

# STAR 2000™



## MultiSTAR Software Environment Operations Guide

Release 17.0  
October 2011

S17000021

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## Publication date

October 2011

Produced in Cork, Ireland

## Product and version

STAR 2000 Release 17.0

## Publication number

S17000021

## Reader comments

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# Preface

This manual serves as the primary reference for using the MultiSTAR Software Environment (MSE) with the operating system provided by your hardware vendor. It includes instructions for using each function in the system and provides examples of console sessions where appropriate.



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# Documentation Conventions

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

## Revisions

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

## Canadian Documentation

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

## Key Names

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

## Key Chords

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

## Enter

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

## Data Entries

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

## Selecting an Entry

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

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

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

## Prompts

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

*Enter patient name--*

**Field Characteristics**

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

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

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

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# Table of Contents

<b>Preface</b> .....	<b>iii</b>
<b>Documentation Conventions</b> .....	<b>v</b>
<b>Table of Illustrations</b> .....	<b>xv</b>
<b>Introduction</b> .....	<b>xvii</b>
<b>Chapter 1 - OVERVIEW</b>	
<b>UNDERSTANDING MULTISTAR</b> .....	<b>1-3</b>
What Are MultiSTAR, UNIX, and Linux? .....	1-3
McKesson's Approach To Technology Changes .....	1-3
The Benefits of the MultiSTAR Software Environment .....	1-4
Multiprocessing support .....	1-5
Components Of MultiSTAR .....	1-8
MultiSTAR Process Structure .....	1-10
How the MultiSTAR Components Work Together .....	1-11
System Requirements .....	1-14
Processors .....	1-14
Memory .....	1-14
Disks .....	1-14
Terminal Connection Capabilities .....	1-15
MultiSTAR Networking .....	1-15
Virtual Terminal Support .....	1-15
Remote Jobstart .....	1-16
Remote Spooling .....	1-16
Networking Communications .....	1-16
Hardware and Software Requirements for MultiSTAR to MultiSTAR	
Networking .....	1-17
MSE Failover .....	1-17
<b>THE MULTISTAR SOFTWARE ENVIRONMENT</b> .....	<b>1-21</b>
Directory Naming .....	1-21
MultiSTAR Subdirectories .....	1-21
The Programs .....	1-21
The Files .....	1-23
The Database Structure .....	1-25
<b>Chapter 2 - SYSTEM MANAGEMENT</b>	
<b>USER AND PORT DEFINITION</b> .....	<b>2-3</b>
Defining Ports To MultiSTAR .....	2-3
Port Numbering Assignments .....	2-6
Port Type Descriptions .....	2-7
Dynamic Ports .....	2-7

---

Physical Ports .....	2-8
Software Ports .....	2-11
Virtual Ports .....	2-12
Host Spooler Printer Ports .....	2-14
Defining Tape Drives to MultiSTAR .....	2-17
Managing Ports .....	2-20
Testing Terminals .....	2-20
On-line Instrument Read/Write .....	2-22
Using the Signon Monitor .....	2-24
Starting And Stopping The Signon Monitor .....	2-24
Using The Port Usage Log .....	2-25
Graphing Port Usage .....	2-26
PRINTER OUTPUT MANAGEMENT .....	2-29
Theory .....	2-30
Reports .....	2-30
Defining Report Groups .....	2-31
Printers .....	2-31
Forms Maintenance .....	2-31
SYSTEM RECOVERY FEATURES .....	2-32
Theory .....	2-32
Backup .....	2-33
Full Concurrent And Incremental Tape Labeling Scheme .....	2-34
Before and After Image Logging .....	2-34
Implementation of a FAIL-SAFE Database Before Image Log Method .....	2-34
MSE Failover .....	2-35
MULTISTAR JOURNALING .....	2-36
Journaling Operation .....	2-36
Recovery From Power Fail .....	2-37
Restoring the Database .....	2-39
SITE RELEASE SCREEN PARAMETERS .....	2-40
Site Screen Parameters .....	2-40
STAR Patient Care .....	2-41
STAR Patient Care Order Management .....	2-43
STAR Pharmacy .....	2-43
Inpatient .....	2-44
Order Maintenance .....	2-44
Formulary Maintenance .....	2-44
Ambulatory Care .....	2-45
Maintaining Site Screen Parameters .....	2-45
Identify Screen Using Screen Name .....	2-45
Identify Screen Using System Flow .....	2-45
Identify Group of Screens .....	2-47
Site Screen Group Maintenance .....	2-50
To Exit This Function .....	2-51
Site Screen Group Parameters .....	2-51
AUDIT SERVICE INTERFACE .....	2-54

---



## Chapter 3 - SYSTEM OPERATIONS

STARTING MULTISTAR .....	3-3
Bringing Up the MultiSTAR Software Environment .....	3-3
STOPPING MULTISTAR .....	3-7
Bringing Down the MultiSTAR Software Environment .....	3-7
Automatic Shutdown .....	3-12
Turning Off the Hardware .....	3-13
SIGN-ON RESTRICTION .....	3-14
CHANGE LOGON STATUS .....	3-17
System Logon Status .....	3-18
Application Logon Status .....	3-19
Edit Groups .....	3-19
Enable Select Groups .....	3-21
Enable All Groups .....	3-22
Changing Logon Status For A Reserved Port .....	3-23
SELECT ALTERNATE STAR ENVIRONMENT .....	3-25
GENERAL TASKS .....	3-26
Editing System Parameters .....	3-26
Changing the Date and Time .....	3-38
Sign On Messages .....	3-38
Maintaining User Messages .....	3-39
Adding A Message .....	3-39
Editing A Message .....	3-40
Deleting A Message .....	3-40
Selecting A Message To Display .....	3-40
Setting The Time To Display A Message .....	3-41
Sign Off Bulletin Board .....	3-42
Adding A Message .....	3-43
Editing A Message .....	3-44
Deleting A Message .....	3-44
Selecting A Message To Display .....	3-44
System Block Packer .....	3-45
Block Packer Schedule .....	3-46
Block Packer Manual List .....	3-47
Block Packer Ignore List .....	3-47
Block Packer History .....	3-47
Block Packer Status .....	3-47
Removing Jobs .....	3-47
Unremovable Jobs .....	3-50
Set Hourly Jobs .....	3-50
NETWORK UTILITIES .....	3-55
Enable/Disable Network .....	3-56
Review Application/CPU Statuses .....	3-56
Review/Print Configuration .....	3-58
Start/Stop Logging Network Patient Locks to the Console .....	3-59

---

MULTISTAR SYSTEM BACKUP .....	3-61
Purpose of Backup .....	3-61
Backup Materials .....	3-61
Scheduling Guidelines .....	3-61
Tape Labeling .....	3-61
Full Concurrent Backup .....	3-62
Incremental Backup .....	3-65
Journal Backup .....	3-67
Backup Audit .....	3-70
 <b>Chapter 4 - DISPLAYING SYSTEM INFORMATION</b>	
SYSTEM ERROR LOGS .....	4-3
Introduction .....	4-3
Hardware Errors .....	4-3
System Error Summary .....	4-3
Console Log Listing .....	4-4
Searching Log for Error Type .....	4-5
SYSTEM UTILIZATION MONITOR .....	4-7
Disk Space Utilization .....	4-7
Disk Space Projections .....	4-7
CPU Utilization Graph .....	4-9
SYSTEM ACTIVITY .....	4-11
Examining MultiSTAR Job Status .....	4-11
Displaying Information From UNIX .....	4-16
PORT INFORMATION .....	4-17
Displaying Port Information .....	4-17
Printing Port Information .....	4-19
MISCELLANEOUS .....	4-22
Displaying System Availability Statistics .....	4-22
Downtime Information .....	4-22
Displaying Downtime Information .....	4-22
Revising Downtime Information .....	4-23
Print Downtime Reports - Summary .....	4-25
Print Downtime Reports - Detail .....	4-26
Displaying Tildes .....	4-27
 <b>Chapter 5 - RESOLVING SYSTEM PROBLEMS</b>	
TROUBLESHOOTING YOUR SYSTEM HARDWARE .....	5-3
Terminals .....	5-3
Printers .....	5-4
Disk Hardware Errors .....	5-6
OTHER SYSTEM ERRORS .....	5-7
No Response on a User's CRT .....	5-7
No Response On Any CRT .....	5-8
Port Errors .....	5-8

---

Partition Errors .....	5-8
HARD CRASH RECOVERY PROCEDURES .....	5-10
MULTISTAR BACKUP RESTORE .....	5-11
Restore A Full Concurrent Backup .....	5-11
Restore An Incremental Backup .....	5-13
Journal Restore .....	5-13
Journal Restore Alternatives .....	5-15
Journal Restore Search Additional Tapes .....	5-20
Journal Restore Process Additional Tapes .....	5-21
<b>Chapter 6 - PRINT SPOOLER FUNCTIONS</b>	
INTRODUCTION .....	6-3
REPORTS MAINTENANCE .....	6-5
PRINTER MAINTENANCE .....	6-11
Editing Port Assignments .....	6-12
No Ports Assigned .....	6-12
Ports Assigned .....	6-15
Multiple Physical Printer Assignments .....	6-15
FORMS MAINTENANCE .....	6-17
DEFINE BATCH REPORT GROUPS .....	6-18
PRINT CONTROL MAINTENANCE .....	6-21
Define Print Control Sequence .....	6-22
Attach Printer Specific Sequence .....	6-27
Assign PCS's to Reports .....	6-30
Assign PCS's to Printers .....	6-32
Assign PCS's to Ports .....	6-34
CONTROLLING THE PRINT QUEUE .....	6-37
Reviewing the Queue .....	6-37
Fax Queue Review .....	6-40
Reassign Spooled Output .....	6-41
Start/Stop Print Spooler Queuing Function .....	6-44
Print Spooler Control Parameters .....	6-44
Output Driver Maintenance Function .....	6-47
Fax Update List Routines .....	6-47
Spool File Reporting .....	6-49
Spool File Maintenance .....	6-53
PRINT JOB CONTROL .....	6-60
Review Print Job .....	6-60
Recover Spool Files .....	6-62
Abort Print Job .....	6-63
DISPLAYING DISABLED PRINTERS .....	6-64
DEMAND PRINT .....	6-66

---

VIEW SPOOLED REPORTS .....	6-72
Routing to a Printer .....	6-77
Download the Report .....	6-79
Routing to a Fax Machine .....	6-81
Routing to a UNIX Host File .....	6-82
Routing to a Network Address .....	6-82
Routing to an e-mail address .....	6-83
WRITING TO MICROFICHE TAPES .....	6-84
Microfiche Tape Format .....	6-86
PRINTING SPECIAL FORMS .....	6-88
PRINTING THE SPOOLER CONTROL REPORTS .....	6-91
Reports By Printer/Printer Summary Option .....	6-92
Printers By Report Option .....	6-93
ID Cross Reference Report Option .....	6-94
Open and Spooled Report File Count .....	6-96
STAR FAX .....	6-99
Fax Audit .....	6-100
Distribution Lists .....	6-107
Prefix/Suffix Maintenance .....	6-109
Cover Page .....	6-112
Enable STAR Fax .....	6-114
Redial Parameters .....	6-115
Enable/Disable Fax Cover Page .....	6-116
DOWNLOADING AT LOGOFF SCREEN .....	6-117
 <b>Appendix A - TEXT EDITOR</b>	
INTRODUCTION .....	A-3
FUNCTION KEYS .....	A-4
 <b>Appendix B - PLATFORM-SPECIFIC INFORMATION</b>	
INTRODUCTION .....	B-3
HP-UX COMMAND SUMMARY .....	B-4
Run Levels .....	B-4
Shutdown Command .....	B-4
Reboot Command .....	B-5
IBM AIX COMMAND SUMMARY .....	B-6
Run Levels .....	B-6
Shutdown Command .....	B-6
Command Syntax .....	B-6
Halt Command .....	B-7
Command Syntax .....	B-7
Telinit Command .....	B-8
Command Syntax .....	B-8
Booting the AIX Operating System .....	B-8

---

## **Appendix C - TERMINAL TYPE CONVERSION TABLES**

INTRODUCTION .....	C-3
VT320 TERMINALS .....	C-4
IBM 3151 TERMINALS .....	C-8
HP 700/60 TERMINALS .....	C-12

## **Appendix D - ERROR MESSAGES**

ERROR MESSAGES OVERVIEW .....	D-3
Console Error Message Example .....	D-3
Severity Level Table .....	D-3
Major Error Codes Table .....	D-4

## **Appendix E - MIDNIGHT PROCESSING**

INTRODUCTION .....	E-3
DISALLOW LOGON AND SEND DOWN MESSAGE .....	E-6
REMOVE USERS FROM SYSTEM .....	E-7
DAILY PROCESSING .....	E-8
MIDNIGHT PROCESSING MANAGEMENT .....	E-11
Daily Processing .....	E-12
Midnight Processor Run Control .....	E-12
Pause / Resume Midnight Processing .....	E-16
Pausing Midnight Processing .....	E-16
Resuming Midnight Processing .....	E-16
Hourly Jobs .....	E-17
Restart Aborted Sub Run Processor .....	E-19
ALLOW LOGON AND SEND UP MESSAGE .....	E-20
ENABLE/DISABLE AUTO LOGON & SEND UP MESSAGE .....	E-21
SYSTEM BACKUP .....	E-22
CHANGE SYSTEM UP MESSAGE .....	E-23
CHANGE SYSTEM DOWN MESSAGE .....	E-25
CHANGE LOGON STATUS .....	E-27
SEND A SYSTEM MESSAGE .....	E-28
MIDNIGHT PROCESSING STATISTICS .....	E-29
MIDNIGHT PROCESSING STEPS .....	E-32

<b>Index .....</b>	<b>Index-1</b>
--------------------	----------------



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# Table of Illustrations

Figure 1.1	Relationship of MSE to the Operating System .....	1-7
Figure 1.2	MultiSTAR Software Environment Components .....	1-8
Figure 1.3	MultiSTAR Process Structure in UNIX Environment .....	1-10
Figure 1.4	MultiSTAR Database Access Flow .....	1-11
Figure 1.5	MultiSTAR Terminal Access Flow .....	1-12
Figure 1.6	MultiSTAR Remote Access Flow .....	1-13
Figure 1.7	Memory Allocation Guidelines .....	1-14
Figure 1.8	Backup Comparisons for 3 Gigabytes of Disk Storage .....	1-15
Figure 1.9	Typical MultiSTAR to MultiSTAR Network Configuration .....	1-17
Figure 1.10	High Availability Logical Configuration .....	1-18
Figure 1.11	Dual Initiated High Availability with DG Clariions .....	1-19
Figure 1.12	Logical Configuration After System 1 Failover to System 2 .....	1-20
Figure 1.13	MultiSTAR Subdirectory Structure .....	1-21
Figure 2.1	Port Utilization .....	2-28
Figure 2.2	Relationship of Reports, Printers, Ports, and Output Destinations .....	2-30
Figure 4.1	Disk Space Utilization .....	4-7
Figure 4.2	CPU Utilization Graph .....	4-10
Figure 4.3	Port Specifications - Detailed Listing .....	4-20
Figure 4.4	Port Specifications - Concise Location Listing .....	4-21
Figure 4.5	Port Specifications - Concise Device/Address Listing .....	4-21
Figure 4.6	System Downtime Detail Report .....	4-27
Figure 6.1	View Reports Processor .....	6-75
Figure 6.2	Spooler Control Report - Reports By Printer/Printer Summary ...	6-92
Figure 6.3	Spooler Control Reports - Printers By Report .....	6-94
Figure 6.4	ID Cross Reference Report .....	6-95





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# Introduction

## Chapter 1: Overview

This chapter is an overview of the MultiSTAR Software Environment and describes the capabilities of and theory behind the product. MultiSTAR Software Environment programs, file and database structure are also discussed.

## Chapter 2: System Management

This chapter describes management of the MultiSTAR Software Environment from the system manager's point of view. Detailed instructions for port and printer configuration are included in this chapter. Descriptions of system recovery features, journaling and auditing are also provided.

## Chapter 3: System Operations

This chapter provides a detailed description of the operation of the MultiSTAR Software Environment for use by system operators. Detailed instructions on starting and stopping the system and the printer spooler are included. General tasks such as system messages, changing the system date and time and selecting an alternate environment are also discussed.

## Chapter 4: Displaying System Information

This chapter describes how to obtain information about the status and performance of the MultiSTAR Software Environment, UNIX® and your system hardware. Information about disk storage, system activity, ports, system downtime and system errors is included.

## Chapter 5: Resolving System Problems

This chapter addresses problems that might be encountered while using the MultiSTAR Software Environment, UNIX, and your system hardware. This chapter contains troubleshooting information for your system hardware, resolving fatal errors, and recovering after a system crash.

## Chapter 6: Print Spooler Functions

This chapter contains instructions regarding the use of the Print Spooler functions, including:

- Reports Maintenance
- Printer Maintenance
- Forms Maintenance

- Define Batch Report Groups
- Print Control Maintenance
- Queue Control
- Print Job Control
- Display Disabled Printers
- Demand Print
- View Spooled Reports
- Writing to Microfiche Tapes
- Printing Special Forms
- Print the Spooler Control Reports
- STAR Fax
- Downloading at Logoff Screen

## **Appendix A: MultiSTAR Text Editor**

This appendix contains detailed instruction for using the MultiSTAR Text Editor. Various applications and utilities use the text editor to enable you to enter and edit free-form information.

## **Appendix B: Platform-specific Information**

This appendix provides a summary of platform-specific information for your convenience.

## **Appendix C: Terminal Type Conversion Tables**

This appendix provides tables to help you identify analogous keystrokes on alternative terminal types.

## **Appendix D: Error Messages**

This appendix explains error messages that can be encountered in the MultiSTAR Software Environment.

## **Appendix E: Midnight Processing**

This appendix explains the midnight processing series of system maintenance procedures and their supporting utilities the system performs daily.

# Chapter 1 - OVERVIEW

UNDERSTANDING MULTISTAR .....	1-3
What Are MultiSTAR, UNIX, and Linux? .....	1-3
McKesson's Approach To Technology Changes.....	1-3
The Benefits of the MultiSTAR Software Environment.....	1-4
Multiprocessing support .....	1-5
Components Of MultiSTAR .....	1-8
MultiSTAR Process Structure.....	1-10
How the MultiSTAR Components Work Together .....	1-11
System Requirements .....	1-14
Processors .....	1-14
Memory .....	1-14
Disks.....	1-14
Terminal Connection Capabilities.....	1-15
MultiSTAR Networking .....	1-15
Virtual Terminal Support.....	1-15
Remote Jobstart .....	1-16
Remote Spooling .....	1-16
Networking Communications.....	1-16
Hardware and Software Requirements for MultiSTAR to MultiSTAR	
Networking.....	1-17
MSE Failover .....	1-17
THE MULTISTAR SOFTWARE ENVIRONMENT .....	1-21
Directory Naming.....	1-21
MultiSTAR Subdirectories .....	1-21
The Programs.....	1-21
The Files.....	1-23
The Database Structure .....	1-25

## Illustrations

Figure 1.1 Relationship of MSE to the Operating System.....	1-7
Figure 1.2 MultiSTAR Software Environment Components .....	1-8
Figure 1.3 MultiSTAR Process Structure in UNIX Environment.....	1-10
Figure 1.4 MultiSTAR Database Access Flow .....	1-11
Figure 1.5 MultiSTAR Terminal Access Flow.....	1-12
Figure 1.6 MultiSTAR Remote Access Flow .....	1-13
Figure 1.7 Memory Allocation Guidelines .....	1-14

Figure 1.8 Backup Comparisons for 3 Gigabytes of Disk Storage ..... 1-15

Figure 1.9 Typical MultiSTAR to MultiSTAR Network Configuration..... 1-17

Figure 1.10 High Availability Logical Configuration ..... 1-18

Figure 1.11 Dual Initiated High Availability with DG Clariions ..... 1-19

Figure 1.12 Logical Configuration After System 1 Failover to System 2 ..... 1-20

Figure 1.13 MultiSTAR Subdirectory Structure ..... 1-21

# UNDERSTANDING MULTISTAR

## What Are MultiSTAR, UNIX, and Linux?

McKesson's STAR series applications contain functionality designed to meet a wide range of clinical and financial needs for your institution. While the application software completes all the processing required to accomplish this functionality, a second component provides services for the application programs. This second component is McKesson's MultiSTAR Software Environment (MSE). MultiSTAR is McKesson's multiplatform software environment for STAR series applications.

MultiSTAR is a software subsystem that runs on top of a general purpose operating system such as:

- HP-UX by Hewlett-Packard®
- AIX® by IBM®
- Linux® RED HAT® AS 4
- Linux Red Hat EL 5

MultiSTAR is optimized for efficient online interactive processing but also supports high throughput batch processing. MultiSTAR contains a system call library for requests from McKesson's STAR products to the operating system for reading and writing data to disk and tape, communicating with PCs or terminals and printers, and issuing commands to other processors in a networked environment. In addition, MultiSTAR provides a language processor for efficient execution of STAR application program code and a database manager for data manipulation. These components are all portable from one hardware/operating system platform to another.

**NOTE:** Throughout this document MultiSTAR Software Environment is sometimes referred to as MSE.

UNIX is an industry standard operating system that runs on computer systems provided by a wide variety of hardware vendors. UNIX manages the hardware resources and provides system services to the MultiSTAR software. Linux is an operating system similar to UNIX, providing the same functions and features as UNIX, but running on smaller hardware.

For more information on your UNIX and Linux systems, refer to the manuals provided by your hardware and/or operating system vendor.

## McKesson's Approach To Technology Changes

Original development of McKesson's STAR application series included the use of value added extensions to the standard MUMPS code available at that time. These

extensions enabled development of the advanced performance capabilities that have become the hallmark of the STAR series. However the resulting operating environments for these products were considered non-standard due to the use of McKesson's proprietary STARBASE operating system.

By the mid-to-late 1980's, the pace of technology development was rapidly accelerating and systems were becoming exponentially more complex. Hardware that previously could enjoy a life cycle of at least five years was being superseded by replacement products in periods of less than two years. Communication that was previously simple 9600 bps direct-wired asynchronous communications began using multimegabit per second high speed local area network technology with a wide array of options including baseband, broadband, token ring and fiber optics, using various protocols. Rapid growth of personal computer (PC) use had created an entirely new technology of workstation processing using standard vendor-supported operating systems.

To address all of these technology and market changes it was clear that McKesson had to use standard vendor-supported operating systems and software that was portable to different hardware technologies. This would enable McKesson to fully leverage the hardware and software developments of the vendors and permit access to all of the latest technology.

The MultiSTAR Software Environment is McKesson's offering of a standards based product solution meeting the needs of the accelerated development and complexity of industry technology.

## **The Benefits of the MultiSTAR Software Environment**

MultiSTAR's portability protects your investment by permitting STAR application software to migrate from one generation and brand of equipment to another. This enables you to use the most current technology available from leading hardware vendors so you can take full advantage of the best systems in the industry at a given time.

While moving toward the use of standard operating systems, the McKesson value added extensions that had previously exceeded the capabilities of ANSI MUMPS were retained with MultiSTAR. Standardization was not achieved at the expense of performance or application programming capability. MultiSTAR is designed for a high performance transaction processing environment. Processing enhancements have ensured that system performance remains efficient and highly optimized.

Protection of user information is a primary objective of MultiSTAR. Journaling facilities provide a means for dynamic logging of database changes as they occur. Journaling writes a copy of all database changes to journal files with sufficient information to enable restoration from these files in the event that one or more system master disks become unusable due to hardware failure. In addition, a Fail-Safe/Auto Recover feature is built into the MultiSTAR database manager to ensure the integrity of the application database at all times, even following a system failure (such as a power

outage/surge). This fail-safe function uses Before Image Logging (BIL) techniques in conjunction with the journal files to ensure that MultiSTAR can reconstruct the database accurately if a system failure occurs.

Continuous user access to information is another objective of MultiSTAR. You can continue full application operation while concurrently running a full database backup. Currently, MultiSTAR permits user access to the system 24 hours a day. Some STAR applications require users not to access the system during certain end-of-day processing periods. Refer to application documentation for detailed information on this subject.

MultiSTAR also provides the ability for applications to run on standard operating systems that support Local Area Networking (LAN) technology for connection of devices to the system. This provides increased communication speeds and simplifies cabling. In addition, the LAN becomes the foundation for enhanced workstation-based processing.

Yet another advantage of MultiSTAR is the ability to have more than one MultiSTAR Software Environment active on a system at a time. This means duplicate sets of the MultiSTAR Control Process component, shared memory areas, journaling, disk writing and batch processes as well as shared copies of MultiSTAR can exist within the same physical processor. This capability enables you to perform testing on new system releases while continuing production work with the existing release of the system.

## **MULTIPROCESSING SUPPORT**

One of the benefits gained from the use of general purpose operating systems is support for multiprocessor computer systems. Symmetric MultiProcessing (SMP) systems have multiple processors (CPUs) in a single chassis. These processors all access the same common memory and operating system and are available for processing any job ready to run.

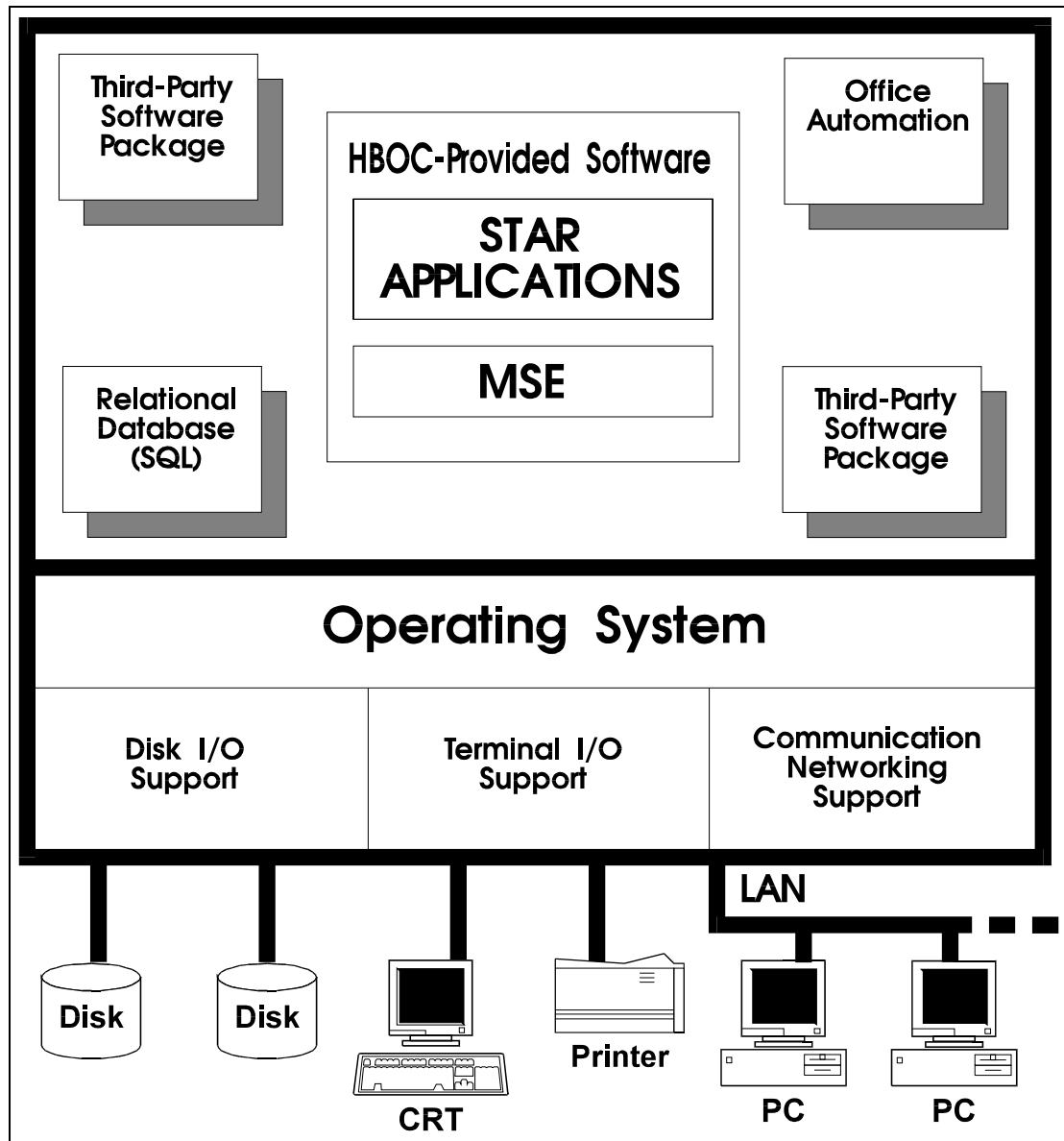
MultiSTAR is specifically designed to take full advantage of a multiprocessor computer system and can offer significantly higher performance capabilities than a system limited to single processor machines. By having multiple CPUs, an SMP system can provide two to four times the performance of a single processor system (based on the number of CPUs that are installed).

