error file. Acknowledgments include a field for descriptive error text. This field is used by CHCS and may or may not be used by the external systems.

DISCUSS MANAGEMENT OF HL7 DATA TRANSMISSION

CHCS has developed the GIS to manage transmission of HL7 data between CHCS and external systems. This interface is covered further in the next objective.

Practice 1 - Define the role of HL7 as a standard interface between CHCS and external systems.

PRACTICE GUIDELINES

The information you need to complete each practice is supplied in the instructions.

Notify the presenter when directed to do so in the practice. This allows the presenter to verify that you have successfully completed an activity.

You may use any reference materials available in the classroom to complete your practices.

You may ask questions or request assistance at any time during the practices.

Students 1-10

Practice 1 - Define the role of HL7 as a standard interface between CHCS and external systems.

INSTRUCTIONS: This practice will take approximately 5 minutes. Answer the questions below.

1. What is HL7?

   _____

   _____

2. What are the components of an HL7 message?

   _____

3. What dictates the format and type of an HL7 message?

   _____

4. Describe the two types of message acknowledgments.

   _____

   _____

   _____

   _____

Notify the presenter when you have completed this practice.

■ Objective 2: DEFINE THE ROLE OF THE GIS INTERFACE IN CHCS

DISCUSS THE GIS

The GIS was developed by SAIC to format and manage the transfer of HL7 transaction and master file data between CHCS and other systems. The GIS converts inbound and outbound data between the HL7 standard format and the database format used within CHCS. In this partnership, HL7 provides the rules for the data format and exchange, and GIS implements those rules.

As with CHCS, most destination systems handle their own data conversion from the HL7 standard to the system's database format. However, the MDIS system requires a separate message gateway to perform this task. This gateway retrieves the HL7 messages from CHCS, converts them from HL7 to the database format used by MDIS, then holds the converted messages until they are retrieved by the MDIS system.

- Refer to Module 7 - Manage the MDIS Interface, for further information on the MDIS message gateway.

The GIS operates independent of the CHCS application to which it communicates. The GIS also provides relative independence from hardware and software platforms. GIS operates transparently in the background of CHCS.

LIST THE INTERFACES THAT USE THE GIS

CHCS uses GIS to manage communication with the same external systems that use the HL7 standard:

– CliniComp

– CoPath

– DBSS

– Data Innovations Incorporated (DII)

– MDIS

– MHCMIS

– Nutrition Management Information System (NMIS)

– MCSC.

- Refer to Figure 4-3: Exchange of Data with the GIS Interfaces.

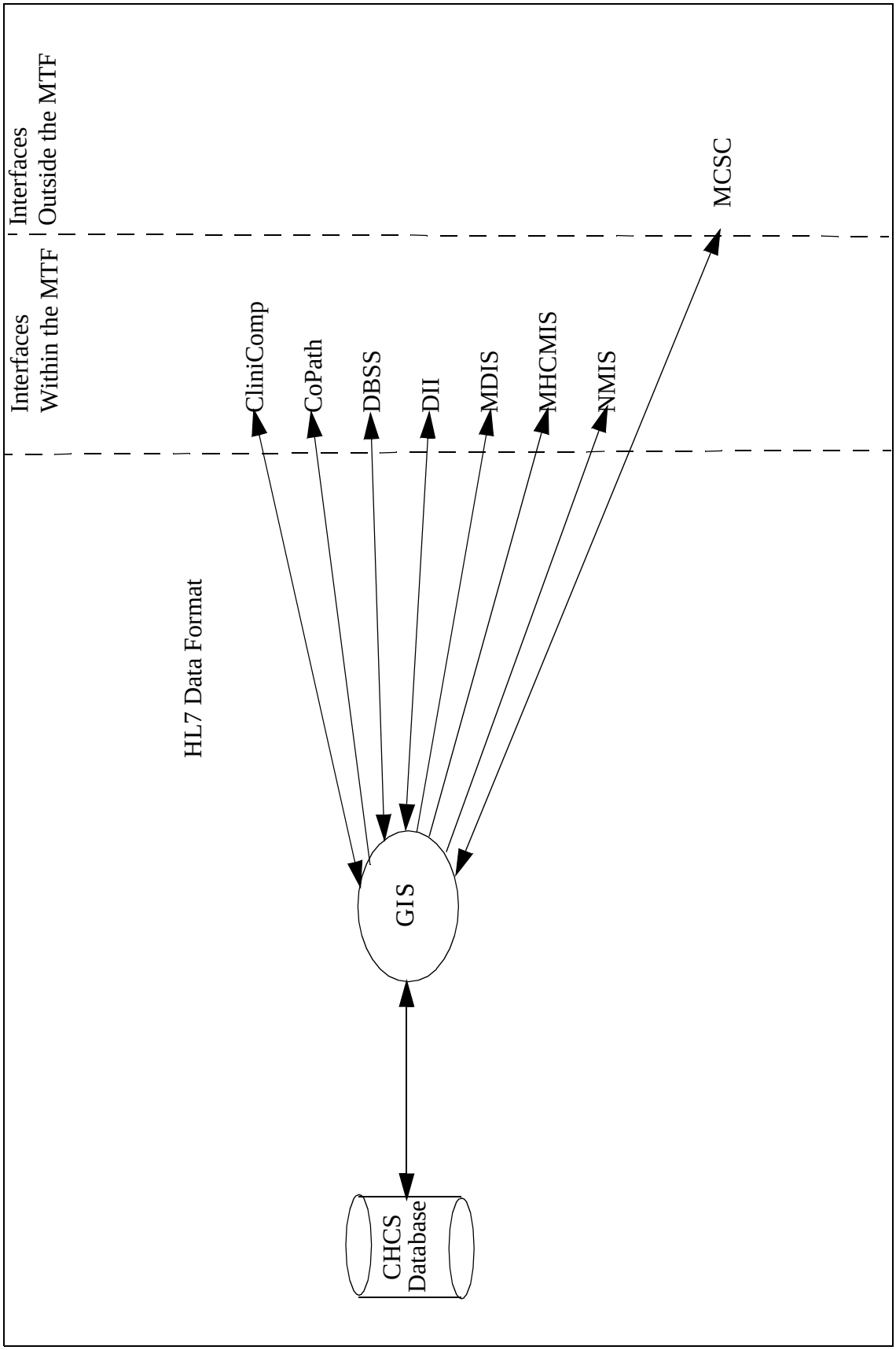

Figure 4-3. Exchange of Data with the GIS Interfaces

The GIS does not manage communication with the following systems:

- Biometric Agencies
- DEERS
- Navy Accounting System Data Interface (NASDI)
- Retrospective Case Mix Analysis System-Open System Environment (RCMAS-OSE).

DEFINE THE SUBSYSTEMS OF THE GIS

The GIS consists of two subsystems:

- **Script Generator Subsystem.** This portion of the GIS supports the standards of HL7. The Script Generator Subsystem defines the fields, segments, and messages for both incoming and outgoing HL7 interface transactions. This capability can be operational for any database which utilizes a FileMan Data Dictionary, including but not limited to CHCS.
- **Message Router Subsystem.** This portion of GIS acts as an interface engine, routing transactions and messages between any two systems. This subsystem includes the System Control module.

  The System Control module monitors and runs the interface. It initializes, halts, or restarts the interface; reports and resolves errors; and provides system status and usage reports.

Script Generator Subsystem

Scripts dictate the format of HL7 data coming into or going out of CHCS. For outgoing transactions, data is extracted from a FileMan database and formatted according to the HL7 standard. For incoming transactions, data in HL7 format is parsed into the format of the destination FileMan database, then stored in that FileMan database. This process is explained in more detail at the end of this objective.

Message Router Subsystem

In addition to data formatting, the GIS also manages the transmission of messages from one application to another. Transactions can be routed between and/or among local or remote databases. The Message Router subsystem routes the following types of messages:

– **Incoming.** Messages coming into a CHCS database from an external database.

– **Outgoing.** Messages going out of a CHCS database to an external database.

– **Store-and-Forward.** Messages which are neither created nor stored in the local CHCS database. This type of routing uses only the Message Router subsystem, bypassing the Script Generator subsystem.

The GIS provides all messaging functions required for communication to the external systems: message generation, processing, and routing. The GIS is symmetric in design, which allows messages from any source to be routed to any destination.

DISCUSS GIS FILES

- Refer to Figure 4-4: GIS Overview Flow Diagram, while discussing GIS files and processes.

The CHCS GIS uses the following files to manage the exchange of data:

– **Interface Script (#4006).** Reference file that contains the scripts used to create and interpret messages. Transaction Types point to the appropriate script for interpretation. This file is built by CHCS and only viewed by site staff.

– **Interface Transaction Type (#4000).** Reference file containing the transaction types used by the GIS to identify a class of transactions. The transaction type is used to format the transaction data and determine the destination of the message. The transaction type determines the sequence of segments and the number of data fields in each segment. Transaction types can be incoming or outgoing. This file is built by CHCS. Specific transaction types can be activated or inactivated by site staff.

– **Interface Destination (#4005).** Reference file containing the information necessary to route an interface transaction to its destination. Each UIF entry must have a destination. For incoming transactions, this file uses the transaction type to determine the location in the CHCS database. For outgoing transactions, this file defines the remote system. The Background Process Control file references the Interface Destination file for the destination's IP address. The Interface Destination file can be edited by site staff.

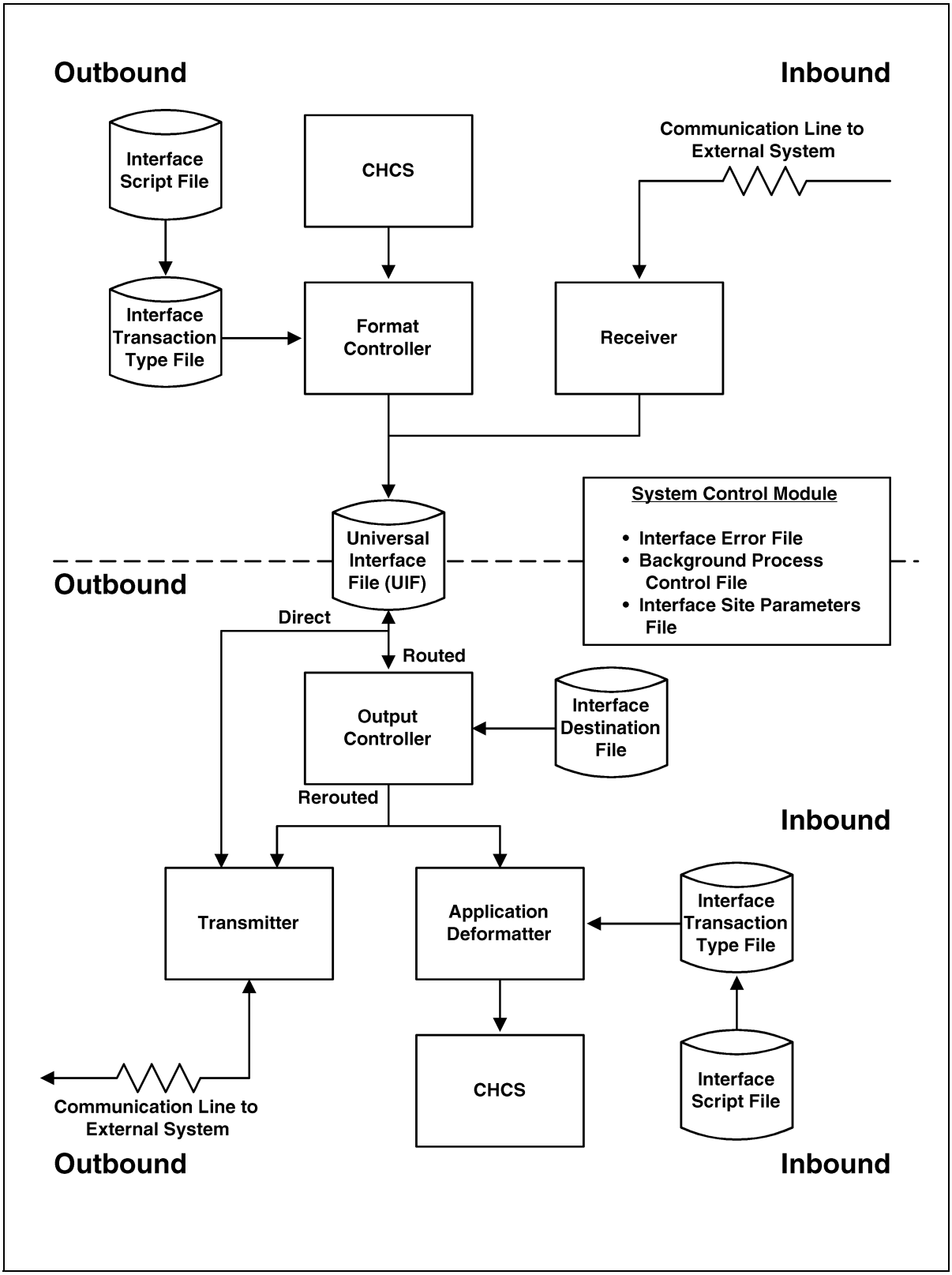

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Figure 4-4. GIS Overview Flow Diagram

- **Universal Interface file (UIF) (#4001).** Holding file for all incoming and outgoing interface transactions awaiting transmission to their destination. The UIF contains all transactions regardless of destination. It also contains all status and tracking information for the transactions. This file can only be viewed by site staff.

- **Interface Error (#4003).** Holding file for errors that occur in any component of GIS during operation of the interface, to include errors generated by CHCS when processing an inbound message; and errors generated by an external system and returned with an acknowledgment. If the error occurred while processing a message, it will also be stored in the UIF. If the error was a MUMPS interpreter error, it will also be stored in the error trap. This file can only be viewed by site staff.

- **Interface Site Parameters (#4002).** Reference file containing site-configurable parameters for the operation of the interface. This file is part of the System Control module of the GIS. This file can be edited by site staff.

- **Background Process Control (#4004).** Reference file containing the list of background processes that the GIS can run. This file contains the IP address of interface destinations, and can be edited by site staff.

DISCUSS GIS PROCESSES

The following background processes are part of the CHCS GIS:

- **Format Controller.** Processes requests from CHCS to generate an interface transaction. This process gathers all necessary information from CHCS, formats the message according to the HL7 standard, and places the message in the UIF.

- **Output Controller.** Scans the UIF for inbound transactions ready to be sent to the CHCS database. Replicates outbound transactions for interfaces with multiple physical destinations, such as NMIS or DBSS. The Output Controller determines which path the output will take based on the entry in the Interface Destination file for that transaction.

- **Application Deformatter.** Uses the Transaction Type to process transactions and prepares the data for storage on a local CHCS database. Uses an input script to handle data interpretation, transformation, validity checking, and storing.

- **Receiver.** Receives from a remote system both inbound application messages (messages generated by an application program) and application acknowledgments for outbound messages. It assembles the inbound message,

sends any required accept acknowledgment to the remote system, then passes the message to the Input Driver. The GIS has a separate receiver program for each interface sending data to CHCS. The receiver can either run as a GIS-controlled background task or can be invoked by other events.

– **Transmitter.** Transmits to a remote location both outbound application messages and application acknowledgments from inbound messages. It sends the outbound message, then receives and logs any accept acknowledgment from the remote system for that message. The GIS has a separate transmitter program for each interface CHCS sends data to.

– **System Control Module.** Components which are responsible for monitoring and controlling the entire GIS. Major components are the Background Process Control, Interface Error File, the Script Compiler, and File Maintenance.

DISCUSS ACKNOWLEDGEMENTS

The following acknowledgments are used by each interface:

– **CliniComp**. Accept acknowledgments.

– **CoPath**. Accept and application acknowledgments.

– **DBSS**. Accept and application acknowledgments.

– **DII.** Accept acknowledgments.

– **MDIS**. No acknowledgments are used.

– **MHCMIS.** No acknowledgments are used.

– **NMIS**. Accept acknowledgments.

– **MCSC**. Accept and application acknowledgments.

Accept acknowledgments are used in both directions for all interfaces except MDIS and MHCMIS. Since the message transaction type determines whether an application acknowledgment is used, bidirectional interfaces may exchange application acknowledgments in one direction, but not both.

Processing of Acknowledgments by the Transmitter and Receiver Processes

Application acknowledgments, but not accept acknowledgments, are sent and received as HL7 messages. The transmitter and receiver processes do not distinguish between an application message and an application acknowledgment message.

Message acknowledgments are handled as follows:

– **Inbound message acknowledgments.** The interface receiver processes receive application messages, and send accept acknowledgments on messages that have been successfully stored in the UIF. The interface transmitter processes send application acknowledgment messages after the message has been stored in the appropriate CHCS database.

– **Outbound message acknowledgment.** The interface receiver processes receive application acknowledgment messages from the destination after a message has been stored in the appropriate database. The Interface Transaction Type file determines which transaction types require acknowledgments.The interface transmitter processes send application messages, and receive accept acknowledgments once the message has been received. Accept acknowledgments are received from all unidirectional interfaces except MHCMIS and MDIS.

- Refer to Table 4-2: Messages and Acknowledgments Managed by the Receiver and Transmitter Processes.

Table 4-2. Messages and Acknowledgments Managed by the Receiver and Transmitter Processes

Managing Process	For Inbound Messages	For Outbound Messages
Receiver receives:	Application Messages	Application ACK Messages
Receiver sends:	Accept ACKs	N/A
Transmitter sends:	Application ACK Messages	Application Messages
Transmitter receives:	N/A	Accept ACKs

DISCUSS MESSAGE REPLICATION AND ROUTING

Message Replication

A message is replicated when the same message must be transmitted to multiple destinations for the same or different remote systems. For example, a single MFN may need to be sent to three different interfaces (NMIS, MHCMIS, and CliniComp). The original message will be generated with a transaction type of HL REPLICATOR. That message will be replicated three times, with destinations of HL NMIS, HL MHCMIS, and HL CliniComp.

Some interfaces, such as MCSC, DBSS, and NMIS, may have multiple physical destinations at a site. For example, the site may have more than one blood bank, with a separate DBSS system at each bank. In this case, messages destined for one blood bank may need to be replicated and sent to both blood banks. That determination is made by the GIS selective routing capability.

- Refer to Figure 4-5: Routing a GIS Message.

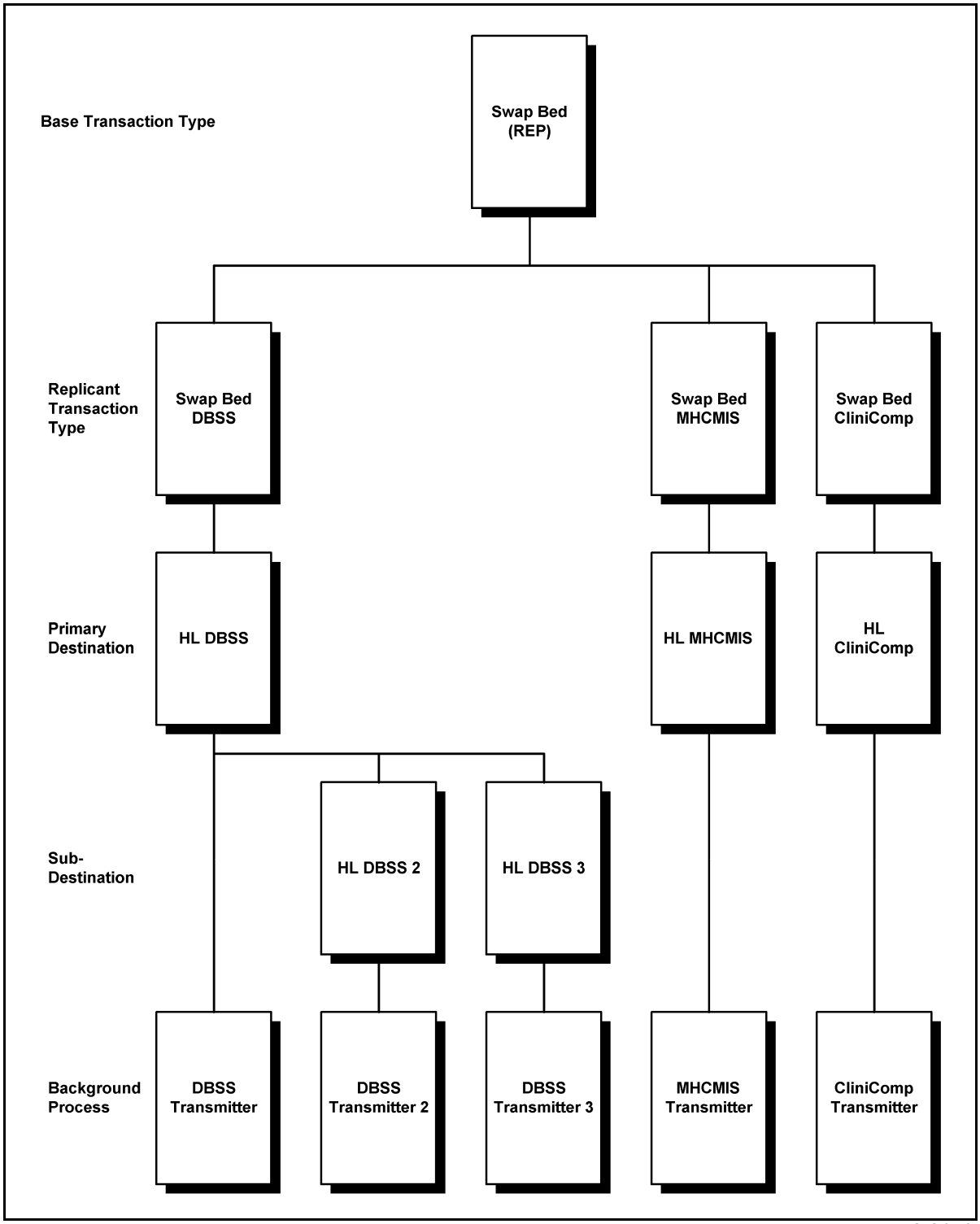

Figure 4-5. Routing GIS Message

Primary and Sub-Destinations

Each physical destination will have a unique entry in the Interface Destination file. One of those destinations will be designated in the Interface Destination file as the primary destination, and will have a name without any additional identifiers such as HL DBSS. The primary destination is referenced by the GIS transaction type.

All other destinations, called sub-destinations, will have unique entries in the Interface Destination file that are actually the name of the primary destination followed by some unique identifier. In most cases, this identifier is a number, such as HL DBSS 2, HL DBSS 3. However, this identifier may vary. Depending on the type of data and the site configuration, the sub-destinations may receive the original message, or may receive a message replicated from the primary destination's message.

Each destination also has a unique background process, such as DBSS TRANSMITTER, DBSS TRANSMITTER 2, and DBSS TRANSMITTER 3. The identifier for the background process may vary as well. Receiver processes are not replicated; a single receiver handles inbound messages from the primary and sub-destinations.

Selective Routing

GIS Selective Routing was developed to support the exchange of data between CHCS and external systems having multiple physical destinations, such as NMIS and DBSS. For example, the site may have a blood bank at the main hospital, and another at a remote clinic that performs surgeries. Both blood banks would have their own DBSS system. Selective routing is only used by those interfaces with multiple physical destinations.

Selective routing provides a mechanism to route a message to a particular destination according to criteria agreed to by both CHCS and the external system. The criteria is called the route ID, and is provided to the GIS in the message generated by the CHCS functionality. For many interfaces, the route ID is the DMIS ID associated with the external system's division.

For those interfaces with multiple physical destinations, such as NMIS and DBSS, every entry in the Interface Destination must have a route ID. Each destination may have more than one route ID, such as when a destination serves more than one division. Message routing can be performed for both inbound and outbound messages.

Selective routing takes one of the following paths based on the message transaction type.

– The route ID is not used. For some messages, such as MFN, a route ID is not referenced. For example, the message would be sent to all destinations requiring MFNs, regardless of the destination's route ID.

– The route ID is used. If any entries in the Interface Destination file have the route ID specified in the message, it will be forwarded to those destinations. If no destinations have the route ID, for example, if the interface has not yet been brought up, the message is left in the UIF.

GIS Processes that Selectively Route

The following GIS processes employ selective routing:

– Interface receivers. The GIS reviews the route ID for inbound messages when the message is received.

– Message Replication Facility. The GIS reviews the route ID for outbound transactions when the message is replicated by the Output Controller.

– Interface Transmitters. The GIS reviews the route ID for outbound transactions when the message is transmitted.

SUMMARIZE THE GIS PROCESS

- Refer to figure 4-4: GIS Overview Flow Diagram

Outbound - Direct

The GIS software takes the following steps for outbound transactions that do not employ selective routing. All processes take place in the background.

– The application software places a transmission request with the format controller.

– The format controller uses the transaction type to extract the data from the appropriate database, format the data, add the destination to the transaction, then store the formatted message in the UIF.

– The format controller also adds an entry for the transaction to the queue for either the Output Controller or the appropriate interface transmitter. This entry references the Interface Transaction Type file for the priority and processing time of the transmission.The Interface Destination file determines the queue (Format Controller or interface transmitter) in which the entry is

placed. Most messages that will not be replicated or routed will go directly to the transmitter queue.

– When the processing time arrives, either the Output Controller places the transaction in a queue for the appropriate transmitter, or the appropriate transmitter transmits the transaction, depending on the queue in which the entry was placed.

– The interface transmitter will receive any Accept acknowledgment for the message. The Receiver will receive any Application acknowledgment for the message.

Outbound - Selective Routing

The GIS software takes the following steps for outbound transactions that employ selective routing. All processes take place in the background.

– The application software places a transmission request with the format controller.

– The format controller uses the transaction type to extract the data from the appropriate database, format the data, add the destination to the transaction, then store a formatted base message in the UIF.

– The format controller also adds an entry for the transaction to the queue for the output controller. (Selectively routed messages always go through the output controller.) This entry references the Interface Transaction Type file for the priority and processing time of the transmission.

– The output controller also puts the message through the replicator, which reads the base message in the UIF, and makes a copy (also stored in the UIF) for each destination. The output controller adds an entry to the queue for the appropriate interface transmitter. Remember that each physical location has a separate transmitter process.

– When the processing time arrives, the transmitter transmits the replicated transaction. The base message is not transmitted.

– The interface transmitter will receive any Accept acknowledgment for the message. The Receiver will receive any Application acknowledgment for the message.

Inbound

The GIS software takes the following steps for inbound transactions. Steps are the same whether or not the message came from a destination that uses selective outbound routing. All processes take place in the background.

– The appropriate interface receiver accepts the incoming transaction. The receiver runs as a background process.

– The interface receiver validates the incoming message. If valid, the receiver stores the transaction in the UIF and creates an entry in the Output Controller Queue.

  Note: Interactive transactions such as queries, log-on requests, etc., are not processed via the Output Controller Queue.

– The interface receiver sends any Accept acknowledgment for the message.

– The Output Controller identifies the destination stored in the entry, references the Interface Destination file to obtain the name of the transaction type, then passes the message to the Application Deformatter which uses the Interface Transaction Type file to place the data in the proper location within a CHCS database.

– The appropriate interface transmitter sends any Application acknowledgment for the message.

▲ DEMONSTRATE AND DISCUSS THE GIS MENU

- Log on to CHCS.

Username:	**[site username]**	Access:	**INTUSER**
Password:	**[site password]**	Verify:	**INTUSERV**
Area:	**A**		

- Access the Interface Menu on the Manage External Interfaces Menu.

Systems Manager Menu (EVE) → SM → INT → GIS

Discuss the Menus

The Interface Menu contains the following menus:

– **Transaction Control Menu.** Options for examining interface messages and statistics, as well as editing and controlling messages. This menu is used by site staff.

– **File and Table Menu.** Options necessary to maintain the Interface System files and tables. Selected options within this menu are used by site staff.

– **Error Menu.** Options to display and process errors. This menu is used by site staff.

– **Background Process Control Menu.** Options to control background processes, including startup, shutdown, verification, etc. This menu is used by site staff.

– **Script Menu.** Options to manipulate interface scripts.This menu is used by SAIC development staff, not by site staff.

– **Script Generator Menu.** Options to define the HL7 tables, as well as create scripts from the defined messages. This menu used by SAIC development staff, not by site staff.

- Refer to Module 6 - Manage the GIS Interface, for individual options on each of these menus.
- Refer to CHCS HL7 Implementation Specification for CHCS Version 4.5, for a detailed explanation of how the CHCS application software implements the HL7 standard.
- Return to the Systems Manager Menu (EVE) and log off CHCS.

STUDENT LOGON

- Discuss student logon data (i.e., username, password, area, access, and verify codes).
- Log on to the training software and use specified data.

Practice 2 - Define the role of the GIS interface in CHCS.

PRACTICE

Student 1

Username:	**[site username]**	Access:	**INTUSERA**
Password:	**[site password]**	Verify:	**INTUSERAV**
Area:	**A**		

Practice 2 - Define the role of the GIS interface in CHCS.

INSTRUCTIONS: This practice will take approximately 5 minutes. Answer the questions below.

1. What is GIS?

   _____

   _____

   _____

2. What is the difference between the Script Generator and Message Router subsystems?

   _____

   _____

   _____

   _____

3. What is the Universal Interface file?

   _____

   _____

4. Which files can be edited by site staff?

   _____

   _____

Student 1 (continued)

Access the Interface Menu on the Manage External Interfaces Menu for the following question.

Systems Manager Menu (EVE) → SM → INT → GIS

5. Which menus on the Interface Menu are not used by site staff?

_____

Notify the presenter when you have completed this practice.

Return to the Systems Manager Menu (EVE) and log off CHCS.

Student 2

Username:	**[site username]**	Access:	**INTUSERB**
Password:	**[site password]**	Verify:	**INTUSERBV**
Area:	**A**		

Practice 2 - Define the role of the GIS interface in CHCS.

INSTRUCTIONS: This practice will take approximately 5 minutes. Answer the questions below.

1. What is GIS?

   _____

   _____

   _____

2. What is the difference between the Script Generator and Message Router subsystems?

   _____

   _____

   _____

   _____

3. What is the Universal Interface file?

   _____

   _____

4. Which files can be edited by site staff?

   _____

   _____

Student 2 (continued)

Access the Interface Menu on the Manage External Interfaces Menu for the following question.

Systems Manager Menu (EVE) → SM → INT → GIS

5. Which menus on the Interface Menu are not used by site staff?

_____

Notify the presenter when you have completed this practice.

Return to the Systems Manager Menu (EVE) and log off CHCS.

Student 3

Username:	**[site username]**	Access:	**INTUSERC**
Password:	**[site password]**	Verify:	**INTUSERCV**
Area:	**A**		

Practice 2 - Define the role of the GIS interface in CHCS.

INSTRUCTIONS: This practice will take approximately 5 minutes. Answer the questions below.

1. What is GIS?

   _____

   _____

   _____

2. What is the difference between the Script Generator and Message Router subsystems?

   _____

   _____

   _____

   _____

3. What is the Universal Interface file?

   _____

   _____

4. Which files can be edited by site staff?

   _____

   _____

Student 3 (continued)

Access the Interface Menu on the Manage External Interfaces Menu for the following question.

Systems Manager Menu (EVE) → SM → INT → GIS

5. Which menus on the Interface Menu are not used by site staff?

_____

Notify the presenter when you have completed this practice.

Return to the Systems Manager Menu (EVE) and log off CHCS.

Student 4

Username:	**[site username]**	Access:	**INTUSERD**
Password:	**[site password]**	Verify:	**INTUSERDV**
Area:	**A**		

Practice 2 - Define the role of the GIS interface in CHCS.

INSTRUCTIONS: This practice will take approximately 5 minutes. Answer the questions below.

1. What is GIS?

   _____

   _____

   _____

2. What is the difference between the Script Generator and Message Router subsystems?

   _____

   _____

   _____

   _____

3. What is the Universal Interface file?

   _____

   _____

4. Which files can be edited by site staff?

   _____

   _____

Student 4 (continued)

Access the Interface Menu on the Manage External Interfaces Menu for the following question.

Systems Manager Menu (EVE) → SM → INT → GIS

5. Which menus on the Interface Menu are not used by site staff?

_____

Notify the presenter when you have completed this practice.

Return to the Systems Manager Menu (EVE) and log off CHCS.

Student 5

Username:	**[site username]**	Access:	**INTUSERE**
Password:	**[site password]**	Verify:	**INTUSEREV**
Area:	**A**		

Practice 2 - Define the role of the GIS interface in CHCS.

INSTRUCTIONS: This practice will take approximately 5 minutes. Answer the questions below.

1. What is GIS?

   _____

   _____

   _____

2. What is the difference between the Script Generator and Message Router subsystems?

   _____

   _____

   _____

   _____

3. What is the Universal Interface file?

   _____

   _____

4. Which files can be edited by site staff?

   _____

   _____

Student 5 (continued)

Access the Interface Menu on the Manage External Interfaces Menu for the following question.

Systems Manager Menu (EVE) → SM → INT → GIS

5. Which menus on the Interface Menu are not used by site staff?

_____

Notify the presenter when you have completed this practice.

Return to the Systems Manager Menu (EVE) and log off CHCS.

Student 6

Username:	**[site username]**	Access:	**INTUSERF**
Password:	**[site password]**	Verify:	**INTUSERFV**
Area:	**A**		

Practice 2 - Define the role of the GIS interface in CHCS.

INSTRUCTIONS: This practice will take approximately 5 minutes. Answer the questions below.

1. What is GIS?

   _____

   _____

   _____

2. What is the difference between the Script Generator and Message Router subsystems?

   _____

   _____

   _____

   _____

3. What is the Universal Interface file?

   _____

   _____

4. Which files can be edited by site staff?

   _____

   _____

Student 6 (continued)

Access the Interface Menu on the Manage External Interfaces Menu for the following question.

Systems Manager Menu (EVE) → SM → INT → GIS

5. Which menus on the Interface Menu are not used by site staff?

_____

Notify the presenter when you have completed this practice.

Return to the Systems Manager Menu (EVE) and log off CHCS.

Student 7

Username:	**[site username]**	Access:	**INTUSERG**
Password:	**[site password]**	Verify:	**INTUSERGV**
Area:	**A**		

Practice 2 - Define the role of the GIS interface in CHCS.

INSTRUCTIONS: This practice will take approximately 5 minutes. Answer the questions below.

1. What is GIS?

   _____

   _____

   _____

2. What is the difference between the Script Generator and Message Router subsystems?

   _____

   _____

   _____

   _____

3. What is the Universal Interface file?

   _____

   _____

4. Which files can be edited by site staff?

   _____

   _____

Student 7 (continued)

Access the Interface Menu on the Manage External Interfaces Menu for the following question.

Systems Manager Menu (EVE) → SM → INT → GIS

5. Which menus on the Interface Menu are not used by site staff?

_____

Notify the presenter when you have completed this practice.

Return to the Systems Manager Menu (EVE) and log off CHCS.

Student 8

Username:	**[site username]**	Access:	**INTUSERH**
Password:	**[site password]**	Verify:	**INTUSERHV**
Area:	**A**		

Practice 2 - Define the role of the GIS interface in CHCS.

INSTRUCTIONS: This practice will take approximately 5 minutes. Answer the questions below.

1. What is GIS?

   _____

   _____

   _____

2. What is the difference between the Script Generator and Message Router subsystems?

   _____

   _____

   _____

   _____

3. What is the Universal Interface file?

   _____

   _____

4. Which files can be edited by site staff?

   _____

   _____

Student 8 (continued)

Access the Interface Menu on the Manage External Interfaces Menu for the following question.

Systems Manager Menu (EVE) → SM → INT → GIS

5. Which menus on the Interface Menu are not used by site staff?

_____

Notify the presenter when you have completed this practice.

Return to the Systems Manager Menu (EVE) and log off CHCS.

Student 9

Username:	**[site username]**	Access:	**INTUSERI**
Password:	**[site password]**	Verify:	**INTUSERIV**
Area:	**A**		

Practice 2 - Define the role of the GIS interface in CHCS.

INSTRUCTIONS: This practice will take approximately 5 minutes. Answer the questions below.

1. What is GIS?

   _____

   _____

   _____

2. What is the difference between the Script Generator and Message Router subsystems?

   _____

   _____

   _____

   _____

3. What is the Universal Interface file?

   _____

   _____

4. Which files can be edited by site staff?

   _____

   _____

Student 9 (continued)

Access the Interface Menu on the Manage External Interfaces Menu for the following question.

Systems Manager Menu (EVE) → SM → INT → GIS

5. Which menus on the Interface Menu are not used by site staff?

_____

Notify the presenter when you have completed this practice.

Return to the Systems Manager Menu (EVE) and log off CHCS.

Student 10

Username:	**[site username]**	Access:	**INTUSERJ**
Password:	**[site password]**	Verify:	**INTUSERJV**
Area:	**A**		

Practice 2 - Define the role of the GIS interface in CHCS.

INSTRUCTIONS: This practice will take approximately 5 minutes. Answer the questions below.

1. What is GIS?

   _____

   _____

   _____

2. What is the difference between the Script Generator and Message Router subsystems?

   _____

   _____

   _____

   _____

3. What is the Universal Interface file?

   _____

   _____

4. Which files can be edited by site staff?

   _____

   _____

Student 10 (continued)

Access the Interface Menu on the Manage External Interfaces Menu for the following question.

Systems Manager Menu (EVE) → SM → INT → GIS

5. Which menus on the Interface Menu are not used by site staff?

_____

Notify the presenter when you have completed this practice.

Return to the Systems Manager Menu (EVE) and log off CHCS.

III. CLOSURE

Do you have any questions about the concepts covered in Module 4 - Describe the GIS and HL7 Interface Systems?

In summary, the following content was presented:

– Defining the role of HL7 as a standard interface between CHCS and external systems.

– Defining the role of the GIS interface in CHCS.

This concludes Module 4. You now have the opportunity to demonstrate proficiency in the topics or skills presented.

Following the Master Practice, there will be a 10-minute break.

Thank you for attending.

Master Practice - Module 4.

SYS: CHCS INTERFACE MANAGEMENT

Module 4 - Describe GIS and HL7 Interface Systems

Section 2. Master Practice

MASTER PRACTICE GUIDELINES

This Master Practice enables the presenter to verify that you have successfully completed the objectives for this class.

The information you need to complete the Master Practice is supplied in the instructions.

You may use any reference materials available in the classroom to complete the Master Practice.

Device identifiers are site-specific, and will be provided by the presenter.

Unless otherwise directed by the presenter, please work alone to complete the Master Practice.

Notify the presenter when directed to do so in the Master Practice. This allows the presenter to verify that you have successfully completed an activity.

You have approximately 10 minutes to complete this Master Practice.

SYS: CHCS INTERFACE MANAGEMENT

Module 4 - Describe GIS and HL7 Interface Systems

Students 1-10

Scenario 1 - Define the roles of HL7 and GIS.

INSTRUCTIONS: Answer the questions below.

1. What are master files?

   _____

   _____

   _____

2. When an external system is first installed and linked to CHCS, how does it obtain master file data?

   _____

   _____

3. How are the databases on external systems kept synchronized with the CHCS master files?

   _____

   _____

4. Besides master file data, what type of data does CHCS exchange with external systems?

   _____

5. For an inbound HL7 transaction, list the proper order for the following GIS steps: _____

   A. Receiver validates transaction and stores it in the UIF.

   B. CHCS sends an Application Acknowledgment if required by the external system.

SYS: CHCS INTERFACE MANAGEMENT

Module 4 - Describe GIS and HL7 Interface Systems

Students 1-10 (continued)

C. Output controller identifies the destination, locates the transaction type, and places the data in the proper CHCS database.

D. Receiver accepts the incoming transaction.

6. For an outbound HL7 transaction, list the proper order for the following GIS steps:

   _____

   A. The application software places a transmission request with the format controller.

   B. The Output Controller or Transmitter places the transaction in a queue for its destination.

   C. The format controller uses the transaction type to extract and format the data, then store it in the UIF.

   D. The format controller adds an entry for the transaction to the Output Controller or Transmitter Queue.

7. Which systems interface with CHCS using HL7 and the GIS?

   _____

Notify the presenter when you are done.

SYS: CHCS INTERFACE MANAGEMENT

Module 4 - Describe the GIS and HL7 Interface Systems

Section 3. Reference Materials

There are no reference materials for this module.

SYS:
CHCS INTERFACE MANAGEMENT

Module 5 -
Manage the GIS

SYS: CHCS INTERFACE MANAGEMENT

Module 5 - Manage the GIS

Section 1. Module Outline

I. INTRODUCTION

Welcome to the module on Manage the GIS.

The purpose of this module is to learn how to use the options on the Generic Interface System (GIS) Interface Menu. These options are used to manage all interfaces that use the Health Level 7 (HL7) data format. The function and capability of these options are presented in general terms, not as they apply to any particular interface. Any interface-specific configuration, parameters, or troubleshooting will be covered in subsequent modules for each interface.

This module is scheduled to last approximately 8.5 hours.

The target audience includes:

– Software Specialists

– Computer Operators

– System Specialists.

Note: This module uses the CHCS training database. The training database is not connected to any external systems, and does not include any interface simulations. Therefore, the values viewed through many inquiry options may not be representative of a live site.

DISCUSS OBJECTIVES

– Objective 1: Define the GIS site parameters.

– Objective 2: Manage the GIS transactions.

– Objective 3: Manage the GIS background processes.

– Objective 4: Manage the GIS errors.

– Objective 5: Manage GIS auditing.

– Objective 6: Troubleshoot the GIS interface.

INTRODUCE OUTBOUND REFERENCES

The following documentation is referred to in this module:

– CHCS HL7 Implementation Specification for CHCS Version 4.5, SAIC/CHCS Doc. TC-4.5-0044.

– SYS: VMS Software Specialist, SAIC/CHCS Doc. TC-4.5-0550/TC-4.5-0551; Module 6 - CHCS Tools and the Systems Manager Menu (EVE).

II. PRESENTATION

■ Objective 1: DEFINE THE GIS SITE PARAMETERS

Scenario: *Your site is bringing up a new interface. Confirm that all parameters are set properly for that interface.*

DISCUSS SITE PARAMETERS

The following must be activated for each interface:

– Transaction types

– Background transmitter process for a unidirectional interface

– Background transmitter and receiver processes for a bidirectional interface.

The following additional parameters must be configured for each interface:

– The Internet Protocol (IP) address for the client and the port must be defined for each background process.

– For interfaces with multiple destinations, such as the Nutrition Management Information System (NMIS) and the Defense Blood Standard System (DBSS), the route ID and primary destination must be defined for each destination.

The Format and Output Controller processes must be started. Additionally, the background processes associated with the interface must also be started.

Additionally, the Interface Site Parameters file contains parameters that apply to all interfaces.

▲ DEMONSTRATE THE INTERFACE ACTIVATION UTILITY (INHPSAM)

1. Initiate the Interface Activation Utility from the VMS ($) prompt.

   $**DSM EN^INHPSAM**

   The Interface Activation Utility (INHPSAM) resides within Digital Standard MUMPS (DSM). However, you can execute any DSM routine from the Virtual Memory (VMS) prompt by preceding the command with DSM.

   Select Username: **INT,USER**

Discuss the Display

The indicated interfaces may be activated or deactivated through the following options of the Interface Activation Utility:

– Anatomic pathology commercial off-the-shelf (APCOTS).

– DBSS. This interface employs selective routing. Only the first interface will be activated; subsequent destinations and background processes must be activated manually.

– Clinical Integrated Workstation (CIW). This interface is not yet activated at sites.

– CliniComp.

– Lab System Interface (LSI). This option activates the Data Innovations, Inc. (DII) interface.

– Military Diagnostic Imaging System (MDIS).

– Military Health Care Medical Information System (MHCMIS).

– NMIS. As with DBSS, this interface also employs selective routing. Only the first interface will be activated; subsequent destinations and background processes must be activated manually.

– TRICARE Support Contractor (TSC) and TSC Loader.This option activates the Managed Care Support Contractor (MCSC) interface, which is not yet activated at sites.

Discuss the Interface Activation Utility (INHPSAM)

This utility allows you to activate or deactivate all transaction types and background processes associated with a specific interface. The utility replaces the need to activate individual transaction types or background processes through options on the Interface Menu (GIS) option. Note that this utility activates background processes, but does not start them.

- Refer to Reference Materials, Background Processes and Transaction Types Associated with Each GIS Interface.

Use this utility in the following circumstances:

– When an interface is first brought up.

– After a change package or software upgrade is installed. When change packages or software upgrades are installed, the transaction types and background processes for all interfaces are set to Inactive. The simplest way to reactivate the interfaces at your site is through the Interface Activation Utility (INHPSAM).

– If you suspect an interface has not been properly activated. An improperly activated interface may have some, but not all, of the appropriate transaction types activated. Instead of trying to determine which transaction types are inactive, use the Interface Activation Utility (INHPSAM) to activate all transaction types and background processes required for a specific interface. No harm is caused by activating transaction types that are already active.

Caution: Do not activate an interface through this utility before that interface is physically connected to CHCS and ready to exchange data. If an interface is activated, but no external system is available to receive the data, data for that interface unnecessarily accumulates in the Universal Interface file (UIF), consuming system resources and disk space.

2. Activate the DBSS interface.

   Select Interface Application: **BB**

   Select Action: **ACTIVATE**

   The system displays a warning that modifying the status of interfaces can have dramatic effects.

   Confirm that you wish to continue: **Y**

   Confirm that you are absolutely positive you wish to continue: **Y**

   Be sure that the external system is physically connected and online before activating the interface. Otherwise, data accumulates in the UIF unnecessarily.

Discuss the Display

The system displays a list of background processes and transaction types activated for that interface. If the interface is bidirectional, both a receiver and transmitter process displays. If any process or transaction type could not be activated, a comment follows the list item.

- Refer to Reference Materials, Background Processes and Transaction Types Associated with Each GIS Interface, for additional information.

Discuss Additional Activation Steps

The following additional activation steps are required for each interface.

– **APCOTS**. Enter the client address and IP port in the Background Process Control file for the receiver and transmitter background processes.

– **DBSS**. Enter the client address and IP port in the Background Process Control file for the receiver and transmitter background processes. Enter the route ID and primary destination in the Interface Destination file.

– **CliniComp**. Enter the client address and IP port in the Background Process Control file for the transmitter background processes

– **LSI**. Enter the client address and IP port in the Background Process Control file for the receiver and transmitter background processes

– **MDIS**. No additional steps required. No background processes are running for MDIS.

– **MHCMIS**. Populate the MHCMIS Site parameters file. Schedule the XXDMM AUTOTRANSMIT option in TaskMan to send message files to MHCMIS. Since MHCMIS sends data to an American Standard Code for Information Interchange (ASCII) file, and not directly to an external system, it does not require entry of any IP address or IP port in the Background Process Control file.

– **NMIS.** Enter the client address and IP port in the Background Process Control file for the transmitter background processes. Enter the route ID and primary destination in the Interface Destination file.

Client IP addresses and IP ports are entered in the Background Process Control file through the BPE option, which is covered later in this objective. Route IDs and primary destinations are entered in the Background Process Control file through the DE option, which is covered later in this objective.

▲ DEMONSTRATE THE FILE AND TABLE MENU (FTM) OPTION

1. Log onto the training database from the VMS ($) prompt.

   $**DSM ^ZU**

Username:	**[site username]**	Access:	**INTUSER**
Password:	**[site password]**	Verify:	**INTUSERV**
Area:	**[A or B]**		

---

2. Access the File and Table Menu (FTM) option on the Interface Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → FTM

Discuss Options on the File and Table Menu

The following options on the File and Table Menu (FTM) option are detailed in this objective:

– Site Parameter Entry/Edit (SPE) - Edits the Interface Site Parameters files (#4002).

– Destination Entry/Edit (DE) - Edits the Interface Destination file.

– Background Process Entry/Edit (BPE) - Edits Background Process Control file.

– Transaction Type Enter/Edit (TTE) - Edits the Interface Transaction Type file.

Many of the files edited through these options have duplicate parameters. File parameters override each other in the order shown above, with each file overriding the parameters defined in the file(s) listed before it. All files override the defaults hardcoded in the GIS software.

You will not use the following menu options:

– Interface OS Edit (IOE)

– Replicate Message to Destinations (RMD).

These options are used by SAIC development staff when parameters must be modified to support additional remote systems or site-specific requirements.

▲ DEMONSTRATE THE TRANSACTION TYPE ENTER/EDIT (TTE) OPTION

1. Access the Transaction Type Enter/Edit (TTE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **FTM** → TTE

   This option allows you to edit data in the Interface Transaction Type file. Transaction types identify a class of transactions. They dictate the format and destination of the data.

   The data in this file is built by SAIC. Do not edit fields that are not demonstrated. **Caution: Use this option only under direction from the TMSSC, as improper use can cause interface problems.**

   Do not use this option to activate or deactivate an entire interface. Use the Interface Activation Utility (INHPSAM) to turn on or turn off all transaction types and background processes for an interface.

2. Select transaction type: **HL CIW CH ORDER IN**

   The Transaction Type Definition screenform displays. Site personnel typically change only the Active field in this screenform.

3. Move the cursor to the Active field, then enter **??**

4. When prompted, select a **List of Values**.

   The value of this field should be Active for all transaction types associated with an activate interface. This field is automatically changed to Inactive when a change package or software release is installed. You should use the Interface Activation Utility (INHPSAM) to return all transaction types to Active for active interfaces.

5. Move the cursor to Active, then press **<Select>**

6. Exit the Transaction Type Definition screenform, **<F10>**, then select **File/ Exit**

7. Return to the File and Table Menu.

▲ DEMONSTRATE THE DESTINATION ENTRY/EDIT (DE) OPTION

1. Access the Destination Entry/Edit (DE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **FTM** → DE

   This option allows you to enter and edit interface destinations. The GIS uses the information in this file to route a transaction to its appropriate location.

   The fields in this file are modified by site personnel for only those interfaces with multiple destinations: DBSS and NMIS. The GIS ships with multiple NMIS and DBSS entries in the Interface Destination file. However, the route ID and primary destination fields must be defined. Those fields should not be defined until the destination system is up and ready to receive messages from the GIS. Otherwise, the GIS generates and accumulates unwanted messages that cannot be delivered. Do not edit any fields that are not demonstrated.

   All other interfaces require no additional configuration in the Interface Destination file.

2. Select Interface Destination: HL **DB**

   A list of the three DBSS destinations displays. The first (HL DBSS) is the primary destination. The second and third are identified by numbers, and are subdestinations to the primary.

3. Choose 1-5: **2**

   Chose the HL DBSS 2 destination. The Interface Destination Definition screenform displays.

4. Access screen 2: **<Page Down>**

   Site personnel typically change only the Route ID and Primary Destination fields of this screenform.

5. Enter at Route ID: 0067 **<Return>**

   For interfaces with multiple destinations, this field identifies the route ID assigned to the destination. The route ID may be a Defense Medical Information System identification (DMIS-ID) or other identification code. This field remains intact after installation of a change package or software release.

- Refer to Module 4 - Describe the GIS and HL7 Interface Systems, for additional information on selective routing.

6. Enter at Primary Destination: HL DBSS **<Return>**

   For interfaces with multiple destinations, this field identifies the primary destination; i.e., the destination referenced by the GIS transaction type. This field should only be filled in for destinations that are not a primary destination. This field remains intact after installation of a change package or software release.

7. Exit the Interface Destination Definition screenform, **<Do>**

   You return to the File and Table Menu.

8. Exit CHCS and return to VMS.

▲ DEMONSTRATE THE BACKGROUND PROCESS ENTRY/EDIT (BPE) OPTION

1. Log onto CHCS in programmer mode.

   One of the fields in the Background Process Control file contains MUMPS code and cannot be edited without programmer (@) FileMan access.

   $**DSM**

   >**D P^DI**

   This MUMPS command sets DUZ(0) equal to "@."

   User Name: **INT,USER**

   Select Option: **<Return>**

   >**D ^XQ1**

   This MUMPS command logs you onto CHCS without resetting DUZ(0).

   Select Option Name: **Systems Manager Menu (EVE)**

2. Access the Background Process Entry/Edit (BPE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → FTM → BPE

   This option allows you to create or edit the background processes under the control of GIS. These processes collect incoming transactions from remote systems, or search for outgoing transactions ready for transmission to external systems. Note that the Output Controller and Format Controller processes cannot be edited through the Background Process Entry/Edit (BPE) option.

   This option is used when an interface is first activated to enter the client IP address and IP port number. It is also used if the client IP address changes. This information can be obtained from the site manager.

   This option is also used to activate background processes used by selective routing. The GIS ships with multiple NMIS and DBSS entries in the Interface Destination file. However, the Interface Activation Utility (INHPSAM) only activates the background process(es) for the first interface, for example, HL DBSS. Subsequent DBSS and NMIS interfaces, such as HL DBSS 2 and HL DBSS 3, must be manually activated. Those processes should not be activated until the destination system is up and ready to receive messages from the GIS. Otherwise, the GIS generates and accumulates unwanted messages that cannot be delivered.

   If the site has more NMIS or DBSS systems that are prebuilt in the Background Process Control file, this option creates additional NMIS or DBSS background processes. Programmer access is needed only if creating a new DBSS receiver process.

   Do not edit any fields that are not demonstrated.

3. Select background process: **DBSS TRANSMITTER 2**

   The Background Process Entry/Edit screenform displays. Notice that the Destination is HL DBSS 2, the second subdestination for DBSS. Site personnel typically only change the Active, Client IP Address, and IP Port fields in this screenform.

4. Move the cursor to the Active field and enter **I**, then return to the field and enter **A**.

   The value of this field should be Active for all background processes associated with an active interface. This field is automatically changed to Inactive when a change package or software release is installed. You should use the INHPSAM to return all primary background processes to Active. Additional background processes for NMIS and DBSS must be manually activated.

Discuss the Destination Determination Code Field

Notice that the Destination Determination Code field is blank. This field contains MUMPS code, and is only filled in for the DBSS and LSI receiver processes.

– The DBSS receiver processes contain the following code: D DEST^INHVDBSS.

– The LSI receiver process contains the following code: S INDEST("ORU") =<"HL LA DII LSI INBOUND" D DEST^INHUSEN.

You must login to CHCS with programmer (@) access to edit this field. You only need to edit this field to build additional DBSS receiver processes.

5. Enter at Client/Server: CLIENT **<Return>**

   This field determines whether the background process is opened as a client or a server. A client process initiates a connection with a process on the remote system. A server process waits for a connection request from a process on the remote system. All the CHCS interfaces currently deployed are opened as clients. However, future interfaces, such as CIW, may be opened as servers.

6. Enter at Server Ports: **<Return>**

   If this process operates as a server, enter the IP port number used by this process when it opens a Transmission Control Protocol (TCP) socket to the remote system. This address must be coordinated with the remote system manager. The value in this field is retained after installation of a change package or software release.

7. Enter at Client Addresses: **204.115.176.10**

   If this process operates as a client, enter the IP address used by this process when it opens a TCP socket to the remote system. This address must be coordinated with the remote system manager. The value in this field is retained after installation of a change package or software release.

8. Confirm addition of this address as a new client IP address.

   A screenform displays for entering IP port addresses.

9. Enter at Client Address: 204.115.176.10 **<Return>**

10 Enter at IP Ports: **2010**

   Enter the IP port number on the remote system to which this process connects. This number is typically a commonly know IP port number, starting from 2000. The value in this field must be coordinated with the remote system manager. The value in this field is retained after installation of a change package or software release.

11. Confirm addition of this address as a new IP port.

    You return to the Client Addresses field.

12. Enter at Client Addresses: **<Return>**

Discuss the Parameters Section of Screen 2

The Parameters section of screen 2 contains many site-definable parameters that affects the performance of your interfaces. The following fields may be modified. However, the values in these fields return to their default values when a change package or software release is installed. No other fields on this screen should be modified without direction from the TMSSC.

– **Open Hang Time**. The number of seconds to wait before failing an attempt to open a communication channel.

– **Open Retries**. The number of attempts to open a communication channel before aborting.

- **Transmitter Hang**. If the message queue becomes empty, this is the number of seconds the transmitter process waits before checking again for messages to send. If the queue is not empty, the transmitter will not hang; it will continue to transmit messages until the queue is empty. This parameter should be left at the default of 10 seconds. If a queue is subject to sudden bursts of activity, this parameter could be set as low as 1 second.

- **Send Hang Time**. The number of seconds a transmitter process waits after failing an attempt to send a single message before retrying.

- **Send Retries**. The number of retries (i.e., the number of attempts) a transmitter process should make to send a single message. The transmitter process retries whether the attempt timed out, or a negative acknowledgment was received. Once the number of retries has been exceeded, the GIS concludes that the message is faulty, adds a message to the activity log that the number of retries was exceeded for this message, then sends the next message in the queue.

- **Send Timeout**. The number of seconds a transmitter process attempts a single transmission before aborting. This field is not currently used.

- **Read Hang Time**. The number of seconds a receiver process waits after failing an attempt to read a single message before retrying.

- **Read Retries**. The number of retries (i.e., the number of attempts) a receiver process should make to read a single message.

- **Read Timeout**. The number of seconds that a receiver attempts to read a single message.

13. Exit the screenform, **<F10>**, then select **Abort**

14. Return to the File and Table Menu.

▲ DEMONSTRATE THE SITE PARAMETER ENTRY/EDIT (SPE) OPTION

1. Access the Site Parameter Entry/Edit (SPE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **FTM** → SPE

   This option controls the Interface Site Parameters file (#4002), which stores configuration parameters that are specific for each site. The interface is activated at the time of installation. Modifications to this file are rarely required.

   The following fields are modified by site staff:

   – Maximum Number of Output Jobs

   – Maximum Number of Formatter Jobs

   – Number of Days to Retain Transactions and Errors.

   Do not edit any fields that are not demonstrated.

   This option is locked with the INH SITE MANAGER security key.

2. Move the cursor to the following fields.

   Default Retry Rate: **<Return>**

   When a transaction in the UIF is processed, it may return one of the following statuses:

   – 0 = Success

   – 1 = Non-fatal error

   – 2 = Fatal error

   If a transaction has a Non-Fatal Error status, the system attempts to reprocess the transaction. The retry rate field determines how many minutes the system should wait before attempting to reprocess a transaction with a Non-Fatal Error status.

Default Maximum Number of Attempts: **<Return>**

The field determines how many attempts may be made to reprocess a transaction. Once this maximum is reached, the transaction is given a status of Fatal Error.

Maximum Number of Output Jobs: **<Return>**

The number of output jobs defined here correlates to the number of servers opened by the Output Controller. If this field is set to 0, the Output Controller operates in single-threaded mode; i.e., only one transaction is processed at a time. The Output Controller fully processes a transaction before looking for another transaction. This mode produces a low system load, but may create a backlog of transactions awaiting processing.

If set to 2 or higher, the Output Controller operates in multithreaded mode; i.e., more than one transaction is processed at a time. The Output Controller starts a new server for every transaction that is ready for processing, up to the limit entered in this field. This mode improves transaction throughput, but also produces a higher system load.

Maximum Number of Formatter Jobs: **<Return>**

The number of formatter jobs defined here correlates to the number of servers opened by the Format Controller.

Number of Days to Retain Transactions and Errors: **<Return>**

Transactions remain in the UIF, and errors remain in the Interface Error file, for the number of days entered here before being purged by the INH AUTOPURGE process.

3. Exit the screenform, **<F10>**

   You return to the File and Table Menu.

4. Return to the Interface Menu.

Practice 1 - Define the GIS site parameters.

PRACTICE GUIDELINES

PRACTICE GUIDELINES

The information you need to complete each practice is supplied in the instructions and scenarios.

Notify the presenter when directed to do so in the practice. This allows the presenter to verify that you have successfully completed an activity.

You may use any reference materials available in the classroom to complete your practices.

You may ask questions or request assistance at any time during the practices.

Information is only specified for those fields and prompts which require specific data entry. To advance past fields/prompts which are not specified, enter data you know to be correct, or press <Return>.

The practices for this class must be completed in the order in which they are presented. Please complete all parts of each practice before proceeding.

Student 1

Practice 1 - Define the GIS site parameters.

INSTRUCTIONS: This practice will take approximately 20 minutes. Follow the instructions below. Refer to Reference Materials, Background Processes and Transaction Types Associated With Each GIS Interface, for additional information.

Scenario: *You have just completed installation of a change package. Reactivate your interfaces using the Interface Activation Utility (INHPSAM). Additionally, one of your remote clinics has just installed an additional blood bank system. Define the destination and background process for selective routing to that system.*

a. Activate Interfaces

1. Initiate the Interface Activation Utility from the VMS ($) prompt.

   $**DSM EN^INHPSAM**
   Select Username: **INT,USERA**

Note to Student 1: You will be sharing an interface with another student. Coordinate activation/inactivation with the Student 8.

2. Inactivate an interface.

   Select Interface Application: **APCOTS**
   Select Action: **DEACTIVATE**

   The system displays a warning that modifying the status of interfaces can have dramatic effects.

   Confirm that you wish to continue: **Y**

   Confirm that you are absolutely positive you wish to continue: **Y**

   Note the background processes and one transaction type from the displayed list.

Student 1 (continued)

3. Log onto the training database from the VMS ($) prompt.

   $**DSM ^ZU**

Username:	**[site username]**	Access:	**INTUSERA**
Password:	**[site password]**	Verify:	**INTUSERAV**
Area:	**A**		

4. Access the Background Process Entry/Edit (BPE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → FTM → BPE

   Confirm that the following background process is inactive: **ANATOMIC PATHOLOGY RECEIVER**

5. Return to the File and Table Menu.

6. Access the Transaction Type Entry/Edit (TTE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **FTM** → TTE

   Confirm that the following transaction type is inactive: **HL AP ORDER OUT (COTS)**

7. Exit CHCS and return to VMS.

8. Rerun the Interface Activation Utility (INHPSAM) and activate the APCOTS interface.

9. Log onto CHCS again and confirm that the interface has been activated.

> **CAUTION:** Be sure your interface is reactivated before proceeding with the class.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that your background process is active.

10. Return to the File and Table Menu.

Student 1 (continued)

b. Define Parameters for a New DBSS Installation

1. Access the Destination Entry/Edit (DE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **FTM** → DE

2. Select Interface Destination: **HL BLOOD BANK11**

3. Confirm addition of a new destination.

4. Complete the Interface Destination Definition screenform.

   Name: [selected name] <**Return>**
   Acceptance TT: **HL GIS ACCEPT ACKNOWLEDGEMENT**
   Retry Rate: **1M**
   Max # of Attempts: **3**
   Transceiver Routine: **INHVSEQ**
   Route ID: **0384**
   Primary Destination: **HL BLOOD BANK**
   Delivery Queue: **INLHDEST**

5. Exit CHCS and return to VMS.

6. Log onto CHCS in programmer mode.

   $**DSM**
   >**D P^DI**
   Select User Name: **INT,USERA**
   Select Option: **<Return>**
   > **D ^XQ1**

   Select Option Name: **Systems Manager Menu (EVE)**

7. Access the Background Process Entry/Edit (BPE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → FTM → BPE

8. Define a new destination.

   Select Background process: **DBSS RECEIVER 11**

9. Confirm addition of a new background process.

Student 1 (continued)

10. Complete the Background Process Entry/Edit screenform.

    Name: [selected name] **<Return>**
    Active: **A**
    Routine: **INHVTAPR**
    Destination: **HL LAB DBSS RESULT -IN**
    Destination Determination Code: **D DEST^INHVDBSS**
    Client/Server: **CLIENT**
    Client Addresses: **204.115.176.11**
    IP Port: **2011**
    Open Hang Time: **15**
    Open Retries: **3**
    Transmitter Hang: **10**
    Send Hang Time: **1**
    Send Retries: 1
    Read Hang Time: **10**
    Read Retries: **10**
    Read Timeout: **60**

11. File and exit the screenform.

    DBSS is a bidirectional interface. Under normal circumstances, you would also define a transmitter background process (DBSS TRANSMITTER *n*) for this destination.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that an entry has been added to the Interface Destination and Background Process Control files.

12. Return to the Interface Menu.

Student 2

Practice 1 - Define the GIS site parameters.

INSTRUCTIONS: This practice will take approximately 20 minutes. Follow the instructions below. Refer to Reference Materials, Background Processes and Transaction Types Associated With Each GIS Interface, for additional information.

Scenario: *You have just completed installation of a change package. Reactivate your interfaces using the Interface Activation Utility (INHPSAM). Additionally, one of your remote clinics has just installed an additional blood bank system. Define the destination and background process for selective routing to that system.*

a. Activate Interfaces

1. Initiate the Interface Activation Utility from the VMS ($) prompt.

   $**DSM EN^INHPSAM**
   Select Username: **INT,USERB**

Note to Student 2: You will be sharing an interface with another student. Coordinate activation/inactivation with Student 9.

Coordinate activation/inactivation with Student 9

2. Inactivate an interface.

   Select Interface Application: **DBSS**
   Select Action: **DEACTIVATE**

   The system displays a warning that modifying the status of interfaces can have dramatic effects.

   Confirm that you wish to continue: **Y**

   Confirm that you are absolutely positive you wish to continue: **Y**

   Note the background processes and one transaction type from the displayed list.

Student 2 (continued)

3. Log onto the training database from the VMS ($) prompt.

   $**DSM ^ZU**

Username:	**[site username]**	Access:	**INTUSERB**
Password:	**[site password]**	Verify:	**INTUSERBV**
Area:	**A**		

4. Access the Background Process Entry/Edit (BPE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → FTM → BPE

   Confirm that the following background process is inactive: **ANATOMIC PATHOLOGY RECEIVER**

5. Return to the File and Table Menu.

6. Access the Transaction Type Entry/Edit (TTE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **FTM** → TTE

   Confirm that the following transaction type is inactive: **HL AP ORDER OUT (COTS)**

7. Exit CHCS and return to VMS.

8. Rerun the Interface Activation Utility (INHPSAM) and activate the DBSS interface.

9. Log onto CHCS again and confirm that the interface has been activated.

> **CAUTION:** Be sure your interface is reactivated before proceeding with the class.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that your background process is active.

10. Return to the File and Table Menu.

Student 2 (continued)

b. Define Parameters for a New DBSS Installation

1. Access the Destination Entry/Edit (DE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **FTM** → DE

2. Select Interface Destination: **HL BLOOD BANK12**

3. Confirm addition of a new destination.

4. Complete the Interface Destination Definition screenform.

   Name: [selected name] <**Return>**
   Acceptance TT: **HL GIS ACCEPT ACKNOWLEDGEMENT**
   Retry Rate: **1M**
   Max # of Attempts: **3**
   Transceiver Routine: **INHVSEQ**
   Route ID: **0384**
   Primary Destination: **HL BLOOD BANK**
   Delivery Queue: **INLHDEST**

5. Exit CHCS and return to VMS.

6. Log onto CHCS in programmer mode.

   $**DSM**
   >**D P^DI**
   Select User Name: **INT,USERB**
   Select Option: **<Return>**
   > **D ^XQ1**

   Select Option Name: **Systems Manager Menu (EVE)**

7. Access the Background Process Entry/Edit (BPE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → FTM → BPE

8. Define a new destination.

   Select Background process: **DBSS RECEIVER 12**

9. Confirm addition of a new background process.

Student 2 (continued)

10. Complete the Background Process Entry/Edit screenform.

    Name: [selected name] **<Return>**
    Active: **A**
    Routine: **INHVTAPR**
    Destination: **HL LAB DBSS RESULT -IN**
    Destination Determination Code: **D DEST^INHVDBSS**
    Client/Server: **CLIENT**
    Client Addresses: **204.115.176.12**
    IP Port: **2012**
    Open Hang Time: **15**
    Open Retries: **3**
    Transmitter Hang: **10**
    Send Hang Time: **1**
    Send Retries: 1
    Read Hang Time: **10**
    Read Retries: **10**
    Read Timeout: **60**

11. File and exit the screenform.

    DBSS is a bidirectional interface. Under normal circumstances, you would also define a transmitter background process (DBSS TRANSMITTER *n*) for this destination.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that an entry has been added to the Interface Destination and Background Process Control files.

12. Return to the Interface Menu.

Student 3

Practice 1 - Define the GIS site parameters.

INSTRUCTIONS: This practice will take approximately 20 minutes. Follow the instructions below. Refer to Reference Materials, Background Processes and Transaction Types Associated With Each GIS Interface, for additional information.

Scenario: *You have just completed installation of a change package. Reactivate your interfaces using the Interface Activation Utility (INHPSAM). Additionally, one of your remote clinics has just installed an additional blood bank system. Define the destination and background process for selective routing to that system.*

a. Activate Interfaces

1. Initiate the Interface Activation Utility from the VMS ($) prompt.

   $**DSM EN^INHPSAM**
   Select Username: **INT,USERC**

Note to Student 3: You will be sharing an interface with another student. Coordinate activation/inactivation with the Student 10.

2. Inactivate an interface.

   Select Interface Application: **CLINICOP**
   Select Action: **DEACTIVATE**

   The system displays a warning that modifying the status of interfaces can have dramatic effects.

   Confirm that you wish to continue: **Y**

   Confirm that you are absolutely positive you wish to continue: **Y**

   Note the background processes and one transaction type from the displayed list.

Student 3 (continued)

3. Log onto the training database from the VMS ($) prompt.

   $**DSM ^ZU**

Username:	**[site username]**	Access:	**INTUSERC**
Password:	**[site password]**	Verify:	**INTUSERCV**
Area:	**A**		

4. Access the Background Process Entry/Edit (BPE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → FTM → BPE

   Confirm that the following background process is inactive: **ANATOMIC PATHOLOGY RECEIVER**

5. Return to the File and Table Menu.

6. Access the Transaction Type Entry/Edit (TTE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **FTM** → TTE

   Confirm that the following transaction type is inactive: **HL AP ORDER OUT (COTS)**

7. Exit CHCS and return to VMS.

8. Rerun the Interface Activation Utility (INHPSAM) and activate the CliniComp interface.

9. Log onto CHCS again and confirm that the interface has been activated.

> **CAUTION:** Be sure your interface is reactivated before proceeding with the class.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that your background process is active.

10. Return to the File and Table Menu.

Student 3 (continued)

b. Define Parameters for a New DBSS Installation

1. Access the Destination Entry/Edit (DE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **FTM** → DE

2. Select Interface Destination: **HL BLOOD BANK13**

3. Confirm addition of a new destination.

4. Complete the Interface Destination Definition screenform.

   Name: [selected name] <**Return>**
   Acceptance TT: **HL GIS ACCEPT ACKNOWLEDGEMENT**
   Retry Rate: **1M**
   Max # of Attempts: **3**
   Transceiver Routine: **INHVSEQ**
   Route ID: **0384**
   Primary Destination: **HL BLOOD BANK**
   Delivery Queue: **INLHDEST**

5. Exit CHCS and return to VMS.

6. Log onto CHCS in programmer mode.

   $**DSM**
   >**D P^DI**
   Select User Name: **INT,USERC**
   Select Option: **<Return>**
   > **D ^XQ1**

   Select Option Name: **Systems Manager Menu (EVE)**

7. Access the Background Process Entry/Edit (BPE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → FTM → BPE

8. Define a new destination.

   Select Background process: **DBSS RECEIVER 13**

9. Confirm addition of a new background process.

Student 3 (continued)

10. Complete the Background Process Entry/Edit screenform.

    Name: [selected name] **<Return>**
    Active: **A**
    Routine: **INHVTAPR**
    Destination: **HL LAB DBSS RESULT -IN**
    Destination Determination Code: **D DEST^INHVDBSS**
    Client/Server: **CLIENT**
    Client Addresses: **204.115.176.13**
    IP Port: **2013**
    Open Hang Time: **15**
    Open Retries: **3**
    Transmitter Hang: **10**
    Send Hang Time: **1**
    Send Retries: 1
    Read Hang Time: **10**
    Read Retries: **10**
    Read Timeout: **60**

11. File and exit the screenform.

    DBSS is a bidirectional interface. Under normal circumstances, you would also define a transmitter background process (DBSS TRANSMITTER *n*) for this destination.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that an entry has been added to the Interface Destination and Background Process Control files.

12. Return to the Interface Menu.

Student 4

Practice 1 - Define the GIS site parameters.

INSTRUCTIONS: This practice will take approximately 20 minutes. Follow the instructions below. Refer to Reference Materials, Background Processes and Transaction Types Associated With Each GIS Interface, for additional information.

Scenario: *You have just completed installation of a change package. Reactivate your interfaces using the Interface Activation Utility (INHPSAM). Additionally, one of your remote clinics has just installed an additional blood bank system. Define the destination and background process for selective routing to that system.*

a. Activate Interfaces

1. Initiate the Interface Activation Utility from the VMS ($) prompt.

   $**DSM EN^INHPSAM**
   Select Username: **INT,USERD**

2. Inactivate an interface.

   Select Interface Application: **LSI**
   Select Action: **DEACTIVATE**

   The system displays a warning that modifying the status of interfaces can have dramatic effects.

   Confirm that you wish to continue: **Y**

   Confirm that you are absolutely positive you wish to continue: **Y**

   Note the background processes and one transaction type from the displayed list.

Student 4 (continued)

3. Log onto the training database from the VMS ($) prompt.

   $**DSM ^ZU**

Username:	**[site username]**	Access:	**INTUSERD**
Password:	**[site password]**	Verify:	**INTUSERDV**
Area:	**A**		

4. Access the Background Process Entry/Edit (BPE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → FTM → BPE

   Confirm that the following background process is inactive: **ANATOMIC PATHOLOGY RECEIVER**

5. Return to the File and Table Menu.

6. Access the Transaction Type Entry/Edit (TTE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **FTM** → TTE

   Confirm that the following transaction type is inactive: **HL AP ORDER OUT (COTS)**

7. Exit CHCS and return to VMS.

8. Rerun the Interface Activation Utility (INHPSAM) and activate the LSI interface.

9. Log onto CHCS again and confirm that the interface has been activated.

> **CAUTION:** Be sure your interface is reactivated before proceeding with the class.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that your background process is active.

10. Return to the File and Table Menu.

Student 4 (continued)

b. Define Parameters for a New DBSS Installation

1. Access the Destination Entry/Edit (DE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **FTM** → DE

2. Select Interface Destination: **HL BLOOD BANK14**

3. Confirm addition of a new destination.

4. Complete the Interface Destination Definition screenform.

   Name: [selected name] <**Return>**
   Acceptance TT: **HL GIS ACCEPT ACKNOWLEDGEMENT**
   Retry Rate: **1M**
   Max # of Attempts: **3**
   Transceiver Routine: **INHVSEQ**
   Route ID: **0384**
   Primary Destination: **HL BLOOD BANK**
   Delivery Queue: **INLHDEST**

5. Exit CHCS and return to VMS.

6. Log onto CHCS in programmer mode.

   $**DSM**
   >**D P^DI**
   Select User Name: **INT,USERD**
   Select Option: **<Retur**n>
   > **D ^XQ1**

   Select Option Name: **Systems Manager Menu (EVE)**

7. Access the Background Process Entry/Edit (BPE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → FTM → BPE

8. Define a new destination.

   Select Background process: **DBSS RECEIVER 14**

9. Confirm addition of a new background process.

Student 4 (continued)

10. Complete the Background Process Entry/Edit screenform.

    Name: [selected name] **<Return>**
    Active: **A**
    Routine: **INHVTAPR**
    Destination: **HL LAB DBSS RESULT -IN**
    Destination Determination Code: **D DEST^INHVDBSS**
    Client/Server: **CLIENT**
    Client Addresses: **204.115.176.14**
    IP Port: **2014**
    Open Hang Time: **15**
    Open Retries: **3**
    Transmitter Hang: **10**
    Send Hang Time: **1**
    Send Retries: 1
    Read Hang Time: **10**
    Read Retries: **10**
    Read Timeout: **60**

11. File and exit the screenform.

    DBSS is a bidirectional interface. Under normal circumstances, you would also define a transmitter background process (DBSS TRANSMITTER *n*) for this destination.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that an entry has been added to the Interface Destination and Background Process Control files.

12. Return to the Interface Menu.

Student 5

Practice 1 - Define the GIS site parameters.

INSTRUCTIONS: This practice will take approximately 20 minutes. Follow the instructions below. Refer to Reference Materials, Background Processes and Transaction Types Associated With Each GIS Interface, for additional information.

Scenario: *You have just completed installation of a change package. Reactivate your interfaces using the Interface Activation Utility (INHPSAM). Additionally, one of your remote clinics has just installed an additional blood bank system. Define the destination and background process for selective routing to that system.*

a. Activate Interfaces

1. Initiate the Interface Activation Utility from the VMS ($) prompt.

   $**DSM EN^INHPSAM**
   Select Username: **INT,USERE**

2. Inactivate an interface.

   Select Interface Application: **MDIS**
   Select Action: **DEACTIVATE**

   The system displays a warning that modifying the status of interfaces can have dramatic effects.

   Confirm that you wish to continue: **Y**

   Confirm that you are absolutely positive you wish to continue: **Y**

   Note the background processes and one transaction type from the displayed list.

Student 5 (continued)

3. Log onto the training database from the VMS ($) prompt.

   $**DSM ^ZU**

Username:	**[site username]**	Access:	**INTUSERE**
Password:	**[site password]**	Verify:	**INTUSEREV**
Area:	**A**		

4. Access the Background Process Entry/Edit (BPE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → FTM → BPE

   Confirm that the following background process is inactive: **ANATOMIC PATHOLOGY RECEIVER**

5. Return to the File and Table Menu.

6. Access the Transaction Type Entry/Edit (TTE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **FTM** → TTE

   Confirm that the following transaction type is inactive: **HL AP ORDER OUT (COTS)**

7. Exit CHCS and return to VMS.

8. Rerun the Interface Activation Utility (INHPSAM) and activate the MDIS interface.

9. Log onto CHCS again and confirm that the interface has been activated.

> **CAUTION:** Be sure your interface is reactivated before proceeding with the class.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that your background process is active.

10. Return to the File and Table Menu.

Student 5 (continued)

b. Define Parameters for a New DBSS Installation

1. Access the Destination Entry/Edit (DE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **FTM** → DE

2. Select Interface Destination: **HL BLOOD BANK15**

3. Confirm addition of a new destination.

4. Complete the Interface Destination Definition screenform.

   Name: [selected name] <**Return>**
   Acceptance TT: **HL GIS ACCEPT ACKNOWLEDGEMENT**
   Retry Rate: **1M**
   Max # of Attempts: **3**
   Transceiver Routine: **INHVSEQ**
   Route ID: **0384**
   Primary Destination: **HL BLOOD BANK**
   Delivery Queue: **INLHDEST**

5. Exit CHCS and return to VMS.

6. Log onto CHCS in programmer mode.

   $**DSM**
   >**D P^DI**
   Select User Name: **INT,USERE**
   Select Option: **<Return>**
   > **D ^XQ1**

   Select Option Name: **Systems Manager Menu (EVE)**

7. Access the Background Process Entry/Edit (BPE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → FTM → BPE

8. Define a new destination.

   Select Background process: **DBSS RECEIVER 15**

9. Confirm addition of a new background process.

Student 5 (continued)

10. Complete the Background Process Entry/Edit screenform.

    Name: [selected name] **<Return>**
    Active: **A**
    Routine: **INHVTAPR**
    Destination: **HL LAB DBSS RESULT -IN**
    Destination Determination Code: **D DEST^INHVDBSS**
    Client/Server: **CLIENT**
    Client Addresses: **204.115.176.15**
    IP Port: **2015**
    Open Hang Time: **15**
    Open Retries: **3**
    Transmitter Hang: **10**
    Send Hang Time: **1**
    Send Retries: 1
    Read Hang Time: **10**
    Read Retries: **10**
    Read Timeout: **60**

11. File and exit the screenform.

    DBSS is a bidirectional interface. Under normal circumstances, you would also define a transmitter background process (DBSS TRANSMITTER *n*) for this destination.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that an entry has been added to the Interface Destination and Background Process Control files.

12. Return to the Interface Menu.

Student 6

Practice 1 - Define the GIS site parameters.

INSTRUCTIONS: This practice will take approximately 20 minutes. Follow the instructions below. Refer to Reference Materials, Background Processes and Transaction Types Associated With Each GIS Interface, for additional information.

Scenario: *You have just completed installation of a change package. Reactivate your interfaces using the Interface Activation Utility (INHPSAM). Additionally, one of your remote clinics has just installed an additional blood bank system. Define the destination and background process for selective routing to that system.*

a. Activate Interfaces

1. Initiate the Interface Activation Utility from the VMS ($) prompt.

   $**DSM EN^INHPSAM**
   Select Username: **INT,USERA**

2. Inactivate an interface.

   Select Interface Application: **MHCMIS**
   Select Action: **DEACTIVATE**

   The system displays a warning that modifying the status of interfaces can have dramatic effects.

   Confirm that you wish to continue: **Y**

   Confirm that you are absolutely positive you wish to continue: **Y**

   Note the background processes and one transaction type from the displayed list.

Student 6 (continued)

3. Log onto the training database from the VMS ($) prompt.

   $**DSM ^ZU**

Username:	**[site username]**	Access:	**INTUSERF**
Password:	**[site password]**	Verify:	**INTUSERFV**
Area:	**A**		

4. Access the Background Process Entry/Edit (BPE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → FTM → BPE

   Confirm that the following background process is inactive: **ANATOMIC PATHOLOGY RECEIVER**

5. Return to the File and Table Menu.

6. Access the Transaction Type Entry/Edit (TTE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **FTM** → TTE

   Confirm that the following transaction type is inactive: **HL AP ORDER OUT (COTS)**

7. Exit CHCS and return to VMS.

8. Rerun the Interface Activation Utility (INHPSAM) and activate the MHCMIS interface.

9. Log onto CHCS again and confirm that the interface has been activated.

> **CAUTION:** Be sure your interface is reactivated before proceeding with the class.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that your background process is active.

10. Return to the File and Table Menu.

Student 6 (continued)

b. Define Parameters for a New DBSS Installation

1. Access the Destination Entry/Edit (DE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **FTM** → DE

2. Select Interface Destination: **HL BLOOD BANK16**

3. Confirm addition of a new destination.

4. Complete the Interface Destination Definition screenform.

   Name: [selected name] <**Return>**
   Acceptance TT: **HL GIS ACCEPT ACKNOWLEDGEMENT**
   Retry Rate: **1M**
   Max # of Attempts: **3**
   Transceiver Routine: **INHVSEQ**
   Route ID: **0384**
   Primary Destination: **HL BLOOD BANK**
   Delivery Queue: **INLHDEST**

5. Exit CHCS and return to VMS.

6. Log onto CHCS in programmer mode.

   $**DSM**
   >**D P^DI**
   Select User Name: **INT,USERF**
   Select Option: **<Return>**
   > **D ^XQ1**

   Select Option Name: **Systems Manager Menu (EVE)**

7. Access the Background Process Entry/Edit (BPE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → FTM → BPE

8. Define a new destination.

   Select Background process: **DBSS RECEIVER 16**

9. Confirm addition of a new background process.

Student 6 (continued)

10. Complete the Background Process Entry/Edit screenform.

    Name: [selected name] **<Return>**
    Active: **A**
    Routine: **INHVTAPR**
    Destination: **HL LAB DBSS RESULT -IN**
    Destination Determination Code: **D DEST^INHVDBSS**
    Client/Server: **CLIENT**
    Client Addresses: **204.115.176.16**
    IP Port: **2016**
    Open Hang Time: **15**
    Open Retries: **3**
    Transmitter Hang: **10**
    Send Hang Time: **1**
    Send Retries: 1
    Read Hang Time: **10**
    Read Retries: **10**
    Read Timeout: **60**

11. File and exit the screenform.

    DBSS is a bidirectional interface. Under normal circumstances, you would also define a transmitter background process (DBSS TRANSMITTER *n*) for this destination.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that an entry has been added to the Interface Destination and Background Process Control files.

12. Return to the Interface Menu.

Student 7

Practice 1 - Define the GIS site parameters.

INSTRUCTIONS: This practice will take approximately 20 minutes. Follow the instructions below. Refer to Reference Materials, Background Processes and Transaction Types Associated With Each GIS Interface, for additional information.

Scenario: *You have just completed installation of a change package. Reactivate your interfaces using the Interface Activation Utility (INHPSAM). Additionally, one of your remote clinics has just installed an additional blood bank system. Define the destination and background process for selective routing to that system.*

a. Activate Interfaces

1. Initiate the Interface Activation Utility from the VMS ($) prompt.

   $**DSM EN^INHPSAM**
   Select Username: **INT,USERG**

2. Inactivate an interface.

   Select Interface Application: **NMIS**
   Select Action: **DEACTIVATE**

   The system displays a warning that modifying the status of interfaces can have dramatic effects.

   Confirm that you wish to continue: **Y**

   Confirm that you are absolutely positive you wish to continue: **Y**

   Note the background processes and one transaction type from the displayed list.

Student 7 (continued)

3. Log onto the training database from the VMS ($) prompt.

   $**DSM ^ZU**

Username:	**[site username]**	Access:	**INTUSERG**
Password:	**[site password]**	Verify:	**INTUSERGV**
Area:	**A**		

4. Access the Background Process Entry/Edit (BPE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → FTM → BPE

   Confirm that the following background process is inactive: **ANATOMIC PATHOLOGY RECEIVER**

5. Return to the File and Table Menu.

6. Access the Transaction Type Entry/Edit (TTE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **FTM** → TTE

   Confirm that the following transaction type is inactive: **HL AP ORDER OUT (COTS)**

7. Exit CHCS and return to VMS.

8. Rerun the Interface Activation Utility (INHPSAM) and activate the NMIS interface.

9. Log onto CHCS again and confirm that the interface has been activated.

> **CAUTION:** Be sure your interface is reactivated before proceeding with the class.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that your background process is active.

10. Return to the File and Table Menu.

Student 7 (continued)

b. Define Parameters for a New DBSS Installation

1. Access the Destination Entry/Edit (DE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **FTM** → DE

2. Select Interface Destination: **HL BLOOD BANK17**

3. Confirm addition of a new destination.

4. Complete the Interface Destination Definition screenform.

   Name: [selected name] <**Return>**
   Acceptance TT: **HL GIS ACCEPT ACKNOWLEDGEMENT**
   Retry Rate: **1M**
   Max # of Attempts: **3**
   Transceiver Routine: **INHVSEQ**
   Route ID: **0384**
   Primary Destination: **HL BLOOD BANK**
   Delivery Queue: **INLHDEST**

5. Exit CHCS and return to VMS.

6. Log onto CHCS in programmer mode.

   $**DSM**
   >**D P^DI**
   Select User Name: **INT,USERG**
   Select Option: **<Return>**
   > **D ^XQ1**

   Select Option Name: **Systems Manager Menu (EVE)**

7. Access the Background Process Entry/Edit (BPE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → FTM → BPE

8. Define a new destination.

   Select Background process: **DBSS RECEIVER 17**

9. Confirm addition of a new background process.

Student 7 (continued)

10. Complete the Background Process Entry/Edit screenform.

    Name: [selected name] **<Return>**
    Active: **A**
    Routine: **INHVTAPR**
    Destination: **HL LAB DBSS RESULT -IN**
    Destination Determination Code: **D DEST^INHVDBSS**
    Client/Server: **CLIENT**
    Client Addresses: **204.115.176.17**
    IP Port: **2017**
    Open Hang Time: **15**
    Open Retries: **3**
    Transmitter Hang: **10**
    Send Hang Time: **1**
    Send Retries: 1
    Read Hang Time: **10**
    Read Retries: **10**
    Read Timeout: **60**

11. File and exit the screenform.

    DBSS is a bidirectional interface. Under normal circumstances, you would also define a transmitter background process (DBSS TRANSMITTER *n*) for this destination.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that an entry has been added to the Interface Destination and Background Process Control files.

12. Return to the Interface Menu.

Student 8

Practice 1 - Define the GIS site parameters.

INSTRUCTIONS: This practice will take approximately 20 minutes. Follow the instructions below. Refer to Reference Materials, Background Processes and Transaction Types Associated With Each GIS Interface, for additional information.

Scenario: *You have just completed installation of a change package. Reactivate your interfaces using the Interface Activation Utility (INHPSAM). Additionally, one of your remote clinics has just installed an additional blood bank system. Define the destination and background process for selective routing to that system.*

a. Activate Interfaces

1. Initiate the Interface Activation Utility from the VMS ($) prompt.

   $**DSM EN^INHPSAM**
   Select Username: **INT,USERH**

Note to Student 8: You will be sharing an interface with another student. Coordinate activation/inactivation with the Student 1.

2. Inactivate an interface.

   Select Interface Application: **APCOTS**
   Select Action: **DEACTIVATE**

   The system displays a warning that modifying the status of interfaces can have dramatic effects.

   Confirm that you wish to continue: **Y**

   Confirm that you are absolutely positive you wish to continue: **Y**

   Note the background processes and one transaction type from the displayed list.

Student 8 (continued)

3. Log onto the training database from the VMS ($) prompt.

   $**DSM ^ZU**

Username:	**[site username]**	Access:	**INTUSERH**
Password:	**[site password]**	Verify:	**INTUSERHV**
Area:	**A**		

4. Access the Background Process Entry/Edit (BPE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → FTM → BPE

   Confirm that the following background process is inactive: **ANATOMIC PATHOLOGY RECEIVER**

5. Return to the File and Table Menu.

6. Access the Transaction Type Entry/Edit (TTE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **FTM** → TTE

   Confirm that the following transaction type is inactive: **HL AP ORDER OUT (COTS)**

7. Exit CHCS and return to VMS.

8. Rerun the Interface Activation Utility (INHPSAM) and activate the APCOTS interface.

9. Log onto CHCS again and confirm that the interface has been activated.

> **CAUTION:** Be sure your interface is reactivated before proceeding with the class.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that your background process is active.

10. Return to the File and Table Menu.

Student 8 (continued)

b. Define Parameters for a New DBSS Installation

1. Access the Destination Entry/Edit (DE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **FTM** → DE

2. Select Interface Destination: **HL BLOOD BANK18**

3. Confirm addition of a new destination.

4. Complete the Interface Destination Definition screenform.

   Name: [selected name] <**Return>**
   Acceptance TT: **HL GIS ACCEPT ACKNOWLEDGEMENT**
   Retry Rate: **1M**
   Max # of Attempts: **3**
   Transceiver Routine: **INHVSEQ**
   Route ID: **0384**
   Primary Destination: **HL BLOOD BANK**
   Delivery Queue: **INLHDEST**

5. Exit CHCS and return to VMS.

6. Log onto CHCS in programmer mode.

   $**DSM**
   >**D P^DI**
   Select User Name: **INT,USERH**
   Select Option: **<Return>**
   > **D ^XQ1**

   Select Option Name: **Systems Manager Menu (EVE)**

7. Access the Background Process Entry/Edit (BPE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → FTM → BPE

8. Define a new destination.

   Select Background process: **DBSS RECEIVER 18**

9. Confirm addition of a new background process.

Student 8 (continued)

10. Complete the Background Process Entry/Edit screenform.

    Name: [selected name] **<Return>**
    Active: **A**
    Routine: **INHVTAPR**
    Destination: **HL LAB DBSS RESULT -IN**
    Destination Determination Code: **D DEST^INHVDBSS**
    Client/Server: **CLIENT**
    Client Addresses: **204.115.176.18**
    IP Port: **2018**
    Open Hang Time: **15**
    Open Retries: **3**
    Transmitter Hang: **10**
    Send Hang Time: **1**
    Send Retries: 1
    Read Hang Time: **10**
    Read Retries: **10**
    Read Timeout: **60**

11. File and exit the screenform.

    DBSS is a bidirectional interface. Under normal circumstances, you would also define a transmitter background process (DBSS TRANSMITTER *n*) for this destination.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that an entry has been added to the Interface Destination and Background Process Control files.

12. Return to the Interface Menu.

Student 9

Practice 1 - Define the GIS site parameters.

INSTRUCTIONS: This practice will take approximately 20 minutes. Follow the instructions below. Refer to Reference Materials, Background Processes and Transaction Types Associated With Each GIS Interface, for additional information.

Scenario: *You have just completed installation of a change package. Reactivate your interfaces using the Interface Activation Utility (INHPSAM). Additionally, one of your remote clinics has just installed an additional blood bank system. Define the destination and background process for selective routing to that system.*

a. Activate Interfaces

1. Initiate the Interface Activation Utility from the VMS ($) prompt.

   $**DSM EN^INHPSAM**
   Select Username: **INT,USERI**

Note to Student 9: You will be sharing an interface with another student. Coordinate activation/inactivation with the Student 2.

2. Inactivate an interface.

   Select Interface Application: **DBSS**
   Select Action: **DEACTIVATE**

   The system displays a warning that modifying the status of interfaces can have dramatic effects.

   Confirm that you wish to continue: **Y**

   Confirm that you are absolutely positive you wish to continue: **Y**

   Note the background processes and one transaction type from the displayed list.

Student 9 (continued)

3. Log onto the training database from the VMS ($) prompt.

   $**DSM ^ZU**

Username:	**[site username]**	Access:	**INTUSERI**
Password:	**[site password]**	Verify:	**INTUSERIV**
Area:	**A**		

4. Access the Background Process Entry/Edit (BPE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → FTM → BPE

   Confirm that the following background process is inactive: **ANATOMIC PATHOLOGY RECEIVER**

5. Return to the File and Table Menu.

6. Access the Transaction Type Entry/Edit (TTE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **FTM** → TTE

   Confirm that the following transaction type is inactive: **HL AP ORDER OUT (COTS)**

7. Exit CHCS and return to VMS.

8. Rerun the Interface Activation Utility (INHPSAM) and activate the DBSS interface.

9. Log onto CHCS again and confirm that the interface has been activated.

> **CAUTION:** Be sure your interface is reactivated before proceeding with the class.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that your background process is active.

10. Return to the File and Table Menu.

Student 9 (continued)

b. Define Parameters for a New DBSS Installation

1. Access the Destination Entry/Edit (DE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **FTM** → DE

2. Select Interface Destination: **HL BLOOD BANK19**

3. Confirm addition of a new destination.

4. Complete the Interface Destination Definition screenform.

   Name: [selected name] <**Return>**
   Acceptance TT: **HL GIS ACCEPT ACKNOWLEDGEMENT**
   Retry Rate: **1M**
   Max # of Attempts: **3**
   Transceiver Routine: **INHVSEQ**
   Route ID: **0384**
   Primary Destination: **HL BLOOD BANK**
   Delivery Queue: **INLHDEST**

5. Exit CHCS and return to VMS.

6. Log onto CHCS in programmer mode.

   $**DSM**
   >**D P^DI**
   Select User Name: **INT,USERI**
   Select Option: **<Return>**
   > **D ^XQ1**

   Select Option Name: **Systems Manager Menu (EVE)**

7. Access the Background Process Entry/Edit (BPE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → FTM → BPE

8. Define a new destination.

   Select Background process: **DBSS RECEIVER 19**

9. Confirm addition of a new background process.

Student 9 (continued)

10. Complete the Background Process Entry/Edit screenform.

    Name: [selected name] **<Return>**
    Active: **A**
    Routine: **INHVTAPR**
    Destination: **HL LAB DBSS RESULT -IN**
    Destination Determination Code: **D DEST^INHVDBSS**
    Client/Server: **CLIENT**
    Client Addresses: **204.115.176.19**
    IP Port: **2019**
    Open Hang Time: **15**
    Open Retries: **3**
    Transmitter Hang: **10**
    Send Hang Time: **1**
    Send Retries: 1
    Read Hang Time: **10**
    Read Retries: **10**
    Read Timeout: **60**

11. File and exit the screenform.

    DBSS is a bidirectional interface. Under normal circumstances, you would also define a transmitter background process (DBSS TRANSMITTER *n*) for this destination.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that an entry has been added to the Interface Destination and Background Process Control files.

12. Return to the Interface Menu.

Student 10

Practice 1 - Define the GIS site parameters.

INSTRUCTIONS: This practice will take approximately 20 minutes. Follow the instructions below. Refer to Reference Materials, Background Processes and Transaction Types Associated With Each GIS Interface, for additional information.

Scenario: *You have just completed installation of a change package. Reactivate your interfaces using the Interface Activation Utility (INHPSAM). Additionally, one of your remote clinics has just installed an additional blood bank system. Define the destination and background process for selective routing to that system.*

a. Activate Interfaces

1. Initiate the Interface Activation Utility from the VMS ($) prompt.

   $**DSM EN^INHPSAM**
   Select Username: **INT,USERJ**

Note to Student 10: You will be sharing an interface with another student. Coordinate activation/inactivation with the Student 3.

2. Inactivate an interface.

   Select Interface Application: **CLINICOMP**
   Select Action: **DEACTIVATE**

   The system displays a warning that modifying the status of interfaces can have dramatic effects.

   Confirm that you wish to continue: **Y**

   Confirm that you are absolutely positive you wish to continue: **Y**

   Note the background processes and one transaction type from the displayed list.

Student 10 (continued)

3. Log onto the training database from the VMS ($) prompt.

   $**DSM ^ZU**

Username:	**[site username]**	Access:	**INTUSERJ**
Password:	**[site password]**	Verify:	**INTUSERJV**
Area:	**A**		

4. Access the Background Process Entry/Edit (BPE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → FTM → BPE

   Confirm that the following background process is inactive: **ANATOMIC PATHOLOGY RECEIVER**

5. Return to the File and Table Menu.

6. Access the Transaction Type Entry/Edit (TTE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **FTM** → TTE

   Confirm that the following transaction type is inactive: **HL AP ORDER OUT (COTS)**

7. Exit CHCS and return to VMS.

8. Rerun the Interface Activation Utility (INHPSAM) and activate the CliniComp interface.

9. Log onto CHCS again and confirm that the interface has been activated.

> **CAUTION:** Be sure your interface is reactivated before proceeding with the class.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that your background process is active.

10. Return to the File and Table Menu.

Student 10 (continued)

b. Define Parameters for a New DBSS Installation

1. Access the Destination Entry/Edit (DE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **FTM** → DE

2. Select Interface Destination: **HL BLOOD BANK20**

3. Confirm addition of a new destination.

4. Complete the Interface Destination Definition screenform.

   Name: [selected name] <**Return>**
   Acceptance TT: **HL GIS ACCEPT ACKNOWLEDGEMENT**
   Retry Rate: **1M**
   Max # of Attempts: **3**
   Transceiver Routine: **INHVSEQ**
   Route ID: **0384**
   Primary Destination: **HL BLOOD BANK**
   Delivery Queue: **INLHDEST**

5. Exit CHCS and return to VMS.

6. Log onto CHCS in programmer mode.

   $**DSM**
   >**D P^DI**
   Select User Name: **INT,USERJ**
   Select Option: **<Return>**
   > **D ^XQ1**

   Select Option Name: **Systems Manager Menu (EVE)**

7. Access the Background Process Entry/Edit (BPE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → FTM → BPE

8. Define a new destination.

   Select Background process: **DBSS RECEIVER 20**

9. Confirm addition of a new background process.

Student 10 (continued)

10. Complete the Background Process Entry/Edit screenform.

    Name: [selected name] **<Return>**
    Active: **A**
    Routine: **INHVTAPR**
    Destination: **HL LAB DBSS RESULT -IN**
    Destination Determination Code: **D DEST^INHVDBSS**
    Client/Server: **CLIENT**
    Client Addresses: **204.115.176.20**
    IP Port: **2020**
    Open Hang Time: **15**
    Open Retries: **3**
    Transmitter Hang: **10**
    Send Hang Time: **1**
    Send Retries: 1
    Read Hang Time: **10**
    Read Retries: **10**
    Read Timeout: **60**

11. File and exit the screenform.

    DBSS is a bidirectional interface. Under normal circumstances, you would also define a transmitter background process (DBSS TRANSMITTER *n*) for this destination.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that an entry has been added to the Interface Destination and Background Process Control files.

12. Return to the Interface Menu.

■ Objective 2: MANAGE THE GIS TRANSACTIONS

Scenario: *You have had several transmission problems and need to check data in your UIF and queues. You need to find and edit a corrupted transaction, requeue some transactions, purge several transactions from the UIF, and mark other transactions complete. When complete, check the statistics for the interfaces.*

▲ DEMONSTRATE THE TRANSACTION CONTROL MENU (TCM) OPTION

- Access the Transaction Control Menu (TCM) option on the Interface Menu.

Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM

Discuss Options on the Transaction Control Menu

The Transaction Control Menu contains options to examine and modify interface transactions and view statistical data. You may also requeue or purge transactions. You will use the following options on the Transaction Control Menu:

– Inquire into Universal Interface File (IUIF)

– Interface Statistics Generator (STAT)

– Purge Transactions (PT)

– List Queued Transactions (LQT)

– Requeue a Transaction (RT)

– Edit an Interface Transaction (EIT)

– Mark Transaction Complete (MTC)

– Transaction Search (TS)

– Average Message Size (AMS)

– Throughput Analyzer (TRA).

This objective details all of these options.

❑ FIND AND EDIT A CORRUPTED TRANSACTION

Scenario: *Several transactions cannot be transmitted to one of your external systems. The link to the system is fine, but the transactions continue to be rejected by the external system, and return with an error status. Regenerating the transactions through the functionality does not help. The TMSSC has directed you to modify the transactions and resend them.*

▲ DEMONSTRATE THE TRANSACTION SEARCH (TS) OPTION

1. Access the Transaction Search (TS) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → TS

   This option allows you to view one or more messages in the UIF. The display generated by the Transaction Search (TS) option is the same as that generated by the IUIF option (covered below). The difference is that the Inquire into Universal Interface File (IUIF) option requires you to enter one specific message ID from a list of all messages in the UIF. You see a detailed display for that one message. The TS option allows you to enter a variety of selection criteria to be applied against all of the messages in the UIF. The criteria produces a reduced list, from which you can select one or more messages for detailed display.

- Refer to Figure 5-1: Search Criteria Screenform.

2. Complete the Search Criteria screenform.

   The Search Criteria screenform allows you to generate a detailed, exact search or a general comprehensive search, using any of the following criteria singly or in combination. Only enter criteria in those fields for which you want to select records. Any fields left blank will not be used to select records.

   Start date: **T-3**

   Enter the earliest date to be included on the report. A start date is required.

   End date: **T**

   Enter the latest date to be included on the report. No entry in end date assumes the current date.

```
                    *** Search Criteria ***
START DATE:  19 Jun 2001            END DATE:  21 Jun 2001

MESSAGE ID:                    DIRECTION:  OUT
DESTINATION:  MHCMIS           STATUS:  ERROR
SOURCE:
ORIGINATING TRANSACTION TYPE:

PATIENT:

MESSAGE TEXT TO SEARCH FOR:         EXPANDED DISPLAY:  YES



MESSAGE TEXT SEARCH MATCH TYPE:

LISTING ORDER:  Newest to Oldest



Select a Search Criteria, a Start Date MUST be entered (End Date
default=today)
```

FM-00771

Figure 5-1. Search Criteria Screenform

Message ID: **<Return>**

Enter the message ID, if known.

Direction: **OUT**

Enter the direction of the transaction, either IN or OUT.

Destination: **??**, then select **List of Values**

Enter the transaction destination from the Interface Destination file. Valid destinations include both external systems (Anatomic Pathology, HL DBSS, HL CliniComp, etc.) and internal CHCS files (HL ORPW RAD ORDER - IN, HL ORPW RX ORDER - IN, etc.).

Destination: **MHCMIS**

Status: **E**

Enter one of the following status codes, or press <Return> to select all statuses:

C **Complete**. The message was successfully sent to its destination, either local or remote. If an acknowledgment is required for this destination, then a Complete status indicates that the final required acknowledgment was received.

N **New**. The message has been received in the UIF, but the GIS has not yet attempted to transmit it to its destination.

P **Pending**. A nonfatal error occurred during a transmission attempt, and the transaction has been requeued to transmit at a later time.

S **Sent**. The message has been transmitted to its destination, and the GIS is awaiting an acknowledgment. This status does not apply to messages where the GIS does not expect an acknowledgment.

N **Negative Acknowledgment**. The destination system received the message, but was unable to process the message. This situation can be caused by a wide variety of problems. GIS troubleshooting will be covered later in this module.

A **Accept Acknowledgment**. CHCS expects an Application acknowledgment from the destination system, but has received only an Accept acknowledgment.

E **Error**. A fatal error occurred while transmitting this message. Refer to the Interface Error file for more detail.

Source: **<Return>**

You can enter the transaction source. This is a free-text field filled in by the Receiver process to identify the message source.

Originating Transaction Type: **??**, then select **List of Values**

A list displays of entries in the Interface Transaction Type file. Notice that the transaction types are descriptive of a functionality event.

Originating Transaction Type: **<Return>**

Patient: **<Return>**

You can enter the patient name in the format [last name], [first name], [middle initial].

Expanded display: **Y**

If you enter No, the date/time, message ID, and destination display. If you enter Yes, the above fields, as well as patient name display. The default is No.

Message Text to Search For: **<Return>**

You can enter a text string to be matched within the message. You can enter more than one text string.

Message Text Search Match Type: **<Return>**

If more than one text string is specified in the field above, you can also enter a message text search match type, as follows:

– **AND**. All strings must be found

– **OR**. Any one string must be found.

Listing Order: Newest to Oldest **<Return>**

Enter a message listing order of either N (newest to oldest) or O (oldest to newest). The default is Newest to Oldest.

3. File the data and exit the screenform: **File/exit**

   A list displays of the messages that meet the search criteria. From this screenform, you can obtain the message date/time, message ID, destination, and patient name. You can also select the messages for which you want to see additional detail.

- Refer to Figure 5-2: Search Criteria Display.

```
Date/Time          Message ID    Destination   Patient
21 Jun 2001@161711 trn89         MHCMIS        DOLAN,KARL JR
21 Jun 2001@161711 trn87         MHCMIS        DOLAN,JIM JR
21 Jun 2001@161659 trn75         MHCMIS        DOLAN,IKE JR
21 Jun 2001@161656 trn72         MHCMIS        DOLAN,HAROLD JR
21 Jun 2001@161654 trn70         MHCMIS        DOLAN,GLEN JR
21 Jun 2001@161639 trn56         MHCMIS        DOLAN,ERNEST JR
21 Jun 2001@161636 trn54         MHCMIS        DOLAN,DARNELL JR
21 Jun 2001@161633 trn47         MHCMIS        DOLAN,FRANK JR
21 Jun 2001@161622 trn38         MHCMIS        DOLAN,CHARLES JR
21 Jun 2001@161616 trn31         MHCMIS        DOLAN,BOB JR
21 Jun 2001@161614 trn30         MHCMIS        DOLAN,ALLAN JR
```

FM-00772

Figure 5-2. Search Criteria Display

4. Select all of the displayed messages: **<F11>**

   Messages that scroll off the screen are not selected.

5. Deselect all but a couple of the displayed messages.

   Move the cursor to the deselected messages, then press **<Select>**

6. Activate your selected messages: **<Return>**

7. Send the output to your screen.

- Refer to Figure 5-3: UIF Message Display.

```
Date/Time:  21 Jun 2001@161633 Msg ID:  trn47          Seq#:
        Destination:  MHCMIS
             Status:  ERROR
          Direction:  OUT  Priority:  7        Time to Process:  21 Jun 2001@1616
    Incoming Msg ID:
  Parent Message ID:
  Orig. Transaction:  HL DG REG OUT (MHC)
             Source:
  Acknowledge Req'd:  NO    Accept ACK Msg ID:
                            Applic ACK Msg ID:

      # of Attempts:                    Last Attempt Date/Time:  21 Jun 2001@1616
          Edited by:

MESSAGE TEXT:
MSH^\|~&^CHCS\ADT^8888^^^20010621161500^^ADT\A28^trn47^P^2.2^^^^
EVN^A28^^^
PID^1^^3763\\\8888^01/546-70-0234^DOLAN\FRANK\JR\\\^^19920614000000^M^^C^689
ART CENTER
DRIVE\\BALTIMORE\MARYLAND\
21201\\\^^410-555-7763^^^S^ABC^^100-10-6649^^^^^^^^4
025\USN FAM MBR AD\99PAT\\\
ZPI^1^^^^^^Y^^^^19990110^
ZPS^741\8888^DOLAN\FRANK\\\\^^N^86\LIEUTEANT\99RNK^^^Y^18857\DIRNAVCRIMIVSER
V\99USI^126 MAPLE STREET\\WASHINGTON\DISTRICT OF
COLUMBIA\20388\\\^202-555-2231
PV1^^O^^^^^^^^^
NK1^1^DOLAN\FRANK\\\\^^689 ART CENTER
DRIVE\\BALTIMORE\MARYLAND\21201^410-555-7763

              **** Activity Log ****
 Date                Status Set to                Replicated Message ID
 21 Jun 2001@161642  COMPLETE
Message:
```

FM-00773

Figure 5-3. UIF Message Display

Discuss the Fields

The display includes the following information:

– Message date and time

– Message ID or control number

– Destination to which the message was sent

– Message status. One of the message statuses (Complete, New, Pending, Sent, Negative Acknowledgment, Accept Acknowledgement, or Error) previously discussed.

– Direction of the transmission (OUT or IN)

– Time the message was to be sent/processed

– Incoming and parent message IDs

– Originating transaction type from the Interface Transaction Type file

– Source of inbound messages

– Number of times the GIS attempted to transmit the message

– Date and time of the last transmission attempt

– Message text. Each transaction type has a unique message format. Message delimiter conventions are packaged with the message itself so the receiving system can make sense of the data. Inbound CHCS messages use delimiters dictated by the external system, which can vary from system to system.

  Outbound CHCS messages use the following standard: HL7 message segments are separated by carriage returns. Since carriage returns do not display on the screen, when a line is wrapping and when it is the end of a segment is not obvious. Each segment is further broken down into fields, separated by carets (^). Each field may contain components, separated by a backslash (\). If any message element is empty, two delimiters display side by side.

  The message header starts with MSH, and contains the control segment of the message. In this example, CHCS/ADT identifies the sending application, and trn47 is the message identifier.

• Refer to the CHCS HL7 Implementation Specification for CHCS Version 4.5, for assistance reading the message text for a specific transaction type.

– Activity Log. An audit trail lists the date, time, and status for any activity that changes the status of the message, such as the following activities:

  * A transmission was attempted for this message.

  * The messages was requeued.

  * The message received an error.

  * The message was marked.

• Refer to CHCS HL7 Implementation Specification for CHCS, for additional assistance deciphering the contents of an HL7 message.

8. Scroll through the display: **<Return>**

   You may also press a caret (^) to abort the display. After all messages are displayed, or after the display is aborted, you return to the Search Criteria screen.

9. Exit the Search Criteria screen: **<F10>**, then select **Abort.**

   You return to the Transaction Control Menu.

▲ DEMONSTRATE THE EDIT AN INTERFACE TRANSACTION (EIT) OPTION

1. Access the Edit an Interface Transaction (EIT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → EIT

   This option allows you to edit the text of a transaction in the UIF. If not used properly, this option can corrupt your data and the data on the destination system. This option should only be used under direction from the TMSSC.

   A message may get corrupted, causing transmission problems and halting the transmission of all messages in the queue behind the corrupted message. In this case, you should preferably resolve the transmission problem, delete the corrupted message through the MTC option, then regenerate the corrupted message through the originating functionality. This ensures that all transmitted data is complete and synchronized; i.e., patient registration is sent before patient admission.

   However, if you cannot regenerate the message through the functionality, and you know which portion of the message text is corrupted, you may decide to edit and requeue the corrupted message through the EIT option.

   This option should only be used on transactions that have not yet been sent. Once the transaction is edited, you are prompted to requeue the transaction for transmission.

   You must have the INH MESSAGE EDIT security key to use this option.

2. Select Transaction to Edit: **trn30**

   The transaction text displays after the heading Transaction Message Text. Notice that the first zip code is preceded by extra spaces. Notice also that carriage returns now display.

- Refer to Figure 5-4: Edit Transaction Screen.

3. Edit the transaction by removing the blank spaces in the first zip code field.

   The zip code should be flanked on both sides by a backslash.

4. Save your changes: <**Do**>

```
TRANSACTION MESSAGE TEXT:
 MSH^\|~&^CHCS\ADT^8888^^^20010621161500^^ADT\A28^trn30^P^2.2^^^^|CR|
 EVN^A28^^^|CR|
 PID^1^^3758\\\8888^01/546-20-0354^DOLAN\ALLAN\JR\\\^^19920103000000^M^^C^689
 BURR
 AVE\\BALTIMORE\MARYLAND\
 21201\\\^^410-555-5682^^^S^ABC^^100-10-6680^^^^^^^^40 2
 5\USN FAM MBR AD\99PAT\\\|CR|
 ZPI^1^^^^^^Y^^^^19990110^|CR|
 ZPS^736\8888^DOLAN\ALLAN\\\\^^N^86\LIEUTENANT\99RNK^^^Y^18857\DIRNAVCRIMINVSER
 V\99USI^126 MAPLE STREET\\WASHINGTON\DISTRICT OF
 COLUMBIA\20388\\\^202-555-4865|CR|
 PV1^^O^^^^^^^^^^|CR|
 NK1^1^DOLAN\ALLAN\\\\^^689 BURR AVE\\BALTIMORE\MARYLAND\21201^410-555-5682|CR|
```

FM-00774

Figure 5-4. Edit Transaction Screen

5. Requeue the transaction for transmission to its destination.

   Requeue for Output? YES// **<Return>**

   Enter a Message to Requeue: **trn30**

   The Interface Message Requeue screenform displays, with the selected message displayed and already selected (marked by an asterisk). This is the same screenform viewed through the Requeue a Transaction (RT) option, which is covered in the next subobjective.

6. Requeue the transaction: **<F19>**

   Time to Process: NOW// **<Return>**

   Priority: 0// **<Return>**

   Enter a priority from 0 to 10, with 0 the highest priority. The priority may be expanded to two decimal places. The transaction is requeued according to your criteria. These prompts are covered in the next subobjective.

7. Send the output to your screen.

   A message displays that the message was requeued.

8. Enter a Message to Requeue: **<Return**>

   You return to the Transaction Control Menu.

▲ DEMONSTRATE THE INQUIRE INTO UNIVERSAL INTERFACE FILE (IUIF) OPTION

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → IUIF

   The IUIF option allows you to view a single message in the UIF. The text of a message can be useful when troubleshooting, as many problems with message transmission are caused by the text of the message. For example, the GIS may generate an error on a specific message ID. Use the message ID to view the message through the IUIF option, then locate the patient name, order number, lab test, or other information indicating the source of the message. With that information, you can tell the functional supervisor to regenerate the message through the CHCS functionality.

   The following GIS troubleshooting options display the message ID, and may precipitate the need to view a message through IUIF: Transaction Search (TS), List Queued Transactions (LQT), Top Entries in Queue (TOP), List Interface Errors (LIE), Error Search/Sort/Print (ES), and Error Message Summary (EMS). These options are discussed later in this module.

2. Select interface message: **trn30**

   Enter the message ID.

3. Send the output to the screen.

   The same detailed data displays for the selected message as is seen through the Transaction Search (TS) option, including the Activity Log. Notice that the zip code was changed through the Edit an Interface Transaction (EIT) option. Notice that, because the message was requeued, its status has changed to Pending, and the Activity Log now includes an entry indicating that the transaction was requeued.

4. Scroll through the display: **<Return>**

5. Return to the Transaction Control Menu.

❑ REQUEUE TRANSACTIONS THAT WERE NOT TRANSMITTED

Scenario: *The link to your CliniComp system was briefly interrupted, resulting in lost and corrupted transmissions. The CliniComp manager confirmed that the external system did not receive the data. Determine whether the transaction is still in the transmitter queue (INLHDEST). If not, requeue the transaction to CliniComp.*

DISCUSS TRANSACTION QUEUES

The GIS has the following transaction queues:

– **INLHSCH**. Contains inbound or MDIS transactions waiting to be processed from the UIF into a CHCS database by the Output Controller. MDIS uses this queue because it has no transmitter process; the destination pulls MDIS data from the GIS.

– **INLHDEST**. Holds outbound transactions waiting to be processed out of the UIF by the Background Transmitter processes for each interface. Each interface process has a subqueue within INLHDEST. Note that Receiver processes do not have a queue.

– **INLHFTSK**. Contains outbound transactions waiting to be processed from CHCS into the UIF by the Format Controller. The List Queued Transactions display does not include entries from this queue.

• Refer to Figure 5-5: GIS Detailed Process Flow Diagram, and discuss the components and their relationships.

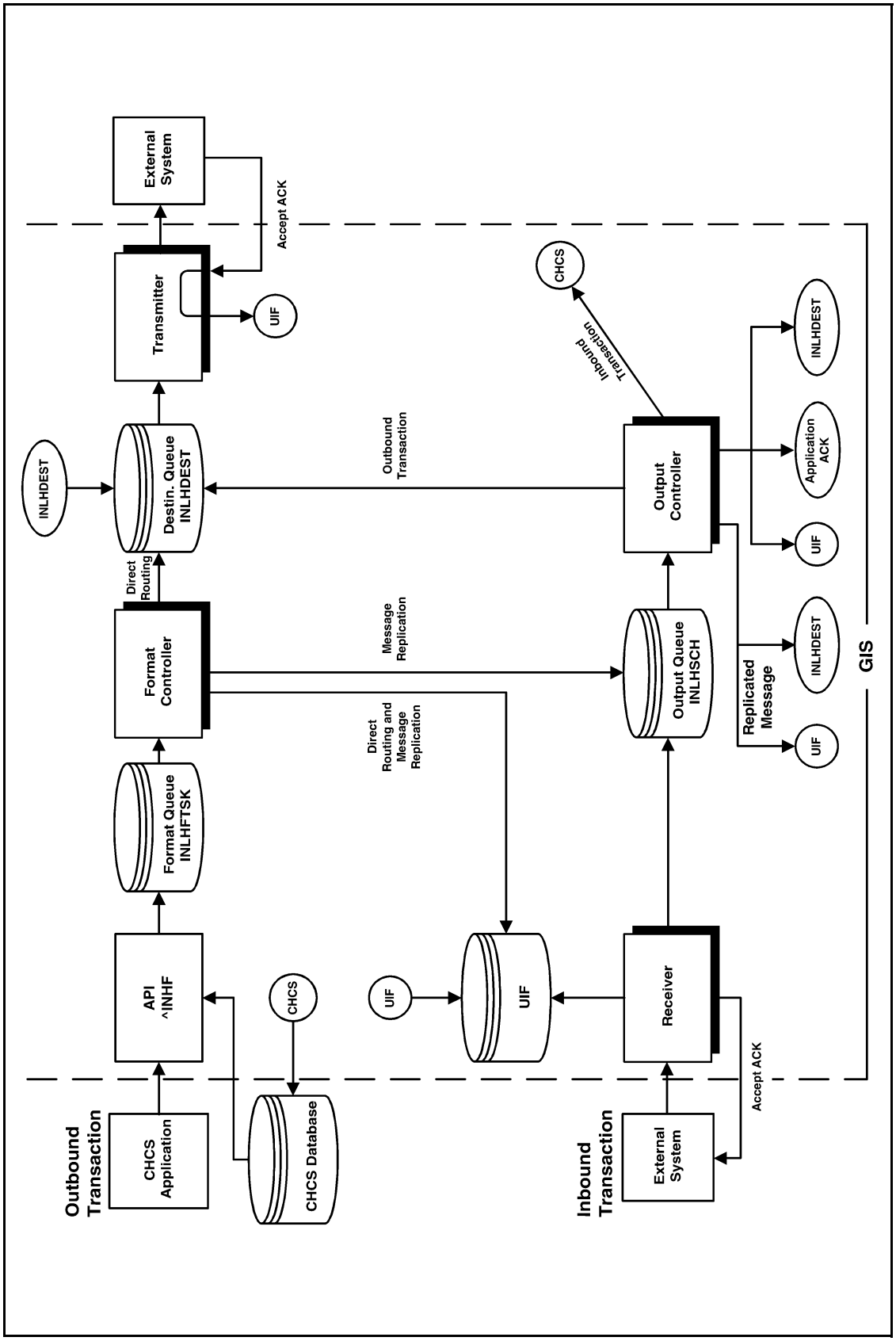

Figure 5-5. GIS Detailed Process Flow Diagram

▲ DEMONSTRATE THE LIST QUEUED TRANSACTION (LQT) OPTION

1. Access the List Queued Transaction (LQT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → LQT

   This option allows you to view all transactions in the INLHSCH queue or the INLHDEST queue that are awaiting transmission, and that also meet the selection criteria entered in the List Queued Transaction screenform. Only transactions with a New or Pending status reside in these queues.

- Refer to Figure 5-6: List Queued Transaction Screenform.

2. Complete the List Queued Transaction screenform.

   You may enter criteria for many of the same fields as in the Interface Statistics Generator (STAT) option. You may select transactions based on whether values in the following fields match your criteria.

```
      *** List Queued Transaction - Selection Criteria ***

  Start Date:  21 Jun 2001           End Date:  21 Jun 2001

   Direction:                 Cut Off Priority:

 Destination:

       Queue:

    Detailed:  YES









File/exit  Abort  Edit
```

FM-00775

Figure 5-6. List Queued Transaction Screenform

Start date: **T-2**

Enter the date of the first transaction date to be selected.

End Date: **T**

Enter the date of the last transaction date to be selected.

Direction: **<Return>**

Enter the transaction direction (IN or OUT). Press <Return> for both directions.

Cut Off Priority: **<Return>**

The highest queue priority to be included on the report. Entries with a priority higher than this priority are omitted from the report.

Destination: **<Return>**

Select a message destination from the Interface Destination file.

Queue: **<Return>**

Select the name of the queue to be searched: either INLHSCH or INLHDEST. Press <Return> to select all queues.

Detailed: **Y**

Enter Yes for a detailed report, or No for a brief report. A brief report includes the date/time, priority, message ID, and destination for the transaction. A detailed report includes the same information, plus the status and transaction type.

3. File your criteria and exit the screenform. **File/exit**

4. Send the output to your screen.

- Refer to Figure 5-7: List Queued Transaction Report.

Discuss the Display

The report displays data by queue, with INLHSCH first, and INLHDEST next. The INLHSCH queue contains transactions to be replicated. They show a destination of HL REPLICATOR. If all destinations were selected, the report groups data by destination. The following information is displayed:

– The selection criteria entered in the List Queued Transaction screenform

– The processing date/time, processing priority, status, message ID, destination, and transaction type for all entries in the queue that met your selection criteria. Clinical messages are set to the highest priority, 0. Master File Notifications (MFNs) are sent before new orders.

Messages are grouped by queue name. If both INLHDEST and INLHSCH queues were selected, messages display first from the INLHSCH queue, then from the INLHDEST queue. Notice that the message date/time starts over when the INLHDEST queue entries begin. To see messages for one queue or the other, select only one queue in the List Queued Transaction screenform.

```
TRAINING MEDICAL TREATMENT FACILITY                        21 Jun 2001@1902 Page 1

                          List Queued Transaction Report
             From: June 19, 2001@0000       To: June 21, 2001@2400
                                Queue: INLHSCH
Selection Criteria:
Queue:              All
Cut Off Priority:   All
Direction:          All
Destination:        ALL
Detailed:           Yes

 Date/Time Prio Status  ID      Destination / Tran. Type
-------------------------------------------------------------------------------
06/21@16:17  0  NEW     trn79   HL REPLICATOR
                                HL DG REG OUT (REP)
06/21@16:17  0  NEW     trn80   HL REPLICATOR
                                HL DG REG OUT (REP)
06/21@16:17  0  NEW     trn83   HL REPLICATOR
                                HL DG REG OUT (REP)
               End of queue     INLHSCH

Press <RETURN> to continue.

TRAINING MEDICAL TREATMENT FACILITY                        21 Jun 2001@1902 Page 2

                          List Queued Transaction Report
               From: June 19, 2001@0000     To: June 21, 2001@2400
                                Queue: INLHDEST
 Date/Time Prio Status  ID      Destination / Tran. Type
-------------------------------------------------------------------------------

DESTINATION:  HL DBSS
06/21@15:54  0  NEW    trn127   HL DBSS
                                HL DG UPDATE PATIENT OUT (BB)
06/21@15:54  0  NEW    trn131   HL DBSS
                                HL DG UPDATE PATIENT OUT (BB)
06/21@15:54  0  NEW    trn135   HL DBSS
                                HL DG UPDATE PATIENT OUT (BB)
```

FM-00776

Figure 5-7. List Queued Transaction Report

Under normal circumstances, when CHCS is connected to external systems, the proper background processes process transactions in these queues. The queues should contain only one or two transactions. If a queue begins to accumulate transactions, either the interface transmitter or the Output Controller process may be down.

5. Scroll through the display: **<Return>**

6. Return to the Transaction Control Menu.

▲ DEMONSTRATE THE REQUEUE A TRANSACTION (RT) OPTION

1. Access the Requeue a Transaction (RT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → RT

   This option allows you to requeue a transaction in the UIF for output processing to either an external system (the INLHDEST queue), or to a database within CHCS (the INLHSCH queue).

   If not used properly, this option can corrupt your data and the data in the destination system. This option should only be used under direction from the TMSSC.

   The GIS automatically tries to resend a failed transmission, up to the maximum number of retries specified in the Interface Site Parameters file. If a transmission problem occurs and the maximum number of retries is exceeded, you should try to resolve the transmission problem, then regenerate the data through the originating functionality. This ensures that all transmitted data is complete and synchronized; i.e., patient registration is sent before patient admission.

   However, if you cannot regenerate the data through the functionality, you may need to requeue the transaction through the RT option. Before requeuing a transaction, confirm that the transaction has not been resent by the functionality. If it has and you requeue the older transaction, you will overwrite current data on the destination system with outdated data.

   Typically, transactions that are requeued have either an Error or Negative Acknowledgment status. A Negative Acknowledgment is delivered in lieu of an Application Acknowledgment, but not an Accept Acknowledgment. However, any message can be requeued. Once

requeued, the message status is changed to Pending, and an entry is added to the Activity Log for the requeued message.

The system allows you to requeue a message that is already in either the INLHSCH or INLHDEST queues. The old queue entry is replaced with the new queue entry.

Note that requeuing a transaction through the Requeue a Transaction (RT) option does not reset the number of attempted retries. Therefore, if the manual requeue does not work, the transmission is not retried.

2. Enter a Message to Requeue: **</>**

   Enter the message ID to requeue a single message, or enter a forward slash (/) to select and requeue multiple messages. The system displays the same Search Criteria screenform used for the Transaction Search (TS) and Mark Transaction Complete (MTC) options. The system uses the criteria in this screenform to generate a list of transactions in the UIF for further selection.

3. Complete the Search Criteria screenform.

   Start Date: **T-2**

   A start date is mandatory.

   End Date: **T**

   Destination: **HL CLINICOMP**

   Status: **K**

4. File the data and exit: **<Do>**

   A list displays of the transactions in the UIF that meet your selection criteria.

5. Select the transaction to requeue: **trn34** and **trn35**

   Use the arrow keys to position the cursor next to the message you want to requeue, then press **<Select>**

6. Activate the transactions selected for requeue: **<F19>**

   You may activate the requeue using one of the following options:

<F17> — **Existing**. Selected transactions are immediately requeued. You are not prompted for a time to process or a processing priority.

<F18> — **Single**. You are prompted for one time to process and one processing priority for all messages.

<F19> — **Unique**. You are prompted for a time to process and a processing priority for each message.

7. Specify the time and priority level for each transaction.

   Message: [date/time, ID, destination]

   Time to process: NOW// **<Return>**

   Priority: 0// **7**

   Enter a processing priority from 0 to 10. The highest priority is 0, and is processed before any messages with lower priorities. The priority may have up to two decimal places.

   If the message is already in the queue, a message displays with the queue time and priority. You are prompted whether to delete the existing queue entry and requeue the transmission.

   Message: [date/time, ID, destination]

   Time to process: NOW// **<Return>**

   Priority: 0// **7**

8. Send the output to your screen.

   The message displays:

   trn35: Message requeued

   trn34: Message requeued

9. Press **<Return>** to continue.

   The Interface Message Requeue screenform displays.

10. Exit the screenform. **<F10>**

11. Return to the Transaction Control Menu.

Verify That The Transactions Have Been Requeued

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → IUIF

2. Select Interface Message: **trn34**

3. Send the output to your screen.

   Notice that the status has been changed to Pending. Scroll to the Activity Log, and notice that it identifies the date and time the transaction was requeued, as well as the user who requeued the transaction. It also shows that the status has been set to Pending.

4. Select Interface Message: **trn35**

5. Send the output to the screen.

6. Scroll through the display until you reach the Activity Log.

   Notice the entry indicating that the transaction was requeued.

7. Return to the Transaction Control Menu.

❑ MANAGE TRANSACTIONS

Scenario: *Your system is having problems with disk storage utilization that you think may be related to the interfaces. Perform some basic maintenance operations, then review system performance and statistics.*

▲ DEMONSTRATE THE PURGE TRANSACTIONS (PT) OPTION

1. Access the Purge Transactions (PT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → PT

   Transactions in the UIF are eligible for deletion if they have been in the UIF for longer than the number of days specified in the Interface Site Parameters file. This parameter is defined in the field Number of Days to Retain Transactions and Errors. The default value for this field is 14 days.

Transactions older than the retention value are automatically deleted each night by the INH AUTOPURGE process. This process is scheduled through TaskMan.

In the event that the INH AUTOPURGE process was unable to complete, the PT option allows you to manually purge interface transactions in the UIF older than the number of days you specify.

You must have the INH SITE MANAGER security key to use this option.

2. Select status of transactions to purge: **C** (COMPLETE)

   You can only purge transactions with a status of Error, Complete, or Negative Acknowledgment. A background job is created to purge transactions that satisfy the designated criteria.

3. Enter number of days to keep transactions: 14// **<Return>**

   Enter the number of days to retain transactions before being purged. The age of the message is calculated from the Last Activity Date field. The default number of days to hold transactions is defined in the Site Parameters file.

4. Enter at OK to proceed? YES// **<Return>**

5. Specify a time to begin the process.

   Requested start time: NOW// **<Return>** (21 Jun 2001@1529)

   Enter the time for the purge process to begin.

   The message displays: Request QUEUED!

   You return to the Transaction Control Menu.

▲ DEMONSTRATE THE MARK TRANSACTION COMPLETE (MTC) OPTION

1. Access the Mark Transaction Complete (MTC) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → MTC

   This option allows you to change the status of one or more transactions to Complete, then select whether to delete the transaction(s) from the

transmission queue (either INLHDEST or INLHSCH). A transaction with a status of Error or Complete will not be in either of these queues. Changing the status of a transaction from Error to Complete deletes the transaction from the Error List. The MTC option also generates an entry in the Activity Log for that message.

The GIS automatically changes message status to Complete, and deletes the message from the appropriate queue, when all message activities have been performed. For interfaces where the GIS expects an acknowledgment, the final acknowledgment must be received before the GIS marks the message Complete. For interfaces where the GIS does not expect an acknowledgment, the message only has to be transmitted to be marked Complete.

If messages are not changing status and being deleted from the transmission queue, determine why. The message destination may be bad, or the destination system may be down or unable to accept transmissions.

If the message status cannot be reconciled by correcting the source of the problem, and this message is holding up transmission of other messages in the queue, you may need to manually change the message status to Complete to close the transaction and delete it from the transmission queue. The message must be regenerated using the originating functionality.

No options can purge transmissions from the queues. Messages that are not transmitting remain in the queue until marked Complete (either manually, or by the GIS). At that time, they are automatically deleted. You can mark a message Complete that has any status, including Complete.

The MTC option can be used as an alternative to editing and requeuing a corrupted transaction through the Edit on Interface Transaction (EIT) option.

This option requires the INH MESSAGE EDIT security key. This option should only be used under direction from the TMSSC. If not used properly, this option can delete queued data that should otherwise be sent to a destination system.

2. Select Transaction to Mark Complete: **< / >**

Enter the message ID to mark a single transaction Complete, or enter a forward slash (/) to select and mark multiple transactions Complete. The

system displays the same Search Criteria screenform used by the Requeue a Transaction (RT) and Transaction Search (TS) options.

3. Complete the screenform.

   Start Date: **T-3**

   End Date: **T**

   Typically, you would search for transactions older than three days. Any transactions that have been in the queue for fewer than three days may still be waiting for transmission.

   Destination: **ANATOMIC PATHOLOGY**

   Status: **P**

4. File the data: **<Do>**

   A list of messages displays that meet your criteria.

5. Select the message to mark Complete: **trn85**

   Press **<Select>**.

   Activate the selected transaction: **<Return>**

   The following information displays for each selected transaction:

   – Queue name

   – Date/Time to be processed

   – Message ID

   – Status

   – Number of attempts at transmitting that message

   – Message source and destination.

   For transactions with a prior status other than Error or Complete, you are prompted to delete the transaction from the INLHDEST queue. This queue holds transactions waiting for transmission by their interface transmitter process.

6. Enter at OK to Delete from queue? NO// **Y**

7. Send the output to your screen.

   The system deletes the transactions from the INLDEST queue, then displays the following message:

   trn85: Removed from queue, marked complete

   The Transaction Control Menu displays.

❑ DISPLAY STATISTIC, MESSAGE SIZE, AND THROUGHPUT DATA

Scenario: *You have resolved several interface problems. Confirm the health of your interface system by reviewing sample statistics for specific messages statuses and destinations.*

▲ DEMONSTRATE THE INTERFACE STATISTICS GENERATOR (STAT) OPTION

1. Access the Interface Statistics Generator (STAT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → STAT

   This option provides a statistical evaluation of interface transactions in the UIF. The option reports the number of transactions that meet the criteria you have defined for specific UIF fields, for example, the number of transactions with a particular destination or status.

- Refer to Figure 5-8: Statistical Report Definition Screenform - UIF.

Discuss the Display

You may define the following criteria for selecting data in the UIF to be tallied:

– **Order**. Enter the sort order by which the records are selected and sorted. The Date/Time field must be the first sort criteria.

– **From**. Enter the beginning range for values in this field. The range must match the format of the data in this field. For example, if entering a range for a date field, the range must be in one of the acceptable date/time formats.

```
            STATISTICAL REPORT DEFINITION
             Universal Interface File
Order Field Name              From       To         Count

   DATE/TIME
   DESTINATION
   STATUS
   SOURCE
   IN/OUT
   ORIGINATING TRANSACTION T
   ATTEMPTS
   LAST ACTIVITY DATE
   PRIORITY
   COMPUTED DATE

FILE/EXIT = F17   Hd/Ft = F19     Exit = F20
```

FM-00777

Figure 5-8. Statistical Report Definition Screenform - UIF

– **To**. Enter the ending range for values in this field. The guidelines for the From field apply to this field as well.

– **Count**. Select whether or not you want to talley the number of entries whose field value matches your defined range. If Yes, subcounts for all entries within this category display. If No, those subcounts are omitted from the report.

You may select and sort ranges of data from the following fields in the UIF. Only data that meets all the selected criteria displays. The range is inclusive of the From and To value. If you are not sure of the allowed values in a field, enter (??) in the From or To field.

– **Date/Time.** Date and time the transaction was created. You must select this field, and use it as your first sort criteria.

– **Destination.** Message destination from the Interface Destination file (for example, Anatomic Pathology, HL CliniComp, etc.).

– **Status.** The same message statuses can be selected here as in the Transaction Search (TS) option.

– **Source.** Source of the message.

– **In/Out**. Either IN or OUT.

– **Originating Transaction Type**

– **Attempts.** Number of times that the background process attempted to process the transaction.

– **Last Activity Date.** The last time that any activity occurred with this transaction. The only activity not logged is when the message was initially placed in the UIF.

– **Priority.** Queue-processing priority.

– **Compute Date.** Date the message was created. This field contains the date only; not the time.

2. Complete the Statistical Report Definition screenform.

   Date/Time:

   Order: **1**
   From: **T-10**
   To: **T**
   Count: **Y**

   Destination:

   Order: **3**
   From: **A**
   To: **Z**
   Count: **Y**

   Status:

   Order: **2**
   From: **C**
   To: **C**
   Count: **Y**

3. File your selection criteria: **<F17>**

4. Send the output to your screen.

- Refer to Figure 5-9: Universal Interface Statistics Report.

Discuss the Display

The option displays the number of records in the UIF that meet each criteria defined in the Statistical Report Definition screenform; in this case, the number of

records to all destinations received within the last 10 days with a status of Complete.

The report includes a talley of records from each criteria for which you selected Count: Yes. It also totals the number of records that met all criteria.

5. Return to the Transaction Control Menu.

```
TRAINING MEDICAL TREATMENT FACILITY         21 Jun 2001@1649  Page1


             UNIVERSAL INTERFACE STATISTICS
          From:   11 Jun 2001   To:   21 Jun 2001

-----------------------------------------------------------------------
  Field Name                                                    Count
-----------------------------------------------------------------------
By :  STATUS :  C - C
   DESTINATION :  A - Z

  DATE/TIME :  21 Jun 2001
     STATUS :  COMPLETE
     DESTINATION :  ANATOMIC PATHOLOGY                            1
                    HL MDIS                                     342
                    HL REPLICATOR                               616
                    MHCMIS                                      607
                                                             ------
     STATUS SUBTOTAL :  COMPLETE                               1565

  DATE/TIME SUBTOTAL :  21 Jun 2001                            1565


  REPORT TOTAL                                                 1565

                      *** End of Report ***
```

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Figure 5-9. Universal Interface Statistics Report

▲ DEMONSTRATE THE AVERAGE MESSAGE SIZE (AMS) OPTION

1. Access the Average Message Size (AMS) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → AMS

   This option allows you to view statistics on the average and total message sizes for one or more destinations. The option displays statistics for each transaction type associated with the selected destination(s).

2. Select Interface Destination Name: **HL MDIS**

   Enter the destination for which you want to see statistics.

3. Select Interface Destination Name: **<Return>**

   You can select messages for more than one destination.

4. Enter date range:

   Starting Date: **T-10**

   Ending Date: **T**

   The system displays the number of records that meet your criteria and will be statistically analyzed.

5. Send the output to your screen.

- Refer to Figure 5-10: Average Message Size Report.

Discuss the Display

Each transaction type displays in the left column. The following statistics display for each transaction type. Some statistics display on the first line of the transaction type; some display on the second line.

Average (Bytes)	Average sizes, in bytes, of three transaction components: entire transaction, message section, and control section.
TotSize	Average size for an entire transaction (Total message size + Total control size / count).

```
                          Interface message size report
        From:  June 11, 2001@0000   To:  June 21, 2001@2400

Destination:  HL MDIS

-------------------------------------------------------------------------------
                         ----Average(Bytes)----        ---Totals (KBytes)---
Transaction Type        TotSize MsgSize CtlSize Count TotSize MsgSz CtlSz
                                                %ofTot  %GTot %TotM %TotC
-------------------------------------------------------------------------------

HL DG REG OUT (MDIS)       643     571     72     10      6     6       1
                                                  24%    20%  100%     17%

HL DG UPDATE OUT (MDIS)    478     367     111     1      0     0       0
                                                   2%     0%    *%      *%

HL MASTER FILE NOTIFICATION(MDIS)269  160  110     2      1     0       0
                                                   5%     3%    0%      0%

HL PSO NEW PRESCRIPTION     871    740     131     3      3     2       0
                                                   7%    10%   67%      0%

HL RAD ARRIVAL (MDIS)       768    657     111     2      2     1       0
                                                   5%     7%   50%      0%

HL RAD ORDER (MDIS)         796    686     110     2      2     1       0
                                                   5%     7%   50%      0%

HL RAD RESULTS (MDIS)      1467   1358     110     3      4     4       0
                                                   7%    14%  100%      0%

HL RAD SCHEDULE (MDIS)      731    620     111     2      1     1       0
                                                   5%     3%  100%      0%
                            ---    ---     ---    --     --   ---       -
TOTAL                       717    628      89    41     29    26       4
```

FM-00779

Figure 5-10. Average Message Size Report

MsgSize — Average size for the message section of a transaction (Total Bytes in a message / count).

CtlSize — Average size for the control section of a transaction (Total Bytes in the control / count).

Count — Total number of transactions analyzed within this transaction type.

%ofTot	Percentage of the message count for this transaction type, to the message count for all transaction types on this report (Count / Total Count).
Totals (KBytes)	A sum, in kbytes, of the sizes of the same three transaction components: entire transaction, message section, and control section.
TotSize	Total number of kbytes for all messages with this transaction type.
%GTot	Percentage of total size for this transaction type, to the total transaction size for all transaction types on this report (TotSize / Grand TotSize).
MsgSz	Total number of kbytes for all messages with this transaction type when measuring the size of only the message section of the transaction.
%TotM	Percentage of the total message size for this transaction type, to the total message size for all transaction types on this report (Totm/Gtot).
CtlSz	Total number of kbytes for all messages with this transaction type when measuring the size of only the control section of the transaction.
%TotC	Percentage of total control size for this transaction type, to the total message size for all transaction types on this report (TotC/ Gtot).

The bottom of the report includes an explanation of the report headings.

7. Scroll through the report: **<Return>**

   You return to the Transaction Control Menu.

▲ DEMONSTRATE THE THROUGHPUT ANALYZER (TRA) OPTION

1. Access the Throughput Analyzer (TRA) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → TRA

   This option allows you to determine if you have bottlenecks in any of your interface links. It gives you a count of the messages created and

transactions transmitted to the selected location for the selected date range. The counts are also graphically represented to allow quick comparison between the number of messages created and transmitted.

2. Select Interface Destination Name: **MHCMIS**

   Enter a destination, or press <Return> to select all destinations.

3. Select Interface Destination Name: **HL MDIS**

   You may select more than one destination.

4. Select Interface Destination Name: **<Return>**

5. Select a date range.

   Starting Date: **T**

   Ending Date: **T**

   Enter a range of message creation dates. The report displays throughput for every time interval in your selected date range. You select a time interval below. Consequently, you should balance your time interval with your date range; if you select a large date range and a small time interval, you will have a huge report.

6. Enter at Status: **<Return>**

   Select a status (New, Pending, Sent, Complete, Error, Negative Ack, or Accept Ack), or press <Return> to accept all statuses.

7. Enter at Detailed: NO// **Y**

   If you enter Yes, throughput by message status, then destination, then time interval display. If you select No (the default), throughput is grouped by destination, then time interval.

8. Enter at Time Interval: 60// **180**

   Enter the time interval, in minutes, for which you want to see data. The default is 60 minutes, meaning that you see throughput for every hour throughout the date range selected above. The minimum time interval is 1 minute. Balance the size of your time interval with your date range.

   The option displays a summary of your selection criteria, along with a report length.

If the displayed criteria and length are acceptable, press **<Return>** to continue with the report.

9. Send the output to your screen using 132 columns.

   Queue on Device: **0;132**

- Refer to Figure 5-11: Throughput Analyzer Report.

```
TRAINING MEDICAL TREATMENT FACILITY          21 Jun 2001@1441 Page 1


           Throughput analyzer report - Detailed
        From:  June 21, 2001@0000   To:  June 21, 2001@2400
        Status:  NEW, PENDING, SENT (Awaiting Acknowledge)
        COMPLETE, ERROR, NEGATIVE ACKNOWLEDGED, ACCEPT ACK
Destination:
       MHCMIS
       HL MDIS

Divisor:  (*) 25
Time interval:  3Hr

-------------------------------------------------------------------------------
 Date  Time   Destination            Status
                                     Creation Rates       Transmission Rates
-------------------------------------------------------------------------------
06/21/01 0900-1159                          264 ***********    ******** 183

                MHCMIS                      143 ******              **** 86
                                     A        0                            0
                                     C      103 *****                *** 53
                                     E       11 *                       * 11
                                     K        0                            0
                                     N       29 **                      * 22
                                     P        0                            0
                                     S        0                            0

                HL MDIS                     121 *****               **** 97
                                     A        0                            0
                                     C      121 *****               **** 97
                                     E        0                            0
                                     K        0                            0
                                     N        9                            0
                                     P        0                            0
                                     S        0                            0
[repeats for each time interval]
                                  *** End of Report ***
```

FM-00780

Figure 5-11. Throughput Analyzer Report

Discuss the Display

The Throughput Analyzer Report displays the following data for all transactions that meet the specified criteria. If you selected Detail, the data is sorted by Date/Time, Destination and Status. If you did not select Detail, the data is broken down by only Date/Time and Destination.

- **Selection criteria**. Includes the date range, status, and destination.
- **Divisor**. Amount represented by each asterisk. The system calculates the divisor based on the size of the statistics and the number of asterisks that fit on a line.
- **Time interval.** Time interval that was selected above.
- **Date/Time.** Date and time for the displayed throughput. Entries display for every time interval and for every date in your selection criteria.
- **Destination**. Destination to which these statistics apply.
- **Status**. If a detailed report was selected, the system sorts statistics by message status: (A)ccept ack, (C)omplete, (E)rror, negative ac(K)nowledged, (N)ew, (P)ending, and (S)ent.
- **Creation Rates.** Number of messages created for each interface during the selected time range. The number of messages is represented graphically by asterisks. The number of asterisks depends on the divisor listed at the top of the report. If a detailed report is selected, the number of created messages is grouped by status.
- **Transmission Rates**. Number of messages that have been transmitted for each interface during the selected time range. The number of messages is represented graphically by asterisks. If a detailed report was selected, the number of transmitted messages is grouped by status.

10. Scroll through the display: **<Return>**

    You return to the Transaction Control Menu.

11. Return to the Interface Menu.

Practice 2 - Manage the GIS transactions.

PRACTICE

Student 1

Practice 2 - Manage the GIS transactions.

INSTRUCTIONS: This practice will take approximately 20 minutes. Follow the instructions below.

Scenario: *You have had several interface problems today. MHCMIS is reporting errors on corrupted messages received from CHCS. Those transactions must be edited and requeued. CliniComp is returning negative acknowledgments. The hardware specialist located and replaced a failing hardware component between CHCS and CliniComp. View, then requeue appropriate CliniComp transactions waiting in the queues. CoPath received some corrupt patient data and is unable to process several test requests. Change transaction status from pending to complete for the appropriate messages, then delete the messages from the transmission queues. Finally, review activity statistics to determine the health of the interface system, then view throughput for the MDIS and MHCMIS interfaces.*

a. Find and Edit a Corrupted Transaction

1. Access the Transaction Search (TS) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → TS

2. Complete the Search Criteria screenform.

   Start date: **T-2**
   End date: **T**
   Direction: **OUT**
   Destination: **MHCMIS**
   Status: **E**
   Expanded display: **Y**

3. File the data and exit the screenform: **File/exit**

4. Select a couple of the displayed messages.

   Move the cursor to the message, then press **<Select>**

5. Activate your selected messages: **<Return>**

6. Send the output to your screen.

Student 1 (continued)

7. Scroll through the display: **<Return>**

8. Exit the Search Criteria screen: **<F10>**, then select **Abort**

9. Access the Edit an Interface Transaction (EIT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → EIT

10. Select Transaction to Edit: **trn31**

11. Edit the transaction by removing the blank spaces in the first zip code field.

    The zip code should be flanked on both sides by a backslash.

12. Save your changes: **<Do>**

13. Requeue the transaction for transmission to its destination.

    Requeue for Output? YES// **<Return>**
    Enter a Message to Requeue: **trn31**

14. Requeue the transaction: **<F19>**

    Time to Process: NOW// **<Return>**
    Priority: 0// **<Return>**

15. Send the output to your screen.

16. Return to the Transaction Control Menu.

17. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → IUIF

18. Select interface message: **trn31**

19. Send the output to your screen.

Notify the presenter when you have completed this portion of the practice. The present can verify that you edited and requeued the transaction.

Student 1 (continued)

b. Requeue Transactions That Were Not Transmitted

Scenario: *The link to your CliniComp system was briefly interrupted, resulting in lost and corrupted transmissions. The CliniComp manager confirmed that the external system did not receive the data. Determine whether the transaction is still in the transmitter queue (INLHDEST). If not, requeue the transaction to CliniComp.*

1. Access the List Queued Transaction (LQT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → LQT

2. Complete the List Queued Transaction screenform.

   Start date: **T-2**
   End Date: **T**
   Detailed: **Y**

3. File your criteria and exit the screenform: **File/exit**

4. Send the output to your screen.

5. Scroll through the display: **<Return>**

6. Return to the Transaction Control Menu.

7. Access the Requeue a Transaction (RT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → RT

8. Enter a Message to Requeue: **</>**

9. Complete the Search Criteria screenform.

   Start Date: **T-2**
   End Date: **T**
   Destination: **HL CLINICOMP**
   Status: **K**

   Select a status of Negative Acknowledgment.

Student 1 (continued)

10. File the data and exit: **<Do>**

11. Select the transaction to requeue: **trn39**

    Press **<Select>**

12. Activate the transaction selected for requeue: **<F19>**

13. Specify the time and priority level for the message to be requeued.

    Time to process: NOW// **<Return>**

    Priority: 0// **7**

14. Send the output to your screen.

15. Exit the screenform. **<F10>**

16. Return to the Transaction Control Menu.

17. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT→ GIS → **TCM** → IUIF

18. Select Interface Message: **trn39**

19. Send the output to your screen.

20. Scroll through the display until you reach the Activity Log.

    Notice the entry indicating that the transaction was requeued.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you requeued the transaction.

21. Return to the Transaction Control Menu.

Student 1 (continued)

c. Manage Transactions

Scenario: *Your system is having problems with disk storage utilization that you think may be related to the interfaces. Perform some basic maintenance operations, then review system performance and statistics.*

1. Access the Mark Transaction Complete (MTC) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → MTC

2. Select Transaction to Mark Complete: **< / >**

3. Complete the screenform.

   Start Date: **T-3**
   End Date: **T**
   Destination: **ANATOMIC PATHOLOGY**
   Status: **P**

4. File the data: **<Do>**

   A list displays of the messages that meet your criteria.

5. Select the message **trn84. <Select>**

   Activate the selected transaction: **<Return>**

6. Enter at OK to Delete from queue? NO// **Y**

7. Send the output to your screen.

8. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → IUIF

9. Select Interface Message: **trn84**

10. Send the output to your screen.

Student 1 (continued)

11. Scroll through the display until you reach the Activity Log.

    Notice the entry indicating that the transaction was marked Complete.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you marked the transaction Complete.

12. Return to the Transaction Control Menu.

d. Display Statistic, Message Size, and Throughput Data

Scenario: *You have resolved several interface problems. Confirm the health of your interface system by reviewing sample statistics for specific messages statuses and destinations.*

1. Access the Interface Statistics Generator (STAT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → STAT

2. Complete the Statistical Report Definition screenform.

   Date/Time:

   Order: **1**
   From: **T-10**
   To: **T**
   Count: **Y**

   Destination:

   Order: **3**
   From: **A**
   To: **Z**
   Count: **Y**

   Status:

   Order: **2**
   From: **C**
   To: **C**
   Count: **Y**

3. File your selection criteria: **<F17>**

Student 1 (continued)

4. Send the output to your screen.

5. Return to the Transaction Control Menu.

6. Access the Average Message Size (AMS) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → AMS

7. Select Interface Destination Name: **HL MDIS**

8. Select Interface Destination Name: **<Return>**

9. Enter date range.

   Starting Date: **T-10**
   Ending Date: **T**

10. Send the output to your screen.

11. Scroll through the report: **<Return>**

12. Access the Throughput Analyzer (TRA) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → TRA

13. Select Interface Destination Name: **MHCMIS**

14. Select Interface Destination Name: **HL MDIS**

15. Select Interface Destination Name: **<Return>**

16. Select a date range.

    Starting Date: **T**
    Ending Date: **T**

17. Enter at Status: **<Return>**

18. Enter at Detailed: NO// **Y**

19. Enter at Time Interval: 60// **180**

Student 1 (continued)

20. Send the output to your screen using 132 columns.

    Queue on Device: **0;132**

21. Scroll through the display: **<Return>**

22. Return to the Interface Menu.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you have generated each of the three reports.

Student 2

Practice 2 - Manage the GIS transactions.

INSTRUCTIONS: This practice will take approximately 20 minutes. Follow the instructions below.

Scenario: *You have had several interface problems today. MHCMIS is reporting errors on corrupted messages received from CHCS. Those transactions must be edited and requeued. CliniComp is returning negative acknowledgments. The hardware specialist located and replaced a failing hardware component between CHCS and CliniComp. View, then requeue appropriate CliniComp transactions waiting in the queues. CoPath received some corrupt patient data and is unable to process several test requests. Change transaction status from pending to complete for the appropriate messages, then delete the messages from the transmission queues. Finally, review activity statistics to determine the health of the interface system, then view throughput for the MDIS and MHCMIS interfaces.*

a. Find And Edit a Corrupted Transaction

1. Access the Transaction Search (TS) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → TS

2. Complete the Search Criteria screenform.

   Start date: **T-2**
   End date: **T**
   Direction: **OUT**
   Destination: **MHCMIS**
   Status: **E**
   Expanded display: **Y**

3. File the data and exit the screenform: **File/exit**

4. Select a couple of the displayed messages.

   Move the cursor to the message, then press **<Select>**

5. Activate your selected messages: **<Return>**

6. Send the output to your screen.

Student 2 (continued)

7. Scroll through the display: **<Return>**

8. Exit the Search Criteria screen: **<F10>**, then **select <Abort>.**

9. Access the Edit an Interface Transaction (EIT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → EIT

10. Select Transaction to Edit: **trn38**

11. Edit the transaction by removing the blank spaces in the first zip code field.

    The zip code should be flanked on both sides by a backslash.

12. Save your changes: **<Do>**

13. Requeue the transaction for transmission to its destination.

    Requeue for Output? YES// **<Return>**
    Enter a Message to Requeue: **trn38**

14. Requeue the transaction: **<F19>**

    Time to Process: NOW// **<Return>**
    Priority: 0// **<Return>**

15. Send the output to your screen.

16. Return to the Transaction Control Menu.

17. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → IUIF

18. Select interface message: **trn38**

19. Send the output to your screen.

Notify the presenter when you have completed this portion of the practice. The present can verify that you edited and requeued the transaction.

Student 2 (continued)

b. Requeue Transactions That Were Not Transmitted

Scenario: *The link to your CliniComp system was briefly interrupted, resulting in lost and corrupted transmissions. The CliniComp manager confirmed that the external system did not receive the data. Determine whether the transaction is still in the transmitter queue (INLHDEST). If not, requeue the transaction to CliniComp.*

1. Access the List Queued Transaction (LQT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → LQT

2. Complete the List Queued Transaction screenform.

   Start date: **T-2**
   End Date: **T**
   Detailed: **Y**

3. File your criteria and exit the screenform: **File/exit**

4. Send the output to your screen.

5. Scroll through the display: **<Return>**

6. Return to the Transaction Control Menu.

7. Access the Requeue a Transaction (RT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → RT

8. Enter a Message to Requeue: **</>**

9. Complete the Search Criteria screenform.

   Start Date: **T-2**
   End Date: **T**
   Destination: **HL CLINICOMP**
   Status: **K**

   Select a status of Negative Acknowledgment.

Student 2 (continued)

10. File the data and exit: **<Do>**

11. Select the transaction to requeue: **trn50**

    Press **<Select>**

12. Activate the transaction selected for requeue: **<F19>**

13. Specify the time and priority level for the message to be requeued.

    Time to process: NOW// **<Return>**

    Priority: 0// **7**

14. Send the output to your screen.

15. Exit the screenform. **<F10>**

16. Return to the Transaction Control Menu.

17. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT→ GIS → **TCM** → IUIF

18. Select Interface Message: **trn50**

19. Send the output to your screen.

20. Scroll through the display until you reach the Activity Log.

    Notice the entry indicating that the transaction was requeued.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you requeued the transaction.

21. Return to the Transaction Control Menu.

Student 2 (continued)

c. Manage Transactions

Scenario: *Your system is having problems with disk storage utilization that you think may be related to the interfaces. Perform some basic maintenance operations, then review system performance and statistics.*

1. Access the Mark Transaction Complete (MTC) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → MTC

2. Select Transaction to Mark Complete: **< / >**

3. Complete the screenform.

   Start Date: **T-3**
   End Date: **T**
   Destination: **ANATOMIC PATHOLOGY**
   Status: **P**

4. File the data: **<Do>**

   A list displays of the messages that meet your criteria.

5. Select the message **trn71 <Select>**

   Activate the selected transaction: **<Return>**

6. Enter at OK to Delete from queue? NO// **Y**

7. Send the output to your screen.

8. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → IUIF

9. Select Interface Message: **trn71**

10. Send the output to your screen.

Student 2 (continued)

11. Scroll through the display until you reach the Activity Log.

    Notice the entry indicating that the transaction was marked Complete.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you marked the transaction Complete.

12. Return to the Transaction Control Menu.

d. Display Statistic, Message Size, and Throughput Data

Scenario: *You have resolved several interface problems. Confirm the health of your interface system by reviewing sample statistics for specific messages statuses and destinations.*

1. Access the Interface Statistics Generator (STAT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → STAT

2. Complete the Statistical Report Definition screenform.

   Date/Time:

   Order: **1**
   From: **T-10**
   To: **T**
   Count: **Y**

   Destination:

   Order: **3**
   From: **A**
   To: **Z**
   Count: **Y**

   Status:

   Order: **2**
   From: **C**
   To: **C**
   Count: **Y**

3. File your selection criteria: **<F17>**

Student 2 (continued)

4. Send the output to your screen.

5. Return to the Transaction Control Menu.

6. Access the Average Message Size (AMS) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → AMS

7. Select Interface Destination Name: **HL MDIS**

8. Select Interface Destination Name: **<Return>**

9. Enter date range.

   Starting Date: **T-10**
   Ending Date: **T**

10. Send the output to your screen.

11. Scroll through the report: **<Return>**

12. Access the Throughput Analyzer (TRA) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → TRA

13. Select Interface Destination Name: **MHCMIS**

14. Select Interface Destination Name: **HL MDIS**

15. Select Interface Destination Name: **<Return>**

16. Select a date range.

    Starting Date: **T**
    Ending Date: **T**

17. Enter at Status: **<Return>**

18. Enter at Detailed: NO// **Y**

19. Enter at Time Interval: 60// **180**

Student 2 (continued)

20. Send the output to your screen using 132 columns.

    Queue on Device: **0;132**

21. Scroll through the display: **<Return>**

22. Return to the Interface Menu.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you have generated each of the three reports.

Student 3

Practice 2 - Manage the GIS transactions.

INSTRUCTIONS: This practice will take approximately 20 minutes. Follow the instructions below.

Scenario: *You have had several interface problems today. MHCMIS is reporting errors on corrupted messages received from CHCS. Those transactions must be edited and requeued. CliniComp is returning negative acknowledgments. The hardware specialist located and replaced a failing hardware component between CHCS and CliniComp. View, then requeue appropriate CliniComp transactions waiting in the queues. CoPath received some corrupt patient data and is unable to process several test requests. Change transaction status from pending to complete for the appropriate messages, then delete the messages from the transmission queues. Finally, review activity statistics to determine the health of the interface system, then view throughput for the MDIS and MHCMIS interfaces.*

a. Find And Edit a Corrupted Transaction

1. Access the Transaction Search (TS) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → TS

2. Complete the Search Criteria screenform.

   Start date: **T-2**
   End date: **T**
   Direction: **OUT**
   Destination: **MHCMIS**
   Status: **E**
   Expanded display: **Y**

3. File the data and exit the screenform: **File/exit**

4. Select a couple of the displayed messages.

   Move the cursor to the message, then press **<Select>**

5. Activate your selected messages: **<Return>**

6. Send the output to your screen.

Student 1 (continued)

7. Scroll through the display: **<Return>**

8. Exit the Search Criteria screen: **<F10>**, then **select <Abort>.**

9. Access the Edit an Interface Transaction (EIT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → EIT

10. Select Transaction to Edit: **trn47**

11. Edit the transaction by removing the blank spaces in the first zip code field.

    The zip code should be flanked on both sides by a backslash.

12. Save your changes: **<Do>**

13. Requeue the transaction for transmission to its destination.

    Requeue for Output? YES// **<Return>**
    Enter a Message to Requeue: **trn47**

14. Requeue the transaction: **<F19>**

    Time to Process: NOW// **<Return>**
    Priority: 0// **<Return>**

15. Send the output to your screen.

16. Return to the Transaction Control Menu.

17. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → IUIF

18. Select interface message: **trn47**

19. Send the output to your screen.

Notify the presenter when you have completed this portion of the practice. The present can verify that you edited and requeued the transaction.

Student 3 (continued)

b. Requeue Transactions That Were Not Transmitted

Scenario: *The link to your CliniComp system was briefly interrupted, resulting in lost and corrupted transmissions. The CliniComp manager confirmed that the external system did not receive the data. Determine whether the transaction is still in the transmitter queue (INLHDEST). If not, requeue the transaction to CliniComp.*

1. Access the List Queued Transaction (LQT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → LQT

2. Complete the List Queued Transaction screenform.

   Start date: **T-2**
   End Date: **T**
   Detailed: **Y**

3. File your criteria and exit the screenform: **File/exit**

4. Send the output to your screen.

5. Scroll through the display: **<Return>**

6. Return to the Transaction Control Menu.

7. Access the Requeue a Transaction (RT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → RT

8. Enter a Message to Requeue: **</>**

9. Complete the Search Criteria screenform.

   Start Date: **T-2**
   End Date: **T**
   Destination: **HL CLINICOMP**
   Status: **K**

   Select a status of Negative Acknowledgment.

Student 3 (continued)

10. File the data and exit: **<Do>**

11. Select the transaction to requeue: **trn55**

    Press **<Select>**

12. Activate the transaction selected for requeue: **<F19>**

13. Specify the time and priority level for the message to be requeued.

    Time to process: NOW// **<Return>**

    Priority: 0// **7**

14. Send the output to your screen.

15. Exit the screenform. **<F10>**

16. Return to the Transaction Control Menu.

17. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT→ GIS → **TCM** → IUIF

18. Select Interface Message: **trn55**

19. Send the output to your screen.

20. Scroll through the display until you reach the Activity Log.

    Notice the entry indicating that the transaction was requeued.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you requeued the transaction.

21. Return to the Transaction Control Menu.

Student 3 (continued)

c. Manage Transactions

Scenario: *Your system is having problems with disk storage utilization that you think may be related to the interfaces. Perform some basic maintenance operations, then review system performance and statistics.*

1. Access the Mark Transaction Complete (MTC) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → MTC

2. Select Transaction to Mark Complete: **< / >**

3. Complete the screenform.

   Start Date: **T-3**
   End Date: **T**
   Destination: **ANATOMIC PATHOLOGY**
   Status: **P**

4. File the data: **<Do>**

   A list displays of the messages that meet your criteria.

5. Select the message **trn66 <Select>**

   Activate the selected transaction: **<Return>**

6. Enter at OK to Delete from queue? NO// **Y**

7. Send the output to your screen.

8. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → IUIF

9. Select Interface Message: **trn66**

10. Send the output to your screen.

Student 3 (continued)

11. Scroll through the display until you reach the Activity Log.

    Notice the entry indicating that the transaction was marked Complete.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you marked the transaction Complete.

12. Return to the Transaction Control Menu.

d. Display Statistic, Message Size, and Throughput Data

Scenario: *You have resolved several interface problems. Confirm the health of your interface system by reviewing sample statistics for specific messages statuses and destinations.*

1. Access the Interface Statistics Generator (STAT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → STAT

2. Complete the Statistical Report Definition screenform.

   Date/Time:

   Order: **1**
   From: **T-10**
   To: **T**
   Count: **Y**

   Destination:

   Order: **3**
   From: **A**
   To: **Z**
   Count: **Y**

   Status:

   Order: **2**
   From: **C**
   To: **C**
   Count: **Y**

3. File your selection criteria: **<F17>**

Student 3 (continued)

4. Send the output to your screen.

5. Return to the Transaction Control Menu.

6. Access the Average Message Size (AMS) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → AMS

7. Select Interface Destination Name: **HL MDIS**

8. Select Interface Destination Name: **<Return>**

9. Enter date range.

   Starting Date: **T-10**
   Ending Date: **T**

10. Send the output to your screen.

11. Scroll through the report: **<Return>**

12. Access the Throughput Analyzer (TRA) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → TRA

13. Select Interface Destination Name: **MHCMIS**

14. Select Interface Destination Name: **HL MDIS**

15. Select Interface Destination Name: **<Return>**

16. Select a date range.

    Starting Date: **T**
    Ending Date: **T**

17. Enter at Status: **<Return>**

18. Enter at Detailed: NO// **Y**

19. Enter at Time Interval: 60// **180**

Student 3 (continued)

20. Send the output to your screen using 132 columns.

    Queue on Device: **0;132**

21. Scroll through the display: **<Return>**

22. Return to the Interface Menu.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you have generated each of the three reports.

Student 4

Practice 2 - Manage the GIS transactions.

INSTRUCTIONS: This practice will take approximately 20 minutes. Follow the instructions below.

Scenario: *You have had several interface problems today. MHCMIS is reporting errors on corrupted messages received from CHCS. Those transactions must be edited and requeued. CliniComp is returning negative acknowledgments. The hardware specialist located and replaced a failing hardware component between CHCS and CliniComp. View, then requeue appropriate CliniComp transactions waiting in the queues. CoPath received some corrupt patient data and is unable to process several test requests. Change transaction status from pending to complete for the appropriate messages, then delete the messages from the transmission queues. Finally, review activity statistics to determine the health of the interface system, then view throughput for the MDIS and MHCMIS interfaces.*

a. Find And Edit a Corrupted Transaction

1. Access the Transaction Search (TS) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → TS

2. Complete the Search Criteria screenform.

   Start date: **T-2**
   End date: **T**
   Direction: **OUT**
   Destination: **MHCMIS**
   Status: **E**
   Expanded display: **Y**

3. File the data and exit the screenform: **File/exit**

4. Select a couple of the displayed messages.

   Move the cursor to the message, then press **<Select>**

5. Activate your selected messages: **<Return>**

6. Send the output to your screen.

Student 4 (continued)

7. Scroll through the display: **<Return>**

8. Exit the Search Criteria screen: **<F10>**, then **select <Abort>.**

9. Access the Edit an Interface Transaction (EIT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → EIT

10. Select Transaction to Edit: **trn54**

11. Edit the transaction by removing the blank spaces in the first zip code field.

    The zip code should be flanked on both sides by a backslash.

12. Save your changes: **<Do>**

13. Requeue the transaction for transmission to its destination.

    Requeue for Output? YES// **<Return>**
    Enter a Message to Requeue: **trn54**

14. Requeue the transaction: **<F19>**

    Time to Process: NOW// **<Return>**
    Priority: 0// **<Return>**

15. Send the output to your screen.

16. Return to the Transaction Control Menu.

17. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → IUIF

18. Select interface message: **trn54**

19. Send the output to your screen.

Notify the presenter when you have completed this portion of the practice. The present can verify that you edited and requeued the transaction.

Student 4 (continued)

b. Requeue Transactions That Were Not Transmitted

Scenario: *The link to your CliniComp system was briefly interrupted, resulting in lost and corrupted transmissions. The CliniComp manager confirmed that the external system did not receive the data. Determine whether the transaction is still in the transmitter queue (INLHDEST). If not, requeue the transaction to CliniComp.*

1. Access the List Queued Transaction (LQT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → LQT

2. Complete the List Queued Transaction screenform.

   Start date: **T-2**
   End Date: **T**
   Detailed: **Y**

3. File your criteria and exit the screenform: **File/exit**

4. Send the output to your screen.

5. Scroll through the display: **<Return>**

6. Return to the Transaction Control Menu.

7. Access the Requeue a Transaction (RT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → RT

8. Enter a Message to Requeue: **</>**

9. Complete the Search Criteria screenform.

   Start Date: **T-2**
   End Date: **T**
   Destination: **HL CLINICOMP**
   Status: **K**

   Select a status of Negative Acknowledgment.

Student 4 (continued)

10. File the data and exit: **<Do>**

11. Select the transaction to requeue: **trn59**

    Press **<Select>**

12. Activate the transaction selected for requeue: **<F19>**

13. Specify the time and priority level for the message to be requeued.

    Time to process: NOW// **<Return>**

    Priority: 0// **7**

14. Send the output to your screen.

15. Exit the screenform. **<F10>**

16. Return to the Transaction Control Menu.

17. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT→ GIS → **TCM** → IUIF

18. Select Interface Message: **trn59**

19. Send the output to your screen.

20. Scroll through the display until you reach the Activity Log.

    Notice the entry indicating that the transaction was requeued.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you requeued the transaction.

21. Return to the Transaction Control Menu.

Student 4 (continued)

c. Manage Transactions

Scenario: *Your system is having problems with disk storage utilization that you think may be related to the interfaces. Perform some basic maintenance operations, then review system performance and statistics.*

1. Access the Mark Transaction Complete (MTC) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → MTC

2. Select Transaction to Mark Complete: **< / >**

3. Complete the screenform.

   Start Date: **T-3**
   End Date: **T**
   Destination: **ANATOMIC PATHOLOGY**
   Status: **P**

4. File the data: **<Do>**

   A list displays of the messages that meet your criteria.

5. Select the message **trn65 <Select>**

   Activate the selected transaction: **<Return>**

6. Enter at OK to Delete from queue? NO// **Y**

7. Send the output to your screen.

8. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → IUIF

9. Select Interface Message: **trn65**

10. Send the output to your screen.

Student 4 (continued)

11. Scroll through the display until you reach the Activity Log.

    Notice the entry indicating that the transaction was marked Complete.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you marked the transaction Complete.

12. Return to the Transaction Control Menu.

d. Display Statistic, Message Size, and Throughput Data

Scenario: *You have resolved several interface problems. Confirm the health of your interface system by reviewing sample statistics for specific messages statuses and destinations.*

1. Access the Interface Statistics Generator (STAT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → STAT

2. Complete the Statistical Report Definition screenform.

   Date/Time:

   Order: **1**
   From: **T-10**
   To: **T**
   Count: **Y**

   Destination:

   Order: **3**
   From: **A**
   To: **Z**
   Count: **Y**

   Status:

   Order: **2**
   From: **C**
   To: **C**
   Count: **Y**

3. File your selection criteria: **<F17>**

Student 4 (continued)

4. Send the output to your screen.

5. Return to the Transaction Control Menu.

6. Access the Average Message Size (AMS) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → AMS

7. Select Interface Destination Name: **HL MDIS**

8. Select Interface Destination Name: **<Return>**

9. Enter date range.

   Starting Date: **T-10**
   Ending Date: **T**

10. Send the output to your screen.

11. Scroll through the report: **<Return>**

12. Access the Throughput Analyzer (TRA) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → TRA

13. Select Interface Destination Name: **MHCMIS**

14. Select Interface Destination Name: **HL MDIS**

15. Select Interface Destination Name: **<Return>**

16. Select a date range.

    Starting Date: **T**
    Ending Date: **T**

17. Enter at Status: **<Return>**

18. Enter at Detailed: NO// **Y**

19. Enter at Time Interval: 60// **180**

Student 4 (continued)

20. Send the output to your screen using 132 columns.

    Queue on Device: **0;132**

21. Scroll through the display: **<Return>**

22. Return to the Interface Menu.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you have generated each of the three reports.

Student 5

Practice 2 - Manage the GIS transactions.

INSTRUCTIONS: This practice will take approximately 20 minutes. Follow the instructions below.

Scenario: *You have had several interface problems today. MHCMIS is reporting errors on corrupted messages received from CHCS. Those transactions must be edited and requeued. CliniComp is returning negative acknowledgments. The hardware specialist located and replaced a failing hardware component between CHCS and CliniComp. View, then requeue appropriate CliniComp transactions waiting in the queues. CoPath received some corrupt patient data and is unable to process several test requests. Change transaction status from pending to complete for the appropriate messages, then delete the messages from the transmission queues. Finally, review activity statistics to determine the health of the interface system, then view throughput for the MDIS and MHCMIS interfaces.*

a. Find And Edit a Corrupted Transaction

1. Access the Transaction Search (TS) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → TS

2. Complete the Search Criteria screenform.

   Start date: **T-2**
   End date: **T**
   Direction: **OUT**
   Destination: **MHCMIS**
   Status: **E**
   Expanded display: **Y**

3. File the data and exit the screenform: **File/exit**

4. Select a couple of the displayed messages.

   Move the cursor to the message, then press **<Select>**

5. Activate your selected messages: **<Return>**

6. Send the output to your screen.

Student 5 (continued)

7. Scroll through the display: **<Return>**

8. Exit the Search Criteria screen: **<F10>**, then **select <Abort>.**

9. Access the Edit an Interface Transaction (EIT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → EIT

10. Select Transaction to Edit: **trn56**

11. Edit the transaction by removing the blank spaces in the first zip code field.

    The zip code should be flanked on both sides by a backslash.

12. Save your changes: **<Do>**

13. Requeue the transaction for transmission to its destination.

    Requeue for Output? YES// **<Return>**
    Enter a Message to Requeue: **trn56**

14. Requeue the transaction: **<F19>**

    Time to Process: NOW// **<Return>**
    Priority: 0// **<Return>**

15. Send the output to your screen.

16. Return to the Transaction Control Menu.

17. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → IUIF

18. Select interface message: **trn56**

19. Send the output to your screen.

Notify the presenter when you have completed this portion of the practice. The present can verify that you edited and requeued the transaction.

Student 5 (continued)

b. Requeue Transactions That Were Not Transmitted

Scenario: *The link to your CliniComp system was briefly interrupted, resulting in lost and corrupted transmissions. The CliniComp manager confirmed that the external system did not receive the data. Determine whether the transaction is still in the transmitter queue (INLHDEST). If not, requeue the transaction to CliniComp.*

1. Access the List Queued Transaction (LQT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → LQT

2. Complete the List Queued Transaction screenform.

   Start date: **T-2**
   End Date: **T**
   Detailed: **Y**

3. File your criteria and exit the screenform: **File/exit**

4. Send the output to your screen.

5. Scroll through the display: **<Return>**

6. Return to the Transaction Control Menu.

7. Access the Requeue a Transaction (RT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → RT

8. Enter a Message to Requeue: **</>**

9. Complete the Search Criteria screenform.

   Start Date: **T-2**
   End Date: **T**
   Destination: **HL CLINICOMP**
   Status: **K**

   Select a status of Negative Acknowledgment.

Student 5 (continued)

10. File the data and exit: **<Do>**

11. Select the transaction to requeue: **trn73**

    Press **<Select>**

12. Activate the transaction selected for requeue: **<F19>**

13. Specify the time and priority level for the message to be requeued.

    Time to process: NOW// **<Return>**

    Priority: 0// **7**

14. Send the output to your screen.

15. Exit the screenform. **<F10>**

16. Return to the Transaction Control Menu.

17. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT→ GIS → **TCM** → IUIF

18. Select Interface Message: **trn73**

19. Send the output to your screen.

20. Scroll through the display until you reach the Activity Log.

    Notice the entry indicating that the transaction was requeued.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you requeued the transaction.

21. Return to the Transaction Control Menu.

Student 5 (continued)

c. Manage Transactions

Scenario: *Your system is having problems with disk storage utilization that you think may be related to the interfaces. Perform some basic maintenance operations, then review system performance and statistics.*

1. Access the Mark Transaction Complete (MTC) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → MTC

2. Select Transaction to Mark Complete: **< / >**

3. Complete the screenform.

   Start Date: **T-3**
   End Date: **T**
   Destination: **ANATOMIC PATHOLOGY**
   Status: **P**

4. File the data: **<Do>**

   A list displays of the messages that meet your criteria.

5. Select the message **trn84. <Select>**

   Activate the selected transaction: **<Return>**

6. Enter at OK to Delete from queue? NO// **Y**

7. Send the output to your screen.

8. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → IUIF

9. Select Interface Message: **trn84**

10. Send the output to your screen.

Student 5 (continued)

11. Scroll through the display until you reach the Activity Log.

    Notice the entry indicating that the transaction was marked Complete.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you marked the transaction Complete.

12. Return to the Transaction Control Menu.

d. Display Statistic, Message Size, and Throughput Data

Scenario: *You have resolved several interface problems. Confirm the health of your interface system by reviewing sample statistics for specific messages statuses and destinations.*

1. Access the Interface Statistics Generator (STAT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → STAT

2. Complete the Statistical Report Definition screenform.

   Date/Time:

   Order: **1**
   From: **T-10**
   To: **T**
   Count: **Y**

   Destination:

   Order: **3**
   From: **A**
   To: **Z**
   Count: **Y**

   Status:

   Order: **2**
   From: **C**
   To: **C**
   Count: **Y**

3. File your selection criteria: **<F17>**

Student 5 (continued)

4. Send the output to your screen.

5. Return to the Transaction Control Menu.

6. Access the Average Message Size (AMS) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → AMS

7. Select Interface Destination Name: **HL MDIS**

8. Select Interface Destination Name: **<Return>**

9. Enter date range.

   Starting Date: **T-10**
   Ending Date: **T**

10. Send the output to your screen.

11. Scroll through the report: **<Return>**

12. Access the Throughput Analyzer (TRA) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → TRA

13. Select Interface Destination Name: **MHCMIS**

14. Select Interface Destination Name: **HL MDIS**

15. Select Interface Destination Name: **<Return>**

16. Select a date range.

    Starting Date: **T**
    Ending Date: **T**

17. Enter at Status: **<Return>**

18. Enter at Detailed: NO// **Y**

19. Enter at Time Interval: 60// **180**

Student 5 (continued)

20. Send the output to your screen using 132 columns.

    Queue on Device: **0;132**

21. Scroll through the display: **<Return>**

22. Return to the Interface Menu.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you have generated each of the three reports.

Student 6

Practice 2 - Manage the GIS transactions.

INSTRUCTIONS: This practice will take approximately 20 minutes. Follow the instructions below.

Scenario: *You have had several interface problems today. MHCMIS is reporting errors on corrupted messages received from CHCS. Those transactions must be edited and requeued. CliniComp is returning negative acknowledgments. The hardware specialist located and replaced a failing hardware component between CHCS and CliniComp. View, then requeue appropriate CliniComp transactions waiting in the queues. CoPath received some corrupt patient data and is unable to process several test requests. Change transaction status from pending to complete for the appropriate messages, then delete the messages from the transmission queues. Finally, review activity statistics to determine the health of the interface system, then view throughput for the MDIS and MHCMIS interfaces.*

a. Find And Edit a Corrupted Transaction

1. Access the Transaction Search (TS) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → TS

2. Complete the Search Criteria screenform.

   Start date: **T-2**
   End date: **T**
   Direction: **OUT**
   Destination: **MHCMIS**
   Status: **E**
   Expanded display: **Y**

3. File the data and exit the screenform: **File/exit**

4. Select a couple of the displayed messages.

   Move the cursor to the message, then press **<Select>**

5. Activate your selected messages: **<Return>**

6. Send the output to your screen.

Student 6 (continued)

7. Scroll through the display: **<Return>**

8. Exit the Search Criteria screen: **<F10>**, then **select <Abort>.**

9. Access the Edit an Interface Transaction (EIT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → EIT

10. Select Transaction to Edit: **trn89**

11. Edit the transaction by removing the blank spaces in the first zip code field.

    The zip code should be flanked on both sides by a backslash.

12. Save your changes: **<Do>**

13. Requeue the transaction for transmission to its destination.

    Requeue for Output? YES// **<Return>**
    Enter a Message to Requeue: **trn89**

14. Requeue the transaction: **<F19>**

    Time to Process: NOW// **<Return>**
    Priority: 0// **<Return>**

15. Send the output to your screen.

16. Return to the Transaction Control Menu.

17. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → IUIF

18. Select interface message: **trn89**

19. Send the output to your screen.

Notify the presenter when you have completed this portion of the practice. The present can verify that you edited and requeued the transaction.

Student 6 (continued)

b. Requeue Transactions That Were Not Transmitted

Scenario: *The link to your CliniComp system was briefly interrupted, resulting in lost and corrupted transmissions. The CliniComp manager confirmed that the external system did not receive the data. Determine whether the transaction is still in the transmitter queue (INLHDEST). If not, requeue the transaction to CliniComp.*

1. Access the List Queued Transaction (LQT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → LQT

2. Complete the List Queued Transaction screenform.

   Start date: **T-2**
   End Date: **T**
   Detailed: **Y**

3. File your criteria and exit the screenform: **File/exit**

4. Send the output to your screen.

5. Scroll through the display: **<Return>**

6. Return to the Transaction Control Menu.

7. Access the Requeue a Transaction (RT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → RT

8. Enter a Message to Requeue: **</>**

9. Complete the Search Criteria screenform.

   Start Date: **T-2**
   End Date: **T**
   Destination: **HL CLINICOMP**
   Status: **K**

   Select a status of Negative Acknowledgment.

Student 6 (continued)

10. File the data and exit: **<Do>**

11. Select the transaction to requeue: **trn74**

    Press **<Select>**

12. Activate the transaction selected for requeue: **<F19>**

13. Specify the time and priority level for the message to be requeued.

    Time to process: NOW// **<Return>**

    Priority: 0// **7**

14. Send the output to your screen.

15. Exit the screenform. **<F10>**

16. Return to the Transaction Control Menu.

17. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT→ GIS → **TCM** → IUIF

18. Select Interface Message: **trn74**

19. Send the output to your screen.

20. Scroll through the display until you reach the Activity Log.

    Notice the entry indicating that the transaction was requeued.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you requeued the transaction.

21. Return to the Transaction Control Menu.

Student 6 (continued)

c. Manage Transactions

Scenario: *Your system is having problems with disk storage utilization that you think may be related to the interfaces. Perform some basic maintenance operations, then review system performance and statistics.*

1. Access the Mark Transaction Complete (MTC) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → MTC

2. Select Transaction to Mark Complete: **< / >**

3. Complete the screenform.

   Start Date: **T-3**
   End Date: **T**
   Destination: **ANATOMIC PATHOLOGY**
   Status: **P**

4. File the data: **<Do>**

   A list displays of the messages that meet your criteria.

5. Select the message **trn46 <Select>**

   Activate the selected transaction: **<Return>**

6. Enter at OK to Delete from queue? NO// **Y**

7. Send the output to your screen.

8. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → IUIF

9. Select Interface Message: **trn46**

10. Send the output to your screen.

Student 6 (continued)

11. Scroll through the display until you reach the Activity Log.

    Notice the entry indicating that the transaction was marked Complete.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you marked the transaction Complete.

12. Return to the Transaction Control Menu.

d. Display Statistic, Message Size, and Throughput Data

Scenario: *You have resolved several interface problems. Confirm the health of your interface system by reviewing sample statistics for specific messages statuses and destinations.*

1. Access the Interface Statistics Generator (STAT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → STAT

2. Complete the Statistical Report Definition screenform.

   Date/Time:

   Order: **1**
   From: **T-10**
   To: **T**
   Count: **Y**

   Destination:

   Order: **3**
   From: **A**
   To: **Z**
   Count: **Y**

   Status:

   Order: **2**
   From: **C**
   To: **C**
   Count: **Y**

3. File your selection criteria: **<F17>**

Student 6 (continued)

4. Send the output to your screen.

5. Return to the Transaction Control Menu.

6. Access the Average Message Size (AMS) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → AMS

7. Select Interface Destination Name: **HL MDIS**

8. Select Interface Destination Name: **<Return>**

9. Enter date range.

   Starting Date: **T-10**
   Ending Date: **T**

10. Send the output to your screen.

11. Scroll through the report: **<Return>**

12. Access the Throughput Analyzer (TRA) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → TRA

13. Select Interface Destination Name: **MHCMIS**

14. Select Interface Destination Name: **HL MDIS**

15. Select Interface Destination Name: **<Return>**

16. Select a date range.

    Starting Date: **T**
    Ending Date: **T**

17. Enter at Status: **<Return>**

18. Enter at Detailed: NO// **Y**

19. Enter at Time Interval: 60// **180**

Student 6 (continued)

20. Send the output to your screen using 132 columns.

    Queue on Device: **0;132**

21. Scroll through the display: **<Return>**

22. Return to the Interface Menu.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you have generated each of the three reports.

Student 7

Practice 2 - Manage the GIS transactions.

INSTRUCTIONS: This practice will take approximately 20 minutes. Follow the instructions below.

Scenario: *You have had several interface problems today. MHCMIS is reporting errors on corrupted messages received from CHCS. Those transactions must be edited and requeued. CliniComp is returning negative acknowledgments. The hardware specialist located and replaced a failing hardware component between CHCS and CliniComp. View, then requeue appropriate CliniComp transactions waiting in the queues. CoPath received some corrupt patient data and is unable to process several test requests. Change transaction status from pending to complete for the appropriate messages, then delete the messages from the transmission queues. Finally, review activity statistics to determine the health of the interface system, then view throughput for the MDIS and MHCMIS interfaces.*

a. Find And Edit a Corrupted Transaction

1. Access the Transaction Search (TS) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → TS

2. Complete the Search Criteria screenform.

   Start date: **T-2**
   End date: **T**
   Direction: **OUT**
   Destination: **MHCMIS**
   Status: **E**
   Expanded display: **Y**

3. File the data and exit the screenform: **File/exit**

4. Select a couple of the displayed messages.

   Move the cursor to the message, then press **<Select>**

5. Activate your selected messages: **<Return>**

6. Send the output to your screen.

Student 7 (continued)

7. Scroll through the display: **<Return>**

8. Exit the Search Criteria screen: **<F10>**, then **select <Abort>.**

9. Access the Edit an Interface Transaction (EIT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → EIT

10. Select Transaction to Edit: **trn87**

11. Edit the transaction by removing the blank spaces in the first zip code field.

    The zip code should be flanked on both sides by a backslash.

12. Save your changes: **<Do>**

13. Requeue the transaction for transmission to its destination.

    Requeue for Output? YES// **<Return>**
    Enter a Message to Requeue: **trn87**

14. Requeue the transaction: **<F19>**

    Time to Process: NOW// **<Return>**
    Priority: 0// **<Return>**

15. Send the output to your screen.

16. Return to the Transaction Control Menu.

17. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → IUIF

18. Select interface message: **trn87**

19. Send the output to your screen.

Notify the presenter when you have completed this portion of the practice. The present can verify that you edited and requeued the transaction.

Student 7 (continued)

b. Requeue Transactions That Were Not Transmitted

Scenario: *The link to your CliniComp system was briefly interrupted, resulting in lost and corrupted transmissions. The CliniComp manager confirmed that the external system did not receive the data. Determine whether the transaction is still in the transmitter queue (INLHDEST). If not, requeue the transaction to CliniComp.*

1. Access the List Queued Transaction (LQT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → LQT

2. Complete the List Queued Transaction screenform.

   Start date: **T-2**
   End Date: **T**
   Detailed: **Y**

3. File your criteria and exit the screenform: **File/exit**

4. Send the output to your screen.

5. Scroll through the display: **<Return>**

6. Return to the Transaction Control Menu.

7. Access the Requeue a Transaction (RT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → RT

8. Enter a Message to Requeue: **</>**

9. Complete the Search Criteria screenform.

   Start Date: **T-2**
   End Date: **T**
   Destination: **HL CLINICOMP**
   Status: **K**

   Select a status of Negative Acknowledgment.

Student 7 (continued)

10. File the data and exit: **<Do>**

11. Select the transaction to requeue: **trn78**

    Press **<Select>**

12. Activate the transaction selected for requeue: **<F19>**

13. Specify the time and priority level for the message to be requeued.

    Time to process: NOW// **<Return>**

    Priority: 0// **7**

14. Send the output to your screen.

15. Exit the screenform. **<F10>**

16. Return to the Transaction Control Menu.

17. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT→ GIS → **TCM** → IUIF

18. Select Interface Message: **trn78**

19. Send the output to your screen.

20. Scroll through the display until you reach the Activity Log.

    Notice the entry indicating that the transaction was requeued.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you requeued the transaction.

21. Return to the Transaction Control Menu.

Student 7 (continued)

c. Manage Transactions

Scenario: *Your system is having problems with disk storage utilization that you think may be related to the interfaces. Perform some basic maintenance operations, then review system performance and statistics.*

1. Access the Mark Transaction Complete (MTC) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → MTC

2. Select Transaction to Mark Complete: **< / >**

3. Complete the screenform.

   Start Date: **T-3**
   End Date: **T**
   Destination: **ANATOMIC PATHOLOGY**
   Status: **P**

4. File the data: **<Do>**

   A list displays of the messages that meet your criteria.

5. Select the message **trn44 <Select>**

   Activate the selected transaction: **<Return>**

6. Enter at OK to Delete from queue? NO// **Y**

7. Send the output to your screen.

8. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → IUIF

9. Select Interface Message: **trn44**

10. Send the output to your screen.

Student 7 (continued)

11. Scroll through the display until you reach the Activity Log.

    Notice the entry indicating that the transaction was marked Complete.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you marked the transaction Complete.