The growth capabilities characteristic of an SMP system permit cost-effective initial investment and configuration while providing the potential to upgrade the system to meet future growth requirements. When growth occurs, and throughput needs outgrow the initial configuration, another processor board can be added to an SMP system to permit the addition of more users. This ability to easily upgrade the system in response to changing needs eliminates costly and disruptive hardware replacement and ensures the scaled growth capability of the system components.

The McKesson STAR series application programs reside within your computer system along with MultiSTAR, UNIX and any other software components loaded on your system.



Figure 1.1 Relationship of MSE to the Operating System

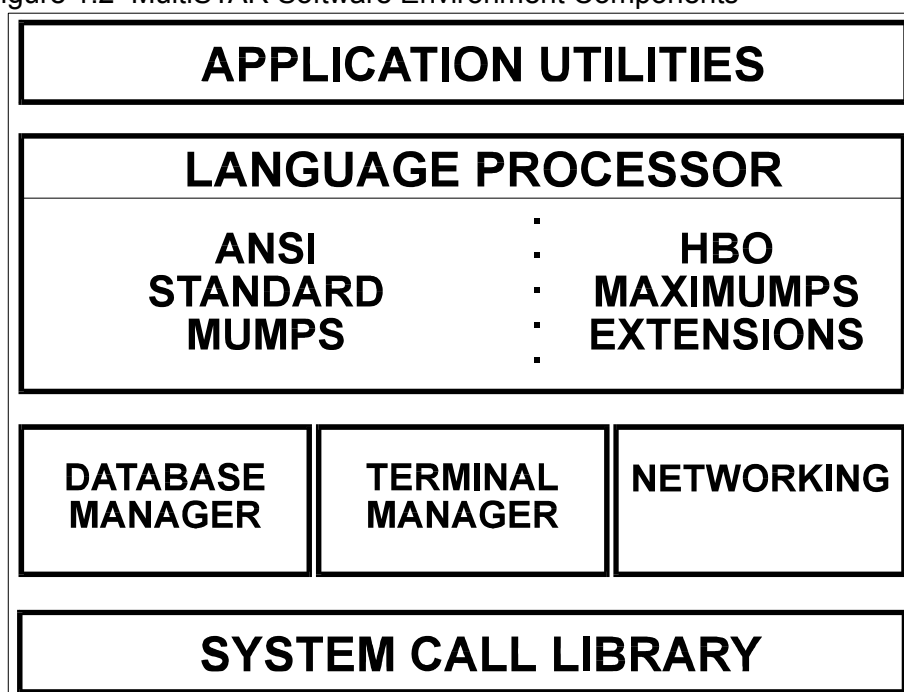


## COMPONENTS OF MULTISTAR

The six software components that make up MultiSTAR are:

- Application Utilities
- Language Processor
- Database Manager
- Terminal Manager
- Networking
- System Call Library

Figure 1.2 MultiSTAR Software Environment Components



**Application Utilities** - A comprehensive set of 4GL utilities complement the STAR series application software. These utilities include:

- Screen Builders/Drivers
- Menu Builders/Drivers
- Forms Builders/Generators
- Library Utilities
- Data Dictionary

**Language Processor** - This processor includes ANSI MUMPS as well as McKesson MAXIMUMPS extensions. These extensions run on top of the ANSI standard MUMPS foundation and provide value added extensions for parameter passing, structured programming, networking and terminal management capabilities not originally available in ANSI MUMPS. When a MAXIMUMPS program is stored (saved) on the system, the language processor compiles the program into pseudo-code for more efficient execution at run time.

**Database Manager** - When the language interpreter encounters an instruction requiring I/O with the STAR series databases, the database manager interprets the I/O request in preparation for reading from or writing to a specific disk block. The database manager is responsible for managing a large shared memory disk buffer pool for high performance database throughput.

**Terminal Manager** - CRT manipulation and printer spooling/control is handled by MultiSTAR's terminal manager. The terminal manager sends the physical control sequences to generate terminal attribute controls for data presentations, such as cursor addressing or reverse video display.

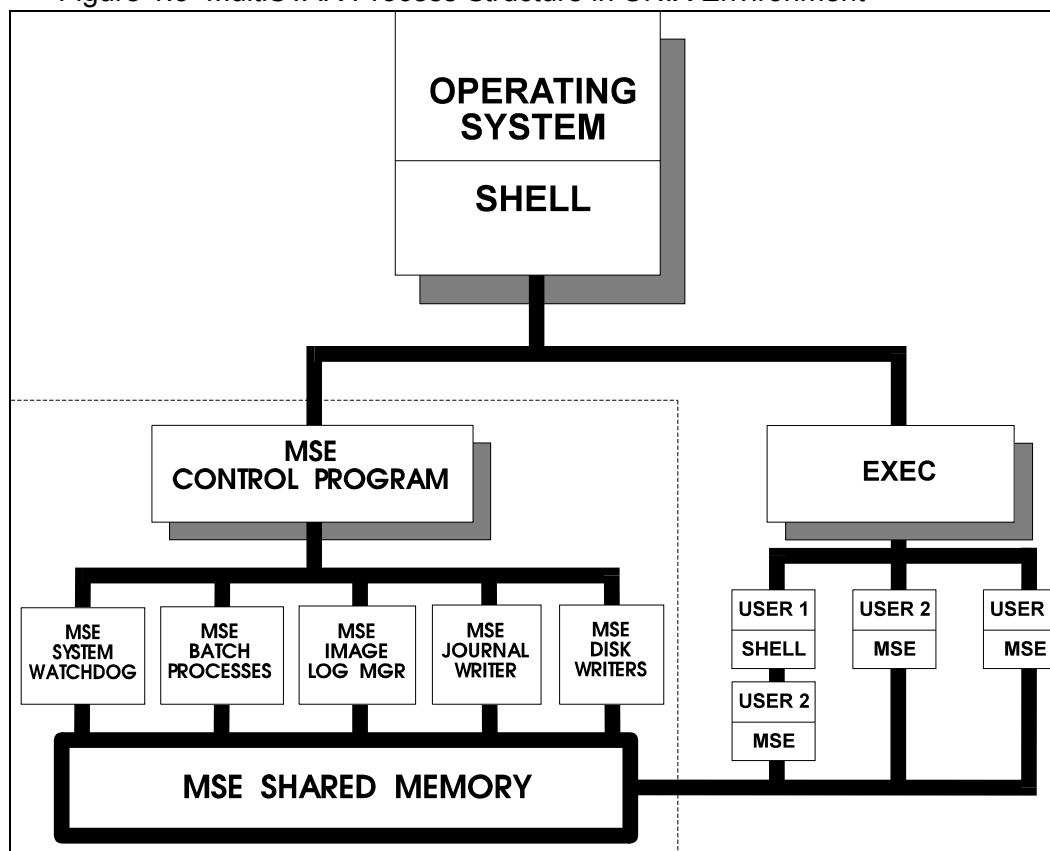
**Networking** - This component permits communication with other McKesson STAR application processors, while supporting virtual terminal access, remote job start and remote printer spooling.

**System Call Library** - To enable portability of the MultiSTAR software, a system call library is linked into the MultiSTAR software. This library is unique to the specific operating system (in this case UNIX) and enables MultiSTAR to issue the appropriate system calls. This optimizes MultiSTAR's use of the operating system's facilities.

## MultiSTAR Process Structure

The actual MultiSTAR Software Environment (MSE) process structure under UNIX is presented in the following illustration:

Figure 1.3 MultiSTAR Process Structure in UNIX Environment



In this example, User 1 can access both the UNIX command shell and MultiSTAR processing. Users 2 and 3 are not configured to access the UNIX command shell; instead they access MultiSTAR immediately after logging on the system.

The MultiSTAR Software Environment Control Process (MPCTL) component controls a multiple megabyte shared memory area. This shared memory includes disk buffers, application program buffers and global data. Other processes controlled by MPCTL include journaling, disk writing and batch processing.

As one of the multiple users logged on to the processor at any given time, you have your own shared copy of the MultiSTAR program components (with the exception of the application utilities that are in the shared memory area). Application program working data (variables) exist in the local user areas (not in the shared memory area). Whenever shared memory is accessed (for example, disk buffers) appropriate locking takes place so other users cannot have access to data until you have completed data updates.

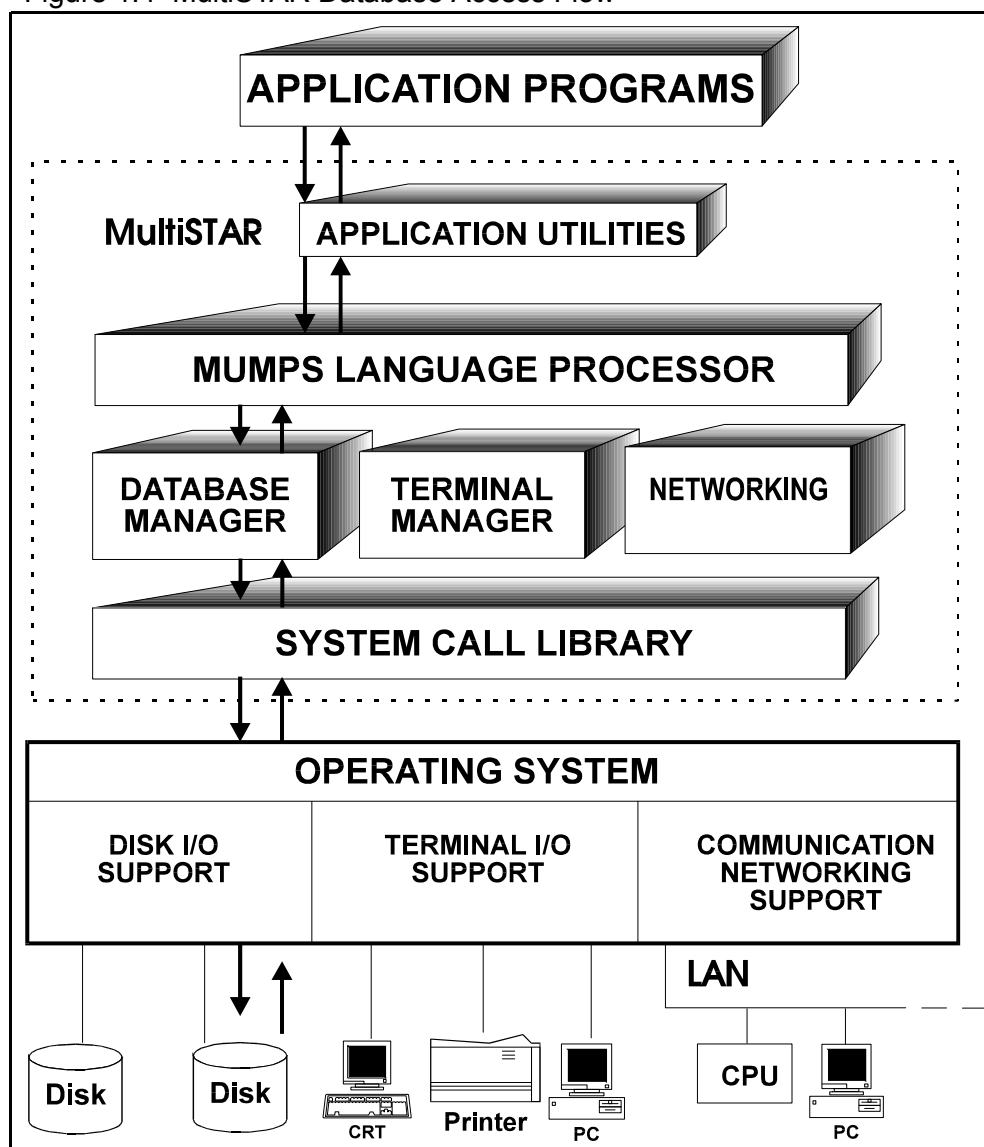
## How the MultiSTAR Components Work Together

The application programs communicate with the various components of MultiSTAR en route to communicating with UNIX through the system call library.

When a STAR application program processes a transaction requiring retrieval or update to the database, a specific path is taken through the various components within MultiSTAR. The language processor interprets the application code and communicates the need for database manipulation to the database manager, that in turn causes the operating system interface to issue the physical read or write command to the appropriate disk drive.

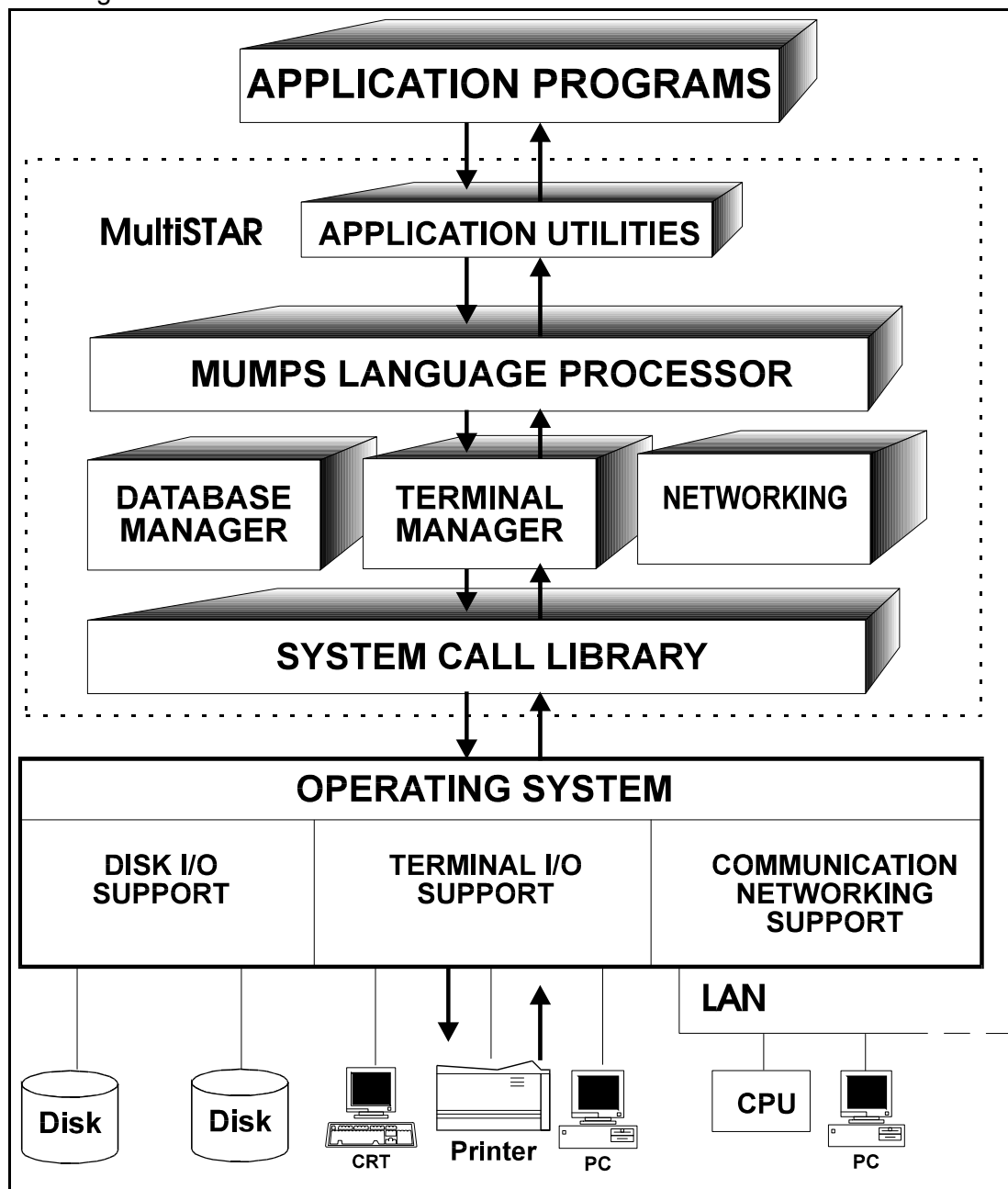
This is illustrated in Figure 1.4.

Figure 1.4 MultiSTAR Database Access Flow



When screen or menu drivers are called from a STAR application program, the program must call the applications utilities component before invoking the language processor. The terminal manager then causes the operating system interface to complete the physical data presentation to the terminal, shown in Figure 1.5.

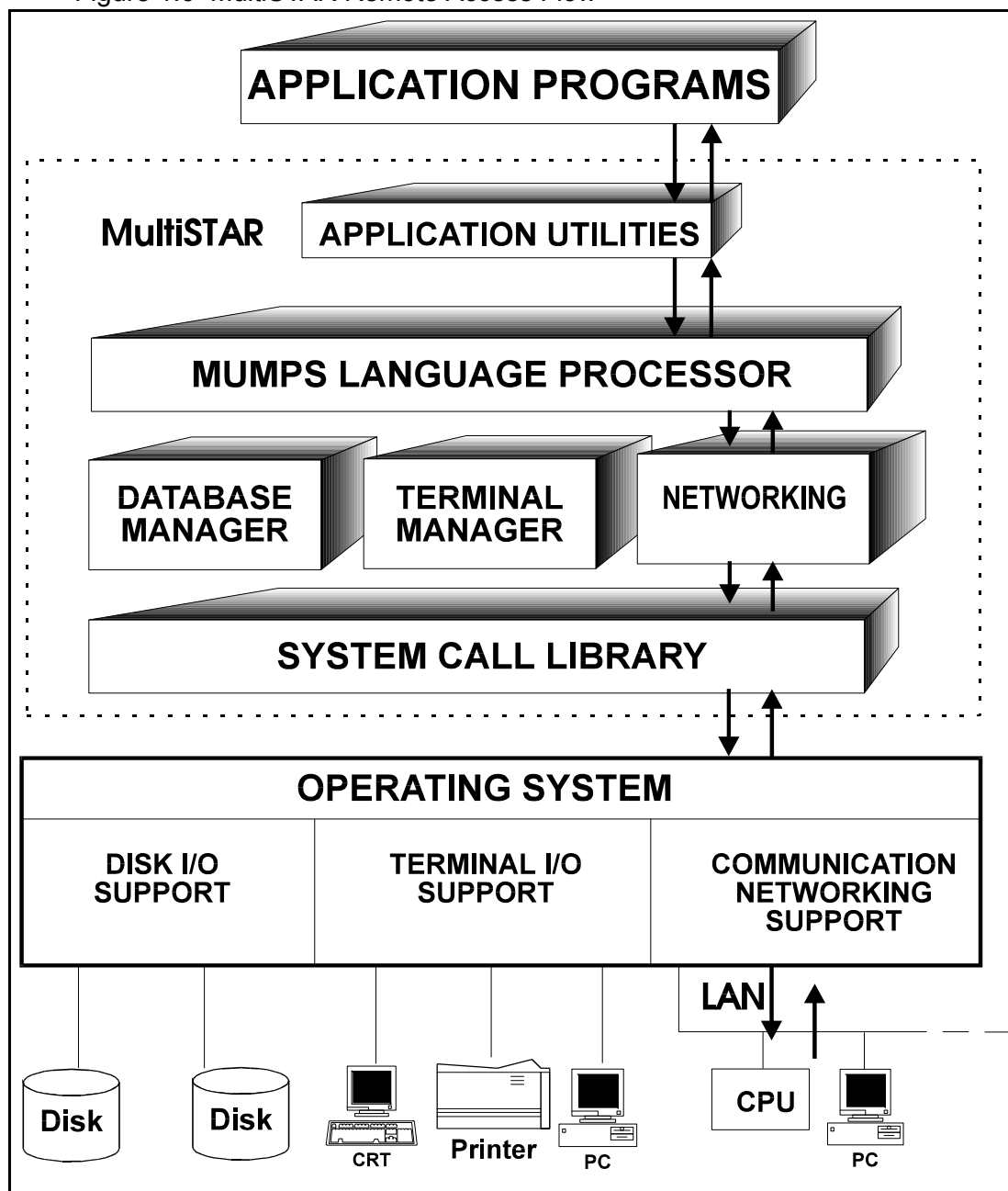
Figure 1.5 MultiSTAR Terminal Access Flow



In a STAR product networked environment, the language processor can encounter communication commands within the application code. The language processor then turns to the networking component of MultiSTAR that causes the operating system

interface to issue the operating system communication command to another system, shown in Figure 1.6.

Figure 1.6 MultiSTAR Remote Access Flow



## System Requirements

### PROCESSORS

MultiSTAR can run on any of the Hewlett-Packard 9000 Series 800 or IBM RS6000 systems running UNIX, but some of the smaller processors do not provide adequate processing speed. Contact your McKesson representative for current information on matching your needs with a processor.

### MEMORY

The recommended minimum memory for a MultiSTAR system is 2GB. Detailed memory information is available from your McKesson representative, but the general guidelines are as follows:

Figure 1.7 Memory Allocation Guidelines

Memory Component	Memory Allocation
Operating system overhead	10-40 MB (varies by vendor and system)
MultiSTAR software overhead	8 MB
Memory per active MultiSTAR user (job)	0.8 MB

**NOTE:** The above memory requirements are for the STAR application environment only. If any other software runs on the system, additional memory must be configured for it.

### DISKS

MultiSTAR and the operating system itself require dedicated disk space that must be allocated in addition to the disks required for STAR applications databases. Typically, one disk drive is dedicated to operating system use in addition to the disks required for STAR application database storage.

**NOTE:** Because MultiSTAR uses database compression techniques, contact your McKesson representative for specific configuration information.

MultiSTAR can use any disk drive supported by UNIX but needs to be limited to the newer high capacity and high performance disk drives or disk arrays.

MultiSTAR supports the use of 6250/1600 bpi tape drives and various high density small media cartridge tape drives. The 6250 bpi tape drive is used as a data interchange device (for example, software release tapes). The high density small media cartridge drive is used as a backup/restore device.

The primary reason for using a high density small media drive is to reduce the amount of intervention by the data processing operations staff for backup and restore procedures. One media cartridge that is small enough to fit in a shirt pocket can hold the equivalent storage of 8 to 13 reels of 6250 bpi tape. As an example, a system with 3 billion bytes of online storage would require 21 reels of 6250 bpi tape to be



individually mounted every 15 minutes to perform a system backup. Only two media cartridges are required to be mounted by the operations staff.

In addition, multiple high density drives can be configured on a MultiSTAR system. By having two of these tape drives, different disk drives can be backed up to separate tape cartridges at the same time reducing the time required for a full system backup by almost one half and further reducing the operator intervention.

Figure 1.8 Backup Comparisons for 3 Gigabytes of Disk Storage

Tape Drive Configurations			
Item	One 6250bpi Tape Drive	One Cartridge Tape Drive	Two Cartridge Tape Drives
Number of reels/Cartridges required	21	2	2
Minimum time to backup system	4 hours	4 hours	2 hours

## Terminal Connection Capabilities

The desired mechanism for connecting PCs or terminals and printers to MultiSTAR systems is via a Local Area Network. LAN attachment is the preferred method of connection to systems from all hardware vendors. This method of attachment supports McKesson's Information Access Architecture (IAA) strategy. If LAN attachment is not available, PCs or terminals and printers can be connected directly to the host system.

## MULTISTAR NETWORKING

MultiSTAR supports the ability to network more than one computer together into an integrated STAR application network. There are three basic capabilities provided by MultiSTAR networking. They are:

- Virtual terminal support
- Remote jobstart
- Remote spooling

## VIRTUAL TERMINAL SUPPORT

Virtual terminal support is the ability to logically switch a user's terminal session to another computer to allow running application software that resides on that computer. When in virtual terminal mode, all terminal read and write requests are routed over the network between the two systems involved (the system where the user terminal is physically connected and the system where the user is currently running application software).

Virtual terminal connections are automatically initiated by the STAR application software when a user requests a function that resides on another computer in the

STAR network. User identification and security information is automatically communicated to the other system, so the user does not have to log on again and is unaware of the session switch.

When the remote application function is complete, the virtual terminal session is automatically terminated and the user resumes processing on his or her local computer.

Because virtual terminal sessions add additional overhead to the system and are somewhat slower than normal local sessions, configure the system such that users are directly connected to the system with the application that they use most often. Use virtual terminal sessions for accessing less frequently used functions to allow the system to maintain high system performance and good user response time.

## REMOTE JOBSTART

Remote jobstart is a mechanism that allows application code to automatically run STAR application programs in another computer in the STAR network. This is very similar to the Remote Procedure Call (RPC) facility that is used in many distributed network applications. The remote jobstart allows parameters to be passed to the remote program to allow transaction information to be processed in the appropriate computers in the network.

An example use of remote jobstart is in the Admission function. Each application system receives a remote jobstart transaction when an admission occurs, to allow proper processing of the transaction.

If a remote computer is unavailable when the remote jobstart is requested, the jobstart request and parameters are spooled to disk. When the remote system becomes available, all spooled jobstart requests are sent to the remote system for processing.

## REMOTE SPOOLING

Remote spooling allows an application to send data for output to printers attached to other computers in the STAR network.

## NETWORKING COMMUNICATIONS

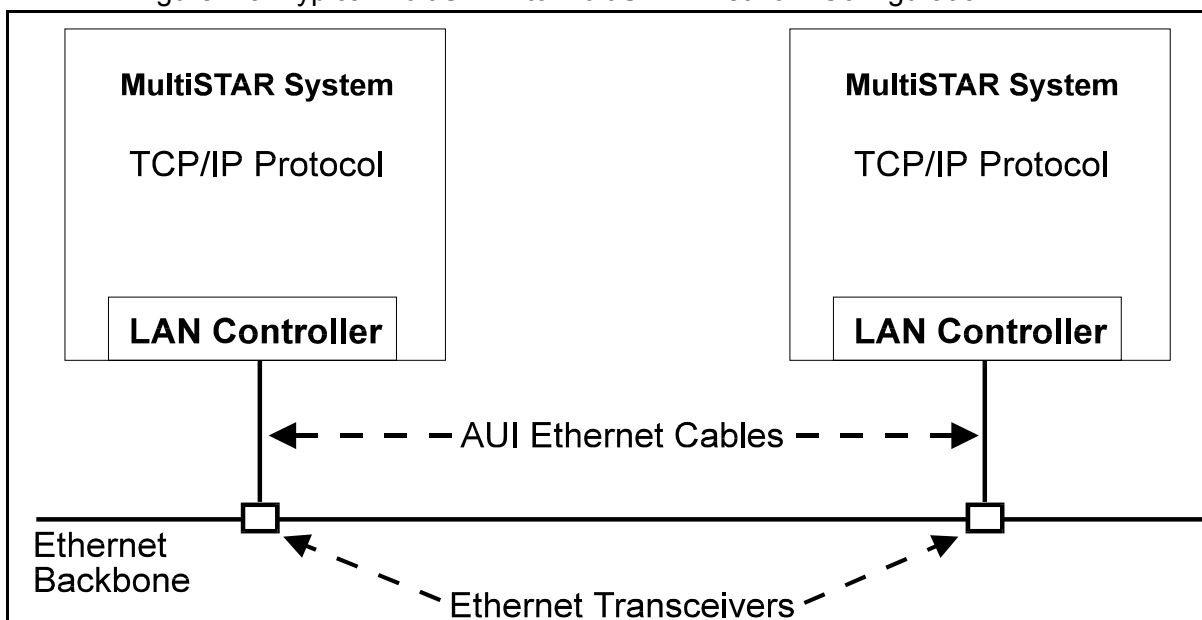
The primary mechanism for MultiSTAR network communications is via the TCP/IP protocol on an Ethernet LAN connection between the STAR systems. TCP/IP is used because it is currently the leading standard communication protocol that provides the highest level of interoperability between systems of various hardware vendors.

To support TCP/IP networking, a MultiSTAR system on UNIX requires a LAN controller card and TCP/IP software. The LAN controller card is connected to an Ethernet LAN segment via an AUI cable.

Each system in the STAR network is assigned a TCP/IP address and a TCP/IP port number. When a system needs to communicate with another system, it makes a TCP/IP socket connection request to the appropriate IP address and port number. Once the connection is made, communication takes place between the two systems on the appropriate socket connection for the requesting user.

The following diagram illustrates networking between MultiSTAR systems:

Figure 1.9 Typical MultiSTAR to MultiSTAR Network Configuration



### Hardware and Software Requirements for MultiSTAR to MultiSTAR Networking

The following hardware and software are required for MultiSTAR to MultiSTAR networking:

- TCP/IP software resident in each MultiSTAR system
- LAN controller card in each MultiSTAR system
- Ethernet LAN
- Necessary Ethernet cables and transceivers for connection to LAN

### MSE FAILOVER

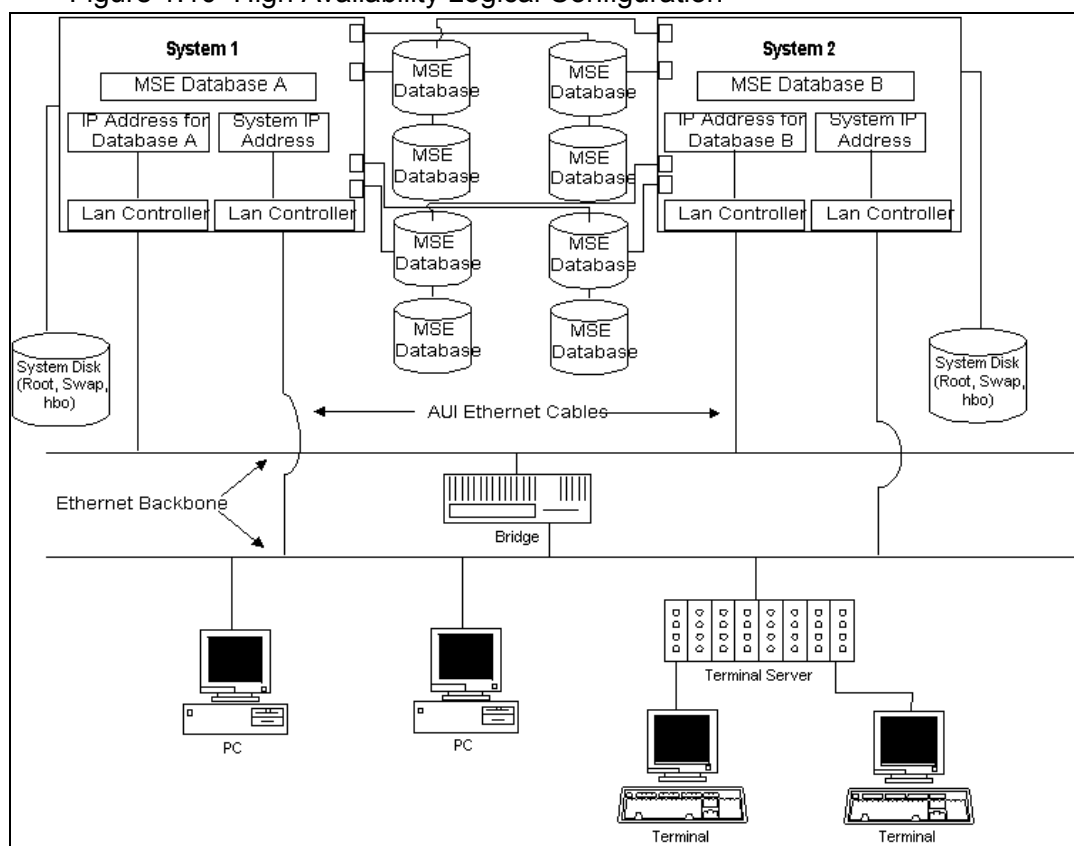
MultiSTAR provides a high availability feature that is implemented on top of products supplied by the O/S vendor. High availability is the integrated set of resources and services that seek to provide the maximum system availability and minimize downtime. Highly available systems occupy the middle ground between a standard system (that is subject to downtime from disk failures due to memory errors and application/

operating system failures), and continuously available systems (that utilize redundant hardware for all parts, including processors, power supplies, I/O subsystems and, in some instances, the entire computer).

High availability ensures the integrity of any data involved with active applications when a system goes down. The failover process ensures that there is no data loss during either the failure or the switch to the backup system. High availability allows one system to run the applications for a failed system by assuming its P address and disks, (which includes the MSE database, applications, user home directories, and system login accounts).

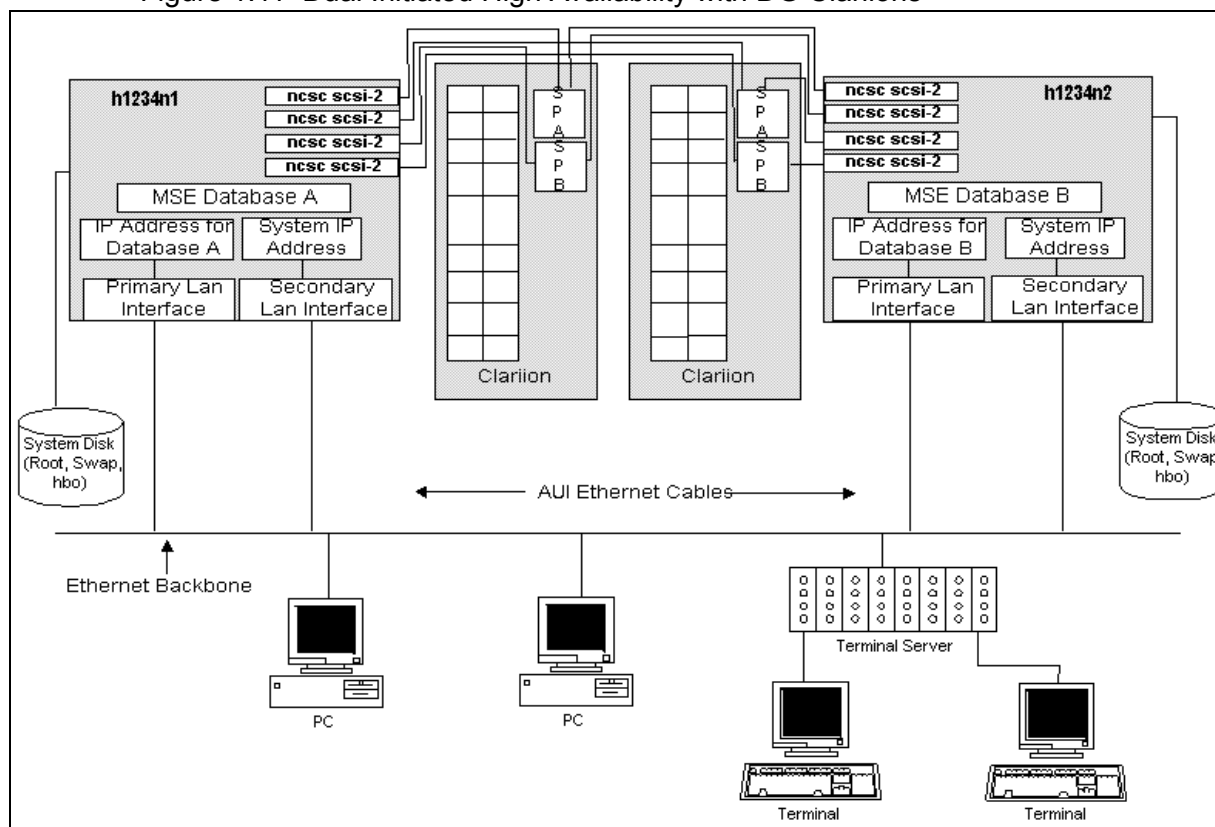
A typical configuration might resemble Figure 1.10. This configuration shows two systems. For each system, an IP address is assigned for the associated MSE database. This IP address is different from the system IP address. In the event of failure, the MSE database IP address is moved to the other system. The physical system disks that contain the O/S, /hbo, and other file systems are kept separate from the disks that contain programs and data requiring high availability and do not move in the event of failover. Each disk subsystem is on a SCSI bus that provides a continuous path from one system to the other.

Figure 1.10 High Availability Logical Configuration



If this example were shown for DG Clariions, the MSE databases would be shown in one or more cabinets, where each Clariion would have disks from both systems. Each Clariion contains two processors, designated as SP A and SP B. Each system contains two paths to each Clariion so that if one adapter fails, the other takes over the load. Figure 1.11 depicts this.

Figure 1.11 Dual Initiated High Availability with DG Clariions

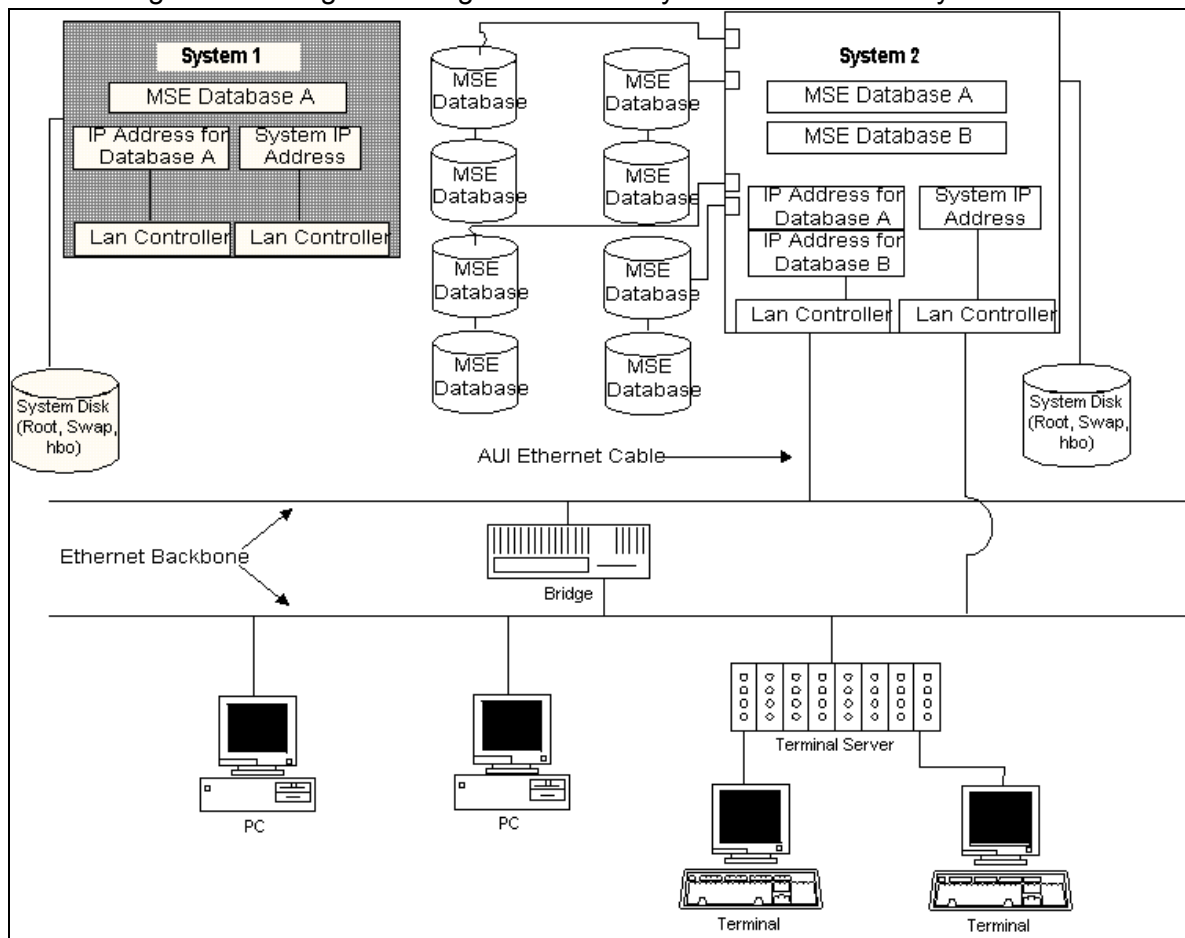


As can be seen from Figures 1.10 or 1.11, two LAN controllers per system are preferred. For automatic failover, (not supported by McKesson at this time), one controller monitors the network to ensure that the other systems in the cluster are still alive. Dual LAN controllers also provide redundancy so that if one LAN card breaks down, it switches to the other card via failover (internally and automatically).

You can add more protection through additional power supplies, disk adapters, mirrored disks on separate subsystems, and network interface cards.

McKesson uses operator-initiated failover, since it is the least complex to implement and administer. With the manual process, the operator must complete a two-step process. The first step transfers the IP address(es), transfers the disk(s), initializes the disks, and cleans up the file systems. The second step restarts MSE on the new system. The logical configuration after system 1 failing over to system 2 would appear as in Figure 1.12.

Figure 1.12 Logical Configuration After System 1 Failover to System 2



System 1 is shown in gray since it is nonfunctional and no longer connected to the LAN. The MSE database volumes and IP address(es) for system 1 have been assumed by system 2.

## THE MULTISTAR SOFTWARE ENVIRONMENT

The following programs, files and database structure make up the MultiSTAR Software Environment.

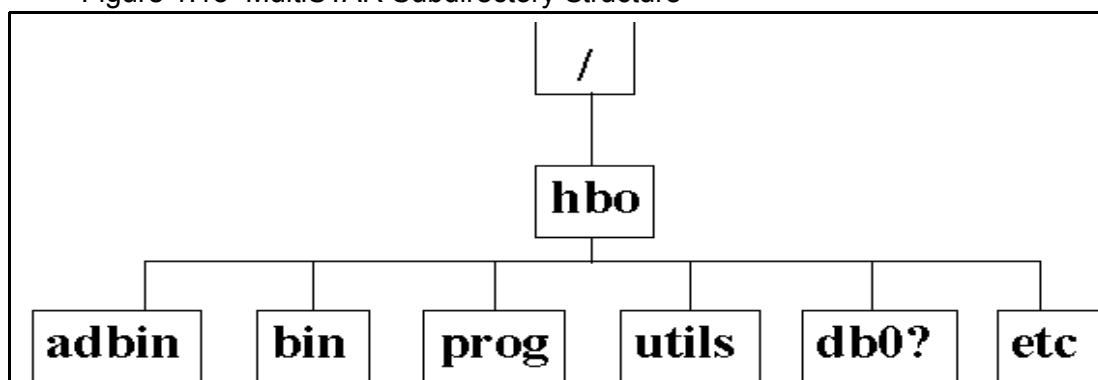
### Directory Naming

The directory name for a system running a MultiSTAR Software Environment is /hbo.

### MULTISTAR SUBDIRECTORIES

Directories containing the MultiSTAR software and database information are stored in the main MultiSTAR directory; this directory is /hbo. If more than one MultiSTAR Software Environment runs on your system, each MultiSTAR subsystem must have its own database directory (such as db01) in the main MultiSTAR directory. These subsystems continue to use executables in the main MultiSTAR directory. MultiSTAR has the following directory structure:

Figure 1.13 MultiSTAR Subdirectory Structure



<b>adbin</b>	MultiSTAR system software programs
<b>bin</b>	User-accessible executable MultiSTAR programs
<b>prog</b>	Internal MultiSTAR executable programs
<b>utils</b>	Distribution copy of MUMPS system and applications utilities
<b>db0?</b>	MultiSTAR database files (where ? is the system number, for example, system h1234nl would be db01)
<b>etc</b>	Miscellaneous files

### The Programs

The MultiSTAR Software Environment consists of a number of software programs. Each program and a description of its function within MultiSTAR follows.

**Control Process Program (mpctl)**

The MultiSTAR Control Process program reads in the database configuration file, completes initialization and performs general housekeeping.

**System Watchdog Program (mpswd)**

The System Watchdog monitors the operating environment.

**Disk Writer Program (mpdsk)**

The Disk Writers perform the physical writes to the database from the system disk buffers in the shared memory buffer pool. There is at least one disk writer for each database volume and a maximum of three disk writers for each volume.

**Journal Writer Program (mpjnl)**

The Journal Writer performs writes to the Journal files from the journal buffers.

**Before Image Log Program (mpbil)**

This program writes the Before Image Log buffer images to the Before Image Log (BIL) file. It is also responsible for periodically bringing the database to a quiescent state and for resetting the log file.

**Network Server Program (mptcp)**

This program processes connection requests and forwards TCP/IP addressing information for the background server process to build a communication path.

**Network Break Server Program (mptcpbr)**

The break server program forwards interrupt requests to the customer process.

**User Runtime Program (mpmse)**

This program contains all the language and tool support necessary to run the applications for each user.

## Utility Programs

**Database Verify Program (dbverify)**

The function of this program is to check the validity of the internal database structures on all disk blocks in the database.

**Database Initialization Program (dbinit)**

The database initialization program creates the MultiSTAR system database volumes.

**Database UCI Program (dbuci)**

The database UCI program is used to maintain User Control Index (UCI) information.

**Backup Audit (jnlaudit)**

The function of this program is to check the MSE log files for database backup activity. It summarizes the activity and gives recommendations on Full, Incremental, and Journal backup frequencies.



**Logfile utility (mselook)**

The function of this program is to view activity in the MultiSTAR Log files. It allows the user to view system activity in real-time or past system activity. This utility needs to be used often to determine system activity and possible system problems.

Command line options are:

*-[bltr] the type of log file to be viewed. One of the following can be entered as an option.*

*-b view the backup log file*

*-l view the system log file*

*-t view the test log file*

*-r view the restore log file*

*-d/hbo/dbxx/hxxxxn1 where /hbo/dbxx/hxxxxn1 is the location of the database. The default is the UNIX environment variable \$DBNAME.*

*-nNN where NN is the day of the month.*

*-p pages the file with the UNIX pg command or Linux less command.*

An example of using the command line is as follows: To view the 3rd day of the month's backup logfile for the default database with the page option turned on, enter the following at the UNIX prompt while logged in as the user mseadm.

```
mselook -n03 -b -p
```

## The Files

MultiSTAR uses the following files to define the MultiSTAR Software Environment. The first three characters of the file name (indicated by XXX in the following explanations) are site-specific and identify the environment. For example, the configuration file in a McKesson system might be called **hbo.cfg** or at General Hospital might be **gen.cfg**.

Some of the file name extensions (the portion of the file name to the right of a period) include sequential numbering beginning at 0 (these positions within the file name are indicated by N or NN in the following explanations). For example, the first Modified Block Map file at General Hospital might be called gen.m00.

**Configuration File (XXX.cfg)**

The MultiSTAR Configuration file contains information to define the configuration parameters for the specified environment. Examples of information in this file are the number of jobs, the number of ports and the port definitions.

**Database Files (XXX.vnn)**

The Database Volume files are numbered sequentially starting with 00. These files contain the global structures used by the specific environment. MultiSTAR database volumes are divided into primary and secondary data files to allow flexibility in placing data on your disks. The primary file is always located in /hbo/db0?. The primary file may contain your actual data. If the data is located in a secondary or alternate file, the primary file located in /hbo/db0? points to the alternate file location.

**Journal Files (XXX.jn1 and XXX.jn2)**

The Journal file contains the journaled database modifications.

**System Log Files (XXX.lnn)**

The System Log files are numbered 01 through 31 sequentially, where nn represents the day of the month. The current log file is set every night at midnight. These files contain MultiSTAR start-up and shutdown messages in addition to error, warning and status messages from the MultiSTAR software components.

**Modified Block Map Files (XXX.mnn)**

The Modified Block Map files are numbered sequentially starting with 00. There is one file for each database volume. The map denotes database blocks that have been changed since the last full database backup. These blocks are used by the incremental backup utilities.

**System Activity Report File (XXX.sNN)**

The System Activity report logs various information about the running environment. In the file extension, NN is the day of the month.

**Before Image Log File (XXX.bil)**

This file contains the before image logs of database blocks before they are modified. MultiSTAR uses this file following a system crash to roll back the contents of the database to a consistent state.

**Ports File (XXX.ports)**

This file contains port parameter information, such as speed and parity. This file is used by mpswd. The system puts this file into shared memory for faster access.

**Backup Log Files (XXX.bnn)**

The Backup Log files are numbered 01 through 31 sequentially, where nn represents the day of the month. The current log file is set when the backup is started. These files contain MultiSTAR backup messages from both the full concurrent and incremental backups. Monitor these to ensure successful full concurrent and incremental backups. See also Journal Backup Log Files.

**Journal Backup Log Files (XXX.bjnn)**

The Journal Backup Log files are numbered 01 through 31 sequentially, where nn represents the day of the month. The current log file is set when the backup is started. These files contain MultiSTAR backup messages from the journal file backup process. Monitor these to ensure successful journal backups. See also Backup Log Files.

**IPL Log File (XXX.iplog)**

This file contains MultiSTAR IPL (Initial Program Load) messages from the IPL process. Check this file when abnormalities occur during the IPL process.

**dbinit Log File (XXX.init)**

This file contains MultiSTAR dbinit messages logged whenever a volume or journal file is added, expanded, or deleted in the background. Monitor this file only if the process is ran in the background.

**dbinit Log History File (XXX.init\_hist)**

This file contains historical information from the MultiSTAR dbinit process. It logs every time a volume or journal file is added, expanded, or deleted.

**Restore Log Files (XXX.rnn)**

The Restore Log files are numbered 01 through 31 sequentially, where nn represents the day of the month. The current log file is set when the restore is started. These files contain MultiSTAR database restore messages.

**Database Status (XXX.status)**

This file contains the current status of the database.

## The Database Structure

MultiSTAR databases are comprised of multiple volumes. Each volume is actually a separate host operating system file. Each of the volumes (files) can be as large as a disk drive or any part of a disk drive (the maximum volume size is ten billion bytes). A single MultiSTAR database can be as large as many disk drives combined.



## Chapter 2 - SYSTEM MANAGEMENT

USER AND PORT DEFINITION .....	2-3
Defining Ports To MultiSTAR .....	2-3
Port Numbering Assignments .....	2-6
Port Type Descriptions .....	2-7
Dynamic Ports .....	2-7
Physical Ports .....	2-8
Software Ports .....	2-11
Virtual Ports .....	2-12
Host Spooler Printer Ports .....	2-14
Defining Tape Drives to MultiSTAR .....	2-17
Managing Ports .....	2-20
Testing Terminals .....	2-20
On-line Instrument Read/Write .....	2-22
Using the Signon Monitor .....	2-24
Starting And Stopping The Signon Monitor .....	2-24
Using The Port Usage Log .....	2-25
Graphing Port Usage .....	2-26
PRINTER OUTPUT MANAGEMENT .....	2-29
Theory .....	2-30
Reports .....	2-30
Defining Report Groups .....	2-31
Printers .....	2-31
Forms Maintenance .....	2-31
SYSTEM RECOVERY FEATURES .....	2-32
Theory .....	2-32
Backup .....	2-33
Full Concurrent And Incremental Tape Labeling Scheme .....	2-34
Before and After Image Logging .....	2-34
Implementation of a FAIL-SAFE Database Before Image Log Method .....	2-34
MSE Failover .....	2-35
MULTISTAR JOURNALING .....	2-36
Journaling Operation .....	2-36
Recovery From Power Fail .....	2-37
Restoring the Database .....	2-39
SITE RELEASE SCREEN PARAMETERS .....	2-40
Site Screen Parameters .....	2-40
STAR Patient Care .....	2-41
STAR Patient Care Order Management .....	2-43

STAR Pharmacy .....	2-43
Inpatient .....	2-44
Order Maintenance .....	2-44
Formulary Maintenance .....	2-44
Ambulatory Care .....	2-45
Maintaining Site Screen Parameters .....	2-45
Identify Screen Using Screen Name .....	2-45
Identify Screen Using System Flow .....	2-45
Identify Group of Screens .....	2-47
Site Screen Group Maintenance .....	2-50
To Exit This Function .....	2-51
Site Screen Group Parameters .....	2-51
AUDIT SERVICE INTERFACE .....	2-54

## Illustrations

Figure 2.1 Port Utilization .....	2-28
Figure 2.2 Relationship of Reports, Printers, Ports, and Output Destinations .....	2-30

## USER AND PORT DEFINITION

During installation, McKesson personnel set up some of the ports and some users on your system. You can define additional ports and users as needed. The system also allows you to change user passwords as needed.

McKesson and hospital personnel also set up default log on passwords during installation. In order to ensure system security, users must define unique passwords when they first log on to the system.

You use MSE utilities to modify ports on the system. You use UNIX utilities to modify user names and passwords.

### Defining Ports To MultiSTAR

It may be desirable to reserve ports in MSE. Once a port is reserved, the given device is assigned the same port number in MultiSTAR every time. Dynamic ports are not defined in MultiSTAR.

To define or modify a MultiSTAR port, sign on to the system using the C sign on key. Select the System Utilities option. The system displays the following menu:

```

                                General Hospital System Utilities Processor
                                Mon Jun 30, 2003 01:38 pm
System Management Input Options

Option No.  Option
-----
      1      System Backup
      3      Examine Job Status
      4      Remove Jobs From System
      5      Change Log-on Status
      6      Sign On Message
      7      Send a System Message
      8      Sign Off Bulletin Board
      9      Terminal/Port Setup
     10      Halt System
     11      System Utilization Monitors
     12      Special Utilities
     13      Clear Sentinel Support Call
     14      Build site specific Sentinel criteria
     15      Edit System Parameters
     16      Audit Service Interface

Enter option number--
```

Select the Terminal/Port Setup option. The system displays the following menu:

```
General Hospital Terminal/Port Setup Processor
                                     Wed Jun 16, 2004 11:41 am
Terminal/Port Setup Input Options

Option No.  Option
-----
I  - Initialize Port Characteristics
L  - List Port Specs
O  - On-Line Instrument Read & Write
P  - Port Modification Utility
T  - Test Terminal / Ripple Print
OP - Output Mgmt: Printer Definition
TD - Tape Drive Modification Utility

Enter option number--
```

From this menu, select **P** for Port Modification Utility. The system loads the configuration file.