12. Return to the Transaction Control Menu.

d. Display Statistic, Message Size, and Throughput Data

Scenario: *You have resolved several interface problems. Confirm the health of your interface system by reviewing sample statistics for specific messages statuses and destinations.*

1. Access the Interface Statistics Generator (STAT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → STAT

2. Complete the Statistical Report Definition screenform.

   Date/Time:

   Order: **1**
   From: **T-10**
   To: **T**
   Count: **Y**

   Destination:

   Order: **3**
   From: **A**
   To: **Z**
   Count: **Y**

   Status:

   Order: **2**
   From: **C**
   To: **C**
   Count: **Y**

3. File your selection criteria: **<F17>**

Student 7 (continued)

4. Send the output to your screen.

5. Return to the Transaction Control Menu.

6. Access the Average Message Size (AMS) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → AMS

7. Select Interface Destination Name: **HL MDIS**

8. Select Interface Destination Name: **<Return>**

9. Enter date range.

   Starting Date: **T-10**
   Ending Date: **T**

10. Send the output to your screen.

11. Scroll through the report: **<Return>**

12. Access the Throughput Analyzer (TRA) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → TRA

13. Select Interface Destination Name: **MHCMIS**

14. Select Interface Destination Name: **HL MDIS**

15. Select Interface Destination Name: **<Return>**

16. Select a date range.

    Starting Date: **T**
    Ending Date: **T**

17. Enter at Status: **<Return>**

18. Enter at Detailed: NO// **Y**

19. Enter at Time Interval: 60// **180**

Student 7 (continued)

20. Send the output to your screen using 132 columns.

    Queue on Device: **0;132**

21. Scroll through the display: **<Return>**

22. Return to the Interface Menu.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you have generated each of the three reports.

Student 8

Practice 2 - Manage the GIS transactions.

INSTRUCTIONS: This practice will take approximately 20 minutes. Follow the instructions below.

Scenario: *You have had several interface problems today. MHCMIS is reporting errors on corrupted messages received from CHCS. Those transactions must be edited and requeued. CliniComp is returning negative acknowledgments. The hardware specialist located and replaced a failing hardware component between CHCS and CliniComp. View, then requeue appropriate CliniComp transactions waiting in the queues. CoPath received some corrupt patient data and is unable to process several test requests. Change transaction status from pending to complete for the appropriate messages, then delete the messages from the transmission queues. Finally, review activity statistics to determine the health of the interface system, then view throughput for the MDIS and MHCMIS interfaces.*

a. Find And Edit a Corrupted Transaction

1. Access the Transaction Search (TS) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → TS

2. Complete the Search Criteria screenform.

   Start date: **T-2**
   End date: **T**
   Direction: **OUT**
   Destination: **MHCMIS**
   Status: **E**
   Expanded display: **Y**

3. File the data and exit the screenform: **File/exit**

4. Select a couple of the displayed messages.

   Move the cursor to the message, then press **<Select>**

5. Activate your selected messages: **<Return>**

6. Send the output to your screen.

Student 8 (continued)

7. Scroll through the display: **<Return>**

8. Exit the Search Criteria screen: **<F10>**, then **select <Abort>.**

9. Access the Edit an Interface Transaction (EIT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → EIT

10. Select Transaction to Edit: **trn75**

11. Edit the transaction by removing the blank spaces in the first zip code field.

    The zip code should be flanked on both sides by a backslash.

12. Save your changes: **<Do>**

13. Requeue the transaction for transmission to its destination.

    Requeue for Output? YES// **<Return>**
    Enter a Message to Requeue: **trn75**

14. Requeue the transaction: **<F19>**

    Time to Process: NOW// **<Return>**
    Priority: 0// **<Return>**

15. Send the output to your screen.

16. Return to the Transaction Control Menu.

17. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → IUIF

18. Select interface message: **trn75**

19. Send the output to your screen.

Notify the presenter when you have completed this portion of the practice. The present can verify that you edited and requeued the transaction.

Student 8 (continued)

b. Requeue Transactions That Were Not Transmitted

Scenario: *The link to your CliniComp system was briefly interrupted, resulting in lost and corrupted transmissions. The CliniComp manager confirmed that the external system did not receive the data. Determine whether the transaction is still in the transmitter queue (INLHDEST). If not, requeue the transaction to CliniComp.*

1. Access the List Queued Transaction (LQT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → LQT

2. Complete the List Queued Transaction screenform.

   Start date: **T-2**
   End Date: **T**
   Detailed: **Y**

3. File your criteria and exit the screenform: **File/exit**

4. Send the output to your screen.

5. Scroll through the display: **<Return>**

6. Return to the Transaction Control Menu.

7. Access the Requeue a Transaction (RT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → RT

8. Enter a Message to Requeue: **</>**

9. Complete the Search Criteria screenform.

   Start Date: **T-2**
   End Date: **T**
   Destination: **HL CLINICOMP**
   Status: **K**

   Select a status of Negative Acknowledgment.

Student 8 (continued)

10. File the data and exit: **<Do>**

11. Select the transaction to requeue: **trn90**

    Press **<Select>**

12. Activate the transaction selected for requeue: **<F19>**

13. Specify the time and priority level for the message to be requeued.

    Time to process: NOW// **<Return>**

    Priority: 0// **7**

14. Send the output to your screen.

15. Exit the screenform. **<F10>**

16. Return to the Transaction Control Menu.

17. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT→ GIS → **TCM** → IUIF

18. Select Interface Message: **trn90**

19. Send the output to your screen.

20. Scroll through the display until you reach the Activity Log.

    Notice the entry indicating that the transaction was requeued.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you requeued the transaction.

21. Return to the Transaction Control Menu.

Student 8 (continued)

c. Manage Transactions

Scenario: *Your system is having problems with disk storage utilization that you think may be related to the interfaces. Perform some basic maintenance operations, then review system performance and statistics.*

1. Access the Mark Transaction Complete (MTC) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → MTC

2. Select Transaction to Mark Complete: **< / >**

3. Complete the screenform.

   Start Date: **T-3**
   End Date: **T**
   Destination: **ANATOMIC PATHOLOGY**
   Status: **P**

4. File the data: **<Do>**

   A list displays of the messages that meet your criteria.

5. Select the message **trn32 <Select>**

   Activate the selected transaction: **<Return>**

6. Enter at OK to Delete from queue? NO// **Y**

7. Send the output to your screen.

8. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → IUIF

9. Select Interface Message: **trn32**

10. Send the output to your screen.

Student 8 (continued)

11. Scroll through the display until you reach the Activity Log.

    Notice the entry indicating that the transaction was marked Complete.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you marked the transaction Complete.

12. Return to the Transaction Control Menu.

d. Display Statistic, Message Size, and Throughput Data

Scenario: *You have resolved several interface problems. Confirm the health of your interface system by reviewing sample statistics for specific messages statuses and destinations.*

1. Access the Interface Statistics Generator (STAT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → STAT

2. Complete the Statistical Report Definition screenform.

   Date/Time:

   Order: **1**
   From: **T-10**
   To: **T**
   Count: **Y**

   Destination:

   Order: **3**
   From: **A**
   To: **Z**
   Count: **Y**

   Status:

   Order: **2**
   From: **C**
   To: **C**
   Count: **Y**

3. File your selection criteria: **<F17>**

Student 8 (continued)

4. Send the output to your screen.

5. Return to the Transaction Control Menu.

6. Access the Average Message Size (AMS) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → AMS

7. Select Interface Destination Name: **HL MDIS**

8. Select Interface Destination Name: **<Return>**

9. Enter date range.

   Starting Date: **T-10**
   Ending Date: **T**

10. Send the output to your screen.

11. Scroll through the report: **<Return>**

12. Access the Throughput Analyzer (TRA) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → TRA

13. Select Interface Destination Name: **MHCMIS**

14. Select Interface Destination Name: **HL MDIS**

15. Select Interface Destination Name: **<Return>**

16. Select a date range.

    Starting Date: **T**
    Ending Date: **T**

17. Enter at Status: **<Return>**

18. Enter at Detailed: NO// **Y**

19. Enter at Time Interval: 60// **180**

Student 8 (continued)

20. Send the output to your screen using 132 columns.

    Queue on Device: **0;132**

21. Scroll through the display: **<Return>**

22. Return to the Interface Menu.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you have generated each of the three reports.

Student 9

Practice 2 - Manage the GIS transactions.

INSTRUCTIONS: This practice will take approximately 20 minutes. Follow the instructions below.

Scenario: *You have had several interface problems today. MHCMIS is reporting errors on corrupted messages received from CHCS. Those transactions must be edited and requeued. CliniComp is returning negative acknowledgments. The hardware specialist located and replaced a failing hardware component between CHCS and CliniComp. View, then requeue appropriate CliniComp transactions waiting in the queues. CoPath received some corrupt patient data and is unable to process several test requests. Change transaction status from pending to complete for the appropriate messages, then delete the messages from the transmission queues. Finally, review activity statistics to determine the health of the interface system, then view throughput for the MDIS and MHCMIS interfaces.*

a. Find And Edit a Corrupted Transaction

1. Access the Transaction Search (TS) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → TS

2. Complete the Search Criteria screenform.

   Start date: **T-2**
   End date: **T**
   Direction: **OUT**
   Destination: **MHCMIS**
   Status: **E**
   Expanded display: **Y**

3. File the data and exit the screenform: **File/exit**

4. Select a couple of the displayed messages.

   Move the cursor to the message, then press **<Select>**

5. Activate your selected messages: **<Return>**

6. Send the output to your screen.

Student 9 (continued)

7. Scroll through the display: **<Return>**

8. Exit the Search Criteria screen: **<F10>**, then **select <Abort>.**

9. Access the Edit an Interface Transaction (EIT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → EIT

10. Select Transaction to Edit: **trn72**

11. Edit the transaction by removing the blank spaces in the first zip code field.

    The zip code should be flanked on both sides by a backslash.

12. Save your changes: **<Do>**

13. Requeue the transaction for transmission to its destination.

    Requeue for Output? YES// **<Return>**
    Enter a Message to Requeue: **trn72**

14. Requeue the transaction: **<F19>**

    Time to Process: NOW// **<Return>**
    Priority: 0// **<Return>**

15. Send the output to your screen.

16. Return to the Transaction Control Menu.

17. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → IUIF

18. Select interface message: **trn72**

19. Send the output to your screen.

Notify the presenter when you have completed this portion of the practice. The present can verify that you edited and requeued the transaction.

Student 9 (continued)

b. Requeue Transactions That Were Not Transmitted

Scenario: *The link to your CliniComp system was briefly interrupted, resulting in lost and corrupted transmissions. The CliniComp manager confirmed that the external system did not receive the data. Determine whether the transaction is still in the transmitter queue (INLHDEST). If not, requeue the transaction to CliniComp.*

1. Access the List Queued Transaction (LQT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → LQT

2. Complete the List Queued Transaction screenform.

   Start date: **T-2**
   End Date: **T**
   Detailed: **Y**

3. File your criteria and exit the screenform: **File/exit**

4. Send the output to your screen.

5. Scroll through the display: **<Return>**

6. Return to the Transaction Control Menu.

7. Access the Requeue a Transaction (RT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → RT

8. Enter a Message to Requeue: **</>**

9. Complete the Search Criteria screenform.

   Start Date: **T-2**
   End Date: **T**
   Destination: **HL CLINICOMP**
   Status: **K**

   Select a status of Negative Acknowledgment.

Student 9 (continued)

10. File the data and exit: **<Do>**

11. Select the transaction to requeue: **trn92**

    Press **<Select>**

12. Activate the transaction selected for requeue: **<F19>**

13. Specify the time and priority level for the message to be requeued.

    Time to process: NOW// **<Return>**

    Priority: 0// **7**

14. Send the output to your screen.

15. Exit the screenform. **<F10>**

16. Return to the Transaction Control Menu.

17. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT→ GIS → **TCM** → IUIF

18. Select Interface Message: **trn92**

19. Send the output to your screen.

20. Scroll through the display until you reach the Activity Log.

    Notice the entry indicating that the transaction was requeued.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you requeued the transaction.

21. Return to the Transaction Control Menu.

Student 9 (continued)

c. Manage Transactions

Scenario: *Your system is having problems with disk storage utilization that you think may be related to the interfaces. Perform some basic maintenance operations, then review system performance and statistics.*

1. Access the Mark Transaction Complete (MTC) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → MTC

2. Select Transaction to Mark Complete: **< / >**

3. Complete the screenform.

   Start Date: **T-3**
   End Date: **T**
   Destination: **ANATOMIC PATHOLOGY**
   Status: **P**

4. File the data: **<Do>**

   A list displays of the messages that meet your criteria.

5. Select the message **trn29 <Select>**

   Activate the selected transaction: **<Return>**

6. Enter at OK to Delete from queue? NO// **Y**

7. Send the output to your screen.

8. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → IUIF

9. Select Interface Message: **trn29**

10. Send the output to your screen.

Student 9 (continued)

11. Scroll through the display until you reach the Activity Log.

    Notice the entry indicating that the transaction was marked Complete.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you marked the transaction Complete.

12. Return to the Transaction Control Menu.

d. Display Statistic, Message Size, and Throughput Data

Scenario: *You have resolved several interface problems. Confirm the health of your interface system by reviewing sample statistics for specific messages statuses and destinations.*

1. Access the Interface Statistics Generator (STAT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → STAT

2. Complete the Statistical Report Definition screenform.

   Date/Time:

   Order: **1**
   From: **T-10**
   To: **T**
   Count: **Y**

   Destination:

   Order: **3**
   From: **A**
   To: **Z**
   Count: **Y**

   Status:

   Order: **2**
   From: **C**
   To: **C**
   Count: **Y**

3. File your selection criteria: **<F17>**

Student 9 (continued)

4. Send the output to your screen.

5. Return to the Transaction Control Menu.

6. Access the Average Message Size (AMS) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → AMS

7. Select Interface Destination Name: **HL MDIS**

8. Select Interface Destination Name: **<Return>**

9. Enter date range.

   Starting Date: **T-10**
   Ending Date: **T**

10. Send the output to your screen.

11. Scroll through the report: **<Return>**

12. Access the Throughput Analyzer (TRA) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → TRA

13. Select Interface Destination Name: **MHCMIS**

14. Select Interface Destination Name: **HL MDIS**

15. Select Interface Destination Name: **<Return>**

16. Select a date range.

    Starting Date: **T**
    Ending Date: **T**

17. Enter at Status: **<Return>**

18. Enter at Detailed: NO// **Y**

19. Enter at Time Interval: 60// **180**

Student 9 (continued)

20. Send the output to your screen using 132 columns.

    Queue on Device: **0;132**

21. Scroll through the display: **<Return>**

22. Return to the Interface Menu.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you have generated each of the three reports.

Student 10

Practice 2 - Manage the GIS transactions.

INSTRUCTIONS: This practice will take approximately 20 minutes. Follow the instructions below.

Scenario: *You have had several interface problems today. MHCMIS is reporting errors on corrupted messages received from CHCS. Those transactions must be edited and requeued. CliniComp is returning negative acknowledgments. The hardware specialist located and replaced a failing hardware component between CHCS and CliniComp. View, then requeue appropriate CliniComp transactions waiting in the queues. CoPath received some corrupt patient data and is unable to process several test requests. Change transaction status from pending to complete for the appropriate messages, then delete the messages from the transmission queues. Finally, review activity statistics to determine the health of the interface system, then view throughput for the MDIS and MHCMIS interfaces.*

a. Find And Edit a Corrupted Transaction

1. Access the Transaction Search (TS) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → TS

2. Complete the Search Criteria screenform.

   Start date: **T-2**
   End date: **T**
   Direction: **OUT**
   Destination: **MHCMIS**
   Status: **E**
   Expanded display: **Y**

3. File the data and exit the screenform: **File/exit**

4. Select a couple of the displayed messages.

   Move the cursor to the message, then press **<Select>**

5. Activate your selected messages: **<Return>**

6. Send the output to your screen.

Student 10 (continued)

7. Scroll through the display: **<Return>**

8. Exit the Search Criteria screen: **<F10>**, then **select <Abort>.**

9. Access the Edit an Interface Transaction (EIT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → EIT

10. Select Transaction to Edit: **trn70**

11. Edit the transaction by removing the blank spaces in the first zip code field.

    The zip code should be flanked on both sides by a backslash.

12. Save your changes: **<Do>**

13. Requeue the transaction for transmission to its destination.

    Requeue for Output? YES// **<Return>**
    Enter a Message to Requeue: **trn70**

14. Requeue the transaction: **<F19>**

    Time to Process: NOW// **<Return>**
    Priority: 0// **<Return>**

15. Send the output to your screen.

16. Return to the Transaction Control Menu.

17. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → IUIF

18. Select interface message: **trn70**

19. Send the output to your screen.

Notify the presenter when you have completed this portion of the practice. The present can verify that you edited and requeued the transaction.

Student 10 (continued)

b. Requeue Transactions That Were Not Transmitted

Scenario: *The link to your CliniComp system was briefly interrupted, resulting in lost and corrupted transmissions. The CliniComp manager confirmed that the external system did not receive the data. Determine whether the transaction is still in the transmitter queue (INLHDEST). If not, requeue the transaction to CliniComp.*

1. Access the List Queued Transaction (LQT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → LQT

2. Complete the List Queued Transaction screenform.

   Start date: **T-2**
   End Date: **T**
   Detailed: **Y**

3. File your criteria and exit the screenform: **File/exit**

4. Send the output to your screen.

5. Scroll through the display: **<Return>**

6. Return to the Transaction Control Menu.

7. Access the Requeue a Transaction (RT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → RT

8. Enter a Message to Requeue: **</>**

9. Complete the Search Criteria screenform.

   Start Date: **T-2**
   End Date: **T**
   Destination: **HL CLINICOMP**
   Status: **K**

   Select a status of Negative Acknowledgment.

Student 10 (continued)

10. File the data and exit: **<Do>**

11. Select the transaction to requeue: **trn93**

    Press **<Select>**

12. Activate the transaction selected for requeue: **<F19>**

13. Specify the time and priority level for the message to be requeued.

    Time to process: NOW// **<Return>**

    Priority: 0// **7**

14. Send the output to your screen.

15. Exit the screenform. **<F10>**

16. Return to the Transaction Control Menu.

17. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT→ GIS → **TCM** → IUIF

18. Select Interface Message: **trn93**

19. Send the output to your screen.

20. Scroll through the display until you reach the Activity Log.

    Notice the entry indicating that the transaction was requeued.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you requeued the transaction.

21. Return to the Transaction Control Menu.

Student 10 (continued)

c. Manage Transactions

Scenario: *Your system is having problems with disk storage utilization that you think may be related to the interfaces. Perform some basic maintenance operations, then review system performance and statistics.*

1. Access the Mark Transaction Complete (MTC) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → MTC

2. Select Transaction to Mark Complete: **< / >**

3. Complete the screenform.

   Start Date: **T-3**
   End Date: **T**
   Destination: **ANATOMIC PATHOLOGY**
   Status: **P**

4. File the data: **<Do>**

   A list displays of the messages that meet your criteria.

5. Select the message **trn26 <Select>**

   Activate the selected transaction: **<Return>**

6. Enter at OK to Delete from queue? NO// **Y**

7. Send the output to your screen.

8. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → IUIF

9. Select Interface Message: **trn26**

10. Send the output to your screen.

Student 10 (continued)

11. Scroll through the display until you reach the Activity Log.

    Notice the entry indicating that the transaction was marked Complete.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you marked the transaction Complete.

12. Return to the Transaction Control Menu.

d. Display Statistic, Message Size, and Throughput Data

Scenario: *You have resolved several interface problems. Confirm the health of your interface system by reviewing sample statistics for specific messages statuses and destinations.*

1. Access the Interface Statistics Generator (STAT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → STAT

2. Complete the Statistical Report Definition screenform.

   Date/Time:

   Order: **1**
   From: **T-10**
   To: **T**
   Count: **Y**

   Destination:

   Order: **3**
   From: **A**
   To: **Z**
   Count: **Y**

   Status:

   Order: **2**
   From: **C**
   To: **C**
   Count: **Y**

3. File your selection criteria: **<F17>**

Student 10 (continued)

4. Send the output to your screen.

5. Return to the Transaction Control Menu.

6. Access the Average Message Size (AMS) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → AMS

7. Select Interface Destination Name: **HL MDIS**

8. Select Interface Destination Name: **<Return>**

9. Enter date range.

   Starting Date: **T-10**
   Ending Date: **T**

10. Send the output to your screen.

11. Scroll through the report: **<Return>**

12. Access the Throughput Analyzer (TRA) option on the Transaction Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **TCM** → TRA

13. Select Interface Destination Name: **MHCMIS**

14. Select Interface Destination Name: **HL MDIS**

15. Select Interface Destination Name: **<Return>**

16. Select a date range.

    Starting Date: **T**
    Ending Date: **T**

17. Enter at Status: **<Return>**

18. Enter at Detailed: NO// **Y**

19. Enter at Time Interval: 60// **180**

Student 10 (continued)

20. Send the output to your screen using 132 columns.

    Queue on Device: **0;132**

21. Scroll through the display: **<Return>**

22. Return to the Interface Menu.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you have generated each of the three reports.

■ Objective 3: MANAGE THE GIS BACKGROUND PROCESSES

Scenario: *The manager of one of your external systems has told you she is not receiving interface data. Verify the background process statuses, recycle the background processes, check the queue size and top entries, then monitor queue activity.*

DISCUSS THE BACKGROUND PROCESSES

Transmitter and receiver background processes run for the following bidirectional interfaces:

– CoPath

– DBSS

– DII.

Transmitter background processes run for the following unidirectional interfaces:

– CliniComp

– MHCMIS

– NMIS.

There are no background processes for MDIS.

In addition to the GIS background processes, the following TaskMan processes must also be running:

– XXDMM AUTOTRANSMIT. Transmits transaction message files to MHCMIS.

– INH AUTOPURGE. Purges transactions in the UIF and errors in the Interface Error file.

This class does not cover the scheduling of TaskMan tasks.

- Refer to SYS: VMS Software Specialist, Module 6 - CHCS Tools and the Systems Manager Menu (EVE), for information on TaskMan scheduling.

▲ DEMONSTRATE THE BACKGROUND PROCESS CONTROL MENU (BPM) OPTION

- Access the Background Process Control Menu (BPM) option on the Interface Menu.

Systems Manager Menu (EVE) → SM → INT → **GIS** → BPM

Discuss Options on the Background Process Control Menu

The Background Process Control Menu controls the formatting, transmitting, and receiving programs that run in the background. You will use all of the options on the Background Process Control Menu:

– Inquire to a Background Process (IBP)

– Startup a Background Process (S1)

– Start All Background Processes (SA)

– Shutdown a Process (SH1)

– Shutdown All Background Processes (SHA)

– Verify Status of Background Processes (VS)

– Display Queue Size (QSIZ)

– Top Entries in Queues (TOP)

– Background Process Monitor (BMON).

This objective details all of these options.

▲ DEMONSTRATE THE VERIFY STATUS OF BACKGROUND PROCESS (VS) OPTION

1. Access the Verify Status of Background Process (VS) option on the Background Process Control Menu.

Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → VS

This option allows you to view the status of active background processes. The VS option displays only processes that have been set to Active in the Background Process Control file.

The following screenform displays: Verify Status of Background Processes - Input Parameters.

2. Complete the screenform.

   Detailed Report: YES **<Return>**

   If you select a detailed report, the report includes message detail for each process. If you do not select a detailed report, message detail is not included.

   Repaint Frequency: 5 **<Return>**

   Enter the number of seconds (up to 3600, or 1 hour) before each page of the report repaints with new data. If the report is more than one page, the entire report repaints after (Repaint Frequency) x (total number of pages).

   Each time the report repaints is considered an iteration. The report captures data real-time, so any changes in the processes are reflected in the next report iteration. The default is 5 seconds per page.

   Maximum number of iterations: 100 **<Return>**

   This parameter is only used when the report is directed to a printer. If sending the report to a printer, enter the maximum number of report iterations to be run. Only the report for the last iterations is sent to the printer. However, data is accumulated from all iterations. The default is 100 iterations.

   If sending the report to your screen, the report continues to update until you manually press any key.

3. File the parameters and exit: **File/exit**

4. Send the output to your screen.

   Since none of the processes are running, the system does not display much data.

5. When finished viewing the report, press any key.

   You return to the Verify Status of Background Processes screenform.

6. Exit the screenform and return to the Background Process Control Menu: **<F10>**, then select **Abort**

▲ DEMONSTRATE THE STARTUP A BACKGROUND PROCESS (S1) OPTION

1. Access the Startup a Background Process (S1) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → S1

   This option allows you to start a single background process. A process can only be started if it was first set to Active in the Background Process Control file.

2. Select Process to Start: **MHCMIS**

   If the process could be started, the message displays: Started

3. Return to the Background Process Control Menu.

4. Confirm that the MHCMIS transmitter was started.

   Access the Verify Status of Background Processes (VS) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → VS

5. Accept the default parameters in the Verify Status of Background Processes screenform.

6. Send the output to your screen.

- Refer to Figure 5-12: Status of Background Processes.

Discuss the Display

The Verify Background Process Report lists the time and statistics for the last time each active background process was run, as well as the last time that process changed status. The report repaints data according to your specified repaint frequency.

– **Start Time.** Date and time the VS process was started.

– **Run Time.** How long the VS process has been running (current date/time - start date/time).

– **Number of Iterations.** Selection criteria previously entered in the Maximum Number of Iterations field.

```
Verify Background Process                          21 Jun 2001@2029
   Start Time:  21 Jun 2001@2029     Number of Iterations:  10
     Run Time:  0 min               Avg Time per Iteration:  5 sec

Run Background Process/           Last Run/     (defaults in seconds)
    Message                        Last Msg  Elapsed   Min     Max     Avg
--- --------------------------- --------- ------- ------ ------ ------
 N  OUTPUT CONTROLLER
 N  FORMAT CONTROLLER
 N  ANATOMIC PATHOLOGY TRANSMITTER
 N  DBSS TRANSMITTER
 N  CLINICOMP TRANSMITTER
    MHCMIS TRANSMITTER             20:29:46       9       0      9     5.3
      Idle                          19:56:53  33m 2s   32.2m  33.0m  32.6m
 N  ANATOMIC PATHOLOGY RECEIVER
 N  DBSS RECEIVER
 N  NMIS TRANSMITTER
 N  LSI INTERFACE RECEIVER
 N  LSI INTERFACE TRANSMITTER
```

FM-00781

Figure 5-12. Status of Background Processes

– **Average Time per Iteration.** Selection criteria previously entered in the Repaint Frequency field.

– **Run.** The current status of the process displays:

  * **(N)ot running**. The process was unable to connect to the remote system within the number of retries specified in the Background Process Control file (Open Retries field). If the Format or Output Controller process(es) are not running, data is not exchanged between CHCS and the UIF. If the interface transmitter or receiver processes are not running, data is not sent to, or received from, the external destination or source for that process. Once the process halts, it must be manually restarted.

  * **Signaled to (Q)uit**. The process is shutting down.

  * **Blank**. The process is running. Once connected, the process continues running, whether or not activity is on the channel.

    The only exception is the server processes started by the Output and Format Controller process(es). If activity halts, an output controller server stops after the time specified in the Interface Site Parameters file (Output Server Wait Time field). Likewise, a Format Controller server stops after the time specified in the same file (Format Server Wait Time field). However, the primary Format and Output processes continue, and restart their servers when activity picks up.

- **Background Process.** Names of the background processes that are currently active. The Output Controller and Format Controller processes control the flow of data between CHCS and the UIF. All other transmitter and receiver processes control the flow of data between the UIF and the external system indicated in the name of the process.

- **Last Run.** The first line contains the time when this process last performed an activity, as well as the following statistics:

  * **Elapsed Time.** Number of seconds between the current time and the last time this process performed an activity (Last Run time). If the background process is busy, the elapsed time between activities is small; likewise, the elapsed time is large when the process is not very busy.

  * **Minimum Time.** Minimum number of seconds between process activities.

  * **Maximum Time**. Maximum number of seconds between process activities.

  * **Average Time.** Average number of seconds between process activities.

- **Message.** The second line contains the current status for each background process. Possible statuses include:

  * Idle

  * Transmitting

  * Attempt [number] to open socket

  * Waiting to commit ack

  * Waiting to write to queue

  * Listening for connect

  * Read socket.

  If the interface is functioning properly, this message should continuously change.

- **Last Msg**. The second line also contains the time and statistics for the last status change for this process. The following displays:

  * **Elapsed Time.** Number of seconds between the current time and the last time this process changed status (Last Msg time).

* **Minimum Time.** Minimum number of seconds between process status messages.

* **Maximum Time**. Maximum number of seconds between process status messages.

* **Average Time.** Average number of seconds between process status messages.

7. When finished viewing the report, press **<Return>**

8. Exit the screenform and return to the Background Process Control Menu: **<F10>**, then select **Abort**

▲ DEMONSTRATE THE SHUTDOWN A PROCESS (SH1) OPTION

1. Access the Shutdown a Process (SH1) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → SH1

   This option allows you to shutdown one specific background process that is already running. You might need to shut down a process if an interface is having problems; for example, if the external system has gone down.

2. Select PROCESS to Stop: **MHCMIS**

   The message displays:

   Process has been signaled to terminate.

3. Confirm that the MHCMIS transmitter was started.

   Access the Verify Status of Background Processes (VS) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → VS

4. Accept the default parameters in the Verify Status of Background Processes screenform.

5. Send the output to your screen.

   Notice that the MHCMIS transmitter now has a run status of N.

6. When finished viewing the report, press **<Return>**

7. Exit the screenform and return to the Background Process Control Menu: **<F10>**, then select **Abort**

▲ DEMONSTRATE THE START ALL BACKGROUND PROCESSES (SA) OPTION

1. Access the Start all Background Processes (SA) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → SA

   This option starts all background processes that have been flagged as Active in the Background Process Control file. Once active, the processes starts retrieving and transmitting data to/from the UIF. If you only want to start one interface, use the Startup a Background Process (SA) option.

   The SA option could be used after a shutdown of all GIS interface processes, such as after a CHCS software or hardware upgrade.

Discuss the Display

The system lists each background process name, followed by whether the process could be started. A process may fail startup if the remote system is unavailable. The list summarizes the total number of processes started.

If the process is already running, the system displays a message to that effect, then ask you whether to continue. You should respond No. If you select Yes, the GIS attempts to start a new process, but detects the current process, then aborts the attempt to start a new process. The current process continues uninterrupted. If you select No, the GIS does not try to start a new process.

The number of processes started using this option is site-specific, corresponding to the active interfaces at the site. Generally, unidirectional interfaces only have a transmitter process. Bidirectional interfaces require both a transmitter and a receiver process.

2. Confirm that all processes have been started.

   Access the Verify Status of Background Processes (VS) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → VS

- Refer to Figure 5-13: Status of Background Processes - All Running.

```
Verify Background Process                    21 Jun 2001@1554
  Start Time:  21 Jun 2001@1552     Number of Iterations:  24
    Run Time:  2 min              Avg Time per Iteration:  5 sec

Run Background Process/              Last Run/  (defaults in seconds)
      Message                        Last Msg  Elapsed  Min   Max  Avg
--- ------------------------------- --------- -------- ----- ----- ----
    OUTPUT CONTROLLER                11:34:30    1m 40s  1.5m  1.7m  1.6m
     Idle
      SERVER1                        11:35:49       22     10  22   16
      SERVER2                        11:36:03        8      8  21 14.5
      SERVER3                        11:36:01       10     10  22   16
    FORMAT CONTROLLER                11:34:14   1m 57s   1.8m 2.0m 1.9m
     Idle
      SERVER1                        11:36:04        7      7   7    7
      SERVER2                        11:36:04        7      7   7    7
      SERVER3                        11:36:06        5      5   7    6
 N  ANATOMIC PATHOLOGY TRANSMITTER
 N  DBSS TRANSMITTER
 N  CLINICOMP TRANSMITTER
    MHCMIS TRANSMITTER               11:36:06        5      5   9    7
     Transmitting                    11:36:06        5      5  20 12.5
    ANATOMIC PATHOLOGY RECEIVER      11:36:20        3      3   9    6
     Attempt 5 to open socket
    DBSS RECEIVER                    11:36:18        5      5   9    7
     Attempt 2 to open socket
 N  NMIS TRANSMITTER
    LSI INTERFACE RECEIVER           11:36:13       10      3  14    9
     Attempt 4 to open socket
 N  LSI INTERFACE TRANSMITTER
```

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Figure 5-13. Status of Background Processes - All Running

Discuss the Display

Notice that many of the interfaces now have statistics. Some of the interfaces started, but then did not find an external system, so they timed out. All GIS background processes eventually time out if they do not get a response, except for the MHCMIS process.

The Output and Format Controller processes have many server processes listed. The number of servers is determined by the value in the Max Number of Output Jobs field in the Interface Site Parameters file.

3. When finished viewing the report, press any key.

4. Exit the screenform and return to the Background Process Control Menu.

▲ DEMONSTRATE THE SHUTDOWN ALL BACKGROUND PROCESSES (SHA) OPTION

1. Access the Shutdown All Background Processes (SHA) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → SHA

   This option allows you to shutdown all background processes. Once shut down, no data is received into, or transmitted out of, the UIF. If you only want to shut down specific interfaces, use the Startup a Background Process (SH1) option instead.

   The SHA option could be used to shut down all GIS interface processes before a CHCS software or hardware upgrade.

2. Enter at Do you really want to shut down all Interface processes? YES// **<Return>**

   The system provides a safe and easy exit from this process. Be sure that you want to shut down all interfaces.

   The message displays:

   All processes have been signalled to quit.

   You return to the Background Process Control Menu.

3. Restart all background process for use in the practice.

   Access the Start All Background Process (SA) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → SA

▲ DEMONSTRATE THE INQUIRE TO A BACKGROUND PROCESS (IBP) OPTION

1. Access the Inquire to a Background Process (IBP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → IBP

   This option allows you to view site-specific system parameters defined in the Background Process Control file for one specific background process. It also allows you to view the status, last start time, and a summary of errors for that process.

2. Select BACKGROUND PROCESS CONTROL NAME: **MHCMIS**

3. Send the output to your screen.

- Refer to Figure 5-14: Inquire to a Background Process.

```
Process Name:  MHCMIS TRANSMITTER
   Active/Inactive:  ACTIVE     Routine:  INHVMTR
          Priority:              Device:
     Client/Server:  SERVER            Server IP Port

   Client IP Address                  Client IP Port
     218.80.80.80                       2001
---------------------------- Parameters ---------------------------------
   Open Hang Time:       Open Retries:  4
   Send Hang Time:       Send Retries:          Send Timeout:
   Read Hang Time:       Read Retries:         Rec'v Timeout:
 Transmitter Hang:
      End of Line:
      Init String:
    Init Response:
-------------------------------------------------------------------------

Status                      $JOB     Last Run Update  Last Started
Appears to be NOT running  5410818                    21 Jun 2001@110016

Errors:
  Date/Time      Error
  ---------      -----
```

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Figure 5-14. Inquire to a Background Process

Discuss the Display

The first group of fields display from the Background Process Control file.

- **Active/Inactive.** Process status, either Active or Inactive. An inactive process cannot be started from either the Startup a Background Process (S1) or Start all Background Processes (SA) option.

- **Priority.** Priority assigned to this process for its access to background task resources. Values range from 1 through 10; 1 is the highest and 10 is the lowest. If no value displays, the value assigned in the Interface Site Parameters file is used.

- **Client/Server.** Whether the process should be opened as a client or a server when it opens a TCP socket to the remote system. The default assumes the process is opened as a client.

- **Routine**. Name of the routine that this process runs.

- **Device.** Name of the device this program opens for all input/output (I/O) operations. If blank, this process performs no I/O.

- **Server IP Port.** If this process is opened as a server, this is the known IP port address (starting at 2000) used by this process when it opens a TCP socket to the remote system. This field should contain a value only if the Client/Server field says Server. The port address must be coordinated with the remote system manager. Since MHCMIS sends data to an ASCII file, and not directly to an external system, it does not require entry of an IP port in the Background Process Control file.

- **Client IP Address and Client IP Port.** If this process is opened as a client, this is the IP address and known IP port address used by this process when it opens a TCP socket to the remote system. This field should contain a value only if the Client/Server field says Client. The client IP address is coordinated with the remote systems manager.

The fields contained in the Parameters section represent processing conditions related to transmitting and receiving messages. These fields also come from the Background Process Control file.

- **Open Hang Time**. Number of seconds to wait before failing an attempt to open a communication channel.

- **Open Retries**. Number of attempts to open a communication channel before aborting.

- **Send Hang Time**. Number of seconds a transmitter process waits after failing an attempt to send a single message before retrying.

- **Send Retries**. The number of retries; i.e., the number of attempts a transmitter process should make to send a single message. The transmitter process retries whether the attempt timed out, or a negative acknowledgment was received. Once the number of retries has been exceeded, the GIS concludes that the message is faulty, adds a message to the activity log that the number of retries was exceeded for this message, then sends the next message in the queue.

- **Send Timeout**. Number of seconds a transmitter process attempts a single transmission before aborting. This field is not currently used.

- **Read Hang Tim**e. Number of seconds a receiver process will wait after failing an attempt to read a single message before retrying.

- **Read Retries**. Number of retries; i.e.; the number of attempts a receiver process should make to read a single message.

- **Rec'v Timeout**. Number of seconds that a receiver attempts to read a single message.

- **Transmitter Hang**. Number of seconds to wait between checks of the message queue for messages to send. This parameter should be set relatively high for background processes that have low message traffic and low priority messages.

- **End of Line.** ASCII code(s) used to terminate a message.

- **Init String.** ASCII code or string sent by the initiating (client) system to the receiving (server) system to signal that an interface link is being made.

- **Init Response.** ASCII codes sent by the receiving system to the transmitting system in response to the initiation string.

The following data is collected by the Inquire to a Background Process (IBP) option:

- **Status.** Whether the process is running.

- **$JOB.** The MUMPS process ID.

- **Last Run Update.** The last time the process performed an activity.

- **Date/Time Last Started.** Date and time when this process was last started.

The date, time, and code of any errors are listed at the bottom of the display.

4. Return to the Background Process Control Menu.

▲ DEMONSTRATE THE TOP ENTRIES IN QUEUES (TOP) OPTION

1. Access the Top Entries in Queues (TOP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → TOP

   This option allows you to view the next transaction to be processed in each of the active interface queues. The computer operator should use the TOP option every hour to confirm that the active interfaces are functioning properly.

   The report displays the next transaction at each level of sort (i.e, at each priority) for each time to process. Transactions are ordered in the various queues as follows:

   – **INLHSCH**. Queue used by the Output Controller process. Entries are sorted by priority, then time to process.

   – **INLHDEST**. Queue used by the background transmitter processes for each interface. Entries are sorted by destination, time to process, then message ID.

   – **INLHFTSK**. Queue used by the Format Controller process. Entries are sorted by priority, then time to process.

2. Complete the Input Parameters screenform.

   Detailed report: YES **<Return>**

   Select the nondetailed report to determine whether the background processes are moving data into and out of the queues. If they are, the data on the screen changes with each iteration.

   If you select the detailed report, the following additional data displays:

   – Transaction type

   – Message ID

   – Number of records in that queue entry.

Repaint Frequency (sec): 5 **<Return>**

Enter the number of seconds (up to 3600, or 1 hour) before each page of the report repaints with new data. If the report is more than one page, the entire report repaints after (Repaint Frequency) x (total number of pages).

Each time the report repaints is considered an iteration. The report captures data real-time, so any changes in the queues are reflected in the next report iteration. The default is 5 seconds per page.

Maximum number of times to try for an entry: 5 **<Return>**

Enter a value to determine the maximum number of times the report tries to read an entry in the queue. Since entries move in and out of the queue frequently, an entry may be gone by the time the report tries to read specifics about that entry.

3. File the data and exit the screenform.

   The output displays on your screen.

- Refer to Figure 5-15: Top Entries in Queues.

```
Top Entries by priority                21 Jun 2001@1742
   Start Time:  21 Jun 2001@1739     Number of Iterations:  16
    Run Time:  2 min         Avg Time per Iteration:  10 sec

Background Process
 Prio Scheduled   Age    Message Id  Record    Transaction Type
 ---- ---------- ------- ---------- --------- ----------------------------
OUTPUT CONTROLLER
 0     16:13:48   1h 28m   trn15676      15677   HL MASTER FILE NOTIFICATION (
 1     13:30:19   4h 11m   trn2496        2496   HL MASTER FILE NOTIFICATION (
FORMAT CONTROLLER
 0     21:42:05   20h 0m                  1164  HL DG UPDATE OUT (PARENT)
 1     19:54:00   21h 48m                 2315  MASTER FILE NOTIFICATION
 7     T-61@13:39 60d 20h                 2752  HL PSO PRESCRIPTION
ANATOMIC PATHOLOGY TRANSMITTER
 0     16:16:10   17h 55m  trn26            24  HL DG REG OUT (AP)
DBSS TRANSMITTER
 0     09:26:04   8h 16m   trn465          465  HL DG UPDATE PATIENT OUT (BB)
 1     09:29:06   8h 13m   trn677          677  HL MASTER FILE NOTIFICATION (
CLINICOMP TRANSMITTER
 0     09:16:11   8h 25m   trn114          112  HL DG REG OUT (CLIN)
 1     09:29:03   8h 13m   trn672          671  HL MASTER FILE NOTIFICATION (
MHCMIS TRANSMITTER
 1     17:09:54   32m 17s  trn19091       19091  HL MASTER FILE NOTIFICATION
NMIS TRANSMITTER
LSI INTERFACE TRANSMITTER
DBSS TRANSMITTER 2
 0     09:26:06   8h 16m   trn468          467  HL DG UPDATE PATIENT OUT (BB)
 1     09:29:08   8h 13m   trn680          680  HL MASTER FILE NOTIFICATION (
DBSS TRANSMITTER 3
 0     09:26:08   8h 16m   trn470          469  HL DG UPDATE PATIENT OUT (BB)
 1     09:29:08   8h 13m   trn683          682  HL MASTER FILE NOTIFICATION (
```

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Figure 5-15. Top Entries in Queues

Discuss the Display

The top of the display includes the following:

– **Start Time**. Date and time that the report was started.

– **Run Time.** How long the report has been running.

– **Number of Iterations**. The number of iterations that have been displayed.

– **Average Time per Iteration**. The average time to process each iteration.

The body of the display includes the following data for each queue entry, grouped by the background process queue. This grouping also identifies the queue itself:

– **Output Controller**. Entries in the INLHSCH queue.

– **Format Controller.** Entries in the INLHFTSK queue.

– **All destination transmitter processes**. Subqueues created in the INLHDEST queue for each background transmitter process. Notice that no receiver processes are displayed.

Note that if the training database were connected to actual external systems, and those interfaces were functioning normally, the numbers of the TOP display would be constantly changing.

– **Priority**. Processing priority assigned to this entry in the queue.

– **Scheduled**. The time the queue entry is scheduled to be transmitted by the background process.

– **Age**. How long the entry has been in the queue.

– **Message ID**. The message ID. If the queue is correctly processing messages, this ID continuously changes. If a message ID does not change, begin troubleshooting the interface.

– **Record**. Number of records contained within this queue entry.

– **Transaction Type**. The transaction type of each queue entry.

5. To exit the display, press any key.

   You return to the Input Parameters screenform.

6. Exit the screenform. **<F10>**, then select **Abort**

   You return to Background Process Control Menu.

▲ DEMONSTRATE THE DISPLAY QUEUE SIZE (QSIZ) OPTION

1. Access the Display Queue Size (QSIZ) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → QSIZ

   This option allows you to display the number of entries in each of the active interface queues. The computer operator should use the QSIZ option every hour to confirm that the active interface links are functioning properly.

   The data represented in this display varies. Due to the dynamic nature of the message queue, the calculations displayed are estimates.

   Calculations would normally continue to change as data moves in and out of the queues. If the training database were connected to actual external systems, and those interfaces were functioning normally, the numbers of the QSIZ display would constantly change. However, since the training database is not connected to actual external systems, the numbers you see remain static.

2. Complete the Queue Size Report - Input Parameters screenform.

   Detailed Report: YES **<Return>**

   If you select a detailed report, queue statistics are broken down by transaction priority.

   Repaint frequency: 5 **<Return>**

   Maximum number of iterations (printer only): 100 **<Return>**

   This parameter is only used when the report is directed to a printer. If sending the report to a printer, enter the maximum number of report iterations to be run. Only the report for the last iterations is sent to the printer. However, data is accumulated from all iterations. The default is 100 iterations.

   If sending the report to your screen, the report continues to update until you press any key.

   Always scan to end of queue: NO **<Return>**

   If Yes, the report compiles for as long as there are entries to count. If No, the report compiles for the length of time specified in the maximum time to spend compiling report field,.

Maximum time to spend compiling report (sec): 100 **<Return>**

Enter the maximum number of seconds, up to 1800 (30 minutes), to compile this report. If sent to your screen, the report repaints according to your Repaint Frequency for the amount of time specified in this field. If sent to a printer, the report compiles data for this number of seconds, then sends the final iteration to the printer.

If you selected to always scan to the end of the queue (previous field), any value in this field has no effect.

Include future tasks: NO **<Return>**

If Yes, queue entries are included on the report not included on the report.

3. File and exit the screenform.

4. Send the output to your screen.

- Refer to Figure 5-16: Queue Size Display.

Discuss the Display

The top of the display includes the same statistical information as the Top Entries in Queue (TOP), Verify Status (VS), and Queue Size (QSIZ) options.

The following information displays in the body of the report:

– **Background Process**. Name of the background process using this queue. For each background process, the report also totals the current, minimum, maximum, and average time that data has been in that queue.

– **Priority.** If a detailed report was selected, queue entries are sorted by their priority, as well as by process name.

– **Current.** Number of queue entries for this report iteration. If queue entries are processing correctly, this number should stay close to zero. If this number starts to grow, check the Queue Size (QSIZ) option to determine whether messages are processing, and check the Verify Status (VS) option to determine the status of the background process.

```
GIS Queue Size                                        21 Jun 2001@1403
   Start Time:  21 Jun 2001@1402     Number of Iterations:  2
     Run Time:  0 min              Avg Time per Iteration:  20 sec

Background Process              Prio         Curr    Min     Max     Avg
---------------------          -----       ------ ------  ------  ------
FORMAT CONTROLLER                  0          120    120     120     120
                                   1         2025   2025    2029    2027
                                   7           59     59      59      59
                              Total:          220   2204    2208    2206

OUTPUT CONTROLLER                  0          250    248     250     249
                                   1          237    234     237     235
                              Total:          487    482     487     484

ANATOMIC PATHOLOGY TRANSMITTER     0            0              0       0
DBSS TRANSMITTER       0          24           24     24              24
                                   1          234    231     234     232
                              Total:          258    255     258     256

CLINICOMP TRANSMITTER              0           87     87      87      87
                                   1          237    232     237     234
                                   7            1      1       1       1
                              Total:          325    320     325     322

MHCMIS TRANSMITTER                 0           22     22      22      22
                                   1          237    233     237     235
                                   7           67     67      67      67
                              Total:          326    322     326     324

NMIS TRANSMITTER                   0            0      0       0       0
LSI INTERFACE TRANSMITTER          0            0      0       0       0
DBSS TRANSMITTER                   2           24     24      24      24
                                   1          237    231     237     234
                              Total:          261    255     261     258

DBSS TRANSMITTER                   3           24     24      24      24
                                   1          240    231     240     235
                              Total:          264    255     264     259

Queue Total                                   4138   4097    4138    4117
Messages created per hour                     2739    553    2739    2026
Transactions identified per hour                 0      0       0       0
```

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Figure 5-16. Queue Size Display

– **Minimum**. Minimum number of queue entries since this report was started.

– **Maximum**. Maximum number of queue entries since this report was started.

– **Average**. Average number of queue entries since this report was started.

At the end of the report, the Current, Minimum, Maximum, and Average statistics are summarized for the following categories:

– **Queue Total.** Total number of entries in the queue.

– **Messages Created per Hour**. Number of inbound or outbound messages placed into the UIF per hour. Messages are placed into the UIF by the Format and Output Controllers processes, as well as the receiver processes. This number can be compared to the queue sizes for those processes to determine if a bottleneck exists. If the size of the Output or Format controller queue is disproportionately large, the Output or Format controllers may need more servers defined in the Interface Site Parameters file.

– **Transactions Identified per Hour**. Number of outbound parent transactions moving into the INLHFTSK (Format Controller) queue per hour. The transactions in this queue are awaiting processing by the Format Controller. This number can be compared to the Format Controller queue size to determine if the Format Controller is backlogged and needs more servers.

5. When finished viewing the report, press any key.

   The Input Parameters screenform displays.

6. Exit the Input Parameters screenform. **<F10>**, then select **Abort**

   The Background Process Control Menu displays.

▲ DEMONSTRATE THE BACKGROUND PROCESS MONITOR (BMON) OPTION

1. Access the Background Process Monitor (BMON) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → BMON

   This option allows you to view detailed information, such as the status, top queue entries, and number of queue entries, for a single active background process.

Discuss the Screenform

– **Verify Status**. This portion of the screenform is identical to the Input Parameters screenform used by the Verify Status (VS) option, except that you select a single background process in BMON.

– **Top Entries**. This portion of the screenform is identical to the Input Parameters screenform used by the Top Entries in Queue (TOP) option, except that selection of a detailed report and repaint frequency are selected under Verify Status in BMON.

– **Queue Size**. This portion of the screenform is identical to the Input Parameters screenform used by the Queue Size (QSIZ) option, except that the selection of a detailed report, repaint frequency, and maximum iterations are selected under Verify Status in BMON.

2. Complete the Background Process Monitor Input Parameters screenform.

   Background Process Control Name: **FORMAT**

   Enter the name of the background process that you want to monitor. You cannot enter the name of a receiver process. That is, you can enter only the names of the Format or Output Controller processes, or one of the Transmitter processes. The process must also be set to active in the Background Process Control file to be entered.

   Detailed Report: **Y**

   If you select a detailed report the following displays:

   – Run Status. Message detail for each process.

   – Top Entries. Transaction type, message ID, and number of records in that queue entry.

   – Queue Size. Queue entries are sorted by priority.

   Repaint Frequency: 5 **<Return>**

   Maximum Number of Iterations (printer only): 100 **<Return>**

   Maximum number of times to try for an entry: 5 **<Return>**

Always scan to end of queue: NO **<Return>**

Enter Y or N. If Yes, the report compiles data as long as there are entries to count. If No, the report compiles data for the length of time specified in the Maximum Time to Spend Compiling Report field.

Maximum time to spend compiling report (sec): 1800 **<Return>**

Enter the maximum time in seconds to spend compiling data for the report. If you selected to scan to the end of the queue (previous field), any entry in this field is disregarded. The default is 1800 seconds (30 minutes).

Include future tasks: NO **<Return>**

Enter Y or N. If Yes, the report includes queue entries that have a future time to process. If No, these entries are not included on the report.

- Refer to Figure 5-17: Background Process Monitor Input Parameters.

```
            **Background Process Monitor**
               **Input Parameters**


 **Verify Status**

Background process Control Name:
Detailed report:  YES      Repaint frequency:  5
Maximum number of iterations (printer only):  100


 **Top Entries**

Maximum number of times to try for an entry:  5

 **Queue Size**

Always scan to end of queue:  NO
Maximum time to spend compiling report (sec): 1800 Include future tasks:  NO
```

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Figure 5-17. Background Process Monitor Input Parameters

3. File and exit the screenform.

4. Send the output to your screen.

   If the output is sent to a printer, only the last iteration of the report prints. However, that report reflects statistics collected during all iterations.

- Refer to Figure 5-18: Background Process Monitor Report.

```
FORMAT CONTROLLER                    21 Jun 2001@1634
   Start Time:  21 Jun 2001@1632       Number of Iterations:  12
     Run Time:  1 min                 Avg Time per Iteration:  9 sec

**RUN STATUS** $JOB:  541078696
Run  Server/                           Last Run/     (defaults in seconds)
       Message                            Last Msg  Elapsed   Min    Max    Avg
--- ------------------------------     ---------- ------- ------ ------ ------
 Y   MAIN                               16:34:28        2      0      3    1.5
       Idle
 Y   SERVER 1                           16:34:30        0      0     14    5.7
       Idle
 Y   SERVER 2                           16:34:30        0      0      3      1
       Idle
 Y   SERVER 3                           16:34:30        0      0      1    0.5
       Idle

**TOP ENTRIES**
Prio  Scheduled    Age    Message Id   Record     Transaction Type
----- ---------- ------- ----------- ---------    ----------------------------
 0     16:37:49  23h 56m                 2326     HL DG REG OUT (PARENT)
 1     16:34:40  23h 59m                 2319     MASTER FILE NOTIFICATION

**QUEUE SIZE (#entries)**              Priority   Curr    Min    Max    Avg
                                       --------  ------ ------ ------ ------
                                          0        95     95     95     95
                                          1       214    169    214    191
                                          7        59     59     59     59
                                       Total:     368    323    368    345

                   Messages created per hour:     6279     0     6381   5544
            Transactions identified per hour:        0     0        0      0
```

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Figure 5-18. Background Process Monitor Report

Discuss the Display

The top of the display includes the same statistical information as the Top Entries in Queue (TOP), Verify Status (VS), and Queue Size (QSIZ) options.

The Run Status portion of the display includes the same data as the Verify Status (VS) option. The data displayed in the Run Status section under the heading Server/Message is the same data displayed in the VS option under the heading Background Process/Message.

The Top Entries portion of the display includes the same information seen through the Top Entries in Queue (TOP) option.

The Queue Size portion of the display includes the same information seen through the Queue Size (QSIZ) option.

5. To exit the display, press any key.

   You return to the Background Process Monitor Input Parameters screenform.

6. Exit the screenform. **<F10>**, then select **Abort**

   You return to the Background Process Control Menu.

7. Return to the Interface Menu.

Practice 3 - Manage the GIS background processes.

PRACTICE

Student 1

Practice 3 - Manage the GIS background processes.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the instructions below.

Scenario: *You are receiving a hardware upgrade to one of your interface links. Stop, then restart, the background process for that interface; then confirm that the process is running and that all process parameters are correct. Perform routine hourly monitoring of the top background process queue entries and queue sizes for all interfaces. Then monitor message activity for your new interface.*

a. Stop and Start a Background Process

1. Access the Shutdown a Process (SH1) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → BPM → SH1

2. Select PROCESS to Stop: **FORMAT CONTROLLER**

3. Confirm that the appropriate process was stopped.

   Access the Verify Status of Background Processes (VS) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → VS

4. Accept the default parameters in the Verify Status of Background Processes screenform.

5. Send the output to your screen.

6. When finished viewing the report, press **<Return>**

7. Exit the screenform and return to the Background Process Control Menu: **<F10>**, then select **Abort**

8. Access the Startup a Background Process (S1) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → S1

Student 1 (continued)

9. Select Process to Start: **FORMAT CONTROLLER**

10. Return to the Background Process Control Menu.

11. Confirm that the appropriate process was started.

    Access the Verify Status of Background Processes (VS) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → VS

12. Accept the default parameters in the Verify Status of Background Processes screenform.

13. Send the output to your screen.

14. Access the Inquire to a Background Process (IBP) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → IBP

15. Select BACKGROUND PROCESS CONTROL NAME: **FORMAT CONTROLLER**

16. Send the output to your screen.

17. Return to the Background Process Control Menu.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that the background process has been shut down, then restarted.

b. View Data About the Process Queues

1. Access the Top Entries in Queues (TOP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → TOP

2. Accept the default parameters in the Input Parameters screenform.

3. File and exit the screenform.

Student 1 (continued)

4. Determine which background process has the oldest entry in its queue:

   _____

   What is the priority of that entry? _____

5. To exit the display, press any key.

6. Exit the screenform: **<F10>**, then select **Abort**

7. Access the Display Queue Size (QSIZ) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → QSIZ

8. Accept the default parameters in the Input Parameters screenform.

9. File and exit the screenform.

10. Send the output to your screen.

11. Determine which background process has the largest number of entries in its queue:

    _____

12. When finished viewing the report, press any key.

13. Exit the Input Parameters screenform: **<F10>**, then select **Abort**

14. Access the Background Process Monitor (BMON) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → BMON

15. Complete the Background Process Monitor Input Parameters screenform.

    Background Process Control Name: **FORMAT CONTROLLER**

    Detailed Report: **Y**

16. File and exit the screenform.

17. Send the output to your screen.

Student 1 (continued)

18. Determine the following information:

    Background process name: _____

    Run status: _____

    Age of the next queue entry to be processed:_____

    Scheduled transmission time of the next queue entry to be processed:

    _____

    Current entries in queue: _____

    Average entries in queue: _____

19. To exit the display, press any key.

20. Exit the screenform: **<F10>**, then select **Abort**

21. Return to the Interface Menu (GIS) option.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you have properly identified information about the background processes.

Student 2

Practice 3 - Manage the GIS background processes.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the instructions below.

Scenario: *You are receiving a hardware upgrade to one of your interface links. Stop, then restart, the background process for that interface; then confirm that the process is running and that all process parameters are correct. Perform routine hourly monitoring of the top background process queue entries and queue sizes for all interfaces. Then monitor message activity for your new interface.*

a. Stop and Start a Background Process

1. Access the Shutdown a Process (SH1) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → BPM → SH1

2. Select PROCESS to Stop: **OUTPUT CONTROLLER**

3. Confirm that the appropriate process was stopped.

   Access the Verify Status of Background Processes (VS) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → VS

4. Accept the default parameters in the Verify Status of Background Processes screenform.

5. Send the output to your screen.

6. When finished viewing the report, press **<Return>**

7. Exit the screenform and return to the Background Process Control Menu: **<F10>**, then select **Abort**

8. Access the Startup a Background Process (S1) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → S1

Student 2 (continued)

9. Select Process to Start: **OUTPUT CONTROLLER**

10. Return to the Background Process Control Menu.

11. Confirm that the appropriate process was started.

    Access the Verify Status of Background Processes (VS) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → VS

12. Accept the default parameters in the Verify Status of Background Processes screenform.

13. Send the output to your screen.

14. Access the Inquire to a Background Process (IBP) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → IBP

15. Select BACKGROUND PROCESS CONTROL NAME: **OUTPUT CONTROLLER**

16. Send the output to your screen.

17. Return to the Background Process Control Menu.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that the background process has been shut down, then restarted.

b. View Data About the Process Queues

1. Access the Top Entries in Queues (TOP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → TOP

2. Accept the default parameters in the Input Parameters screenform.

3. File and exit the screenform.

Student 1 (continued)

4. Determine which background process has the oldest entry in its queue:

   _____

   What is the priority of that entry? _____

5. To exit the display, press any key.

6. Exit the screenform: **<F10>**, then select **Abort**

7. Access the Display Queue Size (QSIZ) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → QSIZ

8. Accept the default parameters in the Input Parameters screenform.

9. File and exit the screenform.

10. Send the output to your screen.

11. Determine which background process has the largest number of entries in its queue:

    _____

12. When finished viewing the report, press any key.

13. Exit the Input Parameters screenform: **<F10>**, then select **Abort**

14. Access the Background Process Monitor (BMON) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → BMON

15. Complete the Background Process Monitor Input Parameters screenform.

    Background Process Control Name: **OUTPUT CONTROLLER**

    Detailed Report: **Y**

16. File and exit the screenform.

17. Send the output to your screen.

Student 2 (continued)

18. Determine the following information:

    Background process name: _____

    Run status: _____

    Age of the next queue entry to be processed:_____

    Scheduled transmission time of the next queue entry to be processed:

    _____

    Current entries in queue: _____

    Average entries in queue: _____

19. To exit the display, press any key.

20. Exit the screenform: **<F10>**, then select **Abort**

21. Return to the Interface Menu (GIS) option.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you have properly identified information about the background processes.

Student 3

Practice 3 - Manage the GIS background processes.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the instructions below.

Scenario: *You are receiving a hardware upgrade to one of your interface links. Stop, then restart, the background process for that interface; then confirm that the process is running and that all process parameters are correct. Perform routine hourly monitoring of the top background process queue entries and queue sizes for all interfaces. Then monitor message activity for your new interface.*

a. Stop and Start a Background Process

1. Access the Shutdown a Process (SH1) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → BPM → SH1

2. Select PROCESS to Stop: **ANATOMIC PATHOLOGY TRANSMITTER**

3. Confirm that the appropriate process was stopped.

   Access the Verify Status of Background Processes (VS) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → VS

4. Accept the default parameters in the Verify Status of Background Processes screenform.

5. Send the output to your screen.

6. When finished viewing the report, press **<Return>**

7. Exit the screenform and return to the Background Process Control Menu: **<F10>**, then select **Abort**

8. Access the Startup a Background Process (S1) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → S1

Student 3 (continued)

9. Select Process to Start: **ANATOMIC PATHOLOGY TRANSMITTER**

10. Return to the Background Process Control Menu.

11. Confirm that the appropriate process was started.

    Access the Verify Status of Background Processes (VS) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → VS

12. Accept the default parameters in the Verify Status of Background Processes screenform.

13. Send the output to your screen.

14. Access the Inquire to a Background Process (IBP) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → IBP

15. Select BACKGROUND PROCESS CONTROL NAME: **ANATOMIC PATHOLOGY TRANSMITTER**

16. Send the output to your screen.

17. Return to the Background Process Control Menu.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that the background process has been shut down, then restarted.

b. View Data About the Process Queues

1. Access the Top Entries in Queues (TOP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → TOP

2. Accept the default parameters in the Input Parameters screenform.

3. File and exit the screenform.

Student 3 (continued)

4. Determine which background process has the oldest entry in its queue:

   _____

   What is the priority of that entry? _____

5. To exit the display, press any key.

6. Exit the screenform: **<F10>**, then select **Abort**

7. Access the Display Queue Size (QSIZ) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → QSIZ

8. Accept the default parameters in the Input Parameters screenform.

9. File and exit the screenform.

10. Send the output to your screen.

11. Determine which background process has the largest number of entries in its queue:

    _____

12. When finished viewing the report, press any key.

13. Exit the Input Parameters screenform: **<F10>**, then select **Abort**

14. Access the Background Process Monitor (BMON) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → BMON

15. Complete the Background Process Monitor Input Parameters screenform.

    Background Process Control Name: **ANATOMIC PATHOLOGY TRANSMITTER**

    Detailed Report: **Y**

16. File and exit the screenform.

Student 3 (continued)

17. Send the output to your screen.

18. Determine the following information:

    Background process name: _____

    Run status: _____

    Age of the next queue entry to be processed:_____

    Scheduled transmission time of the next queue entry to be processed:

    _____

    Current entries in queue: _____

    Average entries in queue: _____

19. To exit the display, press any key.

20. Exit the screenform: **<F10>**, then select **Abort**

21. Return to the Interface Menu (GIS) option.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you have properly identified information about the background processes.

Student 4

Practice 3 - Manage the GIS background processes.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the instructions below.

Scenario: *You are receiving a hardware upgrade to one of your interface links. Stop, then restart, the background process for that interface; then confirm that the process is running and that all process parameters are correct. Perform routine hourly monitoring of the top background process queue entries and queue sizes for all interfaces. Then monitor message activity for your new interface.*

a. Stop and Start a Background Process

1. Access the Shutdown a Process (SH1) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → BPM → SH1

2. Select PROCESS to Stop: **DBSS TRANSMITTER**

3. Confirm that the appropriate process was stopped.

   Access the Verify Status of Background Processes (VS) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → VS

4. Accept the default parameters in the Verify Status of Background Processes screenform.

5. Send the output to your screen.

6. When finished viewing the report, press **<Return>**

7. Exit the screenform and return to the Background Process Control Menu: **<F10>**, then select **Abort**

8. Access the Startup a Background Process (S1) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → S1

Student 4 (continued)

9. Select Process to Start: **DBSS TRANSMITTER**

10. Return to the Background Process Control Menu.

11. Confirm that the appropriate process was started.

    Access the Verify Status of Background Processes (VS) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → VS

12. Accept the default parameters in the Verify Status of Background Processes screenform.

13. Send the output to your screen.

14. Access the Inquire to a Background Process (IBP) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → IBP

15. Select BACKGROUND PROCESS CONTROL NAME: **DBSS TRANSMITTER**

16. Send the output to your screen.

17. Return to the Background Process Control Menu.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that the background process has been shut down, then restarted.

b. View Data About the Process Queues

1. Access the Top Entries in Queues (TOP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → TOP

2. Accept the default parameters in the Input Parameters screenform.

3. File and exit the screenform.

Student 4 (continued)

4. Determine which background process has the oldest entry in its queue:

   _____

   What is the priority of that entry? _____

5. To exit the display, press any key.

6. Exit the screenform: **<F10>**, then select **Abort**

7. Access the Display Queue Size (QSIZ) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → QSIZ

8. Accept the default parameters in the Input Parameters screenform.

9. File and exit the screenform.

10. Send the output to your screen.

11. Determine which background process has the largest number of entries in its queue:

    _____

12. When finished viewing the report, press any key.

13. Exit the Input Parameters screenform: **<F10>**, then select **Abort**

14. Access the Background Process Monitor (BMON) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → BMON

15. Complete the Background Process Monitor Input Parameters screenform.

    Background Process Control Name: **DBSS TRANSMITTER**

    Detailed Report: **Y**

16. File and exit the screenform.

17. Send the output to your screen.

Student 4 (continued)

18. Determine the following information:

    Background process name: _____

    Run status: _____

    Age of the next queue entry to be processed:_____

    Scheduled transmission time of the next queue entry to be processed:

    _____

    Current entries in queue: _____

    Average entries in queue: _____

19. To exit the display, press any key.

20. Exit the screenform: **<F10>**, then select **Abort**

21. Return to the Interface Menu (GIS) option.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you have properly identified information about the background processes.

Student 5

Practice 3 - Manage the GIS background processes.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the instructions below.

Scenario: *You are receiving a hardware upgrade to one of your interface links. Stop, then restart, the background process for that interface; then confirm that the process is running and that all process parameters are correct. Perform routine hourly monitoring of the top background process queue entries and queue sizes for all interfaces. Then monitor message activity for your new interface.*

a. Stop and Start a Background Process

1. Access the Shutdown a Process (SH1) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → BPM → SH1

2. Select PROCESS to Stop: **CLINICOMP TRANSMITTER**

3. Confirm that the appropriate process was stopped.

   Access the Verify Status of Background Processes (VS) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → VS

4. Accept the default parameters in the Verify Status of Background Processes screenform.

5. Send the output to your screen.

6. When finished viewing the report, press **<Return>**

7. Exit the screenform and return to the Background Process Control Menu: **<F10>**, then select **Abort**

8. Access the Startup a Background Process (S1) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → S1

Student 5 (continued)

9. Select Process to Start: **CLINICOMP TRANSMITTER**

10. Return to the Background Process Control Menu.

11. Confirm that the appropriate process was started.

    Access the Verify Status of Background Processes (VS) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → VS

12. Accept the default parameters in the Verify Status of Background Processes screenform.

13. Send the output to your screen.

14. Access the Inquire to a Background Process (IBP) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → IBP

15. Select BACKGROUND PROCESS CONTROL NAME: **CLINICOMP TRANSMITTER**

16. Send the output to your screen.

17. Return to the Background Process Control Menu.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that the background process has been shut down, then restarted.

b. View Data About the Process Queues

1. Access the Top Entries in Queues (TOP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → TOP

2. Accept the default parameters in the Input Parameters screenform.

3. File and exit the screenform.

Student 5 (continued)

4. Determine which background process has the oldest entry in its queue:

   _____

   What is the priority of that entry? _____

5. To exit the display, press any key.

6. Exit the screenform: **<F10>**, then select **Abort**

7. Access the Display Queue Size (QSIZ) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → QSIZ

8. Accept the default parameters in the Input Parameters screenform.

9. File and exit the screenform.

10. Send the output to your screen.

11. Determine which background process has the largest number of entries in its queue:

    _____

12. When finished viewing the report, press any key.

13. Exit the Input Parameters screenform: **<F10>**, then select **Abort**

14. Access the Background Process Monitor (BMON) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → BMON

15. Complete the Background Process Monitor Input Parameters screenform.

    Background Process Control Name: **CLINICOMP TRANSMITTER**

    Detailed Report: **Y**

16. File and exit the screenform.

17. Send the output to your screen.

Student 5 (continued)

18. Determine the following information:

    Background process name: _____

    Run status: _____

    Age of the next queue entry to be processed:_____

    Scheduled transmission time of the next queue entry to be processed:

    _____

    Current entries in queue: _____

    Average entries in queue: _____

19. To exit the display, press any key.

20. Exit the screenform: **<F10>**, then select **Abort**

21. Return to the Interface Menu (GIS) option.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you have properly identified information about the background processes.

Student 6

Practice 3 - Manage the GIS background processes.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the instructions below.

Scenario: *You are receiving a hardware upgrade to one of your interface links. Stop, then restart, the background process for that interface; then confirm that the process is running and that all process parameters are correct. Perform routine hourly monitoring of the top background process queue entries and queue sizes for all interfaces. Then monitor message activity for your new interface.*

a. Stop and Start a Background Process

1. Access the Shutdown a Process (SH1) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → BPM → SH1

2. Select PROCESS to Stop: **MHCMIS TRANSMITTER**

3. Confirm that the appropriate process was stopped.

   Access the Verify Status of Background Processes (VS) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → VS

4. Accept the default parameters in the Verify Status of Background Processes screenform.

5. Send the output to your screen.

6. When finished viewing the report, press **<Return>**

7. Exit the screenform and return to the Background Process Control Menu: **<F10>**, then select **Abort**

8. Access the Startup a Background Process (S1) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → S1

Student 6 (continued)

9. Select Process to Start: **MHCMIS TRANSMITTER**

10. Return to the Background Process Control Menu.

11. Confirm that the appropriate process was started.

    Access the Verify Status of Background Processes (VS) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → VS

12. Accept the default parameters in the Verify Status of Background Processes screenform.

13. Send the output to your screen.

14. Access the Inquire to a Background Process (IBP) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → IBP

15. Select BACKGROUND PROCESS CONTROL NAME: **MHCMIS TRANSMITTER**

16. Send the output to your screen.

17. Return to the Background Process Control Menu.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that the background process has been shut down, then restarted.

b. View Data About the Process Queues

1. Access the Top Entries in Queues (TOP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → TOP

2. Accept the default parameters in the Input Parameters screenform.

3. File and exit the screenform.

Student 6 (continued)

4. Determine which background process has the oldest entry in its queue:

   _____

   What is the priority of that entry? _____

5. To exit the display, press any key.

6. Exit the screenform: **<F10>**, then select **Abort**

7. Access the Display Queue Size (QSIZ) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → QSIZ

8. Accept the default parameters in the Input Parameters screenform.

9. File and exit the screenform.

10. Send the output to your screen.

11. Determine which background process has the largest number of entries in its queue:

    _____

12. When finished viewing the report, press any key.

13. Exit the Input Parameters screenform: **<F10>**, then select **Abort**

14. Access the Background Process Monitor (BMON) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → BMON

15. Complete the Background Process Monitor Input Parameters screenform.

    Background Process Control Name: **MHCMIS TRANSMITTER**

    Detailed Report: **Y**

16. File and exit the screenform.

17. Send the output to your screen.

Student 6 (continued)

18. Determine the following information:

    Background process name: _____

    Run status: _____

    Age of the next queue entry to be processed:_____

    Scheduled transmission time of the next queue entry to be processed:

    _____

    Current entries in queue: _____

    Average entries in queue: _____

19. To exit the display, press any key.

20. Exit the screenform: **<F10>**, then select **Abort**

21. Return to the Interface Menu (GIS) option.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you have properly identified information about the background processes.

Student 7

Practice 3 - Manage the GIS background processes.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the instructions below.

Scenario: *You are receiving a hardware upgrade to one of your interface links. Stop, then restart, the background process for that interface; then confirm that the process is running and that all process parameters are correct. Perform routine hourly monitoring of the top background process queue entries and queue sizes for all interfaces. Then monitor message activity for your new interface.*

a. Stop and Start a Background Process

1. Access the Shutdown a Process (SH1) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → BPM → SH1

2. Select PROCESS to Stop: **ANATOMIC PATHOLOGY RECEIVER**

3. Confirm that the appropriate process was stopped.

   Access the Verify Status of Background Processes (VS) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → VS

4. Accept the default parameters in the Verify Status of Background Processes screenform.

5. Send the output to your screen.

6. When finished viewing the report, press **<Return>**

7. Exit the screenform and return to the Background Process Control Menu: **<F10>**, then select **Abort**

8. Access the Startup a Background Process (S1) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → S1

Student 7 (continued)

9. Select Process to Start: **ANATOMIC PATHOLOGY RECEIVER**

10. Return to the Background Process Control Menu.

11. Confirm that the appropriate process was started.

    Access the Verify Status of Background Processes (VS) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → VS

12. Accept the default parameters in the Verify Status of Background Processes screenform.

13. Send the output to your screen.

14. Access the Inquire to a Background Process (IBP) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → IBP

15. Select BACKGROUND PROCESS CONTROL NAME: **ANATOMIC PATHOLOGY RECEIVER**

16. Send the output to your screen.

17. Return to the Background Process Control Menu.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that the background process has been shut down, then restarted.

b. View Data About the Process Queues

1. Access the Top Entries in Queues (TOP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → TOP

2. Accept the default parameters in the Input Parameters screenform.

3. File and exit the screenform.

Student 7 (continued)

4. Determine which background process has the oldest entry in its queue:

   _____

   What is the priority of that entry? _____

5. To exit the display, press any key.

6. Exit the screenform: **<F10>**, then select **Abort**

7. Access the Display Queue Size (QSIZ) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → QSIZ

8. Accept the default parameters in the Input Parameters screenform.

9. File and exit the screenform.

10. Send the output to your screen.

11. Determine which background process has the largest number of entries in its queue:

    _____

12. When finished viewing the report, press any key.

13. Exit the Input Parameters screenform: **<F10>**, then select **Abort**

14. Access the Background Process Monitor (BMON) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → BMON

15. Complete the Background Process Monitor Input Parameters screenform.

    Background Process Control Name: **ANATOMIC PATHOLOGY RECEIVER**

    Detailed Report: **Y**

16. File and exit the screenform.

Student 7 (continued)

17. Send the output to your screen.

18. Determine the following information:

    Background process name: _____

    Run status: _____

    Age of the next queue entry to be processed:_____

    Scheduled transmission time of the next queue entry to be processed:

    _____

    Current entries in queue: _____

    Average entries in queue: _____

19. To exit the display, press any key.

20. Exit the screenform: **<F10>**, then select **Abort**

21. Return to the Interface Menu (GIS) option.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you have properly identified information about the background processes.

Student 8

Practice 3 - Manage the GIS background processes.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the instructions below.

Scenario: *You are receiving a hardware upgrade to one of your interface links. Stop, then restart, the background process for that interface; then confirm that the process is running and that all process parameters are correct. Perform routine hourly monitoring of the top background process queue entries and queue sizes for all interfaces. Then monitor message activity for your new interface.*

a. Stop and Start a Background Process

1. Access the Shutdown a Process (SH1) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → BPM → SH1

2. Select PROCESS to Stop: **DBSS RECEIVER**

3. Confirm that the appropriate process was stopped.

   Access the Verify Status of Background Processes (VS) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → VS

4. Accept the default parameters in the Verify Status of Background Processes screenform.

5. Send the output to your screen.

6. When finished viewing the report, press **<Return>**

7. Exit the screenform and return to the Background Process Control Menu: **<F10>**, then select **Abort**

8. Access the Startup a Background Process (S1) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → S1

Student 8 (continued)

9. Select Process to Start: **DBSS RECEIVER**

10. Return to the Background Process Control Menu.

11. Confirm that the appropriate process was started.

    Access the Verify Status of Background Processes (VS) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → VS

12. Accept the default parameters in the Verify Status of Background Processes screenform.

13. Send the output to your screen.

14. Access the Inquire to a Background Process (IBP) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → IBP

15. Select BACKGROUND PROCESS CONTROL NAME: **DBSS RECEIVER**

16. Send the output to your screen.

17. Return to the Background Process Control Menu.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that the background process has been shut down, then restarted.

b. View Data About the Process Queues

1. Access the Top Entries in Queues (TOP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → TOP

2. Accept the default parameters in the Input Parameters screenform.

3. File and exit the screenform.

Student 8 (continued)

4. Determine which background process has the oldest entry in its queue:

   _____

   What is the priority of that entry? _____

5. To exit the display, press any key.

6. Exit the screenform: **<F10>**, then select **Abort**

7. Access the Display Queue Size (QSIZ) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → QSIZ

8. Accept the default parameters in the Input Parameters screenform.

9. File and exit the screenform.

10. Send the output to your screen.

11. Determine which background process has the largest number of entries in its queue:

    _____

12. When finished viewing the report, press any key.

13. Exit the Input Parameters screenform: **<F10>**, then select **Abort**

14. Access the Background Process Monitor (BMON) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → BMON

15. Complete the Background Process Monitor Input Parameters screenform.

    Background Process Control Name: **DBSS RECEIVER**

    Detailed Report: **Y**

16. File and exit the screenform.

17. Send the output to your screen.

Student 8 (continued)

18. Determine the following information:

    Background process name: _____

    Run status: _____

    Age of the next queue entry to be processed:_____

    Scheduled transmission time of the next queue entry to be processed:

    _____

    Current entries in queue: _____

    Average entries in queue: _____

19. To exit the display, press any key.

20. Exit the screenform: **<F10>**, then select **Abort**

21. Return to the Interface Menu (GIS) option.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you have properly identified information about the background processes.

Student 9

Practice 3 - Manage the GIS background processes.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the instructions below.

Scenario: *You are receiving a hardware upgrade to one of your interface links. Stop, then restart, the background process for that interface; then confirm that the process is running and that all process parameters are correct. Perform routine hourly monitoring of the top background process queue entries and queue sizes for all interfaces. Then monitor message activity for your new interface.*

a. Stop and Start a Background Process

1. Access the Shutdown a Process (SH1) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → BPM → SH1

2. Select PROCESS to Stop: **NMIS TRANSMITTER**

3. Confirm that the appropriate process was stopped.

   Access the Verify Status of Background Processes (VS) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → VS

4. Accept the default parameters in the Verify Status of Background Processes screenform.

5. Send the output to your screen.

6. When finished viewing the report, press **<Return>**

7. Exit the screenform and return to the Background Process Control Menu: **<F10>**, then select **Abort**

8. Access the Startup a Background Process (S1) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → S1

Student 9 (continued)

9. Select Process to Start: **NMIS TRANSMITTER**

10. Return to the Background Process Control Menu.

11. Confirm that the appropriate process was started.

    Access the Verify Status of Background Processes (VS) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → VS

12. Accept the default parameters in the Verify Status of Background Processes screenform.

13. Send the output to your screen.

14. Access the Inquire to a Background Process (IBP) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → IBP

15. Select BACKGROUND PROCESS CONTROL NAME: **NMIS TRANSMITTER**

16. Send the output to your screen.

17. Return to the Background Process Control Menu.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that the background process has been shut down, then restarted.

b. View Data About the Process Queues

1. Access the Top Entries in Queues (TOP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → TOP

2. Accept the default parameters in the Input Parameters screenform.

3. File and exit the screenform.

Student 9 (continued)

4. Determine which background process has the oldest entry in its queue:

   _____

   What is the priority of that entry? _____

5. To exit the display, press any key.

6. Exit the screenform: **<F10>**, then select **Abort**

7. Access the Display Queue Size (QSIZ) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → QSIZ

8. Accept the default parameters in the Input Parameters screenform.

9. File and exit the screenform.

10. Send the output to your screen.

11. Determine which background process has the largest number of entries in its queue:

    _____

12. When finished viewing the report, press any key.

13. Exit the Input Parameters screenform: **<F10>**, then select **Abort**

14. Access the Background Process Monitor (BMON) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → BMON

15. Complete the Background Process Monitor Input Parameters screenform.

    Background Process Control Name: **NMIS TRANSMITTER**

    Detailed Report: **Y**

16. File and exit the screenform.

17. Send the output to your screen.

Student 9 (continued)

18. Determine the following information:

    Background process name: _____

    Run status: _____

    Age of the next queue entry to be processed:_____

    Scheduled transmission time of the next queue entry to be processed:

    _____

    Current entries in queue: _____

    Average entries in queue: _____

19. To exit the display, press any key.

20. Exit the screenform: **<F10>**, then select **Abort**

21. Return to the Interface Menu (GIS) option.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you have properly identified information about the background processes.

Student 10

Practice 3 - Manage the GIS background processes.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the instructions below.

Scenario: *You are receiving a hardware upgrade to one of your interface links. Stop, then restart, the background process for that interface; then confirm that the process is running and that all process parameters are correct. Perform routine hourly monitoring of the top background process queue entries and queue sizes for all interfaces. Then monitor message activity for your new interface.*

a. Stop and Start a Background Process

1. Access the Shutdown a Process (SH1) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → BPM → SH1

2. Select PROCESS to Stop: **LSI INTERFACE RECEIVER**

3. Confirm that the appropriate process was stopped.

   Access the Verify Status of Background Processes (VS) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → VS

4. Accept the default parameters in the Verify Status of Background Processes screenform.

5. Send the output to your screen.

6. When finished viewing the report, press **<Return>**

7. Exit the screenform and return to the Background Process Control Menu: **<F10>**, then select **Abort**

8. Access the Startup a Background Process (S1) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → S1

Student 10 (continued)

9. Select Process to Start: **LSI INTERFACE RECEIVER**

10. Return to the Background Process Control Menu.

11. Confirm that the appropriate process was started.

    Access the Verify Status of Background Processes (VS) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → VS

12. Accept the default parameters in the Verify Status of Background Processes screenform.

13. Send the output to your screen.

14. Access the Inquire to a Background Process (IBP) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → IBP

15. Select BACKGROUND PROCESS CONTROL NAME: **LSI INTERFACE RECEIVER**

16. Send the output to your screen.

17. Return to the Background Process Control Menu.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that the background process has been shut down, then restarted.

b. View Data About the Process Queues

1. Access the Top Entries in Queues (TOP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → TOP

2. Accept the default parameters in the Input Parameters screenform.

3. File and exit the screenform.

Student 10 (continued)

4. Determine which background process has the oldest entry in its queue:

   _____

   What is the priority of that entry? _____

5. To exit the display, press any key.

6. Exit the screenform: **<F10>**, then select **Abort**

7. Access the Display Queue Size (QSIZ) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → QSIZ

8. Accept the default parameters in the Input Parameters screenform.

9. File and exit the screenform.

10. Send the output to your screen.

11. Determine which background process has the largest number of entries in its queue:

    _____

12. When finished viewing the report, press any key.

13. Exit the Input Parameters screenform: **<F10>**, then select **Abort**

14. Access the Background Process Monitor (BMON) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → BMON

15. Complete the Background Process Monitor Input Parameters screenform.

    Background Process Control Name: **LSI INTERFACE RECEIVER**

    Detailed Report: **Y**

16. File and exit the screenform.

17. Send the output to your screen.

Student 10 (continued)

18. Determine the following information:

    Background process name: _____

    Run status: _____

    Age of the next queue entry to be processed:_____

    Scheduled transmission time of the next queue entry to be processed:

    _____

    Current entries in queue: _____

    Average entries in queue: _____

19. To exit the display, press any key.

20. Exit the screenform: **<F10>**, then select **Abort**

21. Return to the Interface Menu (GIS) option.

Notify the presenter when you have completed this portion of the practice. The presenter can verify that you have properly identified information about the background processes.

■ Objective 4: MANAGE THE GIS ERRORS

Scenario: *You have had problems with a couple of your interfaces. View and purge some of the errors generated by those interfaces.*

DISCUSS ERRORS

Upon transmission of a message, one of three results can occur:

– The transaction processes successfully, and the entry is marked as complete. The appropriate Accept or Application acknowledgment is sent.

– A nonfatal error occurs, and the entry is requeued for processing after the appropriate amount of time has passed. A reprocess delay and a maximum retry count can be set for each transaction type. Once the maximum number of retries has been reached, the errors are treated as fatal.

– A fatal error occurs, and the entry is marked as an error condition. A negative acknowledgment is sent.

Errors can be generated by the CHCS database when it attempts to load an inbound message; by the GIS when it attempts to process an inbound or outbound message; or by a negative acknowledgment received on an outbound message from an external system. All of these errors are logged in the Interface Error file.

Errors can be generated by the following GIS processes:

– **Deformatter**. Error caused when the application Deformatter program attempted to process an inbound transaction and prepare it for storage on a local database.

– **Formatter**. Error that occurred when the Format Controller program attempted to format a transaction. This program processes application requests to generate an interface transaction.

– **Input Driver**. Error that occurred when the input driver attempted to place a transaction in the UIF.

– **Output Driver**. Error that occurred when the Output Controller attempted to remove an outbound transaction from the UIF and send it to its destination, or remove an inbound transaction from the UIF and send it to its database.

– **Receiver**. Error caused by the receiver process for any active interface.

– **Transceiver/Transmitter**. Error caused by the transmitter process for any active interface.

The following errors are logged in the Interface Error file, as well as the additional locations indicated:

– **Deformatter**. Added to the Activity Log for the entry in the UIF that generated the error. These errors can be viewed through the Verify Status of Background Processes (VS) option.

– **Receiver**. Added to the Error Log for the background process that generated the error. These errors can be viewed through the Inquire to a Background Process (IBP) option.

– **Transceiver**. Added to the Activity Log for the entry in the UIF that generated the error. These errors can be viewed through the Verify Status of Background Processes (VS) option.

▲ DEMONSTRATE THE ERROR MENU

- Access the Error Menu (EM) option on the Interface Menu.

Systems Manager Menu (EVE) → SM → INT → **GIS** → EM

Discuss Options on the Error Menu

The Interface Error file (#4003) contains all of the interface errors. Under normal circumstances, this file should not contain any errors. An accumulation of entries in this file indicates a problem with the interface. The entries in this file can be used to debug the source of an error.

You will use all of the options on the Error Menu to list, purge, and search for interface errors:

– List Interface Errors (LIE)

– Purge Errors (PE)

– Error Search/Sort/Print (ES)

– Interface Error Statistics Generator (IES)

– Error Message Summary (EMS).

This objective details all of these options.

▲ DEMONSTRATE THE INTERFACE ERROR STATISTICS GENERATOR (IES) OPTION

1. Access the Interface Error Statistics Generator (IES) option on the Error Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **EM** → IES

   This option allows you to view error statistics from the Interface Error file. You can tally errors that meet the criteria you define for a variety of fields from that file. The report can total errors for whichever criteria you select.

2. Complete the Statistical Report Definition screenform.

   This option uses the same Statistical Report Definition screenform as used by the Interface Statistic Generator (STAT) option to analyze entries in the UIF. The only difference is the field names listed. Use the arrow keys to move the cursor down to new field names.

   The Time of Error field does not need to be selected. However, if it is selected, it must be the first field of the sort. It also cannot be the only field selected.

Time of Error:

Order: **1**
From: **T-1**
To: **T**
Count: **Y**

Destination:

Order: **3**
From: **A**
To: **Z**
Count: **Y**

Error Resolution Status:

Order: **2**
From: **U**
To: **U**
Count: **Y**

3. Exit the screenform and file the data: **<F17>**

4. Send the output to your screen.

- Refer to Figure 5-19: Interface Error Statistics.

5. Scroll through the display: **<Return>**

   Notice that the statistics are sorted first by time of error, then by status, and finally by destination. Statistics are subtotaled by status and time of error. A total of all errors displays at the end of the report.

   You return to the Error Menu.

```
TRAINING MEDICAL TREATMENT FACILITY         21 Jun 2001@1708 Page1


                        INTERFACE ERROR STATISTICS
                    From:   20 Jun 2001   To:   21 Jun 2001

-----------------------------------------------------------------------
  Field Name                                                     Count
-----------------------------------------------------------------------
By :  ERROR RESOLUTION STATUS :  U - U
   DESTINATION :  A - Z

  TIME OF ERROR :  20 Jun 2001
   ERROR RESOLUTION STATUS :
      UNRESOLVED
     DESTINATION :  Null                                             4
                                                               -------
   ERROR RESOLUTION STATUS SUBTOTAL :
        UNRESOLVED                                                   4

  TIME OF ERROR SUBTOTAL :  20 Jun 2001                              4

  TIME OF ERROR :  21 Jun 2001
   ERROR RESOLUTION STATUS :
      UNRESOLVED
     DESTINATION :  Null                                            93
                                                               -------
   ERROR RESOLUTION STATUS SUBTOTAL :
        UNRESOLVED                                                  93

  TIME OF ERROR SUBTOTAL :  21 Jun 2001                             93


  REPORT TOTAL                                                      97
```

FM-00788

Figure 5-19. Interface Error Statistics

▲ DEMONSTRATE THE LIST INTERFACE ERRORS (LIE) OPTION

1. Access the List Interface Errors (LIE) option on the Error Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **EM** → LIE

   This option allows you to display GIS interface errors by date, time, and the process that generated the error.

2. Specify the target dates to display error messages.

   Start DATE: **T-2**

   Ending DATE: TODAY// **<Return>**

3. Select the type of interface error or the point at which the transaction entered an error state.

   Select LOCATION OF ERROR to print: **??**

   Enter double question mark (??) to list options. The following error sources and types display:

   – **All**. Errors with any of the following types.

   – **All Resolved**. Errors of any type that have been manually resolved through the Mark Transaction Complete (MTC) option.

   – **All Unresolved**. Errors of any type that have not been manually resolved through the Mark Transaction Complete (MTC) option. The GIS does not automatically resolve any errors.

   – **Deformatter.** Errors generated by the application deformatter, the process that prepares UIF entries for placement in a CHCS database.

   – **Formatter.** Errors generated by the Format Controller.

   – **Input Driver.** This location is not used for this report.

   – **Negative Acknowledgement.** All negative acknowledgments received from destination systems. A Negative Acknowledgment is delivered in lieu of an Application Acknowledgment, but not an Accept Acknowledgment.

   – **Output Driver.** Errors generated by the Output Controller, the process that scans the UIF for inbound messages, and replicates messages with multiple destinations.

– **Receiver.** Errors generated by a receiver process for one of the interfaces.

– **Transceiver.** Errors generated by a transmitter process for one of the interfaces.

4. Select LOCATION OF ERROR to print: **RECEIVER**

5. Do you want to see the transaction messages? NO// **Y**

   Enter at Yes if you want to see the text of the message that generated the error, in addition to the error message text. The message text only displays if the error was related to a message.

6. Send the output to your screen.

- Refer to Figure 5-20: Interface Error Report.

```
                 Interface Error Report
                21 Jun 2001@16:10
Error Location:  RECEIVER                        Page:  1
DATE/TIME                            RESOLUTION
OF ERROR              MESSAGE ID     STATUS         DESTINATION
-------------------------------------------------------------------------------
19 Jun 2001@1600                     UNRESOLVED
 ERROR MESSAGE:
 MHCMIS - Unable to open file [TEST]MH951006.006

21 Jun 2001@161548                   UNRESOLVED
 ERROR MESSAGE:
 <ANATOMIC PATHOLOGY TRANSMITTER> Unable to open socket for background process
ANATOMIC PATHOLOGY TRANSMITTER No ports designated

21 Jun 2001@161550                   UNRESOLVED
 ERROR MESSAGE:
 <DBSS TRANSMITTER> Unable to open socket for background process DBSS TRANSMITT
ER No ports designated
```

FM-00789

Figure 5-20. Interface Error Report

Discuss the Display

The system displays the following information for each error generated from your selected location:

– **Date/time of error**. The date and time the error occurred.

– **Message ID**. If the error was generated by a message, the ID displays for the message that generated the error.

– **Resolution status**. The status of resolution for this error.

– **Destination**. If the error was generated by a message, the message destination from the Interface Destination file.

Remember that message text only displays for errors that are related to a message.

7. Scroll through the report: **<Return>**

   You return to the Error Menu.

▲ DEMONSTRATE THE ERROR SEARCH/SORT/PRINT (ES) OPTION

1. Access the Error Search/Sort/Print (ES) option on the Error Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **EM** → ES

   This option allows you to define custom selection criteria to search, sort, and print entries in the Interface Error file. You may select errors based on data in either the Error file or the UIF. Error selection includes date, destination, transaction type, process that generated the error, or error resolution status. You can also search for messages that match a specific message(s) and/or message text. Message selection includes date, message ID, direction, status, source, and patient name.

   This option is similar in function and form to the Transaction Search (TS) option on the Transaction Control Menu.

2. Complete the Interface Error Search screenform.

   The top portion of the screenform, Error Search Criteria, contains criteria for an error search. The following fields are included:

Error Start Date: **T-2**

Enter a start date with optional time. A start date is required.

Error End Date: **T**

No entry in the end date assumes the current date.

Destination: **<Return>**

Enter a specific interface destination, such as MDIS, CliniComp, APCOTS, MHCMIS, etc. Valid entries are listed in the Interface Destination file. Entry is not required.

Transaction Type: **<Return>**

Enter a valid type from the Interface Transaction Type file (#4000). Entry is not required.

Error Location: **RECEIVER**

Select a point or process at which the error occurred. Entry is not required. Choose from the following locations:

A ALL

V All Resolved

U All Unresolved

D Deformatter

F Formatter

I Input Driver

K Negative Acknowledgement

O Output Driver

R Receiver

T Transceiver

Error Resolution Status: **0**

This status is whether or not the error has been resolved. Choose from one of the following statuses:

0 Unresolved. The system was unable to resolve the error.

1 Resolved. The error was resolved through the MTC option.

2 Maximum Retries Attempted. The system attempted to resolve the error for the maximum number of times.

Expanded Display: **Y**

If you select expanded display, the following additional message fields display on your report: transaction type, destination, message date/ time, message ID, and message status.

Error Text to Search For: **Unable to open socket**

Enter free text, up to 70 characters. The system selects all errors whose text matches the text entered in this field. The text does not have to be entered in quotes; however, capitalization must be exact. You can enter more than one text string; each string must be entered on its own line.

Search Text Match Type: **<Return>**

If more than one text string is specified in the field above, you can also enter a message text search match type of AND (all strings must be found) or OR (any one string must be found).