Only one user can use the Port Modification Utility at a time. If the Port Modification Utility is already in use, the system displays the following message:

*Port Modification Already in Use!*

If the MSE system Watchdog utility has not processed the new configuration, the system displays the following message:

*Configuration File Not Available. Please Try Again Later!*

**NOTE:** The Watchdog utility typically processes new configurations within seconds of their being filed.

If the Port Modification Utility is not in use, the system displays the following message:

*Enter port number, '-' for list w/sort options or (F)first available-*

Enter a specific port number to add or modify an existing port. Enter a hyphen (-) to display a list with sort options. Enter **F** to select the first available port in the system.

If you enter an existing port, the following prompt is displayed:

*Edit?: (Y/N) [N]--*

Enter **Y** to edit the port definition. For more information about modifying specific port types, see ["Port Type Descriptions" on page 2-7](#).



If you are defining a new port that is *not* a host spooler port (the port number is not between 8100-8499), the system displays the following prompt:

*Enter dynamic(D), physical(P), software(S) or virtual (V) device class?--*

Dynamic ports are not assigned a set device number. Use physical ports when the device is directly connected to the system. Virtual ports are for devices attached to the system via a network interface. Software ports are intended for parallel printers and some host spool devices. For more information about port number assignments, see [“Port Numbering Assignments” on page 2-6](#).

Select the desired port type. The system displays the appropriate Port Modification screen. For more information about adding specific port types, see [“Port Type Descriptions” on page 2-7](#).

If you enter a hyphen (-) to display a list of all ports (defined and undefined), the following screen is displayed:

General Hospital Port Modification Processor				
Wed Jun 16, 2004 11:03 am				
Page:10				
MSE Ports sorted by Number (*=available ports)				
	Port	Description	Address/Comm.	Type of Device
( 1 )	136	ABCDE	111.11.11.11+1100	PRINTER, HP LaserJet
( 2 )	*137	(None)	(None)	(None)
( 3 )	138	Radiology	111.111.11.11+2100	PRINTER, Epson proto
( 4 )	139	Barcode Printer	111.111.11.11+3100	PRINTER, *ANSI proto
Enter Option or `S` for sort options--				
next pg(/ or PG DN) previous pg(/P or PG UP) Search(TAB)				

Enter **S** to select a sort option. The following prompt is displayed:

*Sort by (N)umber, (D)escription, (A)ddress or (T)ype [N]--*

Enter **N** to sort the list of ports by port number (Port column). Enter **D** to sort the list of ports by port description (Description column). Enter **A** to sort the list of ports by address (Address/Comm. column). Enter **T** to sort the list of ports by type (Type of Device column).

In the example screen above, the list is sorted by Number, as indicated by the heading *MSE Ports sorted by Number*.

If you enter F to select the first available port, the following prompt is displayed:

*Enter dynamic(D), physical(P), software(S) or virtual(V) device class?--*

Select the desired port type. The appropriate Port Modification screen is displayed. For more information about specific port types, see [“Port Type Descriptions” on page 2-7.](#)

## PORT NUMBERING ASSIGNMENTS

You must assign port numbers according to the type of device. For example, port numbers between 1 and 6999 are reserved for PCs or terminals, printers, etc.; port numbers between 8100 and 8499 are reserved for host spooler ports; and so forth.

The following table displays the port number reservations by device type:

Port Numbering Assignments		
Starting #	Ending #	Device Type or Reserved for
1	1	Automatically assigned by the system to the first user who signs on to the MSE environment with the -MANAGER command line option.
2	6999	PCs, terminals, printers, interfaces, etc. The use has to be defined. If not, it is used as a dynamic port.
7000	7049	Magnetic tape drives.
7050	7099	Currently not used.
7100	7100	View device for disk and memory read and write operations (single use only).
7101	7999	Currently not used.
8000	8049	Host files.
8050	8050	Bit bucket.
8051	8051	View device for disk and memory read-only operations (multiple use).
8052	8059	Currently not used.
8060	8069	Universal ports. This use is declared at open time.
8070	8079	Inter job communication pipes.
8080	8089	Send or receive data to or from UNIX commands from or to MUMPS.
8090	8090	Universal dynamic port. Note: If you want to use port 8090 as a universal dynamic port, add the USEUDPORT=YES parameter to the h9999n9.cfg file.
8091	8091	Network Access port.
8092	8099	Currently not used.
8100	8499	Host spooler ports.
8500	8999	Currently not used.
9000	9012	MSE networking.
9013	9999	Currently not used.

If you define a port with a number between 8100 to 8499, inclusive, the system defines the port as a host spooler port. If you enter a port number in this range, the system displays the Port Modification screen for host spooler ports. For more information, see [“Host Spooler Printer Ports” on page 2-14](#).

## PORT TYPE DESCRIPTIONS

This section contains information about the following types of ports and how to configure each:

- [“Dynamic Ports” on page 2-7](#)
- [“Physical Ports” on page 2-8](#)
- [“Software Ports” on page 2-11](#)
- [“Virtual Ports” on page 2-12](#)
- [“Host Spooler Printer Ports” on page 2-14](#)

## Dynamic Ports

Dynamic ports are unassigned ports (port number range 2 to  $N$  where  $N$  is the number specified in the `PORTS=N` configuration line of the `h9999n9.cfg` file).

If you want to use port 8090 as a universal dynamic port, add the `USEUDPORT=YES` parameter to the `h9999n1.cfg` file.

If you elect to modify an existing dynamic port or add a new dynamic port, the system displays the following screen:

General Hospital Port Modification Processor		
Thu Jun 20, 1991 02:29 pm		
1 Port Number 121	2 Device Class Dynamic	3 Logon Allowed Yes
4 Sign-on Keys C -Computer Operations		
5 Spool Status On	6 Comment	
Accept this screen? (Y/N) [Y]--		

## Field Explanations

### 1. PORT NUMBER (DISPLAY ONLY)

This field contains the port number selected.

### 2. DEVICE CLASS (DISPLAY ONLY)

This field contains the selected device class: Dynamic, Physical, Software or Virtual.

### 3. LOGON ALLOWED (1-A-R)

This field indicates if logon is allowed on this port. Logon is Yes for PC or terminal ports and No for printer ports. Enter **Y** for Yes or **N** for No.

### 4. SIGNON KEYS (1-A-R) or (TABLE LOOKUP-R)

This field indicates the sign-on keys available to this port. Press the ENTER key to accept tilde (~) as the default sign-on key, enter a sign-on key to assign to this port or select sign-on keys from a list. Tilde (~) is the programmer sign-on key.

### 5. SPOOL STATUS (1-A-R)

This field indicates the spool status for this port. Enter **N** for PC or terminal ports or **Y** for printer ports.

### 6. COMMENT (33-C-O)

This field specifies any free-form comment. This comment appears on port printouts.

After you accept the screen, the device is defined to MultiSTAR as a dynamic port.

## Physical Ports

Physical ports are assigned a physical device (for example, /dev/tty1). These ports are assigned the same physical device.

If you elect to modify an existing physical port or add a new physical port, the system displays the following screen:

```

                                General Hospital Port Modification Processor
                                Mon Jul 25, 2011 02:29 pm
Last edited by : Smith,James 05/25/04 1031
Last opened : 06/27/11 10:57
1 Port Number                2 Device Class                3 Logon Allowed
  30                        Physical                        No
4 Sign-on Keys                5 Comment
  n/a                      Lab printer
6 Spool Status                7 Host Port Name
  On                        /dev/ttyp3
8 Device Type                9 Answer Back                10 Terminal Type
  PRINTER, *ANSI protocol  No                        n/a
11 Clock Rate  12 Stop Bits  13 Data Bits                14 Parity
  9600 baud    1            8                        None
15 Keyboard Type            16 Flow Control (Xon/Xoff)  17 Block on Open
  n/a                      Enabled                        No
18 Location                19 Cable Number                20 Phone Number
  4-West                  xlr234                        x678

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

```

## Field Explanations

### 1. PORT NUMBER (DISPLAY ONLY)

This field contains the port number selected.

### 2. DEVICE CLASS (DISPLAY ONLY)

This field contains the selected device class: Dynamic, Physical, Software or Virtual.

### 3. LOGON ALLOWED (1-A-R)

This field indicates if logon is allowed on this port. Logon is Yes for PC or terminal ports and No for printer ports. Enter **Y** for Yes or **N** for No.

### 4. SIGNON KEYS (1-A-R) or (TABLE LOOKUP-R)

This field indicates the sign-on keys available to this port. Press the ENTER key to accept tilde (~) as the default sign-on key, enter a sign-on key to assign to this port or select sign-on keys from a list. Tilde (~) is the programmer sign-on key.

### 5. COMMENT (33-C-O)

This field specifies any free-form comment. This comment appears on port printouts.

### 6. SPOOL STATUS (1-A-R)

This field indicates the spool status for this port. Enter **N** for PC or terminal ports or **Y** for printer ports.

### 7. HOST PORT NAME (U-C-R)

This field specifies the host operating system device file name.

**8. DEVICE TYPE (TABLE LOOKUP-R)**

This field defines the device type (for example: CRT, Instrument, Computer link, Modem or Printer). Select the device type from the displayed list.

**9. ANSWER BACK (TABLE LOOKUP-C)**

This field determines if the device has answerback capability. This is used by some spool devices such as printers. Press the ENTER key or enter **N** (for No) to disable answerback capability. Select the desired answerback type. This field is used only for printers.

**10. TERMINAL TYPE (TABLE LOOKUP-C)**

This field specifies the terminal type for a CRT (for example, DG410 or VT220). If this field displays *system default*, the system-wide terminal type is used. The system default is defined during installation and can be modified only by McKesson personnel. This field is used only for CRTs.

**11. CLOCK RATE (TABLE LOOKUP-R)**

This field specifies the communication speed or baud rate. Select the appropriate baud rate from the displayed list.

**12. STOP BITS (1-N-R)**

This field defines the stop bits for the device. The value in this field must match the stop bits set into the terminal device. The default number of stop bits is one (1). Press the ENTER key to accept the default value of one (1) stop bit or enter **2** for two stop bits.

**13. DATA BITS (1-N-R)**

This field specifies the word length. The value in this field must match the data bits for the device. PC's normally use a word length of 8 data bits. Other devices usually use a word length of 7 data bits. The default data bits is 8. Enter the desired word length, either 7 or 8 data bits.

**14. PARITY (1-A-R)**

This field specifies the parity setup, which must match the physical device. Enter **O** for Odd parity, **E** for Even parity or **N** for None.

**15. KEYBOARD TYPE (TABLE LOOKUP-C)**

This field identifies the type of keyboard for a CRT. The system displays a table of keyboard types from which you can select. If this field displays *System Default*, the default keyboard type for this terminal type, as identified in the Terminal Type field, is used. This field is used only for CRTs.

**16. FLOW CONTROL (XON/XOFF) (1-N-R)**

This field determines if flow control is allowed. This is commonly known as XON/XOFF. The normal value for terminals, PCs and printers is E for Enable. Press the ENTER key or enter **E** to enable flow control. Enter **D** to disable flow control.

**17. BLOCK ON OPEN (A-C-O)**

This field controls whether the opening of the port waits for a carrier lead to go high before finishing the open. This is used for modems and the default is No.

**18. LOCATION (U-C-O)**

This field specifies the device location. This information appears on port information reports. Enter the location information.

**19. CABLE NUMBER (U-C-O)**

This field specifies the cable number. This information appears on the port information reports. Enter the cable number.

**20. PHONE NUMBER (U-C-O)**

This field specifies the phone number closest to the location of the device. This is an information-only field.

After you accept the screen, the device is defined to MultiSTAR as a physical port.

**Software Ports**

These ports work just like physical ports, except they are used for host-related software and are Write only.

If you elect to modify an existing software port or add a new software port, the system displays the following screen:

```

                                General Hospital Port Modification Processor
                                Mon Jul 25, 2011 02:29 pm
Last edited by : Smith,James 05/25/04 1031
Last opened  : 06/27/11 10:57
1 Port Number 2 Device Class
121           Software
3 Spool Status 4 Comment                    5 Device Type
On                                                    PRINTER, Epson protocol
6 Host Port Name
/dev/ttyxx

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

```

**Field Explanations****1. PORT NUMBER (DISPLAY ONLY)**

This field contains the port number selected.

**2. DEVICE CLASS (DISPLAY ONLY)**

This field contains the selected device class: Dynamic, Physical, Software or Virtual.

**3. SPOOL STATUS (1-A-R)**

This field indicates the spool status for this port. Enter **Y** for PC or terminal ports or **N** for printer ports.

**4. COMMENT (33-C-O)**

This field specifies any free-form comment. This comment appears on port printouts.

**5. DEVICE TYPE (TABLE LOOKUP)**

This field defines the printer device type (for example: HP Protocol, Epson Protocol).

**6. HOST PORT NAME (U-C-R)**

This field specifies the host operating system device file name.

After you accept the screen, the device is defined to MultiSTAR as a software port.

**Virtual Ports**

These ports are like physical ports, except TCP/IP addresses are assigned.

If you elect to modify an existing virtual port or add a new virtual port, the system displays the following screen:

```

                                General Hospital Port Modification Processor
                                Sun Jun 26, 2011 09:53 pm
Last edited by : User,Joe 03/05/02 1338
Last opened : not since MSE IPL
1 Port Number          2 Device Class          3 Logon Allowed
433                    Virtual                  No
4 Sign-on Keys
n/a
5 Spool Status          6 Comment
On                      Main Admissions Printer
7 Device Type           8 Answer Back          9 Terminal Type
PRINTER, *ANSI protocol No                    n/a
10 Network Protocol     11 Network Address       12 Network Port
TCP                     10.0.0.1                9100
13 Keyboard Type        14 Direction             15 Flush on Open
n/a                     n/a                    Yes
16 Location             17 Cable Number          18 Phone Number
3rd floor               x1234

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

```

The example screen above is for a TCP/IP address.

**Field Explanations****1. PORT NUMBER (DISPLAY ONLY)**

This field contains the port number selected.

**2. DEVICE CLASS (DISPLAY ONLY)**

This field contains the selected device class: Dynamic, Physical, Software or Virtual.

**3. LOGON ALLOWED (1-A-R)**

This field indicates if logon is allowed on this port. Logon is Yes for PC or terminal ports and No for printer ports. Enter **Y** for Yes or **N** for No.



**4. SIGNON KEYS (1-A-R) or (TABLE LOOKUP-R)**

This field indicates the sign-on keys available to this port. Press the ENTER key to accept tilde (~) as the default sign-on key, enter a sign-on key to assign to this port or select sign-on keys from a list. Tilde (~) is the programmer sign-on key.

**5. SPOOL STATUS (1-A-R)**

This field indicates the spool status for this port. Enter **N** for PC or terminal ports or **Y** for printer ports.

**6. COMMENT (33-C-O)**

This field specifies any free-form comment. This comment appears on port printouts.

**7. DEVICE TYPE (TABLE LOOKUP-R)**

This field defines the device type (for example: CRT, Instrument, Computer link, Modem or Printer). Select the device type from the displayed list.

**8. ANSWER BACK (TABLE LOOKUP-C)**

This field determines if the device has answerback capability. This is used by some spool devices such as printers. Press the ENTER key or enter **N** (for No) to disable answerback capability. Select the desired answerback type. This field is used only for printers.

**9. TERMINAL TYPE (TABLE LOOKUP-C)**

This field specifies the terminal type for a CRT (for example, DG or VT220). If this field displays *system default*, the system-wide terminal type is used. The system default is defined during installation and can be modified only by McKesson personnel. This field is used only for CRTs.

**10. NETWORK PROTOCOL (DISPLAY ONLY)**

This field contains the protocol used by this port. The system supports LAT and TCP/IP.

**11. NETWORK ADDRESS (25-C-R)**

The information entered to this field depends on your entry to the Protocol field.

If you are using TCP/IP for this port, this field identifies the TCP/IP address used by the port. Enter the address in the format: 999.999.999.999.

If you are using Domain Name Service (DNS) for this port, this field contains the DNS name.

**12. NETWORK PORT (U-C-O)**

This field specifies the port that the device is attached to on a terminal server. For output devices such as printers this is a 4-digit number. For input/output devices, used for logging onto the system, the 4-digit number the terminal server provides to the CPU may vary. Typically the second and third digits vary. So MultiSTAR does not compare on the second and third digits in such cases, these digits may be masked from the pattern match by substituting a question mark (?) for the digits (foreexample, enter 8??? for 8013).

If you are using LAT for this port, this field identifies the port name (for example, PORT\_2).

**13. KEYBOARD TYPE (TABLE LOOKUP-C)**

This field identifies the type of keyboard for a CRT. The system displays a table of keyboard types from which you can select. If this field displays *System Default*, the default keyboard type for this terminal type, as identified in the Terminal Type field, is used. This field is used only for CRTs.

**14. DIRECTION (1-A-C)**

This field identifies the direction of the connection for the instrument or computer link. Enter **I** if the direction is incoming from the instrument to the host; **O** if the direction is outgoing from the instrument to host. The default is O. This field is used only for instruments and computer links.

**15. FLUSH ON OPEN (1-A-O)**

This field specifies whether MSE flushes negotiation characters on outbound connections upon the open of the port. This is mainly for term servers that do telnet negotiations upon initial connections. Enter **Y** (the default) to flush negotiations. Enter **N** to bypass flushing of negotiations.

**NOTE:** The field is only used on outbound connections. Printing response time is faster when set to No.

**16. LOCATION (U-C-O)**

This field specifies the device location. This information appears on port information reports. Enter the location information.

**17. CABLE NUMBER (U-C-O)**

This field specifies the cable number. This may not be applicable for network devices. This information is included on port information reports. Enter the cable number, if applicable.

**18. PHONE NUMBER (U-C-O)**

This field specifies the phone number closest to the location of the device. This is an information-only field.

After you accept the screen, the device is defined to MultiSTAR as a virtual device.

## Host Spooler Printer Ports

The host spooler feature within MultiSTAR enables you to share printers between McKesson and non-McKesson applications in your environment. You can share printers if they are accessible using one of the following connections:

- Directly on the local host
- Through a remote host
- Through a terminal server

Host spooler support provides transfer of reports from the MultiSTAR print spooler to the host operating system print spooler. This allows printing reports on printers connected to remote hosts or on network printers through the native operating system.

When a report is generated for a host spooler printer, MultiSTAR first creates and retains a copy of the report in the MultiSTAR print spooler for reprinting and online viewing. It then exports the report to the host operating system spooler for printing.

**NOTE:** Spooling output to two separate areas creates potential disk space and system performance considerations. Be sure to allow adequate disk space for the host operating system spooler.

When setting up host spooler printers, keep in mind whether the printer uses special forms for McKesson applications. If a printer uses a special form, it needs to remain dedicated to the McKesson application using that form and *not* be set up as a host spooler printer. In general, only printers that you want to share between applications need to be set up as host spooler printers.

**NOTE:** MultiSTAR has no record or control over the status of the print job after it is sent to the host operating system spooler. Use caution when deciding to set up a printer as a host spooler printer.

Printers connected to a terminal server can be shared without being set up as host spooler printers. If all other applications using the printer connect to the port when using the printer and disconnect when they finish printing, the printer can be shared. By leaving these printers attached to the terminal server and not making them host spooler applications, you maintain the higher level of communications available between terminal server printers and MSE. Thus, the printer can be shared with any other application in the network *and* MSE continues to communicate with the printer as if it had sole control of the device. This enables you to continue using the print queue review functions and makes it possible for the printer busy functions to know when the printer is busy, offline, or if other states exist.

The system assigns port numbers between 8100 and 8499, inclusive, as host spooler ports. When you access the Port Modification Utility and enter a port number between 8100 and 8499 to the prompt, the system displays the following screen:

```

                                General Hospital Port Modification Processor
                                Mon Jul 25, 2011 02:29 pm
Last edited by : Smith,James 05/25/04 1031
Last opened  : 06/27/11 10:57
1 Port Number 2 Device Class      3 Device Type
121           Host Spooler       PRINTER, Epson protocol
4 Comment
On
5 Spool Status                6 Pipeline Spooler Output
/dev/ttyxx                  Open once for each report spooled
7 Host Print Command/Queue Name
lp -dhplj4mx_1
8 Location                    9 Cable Number          10 Phone Number
303 3rd floor                patch 2-14              x821

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

```

## Field Explanations

### 1. PORT NUMBER (DISPLAY ONLY)

This field contains the port number selected.

### 2. DEVICE CLASS (DISPLAY ONLY)

This field contains the selected device class: Host Spooler.

### 3. DEVICE TYPE (TABLE LOOKUP-R)

This field identifies the type of device attached to this port. Select the appropriate device from the table displayed.

### 4. COMMENT (33-C-O)

This field contains any free-form comment about the device attached to this port. This comment displays on port printouts.

### 5. SPOOL STATUS (1-A-R)

This field indicates whether new print jobs can be sent to this port to print. Optional entries are **Y** for Yes (new print jobs can be sent to this port) or **N** for No (no new print jobs can be sent to this port). If you enter Y, the system displays *On* in this field. If you enter N, the system displays *Off* in this field.

If you disable this port for new print jobs, the system finishes printing jobs currently routed to this printer; however, new print jobs cannot be routed to the printer.

### 6. PIPELINE SPOOLER OUTPUT (1-A-O)

This field controls whether all reports spooled to a host spooler port are printed at one time, or all reports are printed one at a time, utilizing one open/close per report spooled. Some third-party packages require one report per host session, whereas

others do not delineate reports by the open/close. The default is to open once for ALL reports spooled.

#### **7. HOST PRINT COMMAND/QUEUE NAME (128-C-R)**

This field identifies the printer command and/or network queue where print jobs sent to this port are routed. You can enter up to 128 characters in this field and they are stored in the system, but only the first 76 characters are displayed on the screen.

#### **8. LOCATION (U-C-O)**

This field specifies the device location. This information appears on port information reports. Enter the location information.

#### **9. CABLE NUMBER (U-C-O)**

This field specifies the cable number. This may not be applicable for network devices. This information is included on port information reports. Enter the cable number, if applicable.

#### **10. PHONE NUMBER (U-C-O)**

This field specifies the phone number closest to the location of the device. This is an information-only field.

After you accept the screen, the device is defined to MultiSTAR as a host spooler printer.

**NOTE:** This feature makes use of the following programs:

- *lp* (supported by Hewlett Packard)
- *lpr* (supported by IBM)
- *rlp* (supported by Hewlett Packard)

The program *lp* is the standard UNIX spooler program; *lpr* and *rlp* provide support for remote printing. See the documentation supplied by your hardware vendor for more information on these programs.

## **Defining Tape Drives to MultiSTAR**

When MultiSTAR is initially installed tape drives are added for a standard configuration. This processor enables you to modify this standard configuration to match your environment.

To define or modify a MultiSTAR tape drive, sign on to the system using the C sign on key. Select the System Utilities option. The system displays the following menu:

```

                                General Hospital System Utilities Processor
                                Mon Jun 30, 2003 01:38 pm
System Management Input Options

Option No.  Option
-----
      1      System Backup
      3      Examine Job Status
      4      Remove Jobs From System
      5      Change Log-on Status
      6      Sign On Message
      7      Send a System Message
      8      Sign Off Bulletin Board
      9      Terminal/Port Setup
     10      Halt System
     11      System Utilization Monitors
     12      Special Utilities
     13      Clear Sentinel Support Call
     14      Build site specific Sentinel criteria
     15      Edit System Parameters
     16      Audit Service Interface

Enter option number--
```

Select the Terminal/Port Setup option. The system displays the following menu:

```

                                General Hospital Terminal/Port Setup Processor
                                Wed Jun 16, 2004 11:41 am
Terminal/Port Setup Input Options

Option No.  Option
-----
      I  - Initialize Port Characteristics
      L  - List Port Specs
      O  - On-Line Instrument Read & Write
      P  - Port Modification Utility
      T  - Test Terminal / Ripple Print
      OP - Output Mgmt: Printer Definition
      TD - Tape Drive Modification Utility

Enter option number--
```

Select **TD** for **Tape Drive Modification Utility**. The system displays the standard tape drive configuration screen:

```

                                GENERAL HOSPITAL Terminal/Port Setup Processor
                                Thu Mar 30, 1993 02:28 pm
Valid Mag Tape Ports: 7000-7049
Page:01                                Tape Drives
( 1 ) (Drive 0, Port 7000) Mag Tape 7000
( 2 ) (Drive 1, Port 7001) Mag Tape 7001 (Cartridge)
( 3 ) (Drive 2, Port 7002) Mag Tape 7002 (Cartridge)
( 4 ) (Drive 3, Port 7003) Mag Tape 7003 (Streamer)

Enter option number or add(A)--

```

This screen contains:

- The drive number, which is the tape drive unit number
- The port number, which is the MultiSTAR port number to which the tape drive unit is tied
- The description, which is the name and type of tape drive unit

To edit information for a tape drive unit, enter the option number of the tape drive unit. To add a tape drive unit, enter **A**. The system displays the following prompt:

*Enter tape drive number to add--*

Enter the appropriate tape drive unit number. If you are adding or editing a tape drive unit, the system displays a screen similar to the following:

```

                                GENERAL HOSPITAL Terminal/Port Setup Processor
                                Thu Mar 30, 1993 02:28 pm
Valid Mag Tape Ports: 7000-7049
1 Drive Number          2 Port Number
1                      7001
3 Description
  Mag Tape 7001 (Cartridge)

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

```

## Field Explanations

### 1. DRIVE NUMBER (DISPLAY ONLY)

This field displays the tape drive unit number, as entered or selected from the preceding screen.

### 2. PORT NUMBER (4-N-R)

This field identifies the MultiSTAR port number tied to this tape drive unit. MultiSTAR tape drive port numbers are 7000-7049.

### 3. DESCRIPTION (33-C-R)

This field contains a physical description of the tape drive.

When you accept the screen, the system defines the device to MultiSTAR as a tape drive unit.

## Managing Ports

In order to manage ports, the Operations area must be supplied with verification tools to determine if devices on the ports are communicating properly with MultiSTAR. Tools are provided to test PC or terminals and hospital online instrument devices.

Testing PCs or terminals involves verifying that information sent to the PC/terminal displays properly and that all PC/terminal display functions are properly operating.

Testing instruments involves allowing the operator to see what data is being transmitted by the device.

## TESTING TERMINALS

The following functions are provided to test terminals:

- Ripple test
- Function test

The ripple test displays a series of characters left to right, top to bottom. The operator can verify that every character position displays the proper character. The function test displays characters in various modes such as bold, dim or reverse video. This enables the operator to verify that each characteristic available on that particular terminal is properly functioning. Certain characteristics may be unavailable on certain terminals.



To access the terminal test function, select Terminal/Port Setup from the System Management menu. The system displays the following menu:

```
General Hospital Terminal/Port Setup Processor
                                     Wed Jun 16, 2004 11:41 am
Terminal/Port Setup Input Options

Option No.  Option
-----
I  - Initialize Port Characteristics
L  - List Port Specs
O  - On-Line Instrument Read & Write
P  - Port Modification Utility
T  - Test Terminal / Ripple Print
OP - Output Mgmt: Printer Definition
TD - Tape Drive Modification Utility

Enter option number--
```

Enter **T** for Test Terminal/ Ripple Print. The system displays the following prompt:

```
Use device #: (HOME)
Paper Width: (79)
Lines per Page: (1E50)
```

Enter the device number, width of display and number of lines per page. The following displays, prompting you to select one of the two available tests:

```
'R'ipple or 'F'unction Test (R):
```

Enter **R** for the ripple test to print characters to the device in a pattern, controlled by the selections made.

Enter **F** to function test the control character sequences sent to the device for proper operation.

If you enter R for the ripple test, answer the following questions:

```
RIGHT OR LEFT (L):
RANDOM LENGTH LINES? (N):
ENTER LINE TO RIPPLE (ALL PRINTABLE):
```

To stop the test, enter a period (.).

The following is an example of the ripple test using the defaults (Left, Fixed Length Lines and default ripple line (all printable characters)):

```
%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrstuvwxyz
&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrstuvwxyz
'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrstuvwxyz
()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrstuvwxyz
)*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrstuvwxyz
*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrstuvwxyz
+-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrstuvwxyz
,-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrstuvwxyz
-./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrstuvwxyz
./0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrstuvwxyz{
/0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrstuvwxyz{|
0123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrstuvwxyz{|}~
123456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrstuvwxyz{|}~
23456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrstuvwxyz{|}~ !
3456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrstuvwxyz{|}~ !"
456789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrstuvwxyz{|}~ !"#
56789:;<=>?@ABCDEFGHIJKLMNopqrstuvwxyz[\]^_`abcdefghijklmnopqrstuvwxyz{|}~ !"#
```

If you select the function test, the following displays on the selected device:

0 - REGULAR	Tue May 20, 1991 08:59 am
1 - BLINK	Tue May 20, 1991 08:59 am
1 - UNDERLINE	Tue May 20, 1991 08:59 am
1 - DIM	Tue May 20, 1991 08:59 am
1 - REVERSE	Tue May 20, 1991 08:59 am
2 - BLINK UNDERLINE	Tue May 20, 1991 08:59 am
2 - BLINK DIM	Tue May 20, 1991 08:59 am
2 - BLINK REVERSE	Tue May 20, 1991 08:59 am
2 - UNDERLINE REVERSE	Tue May 20, 1991 08:59 am
2 - REVERSE DIM	Tue May 20, 1991 08:59 am
2 - UNDERLINE DIM	Tue May 20, 1991 08:59 am
3 - BLINK UNDERLINE DIM	Tue May 20, 1991 08:59 am
3 - BLINK UNDERLINE REVERSE	Tue May 20, 1991 08:59 am
3 - BLINK REVERSE DIM	Tue May 20, 1991 08:59 am
3 - UNDERLINE REVERSE DIM	Tue May 20, 1991 08:59 am
4 - BLINK UNDERLINE REVERSE DIM	Tue May 20, 1991 08:59 am

Press NL--

Each line displays the attributes stated on the line.

## ON-LINE INSTRUMENT READ/WRITE

To test online instruments, a function is provided that displays on the operator's terminal all data received from the online instrument or remote port.

To access the On-line Instrument Read test function select Terminal/Port Setup from the System Management menu.

```

General Hospital System Utilities Processor
Mon Jun 30, 2003 01:38 pm
System Management Input Options

Option No.  Option
-----
1          System Backup
3          Examine Job Status
4          Remove Jobs From System
5          Change Log-on Status
6          Sign On Message
7          Send a System Message
8          Sign Off Bulletin Board
9          Terminal/Port Setup
10         Halt System
11         System Utilization Monitors
12         Special Utilities
13         Clear Sentinel Support Call
14         Build site specific Sentinel criteria
15         Edit System Parameters
16         Audit Service Interface

Enter option number--

```

The Terminal/Port Setup menu displays as follows.

```

General Hospital Terminal/Port Setup Processor
Wed Jun 16, 2004 11:41 am
Terminal/Port Setup Input Options

Option No.  Option
-----
I  - Initialize Port Characteristics
L  - List Port Specs
O  - On-Line Instrument Read & Write
P  - Port Modification Utility
T  - Test Terminal / Ripple Print
OP - Output Mgmt: Printer Definition
TD - Tape Drive Modification Utility

Enter option number--

```

Enter **O** for On-line Instrument Read & Write. The system displays the following prompt:

Use device #: (HOME)  
 Paper Width: (79)  
 Lines per Page: (1E50)

Enter the device number, display width and number of lines per page. The system displays output from the instrument or remote interface line.

To exit this processor, enter a period (.). The program times out in one minute.

## USING THE SIGNON MONITOR

The McKesson MultiSTAR system provides the ability to monitor port usage on the system. This provides information regarding the frequency of use of all ports on the system, and can be useful in determining if additional ports are needed on the system.

To access the Logon Monitor processor, select Special Utilities from the System Utilities menu. Select the Logon Monitor option and the following screen is displayed:

```

      General Hospital Port Monitoring Processor
                                Tue Aug 08, 1990 10:18 am
Port Monitoring Input Options

      Option No.  Option
      -----
           1      Port Usage Log
           2      Port Utilization Graphs
           3      Start/Stop Logon Monitor

Enter option number--
```

Select the desired option.

## Starting And Stopping The Signon Monitor

Operation of the logon monitor is continuous on the system when active. To start or stop the monitor, select Special Utilities from the System Utilities menu. Select Logon Monitor, and then select Start/Stop Logon Monitor. If the monitor is NOT currently running, the following prompt is displayed:

```
Logon monitor is inactive
Start logon monitor (Y/N) [N]--
```

To start the monitor, enter **Y**. The system displays the following message:

```
Monitor Started
```

If the monitor is currently running, the following displays:

*Logon monitor is active*  
*Stop logon monitor (Y/N) [N]--*

To stop the monitor, enter **Y**. The system displays the following message:

*Monitor Terminated*

**NOTE:** The only overhead associated with this monitor is the recording of this session at the time of log off. This has a minimal impact on the system.

## USING THE PORT USAGE LOG

This option enables you to view usage of ports. To review port usage, select Special Utilities from the System Utilities menu. Select Logon Monitor, and then select Port Usage Log. The following prompt is displayed:

*Enter device number to print (Current Device)--*

Enter the device on which to print the report. The following screen is displayed:

```

                                General Hospital Port Usage Log Processor
                                Thu May 22, 1991 04:17 pm

1 Day to view                      2 Port number
->

Page:01
-----
( 1) 05/22/86 Thursday
( 2) 05/21/86 Wednesday
( 3) 05/20/86 Tuesday
( 4) 05/19/86 Monday
( 5) 05/18/86 Sunday
( 6) 05/17/86 Saturday
( 7) 05/16/86 Friday
( 8) 05/15/86 Thursday

Enter choice--
```

Select the day to view from the list of days displayed. The system displays the following prompt:

*Enter port number, '-' to select--*

Enter a port number or enter a hyphen (-) to select from a list of all CRTs, links and modems on the system. The following prompt is displayed:

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

Accepting the screen processes the day(s) and port(s) you selected.

If there was no activity for the day(s) and port(s) you selected, the following message displays:

*No Activity for this day*

If there was activity for the day(s) and port(s) you selected, the following displays:

General Hospital Port Usage Log Processor						
Fri Jun 24, 2005 04:17 pm						
1 Day to view			2 Port number			
06/21/05 Tuesday			0			
Time On	Time Off	Elapsed Time	System	ID	Job	User
08:59:09	09:08:12	01:00:09:03	~	27	0	User, Jill
10:33:51	10:44:29	00:10:38	C	0	6	Doe, John
Press NL--						

**NOTE:** Port usage statistics are captured only when a user logs off. Therefore, information about a user currently logged on does not display.

The system reprompts you to enter a device number.

## GRAPHING PORT USAGE

This function provides a graph of port utilization plotted against each half hour of a day.

To print port utilization graphs, select Special Utilities from the System Utilities menu. Select Logon Monitor, and then select Port Utilization Graphs.

The following screen is displayed:

```

                                General Hospital Port Usage Log Processor
                                Sat May 17, 1991 04:17 pm

1 Days to be Combined

2 Port Numbers

3 Printer                                4 Individual Graphs Per Port

Page:01                                ###Current Choices
-----
( 1) 05/22/86 Thursday
( 2) 05/21/86 Wednesday
( 3) 05/20/86 Tuesday
( 4) 05/19/86 Monday
( 5) 05/18/86 Sunday
( 6) 05/17/86 Saturday

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

```

## Field Explanations

### 1. DAYS TO BE COMBINED (TABLE LOOKUP-R)

This field specifies the days to use in graph generation. Select the days to include from the list displayed at the bottom of the screen.

### 2. PORT NUMBERS (3-N-R) or (1-A-R) or (TABLE LOOKUP-R)

This field specifies the ports whose data is used in the graph. To include specific port numbers, enter the port number(s) separated by commas or enter a hyphen (-) to display and select from a list. To include all CRTs, links and modems on the system, enter **A**.

### 3. PRINTER (3-N-R) or (TABLE LOOKUP-R)

This field identifies the port number of the printer on which to print the graph. Enter the port number of the printer or enter a hyphen (-) and select a printer from a list. Press the ENTER key to display graphs on the screen.

### 4. INDIVIDUAL GRAPHS PER PORT (1-A-R)

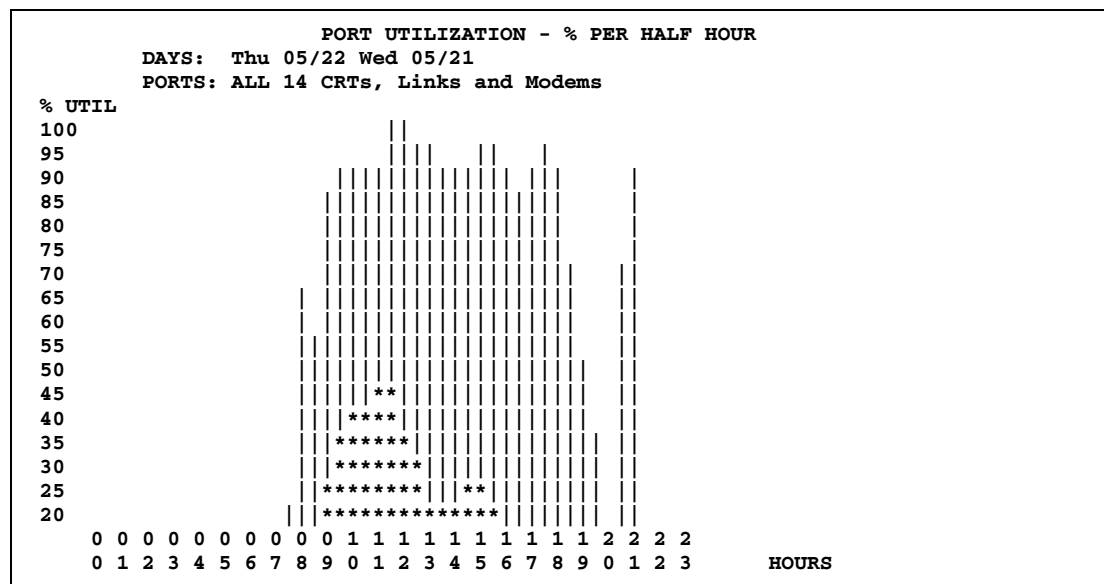
This field determines if individual graphs print for each port selected or if data for each port is combined and printed as a single graph. To print individual graphs for each port, enter **Y**. To combine all data in a summary graph, enter **N**.

After you accept the screen, the system begins graph generation and displays the following message:

*Processing!*

If you ask to print the graph on the screen, it displays on the screen, otherwise, it prints on the port specified. The following is a sample graph:

Figure 2.1 Port Utilization



The graph consists of vertical bars (|) that represent the peak percent usage by any of the ports on any of the days selected. The asterisks (\*) represent the percent usage averaged over the ports selected for the days selected.

The example above shows that from 11:00 a.m. to 12:00 noon the average utilization of the selected ports is 45%, which is the highest average usage period during the day.

During the same 11:00 a.m. to noon period, the vertical bars on the graph indicate that one or more of the ports were utilized 100% of the time.



---

## PRINTER OUTPUT MANAGEMENT

The MultiSTAR print spooler consists of system utility programs used to send formatted data to the printers on the system. It stores the data on disk for reprinting and multiple copy printing. In addition, printers are specified by logical names rather than by physical port locations, simplifying maintenance of the system.

There are three main functions performed by the spooling system:

- SPOOLING - moving the data to disk
- QUEUING - distributing the spooled data to appropriate devices
- CONTROL - enables the user to control the queuing process

There are several advantages to using the print spooler in STAR application code, as follows:

- A logical device is always available to the user programs. Using the print spooler insures that a program doesn't hang when trying to access a device that is not available.
- Routing the same report to multiple printers can be done within the spooler, freeing the application program from generating the report for each printer.
- Increased flexibility is achieved by using logical printer names. This allows printer physical configuration to change with no impact on application programming.
- Device control is done by the spooler. Forms length, lines per inch, answerback capability are all controlled by the spooler.
- Multiple copies of reports to one or more printers need to be generated by the application program only once, with the spooler controlling the number of times to print the report from disk and the destination of each report.
- There are reports generated by the spooler that link together the reports and printers on the system. This helps the installation team set up the printed outputs of the system.
- If a report needs a special form mounted, the print spooler does not print the report until the correct form is mounted.

## Theory

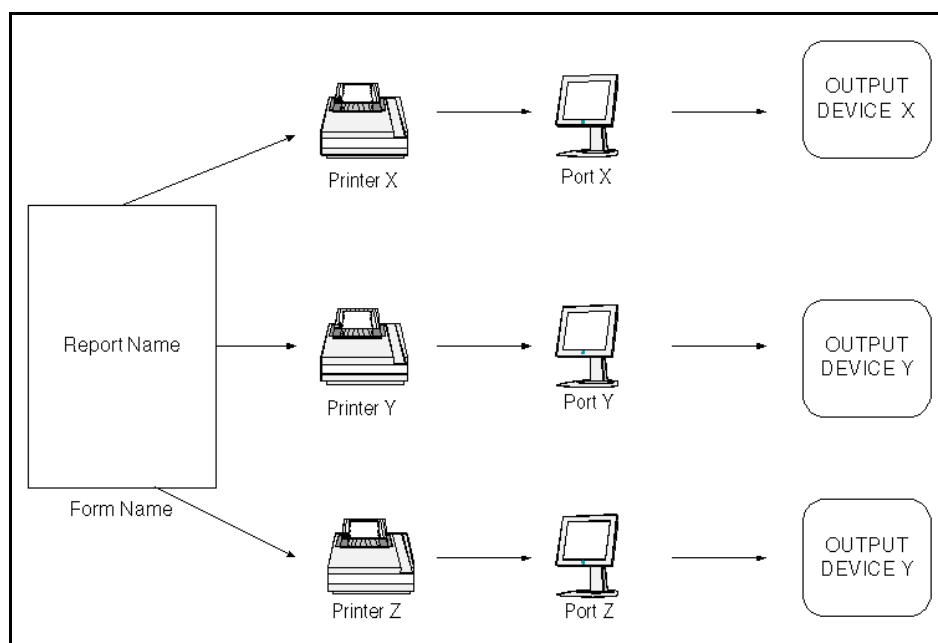
Every report is assigned to print on one or more printers. You can specify a form for each report. If you do not specify a form, the system assumes you want to use the standard form.

For each printer the report is assigned to, you can specify one or more ports. If you specify multiple ports for a printer, the system uses the first free port in that list.

You can also specify multiple printers for a report. If you set up the report to print immediately, it prints on all printers included in the report definition. If you set up the report to print on demand, it can print on multiple printers; however, the operator must perform separate demand requests for each printer on which it is to print.

When a form is specified for a report, the form definition may specify a program that prints an alignment pattern. In printing the report, the system requires the operator to specify that the form is mounted. Afterwards, multiple alignment patterns can be run before printing the actual report.

Figure 2.2 Relationship of Reports, Printers, Ports, and Output Destinations



## Reports

Spooler Reports Maintenance enables you to update the report name, description, when printed, status, retention, restart method, security level, the special form, the assigned printers and the number of copies.

For detailed instructions on the Reports Maintenance function, see the System Operations section of this manual.

## Defining Report Groups

The Define Report Groups function provides the ability to logically assign various reports to a group that can then all be printed at one time. The report group is then used as a Batch within the Demand Print function of the system.

For detailed instructions on the Define Report Groups function, see the System Operations section of this manual.

## Printers

Printer Maintenance enables you to maintain the information for the logical printer names used as output devices from the Spooler.

For detailed instructions on the Printer Maintenance function, see the System Operations section of this manual.

## Forms Maintenance

Forms Maintenance enables you to define the special forms tied to report names. If a report has a special form assigned, it does not print unless the correct form is mounted on the printer. The correct form may be mounted in one of two ways. If the operator interface is running, the operator is prompted to mount the form. Otherwise, the operator must use the Print Special Forms processor.

For detailed instructions on the Forms Maintenance function, see the System Operations section of this manual.

# SYSTEM RECOVERY FEATURES

## Theory

Protection of user data storage, database integrity, and system availability are all essential design goals for MultiSTAR. Because of this, a variety of backup, journaling, logging, and failover features have been implemented in support of these goals.

Protection of user data storage is accomplished via the following MultiSTAR facilities:

- Full concurrent database backup/restore
- Incremental database backup/restore
- Database journaling
- Database Before Image Logging
- Failover

The full concurrent database backup is a mechanism for transferring a complete image of all database volumes to backup storage. A significant value-added feature of MultiSTAR is that the full backup can be performed while the system is fully operational with all normal application processing continuing. The full backup performs a high-speed block by block image backup of the database to backup storage.

Since the system is operational during the backup and disk blocks are modified while the backup takes place, the full backup by itself would not allow restoration of a structurally consistent database. In order to provide a complete and consistent restore, the incremental backup and journal file backup restore are required.

While the full backup is taking place, MultiSTAR keeps track of all disk blocks that get modified. When it is time to do the incremental backup, the system reaches a quiescent state (no database transactions in progress) and all modified disk blocks are written to backup storage. This records the current and consistent image of these blocks. The incremental restore is loaded after a full restore, and thus overwrite the modified blocks with their correct image and produce a consistent database structure.

Database journaling maintains a journal log file that records each database modification in real-time as it occurs. If it is necessary to recover from a backup tape, the journal file data allows the system to recover all transactions that occurred since the backup.

In addition to the backup and restore capabilities, before image logging techniques are used to provide a fail-safe database capability that ensures database integrity after an abnormal system halt (such as a power failure). Also, MSE failover allows applications running on a system to be moved to another system while the down system is being repaired.

## Backup

The term backup refers to the process of making a copy of the information stored by the system. The backup procedure does not alter the information in the system in any way. Perform a backup at least once every 24 hours.

The purpose of the daily backup is to make a copy of the information in the system in case the storage media is damaged or destroyed. Since the information on the system is continuously being modified, a backup represents an image taken at a particular point in time.

If the storage media becomes damaged, the information on the backup can be used to restore the data to the system to normal operating condition. However, if it is necessary to restore the system from backup, the information that has been processed since the last backup is not present on the newly restored system. The information processed since the last backup would then be recovered by restoring from the journaling files.

The full backup can be performed while normal system and application operation is continuing. Schedule the backup to complete in the evening prior to the start of midnight processing.

The full concurrent backup contains all database volumes and configuration files. It is performed while the system is in full operation, thereby allowing users full access to the system. Since database updates are occurring while the database is being backed up, some information is not included on these tapes. A complete backup requires a full concurrent backup, an incremental backup and a journal file. The full concurrent backup by itself is not sufficient to recover the system data if a recovery is necessary.

The incremental backup backs up all database blocks modified since the full concurrent backup began. While an incremental backup can be performed at any time, it is recommended that it be done just before the start of midnight processing.

Both the full and incremental backups contain the xxx.cfg and xxx.ports file. And backup is performed from disk to tape or to backup servers such as ADSTAR® Distributed Storage Manager (ADSM), Veritas™ or NetBackup™.

Since the amount of time required to backup a system varies, the hospital needs to consult with its McKesson representative to determine the schedule. The following is a model schedule; the procedures used by your hospital may be different. Once a backup schedule is established, it is essential you follow it consistently.

9:00 P.M.	Begin the full concurrent backup to tape (needs to finish BEFORE midnight).
~11:00 P.M.	Full concurrent backup completed.
~11:55 P.M.	Send the system down message informing users that they must sign off the system.
12:00 mid	Begin Midnight Processing that includes the incremental backup as part of this process.

## FULL CONCURRENT AND INCREMENTAL TAPE LABELING SCHEME

Incremental and journaling backup tape labels indicate the following:

1. It is a database backup tape
2. Type - incremental or journal
3. Date created
4. Tape drive number on which the tape was created
5. Reel number of backup

Full backup tape labels contain the volume number in addition to the above.

The full concurrent backup function posts a date/time stamp into the database. The incremental tape label contains this time stamp. Include the beginning and ending quiesce number of the journal file on journal tape handwritten labels.

## Before and After Image Logging

In addition to the ability to recover from a disk hardware failure via database restore, MultiSTAR also provides facilities for maintaining database integrity in the event of a processor outage (such as a power failure).

For a processor outage, there is no loss of the database storage, but if the system is not able to halt normally, the structural integrity of the database files is not assured due to database changes that may have only been partially completed. To protect against this problem, MultiSTAR uses before image logging techniques to provide a fail-safe database mechanism.

## Implementation of a FAIL-SAFE Database Before Image Log Method

As the system runs, data from the database is retrieved into memory buffers where it is read into the application, and optionally, modified and written back into the memory buffers. Modified memory buffers are periodically rewritten back into the database. Corruption of the database can be caused by incomplete posting of the memory resident buffers. This can happen when there is some system failure during posting (such as a power failure).

The fail-safe database design implements a Before Image Log (BIL) file to capture each data block just before it is modified. In this manner, a static copy of the database can be reconstructed by replacing all modified data blocks in the database with copies of the original data blocks saved in the BIL file.

The system is operated by periodically bringing it to a quiescent state (in which no database transactions are in progress), and then flushing all memory resident buffers

to the data file. Bringing the system to a quiescent state can be performed periodically with no adverse noticeable effects to any active users. After the system becomes quiescent, the BIL file is declared empty, and then the system proceeds with normal operation.

If a crash occurs later, the database is restored to its most recent quiescent condition by copying blocks from the BIL file back into the database. Then the journal file is used to bring the database up-to-date.

These recovery features are automatically initiated whenever MultiSTAR is restarted after a crash. Once they are complete, the database is recovered to its state at the point of the crash, and structural integrity of the database is maintained.

This feature enhances system availability by eliminating the need to run database integrity check utilities and makes it unnecessary for McKesson support personnel to manually correct database problems.

Before initiating any recovery procedure, the system examines the contents of the BIL file. Each block is examined for data integrity.

If any block-check fails, an error message is issued and the system is brought down. This happens before any block is written to the database.

## MSE Failover

MultiSTAR provides an optional high availability feature that uses vendor-supplied failover services. Failover allows one system to run the applications for a failed system by assuming its IP address and disks, (which includes the MSE database, applications, user home directories and system login accounts). For each system, one or more IP address(es) are assigned to the MSE database. These addresses are different from the system IP address.

In the event of failure, the operator issues a command on the up system designated to handle the failed system. This moves the IP addresses and database disks to the up system. The physical system disk that contains the O/S, /hbo, and other file systems must be separate from the disks containing the MSE database, and do not move in the event of failure. Each disk subsystem, (that contains part or all of the MSE database), must be on a SCSI bus that provides a continuous path from one system to the other.

More protection can be provided through additional power supplies, disk adapters, mirrored disks on separate subsystems, and network interface cards.

## MULTISTAR JOURNALING

The journaling facility provides a means for dynamic backups of database changes as they occur. Journaling writes a copy of all database changes to disk with sufficient information to allow restoration of information from the journal file in the event of system crash, power failure or media loss.

In a power fail or crash situation where the media is intact, the Before Image Logging (BIL) process rolls the database back to the last quiesce point. At IPL time, the journal recovery process brings the database forward to the point of the crash.

In a situation where the database disk media becomes corrupted, the full concurrent and incremental backups are reapplied to the database to restore the system to the time that the incremental completed. The journal disk files would then be replayed to bring the system current as of the time of the failure.

MultiSTAR uses two journal disk files that can be placed anywhere on the system. If you elect to place them in a directory other than the one containing the database, the database directory contains two files, one for each journal file that serve as pointers to the actual journal files.

This approach is recommended since each file needs to be placed on separate disks so that in the event of a catastrophic disk failure at least one journal file survives. One of the files is the master journal file and the other is a mirror copy. When the journal backup process is run, the contents of the journal file is copied to backup storage.

Care must be taken regarding the timing of journal backups as the journal file has a limited capacity. The MSE log file contains messages regarding the state of journaling and this log must be checked on a periodic basis to determine when a journal backup needs to be started. Data in the journal file is lost, if journal backups are not completed before the file reaches capacity. Losing journal data means that the system can only be restored up to the time of the last quiesce before journal data was overwritten. See [“Chapter 1 - OVERVIEW”](#) for information on viewing log files.

### Journaling Operation

Journaling begins at the end of the MultiSTAR IPL operation. The last screen of prompts at IPL are as follows:

```
Allow user sign-on (Y)--
Network is disabled Enable network (Y/N) [Y]--
Starting system wide journaling
Initiating a forced quiesce
System IPL Complete

Exit
```



There are six parameters that can be specified in the database configuration file that control journaling: JNLBUFAGE, JNLBUFCNT, JNLEXTRINFO, JNLSYNCCNT, JNLSYNCINT and JNLWARNPC. We recommend you use the default values for these parameters. Changing these values could introduce performance problems on your system.

Use this journaling parameter...	to control...
JNLBUFAGE	the number of seconds a partially filled journal buffer remains in memory before being flushed to disk.
JNLBUFCNT	the number of 16K buffers available for journaling.
JNLEXTRINFO	the amount of information recorded with each journal record.
JNLSYNCCNT	the number of journal blocks that are copied from one journal file to another during synchronization before checking for modified buffers.
JNLSYNCINT	the number of seconds that must elapse during synchronization before the journal writer wakes up to copy blocks.
JNLWARNPC	the threshold at which point messages are logged warning that the journal file is becoming full. A message is generated at every 1 percent mark until the journal file becomes full.

The following are examples of the messages recorded in the MSE log file regarding a journal file becoming full and on reaching capacity.

```
13:55:09 mpjnl: WR Journal file is filling up
Data base name ..... _h9999n9
Percent full ..... 96.0
Current block ..... 61440 960.0 MB
Maximum blocks ..... 63999 1000.0 MB

01:47:22 mpjnl: MJ Journal file is full, oldest data is being overwritten
Oldest data date ..... THU 06-14-2007 19:25
Data base name ..... _h9999n9
```

## Recovery From Power Fail

In the event of a system fault or crash that does not harm any disk media, two mechanisms are used to restore the system. When MultiSTAR is restarted, the program MPCTL initiates all MultiSTAR system level processes. MPBIL is one of the processes responsible for logging before images of database blocks, and automatically recognizes the database was shut down improperly. MPBIL reloads database blocks from its BIL file. This restores the database to the last quiesce point, which may be up to 15 minutes before the system failed. At this point the integrity of the database is ensured, however, up to 15 minutes worth of transactions may be missing from the database. Journaling is used to correct this problem and bring the

database back to within seconds of its failure. At MultiSTAR IPL, MPBIL notifies the IPL process of the necessity to recover using the journal file(s).