Listing Order: Newest to Oldest **<Return>**

Enter a message listing order of either N (newest to oldest) or O (oldest to newest). The default is Newest to Oldest.

The bottom portion of the screenform, Message Search Criteria, contains criteria for a message search. This criteria allows you to view an error based on data in the UIF for the generating message.

Message Start Date: **<Return>**

Message End Date: **<Return>**

Message ID: **<Return>**

Direction: **<Return>**

Status: **<Return>**

Source: **<Return>**

Patient: **<Return>**

3. File and exit the screenform.

   A list displays of errors that satisfy the qualifications. Error message text is truncated to fit within the selection screen. Select the error(s) for which you want to see the full error text.

- Refer to Figure 5-21: Interface Error Search.

4. Select all errors by pressing **<F11>**
5. Confirm your selection: **<Return>**
6. Send the output to your screen.

   The system displays the same error information as on the previous selection screen (error date/time, error status, and error text). However, the error text is not truncated as it was on the previous selection screen.

```
                Interface Error Search
 Date/Time          Error Status  Error Location
  Transaction Type                        Destination
  Message Date/Time    Message ID          Message Status
     Error Text

 21 Jun 2001@161617 UNRESOLVED    RECEIVER
  none                                     none
     <LSI INTERFACE TRANSMITTER> Unable to open socket for background
 21 Jun 2001@161612 UNRESOLVED    RECEIVER
  none                                     none
     <NMIS TRANSMITTER> Unable to open socket for background process N
 21 Jun 2001@161554 UNRESOLVED    RECEIVER
  none                                     none
     <CLINICOMP TRANSMITTER> Unable to open socket for background proc
 21 Jun 2001@161550 UNRESOLVED    RECEIVER
  none                                     none
     <DBSS TRANSMITTER> Unable to open socket for background process D
+21 Jun 2001@161548 UNRESOLVED    RECEIVER
```

FM-00790

Figure 5-21. Interface Error Search

7. Scroll through the display: **<Return>**

   You return to the Interface Error Search screenform.

8. Exit the screenform. **<F10>**, then select **Abort**

   You return to the Error Menu.

▲ DEMONSTRATE THE ERROR MESSAGE SUMMARY (EMS) OPTION

1. Access the Error Message Summary (EMS) option on the Error Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **EM** → EMS

   This option allows you to see a summary of errors in the Interface Error file by error text. The summary report displays the text for one of each type of error that matches your selection criteria, along with a count of the number of that particular error that are in the file. Since you are viewing only one of each error type, you can determine whether your system is generating any serious errors, then obtain additional information on only those errors.

   Alternatively, you can generate a detail report that displays the entire error text for individually selected errors. This display is identical to the display from the Error Search (ES) option.

Discuss the Screenform

The Interface Error Summary screenform is identical to the Interface Error Search screenform used by the Error Search (ES) option. It is broken into two sections: criteria at the top from the Interface Error file, and criteria at the bottom from the UIF. The only difference between the two screenforms is the following two fields, which exist in only the Interface Error Summary screenform.

– Summary.

– Length.

2. Complete the Interface Error Summary screenform.

   Error Start Date: **T-2**

   Error End Date: **T**

   Error Location: **RECEIVER**

Expanded Display: No **<Return>**

The EMS option does not support an expanded display.

Error Text to Search For: **Unable to open socket**

Summary: **Y**

Enter Y for the Summary Report or N for the Detail Report. If you select Y, the report lists one of each error, along with the amount of text specified in Length, as well as other error information. If you select N, the report displays each individual entry in the file that meets your criteria. You can then select errors from the list for which you want to see the entire error message. However, you do not see other fields of information available on the summary report.

Length: **60**

Enter the number of characters from the error text to display on the report. This field is only meaningful if you select a summary report; the detail report includes the entire message text regardless of the value in this field.

3. Send the output to your screen.

- Refer to Figure 5-22: Interface Error Summary - Summary Report.

```
TRAINING MEDICAL TREATMENT FACILITY                21 Jun 2001@1326  Page:  1

                     INTERFACE ERROR SUMMARY REPORT
                 From :  19 Jun 2001   To :  21 Jun 2001@2400
ERROR LOCATION            :  RECEIVER
TEXT MATCH                :  Unable to open socket

Match type                :  OR Functionality
EXTRACT TEXT LENGTH       :  60

-------------------------------------------------------------------------------
Count  Error Text
   Occurence                                Message ID
   Tran. Type                               Error Loc
   Destination                              Backgrnd Proc
-------------------------------------------------------------------------------
1   <CLINICOMP TRANSMITTER> UNABLE TO OPEN SOCKET FOR BACKGROUND
   First occurence:  21 Jun 2001@161554    None
                                            RECEIVER
                                            ANATOMIC PATHOLOGY TRANSMITTER

1   <DBSS TRANSMITTER> UNABLE TO OPEN SOCKET FOR BACKGROUND PROC
   First occurence:  21 Jun 2001@161550    None
                                            RECEIVER
                                            ANATOMIC PATHOLOGY TRANSMITTER

1   <LSI INTERFACE TRANSMITTER> UNABLE TO OPEN SOCKET FOR BACKGR
   First occurence:  21 Jun 2001@161617    None
                                            RECEIVER
                                            ANATOMIC PATHOLOGY TRANSMITTER
```

FM-00791

Figure 5-22. Interface Error Summary - Summary Report

Discuss the Display

When the summary report is selected, the following information displays:

– Selection criteria

– Number of each type of error

– Error text

– Date and time of occurrence

– Error location. The background process that generated the error.

– Background Process. The background process that generated the error.

If the error was caused by a message, the following information also displays for that message:

– Transaction type

– Destination

– Message ID

A summary displays at the end of the report, indicating how many errors were included on the report, and how many errors are in the Interface Error file.

4. Scroll through the report: **<Return>**

   When the report completes, you return to the Interface Error Summary screenform.

5. Use the same error selection criteria, except select a detailed instead of summary report.

   Summary: **N**

   A list displays of all messages in the Interface Error file that match your selection criteria.

6. Press **<Select>** to select a message, then press **<Return>**.

7. Send the output to your screen.

- Refer to Figure 5-23: Interface Error Summary - Detailed Report.

```
                          Interface Error Summary
Date/Time           Error Status     Error Location
       Error Text

25 Jun 2001@142603  UNRESOLVED       RECEIVER
      <LSI INTERFACE TRANSMITTER> Unable to open socket for background
25 Jun 2001@142549  UNRESOLVED       RECEIVER
      <NMIS TRANSMITTER> Unable to open socket for background process N
```

FM-00792

Figure 5-23. Interface Error Summary - Detailed Report

Discuss the Display

When the detailed report is selected, the following information displays:

– Date and time of occurrence

– Status

– Error message.

7. Scroll through the report: **<Return>**

   The Interface Error Summary screenform displays.

8. Exit the screenform: **<F10>**, then select **Abort**

   The Error Menu displays.

▲ DEMONSTRATE THE PURGE ERRORS (PE) OPTION

1. Access the Purge Errors (PE) option on the Error Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **EM** → PE

   Errors remain in the Error file until deleted either manually, or through the INH AUTOPURGE option. The INH AUTOPURGE option automatically deletes all errors that have been in the Error file longer than the number of retention days defined in the Interface Site Parameters file. INH AUTOPURGE should be scheduled through TaskMan to run daily at off-peak hours.

The PE option allows you to manually purge interface errors from the Error file. Errors only need to be purged if the INH AUTOPURGE option did not run, or if you want a clean Error file for troubleshooting.

2. Enter number of days to keep errors: 14// **<Return>**

   This option creates a background job that purges interface errors older than the number of days specified. The default is pulled from the Interface Site Parameters file.

3. Enter at OK to proceed? YES// **<Return>**

4. Enter requested start time: NOW// **2100** (21 Jun 2001@2100)

   Schedule this routine to run during off-peak hours.

   The message displays:

   Request QUEUED!

   You return to the Error Menu.

5. Return to the Site Manager Menu.

Practice 4 - Manage the GIS errors.

PRACTICE

Students 1-10

Practice 4 - Manage the GIS errors.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the instructions below.

Scenario: *You have received complaints about missing data from users of CHCS and several external systems. Review the number of unresolved errors for each interface, then display error messages for a specific interface.*

a. Determine the Number of Unresolved Errors

1. Access the Interface Error Statistics Generator (IES) option on the Error Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → EM → IES

2. Complete the Statistical Report Definition screenform.

   Time of Error:

   Order: **1**
   From: **T-1**
   To: **T**
   Count: **Y**

   Destination:

   Order: **3**
   From: **A**
   To: **Z**
   Count: **Y**

   Error Resolution Status:

   Order: **2**
   From: **U**
   To: **U**
   Count: **Y**

3. Exit the screenform and file the data: **<F17>**

Students 1-10 (continued)

4. Send the output to your screen.

5. Scroll through the display: **<Return>**

6. Note the number of unresolved errors from yesterday and today.

   Yesterday: _____

   Today: _____

b. View Errors Generated by the Receiver

1. Access the List Interface Errors (LIE) option on the Error Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **EM** → LIE

2. Specify the target dates to display error messages.

   Start DATE: **T-1**
   Ending DATE: TODAY// **<Return>**

4. Select LOCATION OF ERROR to print: **RECEIVER**

5. Enter at Do you want to see the transaction messages? NO// **Y**

6. Send the output to your screen.

7. Scroll through the report: **<Return>**

c. View TCP Socket Errors

1. Access the Error Message Summary (EMS) option on the Error Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **EM** → EMS

2. Complete the Interface Error Summary screenform.

   Error Start Date: **T-1**
   Error End Date: **T**
   Error Location: **RECEIVER**
   Expanded Display: **Y**
   Error Text to Search For: **Unable to open socket**
   Summary: **Y**
   Length: **60**

3. Send the output to your screen.

Students 1-10 (continued)

4. Scroll through the report: **<Return>**

   Note the number of Receiver errors: _____

5. Use the same error selection criteria, but display a detailed instead of summary report.

6. Select one or more of the messages: **<Select>**, then **<Return>**

7. Send the output to your screen.

8. Scroll through the report: **<Return>**

   Note the background process that generated the selected error(s): _____

   Note the cause of the selected error(s): _____

9. Exit the screenform: **<F10>**, then select **Abort**

10. Return to the Site Manager Menu.

Notify the presenter when you have completed this practice. The presenter can verify that you have noted the proper information.

■ Objective 5: MANAGE GIS AUDITING

Scenario: *Since recently bringing up a new interface at your site, you noticed that system performance has degraded. Audit the amount of system resources being used by the interface to determine if the interface is the cause of your performance problems.*

DISCUSS GIS AUDITING

GIS audit software can capture and report data on the usage of system resources, including service demands and resource consumption. The GIS audit reports are used to analyze and predict performance impacts of interfaces managed by the GIS. These reports are also used by SAIC Systems Engineering to configure hardware components to accommodate the requirements of new interfaces.

Note that the GIS audit capability is for only the analysis and modeling of performance. It is not designed to monitor the GIS software for security purposes.

Data Collection

To model the performance of the GIS, it is useful to measure the system impact by type of transaction and background process. When active, the GIS audit software can capture and log both types of data. This data can quickly accumulate.

Each log entry (either transaction type or background process) requires approximately 220 bytes of disk space. Background process events accumulate moderately. As illustrated below, transaction type events accumulate much faster, and should be monitored closely.

If a site has 30 background processes running, and logs entries 288 times a day (the number of 5-minute intervals in 24 hours), the background process log for a single day can consume 1.9 MB of disk space. The accumulation of background process data can only be controlled by turning off the GIS background process audit in the Kernel Site Parameters file.

A very large site can exceed 100,000 transactions in 24 hours. On average, each transaction is processed by three GIS background processes. The transaction is audited every time it is processed through a different GIS component, resulting in potentially 300,000 log entries. Since each log entry requires approximately 220 bytes of disk space, the transaction type log for a single day can consume 66 MB of disk space.

The accumulation of transaction type data can be controlled by limiting the percentage of transactions logged, as well as by turning off the GIS transaction type audit in the Kernel Site Parameters file.

To gain an accurate report of system activity, GIS audit should be left on for 24 hours. This amount of time should not present a problem when logging background process activity. However, only a fraction of transaction type activity, usually 10%, can be logged for 24 hours without impacting system performance. Both types of events are logged in the XUSIN global, which can be monitored for size. If the file is growing too large, reduce the sampling percent.

Data Reporting

Once the data has been logged, you can choose among the following reports for viewing the data:

– **GIS Background Process Report**. Generates a report of computer resource utilization statistics by background process for the requested time frame. These statistics can be used to measure the impact made on computer resources by each of the processes in the Background Process Control file: the Format Controller, the Output Controller, the various transmitters and receivers which send and receive transactions from remote systems, and external servers that log onto CHCS.

– **GIS Transaction Type Report**. Generates a report of computer resource utilization statistics by transaction type for the requested time frame.

Data Purging

To ensure effective use of global space, the GIS audit data should be routinely purged. This data is purged by the XQAUDZONK option. This option should be scheduled through TaskMan to run daily during nonpeak hours. The option purges audit data that has exceeded the number of days specified in the Interface Audit: Days Retention field of the Kernel Site Parameters file.

❑ TURN ON GIS AUDIT

GIS auditing operates in the background. CHCS ships with the auditing capability turned off; it must be manually turned on. Once turned on, no further input is required. The following steps must be taken to turn on GIS auditing:

– Turn on GIS auditing by selecting one of the auditing methods in the Kernel Site Parameters file:

* Background process
* Transaction type
* Both.

– Define additional auditing parameters in the Kernel Site Parameters file:

  * A sampling percentage, if collecting transaction type data
  * Number of days to keep data.

– Shut down, then start up the background process(es) from which you want to collect data, whether you selected transaction type or background process auditing.

GIS audit runs as long as the cycled background processes run. To turn off GIS auditing, edit the same field in the Kernel Site Parameters file that was used to turn on GIS auditing.

▲ DEMONSTRATE EDITING THE KERNEL SITE PARAMETER FILE

1. Access the Site Parameter Editing (SPE) option on the Site Manager Menu.

   Systems Manager Menu (EVE) → **SM** → SPE

   The system displays fields of the Kernel Site Parameters file. GIS auditing is turned on and controlled by setting values in fields on the second page of this screenform.

2. Access the second page of the screenform: **<Page Down>**

3. Access fields of the Kernel Site Parameter file.

   Interface Audit: **3**

   Select one of the following codes:

   0 = Turn off GIS auditing. If no value is entered in the field, GIS auditing defaults to being off.

   1 = Turn on GIS auditing, and collect data by background process

   2 = Turn on GIS auditing, and collect data by transaction type

   3 = Turn on GIS auditing, and collect data by both background process and transaction type

GIS audit is turned on by selecting either option 1, 2, or 3; then cycling (turning off, then on again) the background processes you want to audit. The auditing does not begin until the processes have been cycled, regardless whether transaction type or background process auditing was selected. GIS audit is immediately turned off by selecting option 0; the background processes do not need to be cycled to turn off.

If background process audit is activated in the Kernel Site parameters file, each background job logs information at the time GIS audit is started, with subsequent log entries at 5-minute intervals thereafter. If GIS audit is turned off in the middle of a 5-minute period, GIS audit completes the current 5-minute cycle before terminating.

For processes in server mode (i.e. Format Controller, Output Controller), each client process audits independently of the others. For example, with the maximum number of Format Controllers set to three, each of the three logs audit information. This results in three entries in the background process audit file every 5 minutes. If any of the three timeout during the audit period, audit information is logged at the time the process shuts down.

Sampling Percent: **<Return>**

This field applies only to collection of transaction type data, not background process data.

The number of transactions processed by the GIS can vary tremendously. A log of all transactions would require a significant amount of disk space (up to 66 MB in a day for a large site).

This field allows you to specify a percentage of transactions that is logged by the GIS transaction audit. This percentage is applied to each of the events (i.e., transmit, receive, run a script, etc.) within each function (i.e., the Format Controller, the Output Controller, and each of the transmitters and receivers). For example, with 50% sampling, a random sample is collected of 50% of the transactions in the Format Controller, 50% of the transactions in the Output Controller, etc.

For processes in server mode (i.e., Format Controller, Output Controller), each client process audits independently of the others. For example, with the maximum number of Format Controllers set to three and the sampling percent set to 50%, each of the three client processes logs audit information based on a random sample of 50%. Allowable values are 5% to 100% in steps of 5. The default is 10%.

Days Retension: **5**

Enter the number of days the audit data is to be retained in the system before automatic purging. Allowable values are 1 to 60. The default is 60 days. Data is purged when the XQAUDZONK option is run.

4. File the changes and exit the screenform.

   The Site Manager Menu displays.

▲ DEMONSTRATE CYCLING THE BACKGROUND PROCESSES

1. Access the Shutdown a Process (SH1) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → **SM** → INT → GIS → BPM → SH1

   Both transaction type and background process auditing collect data from only those background processes that have been shut down, then restarted after GIS auditing was turned on.

2. Select Process to Stop: **FORMAT**

3. Repeat the process to stop the Output Controller.

4. Access the Startup a Background Process (S1) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **BPM** → S1

5. Start both background processes.

   Select Process to Start: **FORMAT**

   Select Process to Start: **OUTPUT**

   The system displays the name of each background process as it is started. The Background Process Control Menu displays.

6. Return to the Site Manager Menu.

❑ USE THE GIS AUDIT REPORTS

▲ DEMONSTRATE THE GIS BACKGROUND PROCESS REPORT (BPI) OPTION

1. Access the GIS Background Process Report (BPI) option on the Throughput Reporting Menu.

   Systems Manager Menu (EVE) → **SM** → RPT → TPR → BPI

2. Enter beginning of date range: **T**

3. Enter ending of date range: **T**

4. Enter at Do you want detail statistics printed? YES// **<Return>**

   If you enter No, the report displays total counts for each background process (the amounts displayed on the line with the process name), instead of the mean, minimum, maximum, and sum of squares.

5. Send the output to your screen in 132-column format.

   Device: **0;132**

- Refer to Figure 5-24: GIS Instrumentation Background Process Report.

6. Return to the Throughput Reporting Menu.

Discuss the Display

The data on this report shows the computer resources used by each background process during the requested time period. The report breaks down background process statistics by total, mean, minimum, maximum, and sum of squares for each background process and transaction type.

The first half of the report displays statistics for the following categories for each background process:

– Background Process

– Trans Count

– CPU Seconds. The number of Central Processing Unit (CPU) seconds that the process used. A CPU is the total of all CPU time slices used by that process that add up to 1 second.

```
                      GIS Instrumentation Background Process Report
                        TRAINING MEDICAL TREATMENT FACILITY
21 Jun 2001 15:46:50 for period 21 Jun 2001 00:00:00 to 21 Jun 2001 24:00:00              Page:   1
-----------------------------------------------------------------------------------------------------
                              Trans     CPU   Elapse       Page      Direct  Buffered
Background Process            Count     Sec      Sec     Faults         IOs       IOs
-----------------------------------------------------------------------------------------------------
FORMAT CONTROLLER                 6   209.9     1813       3522         902         0
  Mean:                               34.98    302.1        587       150.3         0
  Minimum:                            29.29    297.7         26          51         0
  Maximum:                            39.08    306.3       1149         315         0
  Sum of Squares:                      7439   547580    3935654      186114         0


OUTPUT CONTROLLER                 6    181.5      1810      2758         248         0
  Mean:                               30.25     301.6     459.7       41.33         0
  Minimum:                            26.15     279.7        74          18         0
  Maximum:                             34.3     323.1       821          59         0
  Sum of Squares:                      5558    547420   2024092       11494         0

                          ---------   --------- --------- ---------   --------- ---------
Total                            14    392.3      3675      6877        1245         0
  Mean:                               28.02     262.5     491.2       88.93         0
                          =========  ========= ========= =========   ========= =========


-----------------------------------------------------------------------------------------------------

Internal Entry Number    Exception Description
-----------------------------------------------------------------------------------------------------
3010621.15435            Missing the exit system data.
3010621.154401           Missing the exit system data.
3010621.154402           Missing the exit system data.
```

FM-00793

Figure 5-24. GIS Instrumentation Background Process Report

– Elapse Seconds. Number of seconds that the process ran.

– Page Faults

– Direct IOs

– Buffered IOs

If a detailed report was selected, the following statistics display for each category:

– (Total). The line with the process name displays the totals for each category.

– Mean

– Minimum

– Maximum

– Sum of Squares

The bottom half of the report displays exceptions captured by the GIS audit. The list of exceptions should not be long.

▲ DEMONSTRATE THE GIS TRANSACTION TYPE REPORT (TTI) TRANSACTION TYPE REPORT

1. Access the GIS Transaction Type Report (TTI) option on the Throughput Reporting Menu.

   Systems Manager Menu (EVE) → SM → RPT → **TPR** → TTI

2. Enter beginning of date range: **T**

3. Enter ending of date range: **T**

4. Enter at Do you want detail statistics printed? YES// **<Return>**

5. Send the output to your screen in 132-column format.

- Refer to Figure 5-25: GIS Instrumentation Transaction Type Report.

```
          GIS Instrumentation Transaction Type Report
               TRIPLER AMC HONOLULU HI
16 May 1996 16:04:10 for period 14 May 1996 00:00:00 to 16 May 1996 24:00:00         Page 1
-----------------------------------------------------------------------------------------------
Transaction Type - Process       Trans     CPU   Elapse     Page   Direct  Buffered
 event                           Count     Sec      Sec   Faults      IOs       IOs
-----------------------------------------------------------------------------------------------
HL DG UPDATE PATIENT OUT (REP),OUTPUT CONTROLLER                 Sample Percent:  10
 REPLICATE                           4    15.99     99.8      737       16         0
  Mean:                                   3.998    24.95    184.3        4         0
  Minimum:                                 3.94       22       33        1         0
  Maximum:                                 4.11     27.2      528        9         0
  Sum of Squares:                         63.94     2504   298099      100         0


HL MASTER FILE NOTIFICATION (REP),FORMAT CONTROLLER              Sample Percent:  10
 SCRIPT                            114    54.36    335.7     2344       35         0
  Mean:                                   0.477    2.945    20.56    0.307         0
  Minimum:                                 0.42      0.5        0        0         0
  Maximum:                                 0.57      6.5      600        1         0
  Sum of Squares:                         26.01     1152   917228       35         0
                                 --------- ------- --------- ------- -------- --------
Total                                 118    70.35     435.5    3081       51         0
  Mean:                                   1.444      9.56    62.20    0.915         0
                                 ========= ======== ========= ======= ======== =======
-----------------------------------------------------------------------------------------------

Internal Entry Number   Exception Description
-----------------------------------------------------------------------------------------------
2960516.142403001       Missing the exit system data.
2960516.142606          Missing the exit system data.
2960516.142658001       Missing the exit system data.
```

FM-00794

Figure 5-25. GIS Instrumentation Transaction Type Report

Discuss the Display

The data on this report shows the computer resources required to process a transaction type at each step as the transaction moves through the GIS functionality.

The report breaks down statistics by transaction type, subdivided by background process and process event. Like the GIS Background Process Report, this report presents the total, mean, minimum, maximum, and sum of squares for each set of statistics.

6. Log off CHCS.

Practice 5 - Manage GIS auditing.

PRACTICE

Students 1-10

Practice 5 - Manage GIS auditing.

INSTRUCTIONS: This practice will take approximately 5 minutes. Follow the instructions below.

Scenario: *You have already selected GIS auditing by both background process and transaction type, and have cycled the Format and Output controller processes. Generate the GIS audit reports and review the results.*

a. Determine the Background Process Using the Most System Resources

1. Access the GIS Background Process Report (BPI) option on the Throughput Reporting Menu.

   Systems Manager Menu (EVE) → **SM** → RPT → TPR → BPI

2. Enter beginning of date range: **T**

3. Enter ending of date range: **T**

4. Enter at Do you want detail statistics printed? YES// **<Return>**

5. Send the output to your screen in 132-column format.

   Device: **0;132**

   Which process is using the most system resources? _____

6. Return to the Throughput Reporting Menu.

b. Determine the Transaction Type Using the Most System Resources

1. Access the GIS Transaction Type Report (TTI) option on the Throughput Reporting Menu.

   Systems Manager Menu (EVE) → SM → RPT → **TPR** → TTI

2. Enter beginning of date range: **T**

3. Enter ending of date range: **T**

Students 1-10 (continued)

4. Enter at Do you want detail statistics printed? YES// **<Return>**

5. Send the output to your screen in 132-column format.

   Which transaction type is using the most system resources?

   _____

Notify the presenter when you have completed this practice.

6. Log off CHCS.

■ Objective 6: TROUBLESHOOT THE GIS INTERFACE

DISCUSS TYPICAL GIS INTERFACE PROBLEMS

- Refer to Table 5-1: GIS Problem Categories, for known types of GIS interface problems and their usual causes.

Table 5-1. GIS Problem Categories

Problem Area	Causes
Messages not being sent/ received	– Interface processors are inactive or behind – Message queues backed up – Communication problems
Unchecked growth in ^INTHU and ^INTHER globals	– Messages not being purged – Messages not being transmitted

FM-00798

DISCUSS GIS INTERFACE PROBLEM TROUBLESHOOTING

In order to troubleshoot GIS problems, you must first collect problem information from CHCS system users and from users of outboard GIS systems. To do this, use the available data collection tools. The most important tool for many problems is the telephone. For user-reported problems, use the phone to collect all available information from the CHCS and receiving system users about:

– Task being undertaken (options being used, data being entered)

– System characteristics (slow, stopped)

– Unusual or missing data

– Error messages displayed

Other important GIS troubleshooting data collection tools, depending on the reported problem, include the Verify Status of Background Process (VS) option, the List Interface Errors option, the Top Entries in Queues option, the Queue Size option, and the DSM global utility ^%GE.

You can get troubleshooting help, when appropriate, from your points of contact for the external GIS systems and the TMSSC. As of the release of this document, you can reach the TMSSC at 800-600-9332 (Continental United States (CONUS)) or 800-981-5339 (OCONUS). The TMSSC will triage calls to either the PRC for

hardware issues, SAIC for software issues, or a specific vendor for commercial off-the-shelf (COTS) products.

1.0 Messages Not Being Sent/Received

The procedures for troubleshooting problems with outgoing messages and problems with incoming messages use many of the same tools, just in a slightly different order.

Outgoing Message Problems

Your messages may not be received for the following reasons:

– One or more message processors down

– One or more queues backed up

– Corrupt message content

– Communication problems between the sending and receiving databases.

Incoming Message Problems

Messages sent to you may not arrive for the following reasons:

– One or more message processors may be down

– One or more queues backed up

– Communication problems between the sending and receiving databases.

The procedure for troubleshooting problems with outgoing messages and problems with incoming messages use many of the same tools, just in a slightly different order.

1.1 Outgoing Message Problems

Collect data from the user about the situation: what system is not working as they expect, how many messages did not arrive as expected, etc.

1.1.1 One or More Message Processors Down

To check if any of the output processes are down:

1. Log on to CHCS from SY_ADMIN.

   SY_ADMIN → Application → CHCS

2. Access the Verify Status of Background Process (VS) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → VS

3. Complete the screenform.

   Detailed Report: YES <Return>

   Repaint Frequency: 5 <Return>

   Maximum number of iterations: 100 <Return>

4. File the parameters and exit: File/exit

5. Send the output to your screen.

First, check if the Output Controller or the Format Controller processes are down. Your site may have more than one of each type of controller process running.

If all of either type of controllers are down, no messages may be getting out. If neither of the controller processes are down, look next at the transmitter process for the specific database the user reported as having trouble. For example, if the user reported a MHCMIS problem, check out the MHCMIS transmitter.

6. When finished viewing the report, press any key.

   You return to the Verify Status of Background Processes screenform.

7. Exit the screenform and return to the Background Process Control Menu: <F10>, then select Abort

8. If any of the affected controller or transmitter processes are down, start the process.

   Access the Startup a Background Process (S1) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → S1

9. Select Process to Start: [process name]

   If the process could be started, the message displays: Started

10. Return to the Background Process Control Menu.

11. Confirm that the desired process was started.

    Access the Verify Status of Background Processes (VS) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → BPM → VS

12. Accept the default parameters in the Verify Status of Background Processes screenform.

13. Send the output to your screen.

1.1.2 One or More Queues Backed Up

You should not assume that a stopped process was the only problem.

Use the Top Entries in Queues (TOP) option to watch the queues for the two controllers and the transmitter for the specific GIS process the user reported. A lot of recent entries in the queues indicates heavy traffic. Watch the top entries in the queues to see if transactions are being processed.

Remember, the Top Entries in Queues Report displays the next transaction at each level of sort (i.e, at each priority, for each time to process). Transactions are ordered in the various queues as follows:

– **INLHSCH**. Queue used by the Output Controller processes. Entries are sorted by priority, then time to process.

– **INLHFTSK**. Queue used by the Format Controller processes. Entries are sorted by priority, then time to process.

– **INLHDEST**. Queue used by the background transmitter processes for each interface. Entries are sorted by destination, time to process, then message ID.

To check the queues:

1. Access the Top Entries in Queues (TOP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → TOP

2. Complete the Input Parameters screenform.

   Detailed report: NO <Return>

   Select the nondetailed report to determine whether the background processes are moving data into and out of the queues.

   Repaint Frequency (sec): 5 <Return>

   Maximum number of times to try for an entry: 5 <Return>

3. File and exit the screenform.

   The output displays on your screen.

   Watch the queue for the affected system(s) to make sure that transactions are being processed from the top of queue.

If none of the processes is down but the messages are not being received in a timely fashion, the queues may be backing up because the system simply is not keeping up with heavy GIS traffic.

If transactions are moving through the queues, but slowly, consider starting more format and/or output controllers. You may only need to add controllers temporarily, until the system reduces the unusual backlog.

To add controllers:

1. Access the Site Parameter Entry/Edit (SPE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → FTM → SPE

2. Move the cursor to the Maximum Number of Output Jobs field.

   The number of output jobs defined here correlates to the number of servers opened by the Output Controller. Edit the number of controllers as required to match your GIS traffic. Remember, adding new controllers produces a higher system load.

   Maximum Number of Output Jobs: <Return>

3. Move the cursor to the Maximum Number of Formatter Jobs field.

   The number of formatter jobs defined here correlates to the number of servers opened by the Format Controller. Edit the number of controllers as required to match your GIS traffic.

   Maximum Number of Formatter Jobs: <Return>

4. Exit the screenform. <F10>

1.1.3 Corrupted Message

If one of the queues is not moving, a corrupted entry may be in the queue or a communication problem may exist between the two GIS databases.

A corrupted entry in the queue can lead to two different problems:

1. If the receiving system responds that this is a bad message and the link does not go down, the queue entry loops until the maximum number of retries is reached. Then the entry is removed.

2. If the receiving system cannot handle the bad message and the link goes down between the two systems, you never receive a reply from the receiving system. As a result, the queue entry remains in the queue indefinitely.

In either case, first access the Top Entries in Queues (TOP) option on the Background Process Control Menu (per the procedure given above) to check if the top entries are being processed. If the top entry in the affected queue is not moving, you can use the error messages in the Error Log to diagnose the problem.

To check the Error Log:

1. Access the List Interface Errors (LIE) option on the Error Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → EM → LIE

   This option allows you to display GIS interface errors by date, time, and the process that generated the error.

2. Enter dates.

   Start DATE: T

   You are only interested in today's errors.

   Ending DATE: TODAY// <Return>

3. Select LOCATION OF ERROR to print: All Unresolved

   The list includes errors of any type that have not been manually resolved through the Mark Transaction Complete (MTC) option. The GIS does not automatically resolve any errors.

4. Do you want to see the transaction messages? NO// <Return>

   You are looking to for whether the message error is associated with the inability of the receiving system to open the message. You do not need the extra detail at this point.

5. Send the output to your screen.

6. Once you display the errors, determine the message ID of the affected transaction.

   You can wait for the error to reach the maximum number of retries for your system. At that time, the message is automatically removed from the system and the queue starts, or you can intervene.

You have two recommended ways to intervene, depending on the situation. When a message gets corrupted, causing transmission problems and halting the transmission of all messages in the queue behind the corrupted message, you should preferably resolve the transmission problem through the Mark Transmission Complete (MTC) option. However, if you cannot regenerate the message through the functionality, and you know which portion of the message text is corrupted, you may decide to edit and requeue the corrupted message through the Edit an Interface Transaction (EIT) option.

If not used properly, these options can delete or damage queued data that should otherwise be sent to a destination system.

CAUTION: These options should only be used under direction from the TMSSC.

To delete the corrupted message, then regenerate the corrupted message through the originating functionality:

1. Access the Mark Transaction Complete (MTC) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → TCM → MTC

This option ensures that all transmitted data is complete and synchronized; i.e., patient registration is sent before patient admission.

Remember, this option allows you to change the status of transaction(s) to Complete, then select whether to delete the transaction(s) from the transmission queue (either INLHDEST or INLHSCH). If the transmission generated an error, changing the status to Complete deletes the transaction from the Error List. The MTC option also generates an entry in the Activity Log for that message.

2. Select Transaction to Mark Complete: [message ID]

   Enter the message ID to mark a single transaction Complete, or enter a forward slash (/) to select and mark multiple transactions Complete. If you enter a slash at this prompt, you get the following prompts.

3. Enter dates, destination, and status.

   Start Date: [date of corrupted transmission]

   End Date: T

   Remember, you often search for transactions older than three days. Depending on your site situation, transactions that have been in the queue for fewer than three days may still be waiting for transmission.

   Destination: [destination of affected message]

   Status: P

4. File the data: <Do>

   A list displays of the messages that meet your criteria.

5. Select, then activate the transaction: <Select>, then <Return>

   After each transaction, you are prompted to delete that transaction from the INLHDEST queue. This queue holds transactions waiting for transmission by their interface transmitter process.

6. Enter at OK to Delete from queue? NO// Y

7. Send the output to your screen.

   The system deletes the transactions from the INLHDEST queue, then displays the following message:

[message id]: Removed from queue, marked complete

You return to the Transaction Control Menu.

To edit the transaction:

1. Access the Edit an Interface Transaction (EIT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → TCM → EIT

   Remember, this option should only be used on transactions that have not yet been sent. Once the transaction is edited, you are prompted to requeue the transaction for transmission.

2. Select Transaction to Edit: [message ID]

   The transaction text displays after the heading "Transaction Message Text."

3. Edit the transaction, as necessary.

4. Save your changes: <Do>

5. Enter at Requeue for Output? YES// <Return>

6. Enter a Message to Requeue: [message ID]

   You return to the Transaction Control Menu.

1.1.4 Communication Problem Between Databases

If the message is not being acknowledged by the receiving system, at least two causes may be to blame:

1. The corrupted message is "crashing" the link between the systems.

2. An unrelated communications/network problem exists between the two systems.

First, ask your site network specialist or the TMSSC to check if the communications link is up between the two systems.

- Refer to Module 12 - Manage the Interface Connections, for additional information on physical connections.

If the communications link is up between the two databases, check the Interface Error file. Determine if the message content can be regenerated.

To check message content:

1. Access the List Interface Errors (LIE) option on the Error Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → EM → LIE

2. Enter dates.

   Start DATE: T

   Ending DATE: TODAY// <Return>

3. Select LOCATION OF ERROR to print: All Unresolved

4. Select LOCATION OF ERROR to print: RECEIVER

5. Enter at Do you want to see the transaction messages? NO// YES

   The detail associated with the message content displays.

6. Send the output to your screen.

If the message can be regenerated, you should preferably resolve the transmission problem through the Mark Transmission Complete (MTC) option. However, if you cannot regenerate the message through the functionality, and you know which portion of the message text is corrupted, you may edit and requeue the corrupted message through the Edit an Interface Transaction (EIT) option.

Again, because of the potential damaging effects to your database and the receiving database, do not use these options without assistance from the TMSSC.

If the problem is not yet resolved, call the TMSSC for assistance (CONUS): 800-600-9332; OCONUS: 800-981-5339).

1.2 Incoming Message Problems

Again, first collect data from the CHCS users, sending system users, and system administrators about the situation: what system is not working as expected, how many messages did not arrive as expected, etc.

1.2.1 One or More Message Processors Down

If the receiver or Output Controller processes are down, the system cannot send incoming messages to the CHCS database.

To check if the GIS Receiver or Output Controller processes are down:

1. Log on to CHCS from SY_ADMIN.

   SY_ADMIN → Application → CHCS

2. Access the Verify Status of Background Process (VS) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → VS

3. Complete the screenform.

   Detailed Report: YES <Return>

   Repaint Frequency: 5 <Return>

   Maximum number of iterations: 100 <Return>

4. File the parameters and exit: File/exit

5. Send the output to your screen.

Check if the Output Controller processes are down. Your site may have more than one Output Controller process running.

If no messages are getting through from most of the GIS systems, the output controller is a likely candidate, as it processes the incoming transactions in the INLHSCH queue.

Also ensure that the receiver process for the affected system is running.

6. When finished viewing the report, press any key.

   You return to the Verify Status of Background Processes screenform.

7. Exit the screenform and return to the Background Process Control Menu: <F10>, then select Abort

8. If all of the Output Controller process(es) and/or receiver process are stopped, start the process(es).

Access the Startup a Background Process (S1) option on the Background Process Control Menu.

Systems Manager Menu (EVE) → SM → INT → GIS → BPM → S1

9. Select Process to Start: [affected process]

   If the process could be started, the message displays: Started

10. Return to the Background Process Control Menu.

11. Confirm that the Output Controller process(es) and/or receiver process was started.

    Access the Verify Status of Background Processes (VS) option on the Background Process Control Menu.

    Systems Manager Menu (EVE) → SM → INT → GIS → BPM → VS

12. Accept the default parameters in the Verify Status of Background Processes screenform.

13. Send the output to your screen.

1.2.2 One or More Queues Backed Up

After you successfully restart the Output Controller process(es) and/or receiver process, you should not assume that stopped processes were the only problem. Use the Top Entries in Queues (TOP) option on the Background Process Control Menu to watch the queues.

Remember, the Top Entries in Queues report displays the next transaction at each level of sort (i.e., at each priority, for each time to process). Output Controller transactions are stored in the INLHSCH queue. Entries are sorted by priority, then time to process. This is the most important queue to check for incoming transactions.

To check the queues:

1. Access the Top Entries in Queues (TOP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → TOP

2. Complete the Input Parameters screenform.

   Detailed report: NO <Return>

   Select the nondetailed report to determine whether the background processes are moving data into and out of the queues.

   Repaint Frequency (sec): 5 <Return>

   Maximum number of times to try for an entry: 5 <Return>

3. File and exit the screenform.

   The output displays on your screen.

1.2.3 Communication Problem Between Databases

If the controllers are not down, ask your site network specialist or the TMSSC to check the communications links between CHCS and the outboard systems.

If communications are not down, ask your contact at the outboard system if delivery problems exist at that end.

If the problem is not yet resolved, ask the TMSSC to investigate the problem further.

2.0 Unchecked Global Growth

Depending on the amount of traffic at your site, the various globals associated with the GIS can get quite large.

2.1 GIS Queue Globals

The following three globals contain the data associated with the GIS queues:

– **^INLHSCH**. Queue used by the Output Controller processes. Entries are sorted by priority, then time to process.

– **^INLHFTSK**. Queue used by the Format Controller processes. Entries are sorted by priority, then time to process.

– **^INLHDEST**. Queue used by the background transmitter processes for each interface. Entries are sorted by destination, time to process, then message ID.

To track the size of the queues:

1. Access the Display Queue Size (QSIZ) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → QSIZ

   Remember, this option allows you to display the number of entries in each of the active interface queues. QSIZ should be used every hour by the computer operator to confirm that the active interface links are functioning properly.

2. Complete the Queue Size Report - Input Parameters screenform.

   Detailed Report: YES <Return>

   Repaint frequency: 5 <Return>

   Maximum number of iterations (printer only): 100 <Return>

   Always scan to end of queue: NO <Return>

   Maximum time to spend compiling report (sec): 100 <Return>

   Include future tasks: NO <Return>

3. File and exit the screenform.

4. Send the output to your screen.

- Refer to Figure 5-27: Queue Size Display.

By observing the relative sizes of these queues on a consistent basis, you can use the queue size as a problem indicator; if any of the queues grow to more than double the average size, you may want to closely monitor the queue. If it continues to grow, the problem may be with the messages being sent or received.

```
GIS Queue Size                        21 Jun 2001@1403
   Start Time:  21 Jun 2001@1402     Number of Iterations:  2
     Run Time:  0 min               Avg Time per Iteration:  20 sec

Background Process                Prio      Curr   Min    Max     Avg
----------------------           -----    ------ ------ ------ ------
FORMAT CONTROLLER                    0       120    120    120    120
                                     1      2025   2025   2029   2027
                                     7        59     59     59     59
                                Total:      2204   2204   2208   2206

OUTPUT CONTROLLER                    0       250    248    250    249
                                     1       237    234    237    235
                                 Total:       487    482    487    484

ANATOMIC PATHOLOGY TRANSMITTER       0         0      0      0      0
DBSS TRANSMITTER                     0        24     24     24     24
                                     1       234    231    234    232
                                Total:       258    255    258    256

CLINICOMP TRANSMITTER                0        87     87     87     87
                                     1       237    232    237    234
                                     7         1      1      1      1
                                Total:       325    320    325    322

MHCMIS TRANSMITTER                   0        22     22     22     22
                                     1       237    233    237    235
                                     7        67     67     67     67
                                 Total       326    322    326    324

NMIS TRANSMITTER                     0         0      0      0      0
LSI INTERFACE TRANSMITTER            0         0      0      0      0
DBSS TRANSMITTER 2                   0        24     24     24     24
                                     1       237    231    237    234
                                Total:       261    255    261    258

DBSS TRANSMITTER 3                   0        24     24     24     24
                                     1       240    231    240    235
                                Total:       264    255    264    259

Queue Total                                 4138   4097   4138   4117
Messages created per hour                   2739    553   2739   2026
Transactions identified per hour               0      0      0      0
```

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Figure 5-26. Queue Size Display

2.2. UIF and Interface Error File Globals

The following two globals are used by the GIS:

– **^INTHER** = Interface Error file

– **^INTHU** = UIF

Normally, the UIF and the Interface Error file should not grow significantly over time. Their size should remain stable. If these globals are not stable in size, messages may not be getting purged, or a serious system problem may exist.

To check the size of these globals:

1. Exit SY_ADMIN and access the VMS ($) prompt.

2. Access the Global Size Utility (%GSIZE) from DSM.

   $DSM

   > D ^%GE

   Global Size/Efficiency <Return>

   global(s)? > ^INTHER

   global(s)? > ^INTHU

   global(s)? > ^ <Return>

   Global EFFICIENCY or global SIZE <SIZE> <Return>

   Use the global size display to compare the current values in the Total Blocks fields to values normally found in these fields.

   FileMan does not recognize the UIF and Interface Error file globals as files.

- Refer to Figure 5-28: Global Size Display.

3. Exit the Global Size/Efficiency Utility and DSM and return to SY_ADMIN.

If the global size has grown unreasonably for the circumstances at your site, you need to respond. Remember, GIS system problems can cause the UIF and Interface Error files to grow significantly.

```
-------------------------------------------
PRD,MST Global Directory Block:  3920

Global ^INTHER First block:  49624

Pointer level 1                          -       1

Bottom pointer level                     -      28

Data level                               -    2033
                                        ---------
Total blocks                                 2062

-------------------------------------------
PRD,MST Global Directory Block:  3920

Global ^INTHU First block:  50432

Pointer level 1                          -       1

Bottom pointer level                     -      26

Data level                               -    1209
                                        ---------
Total blocks                                 1236
```

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Figure 5-27. Global Size Display

Access TaskMan to check that the INH AUTOPURGE process is scheduled. If it is not, you need to schedule the process, then purge candidate transactions.

To purge the transactions:

1. Access the Purge Transactions (PT) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → TCM → PT

2. Select status of transactions to purge: C (COMPLETE)

   You can only purge transactions with a status of Error, Complete, or Negative Acknowledged. A background job is created to purge transactions that satisfy the designated criteria.

3. Enter at Number of days to keep transactions: 14// <Return>

   Enter the number of days to retain transactions before being purged. The age of the message is calculated from the Last Activity Date field. The default number of days to hold transactions is defined in the Site Parameters file.

4. Enter at OK to proceed? YES// <Return>

5. Specify a time to begin the process.

   Requested start time: NOW// <Return> (21 Jun 2001@1529)

   Enter the time for the purge process to begin.

   The message displays: Request QUEUED!

   You return to the Transaction Control Menu.

   You need to repeat the process three times to purge all transactions with Complete, Error, and Negative Acknowledged statuses.

6. Repeat the process, as needed, then return to the Interface Menu (GIS) option.

If the INH Autopurge process is already scheduled, the growth of the globals could signify other problems with the GIS interface. You should follow the troubleshooting steps presented earlier associated with messages not being sent/ received.

DISCUSS PROCEDURE TO REPORT INTERFACE PROBLEMS

Reporting of problems with any interface is a 6-step process.

1. The site reports all interface problems to the TMSSC.

2. The TMSSC performs an initial investigation. If the problem can be resolved, the call is closed.If the TMSSC cannot resolve the problem, the problem is elevated to the appropriate organization, as follows:

   2a. If the problem is determined to require a fix to the CHCS interface software, a System Incident Report (SIR) is written for the appropriate team nomenclature.

   2b. If the problem is determined to be a problem with the external system application software, rather than with interface software, the TMSSC

logs a call with the vendor of the external system and coordinates development of a solution.

CHCS writes a SIR for tracking progress made by the vendor of the external system. The SIR uses nomenclature for that interface.

When the external system has completed developing its fix (referred to as a "patch"), they transfer the patch to the CHCS development environment.

3. CHCS developers install, test, and approve the patch in the CHCS development environment.

4. If the site has requested the fix as a QF, development notifies the TMSSC when the patch has been unit tested and passed and is ready for delivery to site.

5. The TMSSC uses the File Transfer Protocol (FTP) to move the patch from the CHCS development directory to either the site CHCS system, or the external system machine at the site.

6. The site tests the interface and reports the status to the TMSSC.

Practice 6 - The GIS Troubleshooting Game.

PRACTICE

Students 1-10

Practice 6 - The GIS Troubleshooting Game.

INSTRUCTIONS: The following practice is a role play game. It will take approximately 30 minutes.

DISCUSS THE GAME RULES

- The students work together as a group of site specialists to address a problem set by a scenario statement. One student is selected as "Senior Specialist" to be the spokesperson for the group.

- As a group the students select questions they would like to ask to narrow the focus to the problem area.

- When the group feels ready it should propose an appropriate specialist action. The action may involve doing something on the site system, or reporting a problem or observations to TMSSC.

- Students may consult any of their course materials or the training system during the game.

- The students must arrive at an appropriate action or solution within 20 questions to win the game. The instructor keeps a running tally of the questions on the white board.

- There are 5 types of specialist questions:

  * Remote System Representative

    System representative questions are stated as though the specialist is talking to the person responsible for the system to which CHCS is interfaced. For example, "System Rep: Are you getting messages from my site?"

  * System Questions

    System questions are stated as though the specialist is exercising a particular option or command. For example, "System: Select the System Status option from the Site Manager Menu. Are any of the processes in a CEF state?

* TMSSC Questions

  TMSSC questions are stated as through the specialist is talking to a representative at the support center. For example, “TMSSC: Is the DISN down today?” If the group is stuck, they may use a TMSSC question to ask for a hint on how to proceed. For example, “TMSSC, what do you suggest we do next?”

* Specialist Action

  A specialist action is stated as though the specialist is taking an action to resolve the problem. For example, “The specialist logs a problem call with TMSSC indicating a possible software problem.”

- The instructor will respond to the student questions as the user, the system or TMSSC to guide the students to an appropriate specialist action. The practice evaluation criteria identifies responses to expected questions. The instructor does not intentionally mislead the students or respond as though there were more than the one problem. In addition, the instructor can respond in the following ways:

  * If a question is addressed to a remote system representative, the system or TMSSC when they would not normally know the answer, the instructor will respond “I don’t know”. An inappropriate question counts against the 20 questions.

  * If a question addressed to the system does not identify what option or command to use the instructor will respond “Does not compute”. An incomplete question counts against the 20 questions.

  * If a question is not related to the scenario, the instructor may respond as “There is no indication of a problem”, “The system is running normally” or “This display does not show anything unusual.” An off-target question counts against the 20 questions.

  * If the action statement is not an appropriate response to the scenario the instructor may respond as “That is not the appropriate action in this case.”

  * The students may provide an action statement before the 20th question, but these count as two questions. When the students select an appropriate action, the instructor replies “You Win!”.

  * If the students are unable to identify an appropriate specialist action by the 20th question, the instructor identifies the appropriate response and what questions would have helped to narrow the problem focus.

* As time allows the class can replay the game with another scenario statement.

BEGIN GAME

Scenario A*: A message is sent from a remote system user that no DBSS messages are coming through from your site.*

Scenario B*: As a result of a routine check the computer operator has reported that the UIF and Interface Error File globals seem to be getting much larger. You decide to double check and try to resolve the issue.*

Scenario C*: A message is sent from a remote system user that no NMIS messages are coming through from your site.*

***Scenario B**: There is a problem with the UIF and Interface Error File globals*

Remote System Representative:

- If asked, indicate that you have been getting messages from the site and everything seems to be working just fine.

System responses:

- If asked to access the Global Size and Efficiency utility (^%GE) from DSM, for the ^INTHU and ^INTHER globals, report that the global size for both globals is more than double the usual size, but system traffic normal.
- If asked to access the Schedule Taskman Tasks option to determine in INH AUTOPURGE is scheduled, report that it is not scheduled.

TMSSC responses:

- If asked for help, suggest that there may be a problem with purging of old transactions and errors.

Verify appropriate specialist action:

- The specialist uses the PT option on the Transaction Control Menu to purge Complete, Error and Negative Acknolwedged transactions. (Starting the AUTOPURGE option is optional.)

***Scenario C**: A message is sent from a remote system user that no NMIS messages are coming through from your site..*

Remote System Representative:

- If asked, tell the specialist that you haven't gotten any messages from the CHCS site for the last three hours. You are getting messages from other sites.
- If asked, tell the specialist that you have monitored your system and the current transaction seems to be knocking out the link between the two systems. The link re-establishes successfully.

System responses:

- If asked to use the VS option to check the background processes, report they are running.
- If asked to use the TOP option to check the queues, report they are running
- If asked to check the error file, report there are no Negative Commit errors.

TMSSC responses:

- If asked for help, suggest the specialist check to see if the background processes and queues are running.
- If asked for help, suggest the specialist check the error file for negative commit error messages.
- If asked for help, suggest the specialist contact the remote system representative to see how that system is running.

Appropriate specialist action:

- The current NMIS Transaction is crashing the link; the specialist uses the MTC option to mark the transaction complete.

III. CLOSURE

Do you have any questions about the concepts covered in this Module 5 - Manage GIS?

In summary, content was presented on:

– Defining the GIS site parameters.

– Managing the GIS transactions, GIS background processes, the GIS errors, and GIS auditing.

– Troubleshooting the GIS interface.

This concludes Module 5. You now have the opportunity to demonstrate proficiency in the topics or skills presented.

Master Practice - Module 5.

SYS: CHCS INTERFACE MANAGEMENT

Module 5 - Manage the GIS

Section 2. Master Practice

MASTER PRACTICE GUIDELINES

This Master Practice enables the presenter to verify that you have successfully completed the objectives for this class.

The information you need to complete the Master Practice is supplied in the instructions and scenarios.

You may use any reference materials available in the classroom to complete the Master Practice.

Unless otherwise directed by the presenter, please work alone to complete the Master Practice.

Notify the presenter when directed to do so in the Master Practice. This allows the presenter to verify that you have successfully completed an activity.

You have approximately 20 minutes to complete this Master Practice.

SYS: CHCS INTERFACE MANAGEMENT

Module 5 - Manage the GIS

Scenario 1 - Define the GIS site parameters.

INSTRUCTIONS: Answer the following questions.

Scenario: *You are bringing up a new interface. Confirm that you know the steps required to activate and configure that interface.*

1. Name the items that must be activated for an interface, and explain how they are activated.

   _____

   _____

   _____

2. Which parameters must be configured for each interface?

   _____

   _____

   _____

   _____

3. Name the background processes that must be started for any interface.

   _____

   _____

SYS: CHCS INTERFACE MANAGEMENT

Module 5 - Manage the GIS

Scenario 2 - Manage the GIS transactions.

INSTRUCTIONS: Match the Transaction Control Menu option with the description of the option purpose.

Scenario: *One of your interfaces is having trouble with message transmission. Select the best menu option to use during troubleshooting.*

		Option Purpose		Menu Option
_____	1.	View messages in the UIF that meet a user-defined selection criteria.	A.	Inquire into Universal Interface File (IUIF)
_____	2.	Edit the text of a message (under direction from the TMSSC).	B.	Interface Statistics Generator (STAT)
_____	3.	Change a transactions status to Complete, then delete the transaction from the transmission queue (under direction from the TMSSC).	C.	Purge Transactions (PT)
			D.	List Queued Transaction (LQT)
_____	4.	Requeue a transaction in the UIF for output processing to an external system or CHCS database (under direction from the TMSSC).	E.	Requeue a Transaction (RT)
			F.	Edit an Interface Transaction (EIT)
_____	5.	View a single message in the UIF.	G.	Mark Transaction Complete (MTC)
_____	6.	View statistics on the average and total message sizes for one or more destinations.	H.	Transaction Search (TS)
_____	7.	View transactions in the INLHSCH or INLHDEST queues that are awaiting transmission.	I.	Average Message Size (AMS)

SYS: CHCS INTERFACE MANAGEMENT

Module 5 - Manage the GIS

Scenario 2 (continued)

		Option Purpose	Menu Option
_____	8.	Obtain a quick, graphic comparison of messages created to messages transmitted, to locate bottlenecks in any of your interface links.	J. Throughput Analyzer (TRA)
_____	9.	Delete transactions in the UIF that are older than the specified date.	
_____	10.	View the number of interface transactions in the UIF that meet a user-defined criteria.	

SYS: CHCS INTERFACE MANAGEMENT

Module 5 - Manage the GIS

Scenario 3 - Manage the GIS background processes.

INSTRUCTIONS: Match the Background Process Control Menu option with the circumstance when you would use that option.

Scenario: *One of your external systems is not receiving data. Select the best menu option to use during troubleshooting.*

		Circumstance Requiring the Option		Menu Option
_____	1.	Determine which active background processes are running.	A.	Inquire to a Background Process (IBP)
_____	2.	View the number of entries in each of the active interface queues.	B.	Startup a Background Process (S1)
_____	3.	View the site-specific parameters, status, and errors for one of your background processes.	C.	Start all Background Processes (SA)
_____	4.	You are ready to install a software upgrade; stop the background processes for each interface.	D.	Shutdown a Process (SH1)
_____	5.	You have completed installation of a software upgrade; restart the background processes for each interface.	E.	Shutdown All Background Processes (SHA)
_____	6.	View the next transaction to be processed in each of the active interface queues.	F.	Verify Status of Background Processes (VS)
_____	7.	View the status, top queue entries, and number of queue entries for a single background process.	G.	Display Queue Size (QSIZ)
_____	8.	One of the external systems has gone down; shut down that interface.	H.	Top Entries in Queues (TOP)
_____	9.	The failing external system is back up; restart that interface.	I.	Background Process Monitor (BMON)

SYS: CHCS INTERFACE MANAGEMENT

Module 5 - Manage the GIS

Scenario 4 - Manage the GIS errors.

INSTRUCTIONS: Match the Error Menu option with the description of the circumstance when you would use that option.

Scenario: *You are having trouble with one of your interfaces, and must select the best menu option to use during troubleshooting.*

		Circumstance Requiring the Option		Menu Option
_____	1.	You have been getting a particular error all day. Determine how many errors have text that matches a predefined text string.	A.	List Interface Errors (LIE)
			B.	Purge Errors (PE)
_____	2.	View individual errors whose text matches a predefined text string.	C.	Error Search/Sort/ Print (ES)
_____	3.	One of the interfaces has been down. Determine how many errors were generated by messages with a specific destination during a specific time period.	D.	Interface Error Statistics Generator (IES)
			E.	Error Message Summary (EMS)
_____	4.	You believe the formatter program is corrupt and generating errors.	F.	Shutdown a Process (SH1)
_____	5.	Errors have been accumulating in the Error file; INH AUTOPURGE was not run.		

SYS: CHCS INTERFACE MANAGEMENT

Module 5 - Manage the GIS

Scenario 5 - Manage GIS auditing.

INSTRUCTIONS: Answer the following questions.

Scenario: *You are experiencing performance problems since bringing the latest interface online, and are wondering whether that interface is causing the problems. Determine whether it would be helpful to use GIS auditing.*

1. What data does GIS auditing provide?

   _____

   _____

2. How is this information used?

   _____

   _____

3. Can GIS auditing be used to monitor GIS activity for security breaches?

   _____

4. What type of data can GIS auditing capture?

   _____

5. What two steps must be performed to turn on GIS auditing?

   – _____

   _____

   – _____

   _____

6. How can the accumulation of transaction type data be managed?

   _____

SYS: CHCS INTERFACE MANAGEMENT

Module 5 - Manage the GIS

Scenario 6 - Troubleshoot GIS interface problem.

INSTRUCTIONS: Answer the following questions.

Scenario: *You are experiencing GIS interface problems and must select the best menu option to use during troubleshooting. Then follow proper troubleshooting steps to answer the questions.*

		Circumstance Requiring the Option		Menu Option
_____	1.	You have been notified by users that outgoing messages are not being received and want to check the status of your output controller.	A.	Verify Status of Background Process (VS)
			B.	Startup Background Process (S1)
_____	2.	You want to delete a corrupted message.	C.	Top Entries in Queues (TOP)
_____	3.	One or more of your Format Controller processes are down.	D.	Site Parameter Entry/ Edit (SPE)
_____	4.	You have just restarted a background process, and now want to ensure the queues for the affected system are processing.	E.	Error Message Summary (EMS)
			F.	List Interface Errors (LIE)
_____	5.	A top entry in a queue is not being processed. You want to look at the error messages in the Interface Error Log.	G.	Mark Transaction Complete (MTC)
_____	6.	Message processing is sluggish, but transactions are moving through the queues. You want to start more Format and/or Output Controller processes.		

SYS: CHCS INTERFACE MANAGEMENT

Module 5 - Manage the GIS

Scenario 6 (continued)

7. What should be your first step when troubleshooting problems with incoming and outgoing messages?

_____

Match the global to the GIS queue with which it is associated.

_____	8. Transmitter queue	A.	^INLHFTSK
_____	9. Format Controller Queue	B.	^INLHDEST
_____	10. Output controller queue	C.	^INLHSCHK
		D.	^INLHSCH

Answer the following questions as true or false.

_____11. GIS system problems can cause the UIF and Interface Error files to grow significantly.

_____12. Start a Background Process (S1) option may be used to start a transmitter process.

_____13. It is not always necessary to consult the TMSSC TMSSC before using the Mark Transaction Complete (MTC) or the Edit an Interface Transaction (EIT) options.

Notify the presenter when you are done.

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Module 5 - Manage the GIS

Section 3. Reference Materials

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BACKGROUND PROCESSES AND TRANSACTION TYPES ASSOCIATED WITH EACH GIS INTERFACE

Background Processes

CoPath
- ANATOMIC PATHOLOGY RECEIVER
- ANATOMIC PATHOLOGY TRANSMITTER

DBSS
- DBSS RECEIVER
- DBSS TRANSMITTER

CliniComp
- CLINICOMP TRANSMITTER

LSI
- LSI INTERFACE RECEIVER
- LSI INTERFACE TRANSMITTER

MDIS
- (none)

MHCMIS
- MHCMIS TRANSMITTER

NMIS
- NMIS TRANSMITTER

Transaction Types

CoPath
- HL AP LOGIN/RESULT - IN
- HL DG ADMIT OUT (AP)
- HL DG ADMIT OUT (REP)
- HL DG ADMIT OUT (PARENT)
- HL DG CANCEL ADMIT OUT (AP)
- HL DG CANCEL ADMIT OUT (REP)
- HL DG CANCEL ADMIT OUT (PARENT)
- HL DG CANCEL DISCHARGE OUT (AP)
- HL DG CANCEL DISCHARGE OUT (REP)
- HL DG CANCEL DISCHARGE OUT (PARENT)
- HL DG CANCEL TRANSFER OUT (AP)

- HL DG CANCEL TRANSFER OUT (REP)
- HL DG CANCEL TRANSFER OUT (PARENT)
- HL DG DISCHARGE PATIENT OUT (AP)
- HL DG DISCHARGE PATIENT OUT (REP)
- HL DG DISCHARGE PATIENT OUT (PARENT)
- HL DG MERGE PATIENT OUT (AP)
- HL DG MERGE PATIENT OUT (REP)
- HL DG MERGE PATIENT OUT (PARENT)
- HL DG REG OUT (AP)
- HL DG REG OUT (REP)
- HL DG REG OUT (PARENT)
- HL DG TRANSFER OUT (AP)
- HL DG TRANSFER OUT (REP)
- HL DG TRANSFER OUT (PARENT)
- HL DG UPDATE OUT (AP)
- HL DG UPDATE OUT (REP)
- HL DG UPDATE OUT (PARENT)
- HL DG UPDATE PATIENT OUT (AP)
- HL DG UPDATE PATIENT OUT (REP)
- HL DG UPDATE PATIENT OUT (PARENT)
- HL AP ORDER OUT (COTS)
- HL AP ORDER OUT (P)
- HL AP ORDER OUT MODIFY (C)
- HL AP ORDER OUT MODIFY (P)
- INCOMING ACK
- HL GIS ACKNOWLEDGEMENT
- HL MASTER FILE NOTIFICATION (AP)
- HL MASTER FILE NOTIFICATION (REP)
- MASTER FILE NOTIFICATION

DBSS

- HL DG MERGE PATIENT OUT (BB)
- HL DG MERGE PATIENT OUT (REP)
- HL DG MERGE PATIENT OUT (PARENT)
- HL DG MERGE PATIENT IN (DBSS)
- HL DG UPDATE OUT (BB)
- HL DG UPDATE OUT (REP)
- HL DG UPDATE OUT (PARENT)
- HL DG UPDATE PATIENT ACCEPT ACK OUT
- HL DG UPDATE PATIENT OUT (BB)
- HL DG UPDATE PATIENT OUT (REP)
- HL DG UPDATE PATIENT OUT (PARENT)
- HL LAB DBSS ACCEPT ACK OUT
- HL LAB DBSS ACCESSION (R)

- HL LAB DBSS ACCESSION (B)
- HL LAB DBSS ACCESSION (P)
- HL LAB DBSS RESULT
- INCOMING ACK
- HL GIS ACKNOWLEDGEMENT
- HL MASTER FILE NOTIFICATION (BB)
- HL MASTER FILE NOTIFICATION (REP)
- MASTER FILE NOTIFICATION

CliniComp

- HL DG ADMIT OUT (CLIN)
- HL DG ADMIT OUT (REP)
- HL DG ADMIT OUT (PARENT)
- HL DG CANCEL ADMIT OUT (CLIN)
- HL DG CANCEL ADMIT OUT (REP)
- HL DG CANCEL ADMIT OUT (PARENT)
- HL DG CANCEL DISCHARGE OUT (CLIN)
- HL DG CANCEL DISCHARGE OUT (REP)
- HL DG CANCEL DISCHARGE OUT (PARENT)
- HL DG CANCEL TRANSFER OUT (CLIN)
- HL DG CANCEL TRANSFER OUT (REP)
- HL DG CANCEL TRANSFER OUT (PARENT)
- HL DG DISCHARGE PATIENT OUT (CLIN)
- HL DG DISCHARGE PATIENT OUT (REP)
- HL DG DISCHARGE PATIENT OUT (PARENT)
- HL DG MERGE PATIENT OUT (CLIN)
- HL DG MERGE PATIENT OUT (REP)
- HL DG MERGE PATIENT OUT (PARENT)
- HL DG REG OUT (REP)
- HL DG REG OUT (PARENT)
- HL DG TRANSFER OUT (CLIN)
- HL DG TRANSFER OUT (REP)
- HL DG TRANSFER OUT (PARENT)
- HL DG UPDATE OUT (CLIN)
- HL DG UPDATE OUT (REP)
- HL DG UPDATE OUT (PARENT)
- HL DG UPDATE PATIENT OUT (CLIN)
- HL DG UPDATE PATIENT OUT (REP)
- HL DG UPDATE PATIENT OUT (PARENT)
- HL LAB CH RESULTS - CLIN
- HL LAB CH RESULTS - OUT
- HL RAD RESULTS (CLIN)
- HL RAD RESULTS (BASE)
- HL RAD RESULTS

- HL RAD RESULTS (MDIS PARENT)
- INCOMING ACK
- THL GIS ACKNOWLEDGEMENT
- HL MASTER FILE NOTIFICATION (CLIN)
- HL MASTER FILE NOTIFICATION (REP)
- MASTER FILE NOTIFICATION

LSI
- HL LA DII LSI INBOUND
- HL LA DII LSI OUTBOUND
- HL LA DII LSI PARENT
- INCOMING ACK
- HL GIS ACKNOWLEDGEMENT

MDIS
- HL DG ADMIT OUT (MDIS)
- HL DG ADMIT OUT (REP)
- HL DG ADMIT OUT (PARENT)
- HL DG CANCEL ADMIT OUT (MDIS)
- HL DG CANCEL ADMIT OUT (REP)
- HL DG CANCEL ADMIT OUT (PARENT)
- HL DG CANCEL DISCHARGE OUT (MDIS)
- HL DG CANCEL DISCHARGE OUT (REP)
- HL DG CANCEL DISCHARGE OUT (PARENT)
- HL DG CANCEL TRANSFER OUT (MDIS)
- HL DG CANCEL TRANSFER OUT (REP)
- HL DG CANCEL TRANSFER OUT (PARENT)
- HL DG DISCHARGE PATIENT OUT (MDIS)
- HL DG DISCHARGE PATIENT OUT (REP)
- HL DG DISCHARGE PATIENT OUT (PARENT)
- HL DG MERGE PATIENT OUT (MDIS)
- HL DG MERGE PATIENT OUT (REP)
- HL DG MERGE PATIENT OUT (PARENT)
- HL DG REG OUT (MDIS)
- HL DG REG OUT (REP)
- HL DG REG OUT (PARENT)
- HL DG TRANSFER OUT (MDIS)
- HL DG TRANSFER OUT (REP)
- HL DG TRANSFER OUT (PARENT)
- HL DG UPDATE OUT (MDIS)
- HL DG UPDATE OUT (REP)
- HL DG UPDATE OUT (PARENT)
- HL DG UPDATE PATIENT OUT (MDIS)
- HL DG UPDATE PATIENT OUT (REP)

- HL DG UPDATE PATIENT OUT (PARENT)
- HL PAS APPOINTMENT (MDIS)
- HL PAS APPOINTMENT (PARENT-MDIS)
- HL RAD ARRIVAL (MDIS)
- HL RAD ARRIVAL
- HL RAD ORDER (MDIS)
- RAD ORDER
- HL RAD RESULTS (MDIS)
- HL RAD RESULTS (BASE)
- HL RAD RESULTS
- HL RAD RESULTS (MDIS PARENT)
- HL RAD SCHEDULE (MDIS)
- HL RAD SCHEDULE
- INCOMING ACK
- HL GIS ACKNOWLEDGEMENT
- HL MASTER FILE NOTIFICATION (MDIS)
- HL MASTER FILE NOTIFICATION (REP)
- MASTER FILE NOTIFICATION

MHCMIS

- HL DG ADMIT OUT (MHC)
- HL DG ADMIT OUT (REP)
- HL DG ADMIT OUT (PARENT)
- HL DG CANCEL ADMIT OUT (MHC)
- HL DG CANCEL ADMIT OUT (REP)
- HL DG CANCEL ADMIT OUT (PARENT)
- HL DG CANCEL DISCHARGE OUT (MHC)
- HL DG CANCEL DISCHARGE OUT (REP)
- HL DG CANCEL DISCHARGE OUT (PARENT)
- HL DG CANCEL TRANSFER OUT (MHC)
- HL DG CANCEL TRANSFER OUT (REP)
- HL DG CANCEL TRANSFER OUT (PARENT)
- HL DG DISCHARGE PATIENT OUT (MHC)
- HL DG DISCHARGE PATIENT OUT (REP)
- HL DG DISCHARGE PATIENT OUT (PARENT)
- HL DG MERGE PATIENT OUT (MHC)
- HL DG MERGE PATIENT OUT (REP)
- HL DG MERGE PATIENT OUT (PARENT)
- HL DG REG OUT (MHC)
- HL DG REG OUT (REP)
- HL DG REG OUT (PARENT)
- HL DG TRANSFER OUT (MHC)
- HL DG TRANSFER OUT (REP)
- HL DG TRANSFER OUT (PARENT)

- HL DG UPDATE OUT (MHC)
- HL DG UPDATE OUT (REP)
- HL DG UPDATE OUT (PARENT)
- HL DG UPDATE PATIENT OUT (MHC)
- HL DG UPDATE PATIENT OUT (REP)
- HL DG UPDATE PATIENT OUT (PARENT)
- HL LAB AP RESULTS - MHC
- HL LAB AP RESULTS - OUT
- HL LAB CH RESULTS - MHC
- HL DG ID DUP OUT (NMIS)
- HL LAB CH RESULTS - OUT
- HL LAB METHOD (C)
- HL LAB METHOD (P)
- HL LAB MI RESULTS - MHC
- HL LAB MI RESULTS - OUT
- HL OR IV
- HL OR IV (P)
- HL OR IVD
- HL OR IVD (P)
- HL OR IVF
- HL OR IVF (P)
- HL OR IVH
- HL OR IVH (P)
- HL OR IVH MODIFY
- HL OR IVH MODIFY (P)
- HL OR IVP
- HL OR IVP (P)
- HL OR UNIT DOSE
- HL OR UNIT DOSE (P)
- HL PAS APPOINTMENT (MHCMIS)
- HL PAS APPOINTMENT (PARENT-MHCMIS)
- HL PSO NEW PRESCRIPTION
- HL PSO PRESCRIPTION
- HL PSO RX ACTION (MHCMIS)
- HL PSO RX ACTION
- HL RAD RESULTS (MHCMIS)
- HL RAD RESULTS (BASE)
- HL RAD RESULTS
- INCOMING ACK
- HL GIS ACKNOWLEDGEMENT
- HL MASTER FILE NOTIFICATION (MHC)
- HL MASTER FILE NOTIFICATION (REP)
- MASTER FILE NOTIFICATION

NMIS

- HL CIW DIET ORDER - OUT (NMIS)
- HL CIW DIET ORDER - OUT (REP)
- HL CIW DIET ORDER - OUT (P)
- HL DG ADMIT OUT (NMIS)
- HL DG ADMIT OUT (REP)
- HL DG ADMIT OUT (PARENT)
- HL DG CANCEL ADMIT OUT (NMIS)
- HL DG CANCEL ADMIT OUT (REP)
- HL DG CANCEL ADMIT OUT (PARENT)
- HL DG CANCEL DISCHARGE OUT (NMIS)
- HL DG CANCEL DISCHARGE OUT (REP)
- HL DG CANCEL DISCHARGE OUT (PARENT)
- HL DG CANCEL TRANSFER OUT (NMIS)
- HL DG CANCEL TRANSFER OUT (REP)
- HL DG CANCEL TRANSFER OUT (PARENT)
- HL DG DISCHARGE PATIENT OUT (NMIS)
- HL DG DISCHARGE PATIENT OUT (REP)
- HL DG DISCHARGE PATIENT OUT (PARENT)
- HL DG GO ON LEAVE OF ABSENCE OUT (NMIS)
- HL DG GO ON LEAVE OF ABSENCE OUT (REP)
- HL DG GO ON LEAVE OF ABSENCE OUT (PARENT)
- HL DG ID DUP OUT (NMIS)
- HL DG ID DUP OUT (REP)
- HL DG ID DUP OUT (PARENT)
- HL DG MERGE PATIENT OUT (NMIS)
- HL DG MERGE PATIENT OUT (REP)
- HL DG MERGE PATIENT OUT (PARENT)
- HL DG REG OUT (NMIS)
- HL DG RET FROM LEAVE OF ABSENCE OUT (NMIS)
- HL DG RET FROM LEAVE OF ABSENCE OUT (REP)
- HL DG RET FROM LEAVE OF ABSENCE OUT (PARENT)
- HL DG SWAP BEDS OUT (NMIS)
- HL DG SWAP BEDS OUT (REP)
- HL DG SWAP BEDS OUT (PARENT)
- HL DG TRANSFER OUT (NMIS)
- HL DG TRANSFER OUT (REP)
- HL DG TRANSFER OUT (PARENT)
- HL DG UN-ID DUP OUT (NMIS)
- HL DG UN-ID DUP OUT (REP)
- HL DG UN-ID DUP OUT (PARENT)
- HL DG UPDATE OUT (NMIS)
- HL DG UPDATE OUT (REP)
- HL DG UPDATE OUT (PARENT)

- HL DG UPDATE PATIENT OUT (NMIS)
- HL DG UPDATE PATIENT OUT (REP)
- HL DG UPDATE PATIENT OUT (PARENT)
- INCOMING ACK
- HL GIS ACKNOWLEDGEMENT

OPTIONS ON THE GIS INTERFACE MENU - MENU ORDER

GIS Interface Menu (Systems Manager Menu (EVE) → SM → INT → GIS)

- TCM Transaction Control Menu (Systems Manager Menu (EVE) → SM → INT → GIS → TCM)
  - IUIF Inquire into Universal Interface File (UIF) (Systems Manager Menu (EVE) → SM → INT → GIS → TCM → IUIF)
  - STAT Interface Statistics Generator (Systems Manager Menu (EVE) → SM → INT → GIS → TCM → STAT)
  - PT Purge Transactions (Systems Manager Menu (EVE) → SM → INT → GIS → TCM → PT)
  - LQT List Queued Transactions (Systems Manager Menu (EVE) → SM → INT → GIS → TCM → LQT)
  - RT Requeue a Transaction (Systems Manager Menu (EVE) → SM → INT → GIS → TCM → RT)
  - EIT Edit an Interface Transaction (Systems Manager Menu (EVE) → SM → INT → GIS → TCM → EIT)
  - MTC Mark Transaction Complete (Systems Manager Menu (EVE) → SM → INT → GIS → TCM → MTC)
  - TS Transaction Search (Systems Manager Menu (EVE) → SM → INT → GIS → TCM → TS)
  - AMS Average Message Size (Systems Manager Menu (EVE) → SM → INT → GIS → TCM → AMS)
  - TRA Throughput Analyzer (Systems Manager Menu (EVE) → SM → INT → GIS → TCM → TRA)
- FTM File and Table Menu (Systems Manager Menu (EVE) → SM → INT → GIS → FTM)
  - TTE Transaction Type Enter/Edit (Systems Manager Menu (EVE) → SM → INT → GIS → FTM → TTE)
  - DE Destination Entry/Edit (Systems Manager Menu (EVE) → SM → INT → GIS → FTM → DE)

SPE Site Parameter Entry/Edit (Systems Manager Menu (EVE) → SM → INT → GIS → FTM → SPE)

BPE Background Process Entry/Edit (Systems Manager Menu (EVE) → SM → INT → GIS → FTM → BPE)

IOE Interface OS Edit (Systems Manager Menu (EVE) → SM → INT → GIS → FTM → IOE)

RMD Replicate message to destinations (Systems Manager Menu (EVE) → SM → INT → GIS → FTM → RMD)

EM Error Menu (Systems Manager Menu (EVE) → SM → INT → GIS → EM)

LIE List Interface Errors (Systems Manager Menu (EVE) → SM → INT → GIS → EM → LIE)

PE Purge Errors (Systems Manager Menu (EVE) → SM → INT → GIS → EM → PE)

ES Error Search/Sort/Print (Systems Manager Menu (EVE) → SM → INT → GIS → EM → ES)

IES Interface Error Statistics Generator (Systems Manager Menu (EVE) → SM → INT → GIS → EM → IES)

EMS Error Message Summary (Systems Manager Menu (EVE) → SM → INT → GIS → EM → EMS)

BPM Background Process Control Menu (Systems Manager Menu (EVE) → SM → INT → GIS → BPM)

IBP Inquire to a Background Process (Systems Manager Menu (EVE) → SM → INT → GIS → BPM → IBP)

S1 Startup a Background Process (Systems Manager Menu (EVE) → SM → INT → GIS → BPM → S1)

SA Start all Background Processes (Systems Manager Menu (EVE) → SM → INT → GIS → BPM → SA)

SH1 Shutdown a Process (Systems Manager Menu (EVE) → SM → INT → GIS → BPM → SH1)

SHA Shutdown All Background Processes (Systems Manager Menu (EVE) → SM → INT → GIS → BPM → SHA)

VS Verify Status of Background Processes (Systems Manager Menu (EVE) → SM → INT → GIS → BPM → VS)

QSIZ Display Queue Size (Systems Manager Menu (EVE) → SM → INT → GIS → BPM → QSIZ)

TOP Top Entries in Queues (Systems Manager Menu (EVE) → SM → INT → GIS → BPM → TOP)

BMON Background Process Monitor (Systems Manager Menu (EVE) → SM → INT → GIS → BPM → BMON)

SM Script Menu (Systems Manager Menu (EVE) → SM → INT → GIS → SM)

ES Enter/Edit a Script (Systems Manager Menu (EVE) → SM → INT → GIS → SM → ES)

PS Print a Script (Systems Manager Menu (EVE) → SM → INT → GIS → SM → PS)

CS Compile a Script (Systems Manager Menu (EVE) → SM → INT → GIS → SM → CS)

RS Recompile All Scripts (Systems Manager Menu (EVE) → SM → INT → GIS → SM → RS)

SGM Script Generator Menu (Systems Manager Menu (EVE) → SM → INT → GIS → SGM)

MM Message Menu (Systems Manager Menu (EVE) → SM → INT → GIS → SGM → MM)

SM Segment Menu (Systems Manager Menu (EVE) → SM → INT → GIS → SGM → SM)

FM Field Menu (Systems Manager Menu (EVE) → SM → INT → GIS → SGM → FM)

DM Data Type Menu (Systems Manager Menu (EVE) → SM → INT → GIS → SGM → DM)

G1	Generate Scripts for a Message (Systems Manager Menu (EVE) → SM → INT → GIS → SGM → G1)
GA	Generate All Messages (Systems Manager Menu (EVE) → SM → INT → GIS → SGM → GA)

OPTIONS ON THE GIS INTERFACE MENU - ALPHABETIC ORDER

AMS Average Message Size (Systems Manager Menu (EVE) → SM → INT → GIS → TCM → AMS)

BMON Background Process Monitor (Systems Manager Menu (EVE) → SM → INT → GIS → BPM → BMON)

BPE Background Process Entry/Edit (Systems Manager Menu (EVE) → SM → INT → GIS → FTM → BPE)

BPM Background Process Control Menu (Systems Manager Menu (EVE) → SM → INT → GIS → BPM)

CS Compile a Script (Systems Manager Menu (EVE) → SM → INT → GIS → SM → CS)

DE Destination Entry/Edit (Systems Manager Menu (EVE) → SM → INT → GIS → FTM → DE)

DM Data Type Menu (Systems Manager Menu (EVE) → SM → INT → GIS → SGM → DM)

EIT Edit an Interface Transaction (Systems Manager Menu (EVE) → SM → INT → GIS → TCM → EIT)

EM Error Menu (Systems Manager Menu (EVE) → SM → INT → GIS → EM)

EMS Error Message Summary (Systems Manager Menu (EVE) → SM → INT → GIS → EM → EMS)

ES Enter/Edit a Script (Systems Manager Menu (EVE) → SM → INT → GIS → SM → ES)

ES Error Search/Sort/Print (Systems Manager Menu (EVE) → SM → INT → GIS → EM → ES)

FM Field Menu (Systems Manager Menu (EVE) → SM → INT → GIS → SGM → FM)

FTM File and Table Menu (Systems Manager Menu (EVE) → SM → INT → GIS → FTM)

G1 Generate Scripts for a Message (Systems Manager Menu (EVE) → SM → INT → GIS → SGM → G1)

GA	Generate All Messages (Systems Manager Menu (EVE) → SM → INT → GIS → SGM → GA)
GIS	Interface Menu (Systems Manager Menu (EVE) → SM → INT → GIS)
IBP	Inquire to a Background Process (Systems Manager Menu (EVE) → SM → INT → GIS → BPM → IBP)
IES	Interface Error Statistics Generator (Systems Manager Menu (EVE) → SM → INT → GIS → EM → IES)
IOE	Interface OS Edit (Systems Manager Menu (EVE) → SM → INT EM→ GIS → FTM → IOE)
IUIF	Inquire into Universal Interface File (UIF) (Systems Manager Menu (EVE) → SM → INT → GIS → TCM → IUIF)
LIE	List Interface Errors (Systems Manager Menu (EVE) → SM → INT → GIS → EM → LIE)
LQT	List Queued Transactions (Systems Manager Menu (EVE) → SM → INT → GIS → TCM → LQT)
MM	Message Menu (Systems Manager Menu (EVE) → SM → INT → GIS → SGM → MM)
MTC	Mark Transaction Complete (Systems Manager Menu (EVE) → SM → INT → GIS → TCM → MTC)
PE	Purge Errors (Systems Manager Menu (EVE) → SM → INT → GIS → EM → PE)
PS	Print a Script (Systems Manager Menu (EVE) → SM → INT → GIS → SM → PS)
PT	Purge Transactions (Systems Manager Menu (EVE) → SM → INT → GIS → TCM → PT)
QSIZ	Display Queue Size (Systems Manager Menu (EVE) → SM → INT → GIS → BPM → QSIZ)
RMD	Replicate message to destinations (Systems Manager Menu (EVE) → SM → INT → GIS → FTM → RMD)
RS	Recompile All Scripts (Systems Manager Menu (EVE) → SM → INT → GIS → SM → RS)

RT	Requeue a Transaction (Systems Manager Menu (EVE) → SM → INT → GIS → TCM → RT)
S1	Startup a Background Process (Systems Manager Menu (EVE) → SM → INT → GIS → BPM → S1)
SA	Start all Background Processes (Systems Manager Menu (EVE) → SM → INT → GIS → BPM → SA)
SGM	Script Generator Menu (Systems Manager Menu (EVE) → SM → INT → GIS → SGM)
SH1	Shutdown a Process (Systems Manager Menu (EVE) → SM → INT → GIS → BPM → SH1)
SHA	Shutdown All Background Processes (Systems Manager Menu (EVE) → SM → INT → GIS → BPM → SHA)
SM	Script Menu (Systems Manager Menu (EVE) → SM → INT → GIS → SM)
SM	Segment Menu (Systems Manager Menu (EVE) → SM → INT → GIS → SGM → SM)
SPE	Site Parameter Entry/Edit (Systems Manager Menu (EVE) → SM → INT → GIS → FTM → SPE)
STAT	Interface Statistics Generator (Systems Manager Menu (EVE) → SM → INT → GIS → TCM → STAT)
TCM	Transaction Control Menu (Systems Manager Menu (EVE) → SM → INT → GIS → TCM)
TOP	Top Entries in Queues (Systems Manager Menu (EVE) → SM → INT → GIS → BPM → TOP)
TRA	Throughput Analyzer (Systems Manager Menu (EVE) → SM → INT → GIS → TCM → TRA)
TS	Transaction Search (Systems Manager Menu (EVE) → SM → INT → GIS → TCM → TS)
TTE	Transaction Type Enter/Edit (Systems Manager Menu (EVE) → SM → INT → GIS → FTM → TTE)
VS	Verify Status of Background Processes (Systems Manager Menu (EVE) → SM → INT → GIS → BPM → VS

SYS:
CHCS INTERFACE MANAGEMENT

Module 6 -
Manage the MDIS Interface

SYS: CHCS INTERFACE MANAGEMENT

Module 6 - Manage the MDIS Interface

Section 1. Module Outline

I. INTRODUCTION

Welcome to the module on Manage the MDIS Interface.

The purpose of this module is to familiarize site operations staff with the management of the Medical Diagnosis Imaging System (MDIS) interface.

This module is scheduled to last approximately 1 hour.

The target audience for this module is as follows:

– Software Specialists

– System Specialists.

DISCUSS OBJECTIVES

– Objective 1: Identify the components of the MDIS interface.

– Objective 2: Manage the MDIS interface.

INTRODUCE OUTBOUND REFERENCES

The following documentation is referenced in this module:

– CHCS/MDIS Interface Control Document (Draft), SAIC, September 1996.

II. PRESENTATION

■ Objective 1: IDENTIFY THE COMPONENTS OF THE MDIS INTERFACE

DISCUSS THE MDIS/CHCS INTERFACE

Overview of the External System

- Refer to Figure 6-1: Typical MDIS Configuration.

MDIS is a picture archiving and communications system (PACS) whose purpose is to replace hard copy (printed) radiological film with digital archiving and soft copy (electronic) viewing.

In the MDIS interface configuration, images are acquired through various devices, such as film digitizers and computed radiography. Other devices, such as workstations and printers, enable image display and output.

Interface Equipment

A VAX 4000 functions as the MDIS host processor. One or more Loral working storage units (WSUs) act as the MDIS shared file server. These are coupled with archive controller units for images being sent or retrieved from optical disk jukeboxes.

The MDIS interface passes CHCS patient registration, order, and radiology results information to the site MDIS. This minimizes the data entry required to maintain data in two systems.

CHCS has two physically separate networks:

– **Transmission Control Protocol/Internet Protocol (TCP/IP).** Supports traffic between the CHCS hosts, user and peripheral devices, all other external systems, and the Defense Information System Network (DISN).

– **Distributed Data Processing (DDP).** Supports DDP traffic between the CHCS hosts.

MDIS is the only system that communicates to CHCS through the DDP protocol. MDIS connects to the CHCS DDP network via a message gateway provided by the Veterans Administration (VA). The VA gateway typically connects to the same

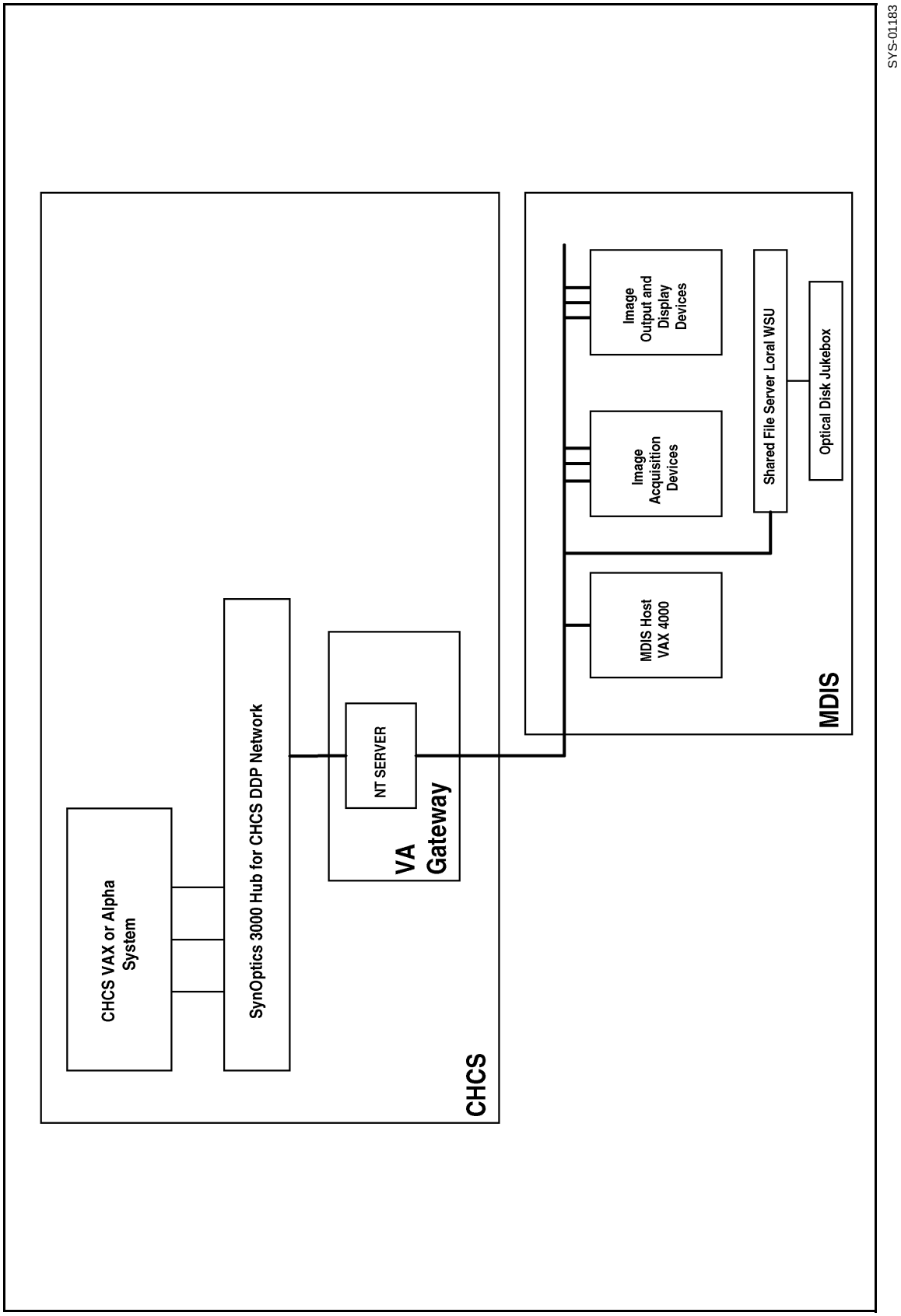


Figure 6-1. Typical MDIS Configuration

communications hub used by the CHCS hosts for their DDP traffic. The VA gateway connects to the MDIS host processor via the MDIS network backbone.

The VA gateway is composed of two 486 personal computers (PCs) with Windows NT. One PC acts as the gateway between MDIS and CHCS, and also functions as a file server. It stores data from CHCS until MDIS extracts the data for processing. The second PC is a cold spare, and can replace the NT gateway if it becomes inoperable.

DISCUSS MDIS INTERFACE PROCESS

Discuss Master File Messages

The MDIS system updates its database when master file notifications are received from the following CHCS master files:

– Provider file

– User file.

• Discuss the Interface process from CHCS to MDIS.

Refer to Figure 6-2: Message Flow From CHCS to MDIS

Data is sent to MDIS as a Health Level 7 (HL7) message in an eight-step automatic procedure.

1. The CHCS subsystems update patient information that needs to be passed to MDIS.

   Any of the following activities in CHCS will trigger an HL7 message to the MDIS system:

   – A patient is registered.

   – A physician enters a radiology order for a patient.

   – A patient is “arrived” for an exam.

   – A patient is scheduled for a clinic appointment and the clinic pulls radiology films and images.

   – A patient is scheduled for a radiology exam.

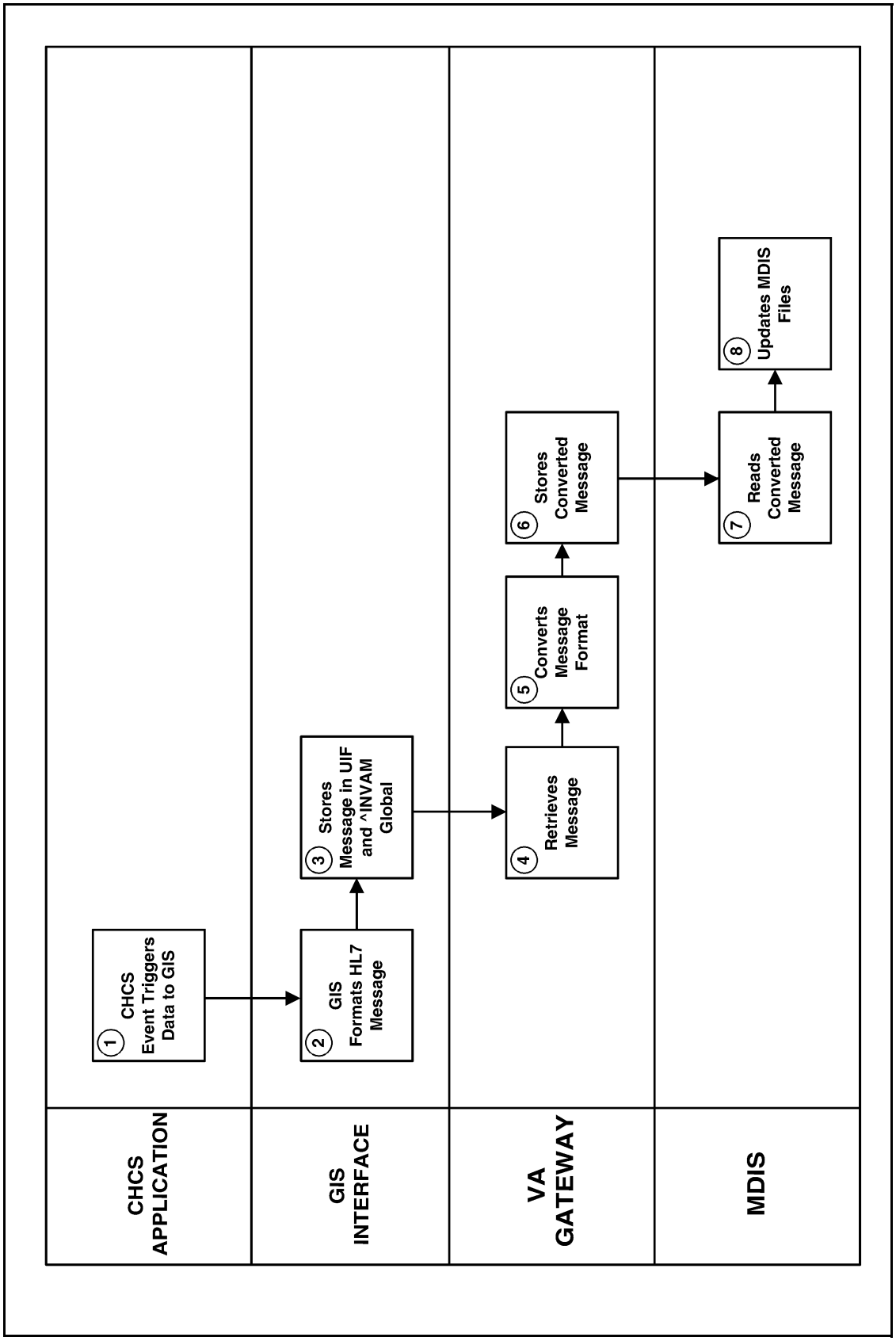


Figure 6-2. Message Flow From CHCS to MDIS

– After transcription, a radiology report is verified by a radiologist. This sets the exam report status to “complete.”