## Restoring the Database

If a hardware failure occurs on an MultiSTAR database disk (and disk mirroring is not in use), it is necessary to restore the database from the backup copy.

To accomplish the restore, follow these procedures.

1. Contact McKesson to reformat your new disk media if it was replaced.
2. Do a full database restore.
3. Do an incremental database restore.
4. Process the journal files to recover transactions that occurred after the incremental backup.

The full database restore reloads all the database volumes from the backup. Since the full backup is performed while the system is fully operational, it restores an image of the database in a state of change and does not have structural integrity. Because of this, it is necessary to restore the incremental backup after the full restore. The incremental backup is taken when the system is in a frozen state, so after it is restored, the database is in a consistent state.

The full and incremental restore recovers the database to the point when the incremental backup was performed. To accomplish full recovery of all transactions, it is necessary to recover from the database journal files. These files have a record of all database changes that occurred after the incremental backup. Once the journal files are processed, the database is back to its state at the time of the original disk hardware failure and the environment is ready for processing.

At this point, it may be necessary to run certain application restart procedures, such as midnight processing. Contact your McKesson support representative for instructions.

For detailed restore instructions, see the Resolving System Problems section in this manual.

## SITE RELEASE SCREEN PARAMETERS

These functions enable you to define parameters about STAR system screens. These parameters define the appearance of the screen, including whether horizontal bars display on a screen and whether information is entered beneath the field or at the prompt at the bottom of the screen. These parameters also define the way the system operates in specific fields of a screen, such as whether a field is required, is bypassed, or is initially bypassed but still accessible.

When you select this option the system displays the following menu:

```

      General Hospital Site Release Screen Parameters Processor
                                Fri Nov 12, 1993 02:39 pm
Site Release Screen Parameters Input Options

      Option No.  Option
      -----
           1      Site Screen Parameters

           2      Site Screen Group Maintenance

           3      Site Screen Group Parameters

Enter option number--
```

The options on this menu are described in detail in the following subsections.

### Site Screen Parameters

The Site Screen Parameters function enables you to define access for fields on system screens. By defining access, you can:

- Restrict access to a field.
- Bypass a field on the first pass of the flow through the fields of a screen. The user can still access the field using the standard prompt that displays after the first pass through the fields:

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

- Require that an entry be made to a field.

You cannot change the settings for certain fields on a screen. These fields have been identified by McKesson as necessary to maintaining the integrity of the system database. Entries to these fields are required.

You can define parameters only for screens that have been released for user control by McKesson. The following pages contain a list of screens in the STAR Patient Care and STAR Pharmacy systems that McKesson has released for user control.

## STAR PATIENT CARE

In STAR Patient Care, fields not critical to the integrity of the STAR system database have been released for user control on the following screens.

Screen Name	Screen Description
cahadm	Admission Page
cahagi	Additional Guarantor Information
cahapi	Additional Patient Information
cahari	Additional Relative 1 Information
cahcge	Combined Guarantor Demographics Page
cahcpe	Combined Patient Demographics Page
cahcre	Relative1/Employer Page
cahcre1	Rel 1 Emp 1 Page
cahdis	Discharge Patient
cahdob	OB Discharge
cahgen	Admission Number Assignment
cahhem1	Patient Employer Page
cahhge1	Guar Emp 1 Page
cahhgr1	Full Guarantor Page
cahhgr2	Alternate Guarantor Address
cahhpt1	Patient Page 1
cahhpt2	Alternate Patient Address
cahhr1	Relative 1 Page
cahhr2	Relative 2 Page
cahhu82	UB82/92 Data Page
cahinse	STAR - Blue Cross Insurance
cahinsec	Canada - Workers Compensation
cahinsf	STAR - Champus Insurance
cahinsfc	Canada - Military Insurance
cahinsg	STAR - Commercial / HMO
cahinsgc	Canadian - Commercial
cahinsj	STAR - Medicare (A & B)

Screen Name	Screen Description
cahinsjc	Canadian - Provincial Insurance
cahinsl	STAR - Medicaid
cahinslc	STAR - Medicaid
cahinspc	Canada - Out of Province
cahinss	Self Pay (Other) Insurance
cahinsx	STAR - Ins Emp & Appr
cahinsy	STAR - Ins Emp & Appr
cahinsyc	Canada - Ins Emp & Appr
cahinsz	STAR - Approval & Verification
cahmed	Medical Page
cahmis	Miscellaneous Page
cahmisu1	Miscellaneous 2 Page
cahmisu2	Psychiatry Page
cahmisu3	Maternity Page
cahmq1	MSP Questionnaire Part I
cahmq2	MSP Questionnaire Part II
cahmq3	MSP Questionnaire Part III
cahmq4	MSP Questionnaire Part IV - Age Screen 1
cahmq5	MSP Questionnaire Part IV - Age Screen 2
cahmq6	MSP Questionnaire Part V - Disability Screen 1
cahmq7	MSP Questionnaire Part V - Disability Screen 2
cahmq8	MSP Questionnaire Part VI - ESRD Screen 1
cahmq9	MSP Questionnaire Part VI - ESRD Screen 2
cahphys	Physician Page - Admission
cahrta	Accident (Road Traffic Accident)
cahtrn	Transfer Patient
cahu82	UB92 Condition Codes
cahu92	UB82/92 Data Page
cahu92a	UB92 Codes (combined screen)
cnhppi	Revise Patient Nursing - Psychiatry Information
cnhrev	Revise Patient Nursing - Demographic Information
cnhrev1	Revise Patient Nursing - Medical Information
cnhrev2	Revise Patient Nursing - Physician Information
crhopd	OP Disposition

Screen Name	Screen Description
crhopd1	OP Disposition (cont.)
crhopd1c	OP Disposition (cont.)
crhopdt	OP Disposition
crhsdp	Series Disposition
crhsds	Discharge Series Patient

## STAR PATIENT CARE ORDER MANAGEMENT

In STAR Patient Care Order Management, fields not critical to the integrity of the STAR system database have been released for user control on the following screens:

Screen Name	Screen Description
athfm	FIM Maintenance
athsm	SIM Maintenance - Descriptive page
athsm1	SIM Maintenance - Order Information
athsm2	SIM Maintenance - Pricing Information
cdhocns	Consult Order
cdhocs	Central Supply Order
cdhodt	Dietary Order
cdhonh	Nourishment Order
cdhoec	Cardiology Order
cdhoe	Electroencephalogram Order
cdholb	Laboratory Order
cdhopt	Therapy Order
cdhort	Respiratory Order
cdhoxr	Radiology Order
dahoas	Assessment Order (Nursing Assessment)
ddhoadl	ADL Order (Nursing Care Planning)
dphoto	Treatment Order (Nursing Care Planning)

## STAR PHARMACY

In STAR Pharmacy, fields not critical to the integrity of the STAR system database have been released for user control on the following screens:

**Inpatient****Order Maintenance**

Screen Name	Screen Description
pohstm1	IP Start Med Screen 1
pohstm2	IP Start Med Screen 2
pohsts1	IP Start IV Screen 1
pohsts2	IP Start IV Screen 2
pohrevm1	IP Revise Med Screen 1
pohrevm2	IP Revise Med Screen 2
pohrevs1	IP Revise IV Screen 1
pohrevs2	IP Revise IV Screen 2

**Formulary Maintenance**

Screen Name	Screen Description
pfhfm	Form - Basic Description
pfhfm1	Form - Addl Item Info
pfhfm2	Form - Order Info
pfhfm3	Form - Alt Access Methods
pfhfm8	Form - I/P Pricing
pfhfm9	Form - O/P Pricing
pfhfm5	Form - Outpatient Info
pfhfm12	Form - Formulary Alt
pshfs1	Floorstock Maint (RXI/RXO)
pfhfs1	Floorstock Maint (FS/Sat)
pfhfms	Form - 3rd Party Inf
pfhfm15	Form - Dose Range Check
pfhfm13	Form - Compound Info
pfhfm14	Form - Component Info



## Ambulatory Care

Screen Name	Screen Description
pahstm1	O/P Med Entry Scrn 1
pahsig	O/P Sig Entry
pahsts1	O/P Sol Entry Scrn 1
pahsts2	O/P Sol Entry Scrn 2
pahrsm1	O/P Med Refill Scrn 1
pahrfs1	O/P Sol Refill Scrn 1
pahrfs2	O/P Sol Refill Scrn 2

## MAINTAINING SITE SCREEN PARAMETERS

When you access the Site Screen Parameters function, the system displays the following prompt:

*Search by (S)creen, by screen (F)low, or by screen (G)roup--*

You can define parameters for a single screen by either entering the screen's name (S) or by locating the screen in the flow of a function in the system (F). You can also define parameters for a group of screens (G). You define screen groups using the Site Screen Group Parameters function.

### Identify Screen Using Screen Name

To identify a screen using its screen name, enter **S**. The system displays the following prompt:

*Enter horizontal screen name or first letters'-!'*

Enter the eight-letter McKesson internal name for the screen, or enter the first few letters of the screen name to display and select from a list of screens whose names match your entry. If you identify a screen that McKesson has not released for user maintenance, the system displays an error message similar to the following, and then redisplay the initial prompt:

*Screen xxxxx has not been released for user field parameters by HBOC!*

### Identify Screen Using System Flow

To identify a screen from the system flow, enter **F**. The system displays the following prompt:

*(P)harmacy or Patient (C)are flow--*

Enter **P** to display and select from the screen flows in the STAR Pharmacy system.  
Enter **C** to display and select from the screen flows in the STAR Patient Care system.

The system displays the following prompt:

*Enter flow code or '-' to list--*

Enter the code for the desired process flow, or enter the first few letters of the flow code to display and select from a list of process flows whose codes match your entry, as in the following example:

```

General Hospital Site Screen Parameters Processor
                                Fri Nov 12, 1993 03:02 pm

Page:01                               Screen Flows
( 1) a-C-ADM I/P (IFAS)                (18) at-C-ADM PAT (IFAS)
( 2) ab-C-Assign a Bed                 (19) cgirbh-C-BOOK OR (STAR)
( 3) af-C-ADM I/P (STAR)               (20) cgirbi-C-BOOK OR (IFAS)
( 4) afp-C-ADM PAT-I/P (STAR)          (21) cgirbp-C-BOOK OR (PAC)
( 5) afq-C-ADM QUICK BD(STAR)          (22) cl-C-Lab (Downtime)
( 6) afqm-C-ADM QUICK W/MED-SF         (23) cpatt-Phy Attestation Acpt
( 7) afr-C-ADM PRA (STAR)              (24) cppat-Phys Access-IFAS
( 8) aft-C-ADM PAT (STAR)              (25) cppatp-Phys Access-PAC
( 9) al-C-Adm Lab                     (26) cppats-Phys Access-STAR
(10) ap-C-ADM I/P (PAC)                (27) dl-C-DELETE PRE-ADMIT
(11) apq-C-ADM QUICK BD(PAC)           (28) eda-E-DRG ASSIGNMENTS
(12) apqm-C-ADM QUICK W/MED-P          (29) edatf-E-ATTESTATION FORM
(13) apr-C-ADM PRA (PAC)              (30) edmgf-E-MEDISGRPS FORM
(14) apt-C-ADM PAT (PAC)              (31) eds-E-DRG ASGN SIMULATIO
(15) aq-C-ADM QUICK BD(IFAS)          (32) eerabi-E-E/R ABSTRACT(IFAS)
(16) aqm-C-ADM QUICK W/MED-I          (33) eerabs-E-E/R ABSTRACT(STAR)
(17) ar-C-ADM PRA (IFAS)              (34) eerabsu-E/R ABSTRACT - INT

Enter choice--                          next page(/)

```

When you identify the screen flow, the system displays a list of screens for that screen flow, as in the following example:

```

General Hospital Site Screen Parameters Processor
                                Fri Nov 12, 1993 03:02 pm

Page:01                               Screens for E-E/R ABSTRACT(IFAS) flow
( 1) emhaer2-E/R Episode Info Page
( 2) emhaer3-E/R Episode Info Page
( 3) emhaip1-M/R Abstract Demograph
( 4) emhusr-User Defined Screen

Enter choice--

```

Enter the option number of the screen for which you want to define parameters. If you identify a screen that McKesson has not released for user maintenance, the system

displays an error message similar to the following, and then redisplay the initial prompt:

*Screen xxxxx has not been released for user field parameters by HBOC!*

## Identify Group of Screens

To identify a group of screens, enter **G**. The system displays the following prompt:

*Enter group code or `` to list--*

Enter the code for the screen group, or enter the first few letters of the group code to display and select from a list of screen groups whose codes match your entry. When you identify the screen group, the system displays a list of screens for that group, as in the following example:

```

                                General Hospital Site Screen Parameters Processor
                                Fri Nov 12, 1993 03:08 pm

Page:01                      Screens in ORDER MANAGEMENT
( 1) cdhort-Respiratory Therapy Ord

Enter choice--
```

Enter the option number of the screen for which you want to define parameters. If you identify a screen that McKesson has not released for user maintenance, the system displays an error message similar to the following, and then redisplay the initial prompt:

*Screen xxxxx has not been released for user field parameters by HBOC!*

When you identify the screen for which you want to define parameters, the system displays a screen similar to the following:

Screen:cdhort Respiratory Therapy Order Group: OM (No Bars) (Under Field)			
1 Item		2 Print	3 Initials
N/A			N/A
4 Priority	5 Request Date	6 Request Time	7 Request Shift
N/A	N/A	N/A	
8 Medications		9 Transportation	10 Frequency
11 Ordering Physician	12 Performing Physician		13 Duration
N/A			N/A
14 Prompt Response / Message		15 Comment	
16 Treatment Diagnosis		17 Instructions	
Page:01 Field# Field Name (Status) ##=Current Choices			
( 1)	1	Item	(HBOC Protected)
( 2)	2	Print	(HBOC Default)
( 3)	3	Initials	(HBOC Protected)
( 4)	4	Priority	(HBOC Protected)
( 5)	5	Request Date	(HBOC Protected)
( 6)	6	Request Time	(HBOC Protected)
( 7)	7	Request Shift	(HBOC Default)
Enter choices (e.g. 1,7,5-9) or '-'choices to remove--			
end selection(NL) next page(/)			

The top line of this screen contains the following information:

- The system name of the screen (in this example, *cdhort*).
- The descriptive name of the screen (*Respirator Therapy Order*).
- The name of the group to which this screen belongs (*OM*).
- Whether the system displays this screen with or without horizontal bars (*No Bars* in this example; if horizontal bars are to display, the system displays *Bars*).
- Where on this screen the user enters information (*Under Field* in this example; if the user enters information at the prompt at the bottom of the screen the system displays *Trans Line*).

The system then displays the fields of the screen. Beneath each field the system displays the current settings for information to that screen. The possible settings are:

<b>N/A</b>	This field has been protected by McKesson to ensure the integrity of the database. The system requires that the user make an entry to this field. You cannot change the setting for this field.
<b>BYP</b>	The status of this field has been set to Bypass. User access to this field has been disabled by the facility. When users are responding to the fields of this screen, the system does not stop in this field. The system does not allow users to edit the contents of this field.

<b>BYPD</b>	The status of this field has been set to Bypass on Demand. Initial user access to this field has been disabled by the facility. When users are responding to the fields of this screen, the system does not stop in this field; however, the system does allow you to access this field from the Enter field number or '/' starting field number--prompt.
<b>REQ</b>	The status of this field has been set to Required. A response to this field is required by the facility. The system requires that the user make an entry to this field.

At the bottom of the screen, the system displays a scrolling screen for you to use in defining parameters for the fields of this screen. The system displays the field number, name, and current status for each field of the screen. Below this, the system displays the following prompt:

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

Enter the option number of the field you want to change. To select multiple fields, enter the option numbers of the fields separated by commas. To select a range of fields, enter the option number of the first and last field in the range, separated by a hyphen (-). To deselect a previously selected field, enter the option number of the field preceded by a hyphen (-). The system highlights the option numbers you select. Press ENTER when you have selected all of the fields you want to change.

If the field you selected has been modified, Last Edit by information is displayed above the prompt. For example:

```

      Last Edit by : Smith,John  08/24/05 1439

Enter (B)ypass, bypass on (D)emand, (R)equire, or [P]roduct Default--
                        Field # 8 Medications

```

where *Smith, John* was the name of the user logged on, *08/24/05* was the date and *1439* was the time (HHMM) the field was last edited.

**NOTE:** McKesson recommends that your organization require that each user log off when they are not using the PC to ensure information about the user who modifies the field is accurately recorded in the system.

At the prompt, enter the new status for the selected field:

- Enter **B** to set the status of this field to *Bypass*.
- Enter **D** to set the status of this field by *Bypass on Demand*.
- Enter **R** to set the status of this field to *Required*.
- Enter **P** or press ENTER to retain the McKesson setting for this field.

When you finish setting the parameters for all fields, press ENTER at the *Enter choices..* prompt. The system returns you to the initial prompt, enabling you to select another screen or group of screens to edit.

## Site Screen Group Maintenance

The Site Screen Group Maintenance function enables you to define and maintain groups of system screens. By assembling screens together into groups, you can more easily define parameters for their display and operation.

**NOTE:** Contact McKesson for more information about the current status of the release of STAR product screens to the features available using this function.

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

```

                                General Hospital Site Screen Group Maintenance Processor
                                Fri Nov 12, 1993 05:33 pm

( 1)Group Code           :
( 2)Description          :
( 3)Edit By              :
( 4)Edit Time            :
( 5)Screens to Include   :

Enter group code or '-' to list--
```

The system displays the following prompt at the bottom of the screen:

*Enter group code or '-' to list--*

To edit an existing group, enter the group code or enter a hyphen (-) to display and select from a list of screen groups. The system completes the remaining fields as appropriate for the group.

To create a new group, enter the name of the group. The system moves to the Description field.

## Field Explanations

### 1. GROUP CODE (6-AN-R)

This field contains the code used to identify this screen group.

### 2. DESCRIPTION (40-AN-R)

This field contains a text description of this screen group.

**3. EDIT BY (DISPLAY ONLY)**

This field contains the name of the last person to edit information for this screen group.

**4. EDIT TIME (DISPLAY ONLY)**

This field contains the date and time the information for this screen group was last edited.

**5. SCREENS TO INCLUDE (TABLE DISPLAY)**

This field identifies the screens you want to include in the screen group. The system does not initially stop in this field; you must access it from the *Enter field number or '/' starting field number--* prompt. When you access this field, the system displays a table of screens in the group. If no screens are defined for this group, the system displays the following prompt:

*No screens defined for group! Add(Y/N)? [Y]--*

Enter **Y** to add a screen to the group. The system displays the following prompt:

*Search by (S)creen, by screen (F)low, or by screen (G)roup--*

For information on identifying screens using this prompt, see Maintaining Site Screen Parameters.

When you finish adding or deleting screens from the screen group, press ENTER. The system prompts you to accept your changes to the screen. Enter **N** for No to continue editing. Enter **Y** for Yes to accept your changes; the system clears the screen, returning the cursor to the Group Code field and redisplaying the Enter group code or *`-`* to list-- prompt.

**To EXIT THIS FUNCTION**

Enter a period (.) then press ENTER to exit the Enter group code or *`-`* to list-- prompt. The system redisplay the Enter field number or *'/`* starting field number-- prompt. Enter a period (.), and then press ENTER to this prompt. The system displays the following prompt:

*Field 1 is required! Continue editing? [Y]--*

Enter a period (.), and then press ENTER to this prompt to exit the function.

**Site Screen Group Parameters**

The Site Screen Group Parameters function enables you to maintain parameters that govern the appearance of the screens in a screen group. This appearance includes the display of horizontal bars on the screen and whether data is entered beneath the field or at the prompt at the bottom of the screen.

**NOTE:** Contact McKesson for more information about the current status of the release of STAR product screens to the features available using this function.

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

*Enter group code or '-' to list--*

Enter the code for the screen group for which you want to define display parameters. To display and select from a list of screen groups, enter the first few letters of the screen group code followed by a hyphen (-). Screen groups are defined using the Site Screen Group Maintenance function.

When you identify the screen group for which you want to define display parameters, the system displays the following screen:

General Hospital Site Screen Group Parameters Processor	
Fri Nov 12, 1993 06:04 pm	
( 1)Group Code	: OM
( 2)Description	: ORDER MANAGEMENT
( 3)Horizontal Bars	: No
( 4)Data Entry	: Beneath field name

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

## Field Explanations

### 1. GROUP CODE (DISPLAY ONLY)

This field displays the code of the screen group for which you are setting parameters.

### 2. DESCRIPTION (DISPLAY ONLY)

This field displays the description of the screen group.

### 3. HORIZONTAL BARS (1-A-R)

This field determines whether the system displays horizontal bars with reversed characters on lines containing field names for this screen group. Enter **Y** or press ENTER to display horizontal bars on lines containing field names on this screen. Enter **N** if you do not want horizontal bars to display.

### 4. DATA ENTRY (1-A-R)

This field determines whether the user enters data at the prompt at the bottom of the screen or beneath the field name on the screen. This setting also identifies whether you can move from one field to the next using the TAB key.



To display the cursor at the bottom of the screen, enter **N** for No or press ENTER. When the user types entries to fields on this screen, the system displays the entries following the prompt. When the entry is accepted by pressing ENTER, the system clears the entry from the bottom of the screen and displays the entry, or information reflecting the entry, beneath the field.

To display the cursor beneath the field to which the user is responding, enter **Y** for Yes. The system displays the prompt at the bottom of the screen, presenting the user with information about completing the field. When the user types entries to fields on this screen, the system displays the entries beneath the field. When the entry is accepted by pressing ENTER, the system clears the prompt and displays the entry, or information reflecting the entry, beneath the field.

If you enter Y for Yes in this field, the system enables you to move through fields by pressing the TAB key. The user can press TAB to move the cursor to the next field on this screen. The user can press SHIFT-TAB to move the cursor to the preceding field. If you do not enable this option, the user can move through fields on this screen by pressing ENTER.

**NOTE:** With either option, the system does not permit you to bypass fields that are required by McKesson or your healthcare facility. The system bypasses and/or bypasses on demand the fields you identify using the Site Screen Parameters function, as explained beginning here.

When you complete the fields of this screen, the system displays a prompt similar to the following:

*Generate screens for group OM now? (Y/N) [N]--*

You must generate screens for the system to make them available for use in the current ID on the system. If you do not want to generate screens for this group now, enter **N** for No or press ENTER.

To generate screens for this screen group, enter **Y** for Yes. The system displays a message similar to the following:

*Screen Generation Started for Group OM!*

The system then begins generating screens for this group in background, redisplaying the *Enter group code or '-' to list--* prompt. Enter another group code, or enter a period (.) then press ENTER to exit the function.

**NOTE:** Depending upon your CPU, the system generates screens at a rate of about three screens per minute.

## AUDIT SERVICE INTERFACE

When the Audit Service is enabled, certain system events in various STAR applications are captured and then formatted for delivery to a common storage area. Configuration for the STAR Audit Service is determined by the settings of the parameters under this menu option. For more information about the Audit Service and its configuration, see the *STAR Audit Service Reference Guide*.

# Chapter 3 - SYSTEM OPERATIONS

STARTING MULTISTAR.....	3-3
Bringing Up the MultiSTAR Software Environment.....	3-3
STOPPING MULTISTAR .....	3-7
Bringing Down the MultiSTAR Software Environment .....	3-7
Automatic Shutdown .....	3-12
Turning Off the Hardware.....	3-13
SIGN-ON RESTRICTION .....	3-14
CHANGE LOGON STATUS.....	3-17
System Logon Status .....	3-18
Application Logon Status.....	3-19
Edit Groups .....	3-19
Enable Select Groups .....	3-21
Enable All Groups .....	3-22
Changing Logon Status For A Reserved Port.....	3-23
SELECT ALTERNATE STAR ENVIRONMENT .....	3-25
GENERAL TASKS .....	3-26
Editing System Parameters.....	3-26
Changing the Date and Time .....	3-38
Sign On Messages.....	3-38
Maintaining User Messages .....	3-39
Adding A Message .....	3-39
Editing A Message.....	3-40
Deleting A Message .....	3-40
Selecting A Message To Display.....	3-40
Setting The Time To Display A Message .....	3-41
Sign Off Bulletin Board .....	3-42
Adding A Message .....	3-43
Editing A Message .....	3-44
Deleting A Message .....	3-44
Selecting A Message To Display.....	3-44
System Block Packer .....	3-45
Block Packer Schedule .....	3-46
Block Packer Manual List .....	3-47
Block Packer Ignore List.....	3-47
Block Packer History .....	3-47
Block Packer Status .....	3-47
Removing Jobs.....	3-47
Unremovable Jobs .....	3-50
Set Hourly Jobs .....	3-50
NETWORK UTILITIES .....	3-55

---

Enable/Disable Network .....	3-56
Review Application/CPU Statuses .....	3-56
Review/Print Configuration .....	3-58
Start/Stop Logging Network Patient Locks to the Console.....	3-59
MULTISTAR SYSTEM BACKUP .....	3-61
Purpose of Backup .....	3-61
Backup Materials .....	3-61
Scheduling Guidelines.....	3-61
Tape Labeling.....	3-61
Full Concurrent Backup .....	3-62
Incremental Backup.....	3-65
Journal Backup.....	3-67
Backup Audit .....	3-70

## STARTING MULTISTAR

This section provides operator command instructions and master console examples for starting MultiSTAR when the system is down. Starting the UNIX operating system is considered part of this procedure and is prerequisite to bringing up MultiSTAR.

### Bringing Up the MultiSTAR Software Environment

This section covers the steps for starting MultiSTAR on an active UNIX system. This procedure must be performed each time the system is booted before users can access their applications.

To initiate the startup procedure, logon as mseadm and enter **mseup** at the system prompt using the STAR Applications console (see following example):

```
mseadm$ mseup
```

MultiSTAR may take several minutes to initialize all files, processes and shared memory.

The mselook process, called by mseup, displays file information and initialization messages. MultiSTAR is ready when all processes are running or when a message like the following is logged:

```
Database Ready for Access
```

Press CTRL-C to exit the mselook display.

Once you verify MultiSTAR processes are running, begin the MultiSTAR initial program load (IPL). Enter **mseipl** at the system prompt. The mseiplprocess prepares MultiSTAR for user access.

The IPL routine displays the date and time, verifies the release level that is being initialized and displays the database size and free space:

```
System date is 30-Mar-94, 02:20 pm

      MSE - Disk Space/Free Space Utility  (4K Blocks)

Vol  Maps  Tot Blks  Free Spc  %-Free  Host File Name
---  ---  -
0    25    12800    8592    67.13  /hbo/db01/utild.vo00a
0    25    12800    12774    99.80  /hbo/db01/utild.vo00a
      =====
      25600    21366    83.46

MSE-UNIX, Release x.xx is up and running
```

Press ENTER to continue.