– After amendment, a radiology report is verified by a radiologist. This sets the exam report status to “amend.”

This information is saved in CHCS files, such as the Patient, Radiology Exam, Order and Radiology Report files.

In addition, the CHCS subsystem software passes the related information to the Generic Interface System (GIS).

2. The GIS formats an HL7 message.

   When the GIS receives the information from the CHCS subsystem, the GIS formats an HL7 message for the particular activity encountered.

3. The GIS stores the HL7 message in the CHCS Universal Interface file (UIF) and the ^INVAM Message Exchange global.

   Once formatted, the HL7 message is written to the CHCS UIF, where it is stored until it is eligible to be purged. The message is also written to the ^INVAM Message Exchange global to make it available to the VA gateway.

   Once the message is written to the message exchange global, its counterpart in the UIF is marked complete and becomes eligible for purging. Messages are purged from the UIF by manual or automatic activation of the purge task.

4. The VA gateway retrieves the message.

   The gateway PC reads the message from the ^INVAM Message Exchange global.

   Note that for all other interfaces, the GIS pushes the messages to the external system. MDIS is unique in that the VA gateway pulls the messages.

5. The VA gateway converts the message format.

   The gateway PC converts the message to the American College of Radiology-National Electrical Manufacturers Association (ACR-NEMA) format that MDIS can process.

   Once a message is retrieved by the gateway interface PC, that PC deletes the message from the ^INVAM global.

6. The VA gateway stores the converted message.

   The gateway PC stores the converted message until the MDIS host processor retrieves it for processing.

7. The MDIS host processor reads the converted message.

   The MDIS host processor retrieves messages from the gateway file server.

8. The MDIS host processor updates the MDIS files.

   The MDIS application process updates the MDIS database.

   This procedure is repeated automatically for every interface message between CHCS and MDIS.

Discuss Update of CHCS Files

CHCS files that send data to MDIS include:

- Patient file (#2)
- Radiology Exam file (#70.5)
- Exam Status file (#72)
- Order file (#101)
- Radiology Report file (#74).

Practice 1 - Identify the components of the MDIS interface.

PRACTICE GUIDELINES

The information you need to complete each practice is supplied in the instructions and scenarios.

Notify the presenter when directed to do so in the practice. This allows the presenter to verify that you have successfully completed an activity.

You may use any reference materials available in the classroom to complete your practices.

You may ask questions or request assistance at any time during the practices.

Device identifiers are site-specific, and will be provided by the presenter.

Students 1-10

Practice 1 - Identify the components of the MDIS interface.

INSTRUCTIONS: Write T or F to indicate whether the following statements are true or false. You have 5 minutes to complete this practice.

_____ 1. Film digitizers, computed radiography, workstations, printers, VAX 4000, WSUs, archive controller units, and optical disk jukeboxes are components of a typical MDIS system.

_____ 2. A MDIS system is connected to a CHCS system via the VA gateway. The VA gateway is connected to the CHCS communications hub and the MDIS host processor.

_____ 3. The VA gateway is one disk operating system (DOS)-based 486 PC.

_____ 4. An HL7 message will be sent to MDIS when a correctly registered patient is admitted to the medical treatment facility (MTF).

_____ 5. An HL7 message will be sent to MDIS when a physician enters a radiology order for a patient.

_____ 6. An HL7 message will be sent to MDIS if an exam report status is set to complete or amend.

_____ 7. The GIS interface formats an HL7 message, and stores the message in the CHCS UIF and the ^INVAM Message Exchange global.

_____ 8. The VA gateway interface PC reads the message from the ^INVAM Message Exchange global and converts the message to ACR-NEMA format.

_____ 9. The VA gateway file server PC stores the converted message until the MDIS host processor retrieves it for processing.

_____10. The CHCS application process updates the MDIS database.

Notify the presenter when you have completed this practice.

■ Objective 2: MANAGE THE MDIS INTERFACE

Scenario: *The TMSSC has asked you to check on some specific interface parameters and an interface message that may be related to a problem with the MDIS interface.*

DISCUSS MDIS CONFIGURATION PARAMETERS

The following must be in place before MDIS interface messages can be sent by the GIS interface:

– The Format Controller and Output Controller background processes must be running. You can use the Verify Status of Background Process option on the Background Process Control Menu to verify these processes are running.

– The destination entry for the MDIS interface must be defined.

– The transaction types associated with the MDIS interface must be activated.

GIS does not have an MDIS transmitter process. The VA gateway uses DDP to pull MDIS messages from the UIF. MUMPS starts a job when the VA gateway requests messages, and terminates the job when the gateway is finished. This process is usually too quick to be observed.

No CHCS Radiology file and table build is necessary for the CHCS/MDIS interface to function. The synchronization between the CHCS and MDIS databases is accomplished via the interface.

▲ DEMONSTRATE DISPLAYING THE DESTINATION ENTRY FOR MDIS

1. Log on to CHCS.

Username:	**[site username]**	Access:	**INTUSER**
Password:	**[site password]**	Verify:	**INTUSERV**
Area:	**[A** or **B]**		

---

2. Access the Destination Entry/Edit Option (DE) on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → FTM → DE

3. Select the interface destination.

   Select INTERFACE DESTINATION: **HL MDIS**

4. Review the interface destination parameters.

   The default destination parameters should not be changed for MDIS.

   Press **<Next>**

   Currently, the MDIS interface does not use selective routing.

   In the future, the Route ID will be the Defense Medical Information System Identification (DMIS-ID) of the division associated with each MDIS system at the site.

   Press **<Next>**

   In the future, the selective routing parameters will be a unique set of Massachusetts General Hospital Utility Multi-Programming System (MUMPS) codes for each interface.

   Press **<Next>**

5. Return to the File and Table Menu

   Press **<F10>** to exit the display

   Select INTERFACE DESTINATION: **<Return>**

▲ DEMONSTRATE DISPLAYING A MDIS INTERFACE MESSAGE

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

2. Select the interface message.

   Select INTERFACE MESSAGE: **trn5**

   Note that this entry is case sensitive.

3. Select the device.

   DEVICE: **<Return>**

   RIGHT MARGIN: 80// **<Return>**

   The interface message record displays.

   Press <RETURN> to continue, or '^" to stop **<Return>**

4. Return to the Interface Menu.

   Select INTERFACE MESSAGE: **<Return>**

   Select Transaction Control Menu Option: **<Return>**

DISCUSS MDIS TROUBLESHOOTING PROCEDURES

Use standard operating procedures to check the status of MDIS and ensure messages are transmitted properly. Operators should follow these procedures every hour to check the CHCS/MDIS system link and reestablish connection if the link goes down.

- Refer to Module 5 - Manage GIS, for a discussion of processing queues and verification.

– Check the MDIS message queue from the Queue Size option on the Background Process Menu.

  If the number of messages in the MDIS Transmitter queue is growing, then check if messages are processing.

– Verify MDIS status using the Top Entries in Queue option on the Background Process menu.

  If the “Message ID” numbers are changing in the queue, then MDIS is accepting CHCS messages.

  If the “Message ID” numbers are not changing in the queue, troubleshoot the MDIS interface.

Discuss MDIS Problem Troubleshooting

Problems with the MDIS interface can occur in the following areas:

– Initial activation and configuration

– Data transfer

– MDIS system.

1. Initial Activation and Configuration

The CHCS/MDIS Installation and Operations Guide for activating the MDIS interface does not match your existing system configuration.

– Contact the TMSSC.

2. Data Transfer

2.1 RAD/MDIS data is not being transferred to MDIS.

– First, verify active interface status from the Background Process Control Menu.

– Check that the ^INVAM global is in the production volume set associated with the radiology (RAD) functionality: PRD,CCC.

– Robot MDIS.

2.2 RAD/MDIS transactions are not being triggered.

– A transaction should be generated when patients are arrived for an exam. If the transaction is not being generated, a problem may be present in one or more of the following areas:

The DDP connection between the RAD and MDIS systems

The ^INVAM global.

– First, check that the DDP connection is functioning. This may involve checking the configuration of any connecting routers, the VA gateway, and the associated PCs. For example, if you upgrade a card on the PC file server, check the configuration on the VA gateway to make sure that the DDP circuit is pointed to the new card in the PC.

  If messages are being queued but not processed, test the VA gateway. It may be necessary to restart the gateway.

– If the DDP connection is working, check that the associated global is in the production volume set associated with the RAD functionality.

3. MDIS System

3.1 MDIS users are reporting slow responses from the interface.

– Verify that the tasks are queued for processing and recheck in an hour. The slowness may be originating from the MDIS side of the interface.

– At some sites, MDIS cannot handle the volume of messages. Using the Transaction Type Enter/Edit option on the File and Table Menu, these sites have inactivated transaction types for Patient Registration (HL DG REG OUT), Patient Update (HL DG UPDATE PATIENT OUT), Scheduling (HL PAS APPOINTMENT), and Admission/Disposition/Transfer. All radiology notification message (e.g., HL RAD ORDER, HL RAD ARRIVAL, and HL RAD RESULTS) are left on. Using this procedure is not recommended, but it may improve performance.

• Refer to Module 5 - Manage the GIS, for a list of transaction types activated with each interface.

– Contact the TMSSC if the problem persists.

Practice 2 - Manage the MDIS interface.

PRACTICE

Student 1

Username:	**[site username]**	Access:	**INTUSERA**
Password:	**[site password]**	Verify:	**INTUSERAV**
Area:	**[A or B]**		

Practice 2 - Manage the MDIS interface.

INSTRUCTIONS: This practice will take approximately 5 minutes. Follow the specifics below.

Scenario: *You need to review a MDIS message to verify the message status is complete.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

2. Select the interface message.

   Select INTERFACE MESSAGE: **trn6**

3. Select the device

   DEVICE: **<Return>**

Notify the presenter when the message is displayed on your terminal.

4. Return to the Interface Menu.

Student 2

Username:	**[site username]**	Access:	**INTUSERB**
Password:	**[site password]**	Verify:	**INTUSERBV**
Area:	**[A or B]**		

Practice 2 - Manage the MDIS interface.

INSTRUCTIONS: This practice will take approximately 5 minutes. Follow the specifics below.

Scenario: *You need to review a MDIS message to verify the message status is complete.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

2. Select the interface message.

   Select INTERFACE MESSAGE: **trn7**

3. Select the device

   DEVICE: **<Return>**

Notify the presenter when the message is displayed on your terminal.

4. Return to the Interface Menu.

Student 3

Username:	**[site username]**	Access:	**INTUSERC**
Password:	**[site password]**	Verify:	**INTUSERCV**
Area:	**[A or B]**		

Practice 2 - Manage the MDIS interface.

INSTRUCTIONS: This practice will take approximately 5 minutes. Follow the specifics below.

Scenario: *You need to review a MDIS message to verify the message status is complete.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

2. Select the interface message.

   Select INTERFACE MESSAGE: **trn8**

3. Select the device

   DEVICE: **<Return>**

Notify the presenter when the message is displayed on your terminal.

4. Return to the Interface Menu.

Student 4

Username:	**[site username]**	Access:	**INTUSERD**
Password:	**[site password]**	Verify:	**INTUSERDV**
Area:	**[A or B]**		

Practice 2 - Manage the MDIS interface.

INSTRUCTIONS: This practice will take approximately 5 minutes. Follow the specifics below.

Scenario: *You need to review a MDIS message to verify the message status is complete.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

2. Select the interface message.

   Select INTERFACE MESSAGE: **trn9**

3. Select the device

   DEVICE: **<Return>**

Notify the presenter when the message is displayed on your terminal.

4. Return to the Interface Menu.

Student 5

Username:	**[site username]**	Access:	**INTUSERE**
Password:	**[site password]**	Verify:	**INTUSEREV**
Area:	**[A or B]**		

Practice 2 - Manage the MDIS interface.

INSTRUCTIONS: This practice will take approximately 5 minutes. Follow the specifics below.

Scenario: *You need to review a MDIS message to verify the message status is complete.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

2. Select the interface message.

   Select INTERFACE MESSAGE: **trn10**

3. Select the device

   DEVICE: **<Return>**

Notify the presenter when the message is displayed on your terminal.

4. Return to the Interface Menu.

Student 6

Username:	**[site username]**	Access:	**INTUSERF**
Password:	**[site password]**	Verify:	**INTUSERFV**
Area:	**[A or B]**		

Practice 2 - Manage the MDIS interface.

INSTRUCTIONS: This practice will take approximately 5 minutes. Follow the specifics below.

Scenario: *You need to review a MDIS message to verify the message status is complete.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

2. Select the interface message.

   Select INTERFACE MESSAGE: **trn11**

3. Select the device

   DEVICE: **<Return>**

Notify the presenter when the message is displayed on your terminal.

4. Return to the Interface Menu.

Student 7

Username:	**[site username]**	Access:	**INTUSERG**
Password:	**[site password]**	Verify:	**INTUSERGV**
Area:	**[A or B]**		

Practice 2 - Manage the MDIS interface.

INSTRUCTIONS: This practice will take approximately 5 minutes. Follow the specifics below.

Scenario: *You need to review a MDIS message to verify the message status is complete.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

2. Select the interface message.

   Select INTERFACE MESSAGE: **trn12**

3. Select the device

   DEVICE: **<Return>**

Notify the presenter when the message is displayed on your terminal.

4. Return to the Interface Menu.

Student 8

Username:	**[site username]**	Access:	**INTUSERH**
Password:	**[site password]**	Verify:	**INTUSERHV**
Area:	**[A or B]**		

Practice 2 - Manage the MDIS interface.

INSTRUCTIONS: This practice will take approximately 5 minutes. Follow the specifics below.

Scenario: *You need to review a MDIS message to verify the message status is complete.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

2. Select the interface message.

   Select INTERFACE MESSAGE: **trn13**

3. Select the device

   DEVICE: **<Return>**

Notify the presenter when the message is displayed on your terminal.

4. Return to the Interface Menu.

Student 9

Username:	**[site username]**	Access:	**INTUSERI**
Password:	**[site password]**	Verify:	**INTUSERIV**
Area:	**[A or B]**		

Practice 2 - Manage the MDIS interface.

INSTRUCTIONS: This practice will take approximately 5 minutes. Follow the specifics below.

Scenario: *You need to review a MDIS message to verify the message status is complete.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

2. Select the interface message.

   Select INTERFACE MESSAGE: **trn14**

3. Select the device

   DEVICE: **<Return>**

Notify the presenter when the message is displayed on your terminal.

4. Return to the Interface Menu.

Student 10

Username:	**[site username]**	Access:	**INTUSERJ**
Password:	**[site password]**	Verify:	**INTUSERJV**
Area:	**[A or B]**		

Practice 2 - Manage the MDIS interface.

INSTRUCTIONS: This practice will take approximately 5 minutes. Follow the specifics below.

Scenario: *You need to review a MDIS message to verify the message status is complete.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

2. Select the interface message.

   Select INTERFACE MESSAGE: **trn15**

3. Select the device

   DEVICE: **<Return>**

Notify the presenter when the message is displayed on your terminal.

4. Return to the Interface Menu.

III. CLOSURE

Do you have any questions about the concepts covered in this Module 6 - Manage the MDIS Interface?

In summary, the following content was presented:

– Identifying the components of the MDIS interface.

– Managing the MDIS interface.

This concludes Module 6. You now have the opportunity to demonstrate proficiency in the topics or skills presented.

Thank you for attending.

Master Practice - Module 6.

SYS: CHCS INTERFACE MANAGEMENT

Module 6 - Manage the MDIS Interface

Section 2. Master Practice

MASTER PRACTICE GUIDELINES

This Master Practice enables the presenter to verify that you have successfully completed the objectives for this class.

The information you need to complete the Master Practice is supplied in the instructions and scenarios.

You may use any reference materials available in the classroom to complete the Master Practice.

Device identifiers are site-specific, and will be provided by the presenter.

Unless otherwise directed by the presenter, please work alone to complete the Master Practice.

Notify the presenter when directed to do so in the Master Practice. This allows the presenter to verify that you have successfully completed an activity.

You have approximately 5 minutes to complete this Master Practice.

SYS: CHCS INTERFACE MANAGEMENT

Module 6 - Manage the MDIS Interface

Student 1-10

Scenario 1 - Manage the MDIS interface.

INSTRUCTIONS: Write T or F to indicate whether the following statements are true or false. You have 5 minutes to complete this practice.

_____ 1. The MDIS interface in the site CHCS system passes CHCS patient registration, order, and radiology results information to the site MDIS system.

_____ 2. The MDIS configuration is connected to CHCS via the VA gateway. The VA gateway is composed of two 486 PCs with Windows NT.

_____ 3. Only the Format Controller background process must be running for HL7 interface messages to be sent to MDIS.

_____ 4. The destination entry for the MDIS interface must be defined. This includes the ROUTE ID for each MDIS system at the site. The ROUTE ID is the same as the DMIS ID of the division associated with each MDIS system.

_____ 5. HL RAD ARRIVAL (MDIS) and HL RAD ORDER (MDIS) are examples of MDIS transaction types.

_____ 6. MDIS transaction types must be set to YES for the interface to function properly.

_____ 7. The GIS interface stores HL7 messages in the CHCS Universal Message file. These messages are marked complete when the message is written to the message exchange global.

_____ 8. The GIS interface converts the message to ACR-NEMA format and stores the converted message on the gateway file server.

_____ 9. The Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu can be used to display the destination entry for MDIS.

_____10. The Transaction Type Enter/Enter Option (TTE) on the File and Table Menu can be used to display a specific interface message related to a MDIS transaction.

SYS: CHCS INTERFACE MANAGEMENT

Module 6 - Manage the MDIS Interface

Section 3. Reference Materials

There are no reference materials for this module.

SYS:
CHCS INTERFACE MANAGEMENT

Module 7 -
Manage the CliniComp Interface

SYS: CHCS INTERFACE MANAGEMENT

Module 7 - Manage the CliniComp Interface

Section 1. Module Outline

I. INTRODUCTION

Welcome to the module on Manage the CliniComp Interface.

The purpose of this module is to familiarize site operation staff with the management of the CliniComp interface.

This module is scheduled to last approximately 1 hour.

The target audience for this module is as follows:

– Software Specialists

– System Specialists

DISCUSS OBJECTIVES

– Objective 1: Identify the components of the CliniComp interface.

– Objective 2: Manage the CliniComp interface.

INTRODUCE OUTBOUND REFERENCES

The following documentation is referenced in this module:

– CHCS HL7 Implementation Specification for CHCS Version 4.5, SAIC/CHCS Doc. TC-4.5-0045.

– CliniComp Implementation Guideline, SAIC Doc. TC-4.5-5001.

II. PRESENTATION

■ Objective 1: IDENTIFY THE COMPONENTS OF THE CLINICOMP INTERFACE

DISCUSS THE CLINICOMP INTERFACE CONFIGURATION

Overview of the External System

The CliniComp Clinical Information System (CIS) is the complete hardware and software system that automates clinical charting on patients. The CliniComp interface enables transmission of all admission, disposition, and transfer (ADT) events, patient registration, laboratory and radiology result data, and master file notifications from CHCS to users of the CliniComp system. Laboratory result messages are sent for only clinical chemistry laboratory tests. Radiology result messages include radiology exam and order information.

- Refer to Figure 7-1: Typical CliniComp Configuration.

The CliniComp Clinical Information System is commercial off-the-shelf (COTS) software and hardware that provides computer support for clinical processes and documentation. The core of the CliniComp system is point-of-care data capture at the patient's bedside for any device that transmits electronic data, such as hemodynamic, fetal/uterine monitoring, ventilators, and other physiologic monitoring devices.

Discuss Interface Equipment

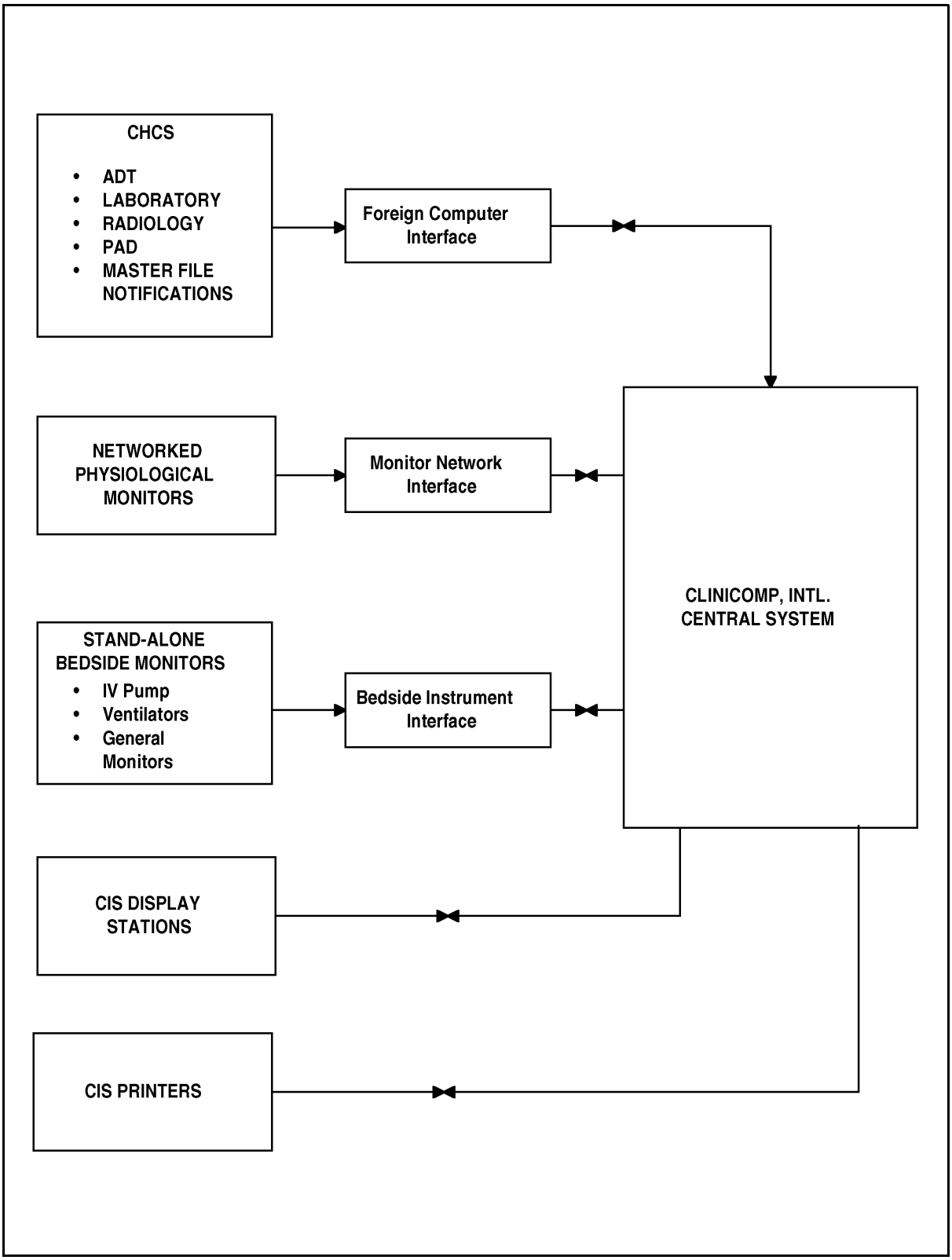
The CHCS CliniComp interface is composed of several physical (hardware) and logical (software) components. The physical components include the following:

– CHCS VAX host system

– CliniComp central system, consisting of two Silicon Graphics workstations connected in a redundant configuration

– Networked physiological monitors; e.g., computers in the intensive care unit (ICU), emergency room, or ward that monitor patient data. These computers are networked and connect to a central station in the ICU, emergency room, or ward.

– Stand-alone bedside monitors: IV pumps, ventilators, and general monitors in the ICU, emergency room, or ward that collect patient data



SYS-01173

Figure 7-1. Typical CliniComp Configuration

– CIS display stations; e.g., display stations located in the ICU, emergency room, or ward that allow data from inputs to be viewed

– CIS printers that allow output of data from CliniComp.

The software components include:

– CHCS Generic Interface System (GIS)

– CliniComp system software.

DISCUSS THE CLINICOMP INTERFACE PROCESS

The unidirectional interface between CHCS and CliniComp provides the capability for CHCS to transmit ADT, registration, laboratory clinical chemistry result data, radiology result data, and master file notifications to the CliniComp system.

Discuss Registration and ADT Messages

CHCS sends the following Registration and ADT event messages for all patients in CHCS to the CliniComp system:

– Add a patient

– Update patient information

– Admit a patient

– Transfer a patient

– Discharge a patient

– Update ADT information

– Cancel admit

– Cancel transfer

– Cancel discharge

– Merge patient information.

Discuss Send Lab Clinical Chemistry Result Message

CHCS also sends the “Send Lab Clinical Chemistry Result” message to the CliniComp system. A Lab Clinical Chemistry Result message is sent on:

– Final verification of a certified result

OR

– Final verification of an amended result.

Discuss Radiology Messages

A radiology result message is sent when:

– A radiology exam appointment is scheduled.

– A scheduled radiology procedure is cancelled.

– A patient arrives in the radiology department for an exam.

– An unverified radiology report is released.

– A radiology report is certified.

– An amended report receives final verification.

Discuss Master File Notification Messages

The CliniComp system updates its database when master file notifications are received from the following master files:

– Provider

– Hospital Location

– Lab Test.

The CliniComp system is responsible for acting on these notifications.

CHCS expects the external systems to update their corresponding files and send an acknowledgment message back to CHCS.

Discuss Interface Process from CHCS to CliniComp

- Refer to Figure 7-2: Message Flow from CHCS to CliniComp.

Data is sent to CliniComp in a five-step automatic procedure:

1. The event on CHCS triggers data to the GIS.

   The CHCS subsystem software passes the related information to the GIS.

2. The GIS formats an HL7 message.

   When the GIS receives the information from the CHCS subsystem, the GIS formats an HL7 message for a particular event.

3. The GIS stores the HL7 message in the CHCS Universal Interface file (UIF).

4. The GIS background process receives the messages from the UIF and transmits it to the CliniComp system.

5. The CliniComp interface sends an accept acknowledgment message back to CHCS if it received the message.

Discuss Update of CHCS Files

No CHCS files receive data from CliniComp.

The following CHCS files send data to CliniComp:

– Lab Result (#63)

– Lab Method (#8710)

– Order (#101)

– Patient (#2).

Practice 1 - Identify the components of the CliniComp interface.

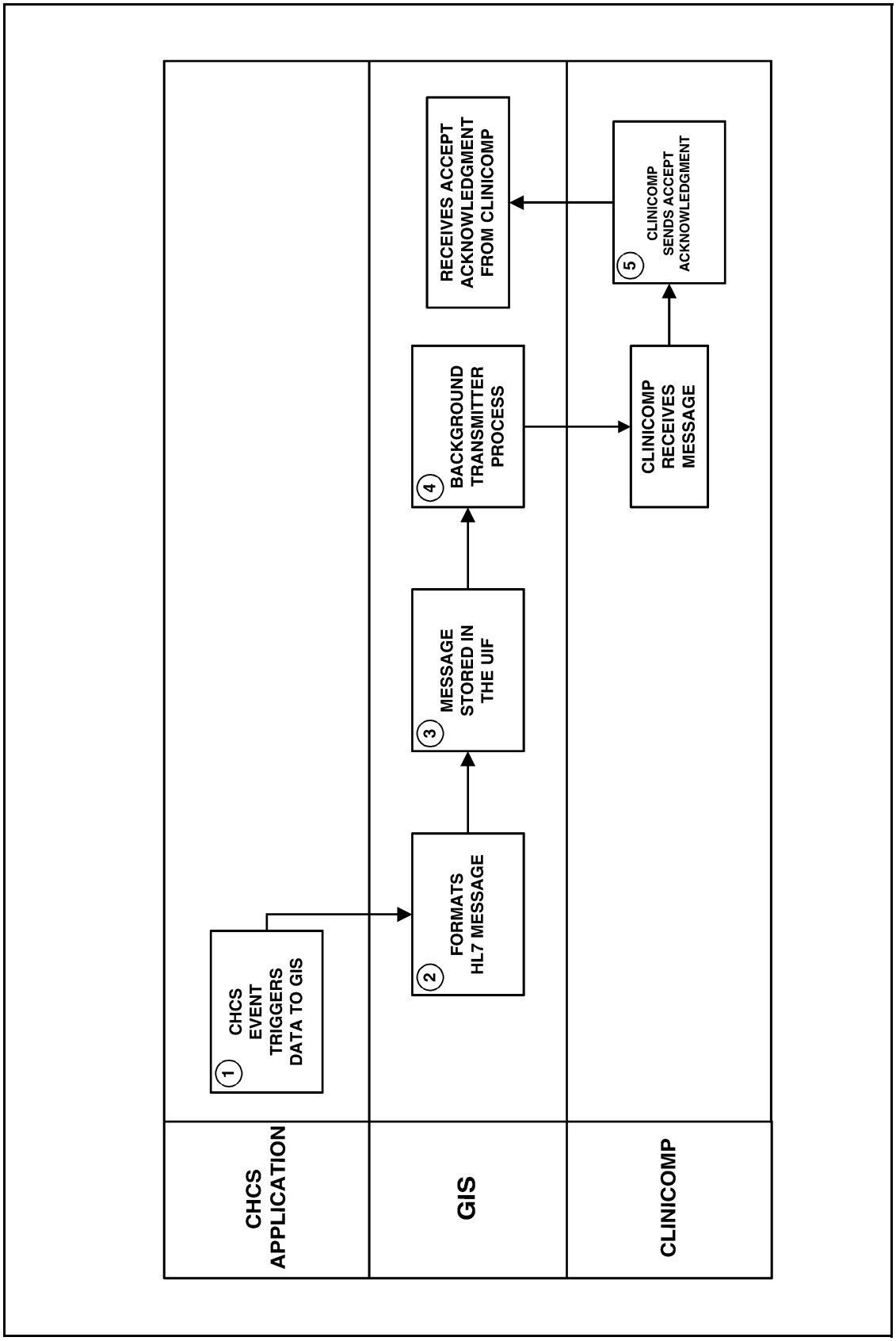


Figure 7-2. Message Flow from CHCS to CliniComp

PRACTICE GUIDELINES

The information you need to complete each practice is supplied in the instructions and scenarios.

Notify the presenter when directed to do so in the practice. This allows the presenter to verify that you have successfully completed an activity.

You may use any reference materials available in the classroom to complete your practices.

You may ask questions or request assistance at any time during the practices.

Device identifiers are site-specific, and will be provided by the presenter.

Students 1-10

Practice 1 - Identify the components of the CliniComp interface.

INSTRUCTIONS: Answer the questions below. You have approximately 5 minutes to complete this practice.

1. What physical components comprise the CHCS CliniComp Interface?

   _____

   _____

2. What standard message format is supported by GIS for CHCS CliniComp data transmission?

   _____

3. What types of messages are transmitted by the unidirectional interface between CHCS and the CliniComp Interface?

   _____

   _____

4. List four of the ADT event messages that CHCS will send to CliniComp.

   _____

   _____

5. What two events will trigger CHCS to send the “Send Lab Clinical Chemistry Result” message to the CliniComp Interface?

   _____

Notify the presenter when you have completed this practice.

■ Objective 2: MANAGE THE CLINICOMP INTERFACE

Scenario: *The CliniComp representative called to complain that she is not receiving messages from CHCS. You check the GIS and notice that the CliniComp messages are not transmitting. Check specific interface parameters and a CliniComp interface message.*

DISCUSS CLINICOMP CONFIGURATION PARAMETERS

The following must be in place before the CliniComp interface messages can be sent by the GIS interface:

– An entry must exist in the Interface Destination file for the CliniComp system.

– The client address and Internet Protocol (IP) port must be entered in the Background Process Control file for the transmitter process.

– The background process and transaction types associated with the CliniComp interface must be activated.

– The following background processes must be running: Format Controller, Output Controller, and CliniComp Transmitter background process.

▲ DEMONSTRATE HOW TO DISPLAY THE INTERFACE BACKGROUND PROCESS FILE FOR THE CLINICOMP TRANSMITTER

To display the CliniComp transmitter background process:

1. Log on to CHCS.

Username:	**[site username]**	Access:	**INTUSER**
Password:	**[site password]**	Verify:	**INTUSERV**
Area:	**[A** or **B]**		

---

2. Access the Inquire Background Process (IBP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → IBP

3. Select a background process to display:

   Select the BACKGROUND PROCESS: **CLINICOMP TRANSMITTER**

4. Send the output to your screen.

5. Review the parameters for this background process.

- Refer to Figure 7-3: Inquire to a Background Process - CliniComp Transmitter Process.

```
                Process Name: CLINICOMP TRANSMITTER
   Active/Inactive: ACTIVE         Routine: INHVTAPT
          Priority:                 Device:
     Client/Server: CLIENT                Server IP Port

     Client IP Address                    Client IP Port
       215.50.50.50                         2001

------------------------- Parameters ----------------------------------
    Open Hang Time:           Open Retries:
    Send Hang Time:           Send Retries: 1        Send Timeout:
    Read Hang Time:           Read Retries:         Rec'v Timeout:
  Transmitter Hang:
       End of Line: 13
       Init String: 67,72,67,83,32,84,69,83,84,13,67,67,73,72,76,55,13
     Init Response: 79,75,13
-----------------------------------------------------------------------

Status                     $JOB     Last Run Update        Last Started
Appears to be NOT running

Errors:
   Date/Time           Error
```

FM-00741

Figure 7-3. Inquire to a background Process - CliniComp Transmitter Process

Discuss the Display

The page displays the Background Process Control file:

– **Active/Inactive.** The process status, either Active or Inactive

– **Routine.** Name of the routine that this process runs**.**

– **Client/Server**. Whether the process should be opened as a client or a server.

– **Client IP Address**. If this process is opened as a client, this is the IP address used when this process opens a Transmission Control Protocol (TCP) socket to the remote system.

– **Client IP Port**. If this process is opened as a client, this is the IP port number on the remote system to which this process connects.

6. Return to the Interface Menu.

   Press **<F10>** to exit the display.

   Select BACKGROUND PROCESS: **<Return> <Return>**

▲ DEMONSTATE DISPLAYING A CLINICOMP INTERFACE MESSAGE

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

2. Select INTERFACE MESSAGE: **trn317**

   Note that this entry is case sensitive.

3. Send the output to your screen.

   The interface message record displays.

• Refer to Figure 7-4: Inquire Into the Universal Interface File - CliniComp.

```
Date/Time: 21 Jun 2001@160217  Msg ID: trn317                    Seq#:
       Destination: HL CliniComp
            Status: NEW
         Direction: OUT      Priority: 0     Time to Process: 21 Jun
2001@1602
   Incoming Msg ID:
 Parent Message ID:
 Orig. Transaction: HL DG UPDATE PATIENT OUT (CLIN)
            Source:
 Acknowledge Req'd: YES   Accept ACK Msg ID:
                          Applic ACK Msg ID:

     # of Attempts:          Last Attempt Date/Time:
         Edited by:

MESSAGE TEXT:
MSH^\|~&^CHCS\ADT^8888^^^20010621124000^^ADT\A08^trn317^P^2.2^^^AL^AL
EVN^A08^20010620073800^^
PID^1^^3913\\\8888^20/100-10-
7428^NASCO\CHARLES\C\\\^^19810112000000^M^^C^48 HI
GHLAND DRIVE\\BALTIMORE\MARYLAND\21201\\\^^(410) 555-2715^(202) 555-
6876^^S^CND
^^100-10-7428^^^^^^^^4104\USA ACTIVE DUTY ENLISTED\99PAT\\\
NK1^1^NASCO\CORA\\\\^MOP^48 HIGHLAND
DRIVE\\BALTIMORE\MARYLAND\21201^(410) 555-
```

FM-00743

Figure 7-4. Inquire Into the Universal Interface File - CliniComp

Press <RETURN> to continue or '^' to stop <**Return**>

4. Return to the Interface Menu.

   Select INTERFACE MESSAGE: <**Return**>

   Select Transaction Control Menu Option: <**Return**>

5. Press **<F10>** to exit the display.

Discuss Interpreting Lab Result and ADT Messages

You can interpret the information contained in the “Message Text” portion of the message. Each portion of the message text is divided into data elements called segments, and each segment is divided into fields separated by a caret (^).

For example, “MSH” is the message header and starts the control segment of the message. The sending application is CHCS\ADT. ADT\A08 is the message type and event type, followed by the message ID number (trn317) and HL7 version. (In this case, version 2.2 was used.)

- Refer to CHCS HL7 Implementation Specification for CHCS Version 4.5.

DISCUSS CLINICOMP TROUBLESHOOTING PROCEDURES

Use standard operating procedures to check the status of CliniComp and ensure messages are transmitted properly. Operators should follow these procedures to check the CHCS/CliniComp Interface link and reestablish connection if the link goes down.

- Refer to Module 5 - Manage GIS, for a discussion of processing queues and verification.

Check the CliniComp message queue from the Queue Size option on the Background Process Menu.

– If the number of messages in the CliniComp Transmitter queue is growing, check if messages are processing.

– Verify CliniComp status using the Top Entries in Queue option on the Background Process Menu.

– If the “Message ID” numbers are changing in the queue, then CliniComp is accepting CHCS messages.

– If the “Message ID” numbers are not changing in the queue, troubleshoot the CliniComp interface.

1. CliniComp Problem Troubleshooting

Common problems for the CliniComp interface include:

– Initially activating and configuring the interface

– CliniComp error text messages.

2. Initial Activation and Configuration

- Refer to CliniComp Implementation Guideline.

3. CliniComp Error Text Messages

An incoming acknowledgment message from CliniComp not only carries a two-digit status (for example, CA) but also has a field for an error text message as part of the MSA segment. In addition, one or more repeating error segments might provide additional information about the error. If the remote system sends anything other than an accept condition as an acknowledgment, the information is logged in both the Interface Error file and as part of the Activity Log Multiple of the original transaction that was sent.

- Refer to Table 7-1: CliniComp Error and Reject Messages, for additional errors and their resolutions.

Practice 2 - Manage the CliniComp interface.

Table 7-1. CliniComp Error and Reject Messages

Code	Message	Description
AE	Cannot parse message	The transmitted bytes did not comprise a Health Level 7 (HL7) encoded message.
AR	INTERNAL ERROR	An internal configuration error has occurred.
AE	UNKNOWN TRIGGER EVENT	The receiving application could not be determined, or the message type is not supported.
AE	BAD DATATYPE: <FLD>	The field did not match its data type, e.g., “ABC” is sent when a numeric field is expected.
AE	REQUIRED FIELD NOT PRESENT: <FLD>	A required field was not present in the segment; e.g., the patient ID is missing in the process identification (PID) segment.
AE	FIELD MAY NOT REPEAT: <FLD>	A field repeated where it was not allowed.
AE	TOO MANY REPETITIONS: <FLD>	A field repeated more times than is allowed.
AE	UNKNOWN SEGMENT ID	The segment name is not recognized.
AR	THIS BED IS ALREADY TAKEN	The destination bed is already occupied.
AR	UNKNOWN LOCATION	The Assigned Patient location is invalid or unknown.
AR	UNKNOWN PATIENT ID	The patient is not on the system.
AR	UNKNOWN PRIOR PATIENT ID	The patient is not on the system (A18 only).
AR	THERE IS AN ACTIVE STAY FOR THIS PATIENT ID.	The new patient ID is already online and not in DISCH unit (A18 only).

Table 7-1. CliniComp Error and Reject Messages (continued)

Code	Message	Description
AR	NEW PATIENT ID WOULD BECOME A PREVIOUS STAY.	The new patient ID is already online and not in DISCH unit (A18 only).
AR	INVALID PATIENT ID	The patient ID has a bad format.
AE	BAD OBSERVATION TIME	The data time stamp in not recognized.
AR	UNKNOWN PATIENT	The patient was not found on the system.
AA	NO RESULTS PROCESSED	All OBX segments, if any, are not recognized.
AA	SOME RESULTS PROCESSED	At least one, but not all, OBX segments were successfully processed.
AA	ALL RESULTS PROCESSED	All OBX segments were sucessfully processed.

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PRACTICE

Student 1

Username:	**[site username]**	Access:	**INTUSERA**
Password:	**[site password]**	Verify:	**INTUSERAV**
Area:	**[A or B]**		

Practice 2 - Manage the CliniComp interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *The TMSSC has asked you to check on some specific interface parameters that may be related to a problem with the CliniComp interface. Display the CliniComp Transmitter Background Process and display a CliniComp Interface Message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

2. Select INTERFACE MESSAGE**: trn342**

3. Send the output to your screen.

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the message is displayed on your terminal.

Student 2

Username:	**[site username]**	Access:	**INTUSERB**
Password:	**[site password]**	Verify:	**INTUSERBV**
Area:	**[A or B]**		

Practice 2 - Manage the CliniComp interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *The TMSSC has asked you to check on some specific interface parameters that may be related to a problem with the CliniComp interface. Display the CliniComp Transmitter Background Process and display a CliniComp Interface Message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

2. Select INTERFACE MESSAGE**: trn345**

3. Send the output to your screen.

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the message is displayed on your terminal.

Student 3

Username:	**[site username]**	Access:	**INTUSERC**
Password:	**[site password]**	Verify:	**INTUSERCV**
Area:	**[A or B]**		

Practice 2 - Manage the CliniComp interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *The TMSSC has asked you to check on some specific interface parameters that may be related to a problem with the CliniComp interface. Display the CliniComp Transmitter Background Process and display a CliniComp Interface Message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

2. Select INTERFACE MESSAGE**: trn364**

3. Send the output to your screen.

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the message is displayed on your terminal.

Student 4

Username:	**[site username]**	Access:	**INTUSERD**
Password:	**[site password]**	Verify:	**INTUSERDV**
Area:	**[A or B]**		

Practice 2 - Manage the CliniComp interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *The TMSSC has asked you to check on some specific interface parameters that may be related to a problem with the CliniComp interface. Display the CliniComp Transmitter Background Process and display a CliniComp Interface Message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

2. Select INTERFACE MESSAGE**: trn366**

3. Send the output to your screen.

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the message is displayed on your terminal.

Student 5

Username:	**[site username]**	Access:	**INTUSERE**
Password:	**[site password]**	Verify:	**INTUSEREV**
Area:	**[A or B]**		

Practice 2 - Manage the CliniComp interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *The TMSSC has asked you to check on some specific interface parameters that may be related to a problem with the CliniComp interface. Display the CliniComp Transmitter Background Process and display a CliniComp Interface Message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

2. Select INTERFACE MESSAGE**: trn370**

3. Send the output to your screen.

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the message is displayed on your terminal.

Student 6

Username:	**[site username]**	Access:	**INTUSERF**
Password:	**[site password]**	Verify:	**INTUSERFV**
Area:	**[A or B]**		

Practice 2 - Manage the CliniComp interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *The TMSSC has asked you to check on some specific interface parameters that may be related to a problem with the CliniComp interface. Display the CliniComp Transmitter Background Process and display a CliniComp Interface Message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

2. Select INTERFACE MESSAGE**: trn387**

3. Send the output to your screen.

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the message is displayed on your terminal.

Student 7

Username:	**[site username]**	Access:	**INTUSERG**
Password:	**[site password]**	Verify:	**INTUSERGV**
Area:	**[A or B]**		

Practice 2 - Manage the CliniComp interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *The TMSSC has asked you to check on some specific interface parameters that may be related to a problem with the CliniComp interface. Display the CliniComp Transmitter Background Process and display a CliniComp Interface Message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

2. Select INTERFACE MESSAGE**: trn390**

3. Send the output to your screen.

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the message is displayed on your terminal.

Student 8

Username:	**[site username]**	Access:	**INTUSERH**
Password:	**[site password]**	Verify:	**INTUSERHV**
Area:	**[A or B]**		

Practice 2 - Manage the CliniComp interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *The TMSSC has asked you to check on some specific interface parameters that may be related to a problem with the CliniComp interface. Display the CliniComp Transmitter Background Process and display a CliniComp Interface Message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

2. Select INTERFACE MESSAGE**: trn393**

3. Send the output to your screen.

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the message is displayed on your terminal.

Student 9

Username:	**[site username]**	Access:	**INTUSERI**
Password:	**[site password]**	Verify:	**INTUSERIV**
Area:	**[A or B]**		

Practice 2 - Manage the CliniComp interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *The TMSSC has asked you to check on some specific interface parameters that may be related to a problem with the CliniComp interface. Display the CliniComp Transmitter Background Process and display a CliniComp Interface Message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

2. Select INTERFACE MESSAGE**: trn411**

3. Send the output to your screen.

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the message is displayed on your terminal.

Student 10

Username:	**[site username]**	Access:	**INTUSERJ**
Password:	**[site password]**	Verify:	**INTUSERJV**
Area:	**[A or B]**		

Practice 2 - Manage the CliniComp interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *The TMSSC has asked you to check on some specific interface parameters that may be related to a problem with the CliniComp interface. Display the CliniComp Transmitter Background Process and display a CliniComp Interface Message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

2. Select INTERFACE MESSAGE**: trn415**

3. Send the output to your screen.

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the message is displayed on your terminal.

III. CLOSURE

Do you have any questions about the concepts covered in Module 7 - Manage the CliniComp Interface?

In summary, the following content was presented:

– Identifying the components of the CliniComp interface.

– Managing the CliniComp interface.

This concludes Module 7. You now have the opportunity to demonstrate proficiency in the topics or skills presented.

Following the Master Practice, there will be a 10-minute break.

Thank you for attending.

Master Practice - Module 7.

SYS: CHCS INTERFACE MANAGEMENT

Module 7 - Manage the CliniComp Interface

Section 2. Master Practice

MASTER PRACTICE GUIDELINES

This Master Practice enables the presenter to verify that you have successfully completed the objectives for this class.

The information you need to complete the Master Practice is supplied in the instructions and scenarios.

You may use any reference materials available in the classroom to complete the Master Practice.

Device identifiers are site-specific, and will be provided by the presenter.

Unless otherwise directed by the presenter, please work alone to complete the Master Practice.

Notify the presenter when directed to do so in the Master Practice. This allows the presenter to verify that you have successfully completed an activity.

You have approximately 10 minutes to complete this Master Practice.

SYS: CHCS INTERFACE MANAGEMENT

Module 7 - Manage the CliniComp Interface

Student 1-10

Scenario 1 - Manage the CliniComp interface.

INSTRUCTIONS: Fill in the blanks. You have 10 minutes to complete this practice.

1. What types of messages does CHCS transmit to CliniComp?

   _____

   _____

2. What two events trigger a Lab Clinical Chemistry Result message to be sent?

   _____

3. What two parameters must be entered in the Background Process Control file for a CliniComp interface message to be sent by the GIS interface?

   _____

4. What three background processes must be running before the CliniComp interface message can be sent by the GIS interface?

   _____

Notify the presenter when you are done.

SYS: CHCS INTERFACE MANAGEMENT

Module 7 - Manage the CliniComp Interface

Section 3. Reference Materials

There are no reference materials for this module.

SYS:
CHCS INTERFACE MANAGEMENT

Module 8 -
Manage the NMIS Interface

SYS: CHCS INTERFACE MANAGEMENT

Module 8 - Manage the NMIS Interface

Section 1. Module Outline

I. INTRODUCTION

Welcome to the module on Manage the NMIS Interface.

The purpose of this module is to familiarize site operations staff with the management of the Nutrition Management Information Systems (NMIS) interface.

This module is scheduled to last approximately 1 hours.

The target audience for this module is as follows:

– Software Specialists

– System Specialists.

DISCUSS OBJECTIVES

– Objective 1: Identify the components of the NMIS interface.

– Objective 2: Manage the NMIS interface.

INTRODUCE OUTBOUND REFERENCES

The following documentation is referenced to in this module:

– Nutrition Management Information System Interface Requirements, RQMTS-95-36, SAIC, October 1995.

– CHCS HL7 Implementation Specification for CHCS Version 4.5, SAIC/CHCS Doc., TC-4.5-0045.

II. PRESENTATION

■ Objective 1: IDENTIFY THE COMPONENTS OF THE NMIS INTERFACE

DISCUSS THE NMIS INTERFACE

Overview of the External System

NMIS uses patient medical information to provide nutritional care and services to hospitalized patients.

CHCS transmits Health Level 7 (HL7) messages to NMIS to notify dietary staff when a diet order or admission, disposition, and transfer (ADT) event occurs. One message is sent for each diet order, which may consist of several meals. A message is not sent for each meal of the diet order. Messages for ADTs are sent on an on-going basis.

The NMIS interface avoids manually reentring data already available in CHCS. This interface provides information on patient demographics, food allergies, and nutritional risks which enables dietetics personnel to:

– Process patient menus and calculate diets based on the most recent physician's diet order

– Conduct nutritional screening of all new admissions and prioritize care

– Provide timely nutrition intervention to patients.

NMIS functions at the medical treatment facility (MTF) include inventory management, production forecasting, and food cost accounting.

Discuss NMIS Interface Configuration

- Refer to Figure 8-1: Typical NMIS Configuration.

Diet orders and patient information in CHCS trigger HL7 messages to NMIS systems.

Selective routing allows you to route a message to a particular NMIS destination based on a route identification (ID) that uniquely identifies that destination. Selective routing uses individual NMIS transmitters to route a message to a specific NMIS destination.

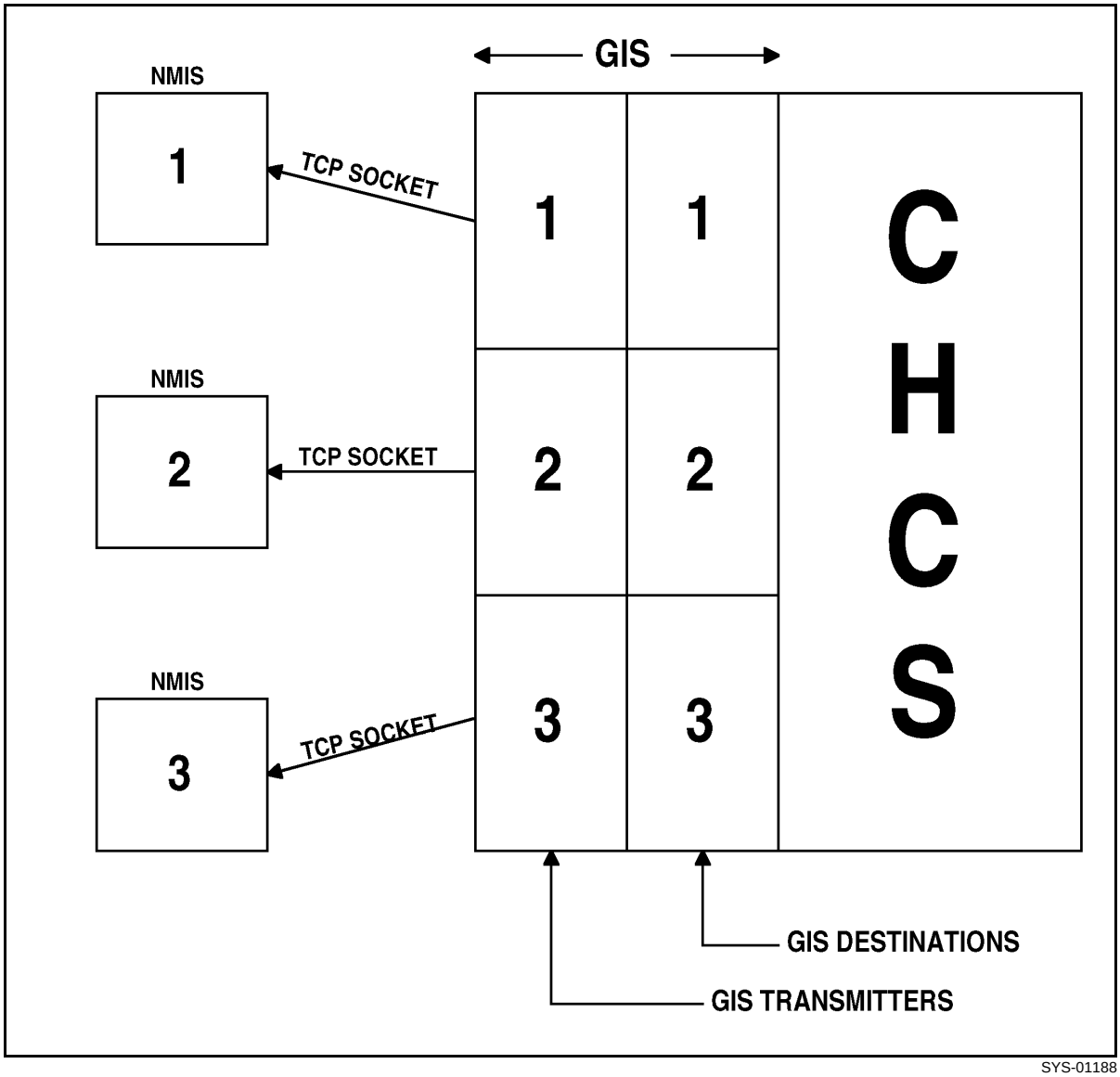

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Figure 8-1. Typical NMIS Configuration

Since the NMIS interface supports multiple physical destinations, every NMIS-related entry in the Interface Destination file must have a route ID. For the NMIS interface, the route ID is the Defense Medical Information System identification (DMIS-ID) of the division where the NMIS system resides.

The external system determines the route ID(s) to which an HL7 message(s) should be sent. The Generic Interface System (GIS) associates these route IDs with the appropriate destinations and transmitters, then sends the message accordingly. This routing process ensures that messages are sent to their proper location.

GIS selective routing replicates a message when the same message must be transmitted to multiple NMIS destinations.

- Refer to Module 5 - Describe the GIS and HL7 Interface Systems, for additional information on selective routing.

Transmission Control Protocol (TCP) sockets is the communication method used between CHCS and NMIS. The TCP socket provides a standard interface for the Transmission Control Protocol/Internet Protocol (TCP/IP).

To preserve backward compatibility for selective routing, each site may designate up to three NMIS destination systems. Most sites use one NMIS for each division with inpatient capability. The primary destination, HL NMIS OUT, must be pointed to by the secondary destinations, HL NMIS 2 - OUT and HL NMIS 3 - OUT. Each destination has its own route ID.

Discuss Interface Equipment

NMIS is based on client-server architecture composed of the following:

– 486 servers running at 50 MHz with 256 MB random access memory (RAM) using the Santa Cruz Operations (SCO) UNIX 3.2v4 operating system to power an Informix Relational Database Management System

– Up to ten 486 personal computer (PC) workstation clients running MS Windows 3.1 using terminal emulation software.

DISCUSS NMIS INTERFACE PROCESS

Discuss Master File Notification Messages

The CHCS Diet file is a master file, and is used at all military sites for NMIS start-up. CHCS does not send master file notifications to NMIS. Users manually update the file so that both CHCS and NMIS have the same diet name.

The two files are manually synchronized when the NMIS is installed. NMIS users also changes their ward names to match the CHCS ward names.

Discuss Interface Process for Outbound HL7 Messages

- Refer to Figure 8-2: Message Flow from CHCS to NMIS.

The NMIS interface is a unidirectional interface. Outbound HL7 messages for diet orders, ADT, and master files are transmitted from CHCS to NMIS for processing.

Data is sent to NMIS as an HL7 message in an eight-step, automatic procedure.

1. The CHCS subsystems update patient information that passes to NMIS. Any of the following events in CHCS triggers an HL7 message to NMIS:

   – Diet Order Messages:

     * New diet order
     * Modified diet order
     * Diet order placed on hold
     * Reactivated diet order
     * Cancelled diet order.

   – Patient Information Messages:

     * Updated ADT
     * Bed exchange
     * Patient goes out or returns from absence
     * Cancelled admission
     * Cancelled discharge.

   CHCS subsystem software also passes the related information to the GIS.

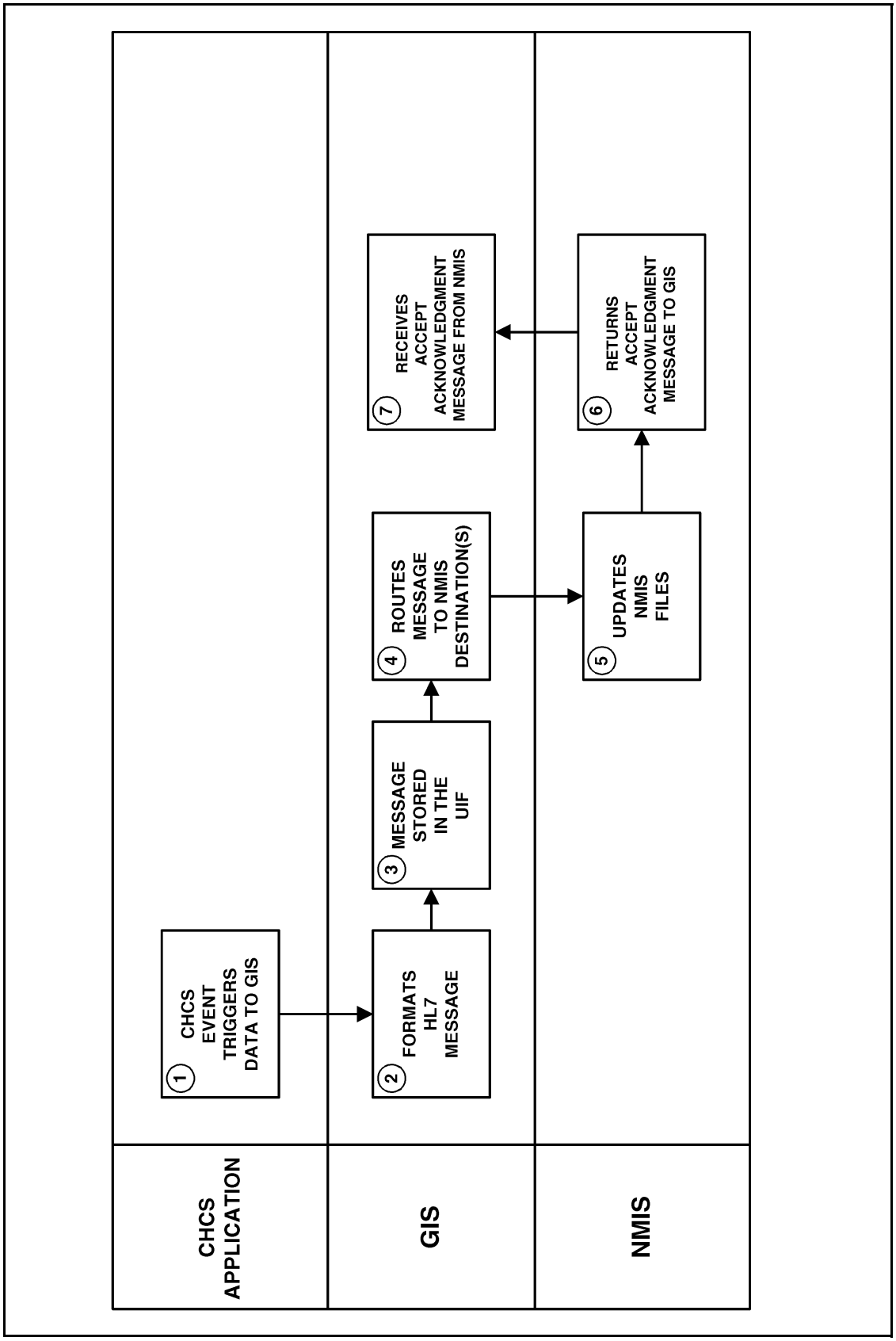


Figure 8-2. Message Flow from CHCS to NMIS

2. The GIS formats an HL7 message.

   When the GIS receives the information from the CHCS subsystem, the GIS formats an HL7 message for the particular activity encountered.

3. The GIS stores the HL7 message in the Universal Interface file (UIF).

4. Using selective routing, the GIS sends the message to the appropriate NMIS destination. Each destination has a separate background process.

5. The NMIS server updates the NMIS files.

   The NMIS application process updates the NMIS database.

6. The NMIS interface returns the accept acknowledgment message to the GIS.

   An accept acknowledgment is sent to the GIS to acknowledge that NMIS received a message and is ready to receive the next message.

7. The GIS receives the accept acknowledgment message from NMIS.

This procedure is repeated automatically for every interface message sent to NMIS from CHCS.

Discuss Update of CHCS Files

CHCS files that send data to NMIS as HL7 messages are:

– Patient file (#2)

– Order file (#101).

Practice 1 - Identify the components of the NMIS interface.

PRACTICE GUIDELINES

The information you need to complete each practice is supplied in the instructions and scenarios.

Notify the presenter when directed to do so in the practice. This allows the presenter to verify that you have successfully completed an activity.

You may use any reference materials available in the classroom to complete your practices.

You may ask questions or request assistance at any time during the practices.

Device identifiers are site-specific, and will be provided by the presenter.

Information is only specified for those fields and prompts which require specific data entry. To advance past fields/prompts which are not specified, enter data you know to be correct, or press <Return>.

The practices for this class must be completed in the order in which they are presented. Please complete all parts of each practice before proceeding.

Students 1-10

Practice 1 - Identify the components of the NMIS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Complete the sentence with the correct word or phrase.

1. CHCS transmits HL7 messages to NMIS to notify _____ staff when a diet order or _____ event occurs.

2. _____ _____ uses individual NMIS transmitters to route a message to a specific NMIS destination.

3. Since the NMIS interface supports multiple physical destinations, every NMIS-related entry in the Interface Destination file must have a _____.

4. The _____ associates these route IDs with the appropriate _____ _____ and sends the message accordingly.

5. _____ _____ is the communication method used between CHCS and NMIS.

Students 1-10 (continued)

List HL7 messages.

6. List two messages that CHCS broadcasts to NMIS when a diet order event is triggered.

   _____

   _____

7. List two CHCS events that trigger a message to NMIS.

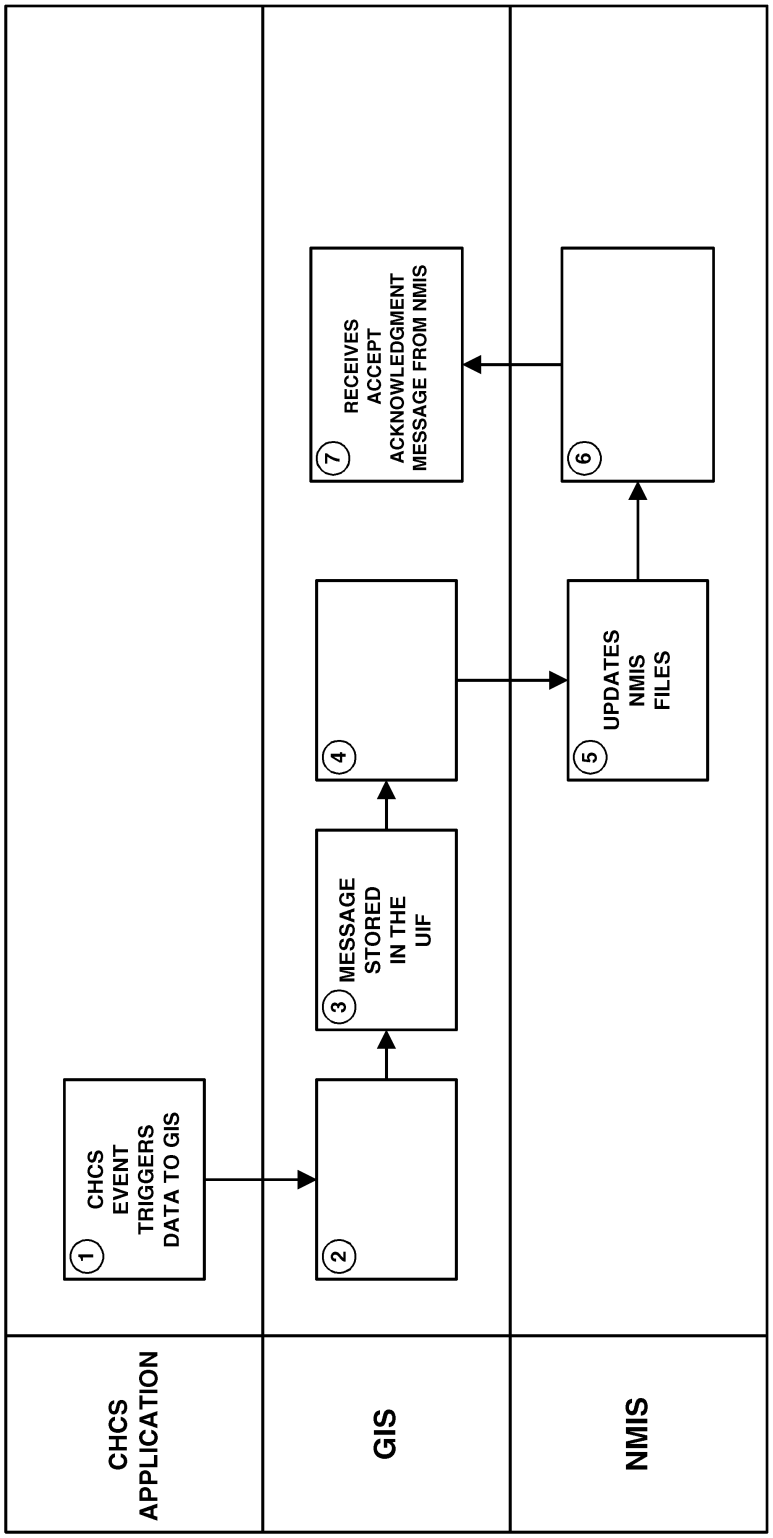
   _____

   _____

8. Complete the flow diagram on the following page by filling in the missing information.

Notify the presenter when you have completed this practice.

Students 1-10 (continued)



■ Objective 2: MANAGE THE NMIS INTERFACE

Scenario: *You are having trouble starting your NMIS background process. Check specific interface parameters for NMIS, then review the NMIS interface message in the UIF that is waiting for transmission.*

DISCUSS NMIS CONFIGURATION PARAMETERS

The following must be in place before a NMIS interface message can be sent by the GIS:

– Entries must exist in the Interface Destination file for all instances of the NMIS. Since this interface uses selective routing, the route ID and primary destination fields must be defined for each destination.

– The client address and IP port must be entered in the Background Process Control file for the NMIS transmitter process(es).

– The background processes and transaction types associated with the NMIS interface must be activated.

– The following background processes must be running: Format Controller, Output Controller, and NMIS transmitter(s).

No CHCS file and table build is necessary for the CHCS/NMIS interface to function. CHCS and NMIS databases are synchronized through the GIS interface.

▲ DEMONSTRATE HOW TO DISPLAY THE NMIS BACKGROUND PROCESS

1. Log on to CHCS.

Username:	**[site username]**	Access:	**INTUSER**
Password:	**[site password]**	Verify:	**INTUSERV**
Area:	**A**		

2. Access the Inquire Background Process (IBP) option on the Backgroung Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → IBP

3. Select a background process to display.

Select BACKGROUND PROCESS: **NMIS TRANSMITTER**

4. Send the output to your screen.

5. Review the parameters for this background process.

- Refer to Figure 8-3: Inquire Background Process - NMIS Process.

```
Process Name: NMIS TRANSMITTER
   Active/Inactive: ACTIVE         Routine: INHVTAPT
          Priority:                 Device:
     Client/Server: CLIENT                Server IP Port

     Client IP Address                    Client IP Port
       219.90.90.90                         2001

--------------------------- Parameters -------------------------------
    Open Hang Time:           Open Retries:
    Send Hang Time:           Send Retries:          Send Timeout:
    Read Hang Time:           Read Retries:         Rec'v Timeout:
  Transmitter Hang:
       End of Line:
       Init String:
     Init Response:
----------------------------------------------------------------------

Status                     $JOB     Last Run Update        Last Started
Appears to be NOT running

Errors:
   Date/Time           Error
```

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Figure 8-3. Inquire to a Background Process - NMIS Transmitter Process

Discuss the Display

The page displays the Background Process Control file:

– **Active/Inactive.** The process status, either Active or Inactive

– **Routine.** Name of the routine that this process runs**.**

– **Client/Server**. Whether the process should be opened as a client or a server.

– **Client IP Address**. If this process is opened as a client, this is the IP address used when this process opens a Transmission Control Protocol (TCP) socket to the remote system.

– **Client IP Port**. If this process is opened as a client, this is the IP port number on the remote system to which this process connects.

6. Return to the Interface Menu.

   Press **<F10>** to exit the display.

   Select BACKGROUND PROCESS: **<Return> <Return>**

▲ DEMONSTRATE HOW TO DISPLAY THE DESTINATION ENTRY FOR NMIS

Destinations associated with the Background Process Control file are entered through the Destination Entry/Edit (DE) option.

Route ID and primary destination should be filled in <u>only</u> when the associated NMIS is ready for activation. Unwanted messages are created if inactivated systems are entered as legitimate destinations.

1. Access the Destination Entry/Edit (DE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **FTM** → DE

   This option allows you to enter and edit interface destinations. The GIS uses the information in this file to route a transaction to its appropriate location.

2. Select an interface destination to display.

   Select INTERFACE DESTINATION: **HL NMIS**

   A picklist displays the three NMIS destinations. The first (HL NMIS-OUT) is the primary destination. The second and third are identified by numbers, and are subdestinations to the primary.

3. Choose 1-3: **2**

   Choose the HL NMIS 2 destination. The Interface Destination Definition screen displays.

4. Access screen 2: **<Page Down>**

   Site personnel typically change only the Route ID and Primary Destination fields of this screenform.

5. Route ID: 0103 **<Return>**

   This field identifies the route ID assigned to the destination. The route ID may be a DMIS or other identification code. This field remains intact after installation of a change package or software release.

6. Primary Destination: HL NMIS - OUT **<Return>**

   For interfaces with multiple destinations, this field identifies the primary destination; i.e., the destination referenced by the GIS transaction type.

   This field is the pointer from the subdestination (HL NMIS 2 in this case) to the primary destination (HL NMIS-OUT). It is used when there are multiple instances of a remote system.

7. Return to the File and Table Menu.

   Press **<F10>** to exit the display.

   Select INTERFACE DESTINATION: **<Return>**

▲ DEMONSTRATE HOW TO DISPLAY A NMIS INTERFACE MESSAGE

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

2. Select the interface message.

   Select INTERFACE MESSAGE: **trn234**

   Note that this entry is case sensitive.

3. Send the output to your screen.

   The interface message record displays.

   Press <RETURN> to continue, or "^" to stop **<Return>**

- Refer to Figure 8-4: NMIS Interface Message.

```
Date/Time: 21 Jun 2001@123938  Msg ID: trn234                    Seq#:
       Destination: HL NMIS - OUT
            Status: NEW
         Direction: OUT      Priority: 0     Time to Process: 21 Jun
2001@1239
   Incoming Msg ID:
 Parent Message ID:
 Orig. Transaction: HL CIW DIET ORDER - OUT (NMIS)
            Source:
 Acknowledge Req'd: NO    Accept ACK Msg ID:
                          Applic ACK Msg ID:

     # of Attempts:          Last Attempt Date/Time:
         Edited by:

MESSAGE TEXT:
MSH^\|~&^CHCS\DTS^8888^^0037^20010621123900^^ORM\O01^trn234^P^2.2^^^N
E^NE
PID^1^^3943\\\8888^20/100-10-
7438^NASSAU\BARBARA\B\\\^^19711102000000^F^^C^962
CLEVELAND AVENUE\\BALTIMORE\MARYLAND\21201\\\^^(410) 555-8255^(202)
555-2715^^S
^CND^^100-10-7438^^^^^^^^4022\USN ACTIVE DUTY\99PAT\\\
ORC^NW^010620-
06109\CHCSM^^4033\CHCSM^^^1\&0800,1130,1700\D365\20010620113000\\
R^^20010620074700^645\NURSE\LAKE\\\\\99USR^^191\DOCTOR\LAMP\\\\\99STF
^214\3M\99HOS\1\DIV A - TRAINING HOSPITAL\99DIV^^^
ODS^D^^6\CLEAR LIQUID\99DTS^
ZOR^14^^^^^^^^^^^^^R^^^^^^^^^\334\ABAA\99MEP

                          ****  Activity Log  ****
```

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Figure 8-4. NMIS Interface Message

Discuss the Interpretation of Interface Messages

You can decipher the information contained in the message text portion of the message. Each portion of the message text is divided into data elements called segments. Each segment is divided into pieces separated by a caret (^).

For example, 'MSH' is the message header that identifies the control segment of the message. The sending application is 'CHCS/DTS.' The message type and event type are 'ORM\O01.' The message ID number is 'trn234' and the HL7 version is '2.2.'

The PID segment contains patient information, and ORC is the Common Order Segment. Data elements specific to the NMIS interface include:

- **ODS.** Dietary Orders, Supplements, and Preferences segment used to define the basic information associated in a diet order.

- **ZOR.** Custom Order segment locally defined to transmit the meal location associated with the diet order.

- Refer to CHCS HL7 Implementation Specification for CHCS Version 4.5, for more information about interpreting HL7 messages.

- Refer to Nutrition Management Information System Interface Requirements, for additional information.

4. Return to the Interface Menu.

   Select INTERFACE MESSAGE: **<Return>**

   Select Transaction Control Menu Option: **<Return>**

DISCUSS NMIS TROUBLESHOOTING PROCEDURES

Use standard operating procedures to check the status of NMIS and ensure messages are transmitted properly. Operators should follow this procedure to check the CHCS/NMIS link:

- Refer to Module 5 - Manage GIS, for discussion of processing queues and verification.

  - Check the NMIS message queue from the Queue Size option on the Background Process Menu.

    * If the number of messages in the NMIS Transmitter queue is growing, check if messages are processing.

  - Verify NMIS status using the Top Entries in Queue option on the Background Process Menu. If the 'Message ID' numbers are changing in the queue, NMIS is accepting CHCS messages

    * If the 'Message ID' numbers are not changing in the queue, troubleshoot the NMIS interface.

Common problems for the NMIS interface include:

– Initially activating and configuring the interface

– Configuring primary and secondary NMIS destinations.

1. Initial Activation and Configuration

1.1 The set up instructions for activating the NMIS interface do not match your existing network configuration.

– Contact the TMSSC. The TMSSC elevates problems to the appropriate organization.

2. Configure Primary and Secondary NMIS Destination

2.1 Unwanted messages appear at an NMIS system when route ID and primary destination information is entered for inactive NMIS system.

– The software specialist should access the Destination Entry/Edit (DE) option on the File and Table Menu to inactivate the unused secondary interface destination until another NMIS system is activated at the site.

– Once secondary NMIS systems are activated, they must be configured to point to the primary NMIS destination.

From the Destination Entry/Edit picklist, select the secondary system. Scroll down to the Primary Destination field. This field points from the secondary system to the primary system. Select the primary system, HL NMIS - OUT.

STUDENT LOGON

- Discuss logon (i.e., username, password, area, access, and verify codes).
- Log on to the training software and use specified data.

Practice 2 - Manage the NMIS interface.

Student 1

Username:	**[site username]**	Access:	**INTUSERA**
Password:	**[site password]**	Verify:	**INTUSERAV**
Area:	**A**		

Practice 2 - Manage the NMIS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *Review a NMIS message to verify that message status is complete, then interpret the message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

2. Select the interface message.

   Select INTERFACE MESSAGE: **trn227**

3. Send the output to your screen.

4. Interpret the message.

   a. What is the sending application?

   _____

   b. What is the message type and event type?

   _____

Notify the presenter when you have completed this practice.

5. Return to the Interface Menu.

Student 2

Username:	**[site username]**	Access:	**INTUSERB**
Password:	**[site password]**	Verify:	**INTUSERBV**
Area:	**A**		

Practice 2 - Manage the NMIS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *Review a NMIS message to verify that message status is complete, then interpret the message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

2. Select the interface message.

   Select INTERFACE MESSAGE: **trn228**

3. Send the output to your screen.

4. Interpret the message.

   a. What is the sending application?

   _____

   b. What is the message type and event type?

   _____

Notify the presenter when you have completed this practice.

5. Return to the Interface Menu.

Student 3

Username:	**[site username]**	Access:	**INTUSERC**
Password:	**[site password]**	Verify:	**INTUSERCV**
Area:	**A**		

Practice 2 - Manage the NMIS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *Review a NMIS message to verify that message status is complete, then interpret the message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

2. Select the interface message.

   Select INTERFACE MESSAGE: **trn234**

3. Send the output to your screen.

4. Interpret the message.

   a. What is the sending application?

   _____

   b. What is the message type and event type?

   _____

Notify the presenter when you have completed this practice.

5. Return to the Interface Menu.

Student 4

Username:	**[site username]**	Access:	**INTUSERD**
Password:	**[site password]**	Verify:	**INTUSERDV**
Area:	**A**		

Practice 2 - Manage the NMIS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *Review a NMIS message to verify that message status is complete, then interpret the message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

2. Select the interface message.

   Select INTERFACE MESSAGE: **trn239**

3. Send the output to your screen.

4. Interpret the message.

   a. What is the sending application?

   _____

   b. What is the message type and event type?

   _____

Notify the presenter when you have completed this practice.

5. Return to the Interface Menu.

Student 5

Username:	**[site username]**	Access:	**INTUSERE**
Password:	**[site password]**	Verify:	**INTUSEREV**
Area:	**A**		

Practice 2 - Manage the NMIS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *Review a NMIS message to verify that message status is complete, then interpret the message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

2. Select the interface message.

   Select INTERFACE MESSAGE: **trn241**

3. Send the output to your screen.

4. Interpret the message.

   a. What is the sending application?

   _____

   b. What is the message type and event type?

   _____

Notify the presenter when you have completed this practice.

5. Return to the Interface Menu.

Student 6

Username:	**[site username]**	Access:	**INTUSERF**
Password:	**[site password]**	Verify:	**INTUSERFV**
Area:	**A**		

Practice 2 - Manage the NMIS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *Review a NMIS message to verify that message status is complete, then interpret the message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

2. Select the interface message.

   Select INTERFACE MESSAGE: **trn242**

3. Send the output to your screen.

4. Interpret the message.

   a. What is the sending application?

   _____

   b. What is the message type and event type?

   _____

Notify the presenter when you have completed this practice.

5. Return to the Interface Menu.

Student 7

Username:	**[site username]**	Access:	**INTUSERG**
Password:	**[site password]**	Verify:	**INTUSERGV**
Area:	**A**		

Practice 2 - Manage the NMIS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *Review a NMIS message to verify that message status is complete, then interpret the message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

2. Select the interface message.

   Select INTERFACE MESSAGE: **trn247**

3. Send the output to your screen.

4. Interpret the message.

   a. What is the sending application?

   _____

   b. What is the message type and event type?

   _____

Notify the presenter when you have completed this practice.

5. Return to the Interface Menu.

Student 8

Username:	**[site username]**	Access:	**INTUSERH**
Password:	**[site password]**	Verify:	**INTUSERHV**
Area:	**A**		

Practice 2 - Manage the NMIS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *Review a NMIS message to verify that message status is complete, then interpret the message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

2. Select the interface message.

   Select INTERFACE MESSAGE: **trn248**

3. Send the output to your screen.

4. Interpret the message.

   a. What is the sending application?

   _____

   b. What is the message type and event type?

   _____

Notify the presenter when you have completed this practice.

5. Return to the Interface Menu.

Student 9

Username:	**[site username]**	Access:	**INTUSERI**
Password:	**[site password]**	Verify:	**INTUSERIV**
Area:	**A**		

Practice 2 - Manage the NMIS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *Review a NMIS message to verify that message status is complete, then interpret the message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

2. Select the interface message.

   Select INTERFACE MESSAGE: **trn250**

3. Send the output to your screen.

4. Interpret the message.

   a. What is the sending application?

   _____

   b. What is the message type and event type?

   _____

Notify the presenter when you have completed this practice.

5. Return to the Interface Menu.

Student 10

Username:	**[site username]**	Access:	**INTUSERJ**
Password:	**[site password]**	Verify:	**INTUSERJV**
Area:	**A**		

Practice 2 - Manage the NMIS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *Review a NMIS message to verify that message status is complete, then interpret the message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

2. Select the interface message.

   Select INTERFACE MESSAGE: **trn254**

3. Send the output to your screen.

4. Interpret the message.

   a. What is the sending application?

   _____

   b. What is the message type and event type?

   _____

Notify the presenter when you have completed this practice.

5. Return to the Interface Menu.

III. CLOSURE

Do you have any questions about the concepts covered in Module 8 - Manage the NMIS Interface?

In summary, the following content was presented:

– Identifying the components of the NMIS interface.

– Managing the NMIS interface.

This concludes Module 8. You now have the opportunity to demonstrate proficiency in the topics or skills presented.

Following the Master Practice, there will be a 10-minute break.

Thank you for attending.

Master Practice - Module 8.

SYS: CHCS INTERFACE MANAGEMENT

Module 8 - Manage the NMIS Interface

Section 2. Master Practice

MASTER PRACTICE GUIDELINES

This Master Practice enables the presenter to verify that you have successfully completed the objectives for this class.

The information you need to complete the Master Practice is supplied in the instructions and scenarios.

You may use any reference materials available in the classroom to complete the Master Practice.

Device identifiers are site-specific, and will be provided by the presenter.

Unless otherwise directed by the presenter, please work alone to complete the Master Practice.

Notify the presenter when directed to do so in the Master Practice. This allows the presenter to verify that you have successfully completed an activity.

Information is only specified for those fields and prompts which require specific data entry. To advance past fields/prompts which are not specified, enter data you know to be correct, or press <Return>.

The components of the Master Practice should be completed in the order in which they are presented.

You have approximately 15 minutes to complete this Master Practice.

SYS: CHCS INTERFACE MANAGEMENT

Module 8 - Manage the NMIS Interface

Students 1-10

Scenario 1 - Define selective routing.

INSTRUCTIONS: Answer the questions then display the destination entry for NMIS.

1. Describe selective routing.

   _____

   _____

   _____

   _____

   _____

2. What two entries must be made in the Interface Destination file?

   _____

   _____

SYS: CHCS INTERFACE MANAGEMENT

Module 8 - Manage the NMIS Interface

Section 3. Reference Materials

There are no reference materials for this module.

SYS:
CHCS INTERFACE MANAGEMENT

Module 9 -
Manage the DII Interface

SYS: CHCS INTERFACE MANAGEMENT

Module 9 - Manage the DII Interface

Section 1. Module Outline

I. INTRODUCTION

Welcome to the module on Manage the DII Interface.

The purpose of this module is to familiarize site operation staff with the management of the Data Innovations, Inc., (DII) interface.

This module is scheduled to last approximately 1 hours.

The target audience for this module is as follows:

– Software Specialists

– System Specialists.

DISCUSS OBJECTIVES

– Objective 1: Identify the components of the DII interface.

– Objective 2: Manage the DII interface.

INTRODUCE OUTBOUND REFERENCES

The following documentation is referenced to in this module:

– CHCS HL7 Implementation Specification for CHCS Version 4.5, SAIC/CHCS Doc.TC-4.5-0045.

– SYS: Lab Automated Instruments, SAIC/CHCS Doc. TC-4.5-0584/TC-4.5-0585.

– Instrument Manager User's Manual, Version 4.0, Data Innovations, Inc., 18938RE2 October 1995.

– Setup Guide for Data Innovations, Inc., Lab System Interface (DII LSI), Version 1.0, SAIC, 17 January 1995.

II. PRESENTATION

■ Objective 1: IDENTIFY THE COMPONENTS OF THE DII INTERFACE

DISCUSS DII INTERFACE CONFIGURATION

Overview of the External System

Data Innovations, Inc., (DII) provides an intelligent front end for managing the communication and data exchange between CHCS and individual automated laboratory instruments. DII sends test requests from CHCS to the lab instruments, then sends test results from the instruments back to CHCS.

The DII Automated Instrument System comprises several physical (hardware) and logical (software) components.

– **Physical Components.** The CHCS host system, the DII personal computer (PC), the hospital network, terminal servers, and laboratory instruments.

– **Software Components.** Files that contain the lab data; Generic Interface System (GIS); Instrument Management (IM) software running on DII that transfers data between the laboratory instruments and CHCS; routines within the CHCS laboratory system that convert the data to the format of the CHCS database. The IM software has two basic functions: moving information from the sending device to the correct receiving device; and translating the information so that the receiving device can make sense of the information.

The IM software on the DII station serves as the interface between CHCS and the individual instruments. Instrument data from CHCS conforms to the Health Level 7 (HL7) format standard. However, most instruments require input and generate output in a nonstandard data format unique to that instrument.

When CHCS sends test requests to the instruments, the IM intercepts the CHCS HL7 data, reads the destination from the incoming message and looks up the correct configuration for the destination instrument. IM then converts the data to the nonstandard format used by that instrument and forwards the data to the instrument.

The same translation takes place in reverse as the automated instruments generate test results: The DII system intercepts the nonstandard data, translates the data into the HL7 format standard, then forwards the data to CHCS. For each sample that DII processes, a standard HL7 message is generated and sent to CHCS through a Transmission Control Protocol/Internet Protocol (TCP/IP) link.

The GIS receives these messages, converts them into a simplified format, then stores them in the CHCS ^LA global. The ^LA global provides CHCS with an area where it can store instrument data temporarily until the lab user is ready to process that data into the CHCS database.

The DII system provides other queueing, reporting, message routing, and troubleshooting capabilities as well.

- Refer to Instrument Manager User's Manual Version 4.0, for additional information on the DII.
- Refer to Figure 9-1: Typical DII Configuration.

Discuss Interface Equipment

CHCS communicates with DII via TCP/IP. The laboratory instruments process tests and transmit the results to the DII PC via LAT or TCP/IP.

Each DII site must have a PC to use as a cold spare in the event of a problem. This spare PC has the same hardware and software of the running system. For DII sites with multiple running systems, the backup PC reflects the DII system with the highest hardware and software configuration so that it can replace any of the DII systems that might fail.

DISCUSS DII INTERFACE PROCESS

Discuss Master File Notification Messages

CHCS does not send master file notifications (MFNs) to DII.

Discuss Interface Process From CHCS to DII

- Refer to Figure 9-2: Message Flow from CHCS to DII.

Outbound HL7 messages are sent to the instrument by the following process:

1. The CHCS Start/Stop Bidirectional Interface (BID) option creates and sends test requests to the raw data area (^LA global). The BID option is used only for bidirectional instruments.
2. The test requests are stored in the raw data area as it is being built.

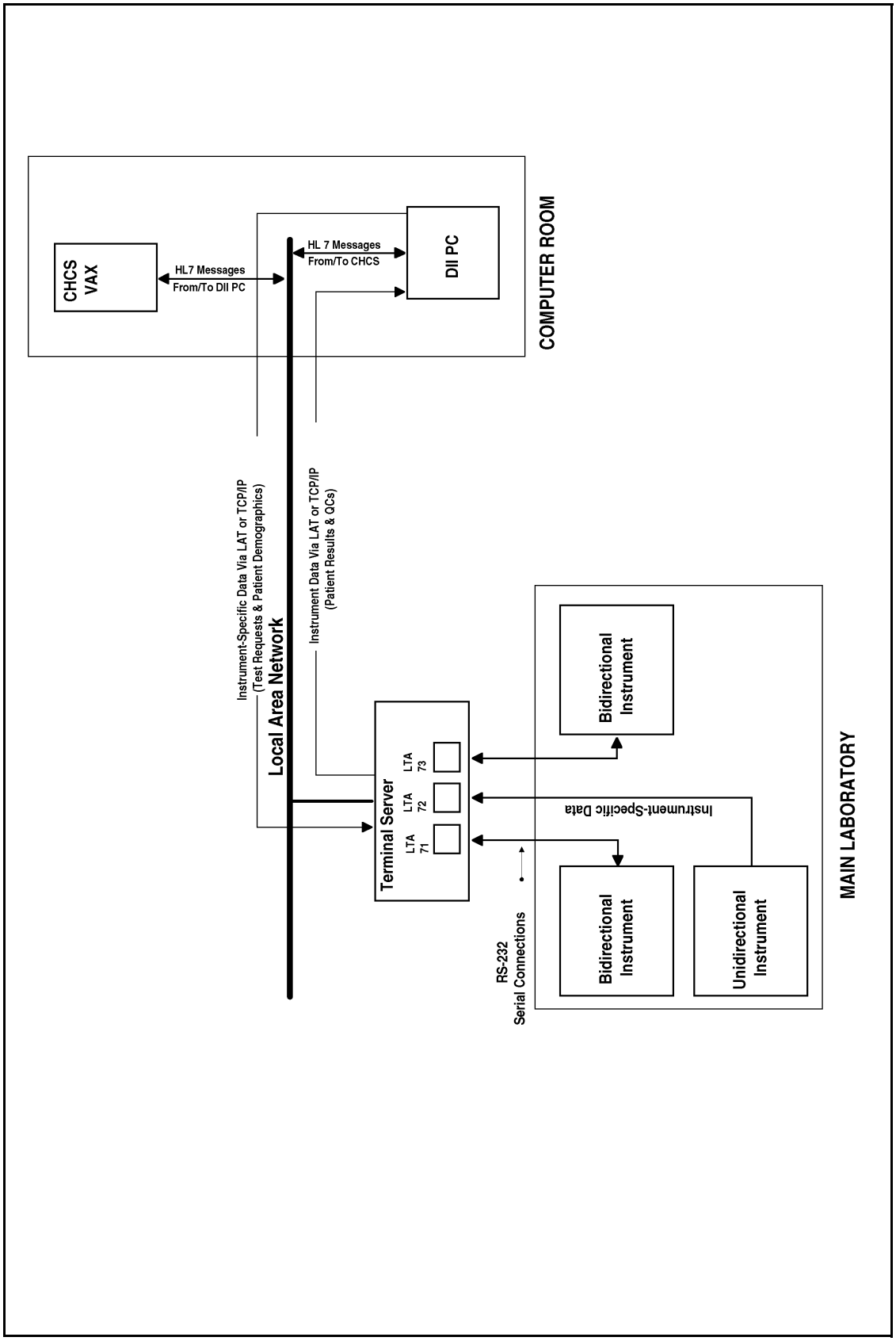

Figure 9-1. Typical DII Configuration

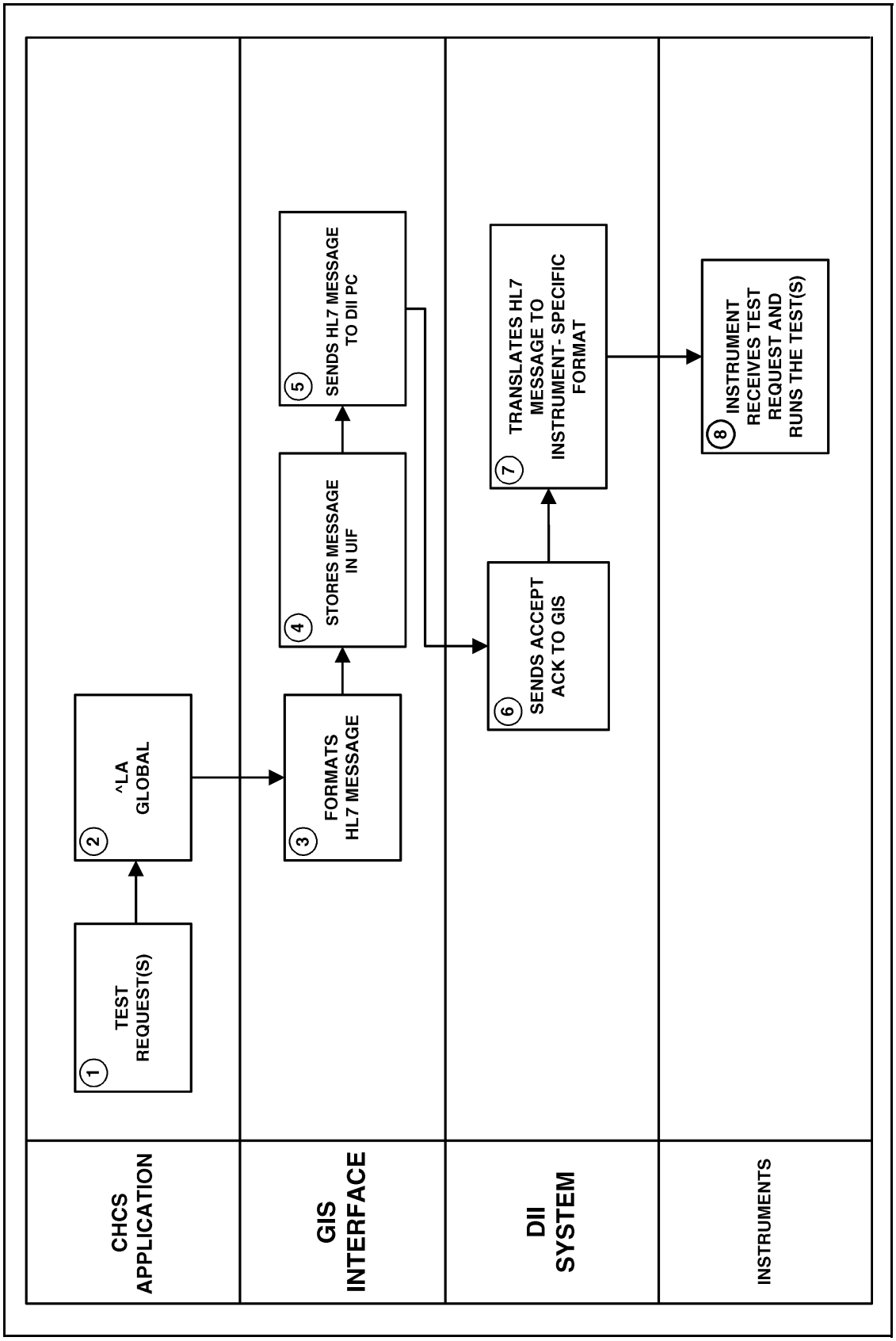

Figure 9-2. Message Flow from CHCS to DII

3. The GIS takes the raw data and formats an HL7 message.

4. The GIS stores the HL7 message in the CHCS Universal Interface file (UIF).

5. A GIS background process sends the HL7 message to the DII PC.

6. The DII sends an Accept acknowledgment to the GIS.

7. IM software running on the DII PC translates the HL7 message received from CHCS to instrument specific format and transmits the message to the correct instrument.

8. The instrument receives the test request and runs the test.

Discuss Interface Process From DII to CHCS

- Refer to Figure 9-3: Message Flow from DII to CHCS.