After you press ENTER, the system displays the following copyright information:

```
HBO MaxiMUMPS Standard Environment MSE-UNIX, Release 3.10
Copyright (c) HBO & Company 1984, 1985, 1986-1993
All Rights Reserved
Licensed Software - Property of HBO & Company.
-----
```

The system then displays the following message to verify that the displayed files (globals) have been cleared:

```
CLEARING SYSTEM FILES
Clearing ^%, ^%IMC, ^%S("ER"), ^%S("ERC"), ^%E up to ERROR FENCE
```

The IPL process continues with the following messages:

```
Determining Id's
General Hospital IPL Procedure
Last reason for shutdown
[Other]
```

In this example, the word **Other** displayed in brackets is the reason MultiSTAR was brought down the last time. The operator selected the **Other** option because the system was shut down for a reason other than one of the specific reasons supplied on the Downtime Reasons menu. For more information, refer to Bringing Down the MultiSTAR Software Environment under Stopping MultiSTAR in this section.

The system then displays the following prompt:

*If HBO notified, enter time --*

If you or another operator notified McKesson the last time your system was shut down, enter the time of the last shutdown. Otherwise press ENTER.

The system displays the following:

*If Field Engineering Notified, enter time --*

If you or another operator notified field engineering the last time your system was shut down, enter the time of the last shutdown. Otherwise press ENTER.

The system then prompts you for your initials:

*Enter Initials --*

You must enter your initials to continue the IPL process.

Finally, the system displays a text editor at the bottom of the screen. Enter up to five lines of downtime information on this screen.

Enter Additional Downtime Information --														
01														
02														
03														
04														
05														
F1		F2		F3		F4		F5		F6		F7		F10
Delete Line		Insert Line		Center Exit		Store Line		Restore Line		Pack		Help		

For instructions on using this editor refer to Appendix A, MultiSTAR Text Editor in this volume.

Once you are finished entering the downtime information in the text editor, press ENTER until the cursor reaches the bottom of the screen. The system clears the screen and displays the following messages:

*Caretaker Started.  
Generating Sign-on programs. Done.  
Checking for Spooler Files left Open.  
Spooler Check Complete!*

Within a few minutes, the system displays the following prompt:

*Allow user sign-on (Y)--*

To enable users to sign on the system, enter **Y**. However, if you need to perform software maintenance procedures that require the users to be off the system (such as loading a new release of STAR application products software), enter **N**. This prevents STAR applications from running until you have completed software maintenance.

The IPL process displays the following messages and prompt:

```
Starting system wide journaling
Initializing a forced quiesce
Network is disabled Enable network (Y/N) [Y]--
```

To enable the network, enter **Y**. To disable use of the network, enter **N**.

After you enter Y or N, the system displays the following messages:

```
System IPL Complete
```

```
Exit
```

The system returns to the UNIX system prompt. At this point, the IPL process is complete and MultiSTAR is ready for work. The system creates an Append UNIX file named, \$DBNAME.ipl log containing pertinent IPL information.



## STOPPING MULTISTAR

Stopping MultiSTAR consists of bringing down the MultiSTAR Software Environment, after which you can do any of the following:

- Perform any software maintenance procedures that require MultiSTAR to be down
- Bring down the UNIX operating system
- Bring up MultiSTAR again

The following describes the process of bringing down MultiSTAR.

### Bringing Down the MultiSTAR Software Environment

You must bring down MultiSTAR before you bring down UNIX or Linux.

This can be done with a MANAGER sign-on at your STAR Applications Console. Select the Halt System option from the system screen.

After you select the Halt System option, the system displays the following prompt:

*Do you wish to halt the system? --*

To return to the menu without shutting down the system, enter **N**.

To begin the MultiSTAR system shutdown, enter **Y**. The system displays all active jobs:

Tue Jul 16, 1992 01:07 pm										5 Jobs Active, 10 Jobs Free			
JOB	WHO	PROGRAM	STATUS	TIME	ELAPSED	BG	ID	PID	ODV	PDV	CDV	DEVICES	
2		UC	HANG	0	2:24:04	1	0	7605	1				
3		%UOMQ	HANG	1	2:24:03	1	0	7606	1				
6		%ATASK	HANG	2	2:24:02	1	0	7609	1				
11	*JW	%MUJPK	EXEC		2:18:48		0	7631	3	3	3	3	
12	*JW	%UDM	READ		0:21:44		0	8070	4	4	4	4	

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

To redisplay the active jobs, enter **Y**. To continue the MultiSTAR system shutdown, enter **N**.

After you enter N, the system displays the following prompt to confirm that you want to continue:

*Continue? (Y/N) [Y]--*

To discontinue the MultiSTAR system shutdown and return to the menu, enter **N**. To continue the MultiSTAR system shutdown, enter **Y**.

MultiSTAR prompts you once more to confirm that you want to halt the system.

*Halt the system (Y/N) [N]--*

To discontinue the MultiSTAR system shutdown and return to the menu, enter **N**. To continue the MultiSTAR system shutdown, enter **Y**.

If you enter Y, the system displays the following menu:

```
Downtime Reasons

  1  Hardware Maintenance - Configuration Change
  2  Hardware Maintenance - Preventative (PM)
 11  Hardware Problem - Communications
 12  Hardware Problem - CPU
 13  Hardware Problem - Disk Drive
 14  Hardware Problem - Tape Drive
 15  Hardware Problem - [Other]
 19  Power Failure
 21  Software Install - Application
 22  Software Install - Operating System
 23  Software Problem - Application
 24  Software Problem - Operating System
 31  System Halt - Unrecoverable System Error
 32  System Hang
 41  [Other]

Select reason for system shutdown --
```

Select the specific reason for which you are shutting down MultiSTAR by entering the reason code to the left of the reason.

If this is a routine shutdown (if shutting down the system is part of a daily or weekly processing schedule) and is not due to one of the specific reasons provided on the screen, select the *[Other]* option.

Enter your initials at the following prompt:

*Enter Initials --*

After you enter your initials the system displays the following to indicate that all users are being removed from the system:

```

Clearing Partition
Waiting for background jobs to end!
Zapping jobs!
MSE - System Shutdown
Ok to proceed <N>?

```

To continue the shutdown process, enter **Y**. The system displays the following:

```

Shutdown initiated
Exit
mseadm$

```

Once the system returns to the system prompt, you can confirm that the MultiSTAR shutdown process is complete by entering **mselook**.

If you enter **mselook** to confirm that the MultiSTAR shutdown process is complete, the system displays the types of messages written to the XXX.lnn log file during the shutdown (see following examples).

The following are examples of system shutdown messages contained in the XXX.lnn file:

```

18:03:45 mpctl: IM Shutdown: Will start in 15 seconds
           Data base name ..... ____dev

18:04:01 mpctl: IM Shutdown: Initiated by SYSTEM REQUEST
           Data base name ..... ____dev

18:04:01 mpctl: IM Shutdown: Marking status in control file

18:04:01 mpctl: IM Shutdown: Marking all jobs to HALT
           Waiting 60 seconds for jobs to comply

18:05:12 mpctl: IM Shutdown: Marking all system processes to shutdown
           Waiting 60 seconds for process to comply

18:05:12 mpbil: IM Quiesce initiated
           Reason ..... Internal request
           Extended ..... ____NO
           Modified buffers to flush ..... ____0 ____0.0 KB
           Full threshold percent ..... ____90
           Full threshold block ..... ____117964 ____921.6 MB
           Maximum blocks ..... ____131072 ____1024.0 MB
           Current block ..... ____147 ____1.1 MB
           Current percent ..... ____0

18:05:12 mpdsk09: IM General statistics
           Reason ..... Shutdown
           Volume ..... ____4

```

---

```

Reads ..... 0 ..... 0.0 MB
Writes ..... 36174 ..... 282.6 MB
Locked by another process ..... 68
Collisions with other writers ..... 846
BIL buffer not written yet ..... 275
CPU user time ..... 00h 00m 59s
CPU system time ..... 00h 01m 03s
Run time ..... 01w 00d 11h 03m

18:05:13 mpbil: IM Quiesce completed
Number ..... 43397
Elapsed time ..... 00m 01s

18:05:13 mpbil: IM General statistics
Reason ..... Shutdown
Current full buffers flushed ..... 22
Current partial buffers flushed ... 5
Current blocks flushed ..... 147 ..... 1.1 MB
Total full buffers flushed ..... 189210
Total partial buffers flushed ..... 7463
Total blocks flushed ..... 1153296 ..... 9010.1 MB
Quiesces ..... 727
Retries ..... 0

Exceeded threshold ..... 0
Quiesce over 05 seconds ..... 27
Quiesce over 10 seconds ..... 1
Quiesce over 15 seconds ..... 0
Quiesce over 20 seconds ..... 1
Quiesce over 25 seconds ..... 1
Quiesce over 30 seconds ..... 0
Extended over 15 seconds ..... 2
Extended over 30 seconds ..... 0
Extended over 45 seconds ..... 0
Extended over 60 seconds ..... 0
Extended over 75 seconds ..... 0
Extended over 90 seconds ..... 0
CPU user time ..... 00h 01m 41s
CPU system time ..... 00h 04m 44s
Run time ..... 01w 00d 11h 04m

18:05:15 mpjnl: IM General statistics
Reason ..... Shutdown
Maximum blocks ..... 12800 ..... 200.0 MB
Percent full ..... 0.0
Logical SOF ..... 1
Logical EOF ..... 5
Tape logical SOF ..... 1
Tape logical EOF ..... 5
Block zero physical reads ..... 4
Block zero logical writes ..... 729
Block zero physical writes ..... 1458 ..... 11.3 MB
Aged block logical writes ..... 759
Aged block physical writes ..... 1518 ..... 23.7 MB
Full block logical writes ..... 1
Full block physical writes ..... 2 ..... 0.0 MB

```

---

```

Null block logical writes ..... 1
Null block physical writes ..... 2 ..... 0.0 MB
Data block physical reads ..... 1 ..... 0.0 MB
Sync block physical writes ..... 0 ..... 0.0 MB
CPU user time ..... 00h 00m 00s
CPU system time ..... 00h 00m 03s
Run time ..... 01w 00d 11h 04m

18:05:15 mptcp: IM Exiting
Reason ..... Shutdown

18:05:15 mptcp: WR General statistics
Reason ..... Shutdown
Connection Requests ..... 242738
Success ..... 242570
Accept errors ..... 0
Receive errors ..... 0
System not IPLed errors ..... 47
No partitions errors ..... 121
No zjobs errors ..... 0
CPU user time ..... 00h 02m 37s
CPU system time ..... 00h 23m 37s
Run time ..... 01w 00d 11h 04m

18:05:20 mpswd: IM Shutdown at system request

18:05:20 mpswd: IM General statistics
Reason ..... Shutdown
Ports file read ..... 13
Ports file saved ..... 12
Ports file restored ..... 0
CPU user time ..... 00h 00m 24s
CPU system time ..... 00h 02m 38s
Run time ..... 01w 00d 11h 04m

18:05:22 mptcpbr: IM Exiting
Reason ..... Shutdown

18:05:22 mptcpbr: WR General statistics
Reason ..... Shutdown
Send Signal Requests ..... 10914
Signals sent ..... 169
Receive errors ..... 0
Send signal errors ..... 10745
CPU user time ..... 00h 00m 27s
CPU system time ..... 00h 00m 30s
Run time ..... 01w 00d 11h 04m

18:05:22 mpctl: IM Shutdown: All processes terminated

18:05:22 mpctl: IM Shutdown: Saving Modified Block Maps

18:05:23 mpctl: IM Shutdown: Deleting semaphores

18:05:26 mpctl: IM Shutdown: Deleting shared memory

18:05:26 mpctl: OK Shutdown: Completed
Data base name ..... ____dev

```

Press CTRL-C to exit **mselook**.

## Automatic Shutdown

To minimize the risk of lost data resulting from the system running out of free disk blocks, when the number of free blocks falls below a set value the system's Caretaker program begins to monitor the free block count. If the number of free blocks then falls below a second threshold, the system begins to shut itself down.

**NOTE:** The system uses parameter set by McKesson installation personnel to determine the thresholds beginning these processes. The first threshold that begins the Caretaker program is typically 5000 free blocks. The second threshold that begins the automatic shutdown process is typically 2000 free blocks.

If the number of free disk blocks falls below the first threshold, the system displays a message similar to the following on the system console:

```
hh:mm:ss MN Database is low on free disk blocks
        Number of free blocks in ID 0 = 9,123
        Number of free blocks in ID 1 = 9,123
        Number of required blocks before warning = 10,000
        Number of required blocks before shutdown = 5,000
```

The system displays the message on the system console every 10 minutes until the problem is resolved or the system is halted. After the first warning message, the system also displays a jobwatch on the system console. When this message displays, **contact MSE support immediately!**

The warning message displays the second threshold as the *Number of required blocks before fatal error* (2,000 in the example). When the number of free blocks falls below this threshold, the system displays the following message on the system console:

```
hh:mm:ss CR Not enough free disk blocks
        Number of free blocks in ID 0 = 4,053
        Number of free blocks in ID 1 = 4,053
        Number of required blocks before warning = 10,000
        Number of required blocks before shutdown = 5,000
```

After the system displays this message, it begins to automatically shut itself down in an orderly process to minimize the loss of data.

**NOTE:** Do not attempt to bring the system back up after an Automatic Shutdown! Contact MSE support immediately.

## Turning Off the Hardware

Use these procedures to turn off the hardware only after UNIX has been halted. Make sure the system console has displayed all the messages described in the previous sections.

Power must be turned off for components in the following sequence:

1. All data storage drives (disk or tape)
2. CPU

## SIGN-ON RESTRICTION

This function is available if it becomes necessary to restrict access to the MSE environment. By entering a set of criteria to allow or disallow sign-on, access can be controlled while the system remains fully operational.

### Setup

To modify the sign-on restriction parameters, sign on to the Computer Operations environment and select **System Utilities**, and then **Special Utilities**. The system displays the following menu:

```

General Hospital System Utilities Processor
                                Tue Jul 06, 2010 11:30 am
System Special Utilities Input Options

Option No.  Option
-----
    1      Block Packer
    3      Backup Scheduling Chart
    5      System Error Summary
    6      Console Log Listing
    7      Search Log for Error Type
    8      Logon Monitor
    9      Display Tildes
   11      System Downtime Reports
   13      Network Utilities
   14      Spooler
   15      Task Processing
   16      Performance Monitor
   17      Signon Restriction

Enter option number--

```

Select **Signon Restriction**. The system displays the following screen:

```

General Hospital Signon Restriction Parameters Processor
                                Fri Jul 26, 2002 02:54 pm

Last Edit by:Z93-Doe,John at 07/26/02 14:53:29

Parameters
 1 Rest. Enabled/Disabled 2 Criteria Allows/Denies Signon 3 Expires Date/Time
   Enabled                  Allowed                      *Undefined
 4 Restriction Reason      5 Override Password
   Application upgrade in progress                      WHOME

Criteria
 6 Applications
   C-Patient Administration
 7 Users
   Z93,B985,U812
 8 MSE Ports
   *Undefined*
 9 Mumps ID's
   *Undefined*

```



## Field Explanations

### PARAMETERS SECTION

#### 1. REST. ENABLED/DISABLED (1-A-R)

This field controls if the sign-on restriction is in effect. When it is enabled, the criteria is applied to the identification and location information of users signing on to the MSE environment.

#### 2. CRITERIA ALLOWS/DENIES SIGNON (1-A-R)

This field determines if the criteria passes or fails the criteria test to the user signing in. If it is set to **Allow**, only users passing every criteria are allowed to sign on. If it is set to **Disallow**, users matching any defined criteria are not allowed to sign on.

#### 3. EXPIRES DATE/TIME (16-A-O)

This field contains how long the sign-on restriction remains in effect. When sign-on restriction is enabled, if a date/time is defined in this field and the current system date in time is past the defined date/time, sign-on criteria are ignored and the user is allowed normal access.

#### 4. RESTRICTION REASON (50-A-O)

This field contains the one line message that is displayed on the sign-on fault screen when the user is not allowed access. It is intended to inform the user as to why sign-on is being restricted.

#### 5. OVERRIDE PASSWORD (20-A-O)

When a sign-on fault has occurred for a user, an override password can be entered to bypass the sign-on fault screen in order to gain normal access to the system. This field defines that password.

### CRITERIA SECTION

#### 6. APPLICATIONS (TABLE LOOKUP)

This field contains a list of applications to which users are allowed or disallowed access.

#### 7. USERS (TABLE LOOKUP)

This field contains a list of ALLSTAR users that are allowed or disallowed access.

#### 8. MSE PORTS (TABLE LOOKUP)

This field contains a list of MSE ports that are allowed or disallowed access.

#### 9. MUMPS ID'S (TABLE LOOKUP)

This field contains a list of application IDs that are allowed or disallowed access.

## User Sign-on Fault Screen

When a user fails to meet the criteria defined in the Sign-on Restriction Parameters Processor screen, a sign-on fault screen is displayed during sign-on. A message

defined in the parameters screen as well as why sign-on has failed is displayed. A sample is displayed below:

```
General Hospital System Sign-on Processor
                                Wed Aug 07, 2002 10:48 am

Signon to /hbo/db00/utla temporarily disabled due to the following reason:

Application upgrade in progress

Signon Information:
  *Application: 0
  MUMPS ID    : 0
  MSE Port    : 13
  User Signon: Z93

*=Signon Criteria Fault

Press NL or enter override password--
```

When the screen is displayed, a prompt is provided to allow the entry of an override password. If the correct password is entered, access is allowed and the following message is displayed on the application console log describing the user and location from which sign-on occurred.

```
11:14:38 User Signon Restriction-bypassed at signon
ID: __0 Job: __19 Port: __15 SIGNON: ____Z93 USER: _UNIXlogin
Application: O-Computer Operations
```

## CHANGE LOGON STATUS

The MultiSTAR logon status can be changed for the entire MultiSTAR Software Environment or for a single port. You can do this on a system wide basis to keep users off the system while performing special functions such as database maintenance or applying application system updates. You can also disable system access at specific ports (one reason for this is to prevent unauthorized entry of the system from a port using a dial up modem).

**NOTE:** The logon status described here controls access to the MultiSTAR system and McKesson STAR applications. This logon status does not control access to the UNIX operating system. For information on accessing UNIX, refer to documentation from your hardware vendor.

To change the MultiSTAR system logon status, select the Change Logon Status option from the System Utilities menu.

```

                                General Hospital System Utilities Processor
                                Mon Jun 30, 2003 01:38 pm
System Management Input Options

Option No.  Option
-----
   1      System Backup
   3      Examine Job Status
   4      Remove Jobs From System
   5      Change Log-on Status
   6      Sign On Message
   7      Send a System Message
   8      Sign Off Bulletin Board
   9      Terminal/Port Setup
  10      Halt System
  11      System Utilization Monitors
  12      Special Utilities
  13      Clear Sentinel Support Call
  14      Build site specific Sentinel criteria
  15      Edit System Parameters
  16      Audit Service Interface

Enter option number--

```

Once you select the Change Logon Status option, the system displays the following prompt:

*Change (S)ystem or (A)pplication logon status?*

Select System for options that pertain to the logon status of the whole system (for example, to disable logon for all system users).

Select Application to set up application sign-on groups. Sign-on groups are used when you want to allow certain groups of users access to the system while disabling sign-on for others.

## System Logon Status

When you select System, the following screen is displayed:

```
General Hospital Change Log-on Status Processor
                        Tue Jan 21, 1992 09:45 am

2 = Activate Sign On Message
1 = System Available
0 = System NOT Available

Current System Status is -- 1

Enter Status Level--
```

This option is used mainly for system maintenance when you want to take all users off the system. Disabling the system through this function also disables the network.

To change the system status, enter the new status level. The system re-displays the screen for you to verify the new status.

The system status levels control the system in the following ways:

- 2 = Activate Sign on Message - Sign on messages are activated for all application users (if the display time has not expired).
- 1 = System Available - Sign on is available for all users.
- 0 = System NOT Available - This restricts access to all users except Port 0, Computer Operations.

### NOTE:

- If you want to activate the Sign On Message prior to making the system available for sign-on, first select Status Level 2 (Activate Sign On Message), complete the function, and then select Status Level 1 (System Available).
- If you want to disable or enable sign-on for systems on multiple CPUs, you must access the System option on each applicable CPU.

## Application Logon Status

If you select Application, the following screen is displayed:

```
General Hospital Application Group Sign-on Processor
                        Tue Jan 21, 1992 09:47 am
Application Group Sign-on Input Options

Option No.  Option
-----
      1      Edit Groups
      2      Enable Select Groups
      3      Enable All Groups

Enter option number--
```

The Application option is used to set up sign-on groups that can be enabled or disabled as needed. Sign-on groups are used to allow logon for selected groups of users while sign-on is disabled for other users. For example, during a LIVE situation, you may need to disable logon for all users on the system.

If you want to disable all groups at a time, build a group with all PCs or terminals in it by sign-on key. You can then allow users back on the system in phases by enabling selected groups. You can also allow all users back on the system by enabling all groups.

### EDIT GROUPS

This function is used to add, edit or delete an application sign-on group. When you select this option, the following prompt is displayed:

*Enter group code*

Enter the group code for the group you want to edit. To add a new group, enter the three-character group code. The system asks if you want to add this code.

Enter **Y** at the group code prompt and a screen similar to the following displays:

Atlanta Region Application Sign-on Groups Processor			
Tue Jan 21, 1992 09:47 am			
1 Group	2 Description	3 Status	4 Sign-on Keys
LAB	LAB SUPERVISORS	Enabled	L

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

## Field Explanations

### 1. GROUP

This field contains the three-character, alphanumeric code entered at the prompt leading into this screen.

### 2. DESCRIPTION

Enter the description for the group code. Up to 25 alphanumeric characters can be entered. This description displays on the list of sign-on groups shown when the Enable Select Groups function is selected.

### 3. STATUS

This field indicates the logon status of this group, either Enabled or Disabled. When you first create a group, the status defaults to Enabled.

### 4. SIGNON KEYS

This field is used to select the sign-onkeys that are used by this group. You can enter multiple sign-on keys in this field.

After you finish editing this screen, the system displays the following prompt:

*Accept this screen? (Y/N)*

Enter **Y** to accept the screen or **N** to continue editing. Enter **D** to delete the group code. If you enter Y, the following prompt is displayed:

*Enter 'A'dd ports, 'R'remove ports or NL*

This prompt is used to select specific users (ports) to be included in this sign-on group.

Ports must be added to the sign-on group to tell the system which ports to enable or disable for the group. When you select A, a screen similar to the following displays:

General Hospital Application Sign-on Groups Processor			
Tue Jan 21, 1992 09:48 am			
1 Group	2 Description	3 Status	4 Sign-on Keys
LAB	LAB SUPERVISORS	Enabled	L
Page:01		Assignable ports	##=Current Choices
( 1 ) CORP-101	1	(17) MARY SMITH	17
( 2 ) CORP-101	2	(18) BILL GREEN	18
( 3 ) STATION 101 EAST	3	(19) JOHN SMITH	19
( 4 ) STATION 101 WEST	4	(20) R. WILLIAMS	20
( 5 ) STATION 201	5	(21) DATA CENTER	22
( 6 ) STATION 301	6	(22) AR10 TO MV40	57 CORP 23
( 7 ) BUSINESS OFFICE	7	(23) BETTY JONES	24
( 8 ) LINK TO LAB1 301-CORP	8	(24) ADMITTING	25
( 9 ) LAB	9	(25) KAREN COOK	26
(10) PHARMACY	10	(26) SUSAN JONES	27
(11) CENTRAL SUPPLY	11	(27) JOE BROWN	28
(12) MICROCOM-CORP-301	12	(28) PAT O'NEIL	29
(13) MICROCOM-CORP-301	13	(29) RADIOLOGY	30
(14) MICROCOM-CORP-301	14	(30) RECEIVING	31
(15) CONF. ROOM 1	15	(31) JOHN BROWN	32
(16) MIKE JONES	16	(32) CONF. ROOM 2	33
Enter choices (e.g. 1,7,5-9) or '-'choices to remove or ALL for all --			
end selection(NL) next page(/)			

Select the option numbers for the users you want to add to the sign-on group and press ENTER; enter **ALL** if you want to add all ports.

If you want to disable one sign-on key for a port that has multiple sign-on keys assigned, you must set up two groups:

- Group 1: Specify the port and the sign-on key you want to disable.
- Group 2: Specify the other ports available for sign-on *minus* the port specified in the first group. Specify all sign-on keys *including* the one designated in the first group.

To remove ports from a sign-on group, enter **R** at the previous prompt. The system displays a screen that contains a list of all ports assigned to the sign-on group. Select the ports to be removed and press ENTER. Enter **ALL** if you want to delete all ports.

## ENABLE SELECT GROUPS

This option is used to enable or disable selected sign-on groups. When a new sign-on group is added, its sign-on status defaults to Enabled. Once sign-on groups are set up, you can use this option to disable (or enable) certain groups.

When you select this option, a screen similar to the following displays:

```

                                General Hospital Enable Select Groups Processor
                                Tue Jan 21, 1992 09:50 am

Page:01                      Groups (Select choices to Enable)      ##=Current Choices
( 1) LAB SUPERVISORS          Sign-on keys - L
( 2) BUS. OFF. SUPERVISORS     Sign-on keys - F
( 3) PAYROLL SUPERVISORS       Sign-on keys - S
( 4) PAYROLL CLERKS           Sign-on keys - S

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

Select the group(s) you want to enable by entering the group number at the prompt and pressing ENTER. The selected group numbers are highlighted on the screen. Any group not selected is disabled after you accept this screen. If a group is enabled and you want to change the status to disabled, enter the group number preceded by a hyphen (for example, -2).

Once you accept this screen, the system gives you the option to send a *System is now available* message to the CRTs of users who were logged off the system. Also, when groups are disabled, the system gives you the option to send a message to the CRTs of users who are being taken off the system.

## ENABLE ALL GROUPS

This option is used to enable all disabled groups on the system. When you accept the prompt to enable all groups, the system gives you the option to send a *System is now available* message to all CRTs being enabled.



## Changing Logon Status For A Reserved Port

To alter the logon status for a reserved port, select the Terminal/Port Setup option from the System Management Utilities menu.