Inbound HL7 messages are sent to the instrument by the following process:

1. Once test samples are run at the laboratory instrument, the test results are transmitted to the DII PC as inbound messages.

2. DII translates these messages from instrument-specific format to HL7 format and sends them to the CHCS host.

3. A GIS background process receives the messages from the DII.

4. The GIS stores the HL7 messages in the CHCS UIF.

5. The GIS sends an Accept acknowledgment to the DII.

6. The GIS translates the messages from HL7 format to CHCS database format.

7. GIS then places the data in the ^LA global. The Laboratory System Interface file segregates the data from various instruments into separate subscripted areas of the ^LA global.

8. The lab technician runs the Transfer Auto Instrument Results (TAR) option, which reads the data from the ^LA global and places it in the CHCS Patient Results database. If this field is set to Yes, and you have proper security keys, you can certify results from the instrument while in the TAR option. If set to No, you are not prompted to certify results for the instrument during the TAR option.

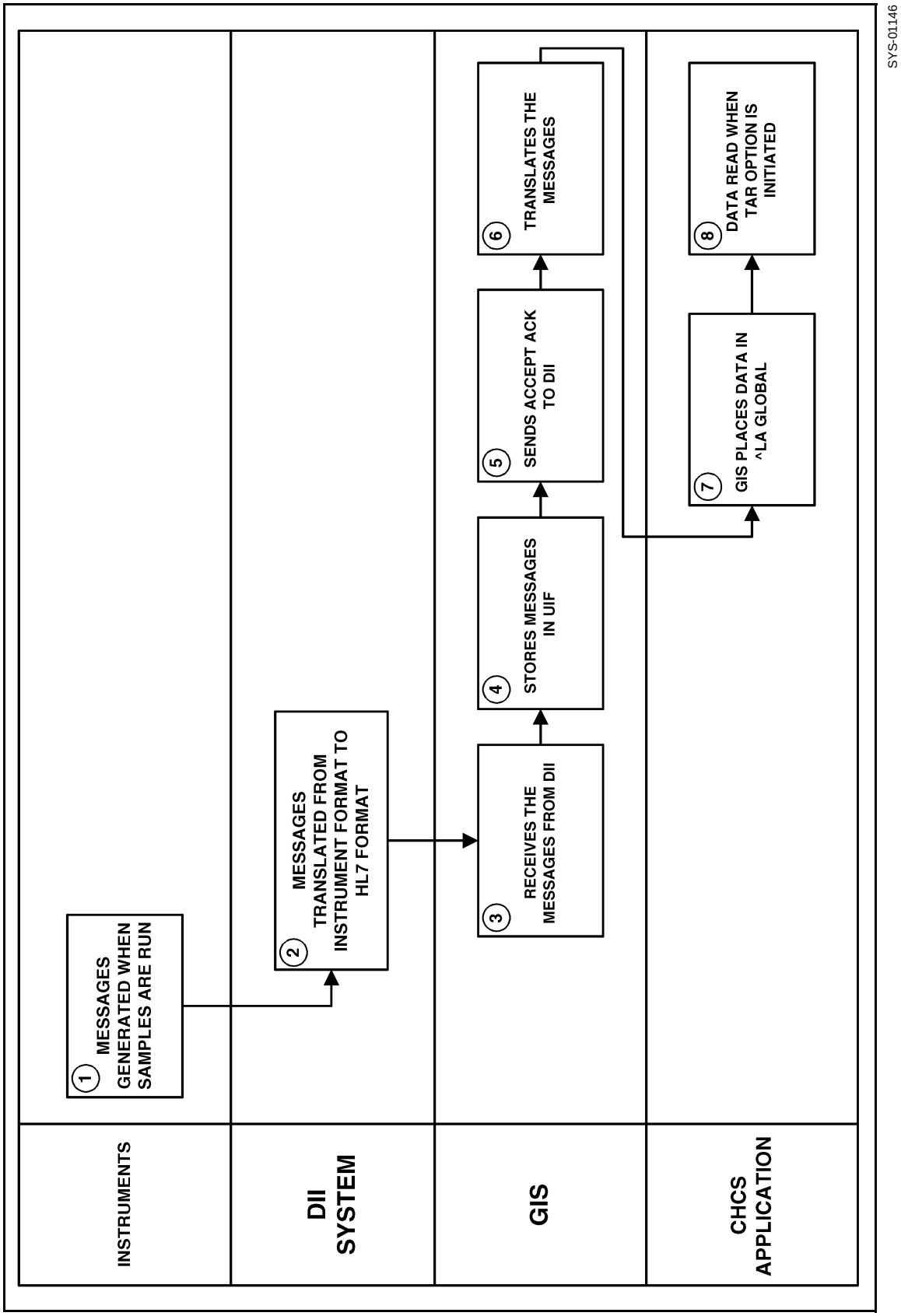

Figure 9-3. Message Flow from DII to CHCS

Discuss Update of CHCS Files

The following CHCS files are updated when data is received from the DII interface:

- Lab Test (#60)
- Etiology Field (#61.2)
- Antibiotic Susceptibility (#62.12)
- Quality Control (#62.3)
- Auto Instrument (#62.4)
- Lab System Interface (#62.6)
- Instrument Interface Parameter (#62.7)
- Lab Result (#63)
- Accession (#66)
- Lab Batch (#67)
- Accession Area (#68)
- Work Document (#68.2)
- ^LA Global

The following CHCS files send data to DII:

- Quality Control (#62.3)
- Auto Instrument (#62.4)
- Lab System Interface (#62.6)
- Lab Result (#63)
- Accession (#66)
- Lab Batch (#67)
- ^LA Global

Practice 1 - Identify the components of the DII interface.

PRACTICE GUIDELINES

The information you need to complete each practice is supplied in the instructions and scenarios.

Notify the presenter when directed to do so in the practice. This allows the presenter to verify that you have successfully completed an activity.

You may use any reference materials available in the classroom to complete your practices.

You may ask questions or request assistance at any time during the practices.

Students 1-10

Practice 1 - Identify the components of the DII interface.

INSTRUCTIONS: Answer the questions below. You have approximately 5 minutes to complete this practice.

1. What are the two basic functions of the instrument management software running on the DII PC?

   _____

   _____

   _____

2. For each sample that DII processes, a standard HL7 message is generated and sent to CHCS via a TCP/IP link. How are these messages processed?

   _____

   _____

   _____

3. For DII sites with multiple stations, which station does the backup PC reflect?

   _____

   _____

   _____

4. Where does the GIS store the outbound HL7 messages?

   _____

5. When samples are run at the instrument, what component translates these messages from instrument specific-format to HL7 format and sends them to the CHCS host?

   _____

Notify the presenter when you have completed this practice.

■ Objective 2: MANAGE THE DII INTERFACE

Scenario: *You are having a problem getting messages from your DII PC. The TMSSC has asked you to check on some specific interface parameters as well as a specific interface message.*

DISCUSS DII CONFIGURATION PARAMETERS

The following must be in place before DII interface messages can be sent and received by the GIS:

– The following background processes must be running: Format Controller, Output Controller, LSI Interface Receiver and LSI Interface Transmitter.

– The client address and IP port must be entered in the Background Process Control file for the receiver and transmitter background processes.

– The transaction types associated with the DII interface must be activated.

– The CHCS Laboratory System Interface file must be configured. When DII is being used, this file determines the ^LA global subscript numbers for an instrument.

– The CHCS Auto Instrument file must be set up. This file stores the configuration for an instrument.

▲ DEMONSTRATE HOW TO DISPLAY THE DII INBOUND BACKGROUND PROCESS

To display the inbound background process:

1. Log on to CHCS.

Username:	**[site username]**	Access:	**INTUSER**
Password:	**[site password]**	Verify:	**INTUSERV**
Area:	**[A** or **B]**		

---

2. Access the Background Process Entry/Edit (BPE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → FTM → BPE

3. Select the BACKGROUND PROCESS: **LSI INTERFACE RECEIVER**

4. Review the parameters for this background process.

- Refer to Figure 9-4: Background Process Entry/Edit - LSI Interface Receiver Process.

```
Name: LSI INTERFACE RECEIVER
              Active: ACTIVE      Priority:
              Device:
             Routine: INHVTAPR
         Destination: HL LA DII LSI INBOUND
Destination Determination Code:
S INDEST("ORU")="HL LA DII LSI INBOUND" D DEST^INHUSEN




       Client/Server: CLIENT
Server Ports:


Client Addresses:
  216.60.60.60
```

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Figure 9-4. Background Process Entry/Edit - LSI Interface Receiver Process

Discuss the Display

The first page displays from the Background Process Control file.

– **Active**. The process status, either Active or Inactive.

– **Routine**. Name of the routine that this process runs**.**

– **Destination**. Name of the entry in the Interface Destination file to which this process sends messages.

– **Destination Determination Code**. The LSI Interface Receiver process contains Massachusetts General Hospital Utility Multi-Programming System (MUMPS) code in this field. This code determines the Interface Destination. The LSI Interface Transmitter process does not contain this code. You must have programmer (@) access to edit this field.

– **Client/Server**. Whether the process should be opened as a client or a server.

– **Client Addresses**. If this process is opened as a client, this is the IP address used when this process opens a TCP socket to the remote system.

5. Move the cursor to the Client Addresses field and press **<Return>**

   The Ports for Client IP Addresses screen displays.

Discuss the Display

– **Client Address**. The client address displays from the previous screen.

– **IP Ports**. If this process is opened as a client, this is the IP port number on the remote system to which this process connects.

6. Return to the File and Table Menu.

   Press **<F10>** to exit the screen.

   Select BACKGROUND PROCESS: **<Return>**

▲ **DEMONSTRATE HOW TO DISPLAY THE DII OUTBOUND BACKGROUND PROCESS**

1. Access the Background Process Entry/Edit (BPE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **FTM** → BPE

2. Select the BACKGROUND PROCESS: **LSI INTERFACE TRANSMITTER**

3. Review the parameters for this background process.

• Refer to Figure 9-5: Background Process Entry/Edit - LSI Interface Transmitter Process.

Discuss the Display

The first page displays from the Background Process Control file.

– **Active**. The process status, either Active or Inactive.

– **Routine**. Name of the routine that this process runs.

– **Destination**. Name of the entry in the Interface Destination file to which this process sends messages.

– **Destination Determination Code**. This field is not used by the LSI Interface Transmitter process.

```
Name: LSI INTERFACE TRANSMITTER
              Active: ACTIVE      Priority:
              Device:
             Routine: INHVTAPT
         Destination: HL DII LSI
Destination Determination Code:




       Client/Server: CLIENT
Server Ports:


Client Addresses:
  217.70.70.70
```

FM-00694

Figure 9-5. Background Process Entry/Edit - LSI Interface Transmitter Process

– **Client/Server**. Whether the process should be opened as a client or a server.

– **Client Addresses**. If this process is opened as a client, this is the IP address used when this process opens a TCP socket to the remote system. The IP port displays on a secondary screen reached from the Client Addresses field.

4. Return to the Interface Menu.

   Press **<F10>** to exit the screen

   Select BACKGROUND PROCESS: **<Return>**

▲ DEMONSTATE HOW TO DISPLAY A DII INTERFACE MESSAGE

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS**→TCM → IUIF

2. Select INTERFACE MESSAGE: **trn615**

   Note that this entry is case sensitive.

3. Send the output to your screen.

   The interface message record displays.

- Refer to Figure 9-6: Inquire Into the Universal Interface File - DII.

```
Date/Time: 21 Jun 2001@102842  Msg ID: trn615                    Seq#:
       Destination: HL DII LSI
            Status: NEW
       Direction: OUT     Priority: 0    Time to Process: 21 Jun 2001@1028
   Incoming Msg ID:
 Parent Message ID:
 Orig. Transaction: HL LA DII LSI OUTBOUND
            Source:
 Acknowledge Req'd: NO    Accept ACK Msg ID:
                          Applic ACK Msg ID:

     # of Attempts:          Last Attempt Date/Time:
         Edited by:

MESSAGE TEXT:
MSH^\|~&^CHCS^SAIC^MCSC^CONTRACTOR^20010621102800^^ZPM\Z01^trn615^P^2.2
^^^AL^AL
ZPP^^^^^^^^

                           ****  Activity Log  ****
```

FM-00698

Figure 9-6. Inquire Into the Universal Interface File - DII

Discuss Interpreting DII Messages

You can decipher the information contained in the message text portion of the message. Each portion of the message text is divided into data elements called segments, and each segment is divided into pieces which are separated by a caret (^).

- Refer to CHCS HL7 Implementation Specification for CHCS Version 4.5, for additional information on DII message segments.

4. Press **<F10>** to exit the screen.

5. Return to the Systems Manager Menu (EVE).

   Select Interface Message: **<Return>**, then press **<Return>** at each menu until you reach the Systems Manager Menu (EVE).

▲ DEMONSTRATE LABORATORY SYSTEM INTERFACE FILE SETUP

The laboratory manager is responsible for maintaining lab files. Software specialist should work with the lab manager to correct problems found in any lab files.

The Laboratory System Interface file is used to segregate the data from various instruments into separate subscripted areas of the ^LA global. Since it has no other functional purpose, most of the fields are empty.

1. Access the Lab System Interface Add/Edit (LIE) option on the Instrument Interface Add/Edit Menu; enter **MAIN** for Work Element.

   Systems Manager Menu (EVE) → CA → LAB → LSM → ELA → IIA → LIE

   This option allows you to display entries in the Laboratory System Interface file. Modifications to this file should be made by only the laboratory system manager.

2. Select the Lab System Interface Name: **HL DII LSI**

- Refer to Figure 9-7: Sample Laboratory System Interface File Entry for DII.

```
LAB SYSTEM INTERFACE: HL DII LSI                    LALSI -- CONTINUATION

 LSI Name: HL DII LSI                    Interface Port: 2002
 Collection Routine: LAGIS               Monitor Device:
 Error Device:                           Notify Person:
 Read Time-Out:                          Read Terminator:
 Read Maximum:
 Select AUTO INSTRUMENT:
 EKTACHEM
```

FM-00699

Figure 9-7. Sample Laboratory System Interface File Entry for DII

3. Review the Lab System Interface file parameters.

   A value displays in the Interface Port field. This port number is not used; the GIS uses the port number defined in the Background Process Control file. However, FileMan requires an entry in this field, so enter any value.

4. Return to the Instrument Interface Add/Edit Menu.

   Press **<F10>** to exit the screen.

   Select Lab System Interface Name: **<Return>**

- Refer to the Setup Guide for Data Innovations, Inc., Lab System Interface (DII LSI).

▲ DEMONSTRATE AUTO INSTRUMENT FILE SETUP

The Auto Instrument file is used to store the configuration for a specific instrument on CHCS. When the instrument is connected to the DII PC, this file works in the same manner as it would for a regular CHCS instrument. Only certain fields need to be changed. One auto instrument file entry is required for each instrument.

1. Access the Auto Instrument Add/Edit (AIE) option on the Instrument Interface Add/Edit Menu.

   Systems Manager Menu (EVE) → CA → LAB → LSM → ELA → **IIA** → AIE

   This option allows you to enter, view, and edit entries in the Auto Instrument file. Modifications to this file should be made by only the laboratory system manager.

2. Select the Auto Instrument: **EKTACHEM**

- Refer to Figure 9-8: Sample Auto Instrument File Entry for Data Innovations.

```
AUTO INSTRUMENT: EKTACHEM                                          LAAUTO

 Name: EKTACHEM                          Instr Name: DATA INNOVATION
 Accession Area: CHEMISTRY               Work Document: EKTACHEM LOADLIST
 LSI: HL DII LSI                         LSI Port #: 3
 ID Type: ACCESSION NUMBER             Communications Mode: BIDIRECTIONAL
 Continuous or Batch: BATCH              Batch Build: MANUAL
 Certify Prompt During TAR: YES          Skip Accession Entries: NO
 Match Accessions: YES                   Pause After Each Sample: NO
 Pause After Error Message: NO
```

FM-00700

Figure 9-8. Sample Auto Instrument File Entry for Data Innovations

3. Review the Auto Instrument file parameters.

Discuss the Display

The first page displays from the Auto Instrument File Entry.

– **Name**. The name being used by Data Innovations for this instrument.

– **Instr Name**. The Instrument Name for all instruments connected to Data Innovations is 'DATA INNOVATIONS'.

– **Accession Area**. Name of the entry in the Accession Area file with which this instrument is associated.

– **Work Document**. Name of the entry in the Work Document file that is used during the BID and TAR options.

– **LSI**. Name of the entry in the Lab System Interface file to which this instrument is connected or assigned.

– **LSI Port**. The port number for this instrument. This value must match the equivalent value for this instrument in the Lab System Interface file (62.6).

– **ID Type**. The specimen identification method being used: either A (accession number), or E (work document entry number).

– **Communications Mode**. The direction of communication, either bidirectional or unidirectional. If your site uses DII, set all instruments to bidirectional.

- **Continuous or Batch**. Whether the download of data is continuous or in batches. This field should be set to batch.

- **Batch Build**. Whether the work document for the instrument is built automatically using a work document generation routine (G), or manually by the user (M).

- **Certify Prompt During TAR**. If this field is set to Yes, and you have proper security keys, you can certify results from the instrument while in the TAR option. If set to No, you are not prompted to certify results for the instrument during the TAR option.

- **Skip Accession Entries**. This field is referenced only if the ID Type field is set to "E" (work document entry number). If this field is set to Yes, the TAR option allows you to skip entries in the batch.

- **Match Accessions**. If this field is set to Yes, the TAR option allows you to match instrument sample IDs to Accession Numbers. If matching is selected, you are prompted to enter the instrument sample ID, then the associated accession number. When set to No, you are not prompted to match accessions.

- **Pause After Each Sample**. If set to Yes, the TAR option prompts you whether to pause after the results are displayed for each sample. The results display until <Return> is pressed or fifteen seconds have elapsed. If set to No, the TAR option does not prompt you whether to pause.

- **Pause After Error Message**. If set to Yes, the TAR option prompts you whether to pause after each error message displays. The option pauses until <Return> in pressed or fifteen seconds have elapsed. If set to No, the TAR option does not prompt you whether to pause.

4. When finished viewing the parameters, press **<Return>**.

   The second page displays from the Auto Instrument file.

Discuss the Display

- **Select Test**. The names of tests in the Lab Test file that this instrument can process.

5. Move the cursor to a test, then press **<Return>**.

Discuss the Display

– **Test**. The test name.

– **Test ID**. The string of characters that this instrument uses to identify this test.

– **Lab Method**. The method used by this instrument when entering results for this test.

6. When finished viewing the parameters, press **<Return>**.

   The third page displays from the Auto Instrument file.

Discuss the Display

– **Select Quality Control**. The name of the entry in the Quality Control file that is run on this instrument.

– **Select Antibiotic**. The organism ID used by the instrument to send results and receive test requests.

7. Return to the Systems Manager Menu (EVE).

   Select Interface Message: **<Return>**, then press **<Return>** at each menu until you reach the Systems Manager Menu (EVE).

- Refer to SYS: Lab Automated Instruments, for additional information on the DII and the CHCS automated instrument interface.

- Refer to the Setup Guide for Data Innovations, Inc., Lab System Interface (DII LSI).

DISCUSS DII TROUBLESHOOTING

Common problems with an instrument connected to DII include:

– No HL7 messages are being sent and /or received by DII.

– A specific instrument is not sending and/or receiving data.

– Results were not returned for a specific sample.

– Results were not returned for a specific test.

1. No HL7 Messages are Sent and/or Received by DII

1.1. Patient data sent via Start/Stop Bi-directional Interface (BID) is not getting to the instrument.

1.1.1. Check the status of the GIS background process using the Verify Status of Background Processes (VS) option on the Background Process Control Menu.

Systems Manager Menu (EVE) → SM → INT → GIS → BPM → VS

– If the LSI Interface Transmitter process is not running, restart the stopped process(es).

– If the Format Controller or Output Controller processes are not running, restart the stopped process(es).

1.1.2. Use the TCP/IP Status option on the DII PC to confirm an active connection to CHCS.

– If the connection is not active, restart the LSI Interface Transmitter on CHCS using the Startup a Background Process (S1) option on the Background Process Control Menu.

Systems Manager Menu (EVE) → SM → INT → GIS → BPM → S1

1.1.3. Verify the network connection.

– Verify the TCP/IP address for the DII PC.

– Verify that the network cable is attached to the network card in the DII PC.

– Test the network card in the DII PC.

1.2. Patient results sent from an instrument are missing from TAR.

Use the same troubleshooting techniques identified under troubleshooting step 1.1., but confirm and restart the LSI Interface Receiver rather than the LSI Interface Transmitter process.

2. A Specific Instrument is Not Sending and/or Receiving Data

2.1. The instrument is not sending patient results to CHCS or accepting patient test requests from CHCS.

2.1.1. Other samples are being sent or received by this instrument.

- Check for bad samples.

2.1.2. Other instruments of this same make/model are currently exchanging data with DII.

- Check the following items for this instrument.
  * Instrument error log and screen.
  * Communications setup on the instrument. Is it correct?
  * Communications line/cable/wire. Is it plugged in? Broken?
  * Communications program enabled on the instrument?
- Reset instrument driver and clear communications.
  * Turn off the instrument process on DII.
  * Initialize communications program on the instrument.
  * Turn on the instrument process on DII.
  * Try sending or receiving data from the instrument.
- Verify with the lab system manager that the Auto Instrument file for this instrument is built correctly.
  * Contact TMSSC for further assistance.

3. Results Were Not Returned for a Specific Sample

- If specific samples are missing after TAR has finished processing, check the following items.
  * Did the instrument complete processing of the missing sample?
  * Check the instrument for sample errors. Results are not sent to CHCS for samples with a fatal error.

* Was the correct accession number used to identify this sample?

* Do the tests performed match tests ordered?

Run the sample again on the instrument.

4. Results Were Not Returned for a Specific Test

– If specific tests (but not an entire sample) are missing after TAR has finished processing, check the following items.

  * Ask the lab system manager to check the Auto Instrument file for this instrument. Is the missing test defined?

  * Check the work document. Is the missing test defined?

  * Ask the lab system manager to check the value for this test in the Test ID field of the Auto Instrument file. Is it correct?

– Contact the TMSSC for further assistance.

Practice 2 - Manage the DII interface.

PRACTICE

Student 1

Username:	**[site username]**	Access:	**INTUSERA**
Password:	**[site password]**	Verify:	**INTUSERAV**
Area:	**[A or B]**		

Practice 2 - Manage the DII interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *You have used options within the GIS to locate a message that is blocking an exchange of data with the DII interface. Take a look at the message to determine the problem.*

a. Display a DII Message

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

2. Select INTERFACE MESSAGE: **trn614**

3. Send the output to your screen

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the UIF is displayed on your terminal.

Student 2

Username:	**[site username]**	Access:	**INTUSERB**
Password:	**[site password]**	Verify:	**SWSUSERBV**
Area:	**[A or B]**		

Practice 2 - Manage the DII interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *You have used options within the GIS to locate a message that is blocking an exchange of data with the DII interface. Take a look at the message to determine the problem.*

a. Display a DII Message

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

2. Select INTERFACE MESSAGE: **trn615**

3. Send the output to your screen

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the UIF is displayed on your terminal.

Student 3

Username:	**[site username]**	Access:	**INTUSERC**
Password:	**[site password]**	Verify:	**INTUSERCV**
Area:	**[A or B]**		

Practice 2 - Manage the DII interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *You have used options within the GIS to locate a message that is blocking an exchange of data with the DII interface. Take a look at the message to determine the problem.*

a. Display a DII Message

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

2. Select INTERFACE MESSAGE: **trn616**

3. Send the output to your screen

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the UIF is displayed on your terminal.

Student 4

Username:	**[site username]**	Access:	**INTUSERD**
Password:	**[site password]**	Verify:	**SWSUSERDV**
Area:	**[A or B]**		

Practice 2 - Manage the DII interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *You have used options within the GIS to locate a message that is blocking an exchange of data with the DII interface. Take a look at the message to determine the problem.*

a. Display a DII Message

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

2. Select INTERFACE MESSAGE: **trn617**

3. Send the output to your screen

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the UIF is displayed on your terminal.

Student 5

Username:	**[site username]**	Access:	**INTUSERE**
Password:	**[site password]**	Verify:	**INTUSEREV**
Area:	**[A or B]**		

Practice 2 - Manage the DII interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *You have used options within the GIS to locate a message that is blocking an exchange of data with the DII interface. Take a look at the message to determine the problem.*

a. Display a DII Message

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

2. Select INTERFACE MESSAGE: **trn618**

3. Send the output to your screen

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the UIF is displayed on your terminal.

Student 6

Username:	**[site username]**	Access:	**INTUSERF**
Password:	**[site password]**	Verify:	**INTUSERFV**
Area:	**[A or B]**		

Practice 2 - Manage the DII interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *You have used options within the GIS to locate a message that is blocking an exchange of data with the DII interface. Take a look at the message to determine the problem.*

a. Display a DII Message

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

2. Select INTERFACE MESSAGE: **trn619**

3. Send the output to your screen

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the UIF is displayed on your terminal.

Student 7

Username:	**[site username]**	Access:	**INTUSERG**
Password:	**[site password]**	Verify:	**INTUSERGV**
Area:	**[A or B]**		

Practice 2 - Manage the DII interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *You have used options within the GIS to locate a message that is blocking an exchange of data with the DII interface. Take a look at the message to determine the problem.*

a. Display a DII Message

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

2. Select INTERFACE MESSAGE: **trn620**

3. Send the output to your screen

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the UIF is displayed on your terminal.

Student 8

Username:	**[site username]**	Access:	**INTUSERH**
Password:	**[site password]**	Verify:	**INTUSERHV**
Area:	**[A or B]**		

Practice 2 - Manage the DII interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *You have used options within the GIS to locate a message that is blocking an exchange of data with the DII interface. Take a look at the message to determine the problem.*

a. Display a DII Message

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

2. Select INTERFACE MESSAGE: **trn621**

3. Send the output to your screen

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the UIF is displayed on your terminal.

Student 9

Username:	**[site username]**	Access:	**INTUSERI**
Password:	**[site password]**	Verify:	**INTUSERIV**
Area:	**[A or B]**		

Practice 2 - Manage the DII interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *You have used options within the GIS to locate a message that is blocking an exchange of data with the DII interface. Take a look at the message to determine the problem.*

a. Display a DII Message

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

2. Select INTERFACE MESSAGE: **trn622**

3. Send the output to your screen

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the UIF is displayed on your terminal.

Student 10

Username:	**[site username]**	Access:	**INTUSERJ**
Password:	**[site password]**	Verify:	**INTUSERJV**
Area:	**[A or B]**		

Practice 2 - Manage the DII interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *You have used options within the GIS to locate a message that is blocking an exchange of data with the DII interface. Take a look at the message to determine the problem.*

a. Display a DII Message

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

2. Select INTERFACE MESSAGE: **trn623**

3. Send the output to your screen

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the UIF is displayed on your terminal.

III. CLOSURE

Do you have any questions about the concepts covered in Module 9 - Manage the DII Interface?

In summary, the following content was presented:

– Identifying the components of the DII interface.

– Managing the DII interface.

This concludes Module 9. You now have the opportunity to demonstrate proficiency in the topics or skills presented.

Following the Master Practice, there will be a 10-minute break.

Thank you for attending.

Master Practice - Module 9.

SYS: CHCS INTERFACE MANAGEMENT

Module 9 - Manage the DII Interface

Section 2. Master Practice

MASTER PRACTICE GUIDELINES

This Master Practice enables the presenter to verify that you have successfully completed the objectives for this class.

The information you need to complete the Master Practice is supplied in the instructions.

You may use any reference materials available in the classroom to complete the Master Practice.

Unless otherwise directed by the presenter, please work alone to complete the Master Practice.

Notify the presenter when directed to do so in the Master Practice. This allows the presenter to verify that you have successfully completed an activity.

You have approximately 10 minutes to complete this Master Practice.

SYS: CHCS INTERFACE MANAGEMENT

Module 9 - Manage the DII Interface

Student 1-10

Scenario 1 - Manage the DII interface.

INSTRUCTIONS: Fill in the blanks.

1. Which physical component of the CHCS Auto Instrument System processes test results and transmits the data to the DII PC through LAT?

   _____

2. Which software resides on the DII station and serves as an interface between CHCS and the individual instruments?

   _____

3. For each sample that the DII processes, which type of message is generated and sent to CHCS through a TCP/IP link?

   _____

4. For DII sites with multiple stations, what configuration does the backup PC reflect?

   _____

5. Outbound HL7 messages are sent to the GIS by which CHCS option?

   _____

6. Where does the GIS store the HL7 messages?

   _____

7. The IM software running on the DII station translates outbound HL7 messages from CHCS into which message format?

   _____

Notify the presenter when you are done.

SYS: CHCS INTERFACE MANAGEMENT

Module 9 - Manage the DII Interface

Section 3. Reference Materials

There are no reference materials for this module.

SYS:
CHCS INTERFACE MANAGEMENT

Module 10 -
Manage DBSS

SYS: CHCS INTERFACE MANAGEMENT

Module 10 - Manage DBSS

Section 1. Module Outline

I. INTRODUCTION

Welcome to the module on Manage DBSS.

The purpose of this module is to familiarize site operation staff with the management of the Defense Blood Standard System (DBSS) interface.

This module is scheduled to last approximately 1 hour.

The target audience for this module is as follows:

– Software Specialists

– System Specialists.

DISCUSS OBJECTIVES

– Objective 1: Identify the components of the DBSS interface.

– Objective 2: Manage the DBSS interface.

INTRODUCE OUTBOUND REFERENCES

The following documentation is referred to in this module:

– CHCS HL7 Implementation Specification for CHCS Version 4.5, SAIC/CHCS Doc. TC-4.5-0044.

– Interface Control Document for the Composite Health Care System (CHCS) to the Defense Blood Standard System (DBSS), 18155NC2, SAIC, 8 Jul 1996.

II. PRESENTATION

■ Objective 1: IDENTIFY THE COMPONENTS OF THE DBSS INTERFACE

DISCUSS THE CHCS/DBSS INTERFACE CONFIGURATION

Overview of the External System

The CHCS/DBSS interface allows blood orders to be entered in CHCS for processing by DBSS. DBSS generated results for the order are sent to CHCS.

Patient registration update, merge messages, and master file notification messages are exchanged to ensure consistency of patient information and master files between the two systems during order processing.

Discuss Interface Equipment

- Refer to Figure 10-1: Typical DBSS Configuration.

DBSS is a client-server based environment. Both the application server and database server are 486 computers running Santa Cruz Operations (SCO) Unix and a network of X-terminals connected through an Ethernet line operating the Transmission Control Protocol/Internet Protocol (TCP/IP). The Informix online engine resides on the DBSS database server that runs on a SCO UNIX operating system.

CHCS and DBSS connect through an Ethernet line using TCP/IP. The CHCS Generic Interface System (GIS) supports data transmission using the CHCS/ Health Level 7 (HL7) standard message format.

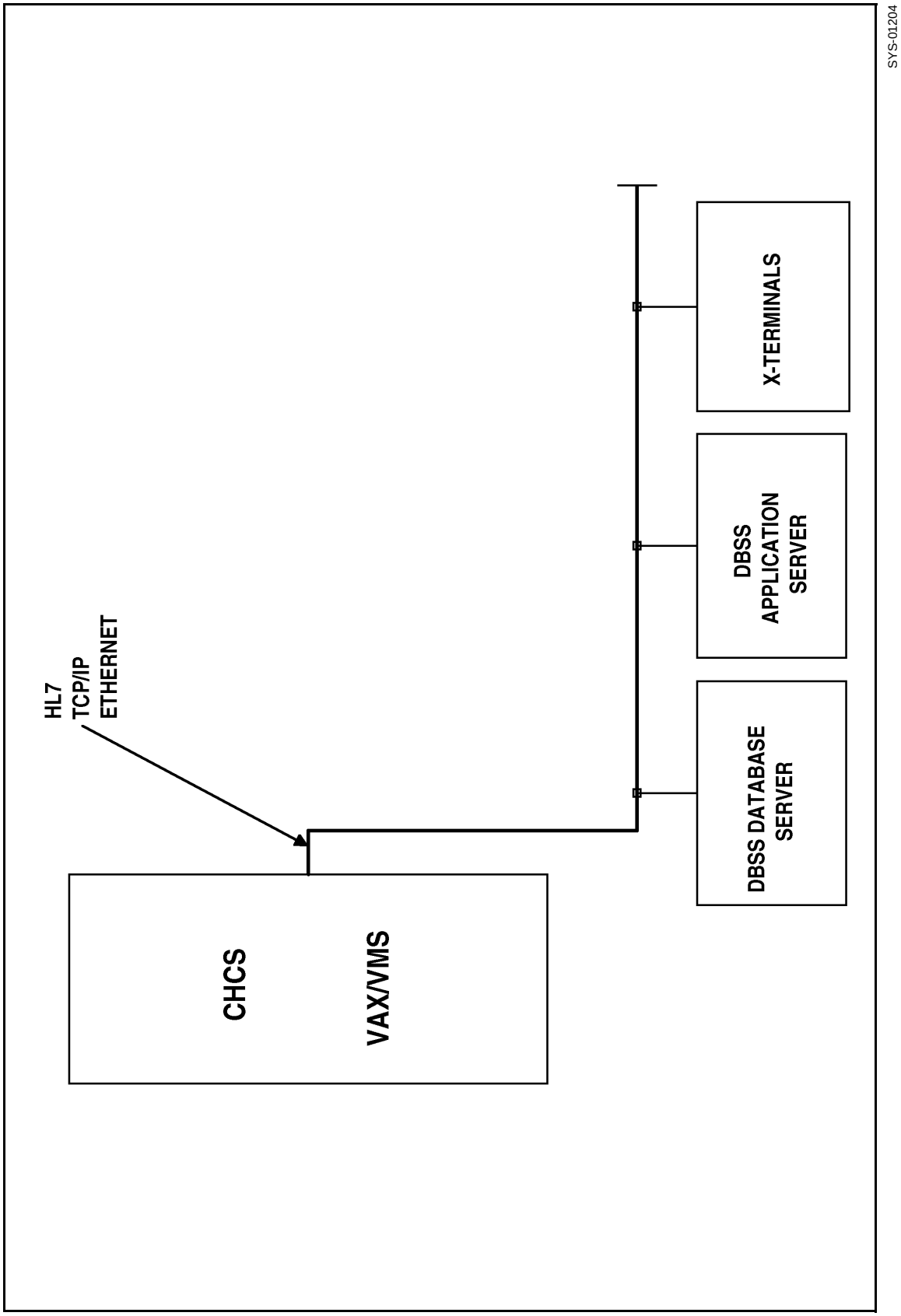
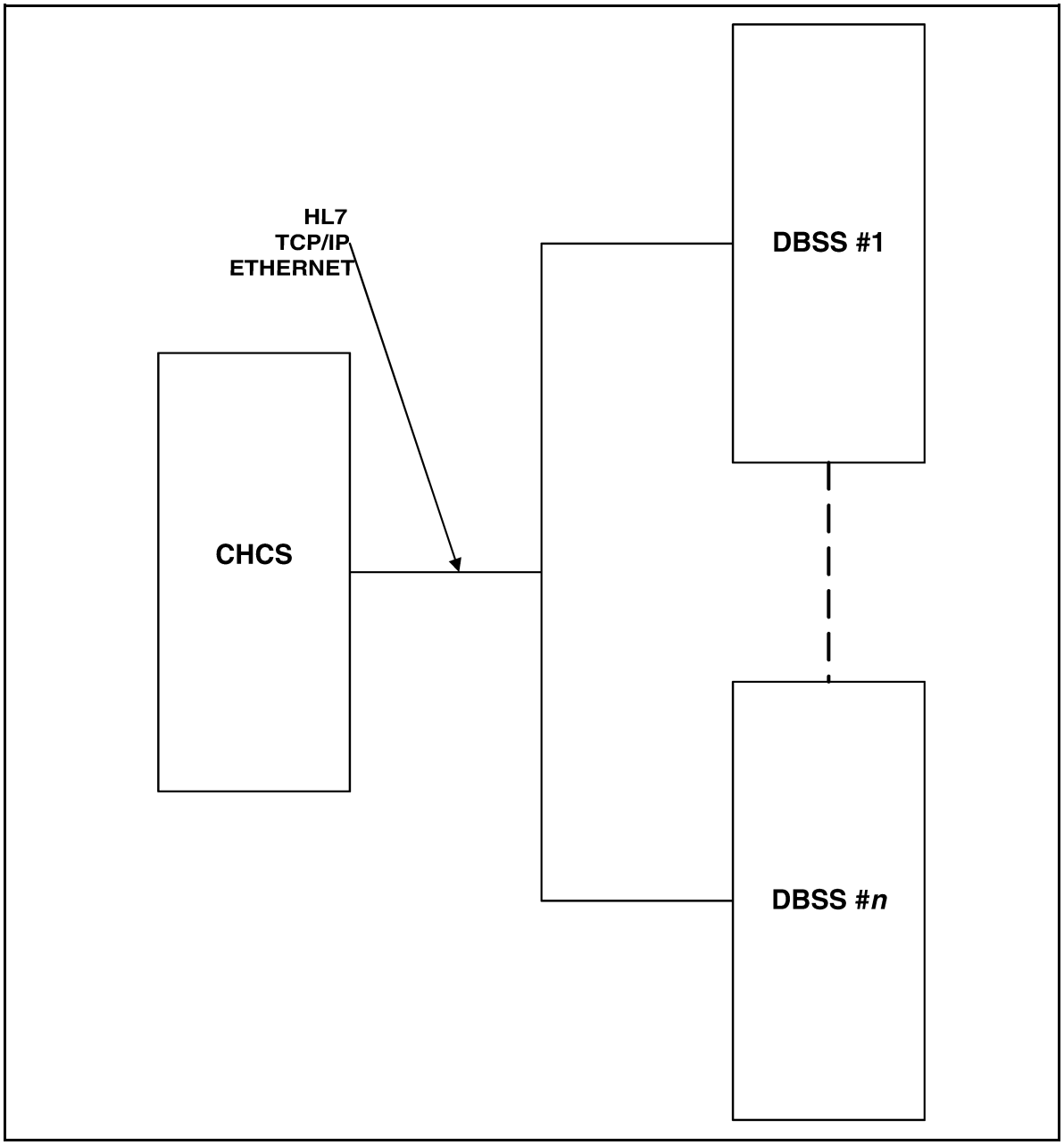


Figure 10-1. Typical DBSS Configuration

DISCUSS INPATIENT DIVIDED WORK CENTER

- Refer to Figure 10-2: CHCS/DBSS Interface in an inpatient Divided Work Center.



SYS-01205

Figure 10-2. CHCS/DBSS Interface in an Inpatient Divided Work Center

The inpatient divided workcenter (IPDWC) functionality allows CHCS to operate in separate medical treatment facilities (MTFs) using a common patient and provider database. These MTFs are located in a closely related geographic location identified as an overlapping catchment area (OCA).

Patients may be treated, and health care providers may practice, at more than one MTF. The common patient database allows the patient's entire record of medical care to be stored and accessed in one place. If a patient has been treated at three MTFs in the workcenter all of the patient's orders and results are stored in one record and retrieved when the patient's record is retrieved.

DISCUSS SELECTIVE ROUTING

Selective routing allows a message to be routed to a particular DBSS destination based on an identification (ID) that uniquely identifies that destination. The GIS interface enables you to screen inbound messages from individual remote systems and to route outbound messages from CHCS to multiple stations that have the same type of remote system.

This interface supports a single CHCS system interfaced to multiple DBSS systems. When blood lab orders are accessioned in CHCS, CHCS routes the Notification of Accession message to DBSS systems based upon the Defense Medical Information System ID (DMIS ID) of the Lab Accession Area. Each interfaced DBSS system is configured to support a single division within an MTF.

DISCUSS THE DBSS INTERFACE PROCESS

Discuss Interface Process for Outbound HL7 Messages

Any of the following activities in CHCS triggers an HL7 message to DBSS.

– A patient record is updated.

  Patient registration data is only transmitted from CHCS to DBSS as part of the blood lab order/accesssion message. CHCS also transmits patient registration updates to DBSS. DBSS receives all registration updates from CHCS and selects those updates that are appropriate for patients in the DBSS database.

– A patient is merged.

  Merge messages are transmitted from CHCS to DBSS for update and potential merge on DBSS.

– Blood lab order accessioning

  Blood lab orders are entered in CHCS and made available for result entry and status changes in DBSS. CHCS provides all existing order actions for blood lab orders. Once the blood lab order has been activated in CHCS it is available for laboratory accessioning. CHCS routes the Notification of Accession message to the appropriate DBSS systems based upon the DMIS ID of the accession area.

– Master Files

  CHCS Medical Expense and Performance Reporting System (MEPRS) code and provider files are synchronized in real time between CHCS and DBSS. An initial master file download to DBSS is performed. Additional entries and updates are transmitted through master file notification messages from CHCS to DBSS as they occur. DBSS is responsible for acting on these notifications.

Outbound HL7 messages are sent to DBSS using the following process:

- Refer to Figure 10-3: Message Flow from CHCS to DBSS.

  1. The CHCS subsystems update patient information that needs to be passed to DBSS. The CHCS subsystem software passes the related information to the GIS.

  2. The GIS formats a HL7 message.

     When the GIS receives the information from the CHCS subsystem, the GIS formats a HL7 message for a particular event.

  3. The GIS stores the HL7 message in the CHCS Universal Interface file (UIF) and queues it on the appropriate DBSS destination queue.

  4. With selective routing, the GIS routes the message to the appropriate DBSS destination. Each destination has a separate background process.

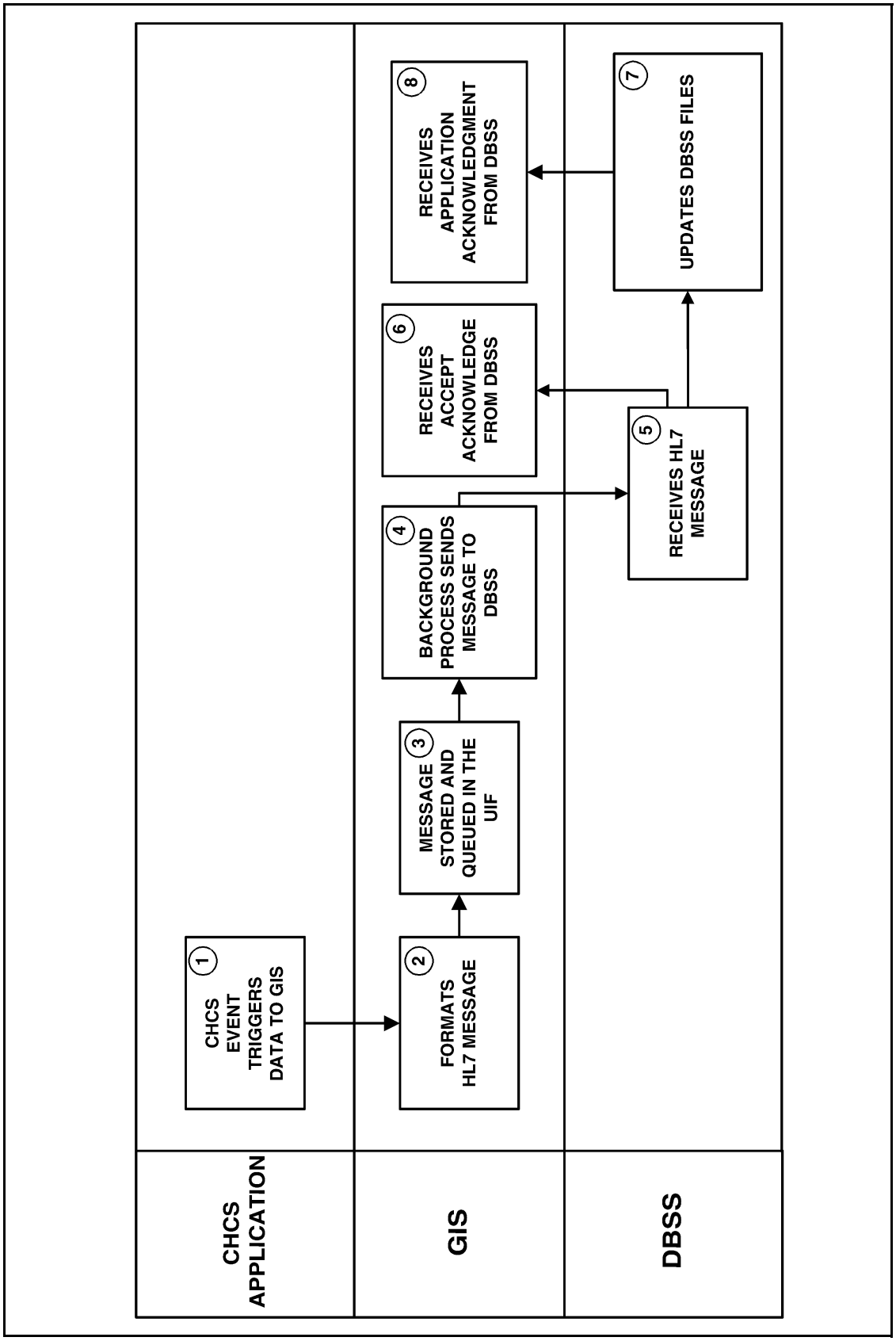


Figure 10-3. Message Flow from CHCS to DBSS

5. The DBSS receives the HL7 message from the GIS.

6. The GIS receives the accept acknowledgment from DBSS.

7. The DBSS server updates the DBSS files.

   The DBSS application process updates the DBSS database.

8. The GIS receives the application acknowledgment message from DBSS. An accept acknowledgment is sent to the GIS to acknowledge that DBSS received a message and is ready to receive the next message.

   This procedure is repeated automatically for every interface message sent to DBSS from CHCS.

Discuss Update of CHCS Files

CHCS files that send data to DBSS include:

– Order file (#101)

– Patient file (#2)

– Accession file (#66).

Discuss Interface Process for Inbound HL7 Messages

Any of the following events in DBSS will trigger a HL7 message to CHCS:

– Patient record updates.

  When changes are made to existing noncritical fields of patient information of CHCS-originated patient registration stored in the DBSS database, DBSS sends the updates to CHCS through the Update Patient HL7 message. CHCS accepts the updates from DBSS but does not process and store the updated information.

– Patient merge.

  When DBSS detects and merges two or more CHCS-originated patient registration records as potential merge candidates, DBSS notifies CHCS of the potential merge.

– Blood Bank Results.

  Blood lab orders are resulted in DBSS. An order result message is sent to CHCS whenever a test result is verified or amended for a CHCS-originated blood order. An order result message is also sent to CHCS whenever a crossmatch is verified, a blood issuance occurs, or a blood transfusion occurs that is related to a CHCS-originated blood order.

Inbound HL7 messages are sent from DBSS to CHCS by the following process:

- Refer to Figure 10-4: Message Flow from DBSS to CHCS.

  1. An event on DBSS triggers data to be sent to CHCS.
  2. DBSS formats the data into an HL7 message.
  3. DBSS sends the formatted HL7 message to the CHCS GIS.
  4. The GIS stores and queues the message in the output controller queue.
  5. The GIS returns an accept acknowledgment to DBSS, indicating that the message was successfully received.
  6. DBSS receives the accept acknowledgment from the GIS.
  7. The GIS translates the message from HL7 to the format used within the CHCS database, then passes the data to CHCS.
  8. CHCS updates its database with the data in the reformatted message.
  9. Once the message is successfully stored in a CHCS file, the GIS creates, queues, and sends an application acknowledgment message to DBSS.
  10. DBSS receives the application acknowledgment from the GIS.

      This procedure is repeated automatically for every interface message sent to CHCS from DBSS.

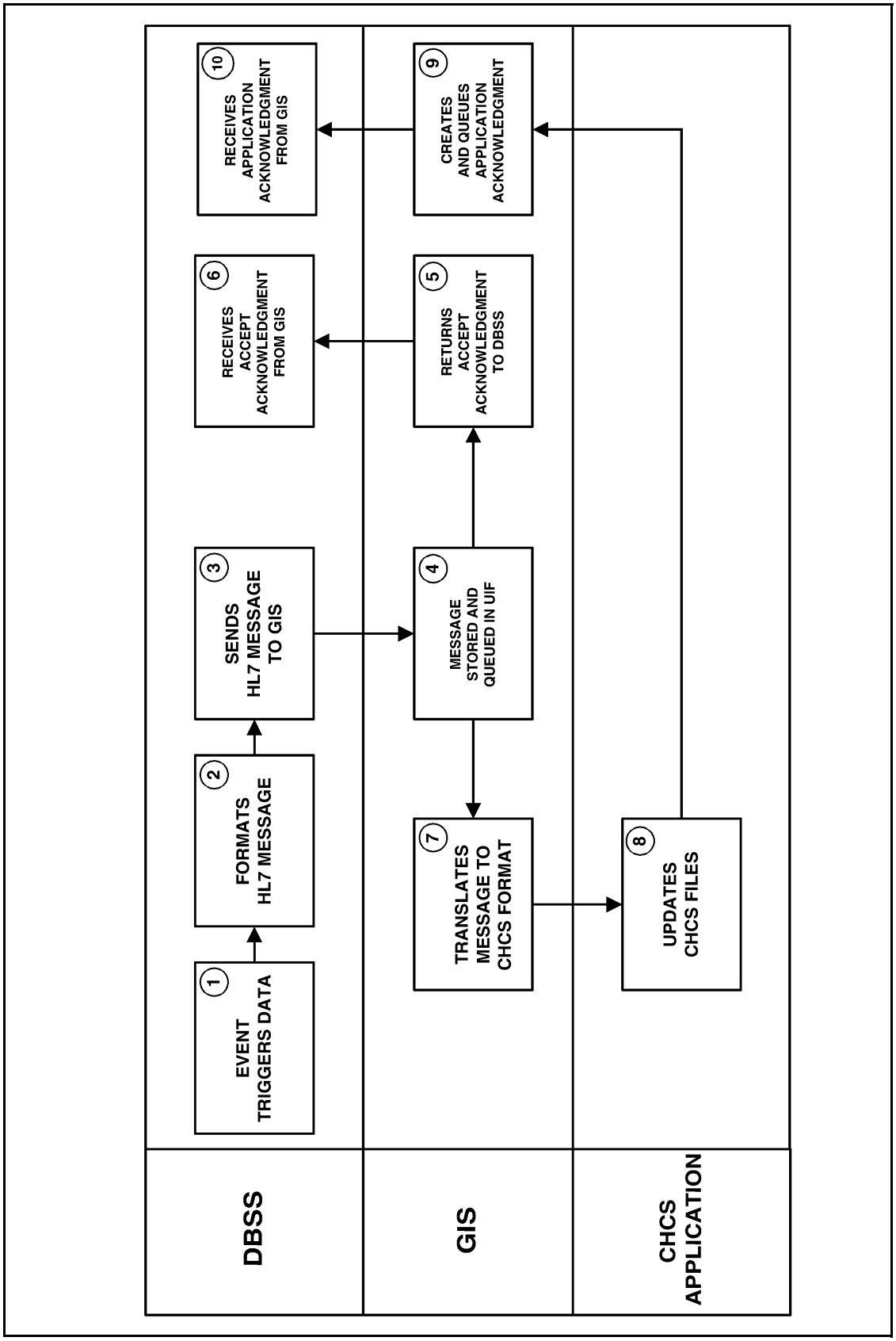


Figure 10-4. Message Flow from DBSS to CHCS

Discuss Update of CHCS Files

Common CHCS files that are updated when data is received from DBSS include:

- Lab Result file (#63)
- Accession file (#66)
- Order file (#101)
- Order Task file (#107)
- PLI Central Info file (#8738)
- CPT Workload file (#8717)
- Lab MEPRS Data file (#64.3)
- Lab Workload Data file (#64.2)
- Accession Area File (#68)
- Review New Results file (#8273)
- SP Accession file (#8702)
- Lab CUM Queue (#65.5).

Practice 1 - Identify the components of the DBSS interface.

PRACTICE GUIDELINES

The information you need to complete each practice is supplied in the instructions and scenarios.

Notify the presenter when directed to do so in the practice. This allows the presenter to verify that you have successfully completed an activity.

You may use any reference materials available in the classroom to complete your practices.

You may ask questions or request assistance at any time during the practices.

Device identifiers are site-specific, and will be provided by the presenter.

Students 1-10

Practice 1 - Identify the components of the DBSS interface.

INSTRUCTIONS: Answer the questions below. You have approximately 5 minutes to complete this practice.

1. The CHCS DBSS is a client-server based environment consisting of these components:

   _____

   _____

   _____

2. CHCS and DBSS connect through Ethernet and this protocol.

   _____

3. Describe the DBSS inpatient divided workcenter.

   _____

   _____

   _____

4. What is the meaning of selective routing when used with DBSS?

   _____

   _____

Notify the presenter when you have completed this practice.

■ Objective 2: MANAGE THE DBSS INTERFACE

Scenario: *You are having a problem with your DBSS interface. The TMSSC has asked you to check specific interface parameters and an interface message.*

DISCUSS DBSS CONFIGURATION PARAMETERS

The following must be in place before DBSS interface messages can be sent by the GIS interface:

– Entries must exist in the Interface Destination file for all instances of DBSS. Since this interface uses selective routing, the route ID and primary destination fields must be defined for each destination.

– The client address and IP port must be entered in the Background Process Control file for the DBSS transmitter process and DBSS receiver process.

– The background process and transaction types associated with the DBSS interface must be activated.

– The following background processes must be running: Format Controller, Output Controller, DBSS Transmitter, and DBSS Receiver background process.

NOTE: DBSS is configured with the IP address of the primary CHCS node (CPU-A). When the DBSS background processes are turned on through the GIS, CHCS initiates the connection with DBSS. The GIS will attempt to connect to DBSS from the node on which the specialist is logged when he or she starts the background processes. However, in order to establish the connection, DBSS requires that the IP address of the connecting CHCS node match its preconfigured primary IP address. For that reason, log onto CPU-A before starting the DBSS background processes. Otherwise, DBSS will shut down the interface connection.

▲ DEMONSTRATE HOW TO DISPLAY THE CHCS/DBSS OUTBOUND BACKGROUND PROCESS

To display the background process:

1. Log on to CHCS.

Username:	**[site username]**	Access:	**INTUSER**
Password:	**[site password]**	Verify:	**INTUSERV**
Area:	**[A** or **B]**		

---

2. Access the Background Process Entry/Edit (BPE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → FTM → BPE

3. Select a background process to display.

   Select the BACKGROUND PROCESS: **DBSS TRANSMITTER**

4. Review the parameters for this background process.

- Refer to Figure 10-5: Background Process Entry/Edit - DBSS Transmitter Process.

```
                *** Background Process Entry/Edit, Screen 1 of 3 ***

Name: DBSS TRANSMITTER
              Active: ACTIVE      Priority:
              Device:
             Routine: INHVTAPT
         Destination: HL BLOOD BANK
Destination Determination Code:




       Client/Server: CLIENT
Server Ports:


Client Addresses:
  214.40.40.40
```

FM-00735

Figure 10-5. Background Process Entry/Edit - DBSS Transmitter Process

Discuss the Display

The first page displays from the Background Process Control file:

– **Active.** The process status, either Active or Inactive. The Interface Activation utility activates only the first DBSS background process. All subsequent DBSS background processes must be manually activated.

– **Routine.** Name of the routine that this process runs**.**

– **Destination**. Name of the entry in the Interface Destination file to which the process sends messages.

– **Client/Server**. Whether the process should be opened as a client or a server.

– **Client Addresses**. If this process is opened as a client, this is the IP address used when this process opens a TCP socket.

4. Return to the File and Table Menu.

   Press **<F10>** to exit the screen.

   Select BACKGROUND PROCESS: **<Return>**

▲ DEMONSTRATE HOW TO DISPLAY THE CHCS/DBSS INBOUND BACKGROUND PROCESS

To display the background process:

1. Access the Background Process Entry/Edit (BPE) option on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **FTM** → BPE

2. Select a background process to display.

   Select the BACKGROUND PROCESS: **DBSS RECEIVER**

3. Review the parameters for this background process.

• Refer to Figure 10-6: Background Process Entry/Edit - DBSS Receiver Process.

```
                *** Background Process Entry/Edit, Screen 1 of 3 ***

Name: DBSS RECEIVER
              Active: ACTIVE      Priority:
              Device:
             Routine: INHVTAPR
         Destination: HL BLOOD BANK
Destination Determination Code:
D DEST^INHVDBSS




       Client/Server: CLIENT
Server Ports:


Client Addresses:
  213.40.40.40
```

FM-00736

Figure 10-6. Background Process Entry/Edit - DBSS Receiver Process

Discuss the Display

The first page displays from the Background Process Control file:

- **Active.** The process status, either Active or Inactive. The Interface Activation utility activates only the first DBSS background process. All subsequent DBSS background processes must be manually activated.

- **Routine.** Name of the routine that this process runs**.**

- **Destination**. Name of the entry in the Interface Destination file to which the process sends messages.

- **Destination Determination Code.** All DBSS receiver process(es) contain Massachusetts General Hospital Utility Multi-Programming System (MUMPS) code in this field. This code determines the Interface Destination. You must have programmer access to edit this field. DBSS transmitter processes do not contain this code.

- **Client/Server**. Whether the process should be opened as a client or a server.

- **Client Addresses**. If this process is opened as a client, this is the IP address used when this process opens a Transmission Control Protocol (TCP) socket.

4. Move the cursor to the Client Addresses field and press **<Return>**

The Ports for Client IP Addresses screen displays.

- Refer to Figure 10-7: Client IP Addresses - DBSS Process.

```
                          Ports for Client IP Addresses
Client address:  213.30.30.30

IP Ports:
  2001
```

FM-00737

Figure 10-7. Client IP Addresses - DBSS Process

Discuss the Display

– **Client Address.** The client address displays from the previous screen.

– **IP Ports**. If this process is opened as a client, this is the IP port number on the remote system to which this process connects.

5. Return to the File and Table Menu.

   Press **<F10>** to exit the display.

   Select BACKGROUND PROCESS: **<Return>**

▲ DEMONSTRATE HOW TO DISPLAY THE DESTINATION ENTRY FOR DBSS

1. Access the Destination Entry/Edit Option (DE) on the File and Table Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → **FTM** → DE

   This option allows you to enter and edit interface destinations. The GIS uses the information in this file to route a transaction to its appropriate location.

2. Select an interface destination to display.

   Select INTERFACE DESTINATION: **HL DBS**

   A picklist displays all available destinations. The first is the primary destination. The second and third are identified by numbers, and are destinations for additional DBSS systems within a facility.

3. Choose 1-3: **2**

   Choose the DBSS destination. The Interface Destination Definition screenform displays.

4. Enter at Access screen 2: **<Page Down>**

   Site personnel typically change only the Route ID and Primary Destination fields of this screenform. These fields should not be defined until the destination systems are installed and ready to receive messages.

5. Enter at Route ID: 0067 **<Return>**

   This field identifies the route ID assigned to the destination. The route ID is the DMIS ID of the accession area for a division. This field remains intact after a change package or software release is installed.

6. Enter at Primary Destination: **HL DBSS<Return>**

   For interfaces with multiple destinations, this field identifies the primary destination; i.e., the destination referenced by the GIS transaction type.

   This field should only be filled in for destinations that are not a primary destination. This field remains intact after a change package or software release is installed.

7. Return to the File and Table Menu.

   Press **<F10>** to exit the display.

   Select INTERFACE DESTINATION: **<Return>**

▲ DEMONSTATE HOW TO DISPLAY A DBSS INTERFACE MESSAGE

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

2. Select INTERFACE MESSAGE: **trn256**

   You can use upper or lower case. Characters are echoed in upper case.

3. Send the output to your screen.

   The interface message record displays.

- Refer to Figure 10-8: Inquire into the Universal Interface File - DBSS.

  Press <RETURN> to continue or '^' to stop <**Return**>

```
Date/Time: 21 Jun 2001@124017  Msg ID: trn256                    Seq#:
       Destination: HL DBSS
            Status: NEW
        Direction: OUT     Priority: 0    Time to Process: 21 Jun 2001@1240
   Incoming Msg ID:
 Parent Message ID:
 Orig. Transaction: HL DG UPDATE PATIENT OUT (BB)
            Source:
 Acknowledge Req'd: YES   Accept ACK Msg ID:
                          Applic ACK Msg ID:

     # of Attempts:          Last Attempt Date/Time:
         Edited by:

MESSAGE TEXT:
MSH^\|~&^CHCS\ADT^8888^^^20010621123900^^ADT\A08^trn256^P^2.2^^^AL^AL
EVN^A08^20010620080000^^
PID^1^^3521\\\8888^20/300-30-7326^WHITE\IAN\I\\\^^19670815000000^M^^N^725
SPRUC
E ST\\MC LEAN\VIRGINIA\22101\\\^^703-555-8980^202-555-6802^^M^GGC^^300-30-
7326^
^^^^^^^4105\USA ACTIVE DUTY OFFICER\99PAT\\\
NK1^1^WHITE\IRENE\\\\^W^725 SPRUCE ST\\MC LEAN\VIRGINIA\22101^703-555-8980
```

FM-00739

Figure 10-8. Inquire into the Universal Interface File - DBSS

4. Return to the Interface Menu.

   Select INTERFACE MESSAGE: <**Return**>

   Select Transaction Control Menu Option: <**Return**>

Interpreting Lab Result and ADT Messages

You can interpret the information contained in the 'Message Text' portion of the message. Each portion of the message text is divided into data elements called segments. Each segment is divided into pieces separated by a caret (^).

For example 'MSH' is the messsage header and starts the control segment of the message. The sending application is CHCS\ADT. ADT\A08 is the message type and event type, followed by the message ID number and HL7 version (2.2).

- Refer to CHCS HL7 Implementation Specification for CHCS Version 4.5.

DISCUSS DBSS TROUBLESHOOTING PROCEDURES

1. Standard Operating Procedures

Use standard operating procedures to check the status of DBSS and ensure messages are transmitted properly. Operators should follow these procedures to check the CHCS/DBSS system link and re-establish connection if the link goes down.

- Refer to Module 5 - Manage GIS, for a discussion of processing queues and verification.

1.1 Check the DBSS message queue.

– If the number of messages in the DBSS Transmitter queue is growing, then check if messages are processing.

1.2 Verify DBSS status.

– If the 'Message ID' numbers are changing in the queue, then DBSS is accepting CHCS messages.

– If the 'Message ID' numbers are not changing in the queue, troubleshoot the DBSS interface.

2. Discuss Troubleshooting Using Application-Level Errors

Below are the most common application-level errors generated by CHCS when application-level validity checks fail for result messages received from DBSS. CHCS provides commit-level ACK messages to DBSS for all result messages received by the CHCS interface.

Application-level acknowledgments are transmitted to DBSS after the data is processed and filed in the CHCS database. If any errors listed below occur while processing the result message from DBSS, an Application Error message is returned to DBSS and stored in the GIS Error file. The message describes the nature of the error.

Interface errors display in the Error Menu (EM) option on the GIS Menu when you specify a date and time. Additionally, HL7 messages contained in the UIF that have not successfully processed display the error that caused it to fail.

This document refers to the HL LAB DBSS RESULTS - IN message which is received by CHCS for notification of certified and amended results.

2.1 "Lab Test is Undefined"

This error may be caused by one of the following conditions:

– The absence of Order Details segment (OBR-4) for the Order Entry Message

– The absence of data in the Observation/Result segment (OBX-3) for the Order Accession messages.

If either of these conditions exist, contact the TMSSC to verify the accuracy of the incoming message.

– CHCS is unable to resolve the Lab Test Name and/or DBSS Request Type.

If this condition exists, the site manager should verify that the CHCS Lab Test file contains the following Lab tests and subscripts:

Table 10-1. Lab Tests and Subscripts

Test Name	Request Type	Test ID
ABO/RH	RTN	ABO/RH
Antibody Screen	RTN	ABS
Antibody Screen Panel	RTN	
Direct Antiglobulin	RTN	DAT
Antibody Titer	RTN	ATBTITER
Autologous Donation	AUTO	
Type and Screen	TS	
Type and Cross	TC	
Prenatal Screen	PNS	

FM-00740

After taking corrective action, retransmit the result message to CHCS.

2.2 "Unable to Enter Results - No Accession on File"

This error is caused by CHCS failing to locate the accession in the Accession file.

For this error, the CHCS site manager must verify that the incoming accession number exists in the ACCESSION NAME cross reference in the Accession file. If the number does not exist, the message must be retransmitted with a valid CHCS accession number.

Once resolved, retransmit the result message to CHCS.

2.3 "Patient Not Found"

When adding results to CHCS, the patient defined in the result message must be a valid patient in the CHCS system. This error message occurs when CHCS is unable to resolve the Patient file pointer because a patient file entry was manually added to DBSS, an entry was added to the CHCS Patient file without notifying DBSS because the interface was down, or an entry was deleted from the CHCS Patient file.

For this error, the CHCS site manager should verify that the mapping between the DBSS Patient file and CHCS Patient file is accurate. All new Patient file entries must be transmitted to DBSS.

Once the patient file has been synchronized, the result message must be retransmitted to CHCS.

2.4 "Unable to Lock Patient in File 63"

When attempting to add results to the Lab Result file (File 63), the system attempts to obtain exclusive access to the patient record. This error message is caused by concurrent update of the patient record in this file.

If this error occurs, the GIS retries. If the error persists, contact the TMSSC.

The result message must be retransmitted to CHCS once the problem has been resolved.

2.5 "Incoming Order Belongs to Another Patient"

This error occurs when the patient internal entry number associated with the order number contained in the Order Detail segment (OBR-2) does not match the patient internal entry number defined in the Patient Identification segment (PID-3) field.

The correct order number needs to be associated with the correct patient.

The result message must be retransmitted to CHCS.

2.6 "Lab Result is Undefined"

This error message generates if the lab result was not present in the Observation/ Result segment (OBX-5).

An undefined lab result is valid only when the ordered test being resulted is an Autologous Donation result. In this case the CHCS application software provides the result value.

Ensure that the result value is present in the DBSS system and then retransmit the result message to CHCS.

2.7 "Blood Product is undefined"

The order number in the Blood Product Z-segment (ZOB-2) is either missing or not listed as a valid code in the CHCS Blood Product Type file.

The value must match a valid blood product code in the CHCS Blood Product Type file. Once corrected, the message must be retransmitted.

2.8 "Ordered Test is not linked to the Order"

The order number in the Order Detail segment (OBR-2) is not linked to any of the tests listed for the accession number in Order Detail segment (OBR-20).

The order number must be linked to at least one test on the specified accession in CHCS. This completes the link between orders and accessions in CHCS. Once corrected, the message must be retransmitted.

2.9 "Patient Not Found in CHCS Database"

The value in Patient Identification segment (PID-3, component 1) is not an internal entry number that is on file in the CHCS Patient file.

The patient internal entry number must be present in this field in order for CHCS to properly identify the patient who should receive these results. Once corrected, the message must be retransmitted.

- Refer to Reference Materials, Table 10-2: CHCS Application-Level Errors for DBSS, for additional errors and their resolutions.

Practice 2 - Manage the DBSS interface.

PRACTICE

Student 1

Username:	**[site username]**	Access:	**INTUSERA**
Password:	**[site password]**	Verify:	**INTUSERAV**
Area:	**[A** or **B]**		

Practice 2 - Manage the DBSS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario*: The TMSSC has asked you to check on some specific interface parameters that may be related to a problem with the DBSS interface. Display the DBSS Transmitter Background Process and display a DBSS Interface Message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   System Manager Menu➔ SM ➔ INT ➔ GIS ➔ **TCM** ➔ IUIF

2. Select INTERFACE MESSAGE: **trn256**

3. Send the output to your screen.

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the Universal Interface file displays on your terminal.

Student 2

Username:	**[site username]**	Access:	**INTUSERB**
Password:	**[site password]**	Verify:	**INTUSERBV**
Area:	**[A** or **B]**		

Practice 2 - Manage the DBSS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario*: The TMSSC has asked you to check on some specific interface parameters that may be related to a problem with the DBSS interface. Display the DBSS Transmitter Background Process and display a DBSS Interface Message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   System Manager Menu➔ SM ➔ INT ➔ GIS ➔ **TCM** ➔ IUIF

2. Select INTERFACE MESSAGE: **trn258**

3. Send the output to your screen.

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the Universal Interface file displays on your terminal.

Student 3

Username:	**[site username]**	Access:	**INTUSERC**
Password:	**[site password]**	Verify:	**INTUSERCV**
Area:	**[A** or **B]**		

Practice 2 - Manage the DBSS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario*: The TMSSC has asked you to check on some specific interface parameters that may be related to a problem with the DBSS interface. Display the DBSS Transmitter Background Process and display a DBSS Interface Message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   System Manager Menu→ SM → INT → GIS → **TCM** → IUIF

2. Select INTERFACE MESSAGE: **trn260**

3. Send the output to your screen.

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the Universal Interface file displays on your terminal.

Student 4

Username:	**[site username]**	Access:	**INTUSERD**
Password:	**[site password]**	Verify:	**INTUSERDV**
Area:	**[A** or **B]**		

Practice 2 - Manage the DBSS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario*: The TMSSC has asked you to check on some specific interface parameters that may be related to a problem with the DBSS interface. Display the DBSS Transmitter Background Process and display a DBSS Interface Message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   System Manager Menu→ SM → INT → GIS → **TCM** → IUIF

2. Select INTERFACE MESSAGE: **trn261**

3. Send the output to your screen.

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the Universal Interface file displays on your terminal.

Student 5

Username:	**[site username]**	Access:	**INTUSERE**
Password:	**[site password]**	Verify:	**INTUSEREV**
Area:	**[A** or **B]**		

Practice 2 - Manage the DBSS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario*: The TMSSC has asked you to check on some specific interface parameters that may be related to a problem with the DBSS interface. Display the DBSS Transmitter Background Process and display a DBSS Interface Message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   System Manager Menu→ SM → INT → GIS → **TCM** → IUIF

2. Select INTERFACE MESSAGE: **trn262**

3. Send the output to your screen.

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the Universal Interface file displays on your terminal.

Student 6

Username:	**[site username]**	Access:	**INTUSERF**
Password:	**[site password]**	Verify:	**INTUSERFV**
Area:	**[A** or **B]**		

Practice 2 - Manage the DBSS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario*: The TMSSC has asked you to check on some specific interface parameters that may be related to a problem with the DBSS interface. Display the DBSS Transmitter Background Process and display a DBSS Interface Message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   System Manager Menu→ SM → INT → GIS → **TCM** → IUIF

2. Select INTERFACE MESSAGE: **trn264**

3. Send the output to your screen.

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the Universal Interface file displays on your terminal.

Student 7

Username:	**[site username]**	Access:	**INTUSERG**
Password:	**[site password]**	Verify:	**INTUSERGV**
Area:	**[A** or **B]**		

Practice 2 - Manage the DBSS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario*: The TMSSC has asked you to check on some specific interface parameters that may be related to a problem with the DBSS interface. Display the DBSS Transmitter Background Process and display a DBSS Interface Message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   System Manager Menu→ SM → INT → GIS → **TCM** → IUIF

2. Select INTERFACE MESSAGE: **trn267**

3. Send the output to your screen.

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the Universal Interface file displays on your terminal.

Student 8

Username:	**[site username]**	Access:	**INTUSERH**
Password:	**[site password]**	Verify:	**INTUSERHV**
Area:	**[A** or **B]**		

Practice 2 - Manage the DBSS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario*: The TMSSC has asked you to check on some specific interface parameters that may be related to a problem with the DBSS interface. Display the DBSS Transmitter Background Process and display a DBSS Interface Message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   System Manager Menu→ SM → INT → GIS → **TCM** → IUIF

2. Select INTERFACE MESSAGE: **trn268**

3. Send the output to your screen.

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the Universal Interface file displays on your terminal.

Student 9

Username:	**[site username]**	Access:	**INTUSERI**
Password:	**[site password]**	Verify:	**INTUSERIV**
Area:	**[A** or **B]**		

Practice 2 - Manage the DBSS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario*: The TMSSC has asked you to check on some specific interface parameters that may be related to a problem with the DBSS interface. Display the DBSS Transmitter Background Process and display a DBSS Interface Message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   System Manager Menu→ SM → INT → GIS → **TCM** → IUIF

2. Select INTERFACE MESSAGE: **trn269**

3. Send the output to your screen.

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the Universal Interface file displays on your terminal.

Student 10

Username:	**[site username]**	Access:	**INTUSERJ**
Password:	**[site password]**	Verify:	**INTUSERJV**
Area:	**[A** or **B]**		

Practice 2 - Manage the DBSS interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario*: The TMSSC has asked you to check on some specific interface parameters that may be related to a problem with the DBSS interface. Display the DBSS Transmitter Background Process and display a DBSS Interface Message.*

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   System Manager Menu→ SM → INT → GIS → **TCM** → IUIF

2. Select INTERFACE MESSAGE: **trn277**

3. Send the output to your screen.

   DEVICE: **<Return>**

   RIGHT MARGIN: 80//**<Return>**

Notify the presenter when the Universal Interface file displays on your terminal.

III. CLOSURE

Do you have any questions about the concepts covered in Module 10 - Manage DBSS?

In summary, the following content was presented:

– Identifying the components of the DBSS interface.

– Managing the DBSS interface.

Remember that special documents are included in the Reference Materials, and may be used to complete the Master Practice.

This concludes Module 10. You now have the opportunity to demonstrate proficiency in the topics or skills presented.

Following the Master Practice, there will be a 10-minute break.

Thank you for attending.

Master Practice - Module 10.

SYS: CHCS INTERFACE MANAGEMENT

Module 10 - Manage DBSS

Section 2. Master Practice

MASTER PRACTICE GUIDELINES

This Master Practice enables the presenter to verify that you have successfully completed the objectives for this class.

The information you need to complete the Master Practice is supplied in the instructions and scenarios.

You may use any reference materials available in the classroom to complete the Master Practice.

Device identifiers are site-specific, and will be provided by the presenter.

Unless otherwise directed by the presenter, please work alone to complete the Master Practice.

Notify the presenter when directed to do so in the Master Practice. This allows the presenter to verify that you have successfully completed an activity.

You have approximately 10 minutes to complete this Master Practice.

SYS: CHCS INTERFACE MANAGEMENT

Module 10 - Manage DBSS

Students 1-10

Scenario 1 - Manage the DBSS interface.

INSTRUCTIONS: Fill in the blanks. You have 10 minutes to complete this practice.

1. Which background processes must be running for DBSS interface messages to be sent by the GIS interface?

   _____

   _____

2. Which parameters must be entered in the Background Process Control file for the DBSS transmitter process?

   _____

3. Because the DBSS interface uses selective routing, these two fields must be entered in the Interface Destination file:

   _____

4. Which option on the File and Table Menu allows you to display the destination entry for DBSS?

   _____

5. Which option on the File and Table Menu allows you to activate the transaction type for the DBSS interface?

   _____

Notify the presenter when you are done.

SYS: CHCS INTERFACE MANAGEMENT

Module 10 - Manage DBSS

Section 3. Reference Materials

Index

Table **Page**

10-2. CHCS Application-Level Errors for DBSS 10-41

Table 10-2. CHCS Application-Level Errors for DBSS

Exception Code	Exception Message	Possible Cause	Recommended Solution	Resolution Needed By
6	Lab Test is Undefined	This error would be caused by one of the following conditions: 1. The absence of data in the OBR-4 segment 2. The absence of data in OBX-3 3. CHCS is unable to resolve the Lab Test Name and/or DBSS Request Type	If condition 1or 2 exists, the TMSSC should be contacted to verify the accuracy of the incoming message. If condition 3 exists, the Site Manager (or designee) should verify that the CHCS Lab Test file contains the following Lab tests and subscripts: Test Name — Request Type — Test ID ABO/RH — RTN — ABO/RH Antiibody Screen — RTN — ABS Antibody Screen Panel — RTN DIrect Antiglobulin — RTN — DAT Antibody Titer — RTN — ATBTITER Autologous Donation — AUTO Type and Screen — TS Type and Cross — TC Prenatal Screen — PNS After corrective action is taken, the result message must be re-transmitted to CHCS.	TMSSC CHCS Site Manager
11	Result Status is Undefined	This error would be caused by one of the following conditions: 1. the absence of data in the OBR-25 segment of the HL LAB DBSS RESULT - IN message. 2. invalid result status code	Contact CHCS TMSSC to verify the accuracy of the result message. Once resolved the result message must be re-transmitted to CHCS.	TMSSC

Exception Code	Exception Message	Possible Cause	Recommended Solution	Resolution Needed By
13	Certification Date/Time is Missing	This error would be caused by the absence of data in the OBR-22 segment of the HL LAB DBSS RESULT - INmessage. Note: This error should never occur.	Contact TMSSC to verify the accuracy of the accession/result message. Once resolved the result message must be re-transmitted to CHCS.	TMSSC
19	Unable to Enter Results - No Accession on File	This error would be caused by the failure of CHCS to locate the accession in the Accession file.	CHCS Site Manager (or designee) must verify that the incoming accession number exists in the ACCESSION NAME cross-reference on the Accession File. If the number doesn't exist, the message must be re-transmitted with a valid CHCS accession number Once resolved, re-transmit the result message to CHCS.	CHCS Site Manager DBSS System Manager
21	Invalid Order Control	This error would be caused by one of the following conditions: 1. the absence of data in the ORC-1 segment of the HL LAB DBSS RESULT - IN message 2. invalid order control code	Contact the CHCS Site Manager (or designee) to verify the content of the result message. The result message must be re-transmitted to CHCS once the problem has been corrected.	CHCS System Manager DBSS System Manager
22	Patient Not Found	When adding results to CHCS, the patient defined in the result message must be a valid patient on the CHCS system. The exception would occur when CHCS is unable to resolve the Patient File pointer because a) a patient file entry was manually added to the DBSS, or b) an entry was added to the CHCS Patient File and notification was not sent to DBSS because the interface was down, or c) an entry was deleted from the CHCS Patient file.	The CHCS Site Manager (or designee) should verify that the mapping between the DBSS Patient File and CHCS Patient File are accurate. All new Patient File entries must be transmitted to DBSS. Once the Patient file has been synchronized, the result message must be re-transmitted to CHCS.	CHCS Site Manager DBSS System Manager

Exception Code	Exception Message	Possible Cause	Recommended Solution	Resolution Needed By
20	Unable to Lock Patient in File 63	When attempting to add results to the Lab Result File (File 63), the system attempts to obtain exclusive access to the patient record. This exception is caused by concurrent update of the patient record in this file	Retries will be attempted by the GIS. If the error persists, contact the CHCS Software Specialist or TMSSC. The result message must be re-transmitted to CHCS once the problem has been resolved.	CHCS Site Manager DBSS System Manager‘
25	Incoming Order Belongs to Another Patient	The patient internal entry number associated with the order number contained in OBR-2 does not match the patient internal entry number defined in the Patient Identification, PID-3, field.	The correct order number needs to be associated with the correct patient. The result message must be re-transmitted to CHCS.	DBSS System Manager
34	Lab Result is undefined	This exception would be generated in the event the lab result was not present in the OBX-5 segment. An undefined Lab Result is valid only when the ordered test being resulted is an Autologous Donation result. In this case, the CHCS application software will provide the result value.	The result value must be present in the DBSS system and the result message must be retransmitted to CHCS.	DBSS System Manager
35	Order Number is undefined	The value in OBR-2 missing, or is not on file in the CHCS database.	The order reference must be present in order to properly file the results against the correct accession and order. Once corrected, the message must be re-transmitted.	DBSS System Manager.
36	Invalid Order Status	The Order Status on ORC-5 is not’CM’ for completed.	The value must be’CM’ to indicate the order has been completed. Once corrected, the message must be re-transmitted.	DBSS System Manager

Exception Code	Exception Message	Possible Cause	Recommended Solution	Resolution Needed By
37	Blood Product is undefined	The blood product code in ZOB-2, component 4 is either missing or not listed as a valid code in the CHCS Blood Product Type file.	The value must match a valid blood product code in the CHCS Blood Product Type file. Once corrected, the message must be re-transmitted.	DBSS System Manager
38	Ordered Test is not linked to the Order	The order number in OBR-2 is not linked to any of the tests listed for the accession number in OBR-20.	The order number must be linked to at least one test on the specified accession in CHCS. This completes the link between orders and accessions in CHCS. Once corrected, the message must be re-transmitted.	TMSSC and/or DBSS System Manager
39	Entry for DBSS,USER not in User File	On CHCS, there is no entry in the USER file with the name DBSS,USER. Since the USER file is not supported as a Master File, this entry is necessary to associate the results to the user who filed them on CHCS. This provides normal CHCS result entry audit trail tracking.	Verify that the DBSS,USER entry exists and that the name is spelled exactly as'DBSS,USER'. Once corrected, the message must be re-transmitted. .	CHCS Site Manager
40	Patient Not Found in CHCS Database	The value in PID-3, component 1 is not an internal entry number that is on file in the CHCS Patient File.	The patient internal entry number must be present on this field in order for CHCS to properly identify the patient who should receive these results. Once corrected, the message must be re-transmitted.	DBSS System Manager
41	Database update failed to add blood bank subfile to Lab Result File. Failure occurred in module: INIT^LRBBREDT LRPTN=n, LRIDT=n,LRCDT=n	Possible invalid values for the patient ien (See exception code #22), the inverse collection date/time or the collection date/ time. This error indicates that Fileman could not add this accession to the Lab Result file.	Contact CHCS TMSSC	TMSSC

Exception Code	Exception Message	Possible Cause	Recommended Solution	Resolution Needed By
42	Attempt to amend result that is not in the CHCS database. LRPTN=n, LRSS=BB, LRIDT=n, Test:X, Result:x	This error indicates that DBSS sent a message indicating an amendment to a test result that CHCS does not have on file. The message will note the patient, subscript, inverse collection date/time, the test name and result that is being amended.	TMSSC and the DBSS System Manager should try to determine if the original order was successfully transmitted to DBSS, and if final results were ever completed and transmitted to CHCS for the test in question. To resolve, the initial set of final results needs to be retransmitted to CHCS, then the amended result(s) need to be re-transmitted (must be performed in that sequence).	TMSSC and DBSS System Manager
43	Database update failed to add antibody subfile to Lab Result File LRPTN=n,LRIDT=n,LRTST=n,LRANTI=antibody name, LRTITER=antibody titer value	The name of the antibody being added somehow does not pass Fileman's input transform for the Antibody field. Could be that the name is too long or contains illegal characters.	Determine the reason why the antibody failed the input transform, correct the issue on DBSS and retransmit the data for that test.	TMSSC and DBSS System Manager
44	Database update failed for field *fieldname*(subfile/field#). Failure occurred in module: *modulename*. Update was attempted with data in variable: *var=value*	This error indicates that DBSS sent a data value that did not pass Fileman's input transform for the specified field. This can occur of the data is too long or contains illegal characters. The message will indicate the module in which the error occurred. It will also tell you the value the system was attempting to stuff into the database. Important Note: When this error occurs, it is very likely that other database updates also did not occur as a result of this failure.	TMSSC will need to analyze the data value being used to update the database and determine the cause of the failed input transform. Correction to the data on DBSS and re-transmission of the message may be necessary.	TMSSC and DBSS System Manager

SYS:
CHCS INTERFACE MANAGEMENT

Module 11 -
Manage the CoPath Interface

SYS: CHCS INTERFACE MANAGEMENT

Module 11 - Manage the CoPath Interface

Section 1. Module Outline

I. INTRODUCTION

Welcome to the module on Manage the CoPath Interface.

The purpose of this module is to familiarize site operations staff with the management of the CoPath interface.

This module is scheduled to last approximately 1 hour.

The target audience for this module is as follows:

– Software Specialists

– System Specialists.

DISCUSS OBJECTIVES

– Objective 1: Identify the components of the CoPath interface.

– Objective 2: Manage the CoPath interface.

INTRODUCE OUTBOUND REFERENCES

The following documentation is referred to in this module:

– CHCS/CoPath Interface Control Document, 1868INC2, SAIC, September 1996.

– CHCS HL7 Implementation Specification for CHCS Version 4.5, SAIC/CHCS Doc. TC-4.5-0045.

II. PRESENTATION

■ Objective 1: IDENTIFY THE COMPONENTS OF THE COPATH INTERFACE

DISCUSS THE COPATH INTERFACE

Overview of the External System

The CHCS/CoPath interface provides a bidirectional interface for anatomic pathology orders and results between CHCS and the Collaborative Medical Systems CoPath system. The interface provides the capability for CoPath to accession (log in) specimens and report results for anatomic pathology orders generated either on the CoPath system or CHCS. This interface is frequently referred to as anatomic pathology commercial off-the-shelf (APCOTS).

Patient registration; admission, disposition, and transfer (ADT); patient merge; and master file messages are exchanged to ensure consistency of patient information between the two systems.

Orders for anatomic pathology (AP) tests may be placed on either CHCS or CoPath. All accessioning and resulting of AP orders are done on CoPath. Certified and amended patient results are transmitted from CoPath and are available through CHCS inquiry and reporting options.

The CoPath interface consists of two major components:

– CHCS Generic Interface System (GIS)

– CoPath system.

CHCS uses the GIS as its Health Level 7 (HL7) interface tool to transmit data to and receive data from the CoPath system. All messages conform to the CHCS Implementation Specification of the HL7 standards.

CHCS includes a site parameter located in the lab medical treatment facility (MTF) file that indicates whether a site is using CHCS AP or the CoPath system. When the site parameter is activated, AP orders placed in CHCS are sent to the CoPath system and CHCS accessioning and resulting functions are no longer functional for AP tests. All divisions at a site are switched at the same time.

Discuss CoPath Interface Configuration

- Refer to Figure 11-1: Typical CoPath Configuration.

The CHCS/CoPath interface uses Transmission Control Protocol/Internet Protocol (TCP/IP) over the Ethernet for communications. The two systems exchange messages through TCP sockets.

As long as the TCP socket is open, data is exchanged whenever an event is triggered. The transmission of data between CHCS and CoPath is real-time.

CHCS is the TCP client and establishes a communications link through a socket interface with the CoPath server at interface startup. Except in the case of interface failure or manual shutdown, the link is never broken. Two client/server links are used for the CHCS/CoPath interface. Each link uses the same client and server IP addresses, but each has a unique port number.

The interface communication links are the transmitters and receivers for the CHCS and CoPath systems.

EXAMPLE:

1. Link1 for CHCS transmits the HL7 message which is received by CoPath.
2. Link1 for CoPath transmits the accept level acknowledgment which is received by CHCS.
3. Link1 for CHCS transmits the application level acknowledgment which is received by CoPath.

The CoPath AP system and user devices are interconnected to the CHCS network. User devices on the system can access both the CoPath system and CHCS. A system-level menu is established on the communications hub/terminal server, which allows access to CHCS and CoPath systems.

A modem is provided as part of the hardware configuration. This is used primarily by CoMed so that the vendor can access their system if troubleshooting is required.

The CoPath system has the same system availability, performance, reliability, and C2 security requirements as CHCS.

- Refer to the CHCS/CoPath Interface Control Document, for additional information about the CoPath interface.

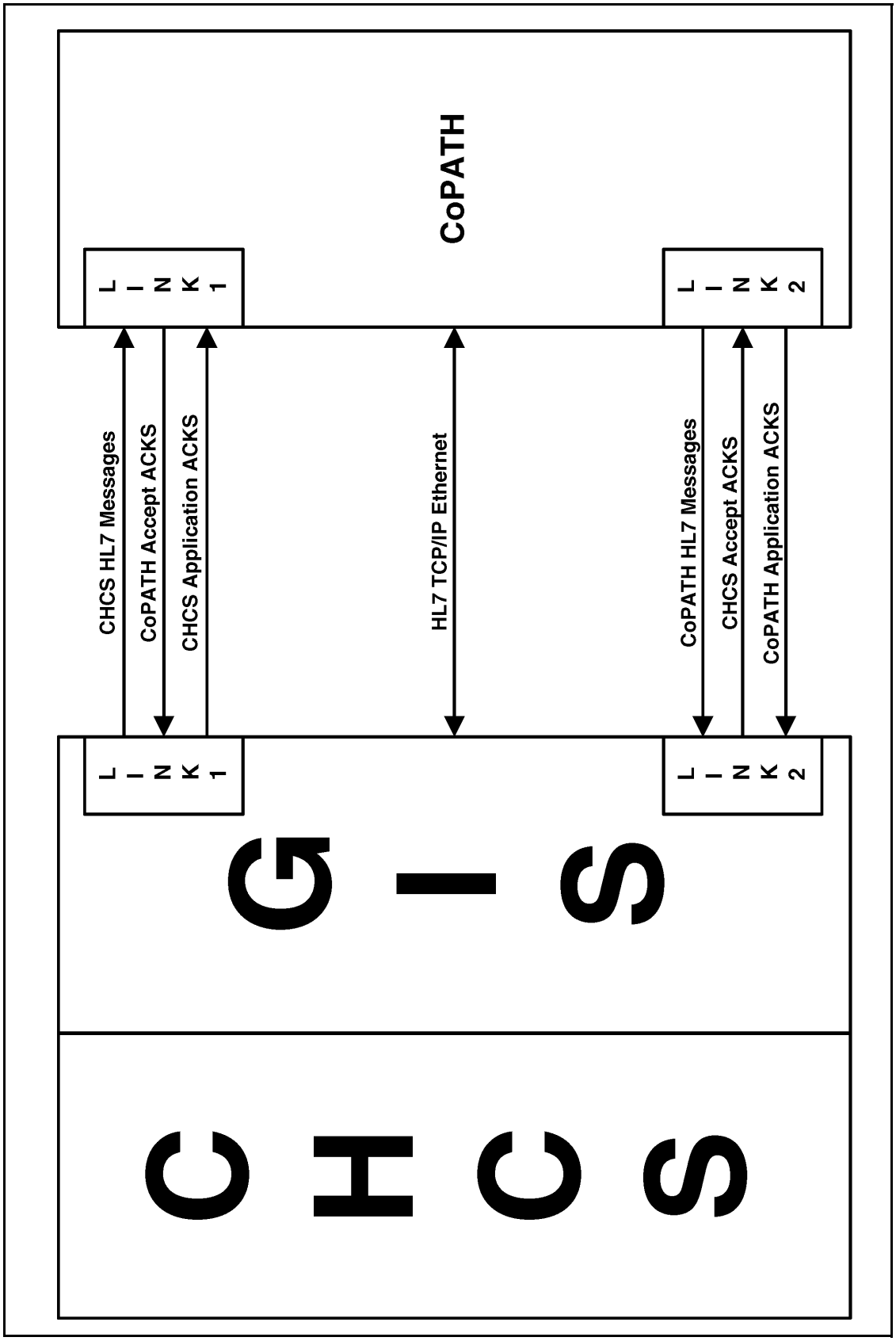


Figure 11-1. Typical CoPath Configuration

Discuss Interface Equipment

The virtual address extension (VAX) platform consists of several VAX computers connected together through a cluster running under the virtual memory system (VMS) operating system and Digital Standard MUMPS (DSM). CoPath runs on the Alpha architecture for extended performance (AXP) with OpenVMS operating system using DSM.

DISCUSS THE COPATH INTERFACE PROCESS

The CHCS/CoPath interface is bidirectional. Outbound HL7 messages for patient registration, lab orders, and master files are transmitted from CHCS to CoPath. Inbound HL7 messages for accessioned orders and results are transmitted from CoPath to CHCS.

Discuss Patient Information Messages

Patient Registration. CHCS sends all new patient registrations and modifications to existing registrations to CoPath. In the case of laboratory mail-in registrations, CHCS includes the referral location in the message to CoPath. CoPath displays the referral location to the CoPath user when the specimen is logged onto the CoPath system. The CoPath user cannot edit this information.

ADT. CHCS sends all new, cancelled, and modified patient ADT to CoPath. Since the CoPath system does not maintain ADT information, these messages are used to provide patient demographic information, in addition to information related to lab mail-in registrations.

Patient Merge. When potential duplicate patients are encountered on CHCS, CHCS sends a notification of patient merge HL7 message to CoPath. CoPath validates the message and merges the patient on the CoPath system.

Discuss AP Order Entry Messages

CHCS sends all new, modified, and cancelled AP orders to the CoPath system.

Discuss Master File Notification Messages

The CoPath system updates its database when master file notifications are received from the following CHCS master files:

- Provider file
- User file
- Hospital Location file
- MEPRS Code file.

Discuss Interface Process for Outbound HL7 Messages

- Refer to Figure 11-2: Message Flow from CHCS to CoPath.

  1. Outbound HL7 messages are sent from CHCS to CoPath for the following events:

     - Patient Information Messages:

       * Add a Patient
       * Update patient information
       * Merge Patient information
       * Admission
       * Transfer
       * Discharge
       * Update admission, discharge or transfer information
       * Cancel admission
       * Cancel transfer
       * Cancel discharge.

     - AP Laboratory Order Entry Messages:

       * Activated new order
       * Modified order

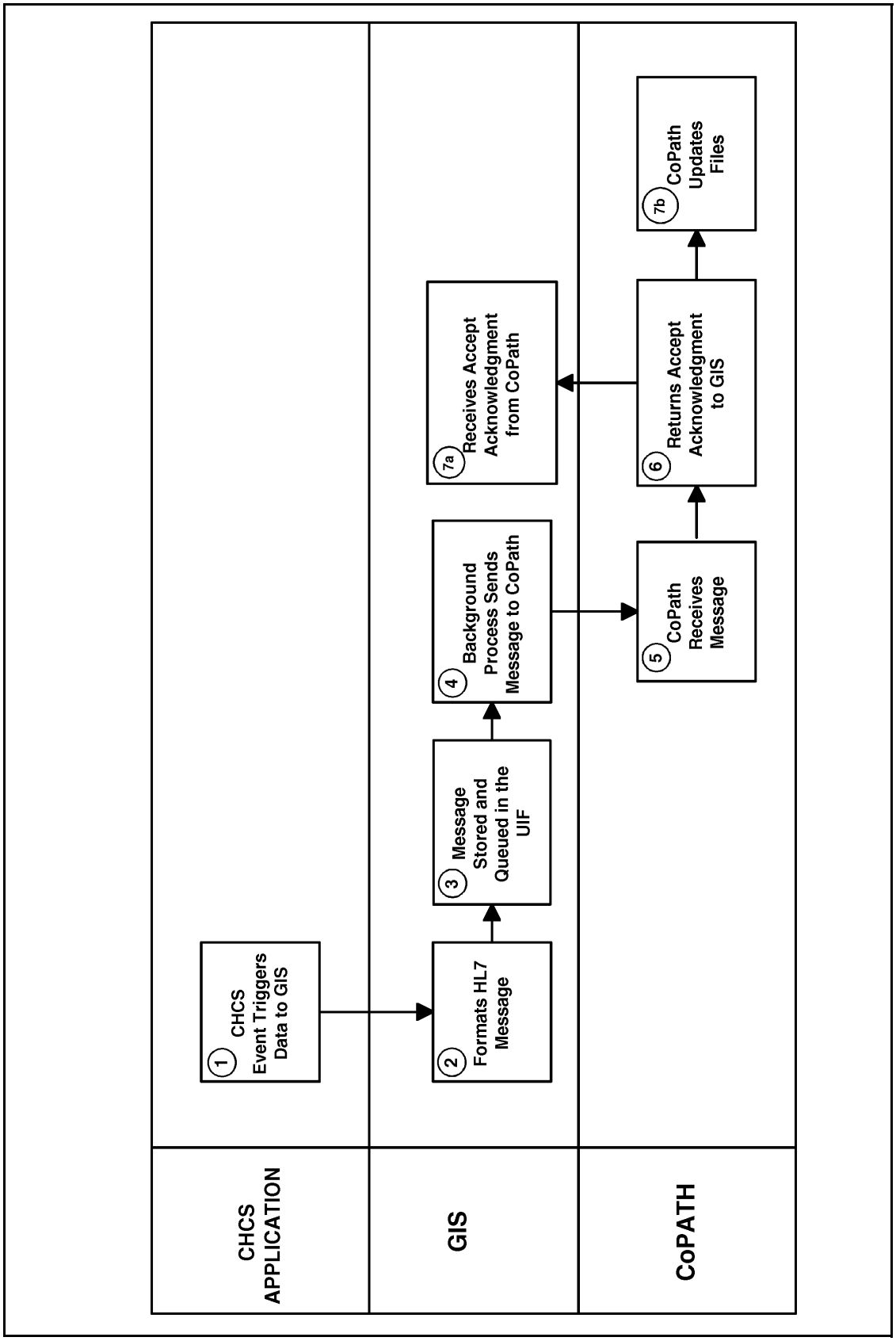


Figure 11-2. Message Flow from CHCS to CoPath

* Reactivated order
* Discontinued order
* Cancelled order.

Any of these events in CHCS triggers an HL7 message to the CoPath system.

2. The GIS formats an HL7 message.
3. The GIS stores the HL7 message in the Universal Interface File (UIF) and requests it on the CoPath destination queue.
4. A GIS background process (transmitter) sends the HL7 message to the CoPath server.
5. CoPath receives the message from the GIS.
6. The CoPath interface returns the accept acknowledgment message to the GIS.

7a. The GIS receives the accept acknowledgment message from CoPath.

7b. The CoPath server updates the CoPath files.

This procedure is repeated automatically for every interface message sent to CoPath from CHCS.

Discuss AP Specimen Processing Messages

The accession number is the primary functional identifier for the CHCS users to track specimens on CHCS. It consists of a date, accession area, and sequentially assigned number.

When specimens are processed on the CoPath system, CoPath assigns the specimen a prefix (similar to an accession area), year, and sequential identification number (ex., S97-234). This information is transmitted to CHCS, in addition to all other information relevant to the accessioned specimen. The CoPath specimen identification and the CHCS Lab Accession Area Map file are used to map the specimen identification to a specific accession area/number on CHCS.

The CHCS interface software verifies the content of the message and updates the relevant CHCS files with no manual user interaction.

Discuss AP Result Processing Messages

All certified and amended results are sent from CoPath to CHCS as soon as they are signed out on the CoPath system. CHCS verifies the content of the message and updates the relevant CHCS files with the certified or amended result. Results are updated on CHCS with no manual user interaction.

CoPath users can designate results as priority results during the sign-out process. Priority and certified result notifications continue to be automatically generated and printed from CHCS when results are received and processed through CHCS functionality.

Discuss Interface Process for Inbound HL7 Messages

- Refer to Figure 11-3: Message Flow from CoPath to CHCS.

  1. Inbound HL7 messages are sent from CoPath to CHCS for the following events:

     – Specimen Processing Message: Specimens are assigned a CHCS accession number.

     – AP Result Messages: Signed out results.

  2. CoPath formats an HL7 message.

  3. CoPath sends the HL7 message to the CHCS GIS.

  4. The GIS receiver stores and queues the HL7 message in the CHCS UIF and queues on the output controller queue.

  5. The GIS returns the accept acknowledgment to the CoPath system, acknowledging the receipt of the message.

  6. CoPath receives the accept acknowledgment from GIS.

  7. The GIS output controller translates the messages from HL7 format to CHCS database format.

  8. The GIS enables the CHCS database to update the CHCS files.

  9. The GIS creates the application acknowledgment message and queues it on the CoPath destination queue. An application acknowledgment is sent only after the received message is processed.

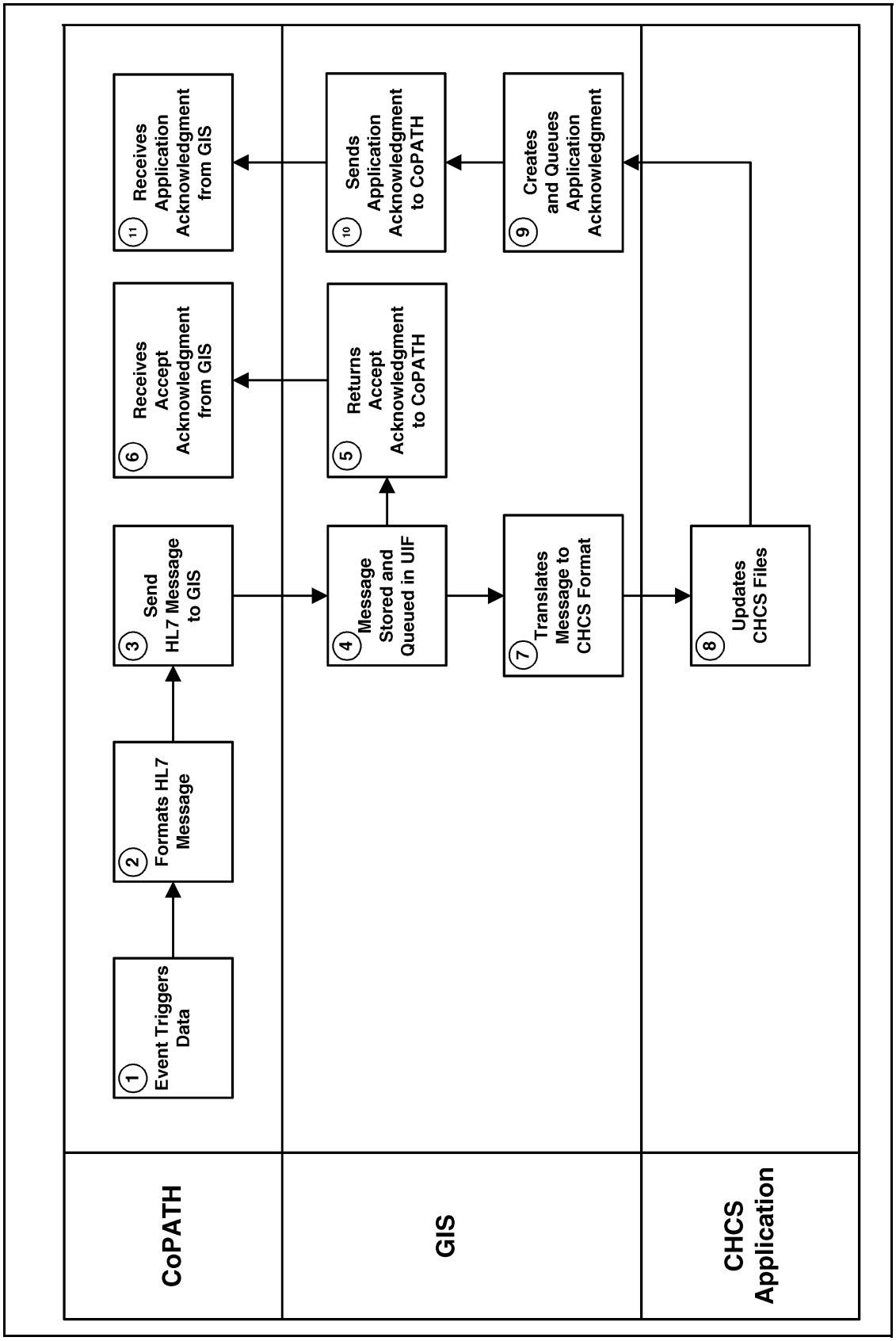


Figure 11-3. Message Flow from CoPath to CHCS

10. The GIS transmitter sends the application acknowledgment to CoPath.

    An application level acknowledgment is sent from CHCS to CoPath in the event the specimen cannot be accessioned on CHCS or results cannot be successfully processed. An error is logged in the GIS for later resolution.

11. CoPath receives the application acknowledgment from GIS.

This procedure is repeated automatically for every interface message sent to CHCS from CoPath.

Discuss Update of CHCS Files

CHCS files that are updated when data is received from CoPath include:

- Lab Result file (#63)
- Accession file (#66)
- Order file (#101)
- Order Task file (#107)
- PLI Central Info file (#8738)
- CPT Workload file (#8717)
- Lab MEPRS Data file (#64.3)
- Lab Workload Data file (#64.2)
- Accession Area file (#68)
- Review New Results file (#8273)
- SP Accession file (#8902)
- Lab CUM Queue (#65.5).

CHCS files used to populate the HL7 messages include:

- Order file (#101)
- Patient file (#2).

No lab files are updated once control is passed to the GIS.

Practice 1 - Identify the components of the CoPath interface.

PRACTICE GUIDELINES

The information you need to complete each practice is supplied in the instructions and scenarios.

Notify the presenter when directed to do so in the practice. This allows the presenter to verify that you have successfully completed an activity.

You may use any reference materials available in the classroom to complete your practices.

You may ask questions or request assistance at any time during the practices.

Device identifiers are site-specific, and will be provided by the presenter.

The practices for this class must be completed in the order in which they are presented. Please complete all parts of each practice before proceeding.

Students 1-10

Practice 1 - Identify the components of the CoPath interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Answer the following questions.

1. What is the purpose of an accession number?

   _____

   _____

   _____

2. What protocol do CHCS and the CoPath system use to communicate?

   _____

   _____

   _____

3. What three events in CHCS trigger HL7 messages to the CoPath system?

   _____

   _____

   _____

4. What two events in CoPath trigger HL7 messages to CHCS?

   _____

   _____

Notify the presenter when you have completed this practice.

■ Objective 2: MANAGE THE COPATH INTERFACE

Scenario: *The TMSSC has asked you to check on some specific interface parameters and an interface message that may be related to a problem with CoPath.*

DISCUSS COPATH CONFIGURATION PARAMETERS

The following must be in place before CoPath interface messages can be sent by the GIS interface:

– An entry must exist in the Interface Destination file for the APCOTS interface.

– The client address and IP port must be entered in the Background Process Control file for the APCOTS transmitter and receiver processes.

– The background processes and transaction types associated with the APCOTS interface must be activated.

– The following background processes must be running: Format Controller, Output Controller, and Anatomic Pathology receiver and transmitter.

▲ DEMONSTRATE HOW TO DISPLAY THE APCOTS BACKGROUND PROCESS

To display the outbound background process:

1. Log on to CHCS.

Username:	**[site username]**	Access:	**INTUSER**
Password:	**[site password]**	Verify:	**INTUSERV**
Area:	**A**		

2. Access the Inquire Background Process (IBP) option on the Backgroung Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → IBP

3. Select a background process to display.

   Select BACKGROUND PROCESS: **ANATOMIC PATHOLOGY TRANSMITTER**

4. Send the output to your screen.

5. Review the parameters for this background process.

- Refer to Figure 11-4: Inquire to a Background Process - Anatomic Pathology Transmitter.

```
 Process Name: ANATOMIC PATHOLOGY TRANSMITTER
   Active/Inactive: ACTIVE         Routine: INHVTAPT
          Priority:                 Device:
     Client/Server: CLIENT                Server IP Port

     Client IP Address                    Client IP Port
       212.20.20.20                         2001

--------------------------- Parameters ------------------------------
    Open Hang Time:           Open Retries:
    Send Hang Time: 1         Send Retries:          Send Timeout:
    Read Hang Time:           Read Retries:         Rec'v Timeout:
  Transmitter Hang:
       End of Line:
       Init String: 28
     Init Response:
-----------------------------------------------------------------------

Status                     $JOB     Last Run Update        Last Started
Appears to be NOT running

Errors:
   Date/Time           Error
```

FM-00720

Figure 11-4. Inquire to a Background Process - Anatomic Pathology Transmitter

Discuss the Display

The page displays the Background Process Control file:

- **Active/Inactive.** The process status, either Active or Inactive
- **Routine.** Name of the routine that this process runs**.**
- **Client/Server**. Whether the process should be opened as a client or a server.
- **Client IP Address**. If this process is opened as a client, this is the IP address used when this process opens a Transmission Control Protocol (TCP) socket to the remote system.
- **Client IP Ports**. If this process is opened as a client, this is the IP port number on the remote system to which this process connects.

6. Return to the Interface Menu.

   Press **<F10>** to exit the display.

   Select BACKGROUND PROCESS: **<Return> <Return>**

▲ DEMONSTRATE HOW TO DISPLAY AN APCOTS INTERFACE MESSAGE

1. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

2. Select the interface message.

   Select INTERFACE MESSAGE: **trn321**

3. Send the output to your screen.

   The interface message record displays.

   Press <RETURN> to continue, or "^" to stop **<Return>**

- Refer to Figure 11-5: APCOTS Interface Message.

```
Date/Time: 21 Jun 2001@160219  Msg ID: trn321                    Seq#:
       Destination: ANATOMIC PATHOLOGY
            Status: NEW
       Direction: OUT    Priority: 0  Time to Process: 21 Jun 2001@1602
   Incoming Msg ID:
 Parent Message ID:
 Orig. Transaction: HL DG UPDATE PATIENT OUT (AP)
            Source:
 Acknowledge Req'd: NO    Accept ACK Msg ID:
                          Applic ACK Msg ID:

     # of Attempts:          Last Attempt Date/Time:
         Edited by:

MESSAGE TEXT:
MSH^\|~&^CHCS\ADT^8888^^^20010621124000^^ADT\A08^trn321^P^2.2^^^AL^AL
EVN^A08^20010620074100^^
PID^1^^3915\\\8888^20/100-10-
7430^NASCO\EARL\E\\\^^19560203000000^M^^C^345 LINC
OLN AVENUE\\BALTIMORE\MARYLAND\21201\\\^^(410) 555-6825^(202)
555-6700^^S^CND^^
100-10-7430^^^^^^^^4105\USA ACTIVE DUTY OFFICER\99PAT\\\
NK1^1^NASCO\EMMA\\\\^MOP^128 VALLEY DRIVE\\TAMPA\FLORIDA\33618^(813)
555-0836
```

FM-00723

Figure 11-5. APCOTS Interface Message

Discuss the Interpretation of Interface Messages

You can decipher the information contained in the message text portion of the message. Each portion of the message text is divided into data elements called segments, and each segment is divided into pieces which are separated by a caret (^).

For example, 'MSH' is the message header and states the control segment of the message. The sending application is 'CHCS/ADT.' The message type and event type are 'ADT\A08.' The message ID number is 'trn321,' and the HL7 version is '2.2'.

The patient identification (PID) segment contains patient information.

- Refer to CHCS HL7 Implementation Specification for CHCS, for more information about interpreting HL7 messages.

4. Return to the Interface Menu.

   Select INTERFACE MESSAGE: **<Return>**

   Select Transaction Control Menu Option: **<Return>**

DISCUSS APCOTS TROUBLESHOOTING PROCEDURES

The CHCS application software verifies the content of the HL7 messages received from the CoPath system before attempting to update the CHCS database. Negative application-level acknowledgments are generated by CHCS when accession and result messages are received from the CoPath system and CHCS is unable to process the message due to application processing rules.

Use standard operating procedures to check the status of APCOTS and ensure messages are transmitted properly. Operators should follow these procedures to check the CHCS/CoPath system link:

- Refer to Module 5 - Manage GIS, for discussion of processing queues and verification.

– Check the APCOTS message queue from the Queue Size option on the Background Process Menu.

  * If the number of messages in the APCOTS Transmitter queue is growing, check if messages are processing.

– Verify APCOTS status using the Top Entries in Queue option on the Background Process Menu.

* If the 'Message ID' numbers are changing in the queue, APCOTS is accepting CHCS messages.

* If the 'Message ID' numbers are not changing in the queue, troubleshoot the APCOTS interface.

Discuss APCOTS Problem Troubleshooting

Troubleshooting APCOTS may involve checking all five components of the interface.

– Layered operating system products (CHCS and CoPath machine)

– CHCS application software

– CHCS AP interface software

– CoPath AP application software

– CoPath AP interface software.

Most problems, however, are caused by data entry errors in the CHCS application software.

Discuss Problem Categories

The following are the most common types of APCOTS problems:

– Proper authorization missing from data

– Unresolved file pointers

– Accession area errors.

1. Proper Authorization Missing

Health care providers (HCPs) must have an entry in the Provider ID field of the Provider file. Although this is a required entry in CHCS, this field may be <null> for new sites starting up following a database conversion. The following error messages appear in the Interface Error file when proper authorization is missing from data processed by CoPath:

1.1 "**HCP does not have the signature class for the order type**"

The HCP must have the proper signature class defined in the Order Type file. The error may be caused by incorrect provider or missing signature class.

The software specialist should confirm with credentialling whether the HCP has proper signature class defined for the Lab Order Type.

Once resolved, the accession/ result message must be retransmitted to CHCS.

1.2 "**Provider class is invalid or missing**"

The HCP must have the proper provider class defined in the Provider file. The error may be caused by incorrect provider or provider class.

The software specialist should confirm with credentialling whether the HCP has proper provider class defined in the Provider file.

Once resolved, the accession/result message must be retransmitted to CHCS.

1.3 "**Signature class is invalid or missing**"

The provider should have the proper signature class defined in the Provider file. The error may be caused by incorrect provider or missing signature class.

The system defaults to nurse signature class. The order needs to be signed by a physician.

The software specialist should confirm with credentiallingwhether the HCP has proper signature class defined in the Provider file.

1.4 "**Provider is not authorized to write an order**"

The provider should have the proper signature class defined in the Provider file. The error may be caused by incorrect provider or missing signature class.

The accession/result message must be retransmitted to CHCS.

The software specialist should confirm with credentialling whether the HCP has proper signature class defined in the Provider file.

1.5 "Provider is not authorized to order the test"

The provider should have the proper authorization key in the Provider file. The error may be caused by incorrect provider or missing security key.

The software specialist should confirm with credentialling whether the HCP has the proper authorization key defined in the Provider file.

Once resolved, the accession/result message must be retransmitted to CHCS.

2. Unresolved File Pointers

Master files and patients should not be entered directly on CoPath. Conversely, master files and patients must not be deleted from the CoPath database.

CHCS is unable to resolve file pointers when an entry is:

- Manually added to the CoPath dictionaries
- Added to User, Hospital Location, and Provider files AND notification is not sent to CoPath
- Deleted from the aforementioned files.

The following error messages appear in the Interface Error file as a result of unresolved file pointers:

2.1 "Order Entered By is Undefined"

CHCS is unable to resolve the User file pointer because:

- An entry was manually added to the CoPath Employee dictionary
- An entry was added to the CHCS User file and notification was not sent to CoPath
- An entry was deleted from the CHCS User file.

The site manager should verify that the mapping between the CoPath Employee dictionary and CHCS User file are accurate.

New entries to the User file must be transmitted to CoPath.

The site manager must retransmit the message to CHCS.

2.2 "Order Verified By is Undefined"

CHCS is unable to resolve the User file pointer because:

– An entry was manually added to the CoPath Employee dictionary

– An entry was added to the CHCS User file and notification was not sent to CoPath

– An entry was deleted from the CHCS User file.

The site manager should verify that the mapping between the CoPath Employee dictionary and CHCS User file are accurate.

New entries to the User file must be transmitted to CoPath.

The accession/result message must be retransmitted to CHCS.

The absence of data in the HL AP LOGIN/RESULT message may also cause this error.

Contact the TMSSC for resolution.

Similar unresolved file pointer errors appear for changes made to the Hospital Location and Provider files.

2.3 "Lab Test is Undefined"

This error may be caused by one of the following conditions:

– Absence of Order Details data (OBR-4 segment) in the Order Entry Message

– CHCS is unable to resolve the Lab Test file pointer.

If data is absent from the Order Details data (OBR-4 segment) in the Order Entry Message, contact the TMSSC to verify the accuracy of the incoming message and provide resolution.

If CHCS is unable to resolve the Lab Test file pointer, the lab supervisor should verify that the Lab Test file contains the following Lab Tests and subscripts:

AU - Autopsy

BM - Bone Marrow

CG - Cytologic GYN

CN - Cytologic Non-GYN

SP - Tissue Exam

After corrective action is taken, the accession/result message must be retransmitted to CHCS.

- Refer to Reference Materials, Table 11-1: Interface Exception Codes, for a listing of exception codes and their resolution.

3. Accession Area Errors

CoPath does not utilize accession areas. Prefixes are assigned to each specimen which distinguish one AP test from another on the CoPath system. In order for accession numbers to be tracked on CHCS, the CHCS lab users designate an accession area on CHCS for each AP subscript.

The following required fields on CoPath must be populated during accessioning:

– Hospital Location

– Attending Physician

– Service (MEPRS)

– Priority.

Note that these required fields are in the same CHCS master files used by CoPath to update its database.

The following error messages appear in the Interface Error file as a result of accession area errors:

3.1 "Accession Area is Undefined"

This error results from the failure of CHCS to link the incoming CoPath specimen identification with a valid accession area or Lab Work Element.

Lab must verify that a CHCS accession area exists with the same abbreviation as the CoPath prefix.

The accession/result message must be retransmitted to CHCS.

3.2 "Work Element is Undefined"

This error results from the failure of CHCS to link the incoming CoPath specimen identification with a valid accession area or Lab Work Element.

Lab must verify that a work element has been defined for the accession area.

The accession/result message must be retransmitted to CHCS.

3.3 "Unable to Enter Results - No Accession on File"

This error is caused by the failure of CHCS to locate the assigned accession number in the Accession file.

The lab manager must verify that the assigned accession number exists in the Accession Name cross-reference of the Accession file.

Once resolved, retransmit the accession/result message to CHCS.

Practice 2 - Manage the CoPath interface.

PRACTICE

Student 1

Username:	**[site username]**	Access:	**INTUSERA**
Password:	**[site password]**	Verify:	**INTUSERAV**
Area:	**A**		

Practice 2 - Manage the CoPath interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *The TMSSC has asked you to check on specific interface parameters that may be related to a problem with the CoPath interface. Display the inbound and outbound background process, then display an interface message.*

a. Display the Inbound Background Process

1. Access the Inquire Background Process (IBP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → IBP

2. Select a background process to display.

   Select BACKGROUND PROCESS: **ANATOMIC PATHOLOGY RECEIVER**

3. Review the parameters for this background process.

Notify the presenter when the background process is displayed on your terminal.

4. Press **<F10>** to exit the display and **<Return>** to the File and Table Menu.

b. Display the Outbound Background Process

5. Access the Inquire Background Process (IBP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → IBP

Student 1 (continued)

6. Select a background process to display.

   Select BACKGROUND PROCESS: **ANATOMIC PATHOLOGY TRANSMITTER**

7. Review the parameters for this background process.

Notify the presenter when the background process is displayed on your terminal.

8. Press **<F10>** to exit the display and **<Return>** twice to return to the Interface Menu.

9. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

10. Select the interface message.

    Select INTERFACE MESSAGE: **trn338**

11. Send the output to your screen.

    DEVICE: **<Return>**

    RIGHT MARGIN: 80//: **<Return>**

Notify the presenter when the UIF message is displayed on your terminal.

12. Return to the Interface Menu.

Notify the presenter when you have completed this practice.

Student 2

Username:	**[site username]**	Access:	**INTUSERB**
Password:	**[site password]**	Verify:	**INTUSERBV**
Area:	**A**		

Practice 2 - Manage the CoPath interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *The TMSSC has asked you to check on specific interface parameters that may be related to a problem with the CoPath interface. Display the inbound and outbound background process, then display an interface message.*

a. Display the Inbound Background Process

1. Access the Inquire Background Process (IBP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → IBP

2. Select a background process to display.

   Select BACKGROUND PROCESS: **ANATOMIC PATHOLOGY RECEIVER**

3. Review the parameters for this background process.

Notify the presenter when the background process is displayed on your terminal.

4. Press **<F10>** to exit the display and **<Return>** to the File and Table Menu.

b. Display the Outbound Background Process

5. Access the Inquire Background Process (IBP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → IBP

Student 2 (continued)

6. Select a background process to display.

   Select BACKGROUND PROCESS: **ANATOMIC PATHOLOGY TRANSMITTER**

7. Review the parameters for this background process.

Notify the presenter when the background process is displayed on your terminal.

8. Press **<F10>** to exit the display and **<Return>** twice to return to the Interface Menu.

9. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

10. Select the interface message.

    Select INTERFACE MESSAGE: **trn339**

11. Send the output to your screen.

    DEVICE: **<Return>**

    RIGHT MARGIN: 80//: **<Return>**

Notify the presenter when the UIF message is displayed on your terminal.

12. Return to the Interface Menu.

Notify the presenter when you have completed this practice.

Student 3

Username:	**[site username]**	Access:	**INTUSERC**
Password:	**[site password]**	Verify:	**INTUSERCV**
Area:	**A**		

Practice 2 - Manage the CoPath interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *The TMSSC has asked you to check on specific interface parameters that may be related to a problem with the CoPath interface. Display the inbound and outbound background process, then display an interface message.*

a. Display the Inbound Background Process

1. Access the Inquire Background Process (IBP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → IBP

2. Select a background process to display.

   Select BACKGROUND PROCESS: **ANATOMIC PATHOLOGY RECEIVER**

3. Review the parameters for this background process.

Notify the presenter when the background process is displayed on your terminal.

4. Press **<F10>** to exit the display and **<Return>** to the File and Table Menu.

b. Display the Outbound Background Process

5. Access the Inquire Background Process (IBP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → IBP

Student 3 (continued)

6. Select a background process to display.

   Select BACKGROUND PROCESS: **ANATOMIC PATHOLOGY TRANSMITTER**

7. Review the parameters for this background process.

Notify the presenter when the background process is displayed on your terminal.

8. Press **<F10>** to exit the display and **<Return>** twice to return to the Interface Menu.

9. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

10. Select the interface message.

    Select INTERFACE MESSAGE: **trn341**

11. Send the output to your screen.

    DEVICE: **<Return>**

    RIGHT MARGIN: 80//: **<Return>**

Notify the presenter when the UIF message is displayed on your terminal.

12. Return to the Interface Menu.

Notify the presenter when you have completed this practice.

Student 4

Username:	**[site username]**	Access:	**INTUSERD**
Password:	**[site password]**	Verify:	**INTUSERDV**
Area:	**A**		

Practice 2 - Manage the CoPath interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *The TMSSC has asked you to check on specific interface parameters that may be related to a problem with the CoPath interface. Display the inbound and outbound background process, then display an interface message.*

a. Display the Inbound Background Process

1. Access the Inquire Background Process (IBP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → IBP

2. Select a background process to display.

   Select BACKGROUND PROCESS: **ANATOMIC PATHOLOGY RECEIVER**

3. Review the parameters for this background process.

Notify the presenter when the background process is displayed on your terminal.

4. Press **<F10>** to exit the display and **<Return>** to the File and Table Menu.

b. Display the Outbound Background Process

5. Access the Inquire Background Process (IBP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → IBP

Student 4 (continued)

6. Select a background process to display.

   Select BACKGROUND PROCESS: **ANATOMIC PATHOLOGY TRANSMITTER**

7. Review the parameters for this background process.

Notify the presenter when the background process is displayed on your terminal.

8. Press **<F10>** to exit the display and **<Return>** twice to return to the Interface Menu.

9. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

10. Select the interface message.

    Select INTERFACE MESSAGE: **trn362**

11. Send the output to your screen.

    DEVICE: **<Return>**

    RIGHT MARGIN: 80//: **<Return>**

Notify the presenter when the UIF message is displayed on your terminal.

12. Return to the Interface Menu.

Notify the presenter when you have completed this practice.

Student 5

Username:	**[site username]**	Access:	**INTUSERE**
Password:	**[site password]**	Verify:	**INTUSEREV**
Area:	**A**		

Practice 2 - Manage the CoPath interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *The TMSSC has asked you to check on specific interface parameters that may be related to a problem with the CoPath interface. Display the inbound and outbound background process, then display an interface message.*

a. Display the Inbound Background Process

1. Access the Inquire Background Process (IBP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → IBP

2. Select a background process to display.

   Select BACKGROUND PROCESS: **ANATOMIC PATHOLOGY RECEIVER**

3. Review the parameters for this background process.

Notify the presenter when the background process is displayed on your terminal.

4. Press **<F10>** to exit the display and **<Return>** to the File and Table Menu.

b. Display the Outbound Background Process

5. Access the Inquire Background Process (IBP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → IBP

Student 5 (continued)

6. Select a background process to display.

   Select BACKGROUND PROCESS: **ANATOMIC PATHOLOGY TRANSMITTER**

7. Review the parameters for this background process.

Notify the presenter when the background process is displayed on your terminal.

8. Press **<F10>** to exit the display and **<Return>** twice to return to the Interface Menu.

9. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

10. Select the interface message.

    Select INTERFACE MESSAGE: **trn363**

11. Send the output to your screen.

    DEVICE: **<Return>**

    RIGHT MARGIN: 80//: **<Return>**

Notify the presenter when the UIF message is displayed on your terminal.

12. Return to the Interface Menu.

Notify the presenter when you have completed this practice.

Student 6

Username:	**[site username]**	Access:	**INTUSERF**
Password:	**[site password]**	Verify:	**INTUSERFV**
Area:	**A**		

Practice 2 - Manage the CoPath interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *The TMSSC has asked you to check on specific interface parameters that may be related to a problem with the CoPath interface. Display the inbound and outbound background process, then display an interface message.*

a. Display the Inbound Background Process

1. Access the Inquire Background Process (IBP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → IBP

2. Select a background process to display.

   Select BACKGROUND PROCESS: **ANATOMIC PATHOLOGY RECEIVER**

3. Review the parameters for this background process.

Notify the presenter when the background process is displayed on your terminal.

4. Press **<F10>** to exit the display and **<Return>** to the File and Table Menu.

b. Display the Outbound Background Process

5. Access the Inquire Background Process (IBP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → IBP

Student 6 (continued)

6. Select a background process to display.

   Select BACKGROUND PROCESS: **ANATOMIC PATHOLOGY TRANSMITTER**

7. Review the parameters for this background process.

Notify the presenter when the background process is displayed on your terminal.

8. Press **<F10>** to exit the display and **<Return>** twice to return to the Interface Menu.

9. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

10. Select the interface message.

    Select INTERFACE MESSAGE: **trn365**

11. Send the output to your screen.

    DEVICE: **<Return>**

    RIGHT MARGIN: 80//: **<Return>**

Notify the presenter when the UIF message is displayed on your terminal.

12. Return to the Interface Menu.

Notify the presenter when you have completed this practice.

Student 7

Username:	**[site username]**	Access:	**INTUSERG**
Password:	**[site password]**	Verify:	**INTUSERGV**
Area:	**A**		

Practice 2 - Manage the CoPath interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *The TMSSC has asked you to check on specific interface parameters that may be related to a problem with the CoPath interface. Display the inbound and outbound background process, then display an interface message.*

a. Display the Inbound Background Process

1. Access the Inquire Background Process (IBP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → IBP

2. Select a background process to display.

   Select BACKGROUND PROCESS: **ANATOMIC PATHOLOGY RECEIVER**

3. Review the parameters for this background process.

Notify the presenter when the background process is displayed on your terminal.

4. Press **<F10>** to exit the display and **<Return>** to the File and Table Menu.

b. Display the Outbound Background Process

5. Access the Inquire Background Process (IBP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → IBP

Student 7 (continued)

6. Select a background process to display.

   Select BACKGROUND PROCESS: **ANATOMIC PATHOLOGY TRANSMITTER**

7. Review the parameters for this background process.

Notify the presenter when the background process is displayed on your terminal.

8. Press **<F10>** to exit the display and **<Return>** twice to return to the Interface Menu.

9. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

10. Select the interface message.

    Select INTERFACE MESSAGE: **trn386**

11. Send the output to your screen.

    DEVICE: **<Return>**

    RIGHT MARGIN: 80//: **<Return>**

Notify the presenter when the UIF message is displayed on your terminal.

12. Return to the Interface Menu.

Notify the presenter when you have completed this practice.

Student 8

Username:	**[site username]**	Access:	**INTUSERH**
Password:	**[site password]**	Verify:	**INTUSERHV**
Area:	**A**		

Practice 2 - Manage the CoPath interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *The TMSSC has asked you to check on specific interface parameters that may be related to a problem with the CoPath interface. Display the inbound and outbound background process, then display an interface message.*

a. Display the Inbound Background Process

1. Access the Inquire Background Process (IBP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → IBP

2. Select a background process to display.

   Select BACKGROUND PROCESS: **ANATOMIC PATHOLOGY RECEIVER**

3. Review the parameters for this background process.

Notify the presenter when the background process is displayed on your terminal.

4. Press **<F10>** to exit the display and **<Return>** to the File and Table Menu.

b. Display the Outbound Background Process

5. Access the Inquire Background Process (IBP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → IBP

Student 8 (continued)

6. Select a background process to display.

   Select BACKGROUND PROCESS: **ANATOMIC PATHOLOGY TRANSMITTER**

7. Review the parameters for this background process.

Notify the presenter when the background process is displayed on your terminal.

8. Press **<F10>** to exit the display and **<Return>** twice to return to the Interface Menu.

9. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

10. Select the interface message.

    Select INTERFACE MESSAGE: **trn388**

11. Send the output to your screen.

    DEVICE: **<Return>**

    RIGHT MARGIN: 80//: **<Return>**

Notify the presenter when the UIF message is displayed on your terminal.

12. Return to the Interface Menu.

Notify the presenter when you have completed this practice.

Student 9

Username:	**[site username]**	Access:	**INTUSERI**
Password:	**[site password]**	Verify:	**INTUSERIV**
Area:	**A**		

Practice 2 - Manage the CoPath interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *The TMSSC has asked you to check on specific interface parameters that may be related to a problem with the CoPath interface. Display the inbound and outbound background process, then display an interface message.*

a. Display the Inbound Background Process

1. Access the Inquire Background Process (IBP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → IBP

2. Select a background process to display.

   Select BACKGROUND PROCESS: **ANATOMIC PATHOLOGY RECEIVER**

3. Review the parameters for this background process.

Notify the presenter when the background process is displayed on your terminal.

4. Press **<F10>** to exit the display and **<Return>** to the File and Table Menu.

b. Display the Outbound Background Process

5. Access the Inquire Background Process (IBP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → IBP

Student 9 (continued)

6. Select a background process to display.

   Select BACKGROUND PROCESS: **ANATOMIC PATHOLOGY TRANSMITTER**

7. Review the parameters for this background process.

Notify the presenter when the background process is displayed on your terminal.

8. Press **<F10>** to exit the display and **<Return>** twice to return to the Interface Menu.

9. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

10. Select the interface message.

    Select INTERFACE MESSAGE: **trn392**

11. Send the output to your screen.

    DEVICE: **<Return>**

    RIGHT MARGIN: 80//: **<Return>**

Notify the presenter when the UIF message is displayed on your terminal.

12. Return to the Interface Menu.

Notify the presenter when you have completed this practice.

Student 10

Username:	**[site username]**	Access:	**INTUSERJ**
Password:	**[site password]**	Verify:	**INTUSERJV**
Area:	**A**		

Practice 2 - Manage the CoPath interface.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *The TMSSC has asked you to check on specific interface parameters that may be related to a problem with the CoPath interface. Display the inbound and outbound background process, then display an interface message.*

a. Display the Inbound Background Process

1. Access the Inquire Background Process (IBP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → IBP

2. Select a background process to display.

   Select BACKGROUND PROCESS: **ANATOMIC PATHOLOGY RECEIVER**

3. Review the parameters for this background process.

Notify the presenter when the background process is displayed on your terminal.

4. Press **<F10>** to exit the display and **<Return>** to the File and Table Menu.

b. Display the Outbound Background Process

5. Access the Inquire Background Process (IBP) option on the Background Process Control Menu.

   Systems Manager Menu (EVE) → SM → INT → GIS → BPM → IBP

Student 10 (continued)

6. Select a background process to display.

   Select BACKGROUND PROCESS: **ANATOMIC PATHOLOGY TRANSMITTER**

7. Review the parameters for this background process.

Notify the presenter when the background process is displayed on your terminal.

8. Press **<F10>** to exit the display and **<Return>** twice to return to the Interface Menu.

9. Access the Inquire into Universal Interface File (IUIF) option on the Transaction Control Menu.

   Systems Manager Menu (EVE) → SM → INT → **GIS** → TCM → IUIF

10. Select the interface message.

    Select INTERFACE MESSAGE: **trn410**

11. Send the output to your screen.

    DEVICE: **<Return>**

    RIGHT MARGIN: 80//: **<Return>**

Notify the presenter when the UIF message is displayed on your terminal.

12. Return to the Interface Menu.

Notify the presenter when you have completed this practice.

III. CLOSURE

Do you have any questions about the concepts covered in this Module 11 - Manage the CoPath Interface?

In summary, the following content was presented:

– Identifying the components of the CoPath interface.

– Managing the CoPath interface.

This concludes Module 11. You now have the opportunity to demonstrate proficiency in the topics or skills presented.

Following the Master Practice, there will be a 10-minute break.

Thank you for attending.

Master Practice - Module 11.

SYS: CHCS INTERFACE MANAGEMENT

Module 11 - Manage the CoPath Interface

Section 2. Master Practice

MASTER PRACTICE GUIDELINES

This Master Practice enables the presenter to verify that you have successfully completed the objectives for this class.

The information you need to complete the Master Practice is supplied in the instructions and scenarios.

You may use any reference materials available in the classroom to complete the Master Practice.

Device identifiers are site-specific, and will be provided by the presenter.

Unless otherwise directed by the presenter, please work alone to complete the Master Practice.

Notify the presenter when directed to do so in the Master Practice. This allows the presenter to verify that you have successfully completed an activity.

Information is only specified for those fields and prompts which require specific data entry. To advance past fields/prompts which are not specified, enter data you know to be correct, or press <Return>.

The components of the Master Practice should be completed in the order in which they are presented.

You have approximately 15 minutes to complete this Master Practice.

SYS: CHCS INTERFACE MANAGEMENT

Module 11 - Manage the CoPath Interface

Students 1-10

Scenario 1 - Manage the CoPath interface.

INSTRUCTIONS: Answer the following questions.

1. What protocol is used to exchange messages between CHCS and CoPath?

   _____

2. What type(s) of acknowledgments are exchanged with CoPath?

   _____

3. Where does the GIS store and queue the HL7 messages?

   _____

4. Which messages can be transmitted and received by both CHCS and CoPath?

   _____

   _____

   _____

   _____

   _____

5. For the CoPath interface message to be sent by the GIS interface, what two parameters must be entered in the Background Process Control file for the transmitter process?

   _____

SYS: CHCS INTERFACE MANAGEMENT

Module 11 - Manage the CoPath Interface

Scenario 1 (continued)

6. What must be activated before messages can be sent to CoPath by the GIS interface?

   _____

   _____

7. What background processes must be running before a test request can be sent to CoPath by the GIS interface?

   _____

   _____

   _____

8. What are two of the three most common troubleshooting problems?

   _____

   _____

   _____

   _____

Notify the presenter when you are done.

SYS: CHCS INTERFACE MANAGEMENT

Module 11 - Manage the CoPath Interface

Section 3. Reference Materials

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Table 11-1. Interface Exception Codes

Exception Code	Exception message	Possible Cause	Recommended Solution	Resolution Needed By
LRAP02	Order Entered By is Undefined	This error would be caused by one of the following conditions: 1.absence of data in the ORC-10 segment of the HL AP LOGIN/ RESULT message. 2.CHCS is unable to resolve the User File pointer because a) an entry was manually added to the CoPath Employee dictionary, or b) an entry was added to the CHCS User File and notification was not sent to CoPath, or c) an entry was deleted from the CHCS User File.	If condition 1 exists, the TMSSC should be contacted to verify the accuracy of the accession/-result message. If condition 2 exists, the Site Manager (or designee) should verify that the mapping between the CoPath Employee dictionary and CHCS User file are accurate. New entries to the User file must be transmitted to CoPath. The Site Manager or TMSSC must re-transmit the message to CHCS.	TMSSC CHCS Site Manager
LRAP03	Order Verified By is Undefined	This error would be caused by one of the following conditions: 1.absence of data in the ORC-11 segment of the HL AP LOGIN/ RESULT message. 2.CHCS is unable to resolve the User File pointer because a) an entry was manually added to the CoPath Employee dictionary, or b) an entry was added to the CHCS User File and notification was not sent to CoPath, or c) an entry was deleted from the CHCS User File.	If condition 1 exists, the TMSSC should be contacted to verify the accuracy of the accession/-result message. If condition 2 exists, the Site Manager (or designee) should verify that the mapping between the CoPath Employee dictionary and CHCS User file are accurate. New entries to the User File must be transmitted to CoPath. The accession/result message must be re-transmitted to CHCS.	TMSSC CHCS Site Manager

Table 11-1. Interface Exception Codes (continued)

Exception Code	Exception message	Possible Cause	Recommended Solution	Resolution Needed By
LRAP04	Requesting Location is Undefined	This error would be caused by one of the following conditions: 1.absence of data in the ORC-13 segment of the HL AP LOGIN/ RESULT message. 2.CHCS is unable to resolve the Hospital Location File pointer because a) an entry was manually added to the CoPath Location dictionary, or b) an entry was added to the CHCS Hospital Location File and notification was not sent to CoPath, or c) an entry was deleted from the CHCS Hospital Location File.	If condition 1 exists, the Lab should re-enter the requesting location on the CoPath system and re-transmit the accession/result message to CHCS. If condition 2 exists, the Site Manager (or designee) should verify that the mapping between the CoPath Specimen Location dictionary and Hospital Location File are accurate. New hospital locations added to CHCS must be re-transmitted to CoPath. The Site Manager must re-transmit the accession/result message to CHCS.	LAB CHCS Site Manager
LRAP05	Order Start Date/Time is Missing	This error would be caused by the absence of data in the ORC-15 segment of the HL AP LOGIN/ RESULT message. Note: This error should never occur.	Lab staff should re-enter the accession date/time and re-transmit the accession/result message to CHCS.	LAB
LRAP06	Lab Test is Undefined	This error would be caused by one of the following conditions: 1.the absence of data in the OBR-4 segment 2.CHCS is unable to resolve the Lab Test file pointer.	If condition 1 exists, the TMSSC should be contacted to verify the accuracy of the incoming message. If condition 2 exists, the Site Manager (or designee) should verify that the CHCS Lab Test file contains the following Lab tests and subscripts: AU AUTOPSY BM BONE MARROW CG CYTOLOGIC GYN CN CYTOLOGIC NON-GYN SP TISSUE EXAM After corrective action is taken, the accession/ result message must be re-transmitted to CHCS.	TMSSC CHCS Site Manager

Table 11-1. Interface Exception Codes (continued)

Exception Code	Exception message	Possible Cause	Recommended Solution	Resolution Needed By
LRAP07	Collection Date/Time is Missing	This error would be caused by the absence of data in the OBR-7 segment of the HL AP LOGIN/ RESULT message. Note: This error should never occur.	Lab staff should re-enter the CoPath Date Taken and Time Taken fields. The accession/result message must be re-transmitted to CHCS.	LAB
LRAP08	Log-in Date/Time is Missing	This error would be caused by the absence of data in the OBR-14 segment of the HL AP LOGIN/ RESULT message. Note: This error should never occur.	Lab staff should re-enter the CoPath Date Taken and Time Taken fields. The accession/result message must be re-transmitted to CHCS	LAB
LRAP09	Requesting HCP is Undefined	This error would be caused by one of the following conditions: 1.absence of data in the OBR-16 segment of the HL AP LOGIN/ RESULT message. 2.CHCS is unable to resolve the Provider File pointer because a) an entry was manually added to the CoPath Physician dictionary, or b) an entry was added to the CHCS Provider File and notification was not sent to CoPath, or c) an entry was deleted from the CHCS Provider File.	If condition 1 exists, Lab staff should re-enter the CoPath MDA#1 and re-transmit the message to CHCS. If condition 2 exists, the CHCS Site Manager (or designee) should verify the mapping between the CoPath Physician dictionary and CHCS Provider file are accurate. New provider entries added to CHCS must be transmitted to CoPath. The Site Manager must re-transmit the accession/result message to CHCS.	LAB CHCS Site Manager
LRAP10	Accession Name is Undefined	This error would be caused by the absence of data in the OBR-20 segment of the HL AP LOGIN/ RESULT message. Note: This error should never occur.	Contact TMSSC. Once resolved, the accession/result message must be re-transmitted to CHCS.	TMSSC
LRAP11	Result Status is Undefined	This error would be caused by one of the following conditions: 1.the absence of data in the OBR-25 segment of the HL AP LOGIN/ RESULT message. 2.invalid result status code	Refer to the Interface Message Specification document for allowable entries. Contact TMSSC to verify the accuracy of the accession/result message. Once resolved the accession/result message must be re-transmitted to CHCS.	TMSSC

Table 11-1. Interface Exception Codes (continued)

Exception Code	Exception message	Possible Cause	Recommended Solution	Resolution Needed By
LRAP12	Certification Date/Time is Missing	This error would be caused by the absence of data in the OBR-22 segment of the HL AP LOGIN/ RESULT message. Note: This error should never occur.	Contact TMSSC to verify the accuracy of the accession/result message. Once resolved the accession/result message must be re-transmitted to CHCS.	TMSSC
LRAP13	Accession Area is Undefined	This error would be caused by the failure of CHCS to link the incoming accession number with a valid accession area.	Lab must verify that a CHCS Accession Area exists with the same abbreviation as the CoPath Prefix. Re-transmit the accession/result message to CHCS.	LAB
LRAP14	Work Element is Undefined	This error would be caused by the failure of CHCS to link a valid accession area with a Lab work element.	Lab must verify that a work element has been defined for the accession area. Re-transmit the accession/result message to CHCS.	LAB
LRAP15	Unable to Enter Results - No Accession on File	This error would be caused by the failure of CHCS to locate the accession in the Accession file.	CHCS Site Manager (or designee) must verify that the incoming accession number exists in the ACCESSION NAME cross-reference on the Accession File. Once resolved, re-transmit the accession/result message to CHCS.	CHCS Site Manager
LRAP16	Invalid Order Control	This error would be caused by one of the following conditions: 1.the absence of data in the ORC-1 segment of the HL AP LOGIN/ RESULT message 2.invalid order control code	Refer to the Interface Message Specification document for allowable entries. Contact the TMSSC to verify the accuracy of the accession/result message. The accession/result message must be re-transmitted to CHCS.	TMSSC

Table 11-1. Interface Exception Codes (continued)

Exception Code	Exception message	Possible Cause	Recommended Solution	Resolution Needed By
LRAP17	Patient Not Found	This error could be caused by one of the following conditions: 1.the absence of data in the PID-3 segment of the HL AP LOGIN/ RESULT message 2.CHCS is unable to resolve the Patient File pointer because a) an entry was manually added to the CoPath Patient dictionary, or b) an entry was added to the CHCS Patient File and notification was not sent to CoPath, or c) an entry was deleted from the CHCS User file.	If condition 1 exists, contact TMSSC. If condition 2 exists, the Site Manager (or designee) should verify that the mapping between the CoPath Patient dictionary and CHCS Patient File are accurate. New Patient File entries must be transmitted to CoPath. The accession/result message must be re-transmitted to CHCS.	TMSSC CHCS Site Manager
LRAP18	Order Task is Undefined	This condition would occur if TaskMan is not operational.	Site Manager (or designee) should verify that TaskMan is running. Once restarted, the accession/result message must be re-transmitted to CHCS.	CHCS Site Manager
ORAP01	Patient IEN is not passed when calling order entry	The patient IEN is required when calling order entry to create an order. Note: This error is a system error and should never occur.	TMSSC should ensure that the patient IEN is passed to order entry module ENAP^ORGISHI. Once resolved, the accession/result message must be re-transmitted to CHCS.	TMSSC
ORAP02	Order Type is not passed when calling order entry	The order type is required when calling order entry to create an order. Note: This error is a system error and should never occur.	TMSSC should ensure that the order type is passed to order entry module ENAP^ORGISHI. Once resolved, the accession/result message must be re-transmitted to CHCS.	TMSSC
ORAP03	Lab Test IEN is not passed when calling order entry	The Lab Test IEN is required when calling order entry ENAP^ORGISHI to create an order. Note: This error is a system error and should never occur.	TMSSC should ensure that the Lab Test IEN is passed to order entry module ENAP^ORGISHI. Once resolved, the accession/result message must be re-transmitted to CHCS.	TMSSC

Table 11-1. Interface Exception Codes (continued)

Exception Code	Exception message	Possible Cause	Recommended Solution	Resolution Needed By
ORAP04	The Order Type is inactive	The order type must be active to create an order. This may be caused by corrupted data in the Order Type file.	Software specialist should ensure that the Lab Order Type is active. Once resolved, the accession/result message must be re-transmitted to CHCS.	Software Specialist
ORAP05	The HCP does not have the signature class for the Order Type	The HCP must have the proper signature class defined in the Order Type file. The error may be caused by incorrect provider or missing signature class.	Software Specialist should ensure that the HCP has proper signature class defined for the Lab Order Type. Once resolved, the accession/result message must be re-transmitted to CHCS.	Software Specialist
ORAP06	Provider class is invalid or missing	The HCP must have the proper provider class defined in the provider file. The error may be caused by incorrect provider or missing provider class.	Software Specialist should ensure that the HCP has proper provider class defined in the Provider file. Once resolved, the accession/result message must be re-transmitted to CHCS.	Software Specialist
ORAP07	Signature class is invalid or missing	The provider should have the proper signature class defined in the provider file. The error may be caused by incorrect provider or missing signature class. The system defaults to nurse signature class. The order will need to be signed by a physician.	Software Specialist should ensure that the HCP has proper signature class defined in the Provider file.	Software Specialist
ORAP08	Provider is not authorized to write an order	The provider should have the proper signature class defined in the provider file. The error may be caused by incorrect provider or missing signature class.	Software Specialist should ensure that the HCP has proper signature class defined in the Provider file. Once resolved, the accession/result message must be re-transmitted to CHCS.	Software Specialist
ORAP09	Provider is not authorized to order the test	The provider should have the proper authorization key in the provider file. The error may be caused by incorrect provider or missing security key.	Software Specialist should ensure that the HCP has proper authorization key defined in the Provider file. Once resolved, the accession/result message must be re-transmitted to CHCS.	software Specialist

Table 11-1. Interface Exception Codes (continued)

Exception Code	Exception message	Possible Cause	Recommended Solution	Resolution Needed By
ORAP10	The input template to edit the order is invalid or missing	The OR-LAB-NON-INTERACTIVE-EDIT input template is invalid or missing. This may be caused by corrupted data in the Order Type file.	Software Specialist should ensure that Order Type file is set up for the Lab Order type and the NON INTERACTIVE INPUT TEMPLATE field is defined. Once resolved, the accession/result message must be re-transmitted to CHCS.	Software Specialist
ORAP11	The order cannot be created	The order entry module cannot create an order. Note: This error should never happen.	Retries will be attempted by GIS. If error persists call TMSSC.	TMSSC
ORAP12	The order cannot be edited	The Database Manager cannot edit the order. Note: This error should never happen.	Retries will be attempted by GIS. If error persists call TMSSC.	TMSSC
ORAP13	The Collection Sample/ specimen is invalid for the test	The Lab Collection Sample/Specimen should be defined in the Lab Collection Sample file. This error is informational only and may be caused by corrupted data in the above file.	Software Specialist should ensure the Collection Sample for the test is properly defined in the Lab Collection Sample file.	Software Specialist
ORAP14	Unable to lock the order just created	When calling order entry to create an order, the system attempts to obtain exclusive access to the order data, The attempt failed. The error is caused by concurrent update of the order. Note: This error should never happen.	Retries will be attempted by GIS. If error persists call TMSSC.	TMSSC
ORAP15	Unable to lock the order to be modified	When calling order entry to modify an order, the system attempts to obtain exclusive access to the order data, The attempt failed. The error is caused by concurrent update of the order. Note: This error should never happen.	Retries will be attempted by GIS. If error persists call TMSSC.	TMSSC
ORAP16	The original order is not for the same patient as the current order	When calling order entry to modify an order, the patient IEN for the original order is compared with patient IEN of the current order. The two IENs must be the same. This error may be caused by patient merge.	TMSSC should ensure that two IENs are the same. Once resolved, the accession/result message must be re-transmitted to CHCS.	TMSSC

Table 11-1. Interface Exception Codes (continued)

Exception Code	Exception message	Possible Cause	Recommended Solution	Resolution Needed By
ORAP17	Required data from the original order is missing	When calling order entry to modify an order, the following parameters are required: - The IEN of the original order - The 2 node of the order - The 110 node of the order Note: This error should never happen.	TMSSC should ensure that the required parameters are passed to order entry module ENAPM^ORGISHI. Once resolved, the accession/result message must be re-transmitted to CHCS.	TMSSC

SYS:
CHCS INTERFACE MANAGEMENT

Module 12 -
Manage the Interface Connections

SYS: CHCS INTERFACE MANAGEMENT

Module 12 - Manage the Interface Connections

Section 1. Module Outline

I. INTRODUCTION

Welcome to the module on Manage the Interface Connections.

The purpose of this module is to discuss the physical connections between CHCS and the external systems that exchange data with CHCS; as well as between the critical components of the external systems themselves. This module also covers the procedures to troubleshoot the physical connections and communication components between CHCS and the external systems.

This module is scheduled to last approximately 2 hours.

The target audience includes personnel responsible for hardware and physical communication links:

– Network Specialists

– System Specialists

– Hardware Specialist.

DISCUSS OBJECTIVES

– Objective 1: Define the physical connections to external systems.

– Objective 2: Troubleshoot communication to external systems.

INTRODUCE OUTBOUND REFERENCES

The following documentation is referred to in this module:

– Native DEERS Overview and Troubleshooting, 18239NC2, October 6, 1995.

– SYS: VMS Hardware Specialist, SAIC/CHCS Doc. TC-4.5-0548/TC-4.5-0549.

II. PRESENTATION

■ Objective 1: DEFINE THE PHYSICAL CONNECTIONS TO EXTERNAL SYSTEMS

Scenario: *Your site will be installing a new system this weekend that will interface with CHCS. You are responsible for ensuring that the network will support connections to the new system. Determine the requirements and connections for the external system.*

DISCUSS THE STRUCTURE OF THE MHSS

Define MHSS

The Military Health Services System (MHSS) consists of multiple, shared network segments for data communication between end users and disparate health care systems at the medical treatment faclility (MTF). Remote systems are also accessed using the Defense Information System Network (DISN). The MHSS systems include the following:

– CHCS

– All systems covered in this class

– Other commercial off-the-shelf (COTS) products not interfaced to CHCS

– The local area network (LAN) of user workstations used for office automation.

- Refer to Figure 12-1: Typical Navy/Army MHSS Infrastructure, for typical Navy/Army physical connections between the various systems that exchange data with CHCS.

Not all of the many other systems that connect to the MHSS network are shown in Figure 12-1. Since many alternatives exist for any network connection, actual physical connections may vary from service to service and from site to site. However, this diagram provides a starting point for discussing connection requirements. This and other diagrams in this module assume the two-router architecture (MHSS premise and CHCS routers) used by the Navy, and some Army sites.

Define Defense Information Infrastructure (DII)

Defense Information Infrastructure is a web of communication networks, computers, software, databases, applications, data, security services, and other capabilities. These various capabilites allow the Department of Defense (DOD) to meet its information processing and transport needs during peace and any crises, conflict, humanitarian effort, or war. The Defense Information Infrastructure operates as a collection of distributed, heterogeneous information systems. It ranges from DOD applications implemented at central locations, to base-level or end-user applications on desktops or in tactical environments.

The Defense Information Infrastructure includes the following:

– Physical facilities used to collect, distribute, store, process, and display voice, data, and imagery.

– Applications and data engineering practices (tools, methods, and processes) to build and maintain the software that allow C2, intelligence, surveillance, reconnaissance, and mission support users to access, manipulate, organize, and digest proliferating quantities of information.

– Standards and protocols that facilitate interconnection and incorporation among networks and systems and provide security for the information carried.

– The people and assets which provide the integrating design, management and operation of the Defense Information Infrastructure, develop the applications and services, construct the facilities, and train others in Defense Information Infrastructure capabilities and use.

- Refer to Table 12-1: External System Hardware, Operating Systems, and Links to CHCS.

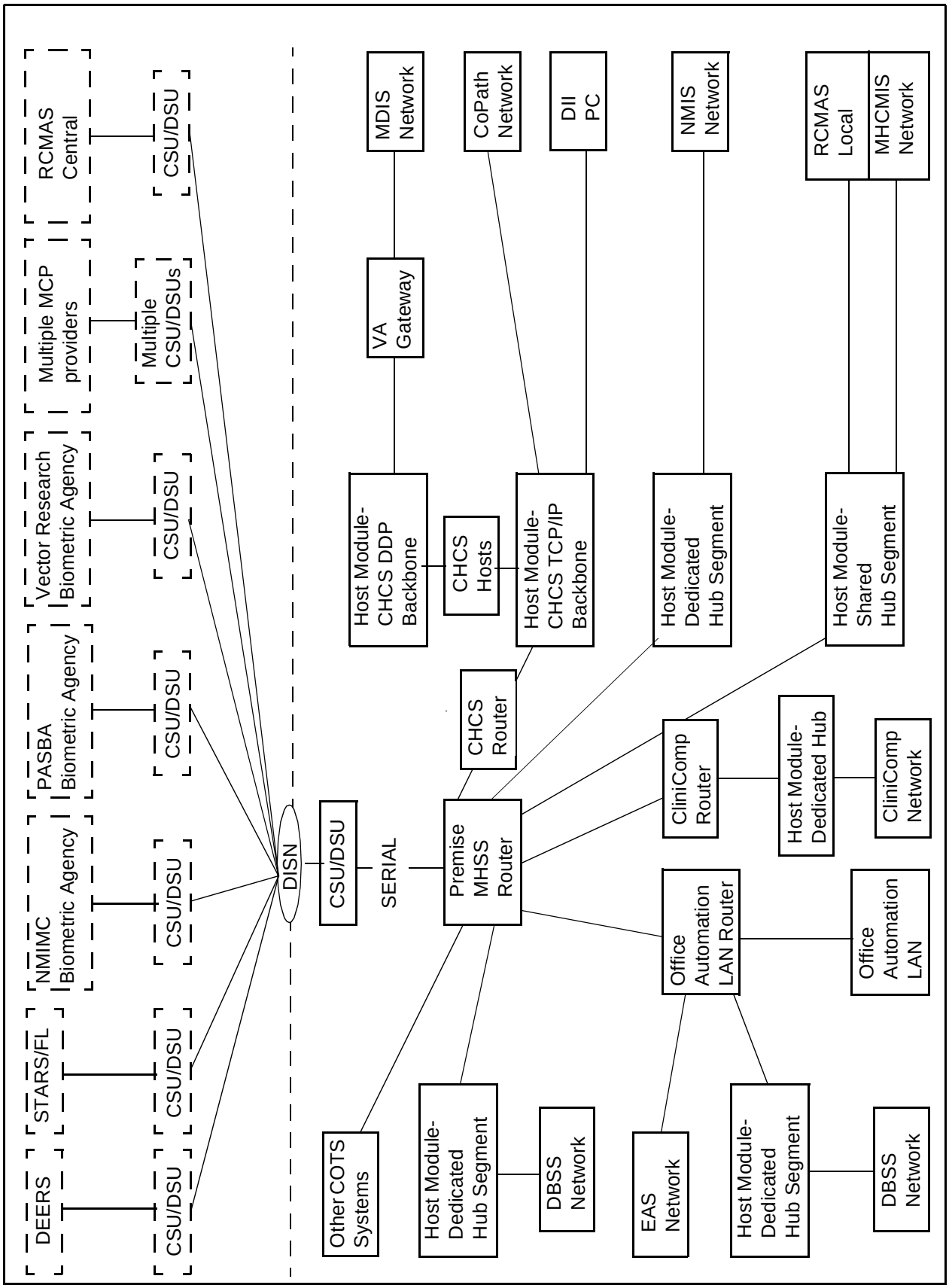

Figure 12-1. Typical Navy/Army MHSS Infrastructure

Discuss Firewalls

A few sites have implemented a firewall. The firewall typically resides between an external gateway router that connects to all communication lines outside the MTF and an internal router that connects disparate systems within the MTF. The firewall restricts the types of network data allowed to pass through, thereby restricting access from outside the MTF to any systems within the MTF.

Since most sites do not yet have a firewall, it has not been included in physical connection diagrams for this module.

Goals of the MHSS

The MHSS has the following goals:

- Provide access to information from a variety of disparate computer systems
- Enter data only once
- Use COTS products where practical
- Improve efficiency by integrating common functionality
- Use technology standards that comply with the open systems environment (OSE) guidelines provided by the Defense Information Systems Agency (DISA).

DISA is the DOD agency responsible for information technology. DISA is the central manager of major portions of the Defense Information Infrastructure, including management and control of the MHSS and DISN.

DISA Guidelines for the MHSS

Following are OSE communication guidelines for the MHSS provided by DISA. While these guidelines may not currently match your site, they should be followed when planning the future connections and migration of your network.

Each system on the MHSS has a dedicated network segment isolated from the other segments. These segments are connected using a fiber optic cable through one or more Cisco routers, referred to as the MHSS premise router(s). Functionally, the MHSS network is a star configuration, with the premise router at the center of the star, and each segment as a leg of the star. As illustrated in Figure 12-1, external systems connect with CHCS using the MHSS router whenever possible.

Table 12-1. External System Hardware, Operating Systems, and Links to CHCS

Interface	Hardware	Disk Operating System	Network Operating System	Link to CHCS	User Devices
Biometric Agencies	Various	Various	Various	DISN to MHSS router	Various
CliniComp	Silicon Graphics	UNIX	UNIX	Dedicated CliniComp router to MHSS router	Yes
CoPath	DEC Alpha 2000 model 300	VMS	DECNet with Multi-Net	Direct to CHCS TCP/IP hub segment	Yes
DBSS	Data General 486 PCs	UNIX	UNIX	Dedicated hub segment to MHSS router; or dedicated hub segment to OA LAN router to MHSS router	Yes
DEERS	IBM Mainframe	MVS	SNA	DISN to MHSS router	Yes
DII	Any 586	DOS	Network Software Kernel	Direct to CHCS TCP/IP hub segment	No
EAS	AT&T 3b2 servers or Everex 486 servers	UNIX	UNIX	Office automation LAN router to MHSS router	Yes
MDIS	VAX 4000	VMS	Netware	Direct to CHCS DDP hub segment via VA gateway	Yes
MHCMIS	Data General AViiON	UNIX	UNIX	Shared hub segment to MHSS router	Yes

Table 12-1. External System Hardware, Operating Systems, and Links to CHCS

Interface	Hardware	Disk Operating System	Network Operating System	Link to CHCS	User Devices
NMIS	Everex 486 PCs	UNIX	UNIX	Dedicated hub segment to MHSS router	Yes
RCMAS	Data General AViiON	UNIX	UNIX	Shared hub segment to MHSS router	No
STARS/FL	IBM Mainframe	MVS	SNA	DISN to MHSS router	Yes

FM-00764

The MHSS transmission technology is Ethernet version II. All Ethernet connections to each MHSS segment are through intelligent hubs. In some cases, a hub may be segmented into separate networks and shared between MHSS systems. However, these hub segments must communicate through a router. Each intelligent hub segment must retain one spare slot for troubleshooting and expansion. Host modules must not be more than 80 percent populated.

Interconnected MHSS systems use Transmission Control Protocol/Internet Protocol (TCP/IP) to communicate. The primary interface method between segments is routing using the Interior Gateway Routing Protocol (IGRP). Bridging is only used when routing is not practical, i.e., no IP addresses are available. Any systems connecting to the premise router using the Exterior Gateway Protocol (EGP) or Border Gateway Protocol (BGP) must have a registered autonomous system number.

All network communication hardware must contain a Simple Network Management Protocol (SNMP) agent complying with the Management Information Base (MIB) II standard. Hubs, print servers, X terminals, and other network devices use the BootP protocol to obtain their configuration. Devices that do not support BootP may use Reverse Address Resolution Protocol (RARP); local configuration is a last resort.

Workstations connected to the MHSS network using a network interface card can access any system connected to the MHSS network. The standard network terminal interface is X terminal or Windows NT. Systems or workstations connecting to the MHSS network must meet the MHSS LAN Standards for both hardware and software.

Systems refer to components by domain name wherever possible to minimize the affect of network reconfiguration or equipment relocation. Using absolute IP addresses in any production process is strongly discouraged. Each site has a secondary, caching domain name server to handle resolutions from within the MTF. The secondary server obtains its name resolution information from a central, primary name server maintained by each service.

Configure the premise router with an IP address block registered with the Network Information Center (NIC) before connecting to the DISN. Sites are responsible for obtaining and registering their IP addresses and domain names using the site's military department (MILDEP) contact.

Other network operating systems, such as Netware, Banyan Vines, AppleTalk, and NetBIOS, may exist at the MHSS. Support for these operating systems varies from site to site.

The OSE guidelines also dictate a standard wiring infrastructure, to include installation, physical connection, and cabling.

DEFINE THE DOD NETWORKS AND AGENCIES

The following networks are used by the MHSS:

- **DISN**. A global wide area network (WAN) used strictly by the military services, defense and other agencies of the U.S. government, and its allies. DISN consists of both commercial and military, secured and unsecured network segments. The MTF gateway router connects directly to the DISN. DISN access provides the link to full Internet access as well. Most sites have only one router port connection to the DISN. If this link fails, all WAN communication halts, including data exchange with the Defense Enrollment Eligibility Reporting System (DEERS), the Standard Accounting and Reporting System/Field Level (STARS/FL), and the biometric agencies; as well as access to SAIC and the worldwide web.

- **DMSSC-Net**. The network used by the Defense Medical Systems Support Center (DMSSC). DMSSC-Net was used by the DEERS and the Biometric Data/Upward Reporting System (BD/URS) interfaces before those systems supported WAN connectivity. CHCS required a protocol converter to communicate on DMSSC-Net. DMSSC-Net was replaced by the DISN. Now that DEERS and SIDR data transfers communicate through the DISN, DMSSC-Net is rarely used.

- **Defense Data Networks (DDN)**. An X.25 packet-switching network that is now part of the DISN.

- **Health Information Infrastructure (HII)**. The portion of the Defense Information Infrastructure that supports the delivery of health care to military beneficiaries.

DISCUSS PHYSICAL CONNECTIONS THROUGH THE DISN

The following systems communicate with CHCS through the DISN link:

- Biometric agencies, including Patient Administration Biostatistic Activities (PASBA), Vector Research, and Naval Medical Information Management Center (NMIMC)

- DEERS

- STARS/FL

- Multiple Managed Care Program (MCP) providers.

In addition, the central Retrospective Case-Mix Analysis System (RCMAS) server communicates with the local RCMAS server through the CHCS DISN link. If the

site does not have a local RCMAS server, the central RCMAS server communicates directly with CHCS.

Biometric Agencies

Each biometric agency maintains its own computer system, as follows:

– **NMIMC**. An Amdahl mainframe (IBM clone) running MVS disk operating system and Systems Network Architecture (SNA) network operating system.

– **PASBA**. An IBM mainframe running MVS disk operating system and SNA network operating system.

– **Vector Research**. A Sequent processor running UNIX disk and network operating systems.

Standard Inpatient Data Record (SIDR) files are directly transferedto these systems using the File Transfer Protocol (FTP). After the data is transfered to the PASBA and NMIMC databases, these two agencies upload their SIDR data to Vector Research.

CHCS communicates with the biometric agencies through the CHCS and MHSS routers, as well as the DISN.

fsDEERS

- Refer to Figure 12-2: DEERS Physical Connections.

DEERS resides on an IBM MVS/ESA system. The disk operating system is MVS. The network operating system is SNA.

CHCS uses the DISN router link to communicate to DEERS. The DEERS DISN link is multithreaded; that is, a single DISN router port can support multiple DEERS servers.

DEERS supports two types of connections from the MTF:

– The CHCS host running background eligibility requests against the DEERS database

– DEERS users logging directly onto the DEERS database. This connection is called native DEERS, or NDEERS.

CHCS users initiate a Local Area Transport (LAT) session with the local CHCS host. The session request moves from the user to the terminal server, where it is

mapped as a VT session and sent onto the CHCS backbone, through the necessary Ethernet host modules, to the CHCS host. If the session requires a DEERS eligibility check, the CHCS host initiates a telnet session with DEERS using parameters defined on the CHCS DEERS Menu. The eligibility request moves from the CHCS router to the MHSS premise router, out to the DISN, and on to the McData gateway. Eligibility information from DEERS travels back to CHCS using the same path.

Native DEERS Link

DEERS supports its own users at the MTF. Previously, these users had dedicated hardware to access DEERS. However, these users now reside on the CHCS backbone, and access DEERS using the CHCS communication equipment, including the CHCS premise router. These users are called native DEERS users.

The same user terminal can be used to access CHCS and DEERS through a single serial port on a CHCS terminal server. The native DEERS user enters one of two usernames at the VMS Username prompt. That username executes a Virtual Memory System (VMS) login command file, which either accesses CHCS through a LAT session, or initiates a session with the remote DEERS database using telnet. The session request moves from the user to the terminal server, through the necessary Ethernet host modules, and on to VMS on a CHCS host. Multinet remaps the session to the SNA TN3270 standard. The native DEERS session never enters the CHCS software. From there, the session is sent through the necessary Ethernet host modules, to the MHSS premise router, to the DISN, and on to the DEERS OCS gateway. The OCS gateway converts the TCP/IP telnet American Standard Code for Information Interchange (ASCII) session into an SNA EBCIDC session and assigns an SNA logical unit (LU) identifier to the session. An LU is the access point for a user's network login on an SNA network.

The following files are required to support native DEERS user access:

– TN3270_LOGIN.COM. This file is called when users access DEERS through the VMS username. The VMS account executes this command file, which initiates a telnet session with DEERS.

– MAP3270.DAT. Provides the TN3270 emulation. This file contains the mappings between characters entered on the VT keyboard and the 3270 keyboard.

Native DEERS users can print from the remote DEERS database to local printers on the CHCS network. Printers must be defined within both the DEERS and CHCS systems. Remote printing requires configuration in Multinet and VMS, as well as the usual printer configuration on the terminal server and on the printer. The Electronic Data System (EDS) print server formats the data and sends it

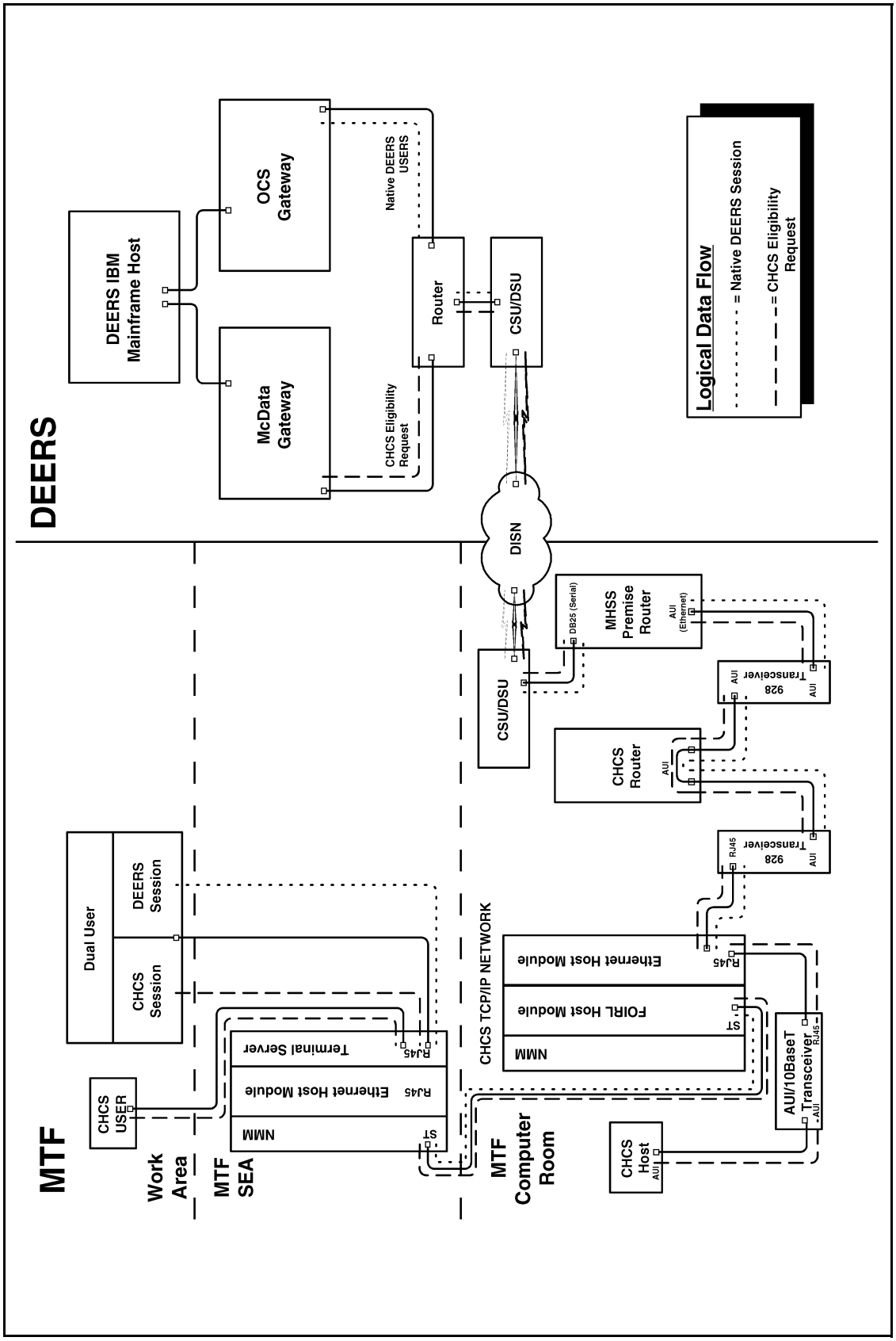

Figure 12-2. DEERS Physical Connections

through a telnet session to the CHCS host. Multinet spools the print job to a VMS print queue for either TCP/IP or LAT.

The following steps must be performed to configure printing by native DEERS users to printers at the MTF:

– Configure and activate MultiNet LPD remote printing daemon.

– Configure Multinet for remote print job connections from the DEERS network.

– Create and configure the print queues. If printing using TCP/IP, use MultiNet to create and configure a VMS TCP/IP print queue for each native DEERS printer. If printing using LAT, use the VMS LATCP utility to create and configure the LAT print queue for each printer. TCP/IP print queues are typically named xxxx_DMRISn and xxxx_HBAn, where xxxx is the site DMIS code, DMRIS or HBA are the name of the hospital area, and n is a sequentially assigned number for each native DEERS printer in the designated area.

– Create the RPRINTER account in VMS. DEERS uses this account to establish its telnet session with VMS.

– Execute a VMS command that assigns all activity on the RPRINTER account to MultiNet for execution. This command essentially transforms the RPRINTER account into a VMS logical. MultiNet determines if the print job is to a printer defined in MultiNet for TCP/IP. If it is, MultiNet gives the print job to the LPD print daemon. If the print job is not defined in MultiNet for TCP/IP (i.e., it is for a LAT printer), MultiNet gives the job to LATCP.

• Refer to Native DEERS Overview and Troubleshooting, for additional configuration and troubleshooting information on NDEERS.

STARS/FL

STARS/FL resides on an IBM mainframe. The disk operating system is MVS. The network operating system is SNA. STARS/FL supports its own users.

STARS/FL uses the DISN to communicate to CHCS through the MHSS premise router, which uses a transceiver to connect to an Ethernet port on the CHCS router.

DISCUSS PHYSICAL CONNECTIONS WITHIN THE MTF

Direct Backbone Connections

The following systems connect to CHCS via the hardware of the CHCS backbone; that is, they do not go through the MHSS router:

– CoPath

– DII

– MDIS.

The CoPath and DII systems have IP addresses within the CHCS TCP/IP network.However, none of these systems can log onto the CHCS database without a CHCS access and verify code. Since the Datagram Delivery Protocol (DDP) requires another vehicle to connect, the Veterns Administration (VA) gateway that connects to MDIS uses DECnet to connect to the CHCS DDP network. MUMPS allows access from any network host within the DDP network to any global.

The CoPath and MDIS systems support their own user devices, such as terminals and printers. Devices peripheral to MDIS are not on the CHCS backbone. The DII system supports local or remote (modem) access and a local printer, but no other user devices. Peripheral devices communicate with CoPath through terminal servers on the CHCS backbone.

Much like native DEERS users, CoPath users can connect to either CHCS or CoPath by selecting an option on a terminal server menu, or by entering the proper login command file name at the VMS Username prompt. When the external system is being accessed, both methods bypass the CHCS host and establish telnet sessions with the external system. Users on CoPath can also send output to printers on the CHCS network that have been defined in the CoPath applications.

Since CoPath runs VMS, its users may also connect to CoPath using a LAT service. Configuration is as follows:

– Use the VMS Network Control Program (NCP) on all of the CHCS and CoPath nodes to assign a DECnet address to the CoPath system. However, the CoPath node is not configured as part of the CHCS cluster.

– Define a LAT service for CoPath on the CoPath system.

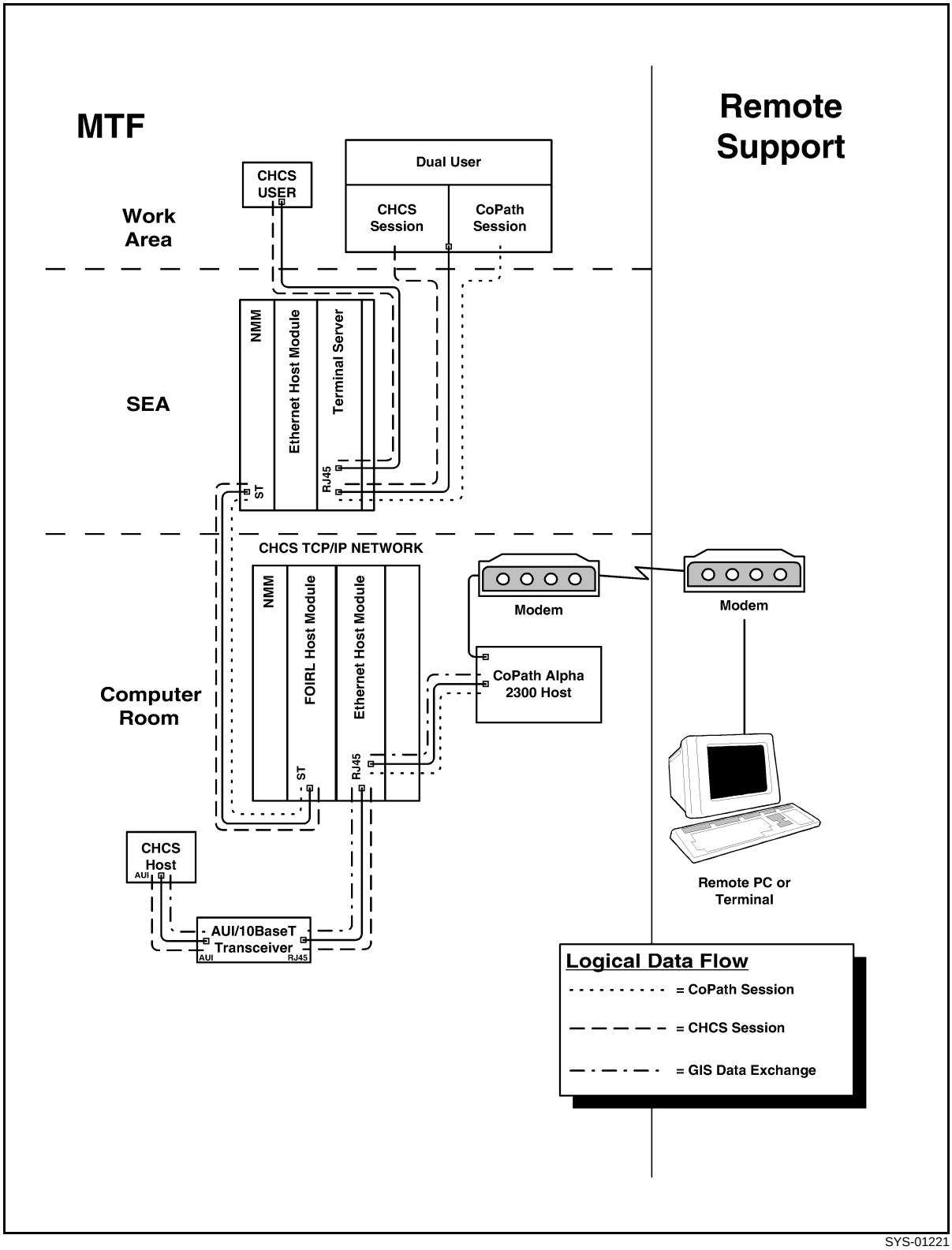

Figure 12-3. Physical Connections to CoPath

– Configure the terminal server ports for your CoPath users so they are not assigned a preferred service. Those users receive the LAT Service prompt, and can enter the name of either the CHCS or CoPath service.

Other systems, such as the Defense Medical Logistics Standard Support (DMLSS), also use the hardware of the CHCS backbone for their user access. However, these systems do not exchange data with CHCS, and are not covered in this class.

CoPath

- Refer to Figure 12-3: Physical Connections to CoPath.

CoPath runs on a DEC Alpha 2000 model 300 server with an EISA Ethernet network interface card. The disk operating system is VMS, and the application is written in MUMPS. CoPath uses TCP sockets to communicate to CHCS. The network operating system is DecNet, with MultiNet for TCP/IP compatibility.

CoPath resides in the computer room, where its network interface card connects through Ethernet to an Ethernet host module on the CHCS TCP/IP network. However, CoPath can connect to any Ethernet host module on the CHCS backbone.

CoPath includes a serial connection to a dedicated modem for remote monitoring and troubleshooting. CoPath can also be remotely accessed by connecting to the CHCS modem, then using the VMS login for CoPath to connect to the CoPath system. Alternatively, if the modem user has a VMS account on a CHCS node, that user can log onto VMS on the CHCS node, then Set Host to the CoPath node.

CoPath supports its own user devices using the hardware of the CHCS backbone. These users may access either CHCS or CoPath using a terminal server menu, a VMS username dedicated to CoPath, or a secondary menu option on the CHCS Systems Manager Menu (Eve).

CoPath will soonmigrate to the CHCS host. Although it will reside within VMS on the same host as CHCS, it will continue to exchange data with CHCS using the GIS.

DII

- Refer to Figure 12-4: Physical Connections to DII.

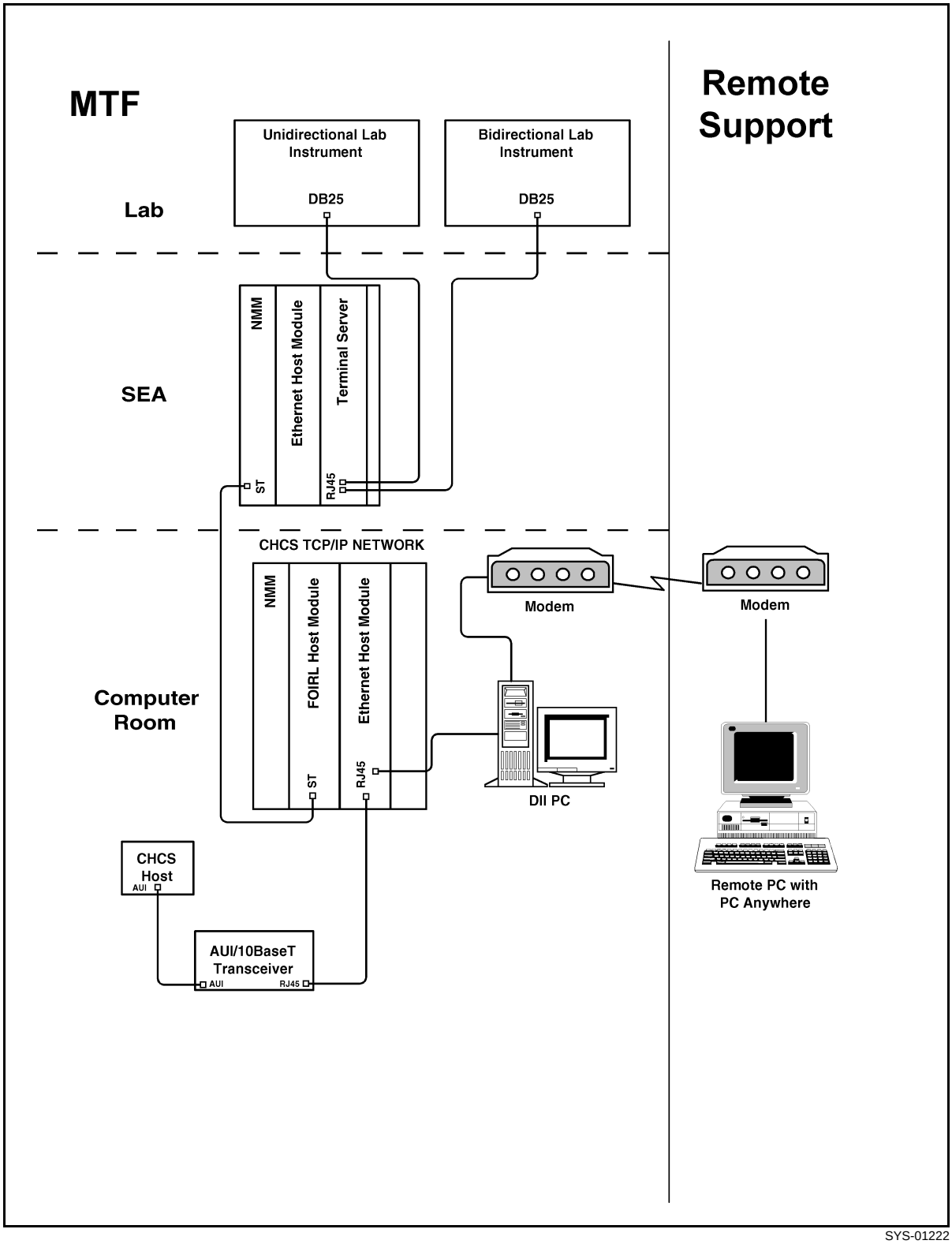

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Figure 12-4. Physical Connections to DII

DII runs on a 586 PC with a network interface card. The disk operating system is DOS. DII uses TCP sockets to communicate to CHCS. However, it does not have a full network operating system. It uses an FTP kernel called Network Software Kernel.

The DII PC resides in the computer room, where its network interface card connects through Ethernet to an Ethernet host module on the CHCS TCP/IP network. From there, DII can communicate across the backbone to either CHCS or a terminal server in a Satellite Equipment Area (SEA) that connects to a unidirectional or bidirectional lab instrument.

DII initiates all communication with instruments, including unidirectional instruments. The DII configuration for each instrument dictates whether the instrument communicates with DII using LAT or TCP/IP. An instrument configuration in DII dictates TCP/IP if the instrument is outside the MTF, or goes through a router to communicate with the CHCS backbone. If the instrument is within the MTF, the instrument configuration in DII may dictate LAT or TCP/IP according to site policy. All data transfer between DII and CHCS uses TCP sockets.

The DII PC includes PC Anywhere and a serial connection to a dedicated modem for remote monitoring and troubleshooting.

The DII system supports a local printer, local access using the DII personal computer (PC), and remote access using a modem; but no other user devices. Consequently, a remote user cannot dial in to a CHCS modem, then connect to DII as a local user.

MDIS

- Refer to Figure 12-5: Physical Connections to MDIS.

The MDIS host runs on a VAX 4000 with a network interface card. The disk operating system is VMS. The network operating system is Netware. Although MDIS is on the CHCS DDP network, the MDIS host does not run MUMPS. Instead, the VA gateway runs MUMPS and converts the messages from HL7 to American College of Radiology - National Electrical Manufacturer's Association (ACR-NEMA) format.

The following components reside in either the main computer room, or a radiology computer room. Since access to the CHCS DDP network provides direct access to CHCS, the VA gateway and MDIS shared Novell file server must reside in a computer room to limit physical access to the DDP network.

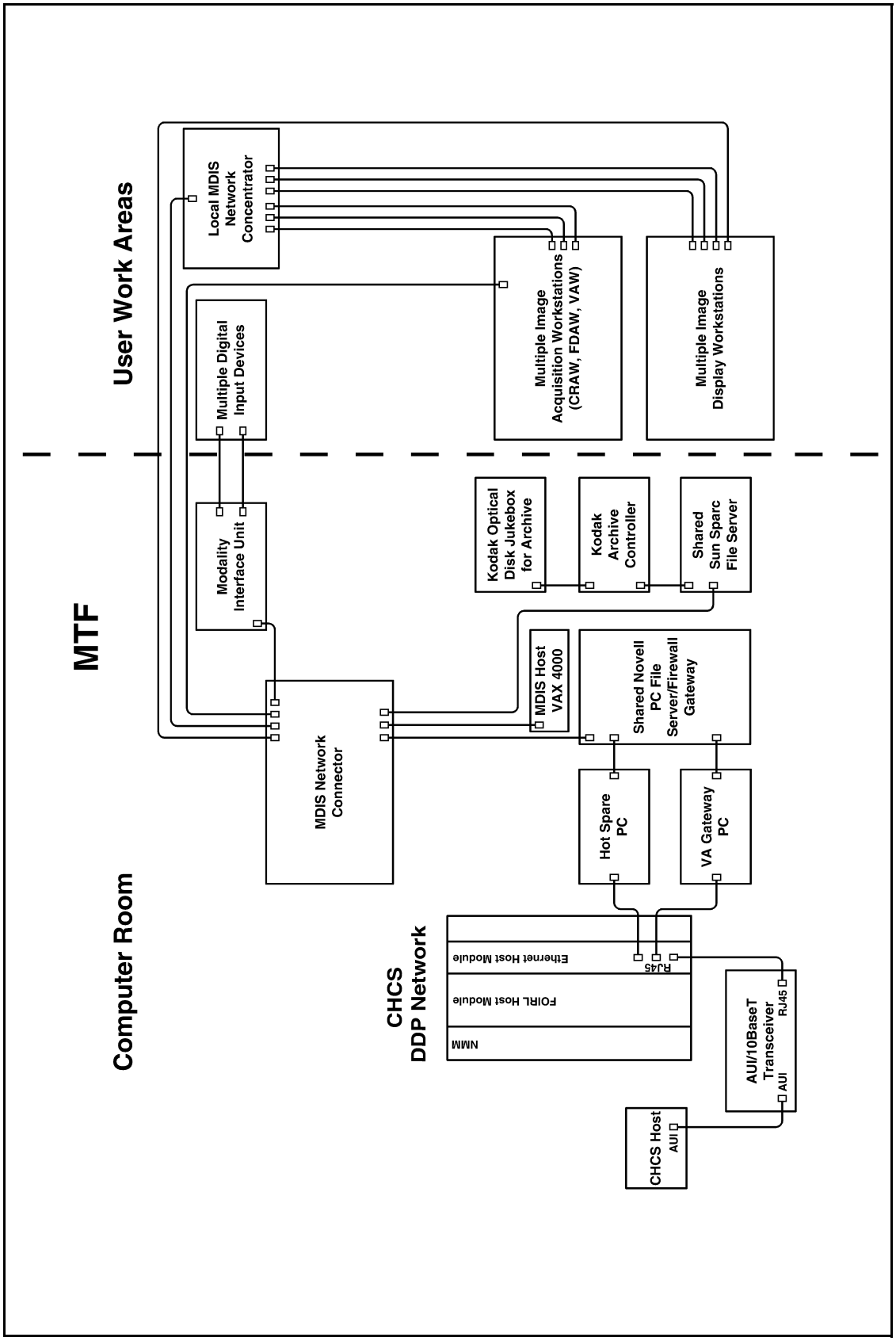

Figure 12-5. Physical Connections to MDIS

- **VA gateway PC.** This PC runs DOS, Netware, and MUMPS. It converts the HL7 message to ACR-NEMA format, the format used by MDIS. (The MDIS host does not support the HL7 standard.) The VA gateway also translates the communication method used from DDP to Netware. If the VA gateway is in the main computer room, it connects to the CHCS DDP host module using UTP. If the VA gateway is in a separate, radiology computer room, it connects to the CHCS DDP host module using fiber. The VA gateway also connects to a shared Novell file server. The gateway does not recognize nor communicate with the MDIS host; it communicates with the Novell file server.

- **Shared Novell file server.** This PC runs DOS and Netware. It stores the ACR-NEMA data received from the VA gateway until the MDIS host is ready to accept the data, then transmits the data to MDIS using the Network File System (NFS). It also functions as a firewall and gateway for MDIS. This file server connects directly to the VA gateway, and also connects to the network concentrator supporting the MDIS network.

- **Note:** MDIS is migrating to a single Windows NT server that will perform all of the functions of both the VA gateway and shared Novell file server. This one station will have two network interface cards: one to the CHCS DDP network, and one to the MDIS host. CHCS and MDIS will remain on two separate segments within the NT server. This server will continue to function as a gateway, and will be maintained by the VA.

- **Hot spare PC**. This PC runs DOS, Netware, and MUMPS. It normally functions as a monitor for comparing CHCS messages to MDIS messages. However, it has batch routines that can be run to reconfigure the PC as a backup gateway or Novell file server. The hot spare connects to the CHCS DDP host module using a unshielded twisted pair (UTP), and also connects to the shared Novel file server. When needed as a spare for the Novell file server, the hot spare connection to the Novell file server will be moved to the MDIS host.

  Note: When MDIS migrates to the NT server, it will also replace the existing hot spare with a cold spare for the NT server.

- **MDIS VAX 4000 host**. The host runs VMS and Netware, but not MUMPS. The MDIS host contains all of the capabilities of the MDIS functionality, and stores the data received from CHCS. It does not recognize nor communicate directly with CHCS; it communicates with the Novell file server. The MDIS host connects to the network concentrator supporting the MDIS network.

- **Modality Interface Unit (MIU)**. The MIU converts data format from the digital input devices to the format used by the MDIS host. It also matches demographic data from MDIS to the images from the digital input devices. It connects directly to digital input devices, such as ultrasound, MRI, CT, or

nuclear medicine. It also connects to the network concentrator supporting the MDIS network.

– **Shared Sun Sparc file server**. This file server, also called the image storage unit (ISU), runs the SUN operating system. It functions as short term storage for image and demographic data, and can be used to manipulate the images. This file server connects to the network concentrator supporting the MDIS network.

  Note: At smaller sites, a single VAX running both VMS and Netware will perform the functions of both the Sun Sparc file server and the MDIS host. This unit is called the work storage unit (WSU).

– **Kodak archive system**. Images are archived on the Kodak optical disk jukebox, accessed using the Kodak archive controller. The archive controller connects directly to the shared Sun Sparc file server. In some cases, it may connect directly to the network concentrator for the MDIS network.

The following components reside in the user work area:

– **Multiple digital input devices**. These may be ultrasound, MRI, CT, or nuclear medicine equipment, and connect directly to the MIU.

– **Multiple image acquisition workstation**s. These systems take demographic data from MDIS and match it to input from various media. The Computed Radiography Acquisition Workstation (CRAW) matches demographics to radiography; the Film Digitizer Acquisition Workstation (FDAW) matches demographics to film; and the Video Acquisition Workstations (VAW) matches demographics to video. These workstations may connect to a network concentrator in a local communication closet, or may connect using fiber to the MDIS network concentrator in the computer room.

– **Multiple image display workstations**. These display the patient data after patient demographics have been matched to media on the image acquisition workstations. These workstations may connect to a network concentrator in a local communication closet, or may connect using fiber to the MDIS network concentrator in the computer room.

MDIS supports its own users using its own communication equipment. These users are not on the CHCS DDP backbone.

MHSS Router Connections

The following systems communicate with the CHCS router through the MHSS premise router:

– CliniComp

– Defense Blood Standard System (DBSS)

– Expense Assignment System (EAS)

– Military Health Care Management Information System (MHCMIS)

– NMIS

– RCMAS.

All of these systems support their own user devices, except RCMAS.

The following also connect with the MHSS premise router, but do not exchange data with CHCS:

– **Office Automation LAN.** A separate network segment containing PCs and workstations running office automation applications. If these devices provide network connectivity, they can telnet to other systems on the MHSS router, including CHCS. The office automation LAN runs the Netware network operating system.

– **Other COTS Systems.** The MHSS network supports many other COTS systems that do not exchange data with CHCS.

The following systems support their own user devices through their own communication equipment:

CliniComp

- Refer to Figure 12-6: Physical Connections to CliniComp.

CliniComp runs on two redundant Silicon Graphics application servers, each with a network interface card. The disk and network operating systems are UNIX. CliniComp uses TCP sockets to communicate with CHCS.

CliniComp supports many medical input devices, as well as user workstations and printers, that reside in intensive care units (ICUs), emergency rooms, and nursing wards.

The following CliniComp components reside in the computer room:

– Two redundant Silicon Graphics Challenge application servers

– A single Silicon Graphics Challenge database and archive server

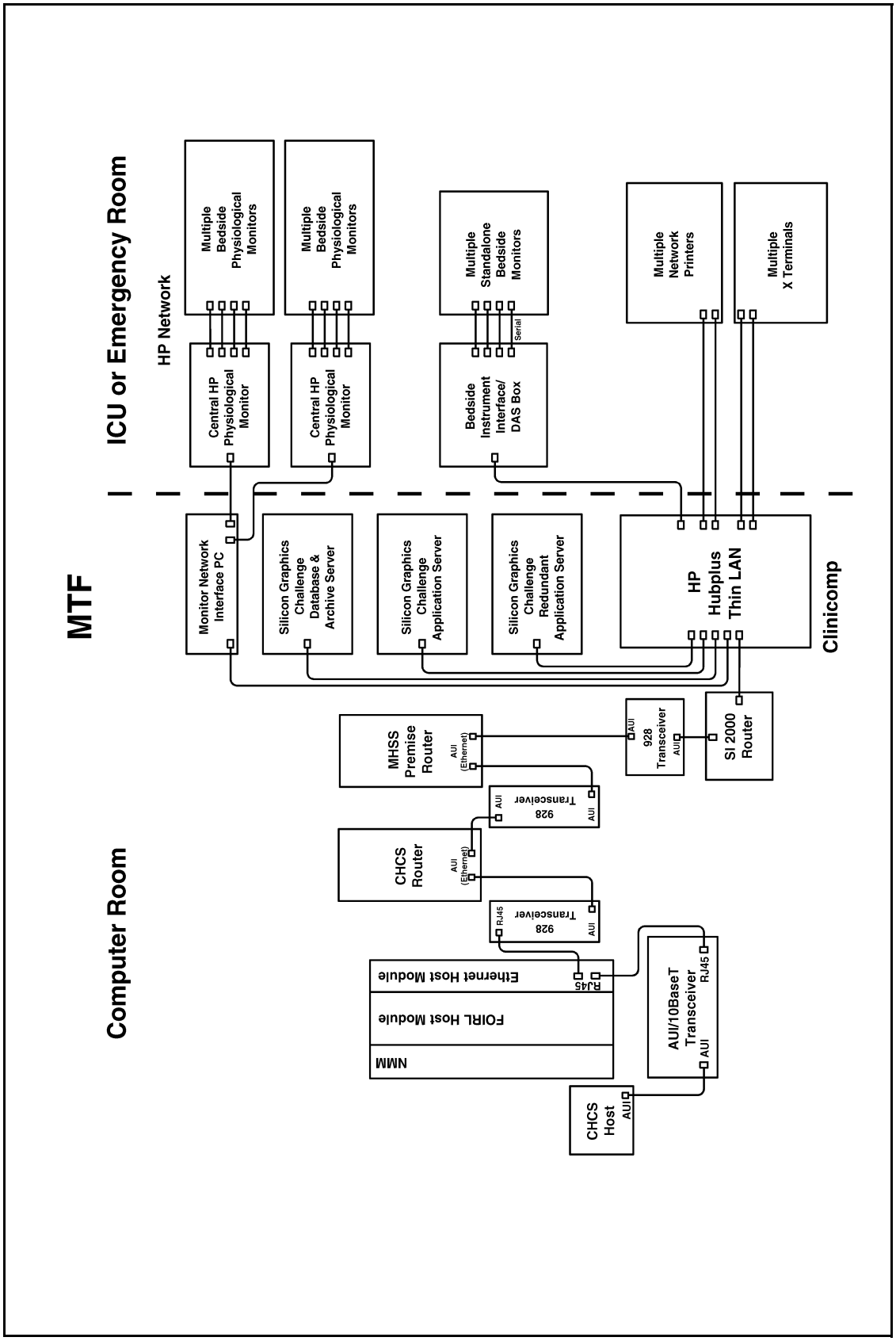

Figure 12-6. Physical Connections to CliniComp

- A PC with a Hewlett Packard (HP) controller functioning as the network interface to the HP network. The network interface connects the CliniComp backbone to one or more central physiological monitors.

- Network concentrator, typically an HP Hubplus Thin LAN

- Dedicated CliniComp router that connects to an Ethernet port on the MHSS premise router, which uses a transceiver to connect to an Ethernet port on the CHCS router.

The following CliniComp components reside in the ICU and emergency room:

- **HP network**. A variety of physiological bedside monitors connecting groups of monitors to a central physiological monitor in the ICU or emergency room. Multiple central monitors can be installed to support additional bedside monitors.

- **Central physiological monitors**. These HP devices collect data from multiple bedside monitors, provide temporary data storage, and ultimately forward that data to the monitor network interface in the computer room.

- **Multiple standalone bedside monitors**. IV pumps, ventilators, and other general monitors, collecting patient data. These monitors are connected to a network by a serial interface to the bedside instrument interface (also called the Data Acquisition and Storage (DAS) box), which is also in the ICU or emergency room. The data on the standalone bedside monitors is verified, then sent to the DAS.

- **DAS (Bedside instrument interface)**. This box has eight serial ports for collecting data from the standalone bedside monitors. Data can be viewed while on the DAS. The DAS can store 8-12 hours of data before converting it to TCP/IP and sending it across the network to the network concentrator.

- **Networked X terminals and printers**. Connect to the CliniComp network concentrator to display and print data from all input devices in all ICUs and emergency rooms.

DBSS

- Refer to Figure 12-7: Physical Connections to DBSS.

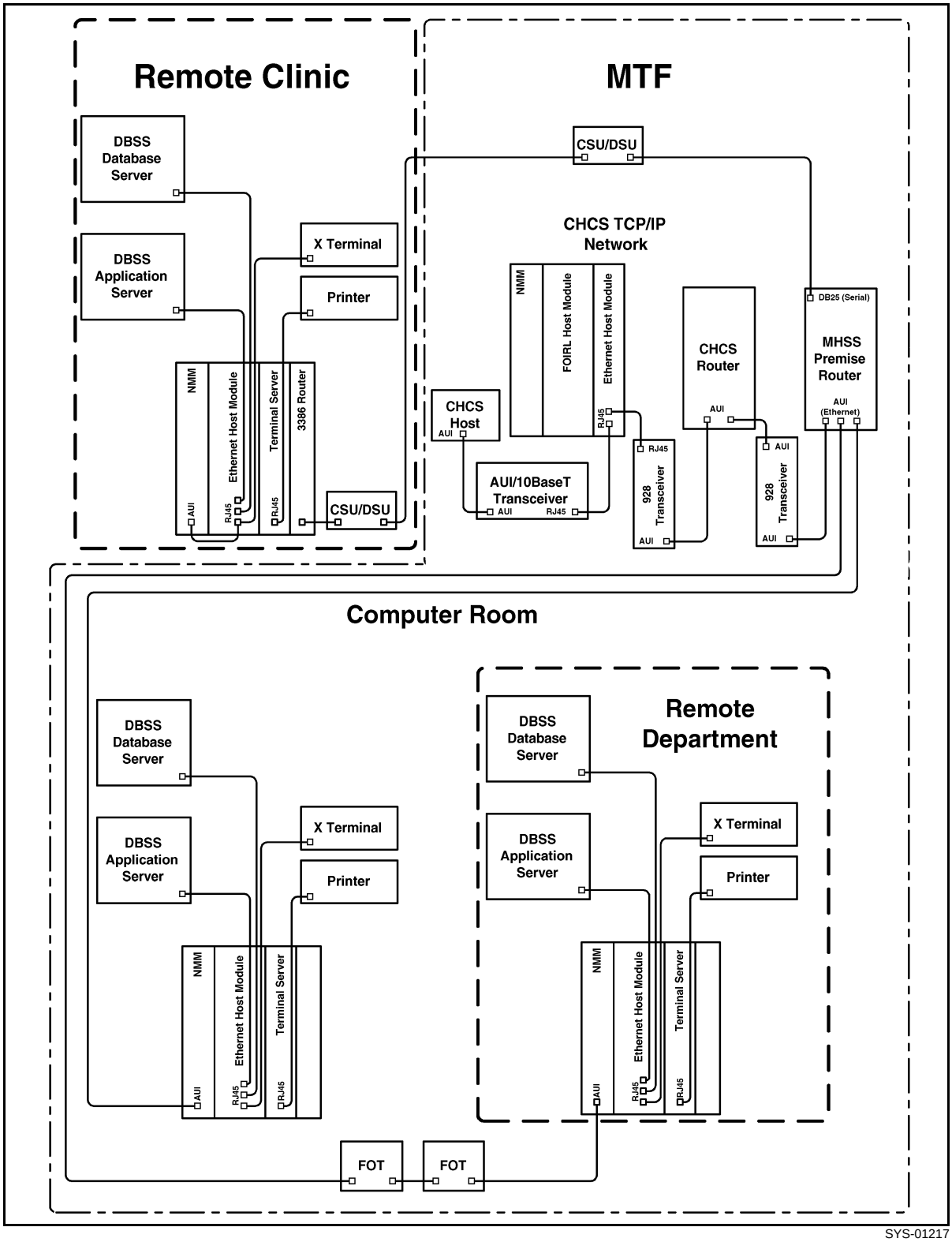

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Figure 12-7. Physical Connections to DBSS

DBSS runs on two Data General 486 PCs: one for the database server, and one for the application server. Both PCs contain network interface cards. The disk and network operating systems are UNIX, with an Informix relational database. DBSS uses TCP sockets to communicate with CHCS.

The DBSS servers reside in the computer room. Both servers use Ethernet to connect to a dedicated DBSS hub segment. This hub connects to an Ethernet port on the MHSS premise router, which uses a transceiver to connect to an Ethernet port on the CHCS router.

If the site has additional DBSS systems installed, they may reside within the MTF, or at remote clinics. If they are distant from the computer room, the DBSS hub connects to a fiber optic transceiver (FOT), which connects by fiber to another FOT in the computer room. The computer room FOT connects to an Ethernet port on the MHSS premise router.

Alternatively, a DBSS system may be connected to the office automation LAN. This system still communicates with the CHCS router through the MHSS router, but instead connects to the MHSS router through the office automation LAN router.

DBSS supports user devices, such as X terminals and printers, using its dedicated hub segment.

EAS

- Refer to Figure 12-8: Physical Connections to EAS.

The EAS system may be one of the following:

– AT&T 3b2 servers (Air Force, Army)

– Everex 486 servers (Army, Navy)

– Everex Pentium servers.

Each of the above systems contains a network interface card, and uses the UNIX disk and network operating systems. EAS is a client/server architecture. The recommended client for all listed servers is an AT&T 605 terminal; however, some sites are using 386 or higher PC clients.

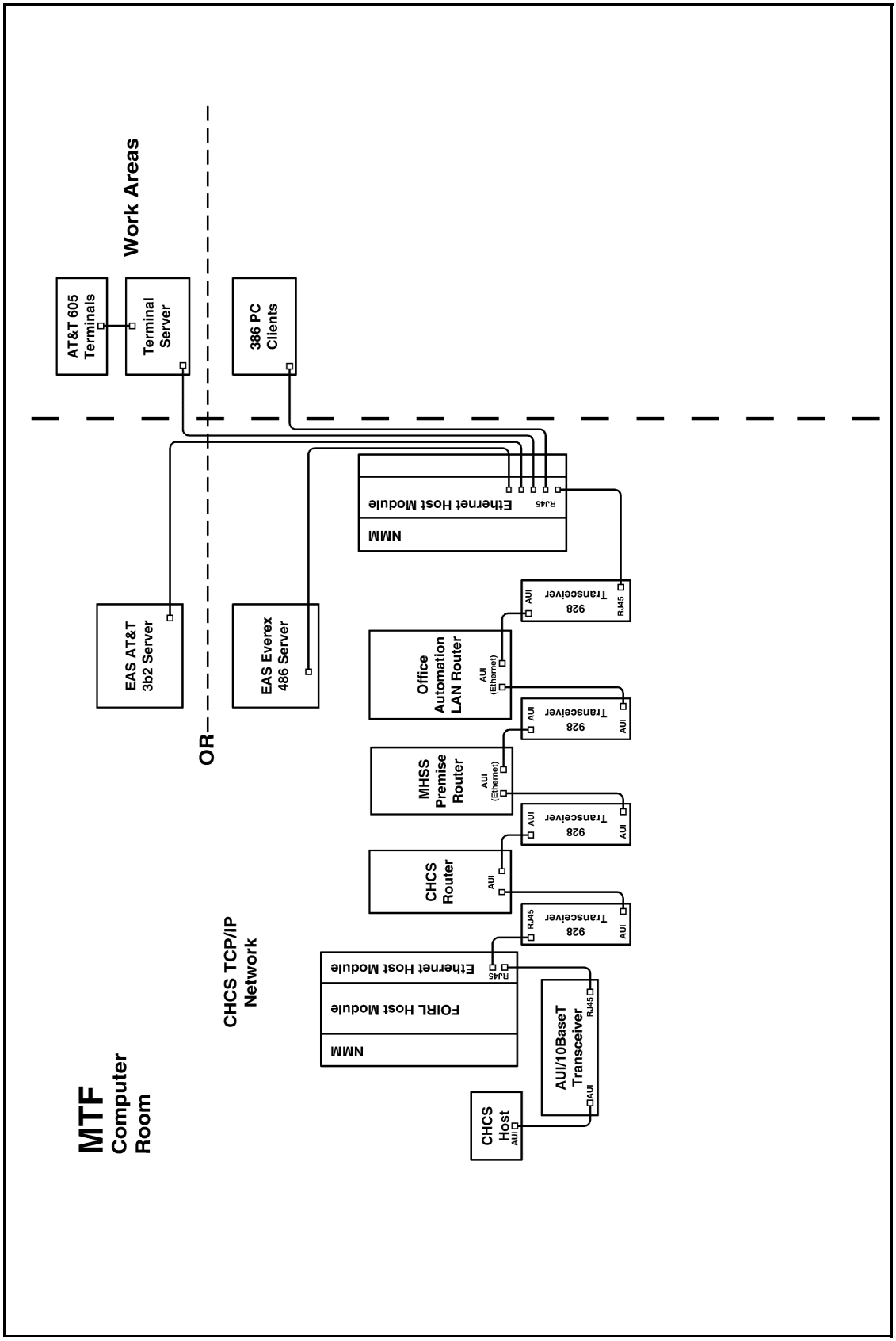

Figure 12-8. Physical Connections to EAS

EAS III resides in the computer room, where it uses Ethernet and TCP/IP to communicate to an Ethernet host module on the office automation LAN. This LAN has its own router, which connects to an Ethernet port on the MHSS premise router via a transceiver. The MHSS router uses a transceiver to connect to an Ethernet port on the CHCS router. FTP is used to transfer files between EAS and CHCS.

EAS supports its client workstations and printers via communication equipment on the office automation LAN.

MHCMIS

- Refer to Figure 12-9: Physical Connections to MHCMIS.

MHCMIS resides on the same Data General AViiON fileserver as the RCMAS system. However, the two systems operate as entirely separate applications. They access the MHSS using two separate network interface cards, and function as two nodes on the same network segment. The disk and network operating systems are UNIX, with an Informix relational database.

MHCMIS resides in the computer room, where its SCSI port connects to an Ethernet transceiver using thick SCSI cable. An RJ45 port on the transceiver connects through Ethernet to a hub segment shared with RCMAS. This hub segment connects to an Ethernet port on the MHSS premise router. If the router is too far away it connects to an FOT, which connects to another FOT, then on to an Ethernet port on the MHSS premise router. The MHSS router uses another transceiver to connect to an Ethernet port on the CHCS router.

MHCMIS supports its own user devices via its hub segment.

NMIS

- Refer to Figure 12-10: Physical Connections to NMIS.

NMIS runs on a single Everex 486 PC, which functions as both an application and database server. The NMIS PC includes a network interface card with an RJ45 port. The disk and network operating systems are UNIX. The NMIS architecture is client-server running an Informix relational database.

NMIS resides in the computer room, where it uses Ethernet to connect to a dedicated hub segment. That hub connects to an Ethernet port on the MHSS premise router, which uses a transceiver to connect to an Ethernet port on the CHCS router.

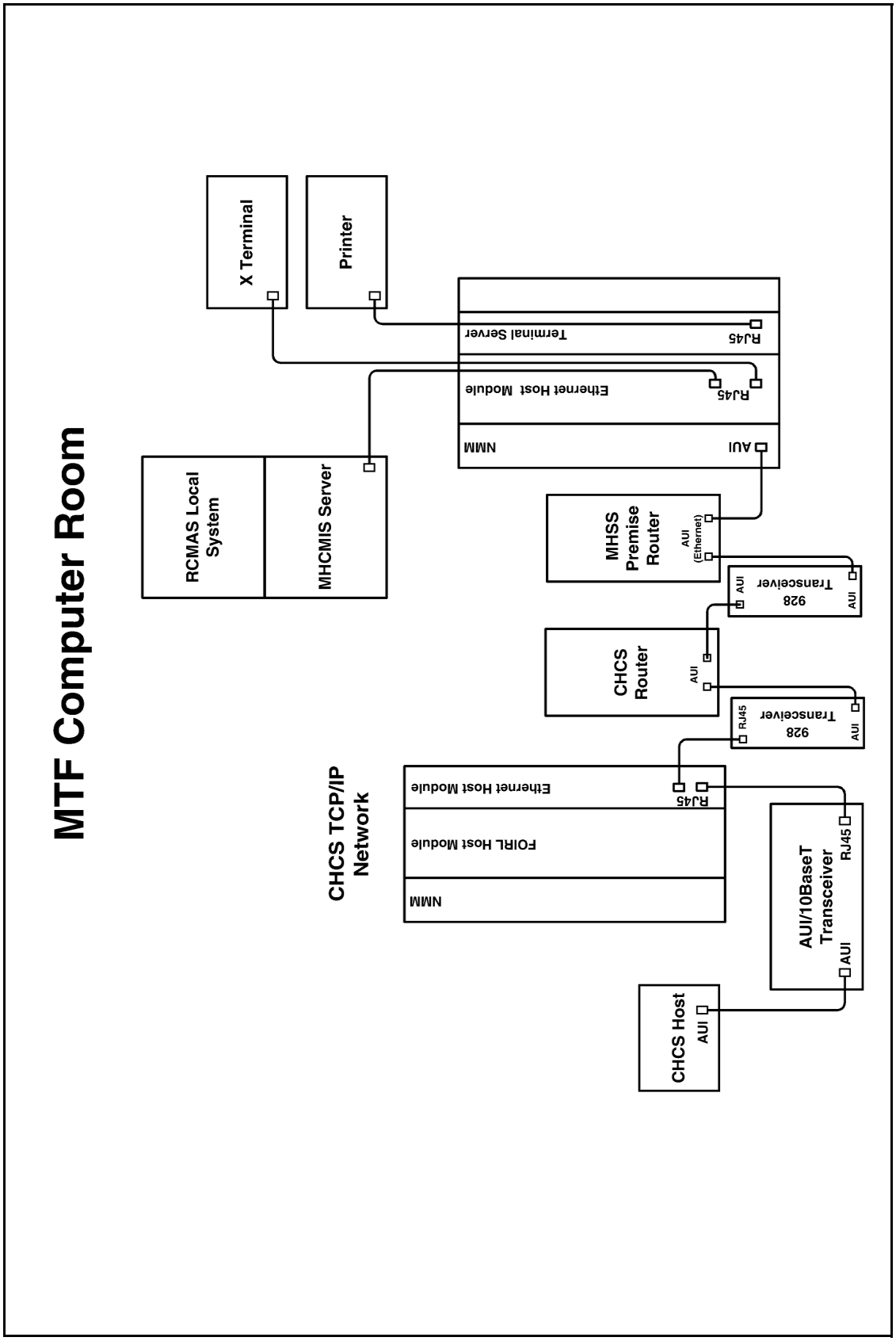

Figure 12-9. Physical Connections to MHCMIS

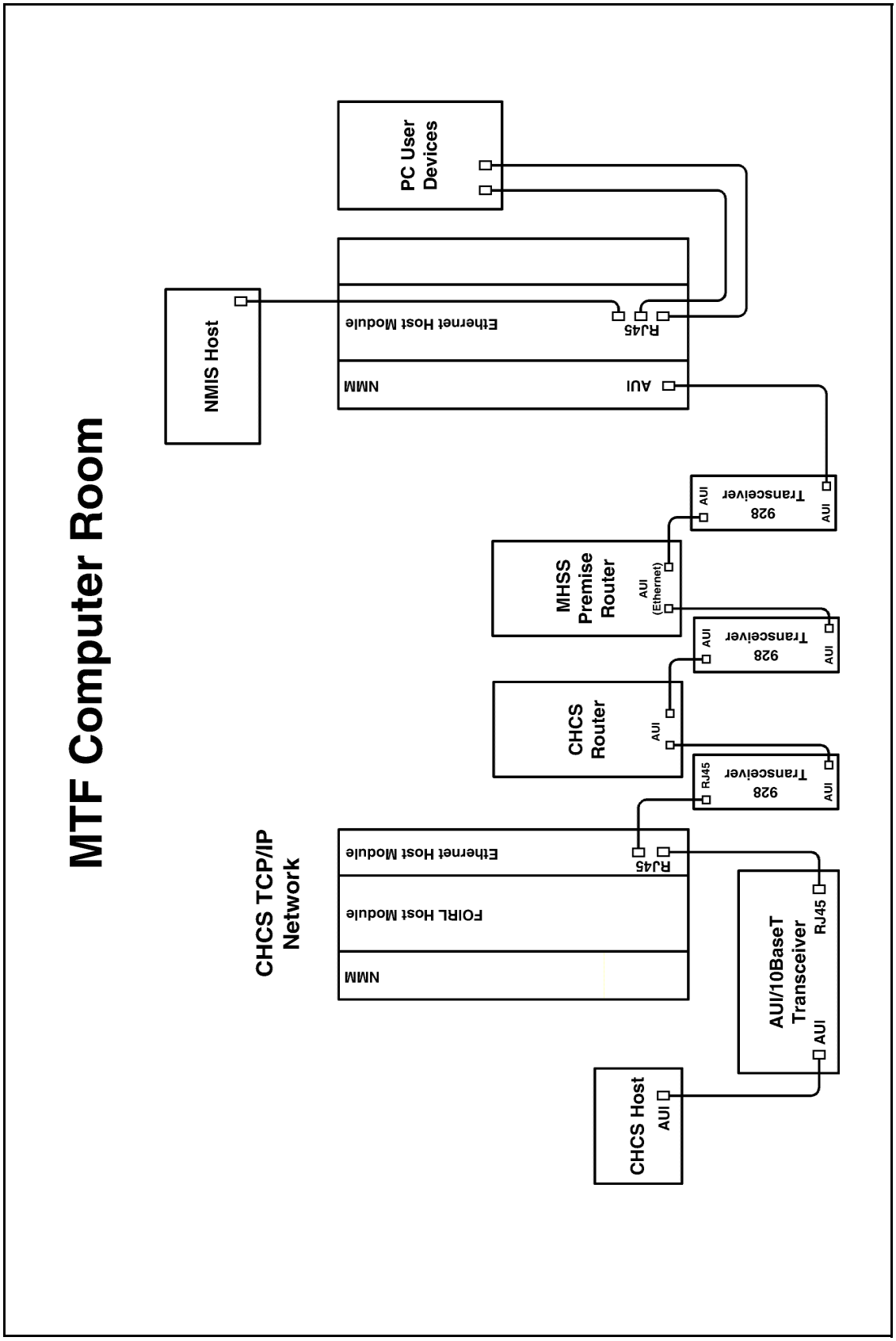

Figure 12-10. Physical Connections to NMIS

If the site has additional NMIS systems installed, they may reside within the MTF, or at remote clinics. If they are distant from the computer room, the NMIS hub connects to a FOT, which uses fiber to connect to another FOT in the computer room. The computer room FOT connects to an Ethernet port on the MHSS premise router.

NMIS uses a dedicated hub segment to support its own user devices. Those devices include PC Xwindows clients and a Milan Fastport print server, which provides TCP/IP network connectivity for older printers.

RCMAS

- Refer to Figure 12-11: Physical Connections to RCMAS.

Local RCMAS resides on the same Data General AViiON fileserver as the MHCMIS system. However, the two systems operate as entirely separate applications. They access the MHSS using two separate network interface cards, and function as two nodes on the same network segment. The disk and network operating systems are UNIX, with an Informix relational database.

The local RCMAS system resides in the computer room, where the RJ45 port on its network interface card uses Ethernet and TCP/IP to communicate to a hub segment shared with MHCMIS. This hub segment connects to an Ethernet port on the MHSS premise router. If the router is too far away it uses fiber and two FOTs to connect to the router. The MHSS premise router uses a transceiver to connect to an Ethernet port on the CHCS router.

FTP is used to transfer files to the local RCMAS. The local RCMAS accesses the central RCMAS through the DISN link. If the site does not have a local RCMAS server, CHCS uses FTP to exchange data with the central RCMAS system.

RCMAS does not support user devices.

Practice 1 - Define the physical connections to external systems.

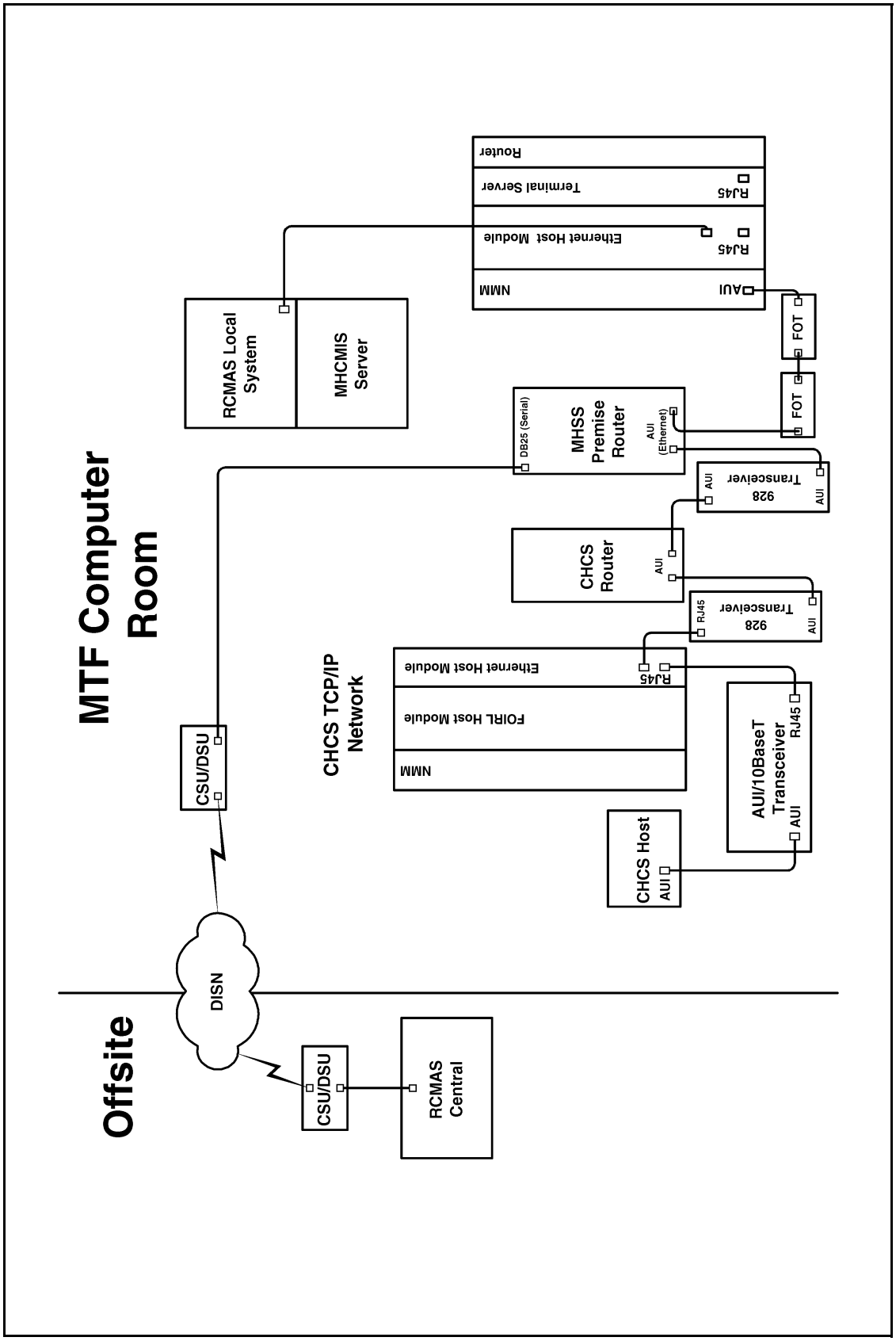

Figure 12-11. Physical Connections to RCMAS

PRACTICE GUIDELINES

The information you need to complete each practice is supplied in the instructions and scenarios.

Notify the presenter when directed to do so in the practice. This allows the presenter to verify that you have successfully completed an activity.

You may use any reference materials available in the classroom to complete your practices.

You may ask questions or request assistance at any time during the practices.

Students 1-10

Practice 1 - Define the physical connections to external systems.

INSTRUCTIONS: This practice will take approximately 10 minutes. Follow the specifics below.

Scenario: *You were just told that your site will be getting the EAS system, and that it must be able to exchange data with CHCS. Determine how EAS will connect to CHCS, and whether or not you will have to support the EAS users.*

1. Identify system(s) that access CHCS via the DISN:

   _____

2. Identify system(s) that access CHCS via the CHCS TCP/IP backbone:

   _____

3. Identify system(s) that access CHCS via the DDP backbone:

   _____

4. Identify system(s) that access CHCS via the MHSS router:

   _____

5. Identify system(s) whose users access their systems across the CHCS backbone:

   _____

6. Identify the UNIX systems:

   _____

7. Identify the VMS systems:

   _____

8. Identify the MVS systems:

   _____

Students 1-10 (continued)

9. Draw the typical physical connections between CHCS and the following external systems. Include as many communication components (hubs, routers, CSU/DSUs, etc.) as possible. Blank pages follow for your use.

   – Three DBSS systems: one in the computer room, one in a remote department in the MTF, and one in a remote clinic.

   – CoPath

   – EAS

   – RCMAS

   – MDIS

   – CliniComp

Notify the presenter when you have completed this practice.

Students 1-10 (continued)

Physical connections for three DBSS systems: one in the computer room, one in a remote department in the MTF, and one in a remote clinic.

Students 1-10 (continued)

Physical connections for CoPath

Students 1-10 (continued)

Physical connections for EAS

Students 1-10 (continued)

Physical connections for RCMAS

Students 1-10 (continued)

Physical connections for MDIS

Students 1-10 (continued)

Physical connections for CliniComp

9. Draw the typical physical connections between CHCS and the following external systems. Include as many communication components (hubs, routers, CSU/DSUs, etc.) as possible.

   – Three DBSS systems: one in the computer room, one in a remote department in the MTF, and one in a remote clinic.

   – CoPath

   – EAS

   – RCMAS

   – MDIS

   – CliniComp

   For the correct connections, refer to figures on the following pages:

   – **Physical Connections to DBSS**

   – **Physical Connections to CoPath**

   – **Physical Connections to EAS**

   – **Physical Connections to RCMAS**

   – **Physical Connections to MDIS**

   – **Physical Connections to CliniComp**

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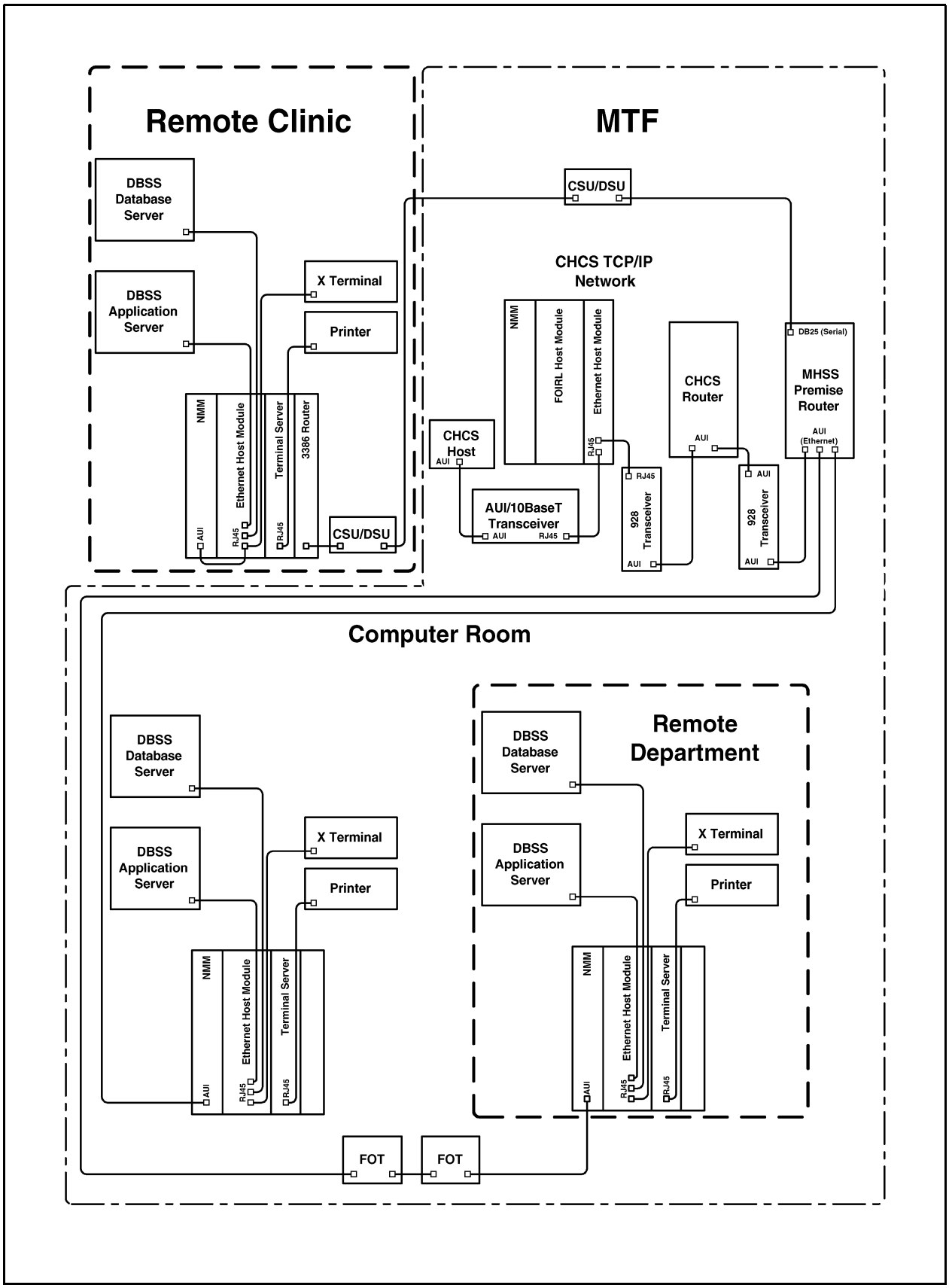
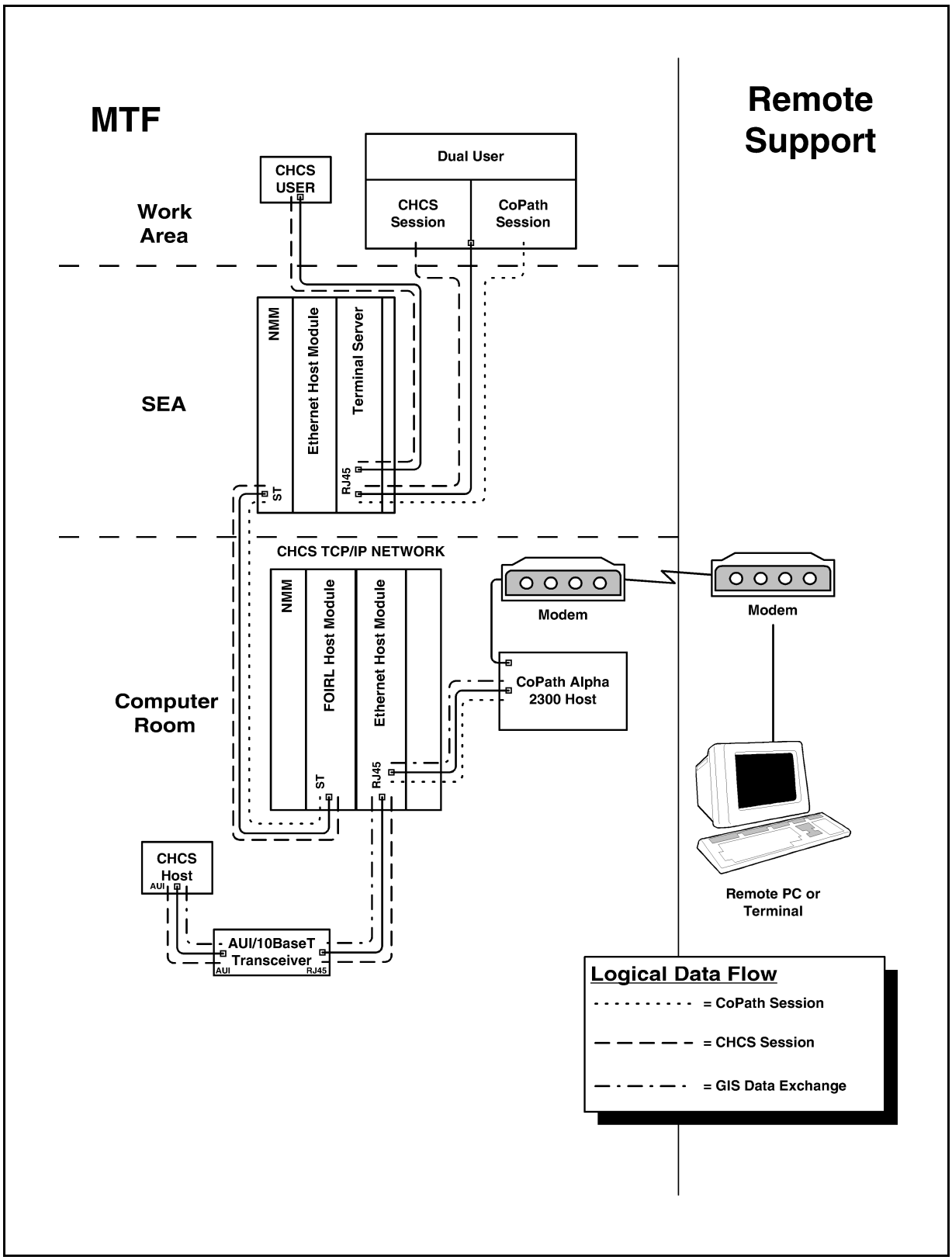
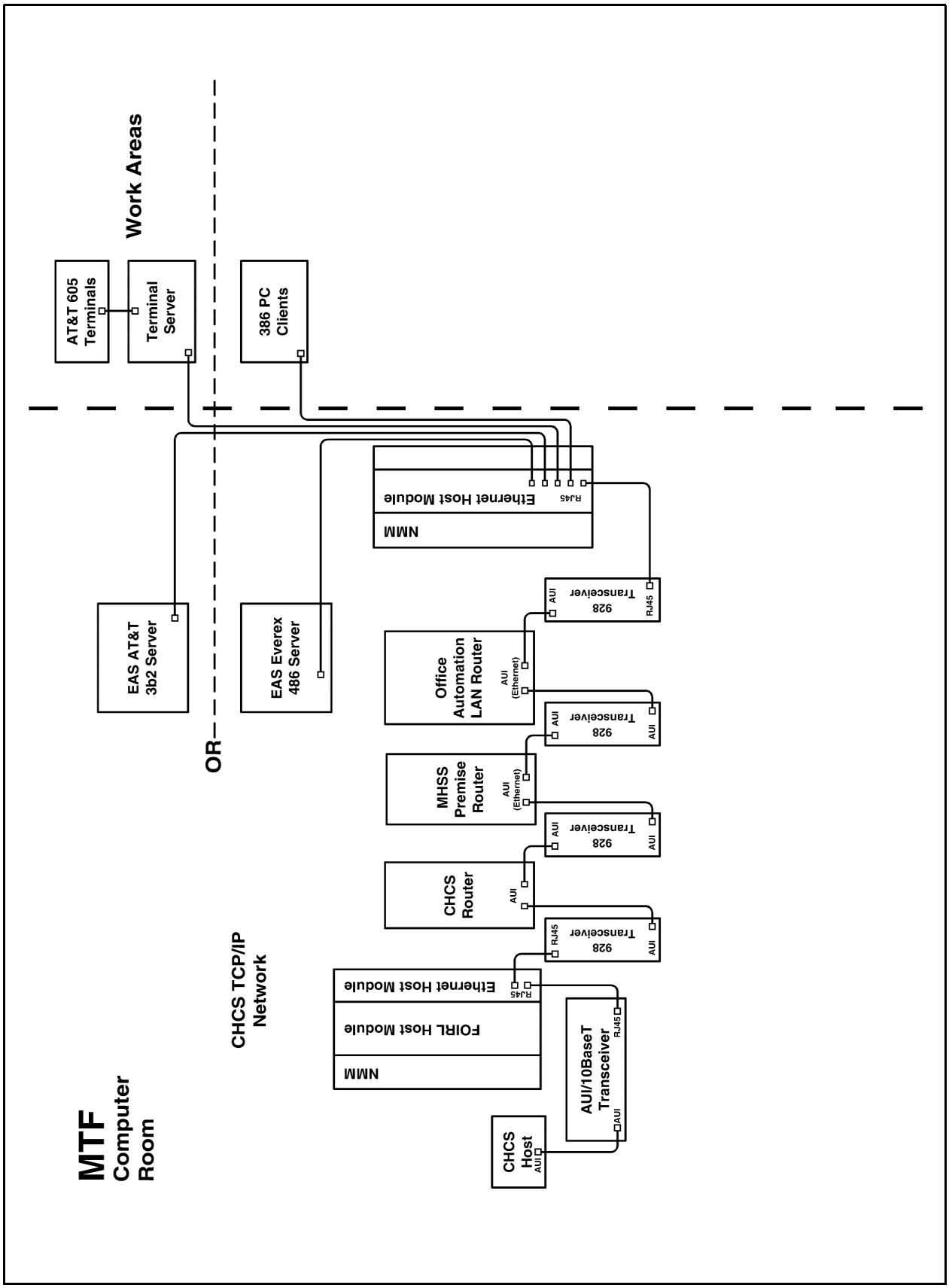
Physical Connections to DBSS





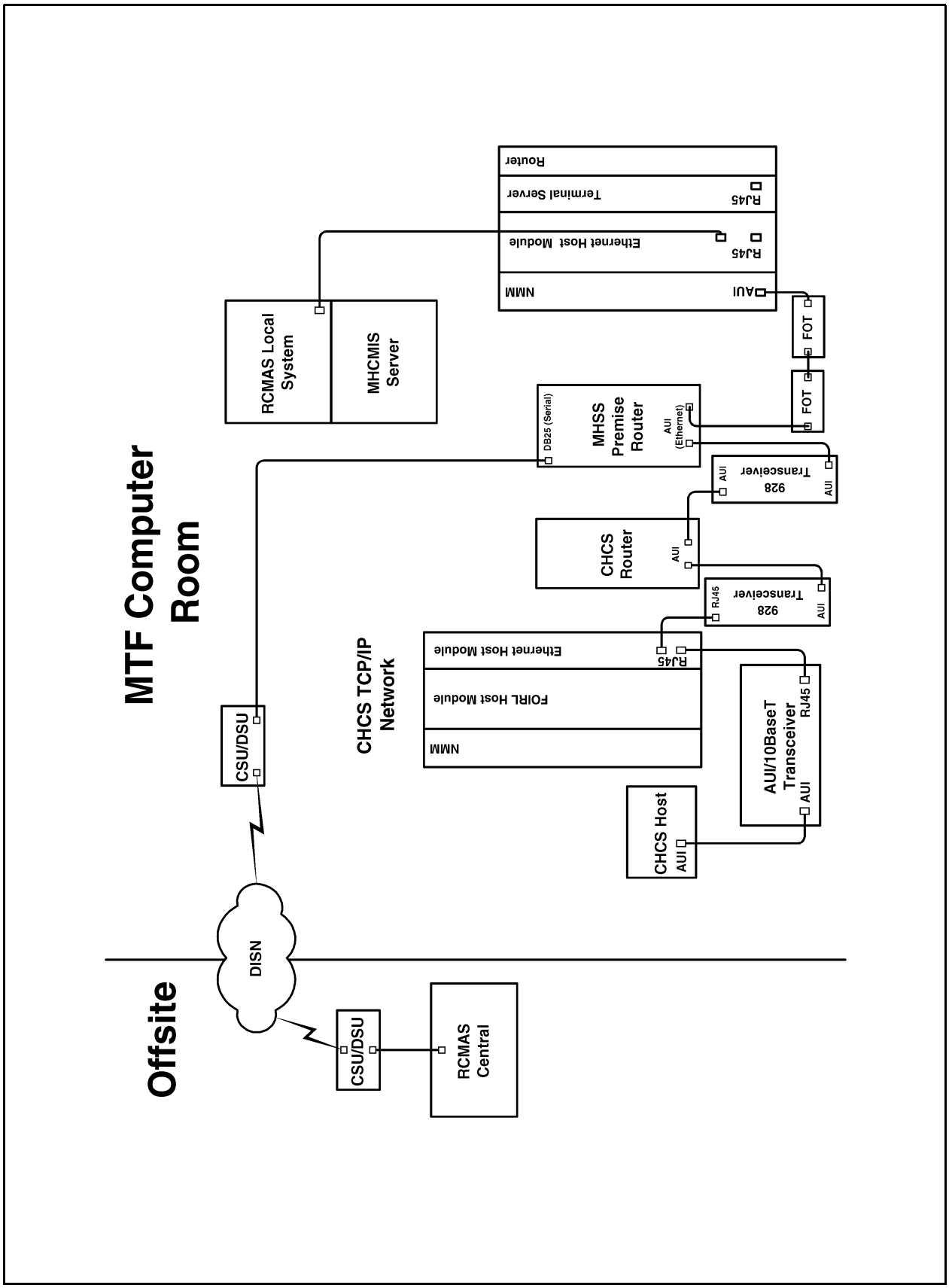
SYS-01222

Physical Connections to CoPath

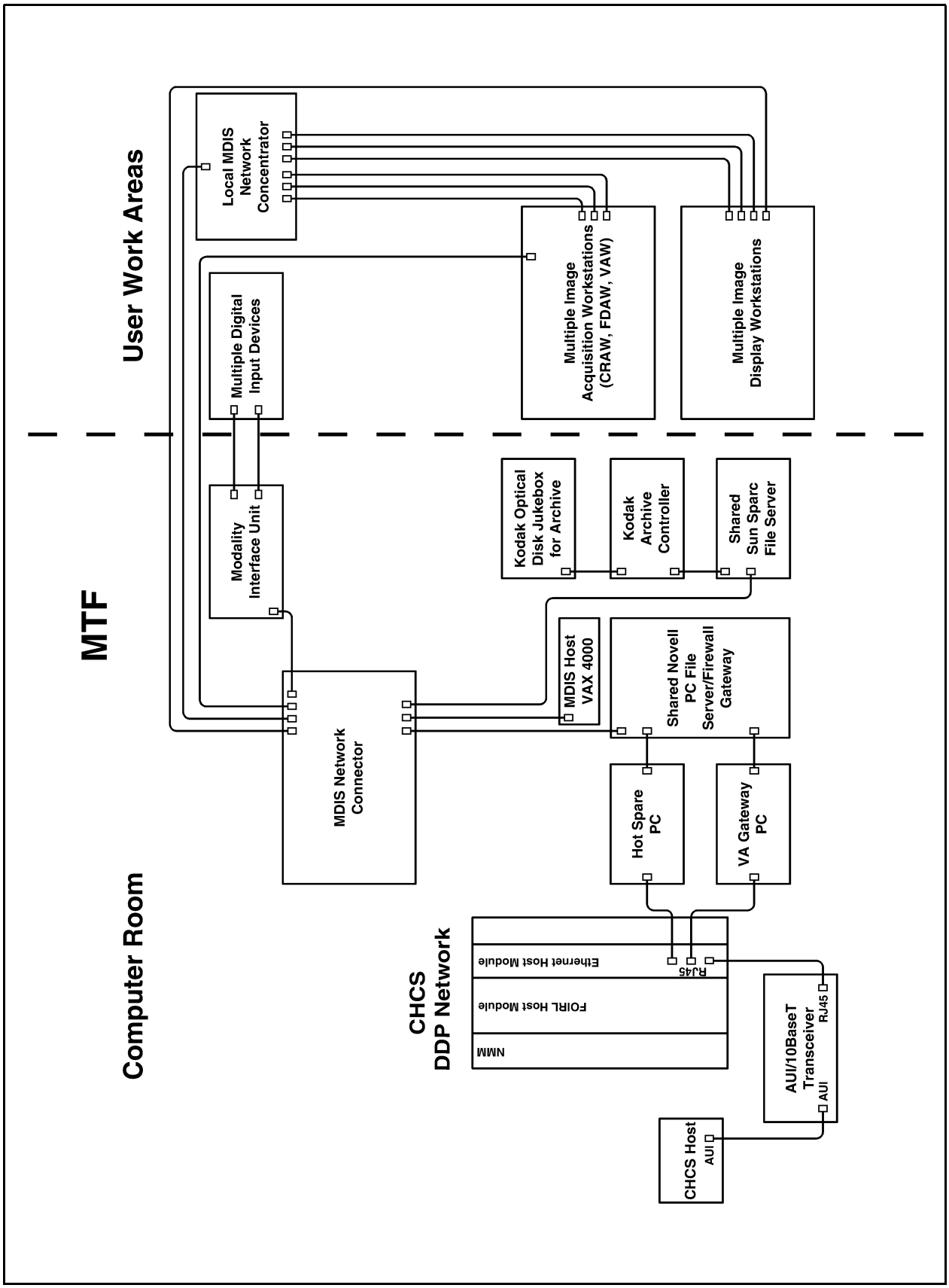


SYS-01224

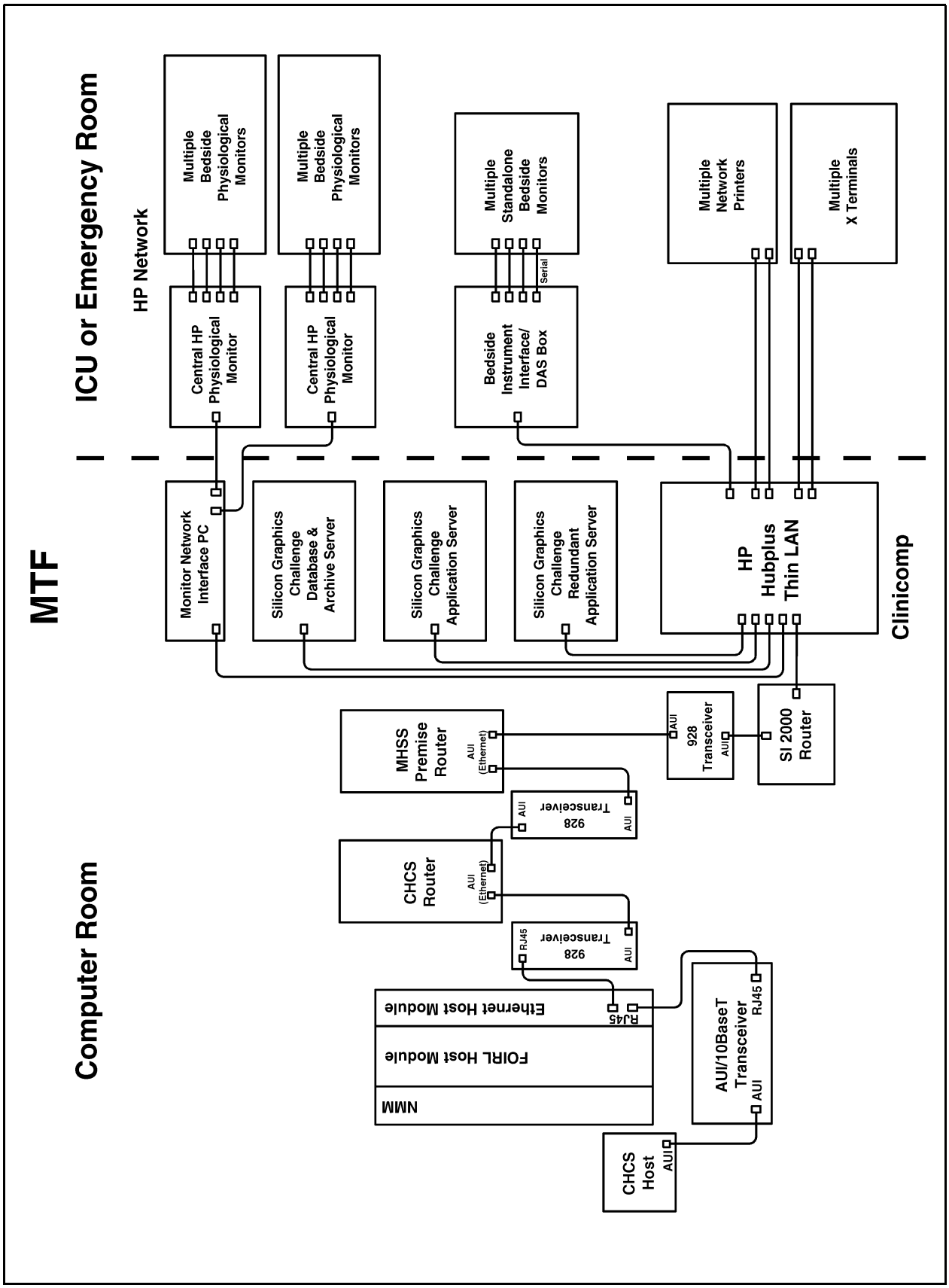
Physical Connection to EAS



Physical Connections to RCMAS



Physical Connections to MDIS



SYS 01227

Physical Connections to CliniComp

■ Objective 2: TROUBLESHOOT COMMUNICATION TO EXTERNAL SYSTEMS

Scenario: *Several external system administrators have called to tell you they are not receiving messages from CHCS. You check your physical connection diagrams and see that all of the failed interfaces are using the DISN.*

This objective addresses only those problems caused by the network. For additional assistance troubleshooting software or data, refer to earlier modules of this class.

INTRODUCE COMMUNICATION PROBLEMS

One of the most common causes of interface failures and performance problems is the network. Network problems can cause the following problems:

– Messages are not received by CHCS or the external system

– Data is becoming corrupt

– Remote system users cannot connect to their system.

Baseline Your Communication Statistics

It is good practice to establish a baseline for communication to each of the external systems while the interface is functioning efficiently. Use the MultiNet TRACEROUTE command with each external system to obtain the route, number of hops, and time to make each hop. Keep a hardcopy of this information. This baseline can be compared to a new set of network statistics obtained when troubleshooting communication problems with that external system.

DISCUSS SYMPTOMS OF COMMUNICATION PROBLEMS

Following is a list of interface problems that can be caused by your network. The list illustrates possible causes and tools to use to solve the problem, but not the specific procedures to use the tools listed.

- Refer to SYS: VMS Hardware Specialist, for the specific procedures to troubleshoot the CHCS network.

1. Messages Not Sent/Received - Local

- Refer to Figure 12-12: Flowchart to Troubleshoot Messages Not Sent/Received - Local

1.1. Background GIS process times out when the process starts.

When a GIS background process starts, it attempts to connect with the external system. If no connection response is received from the external system, the background process terminates (time out) after the number of seconds indicated in the Background Process Control file. This scenario can occur if the destination system is down. Check lights on the front panel of the destination system, and confirm the system status with the system's administrator.

The following network problems can also cause this scenario to occur:

– Network bottlenecks prohibit a connection response from the external system in the allotted time (specified in the Interface Site Parameters file).

– A network component, such as a router port or modem, is improperly configured or is malfunctioning, prohibiting the connection request or response from reaching its destination. The request or response may either not reach its destination, or may take an alternate route, extending response time. Problems may be experienced with only the interface using one specific router port or modem; all others may continue to function normally. However, if the failed router port connects to the DISN, you may experience problems with all interfaces that use the DISN.

Each of these causes can be investigated as follows:

– Obtain the IP address used by the interface program, then use the MultiNet PING command with that IP address to determine whether the system is available to the network. If it cannot be reached, confirm with the external system administrator that you are using the proper IP address. Try sending a PING to other devices on the same network segment as the external system. If they also do not respond, the problem may be on the network segment or the router port connecting to that segment.

– Use the MultiNet SHOW command to obtain a list of IP addresses with which MultiNet has established connections. The display includes the IP address reached, as well as protocol and TCP socket port used for each connection. Try to locate the IP address of the external system in question to determine if MultiNet is establishing a connection.

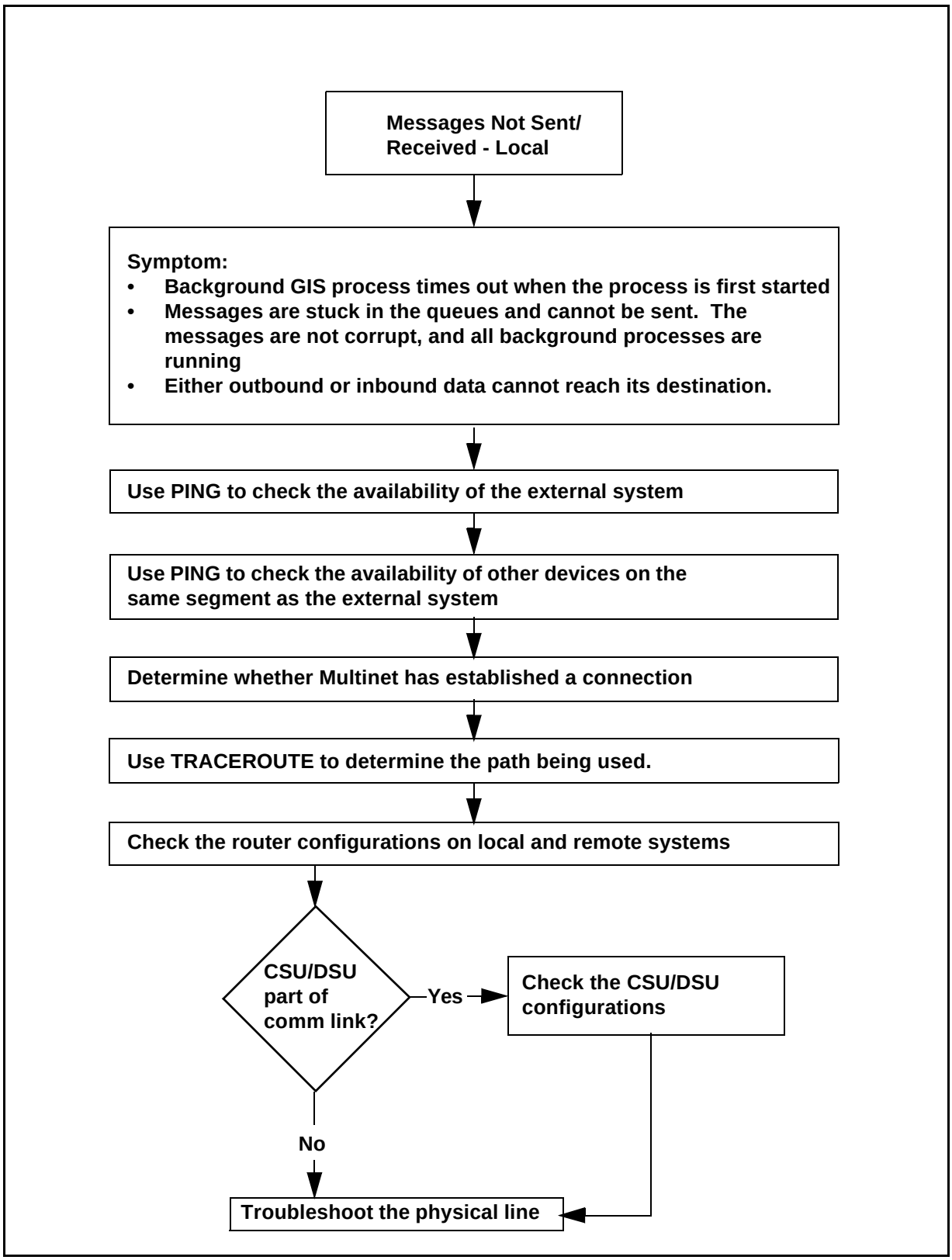


Figure 12-12. Flowchart to Troubleshoot Messages Not Sent/Received - Local

– Use the MultiNet TRACEROUTE command to analyze the path taken between CHCS and the destination, and to capture the length of time to traverse each network segment. Compare the numbers and path with your baseline statistics. Determine if the proper path is being taken, and if one of the segments is taking a longer than normal time to respond. TRACEROUTE is most useful when the external system is at a distance from the MTF or is across the DISN.

– Use router commands to review the router configuration. Confirm that IP addresses, subnetwork masks, and routing protocol are correctly configured. Confirm that the configuration on your router and the remote system's router are the same.

– If a channel service unit/data service unit (CSU/DSU) is part of the communication link, use commands on that component to confirm that it is properly configured.

– Try additional tools, such as a Sniffer, fox/hound or tone generator, to troubleshoot the physical line. These tools can help you determine which network segment has collisions or is dropping a signal.

1.2. Messages are stuck in the queues and cannot be sent.

The specialist may notice that messages are not moving through the GIS queues (QSIZ or TOP options). However, the messages are not corrupt, and all background processes are running. If that interface expects an acknowledgment, the message waits in the appropriate queue until some acknowledgment is received. The same network problems (listed above) that cause a GIS background process to terminate may also preclude a message from being sent, or preclude an acknowledgment from being received.

1.3. Either outbound or inbound data cannot reach its destination.

The same network problems listed above that prevent an interface from starting may also prevent messages from reaching their destinations.

2. Messages Not Sent/Received - DISN

- Refer to Figure 12-13: Flowchart to Troubleshoot Messages Not Sent/Received - DISN

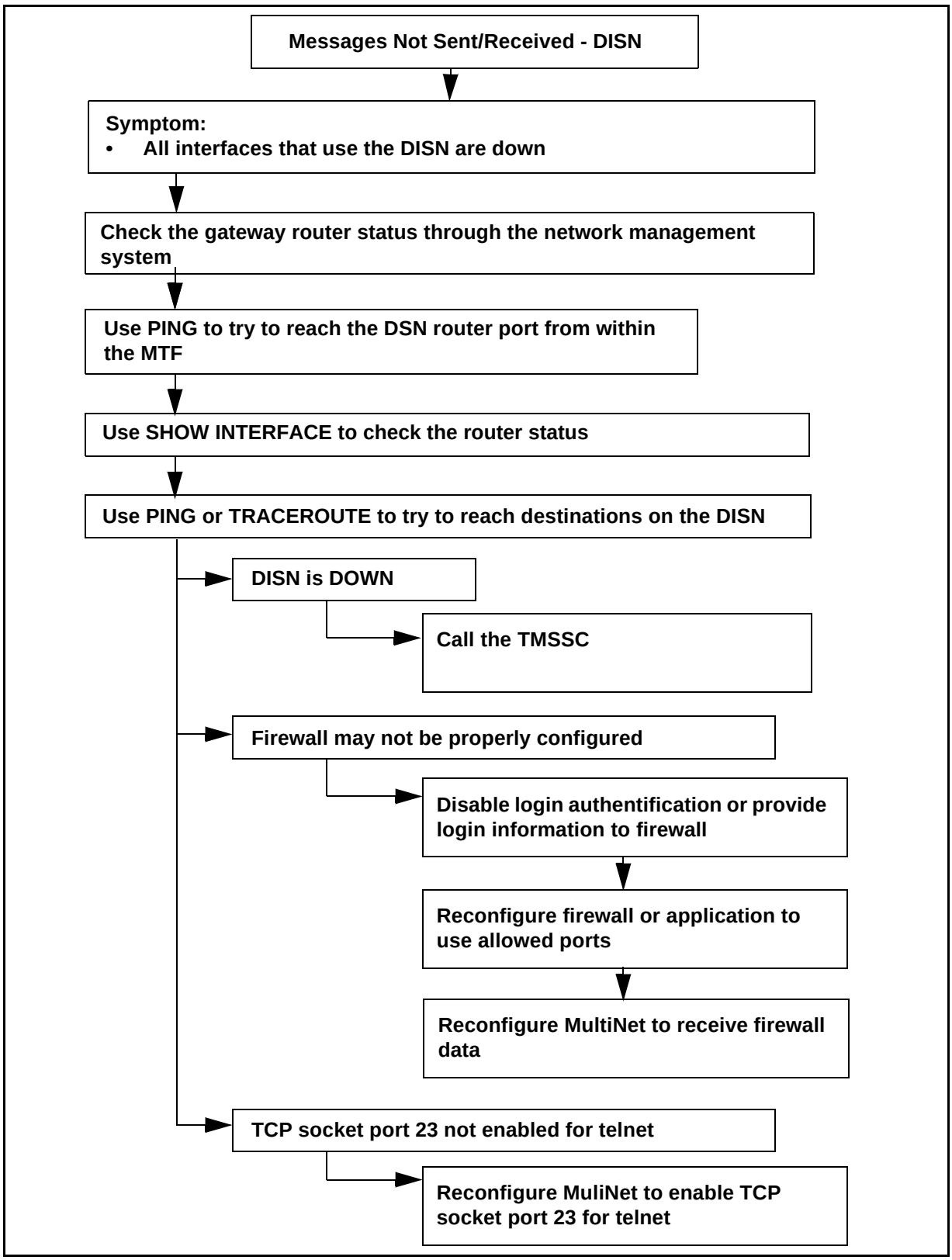


Figure 12-13. Flowchart to Troubleshoot Messages Not Sent/Received - DISN

DISN link problems may be caused by either failure of the local gateway router port or CSU/DSU that connect to the DISN; or by the DISN line itself.

2.1. The router port or CSU/DSU to DISN link down or improperly configured.

– Use the PING command to try to reach the DISN router port from within the MTF. This step confirms that the router port is reachable using a specific address, but does not tell you if it is configured properly, or if the port hardware is bad.

– Check the status of the gateway router through Optivity or some other network management system. If the router is unreachable from the network management system, the problem is probably on your router. This step is essentially the same as sending a PING to the router. Most network management systems use PING to confirm whether a network component is available to the network.

– Check the status of the router port by entering the following command on the gateway router: SHOW INTERFACE. If the status of the DISN port is LINE DOWN, LINK PROTOCOL DOWN, the problem is local to either the router or CSU/DSU; the problem is not the DISN.

– If the SHOW INTERFACE router command indicates that the line and link protocol are operating, use the PING or TRACEROUTE commands to try to reach destinations on the DISN. The following locations may be used:

alms2.army.mi	Army Nameserver
nic.ddn.mil	Defense Data Network (DDN) NIC
134.229.200.2	Navy Nameserver

Note that if a site uses a firewall, it may not allow the PING to pass through.

– Use router commands to view the configuration of the DISN router port. Confirm that the port is properly configured.

2.2. The DISN is down.

If the SHOW INTERFACE router command indicates that the line is working but the link protocol is not, the router can connect to the local CSU/DSU, but the DISN is down. Contact the TMSSC. You can reach the TMSSC at 800-600-9332 (CONUS) or 800-981-5339 (OCONUS). The TMSSC screens and directs calls to either the PRC for hardware issues, SAIC for software issues, or a specific vendor for COTS products. They confirm that the problem is not local to your site, then

call DISA to determine the status of the DISN and will tell you when it is expected to be available. Notify users when DISN links will be available.

2.3. Firewall may not be configured properly.

Most firewalls are configured to allow the two TCP methods currently used to exchange data with external systems: FTP, and TCP sockets (including telnet). However, the firewall may require an additional level of authentication. If the transmitting program is not configured to provide the proper login information to the firewall, the data will not pass through.

– Disable login authentication on the firewall, or obtain a version of the application program that can provide login information to the firewall.

Additionally, the firewall may restrict TCP socket access to specific TCP ports. If the background process uses a port other than those allowed, the data will not pass through.

– Reconfigure the firewall to allow additional ports, or reconfigure the application to use allowed ports.

If your firewall has been configured to disallow telnet, you will also loose connectivity with DEERS.

The firewall may also need to be configured to allow login from the IP address of the systems exchanging data.

2.4. MultiNet not configured to receive data from the IP address of the firewall.

– Configure MultiNet to receive data from the firewall.

2.5. The TCP socket port 23 is not enabled for telnet.

In order to use telnet to reach the DEERS interface, MultiNet must be configured to enable TCP socket port 23 for telnet.

3. Data is Becoming Corrupt

- Refer to Figure 12-14: Flowchart to Troubleshoot Corrupt Data.

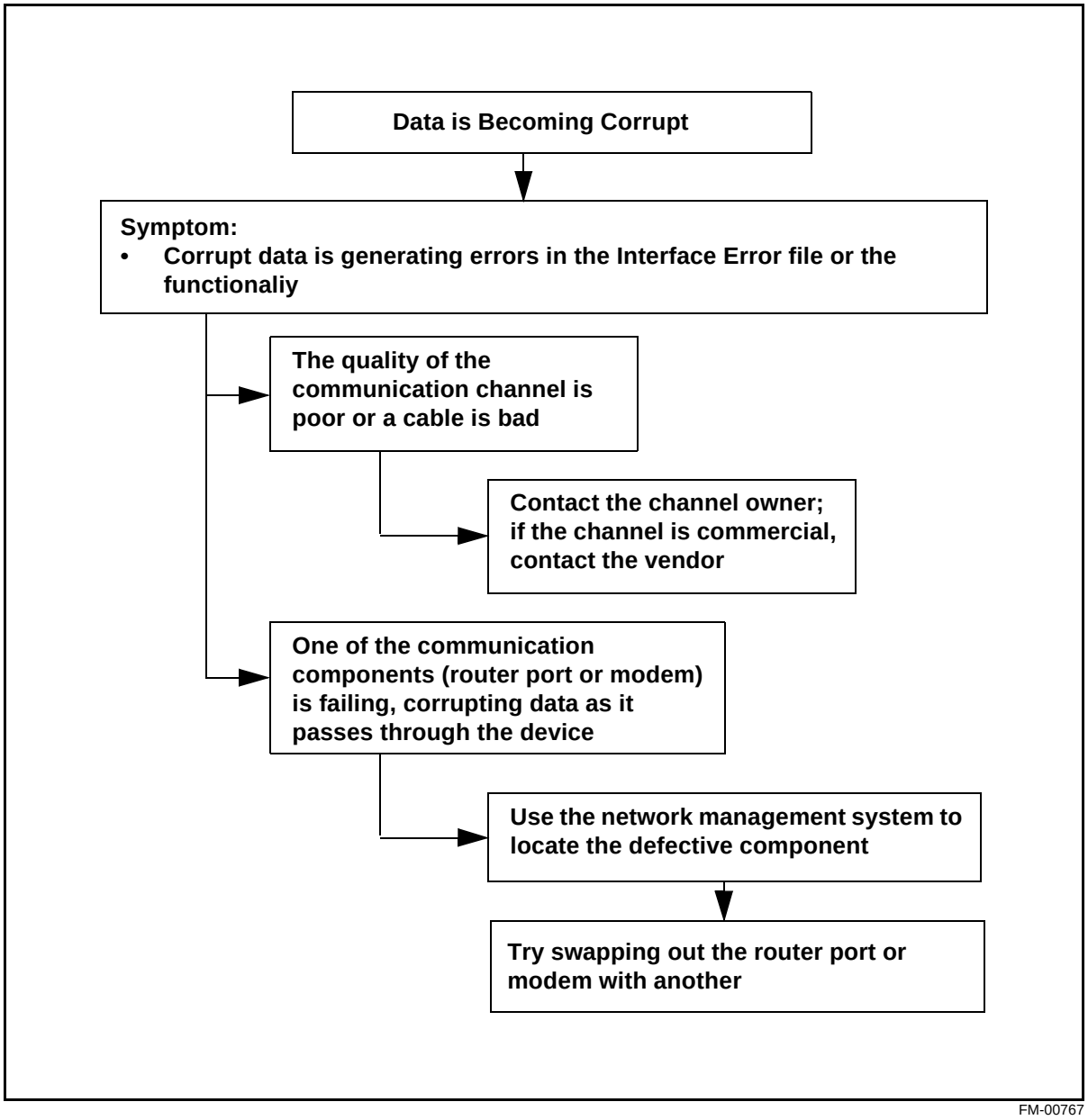


Figure 12-14. Flowchart to Troubleshoot Corrupt Data

3.1. Corrupt data generates errors in the Interface Error file or the functionality.

3.1.1. The quality of the communication channel is poor or a cable is bad. Contact the channel owner.

– If the channel is maintained by the MTF, obtain appropriate approval, then replace the channel.

– If the channel is commercially leased, contact the channel vendor.

3.1.2. A router port or modem is failing, corrupting data as it passes through the device.

– Use the network management system to review the status of communication components and locate the defective component.

– Try swapping out the router port or modem with another.

3.2. External system receives negative acknowledgments on data sent to CHCS.

The data may have been corrupted in transit. This generates negative Accept or Application acknowledgments from CHCS.

– CHCS communication equipment is down or improperly configured. Refer to communication troubleshooting steps identified above for failing or improperly configured components.

4. Remote System Users Cannot Connect

- Refer to Figure 12-15: Flowchart to Troubleshoot Remote System Users Who Cannot Connect.

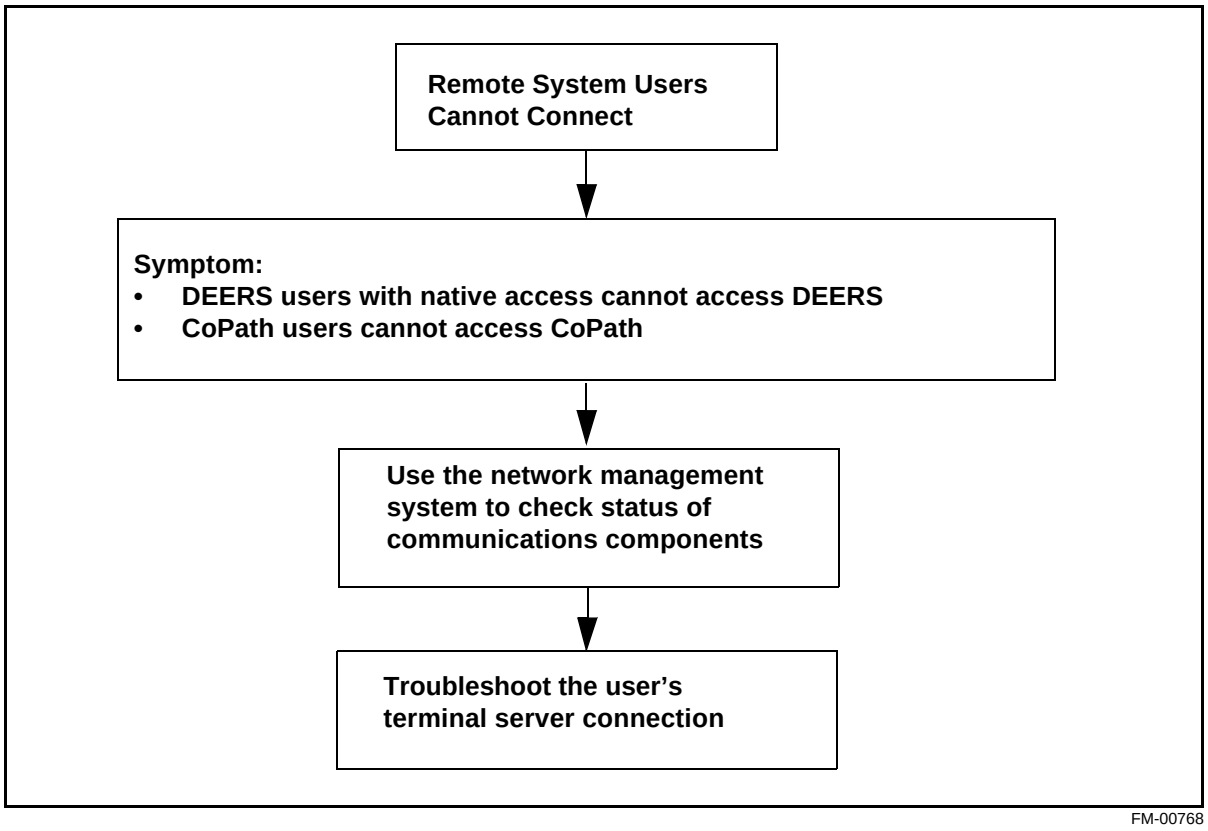


Figure 12-15. Flowchart to Troubleshoot Remote System Users Who Cannot Connect

Users of the following systems connect to their hosts across the CHCS backbone:

– DEERS users with native access to the DEERS database

– CoPath.

Problems on the CHCS backbone may preclude users of these remote systems from accessing their systems.

– Check the status of CHCS backbone communication components in the network management system.

– Troubleshoot the user's terminal server connection.

DISCUSS THE LOCATION OF IP ADDRESSES

In order to properly communicate, IP addresses must be correct in the following locations:

- DEERS Site Parameters file contains the IP address of the McData box.
- If using a terminal server menu for native DEERS access, the terminal server must have the IP address of the OCS gateway.
- The entry for each GIS background process in the Interface Background Process Control file (option BPE) contains the IP address and port of each external system.
- EDS records the VAX/AXP host IP addresses for use with the DBSS interface and for use with native DEERS sessions and print jobs. If EDS does not have the correct CHCS addresses, CHCS cannot access these systems.
- The EDS IP address must be entered in MultiNet so that native DEERS users can send print jobs to their local printers at the MTF.
- Any other external system that has a firewall needs the IP addresses of the CHCS hosts.
- Know the IP address of your router port that connects to the DISN link. When troubleshooting DISN communication, the remote system may need to confirm this address.

TROUBLESHOOT NETWORK PROBLEMS FOR SPECIFIC INTERFACES

1. DEERS

1.1 “Hardware not responding as expected.”

The interface software displays this error message when it receives a response it is not expecting based on the transmission that was sent. Often this is a result of data loss in the transmission process. There are many events which can cause this error to occur, including:

- failure of any hardware, such as the modem or any routers from your site to DEERS
- lengthy delays on the communication link because of IO bottlenecks

– poor communication quality, both in the network or a protocol converter.

This is a “normal” error. This is expected because of the nature of the communications link. If it happens more than 50 times per day, you should report it to EDS and your local network administrator.

1.2 “ DEERS Took too long to respond.”

In the DEERS Site Parameters file, the EXTERNAL RESPONSE TIME field specifies a maximum response time in seconds. If a DEERS response equals or exceeds this time, this error message displays. This message will only be posted when DEERS returns a proper response.

This is a another “normal” error. This is expected because of the nature of the communications link. Use Multinet to monitor network performance. If it takes DEERS longer than 15 seconds to respond more than 10 times on two consecutive days, there is a network problem and you should report the situation to EDS and the TMSSC.

2. Native DEERS

Following is a list of problems that can occur with native DEERS user access.

2.1 The native DEERS user cannot connect to the OCS gateway.

2.1.1 The DISN link is not available.

– Contact the TMSSC for status; notify users when DISN will be available.

2.1.2 If users are using the VMS NDEERS account to log onto DEERS, the NDEERS account may not be configured on the CHCS VAX or AXP host.

– Verify the account from the VMS $ prompt using the command MCR AUTHORIZE, SHOW [NDEERS account name]

2.1.3 The TN3270_LOGIN.COM file may not be configured with the correct IP address for the OCS gateway.

– View the file through VMS and verify the address. If not correct, edit, then execute, the file.

2.1.4 The OCS gateway does not have an available LU.

– Contact DEERS and request additional LUs.

2.1.5 The CHCS terminal server may not be configured for TCP/IP, or for the correct IP address of the OCS gateway.

– View the terminal server TCP/IP parameters using the command SHOW SERVER INTERNET CHAR; edit if necessary.

2.2 Native DEERS user connects to the OCS gateway, but not to DEERS host.

2.2.1 The IP address of the CHCS host may not be registered with EDS.

– Call EDS to confirm that they have registered the IP address of the CHCS host.

2.3 Native DEERS user connected to DEERs, but now the VT terminal is locked.

2.3.1 The MAP3270.DAT file is not configured correctly, creating an inaccurate 3270 terminal emulation.

– Review the file contents; revise if necessary. The file will be executed the next time a user attempts to connect to DEERS.

2.3.2 The DEERS user session is in Input Inhibit mode.

– Have the user press <Ctrl>-<R> to reset, then press <Tab> to move out of the protected DEERS area.

2.3.3 The DISN link has become unavailable.

– Contact TMSSC for status; notify users when DISN will be available.

Following is a list of problems that can prevent native DEERS users from printing to printers at the MTF.

2.4 Native DEERS users cannot print to the DMRIS or HBA printers.

2.4.1 The print queues are not available or ready.

– View the queues by typing the following command from the VMS $ prompt: SHOW QUEUE /FULL /ALL xxxx_* (where xxxx is the site code)

– Try printing to the queues from VMS by entering the following command from the VMS $ prompt: PRINT/QUE=xxxx.HBA1 [test file name]

2.4.2 The port is not configured correctly on the terminal server.

– Use terminal server commands to view the port configuration; edit if necessary.

2.4.3 If using TCP/IP, the IP address and port for the printer are not properly configured in MultiNet.

– Verify the IP address and port configuration by typing the following command at the VMS $ prompt: MU CONFIG/PRINTER, SHOW

– The remote printer daemon (LPD) may need the IP address of the firewall to accept data from that address.

2.4.4 If using LAT, the printer port is not configured properly in LAT.

View the port configuration in LATCP and the proper .COM files.

2.4.5 The user profile in DEERS is not updated with the proper printer information.

– Ask the DEERS support center to verify the user profile configuration.

2.4.6 The print job is not being sent to CHCS from EDS.

– Stop one of the print queues by typing the following command at the VMS $ prompt: STOP/RESET [queue name]. Have an NDEERS user print from DEERS. Check for a job named RPRINTER in any print queue by typing the following command at the VMS $ prompt: SHOW QUEUE /FULL /ALL xxxx_* (where xxxx is the site code).

2.5 Printing worked before, but no longer works.

2.5.1 The VMS startup files do not contain entries for the NDEERS print queues.

– View the VMS startup files; if necessary, edit them to add reference to the print queues. Restart the print queues manually.

2.6 Neither print queue will print.

2.6.1 Check the causes listed above for each print queue. Check also the following, which would cause both print queues to fail simultaneously:

2.6.2 The MultiNet remote print daemon is not running.

– Confirm whether the daemon is running by entering the following command from the VMS $ prompt: MU CONFIG/SERVER, SHOW /FULL LPD

2.6.3 The EDS network address is not entered in MultiNet.

– Confirm the address by entering the following command from the VMS $ prompt: MU CONFIG/NETWORK, SHOW

2.6.4 The MultiNet VMS logicals do not reference the LPD remote printer daemon.

– Confirm that the VMS RPRINTER account is assigned to MultiNet by entering the following command from the VMS $ prompt: SHOW LOG /FULL *MU*

2.6.5 The RPRINTER account is not configured on the VAX/AXP host.

– Verify the account by entering the following command from the VMS $ prompt: MCR AUTHORIZE, SHOW RPRINTER

• Refer to Native DEERS Overview and Troubleshooting, for additional assistance troubleshooting native DEERS problems.

3. DBSS

In order for data to be exchanged with DBSS, EDS must have the current IP addresses of the CHCS host nodes.

4. EAS

If using TRACEROUTE to troubleshoot communication to an EAS host that is an AT&T 3b2, note that TRACEROUTE commands to an operational AT&T 3b2 host will indicate timeouts (*) after the last router hop. The trace will resolve all the way to the last router, but the 3b2 address will not display.

5. MHCMIS

The Milan Fastport print server enables Ethernet IP addressing of laser printers. It has been known to contribute to excessive Ethernet collisions if it resides on the same network segment with multiple GUI client workstations. If Ethernet collisions on this segment are excessive, ask the MHCMIS system administrator if the Fastport has been reconfigured.

6. NMIS

The Milan Fastport print server is also used with NMIS. If Ethernet collisions on this segment are excessive, ask the NMIS system administrator if the Fastport has been reconfigured.

7. RCMAS

The Milan Fastport print server is also used with RCMAS. If Ethernet collisions on this segment are excessive, ask the RCMAS system administrator if the Fastport has been reconfigured.

Practice 2 - Troubleshoot communication to external systems.

PRACTICE

Practice 2 - The External Systems Communication Troubleshooting Game

INSTRUCTIONS: The following practice is a role play game. It will take approximately 30 minutes.

DISCUSS THE GAME RULES

- The students work together as a group of site specialists to address a problem set by a scenario statement. One student is selected as "Senior Specialist" to be the spokesperson for the group.
- As a group the students select questions they would like to ask to narrow the focus to the problem area.
- When the group feels ready it should propose an appropriate specialist action. The action may involve doing something on the site system, or reporting a problem or observations to TMSSC.
- Students may consult any of their course materials or the training system during the game.
- The students must arrive at an appropriate action or solution within 20 questions to win the game. The instructor keeps a running tally of the questions on the white board.
- Specialist questions may be of 5 types:

  * Remote System Representative

    System representative questions are stated as though the specialists were talking to the person responsible for the system to which CHCS is interfaced. For example, "System Rep: Are you getting messages from my site?"

  * System Questions

    System questions are stated as though the specialists were exercising a particular option or command. For example, "System: Select the System Status option from the Site Manager Menu. Are any of the processes in a CEF state? Questions can also be directed to the system to inquire about the site configuration. For example, "System, is a firewall used at the site?"

* TMSSC Questions

  TMSSC questions are stated as through the specialists were talking to a representative at the support center. For example, “TMSSC: Is the DISN down today?” If the group is stuck, they may use a TMSSC question to ask for a hint on how to proceed. For example, “TMSSC, what do you suggest we do next?”

* Specialist Action

  A specialist action is stated as though the specialists were taking an action to resolve the problem. For example, “The specialist logs a problem call with TMSSC indicating a possible software problem.”

- The instructor will respond to the student questions as the user, the system or TMSSC to guide the students to an appropriate specialist action. The practice evaluation criteria identifies responses to expected questions. The instructor does not intentionally mislead the students or respond as though there were more than the one problem. In addition, the instructor can respond in the following ways:

  * If a question is addressed to a remote system representative, the system or TMSSC when they would not normally know the answer, the instructor will respond “I don’t know”. An inappropriate question counts against the 20 questions.

  * If a question addressed to the system does not identify what option or command to use the instructor will respond “Does not compute”. An incomplete question counts against the 20 questions.

  * If a question is not related to the scenario, the instructor may respond as “There is no indication of a problem”, “The system is running normally” or “This display does not show anything unusual.” An off-target question counts against the 20 questions.

  * If the action statement is not an appropriate response to the scenario the instructor may respond as “That is not the appropriate action in this case.”

  * The students may provide an action statement before the 20th question, but these count as two questions. When the students select an appropriate action, the instructor replies “You Win!”.

  * If the students are unable to identify an appropriate specialist action by the 20th question, the instructor identifies the appropriate response and what questions would have helped to narrow the problem focus.

* As time allows the class can replay the game with another scenario statement.

BEGIN GAME

Scenario A*: You cannot keep the GIS background processes running for DBSS. Each time you try to start the background processes, they attempt to connect, they stop running. You viewed the processes through the GIS VS option and found the status "Attempt to open socket". After several attempts, the processes stopped running.*

Scenario B*: A native DEERS user calls to report that a new printer was recently installed in his area to receive native DEERS print jobs. However, when he tries to send jobs to that printer, he gets no printouts, He also gets no error message from the DEERS system. The user was previously sending DEERS print jobs to a printer at the other end of the floor. He is able to print to that printer but needs to stay in his work area and can't walk that far away.*

III. CLOSURE

Do you have any questions about the concepts covered in Module 12 - Manage the Interface Connections?

In summary, the following content was presented:

– Defining the physical connections to external systems.

– Troubleshooting communication to external systems.

This concludes Module 12. This also concludes the SYS: CHCS Interface Management class. You now have the opportunity to demonstrate proficiency in the topics or skills presented.

Please complete the Class Critique before leaving the classroom.

Thank you for attending.

Master Practice - Module 12

SYS: CHCS INTERFACE MANAGEMENT

Module 12 - Manage the Interface Connections

Section 2. Master Practice

MASTER PRACTICE GUIDELINES

This Master Practice enables the presenter to verify that you have successfully completed the objectives for this class.

The information you need to complete the Master Practice is supplied in the instructions and scenarios.

You may use any reference materials available in the classroom to complete the Master Practice.

Unless otherwise directed by the presenter, please work alone to complete the Master Practice.

Notify the presenter when directed to do so in the Master Practice. This allows the presenter to verify that you have successfully completed an activity.

You have approximately 15 minutes to complete this Master Practice.

SYS: CHCS INTERFACE MANAGEMENT

Module 12 - Manage the Interface Connections

Students 1-10

Scenario 1 - Troubleshoot communication to external systems.

INSTRUCTIONS: Mark the following statements as true or false.

_____ 1. Each system on the MHSS should have a dedicated network segment, completely isolated from the other segments.

_____ 2. Native DEERS users go through the CHCS database to access and print from DEERS.

_____ 3. Local printers used by native DEERS users have to be configured in VMS, in MultiNet, and on the terminal server.

_____ 4. Native DEERS users access the DEERS OCS gateway, while CHCS eligibility requests access the DEERS McData gateway.

_____ 5. Users access the CoPath system from the CHCS backbone.

_____ 6. DII does not support any users, but does support a local printer and remote modem access.

_____ 7. MDIS does not communicate directly with CHCS; it communicates instead with theVA gateway.

_____ 8. Following are the only systems that do not support their own user devices: DII, RCMAS.

_____ 9. MHCMIS and RCMAS share a single network connection to the MHSS router.

_____10. The VA gateway and MDIS shared Novell file server may reside in either the CHCS computer room or radiology computer room.

_____11. The CHCS hosts connect directly to the Office Automation LAN router.

_____12. Communication problems can result in messages not being received by the destination system, or becoming corrupt while in transit.

SYS: CHCS INTERFACE MANAGEMENT

Module 12 - Manage the Interface Connections

Scenario 1 (continued)

_____13. The addition of a firewall will not usually affect the exchange of data with an external system.

_____14. The receipt of negative acknowledgements does not usually indicate faulty communication equipment or channel.

Notify the presenter when you are done.

SYS: CHCS INTERFACE MANAGEMENT

Module 12 - Manage the Interface Connections

Section 3. Reference Materials

There are no reference materials for this module.

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CHCS INTERFACE MANAGEMENT

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