```

                                General Hospital System Utilities Processor
                                Mon Jun 30, 2003 01:38 pm
System Management Input Options

Option No.  Option
-----
    1      System Backup
    3      Examine Job Status
    4      Remove Jobs From System
    5      Change Log-on Status
    6      Sign On Message
    7      Send a System Message
    8      Sign Off Bulletin Board
    9      Terminal/Port Setup
   10      Halt System
   11      System Utilization Monitors
   12      Special Utilities
   13      Clear Sentinel Support Call
   14      Build site specific Sentinel criteria
   15      Edit System Parameters
   16      Audit Service Interface

Enter option number--

```

Once you select the Terminal/Port Setup option the system displays the following menu:

```

                                General Hospital Terminal/Port Setup Processor
                                Wed Jun 16, 2004 11:41 am
Terminal/Port Setup Input Options

Option No.  Option
-----
    I  - Initialize Port Characteristics
    L  - List Port Specs
    O  - On-Line Instrument Read & Write
    P  - Port Modification Utility
    T  - Test Terminal / Ripple Print
    OP - Output Mgmt: Printer Definition
    TD - Tape Drive Modification Utility

Enter option number--

```

Enter **P** for Port Modification Utility. The system displays the following prompt:

*Enter port number, '-' for list or 'F' for first available--*

A reserved port can be selected from this prompt.

**NOTE:** The logon status of dynamic and software ports cannot be altered.

In this example, port 3 was selected. The system displays the following screen:

General Hospital Port Modification Processor		
Tue Feb 19, 1991 12:35 pm		
1 Port Number	2 Type	3 Logon Allowed
3	Reserved	Yes
4 Sign-on Keys		
A -ALLSTAR DEMO		
5 Spool Status	6 Comment	
Off		

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

This screen varies depending on whether the device is physical or virtual. To change the logon status enter the field number for the Logon Allowed field at the prompt.

## Field Explanations

**NOTE:** The Port Number and Type fields are not used to change a port logon status.

### 3. LOGON ALLOWED (1-A-O)

This field either enables or disables MultiSTAR logon from the selected port. Enter **Y** to enable logon or enter **N** to disable logon. The default is Y.

**NOTE:** The Sign-on Keys, Spool Status, and Comment fields are not used to change a port logon status.

Once you select the Logon Allowed field, the system displays the following prompt:

*Enter new allow logon (Y/N) [Y]--*

Enter **Y** or press ENTER to enable the new logon process or enter **N** to disable the new logon process. The system then prompts you to accept the screen:

*Accept this screen? (Y/N/^D'etele) [Y]--*

Enter **Y** or press ENTER to accept the change to the port status. Enter **N** at this prompt to return to the screen and change the Logon Allowed field once again. For information on the delete option of this prompt, refer to the System Management section of this book.

## SELECT ALTERNATE STAR ENVIRONMENT

To select an alternate environment, sign on to the Computer Operations environment. The system displays the following menu:

General Hospital Computer Operations Processor	
Tue May 20, 2003 09:09 am	
Computer Operations Input Options	
Option No.	Option
1	System Utilities
2	Computer Personnel Management
3	HBO Employee Editor
4	Software Implementation
5	Document Display
6	Document Print
7	Select Alternate STAR Environment

Enter option number--

Select the option for **Select Alternate STAR Environment**. For detailed information about selecting an alternate environment, see the Changing Environments section in the *ALLSTAR Signon User's Guide*.

**NOTE:** To access this option, the ALLSTAR sign-on function must be activated in your system. If you attempt to select an alternate environment and the ALLSTAR sign-on function is not in place, the following message is displayed:

*ALLSTAR Signon is not active in your system!*

Contact your system administrator for assistance.

## GENERAL TASKS

### Editing System Parameters

System parameters for the spooler, timeouts and console logs can be controlled by the user. These parameters are system-wide and take effect immediately when entered.

To modify the system parameters, sign on to the Computer Operations environment and select the **System Utilities** option. The system displays the following menu:

```

                                General Hospital System Utilities Processor
                                Mon Jun 30, 2003 01:38 pm
System Management Input Options

Option No.  Option
-----
    1      System Backup
    3      Examine Job Status
    4      Remove Jobs From System
    5      Change Log-on Status
    6      Sign On Message
    7      Send a System Message
    8      Sign Off Bulletin Board
    9      Terminal/Port Setup
   10      Halt System
   11      System Utilization Monitors
   12      Special Utilities
   13      Clear Sentinel Support Call
   14      Build site specific Sentinel criteria
   15      Edit System Parameters
   16      Audit Service Interface

Enter option number--

```

Select **Edit System Parameters**. The system displays the following screen:

```

                                General Hospital Edit System Parameters Processor
                                Wed Sep 07, 2011 01:50 pm
1 System Name                2 System Date Format          3 Default Date Format
General Hospital             W N D, y G:I a -> Wed Se    M/D/Y
4 Free Disk Block Warning    5 Free Disk Block Auto        6 Trans Line Delimiter
130000                      15000                        Yes
7 Host Mailer                8 HC Gateway Parm            9 Logon Monitor
                               Strip alpha / Do not ups    Active
Security Options 10 System Default Timeout    11 Menu Default Timeout
                               180 seconds                180 seconds
                               12 Menu Security Option    13 HBO Emp. Password Ex
                               Disabled                        After 3 Days
Printing Options 14 Answerback T/O          15 Queue Lock T/O          16 Printer DL T/O
                               1 seconds                  2 seconds                3 minutes
                               17 Max Spool Jobs          18 Default Printer          19 VSR Options
                               30 jobs                    ANSI protocol             Host,Network,Fax
Logging Options  20 Console Writer Options    21 Corba Read Timeout
                               Defined                        360 seconds

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

```

---

## Field Explanations

### 1. SYSTEM NAME (DISPLAY ONLY)

This McKesson-maintained field contains the system name that is displayed on character-based menus. This field can be accessed only by McKesson personnel.

### 2. SYSTEM DATE FORMAT (DISPLAY ONLY)

This McKesson-maintained field contains the system date and time that are displayed on character-based menus. This field can be accessed only by McKesson personnel.

### 3. DEFAULT DATE FORMAT (DISPLAY ONLY)

This McKesson-maintained field contains the system validation date format. This field can be accessed only by McKesson personnel.

### 4. FREE DISK BLOCK WARNING (DISPLAY ONLY)

This McKesson-maintained field contains the lowest acceptable number of free blocks available in the database. If the number of free blocks in the database falls below this setting, a warning is displayed on the console indicating the number of available disks blocks is low. This field can be accessed only by McKesson personnel.

### 5. FREE DISK BLOCK AUTO (DISPLAY ONLY)

This McKesson-maintained field contains the lowest acceptable number of blocks available in the database. If the number of blocks in the database falls below this setting, MSE is automatically brought down. This field can be accessed only by McKesson personnel.

### 6. TRANS LINE DELIMITER (DISPLAY ONLY)

This McKesson-maintained field controls whether prompts use the autonewline feature. This field can be accessed only by McKesson personnel.

### 7. HOST MAILER (45-A-O)

This field is used by functions that utilize the host system's e-mail. When you access this field, the following prompt is displayed:

*Enter UNIX mailer including path--*

Enter the full path to the UNIX Host Mailer.

### 8. HC GATEWAY PARMS (DISPLAY ONLY)

This McKesson-maintained field controls how the staffID is interpreted when users Gateway from Horizon Clinical Documentation™ (or Horizon Expert Documentation™, if applicable) to STAR. This field can be accessed only by McKesson personnel.

### 9. LOGON MONITOR (DISPLAY ONLY)

This field indicates whether the logon monitor is active.

## SECURITY OPTIONS

### 10. SYSTEM DEFAULT TIMEOUT (4-N-R)

This field contains the amount of time that must elapse before STAR data entry screens timeout. When you access this field, the following prompt is displayed:

*Enter default timeout (30-999 sec) [180 sec]--*

Enter the time in seconds (30 to 999).

### 11. MENU DEFAULT TIMEOUT (4-N-R)

This field contains the amount of time that must elapse before STAR menus timeout. When you access this field, the following prompt is displayed:

*Enter MENU default timeout (30-1800 sec) [180 sec]--*

Enter the time in seconds (30 to 1800).

### 12. MENU SECURITY OPTION

This option determines if a lockout screen is displayed when a menu or application timeout occurs, as well as timeout intervals and messages. When you access this field, the following screen is displayed:

General Hospital Edit System Parameters Processor	
	Fri Jun 18, 2004 08:57 am
1 Security Enabled?	
Yes	
2 Security Timeout	
30 minutes	
3 Security Timeout Screen Message	
Remember to enter your password with Caps Lock OFF	
4 ID's Enabled	
1	
Enter field number or '/' starting field number--	

## Menu Security Option Field Explanations

### 1. SECURITY ENABLED? (1-A-R)

This field determines what is displayed on the screen when a menu timeout occurs. When you access this field, the following prompt is displayed:

*Enabled (Y/N)? [Y]--*

Enter **N** to display the previous menu or application when a menu timeout occurs. If this field is set to No, the rest of the options on this screen are not applicable.

**NOTE:** To manually lock the screen at a menu, enter a backslash (\) at the menu prompt.

Enter **Y** to set a password lock on the screen. If this field is set to Yes, the following screen is displayed and the user specified (XXX) must enter their host UNIX password to unlock the screen.

```
Application Locked Processor
<New Mail>      Tue Jun 08, 2004 01:02pm

Application can only be unlocked by user ID XXX

Application will automatically sign user off at 06/08/04 1303

Screen Locked - Remember to enter password with capslock off

Enter UNIX password or .NL to sign off--
```

In the example above:

XXX is the user ID of the person logged on to the system when the menu times out.

06/08/04 1303 is the date and time the system is scheduled to sign the user off (if the password is not entered to unlock the screen). This is calculated based on the entry in the Security Timeout field.

*Remember to enter password with capslock off* is the additional message that can be entered in the Security Timeout Screen Message field.

Enter the UNIX password of the user logged on to unlock the screen. Press ENTER to log off the system without entering the password.

## 2. SECURITY TIMEOUT (2-N-O)

If the Security Enabled? field is set to Y, and the menu is locked, this field controls the timeout on the menu lock screen. When this timeout is reached, you are logged out of the system as if you had entered the forward slash, period, forward slash (/.) command at the user menu. When you access this field, the following prompt is displayed:

*Enter number of minutes lockout screen will display (1/120) [120]--*

Enter the number of minutes that must elapse once a menu is locked out before the system logs off the user (1 to 120).

**3. SECURITY TIMEOUT SCREEN MESSAGE (80-C-O)**

If the Security Enabled? field is set to Y, and the menu is locked, the message in this field is displayed to give the users additional instructions. When you access this field, the following prompt is displayed:

*Enter message to display to user on lockout screen--*

*`=' for Remember to enter your password with Caps Lock OFF*

Enter the message, or enter an equals sign (=) to retain the message currently entered in the field.

**4. ID'S ENABLED (SPECIAL FORMAT-C-O)**

This field contains the system IDs that use the Menu Security Option fields. When you access this field, the following prompt is displayed:

*Enter MSE ID's to apply option to separated by commas or `A` for all--*

*`=' for 1*

Enter the system ID that is to use these lockout and timeout options.

To enter multiple IDs, enter the number of each followed by a comma (.).

Enter **A** to designate all system IDs.

Enter an equals sign (=) to retain the IDs that are currently entered in the field.

**EDIT SYSTEM PARAMETERS SECURITY OPTIONS (continued)****13. HBO EMP. PASSWORD EX (DISPLAY ONLY)**

This McKesson-maintained field defines the number of days a password is valid. When that time period elapses, McKesson employees must reset applicable passwords for certain security options. This field can be accessed only by McKesson personnel.

**PRINTING OPTIONS****14. ANSWERBACK T/O (1-N-O)**

When a port is being used to print a report from the spooler, and is configured to perform answerback, this field determines the amount of time the spooler waits for the answerback from the printer before the report is printed. When you access this field, the following prompt is displayed:

*Enter answerback printer timeout (1-9) [5]--*

Enter the number of seconds (1 to 9) before timeout occurs and the report is not printed.



**15. QUEUE LOCK T/O (2-N-O)**

This field defines the amount of time in seconds that the spooler attempts to lock a report exclusively so that it can begin printing. The setting of this parameter determines how long a print operation waits before moving on to the next report in queue when multiple jobs are attempting to print the same report simultaneously. The following prompt is displayed when this field is accessed:

*Enter print queue lock timeout (0-10) [2]--*

Enter the number of seconds from 0 to 10 before timeout occurs and the report is skipped for the current pass of the print queue.

**16. PRINTER DL T/O (2-N-O)**

This field defines the amount of time in minutes that the spooler skips over print requests to a printer port that is not responding, after and between each failed attempt to open a connection. After the printer's port becomes available, the printer is automatically removed from the disabled list at the next successful attempt to open and connect. This feature allows the spooler to service the print queue for working printers more readily by placing printers that are not responding on a disabled list and only rechecking on those printers when the disabled list timeout parameter has expired. When this field is accessed, the following prompt is displayed:

*Enter new printer disabled list timeout (1-60) [5]--*

Enter the number of minutes from 1 to 60 to skip print requests for disabled printers.

**17. MAX SPOOL JOBS (2-N-R)**

This field determines the maximum number of MSE jobs the spooler uses as print jobs. When you access this field, the following prompt is displayed:

*Enter maximum number of spooler print jobs (1-99) [30]--*

Enter the number of MSE jobs the spooler can use (1 to 99).

**18. DEFAULT SYSTEM PRINT (DISPLAY ONLY)**

This McKesson-maintained field contains the code used by the printer escape code generator when no printer type is passed to the utility. This field can be accessed only by McKesson personnel.

**19. VSR OPTIONS (4-A-O)**

This field contains the print options that are made available when you select the print function in View Spooled Reports. When you access this field, the following prompt is displayed:

*View Spooled Reports can print to (H)ost, (N)etwork, (F)ax and/or (E)mail--*

Enter **H** to display the option to send the report to a host file.

Enter **N** to display the option to send the report to a network port.

Enter **F** to display the option to fax the report.

Enter **E** to display the option to send the report to an e-mail address.

To enter more than one option, enter the letters of the choices with no separating character. For example, HNFE displays all options in View Spooled Reports.

## LOGGING OPTIONS

### 20. CONSOLE WRITER OPTIONS

This option determines functionality for console log writers. When you access this field, a list of all available console log writers is displayed:

```

Page:01                               Console Writers
( 1) Console Printer      (Port 701)
( 2) Console Pipe         (File /tmp/dev.conlog)

Enter choice to edit/delete--
                        next pg(/ or PG DN)  Search(TAB)

```

Enter the number of the console writer to edit or delete. When a console writer is selected, the following screen is displayed:

```

                        General Hospital Edit System Parameters Processor
                                                Wed Jun 15, 2005 07:58 am

1 Console Writer #           2 Enabled?
0                               Yes
3 Console Writer Descriptio  4 Console Writer Type
undefined                    Port
5 Console Writer Destinati  6 Console Writer Open Option
o                             Never Close
7 Line Printing Option       8 Message Printing Option
Print LF/CR                  Print msg as is
9 Severity Level Translation

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

```

## Console Log Options Field Explanations

### 1. CONSOLE WRITER # (DISPLAY ONLY)

This field contains the number of the console writer selected.

### 2. ENABLED? (1-A-R)

This field determines if the console writer is active. When you access this field, the following prompt is displayed:

*Enabled (Y/N)? [Y]--*

Enter **N** to disable this console writer from sending messages to a specified destination.

Enter **Y** to allow this console writer to send messages to the specified destination.

### 3. CONSOLE WRITER DESCRIPTION (24-C-R)

This field contains the description of the console writer. When you access this field, the following prompt is displayed:

*Enter Console Writer Description [Console Printer]--*

Enter the name of the console writer. The current entry in the field is displayed as the default.

### 4. CONSOLE WRITER TYPE (1-A-R)

This field defines the type of connection the console writer uses to produce the output. The destination of the output type selected in this field is defined in the Console Writer Destination field. When you access this field, the following prompt is displayed:

*Is writer a (F)ile, (U)niversal Network Address, (P)ort, or (C)ommand (F/U/P/C) [P]--*

Enter **F** to send output to a UNIX host file.

Enter **U** to send output to a TCP/IP network address/port.

Enter **P** to send output to an MSE port.

Enter **C** to send output to a UNIX host command.

### 5. CONSOLE WRITER DESTINATION (SPECIAL FORMAT-R)

This field contains the destination of the output based on the entry in the Console Writer Type field.

If the Console Writer Type field is set to F, the following prompt is displayed:

*Enter console named pipe [/dev/null]--*

*Enter 'NP' for standard pipe or 'LF' for standard logfile*

Enter the UNIX host path and file name to which output is sent. The information last entered in the field is displayed as the default. For example, /dev/null.

Enter **NP** to select the system-defined standard named pipe.

Enter **LF** to select the system-defined standard log file.

If the Console Writer Type field is set to U, the following prompt is displayed:

*Enter Network address--*

Enter the TCP/IP address to which output is sent. After you enter the address, the following prompt is displayed:

*Enter Network Port*

Enter the network port to complete the field.

If the Console Writer Type field is set to P, the following prompt is displayed:

*Enter Console Log Port [8050]--*

Enter the MSE port number to which the output is sent. The port last entered in the field is displayed as the default. For example, port 8050.

If the Console Writer Type field is set to C, the following prompt is displayed:

*Enter host command--*

Enter the UNIX host command to which output is sent.

#### **6. CONSOLE WRITER OPEN OPTION (1-N-R)**

This field determines when the console writer reopens the console destination for writing. When you access this field, a list of options is displayed:

```
Page:01
( 1) Every Message
( 2) Every Day
( 3) Every Hour
( 4) Never Close
( 5) Am/Pm Change
( 6) Every Minute
```

```
Enter choice--
```

Enter **1** for the console writer to reopen the console destination for writing after every message.

Enter **2** for the console writer to reopen the console destination for writing at the beginning of each new day.

Enter **3** for the console writer to reopen the console destination for writing at the beginning of each hour.

Enter **4** for the console writer to keep the console destination for writing open at all times (console destination is never closed).

Enter **5** for the console writer to reopen the console destination for writing when the time changes from a.m. hours to p.m. hours and vice-versa.

Enter **6** for the console writer to reopen the console destination for writing at the beginning of each new minute.

For example, if output is sent to a host command that is executed on a daily basis, the host command must be closed to execute. Therefore, you would set this field to 2, so the host command would be closed and execute properly. Any information sent after the host command was closed for a specific day (when the console writer opened a new instance) would be included in the next day's messages.

### 7. LINE PRINTING OPTION (1-C-O)

This field determines if a carriage return is performed at the end of each line in the console log. When you access this field, the following prompt is displayed:

*Print carriage returns at the end of each line (Y/N)? [N]--*

If you enter Y and press ENTER, *Print LF/CR* is displayed in the field and a carriage return is performed at the end of each line in the console log.

If you enter N and press ENTER, *Print LF* is displayed in the field and a carriage return is not performed.

### 8. MESSAGE PRINTING OPTION (1-N-R)

This field determines how each console message is printed. When you access this field, a list of options is displayed:

```
Page:01                      Message Printing Options
( 1 ) Print msg as is
( 2 ) Begin msg w/^B, end msg w/^C
( 3 ) Begin msg w/^B, end msg w/^C and ^J
( 4 ) End msg w/^J
( 5 ) User Defined

Enter choice to edit/delete--
```

Enter **1** to print the message exactly as it is produced.

Enter **2** for the system to recognize CTRL-B as the beginning of a message and CTRL-C as the end of the message.

Enter **3** for the system to recognize CTRL-B as the beginning of a message and CTRL-C and CTRL-J as the end of the message.

Enter **4** for the system to recognize CTRL-J as the end of the message.

Enter **5** to define the pre- and post-message designators using decimal characters delimited by commas. These characters are translated into ASCII values at the time the message is printed. When this option is entered, the following prompt is displayed:

*Enter BEGINNING characters in decimal delimited by commas--  
`= ` for X,X*

Enter the characters that denote the beginning of a message delimited by commas. Enter an equals sign (=) to accept X,X where X,X is the last information entered at the prompt. If no previous information has been entered, a blank is displayed after the word for:

*`=` for*

When beginning characters have been entered, the following prompt is displayed:

*Enter ENDING characters in decimal format delimited by commas--  
`= ` for X,X*

Enter the characters that denote the end of a message delimited by commas. Enter an equals sign (=) to accept X,X where X,X is the last information entered at the prompt. If no previous information has been entered, a blank is displayed after the word for:

*`=` for*

## **9. SEVERITY LEVEL TRANSLATION (1-N-O)**

The adopted standard by applications choosing to utilize the standard is to format each message with a severity level. This is noted on the first line of each message as the code immediately following the time in the formatted messages. Severity levels are denoted by IM for informational messages, MN for minor/warning messages, MJ for major error messages, CR for critical messages, DB for application debugging messages, and WR for non-critical errors.

**NOTE:** For more information about the messages, see [“Severity Level Table” on page D-3](#).

This option allows these values to be printed as defined or translated by the console writer to the value defined here. When you access this field, a list of severity levels and how they are printed is displayed:

```

Page:01                Message Severity Level Translations
( 1) Severity level IM will not be translated
( 2) Severity level MN will not be translated
( 3) Severity level MJ will not be translated
( 4) Severity level CR will not be translated
( 5) Severity level WR will not be translated

Enter choice--

```

Enter the number of the severity level to be edited. When you select an option, the following prompt is displayed:

*Enter new severity translation for XX, NL for none or `\*E` for empty string--*

where XX is the severity level selected (IM, MN, MJ or CR).

Enter the message to be printed when this severity level is encountered. For example, if you select IM and enter **No Action Necessary**, the field is populated with the following:

*( 1) Severity level IM will be translated to No Action Necessary*

Press ENTER to print the severity level as is in the message. For example, if you select IM and press ENTER, the field is populated with the following:

*( 1) Severity level IM will not be translated*

Enter an asterisk (\*) followed by an E (\*E) to print a blank severity level when this severity level is encountered. For example, if you select MN and enter \*E, the field is populated with the following:

*( 2) Severity level MN will be translated to (empty string)*

## EDIT SYSTEM PARAMETERS LOGGING OPTIONS (continued)

### 21. CORBA READ TIMEOUT (4-N-O)

This field sets the number of seconds the Corba utility waits before it times out. The default value for this field is 360. This means that the Corba utility waits 360 seconds before it times out.

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

*Enter new corba object driver read timeout (1-7200) [360]--*

You can accept the default or enter a number between 1 and 7200.

## Changing the Date and Time

The system date and time can be set from the UNIX master console using the date command. For more information, refer to the UNIX documentation provided by your hardware vendor.

**WARNING:** Change the system date or time only when you are in single user mode.

## Sign On Messages

The Sign On Message function enables you to display messages to users as they log on to the system. Use this function to display information such as scheduled downtime or broadcast announcements for all system users.

Sign-on messages are identified by a single-letter code (A-Z). You can have 26 sign-on messages defined in your system. Only one message can display at a time.

To access the Sign On Message function, select the Sign On Message option from the System Management Utilities menu.

```

                                General Hospital System Utilities Processor
                                Mon Jun 30, 2003 01:38 pm
System Management Input Options

Option No.  Option
-----
    1      System Backup
    3      Examine Job Status
    4      Remove Jobs From System
    5      Change Log-on Status
    6      Sign On Message
    7      Send a System Message
    8      Sign Off Bulletin Board
    9      Terminal/Port Setup
   10      Halt System
   11      System Utilization Monitors
   12      Special Utilities
   13      Clear Sentinel Support Call
   14      Build site specific Sentinel criteria
   15      Edit System Parameters
   16      Audit Service Interface

Enter option number--

```

After you select the Sign On Message function, the system displays the following prompt:

*'S'etup Message or Set 'T'ime for Message Display--*

Enter **S** to maintain user messages.

Enter **T** to specify a time period for the message to display.



## MAINTAINING USER MESSAGES

After you enter S to maintain user messages, a list of existing messages and the following prompt display:

Enter Message Letter [A-Z]--

Enter the letter code of the message you want to maintain. The system displays the following prompt:

(A)dd, (E)dit, (D)elete, (S)elect Message--

Enter

**A** to input a new message.

**E** to edit an existing message.

**D** to delete a message.

**S** to select the message to display at user sign-on.

## Adding A Message

After you enter A to input a new message, the system displays an empty screen using the text editor:

```

      1      2      3      4      5      6      7
12345678901234567890123456789012345678901234567890
01|
02|
03|
04|
05|
06|
07|
08|
09|
10|
11|
12|
13|
14|
15|
16|
17|
F1      F2      F3      F4      F5      F6      F7      F10
Delete Line Insert Line Center Exit Store Line Restore Line Pack Help

```

Enter the new message. For more information about using the text editor, see the Text Editor appendix in this volume.

When you finish entering the message, press F4 to exit the text editor. The system displays the following prompt:

*Accept (Y/N) ?--*

Enter **Y** to save the new message. The system displays the following message:

*Message Saved!*

Enter **N** to quit without saving the new message.

### **Editing A Message**

After you enter E to edit the existing message, the system displays the existing message using the text editor. Edit the message as necessary.

When you finish editing the message, press F4 to exit the text editor. The system displays the following prompt:

*Accept (Y/N) ?--*

Enter **Y** to save the new message. The system displays the following message:

*Message Saved!*

Enter **N** to quit without saving the new message.

### **Deleting A Message**

After you enter D at the option prompt to delete an existing message, the system displays the following prompt:

*Delete Message A (Y/N) [N]--*

In the prompt above, A represents the message code you selected earlier. Press the ENTER key or enter **N** to exit the delete process and retain the message.

Enter **Y** to delete the message. The system displays the following messages:

*Message Deleted  
Press NL to continue*

Press the ENTER key and the system returns to the System Management menu.

### **Selecting A Message To Display**

After you enter S to select a message, the system displays the following prompt:

*Select Message A for Sign On Message (Y/N) [Y]--*

To select the message to display when users sign on, press the ENTER key or enter Y. To return to the previous prompt without selecting the message, enter N.

**NOTE:** For the selected message to display, you must also set the time for the message to display. See Setting The Time To Display A Message below.

## SETTING THE TIME TO DISPLAY A MESSAGE

After you enter T to specify the time to display the user sign-on message, the system displays the following screen:

```
Enter the Start and End Times for Displaying the System Message
In the Format of `MM/DD/YY HH:MM` or `N` for `NOW` and `N+n` for `NOW+n HRS`

Current Starting Time = 01/01/93 1800 & Ending Time = 01/02/93 2000
```

```
Enter START Time--
```

The message at the top of the screen provides date and time data entry instructions for this prompt.

After you enter the start date and time, enter the stop date and time at the following prompt:

```
Enter STOP Time--
```

The system then prompts you to confirm your entry:

```
Accept These Times? --
```

Enter Y to accept the date and times you entered. Enter N and the system displays the following:

```
Press NL to continue
```

Press the ENTER key to return to the System Management Utilities menu.

To immediately send the message you entered, change the system status to Activate Sign On Message. For more information refer to Change Logon Status earlier in this section.

**NOTE:** The system monitors the time every 10 minutes and automatically changes the system status as described above once the specified start time is reached. The system then returns the status to System Available once the specified stop time is reached.

## Sign Off Bulletin Board

The Sign Off Bulletin Board processor provides a means of displaying a message to CRTs on the system at the completion of user processing. There is a separate bulletin board for each departmental application based on sign-on key. Use the bulletin board for communicating information such as new features on the system or requests for user action.

To access the Sign Off Bulletin Board processor select the Sign Off Bulletin Board option from the System Management Utilities menu.

```

                                General Hospital System Utilities Processor
                                Mon Jun 30, 2003 01:38 pm
System Management Input Options

Option No.  Option
-----
    1      System Backup
    3      Examine Job Status
    4      Remove Jobs From System
    5      Change Log-on Status
    6      Sign On Message
    7      Send a System Message
    8      Sign Off Bulletin Board
    9      Terminal/Port Setup
   10      Halt System
   11      System Utilization Monitors
   12      Special Utilities
   13      Clear Sentinel Support Call
   14      Build site specific Sentinel criteria
   15      Edit System Parameters
   16      Audit Service Interface

Enter option number--

```

After you select the Sign Off Message function, a list of existing messages and the following prompt display:

*Enter Message Letter [A-Z]--*

Enter the letter code of the message you want to maintain. The system displays the following prompt:

*(A)dd, (E)dit, (D)delete, (S)elect Message--*

Enter:

- A** to input a new message.
- E** to edit an existing message.
- D** to delete a message.
- S** to select the message to display at user signoff.

## ADDING A MESSAGE

After you enter A to input a new message, the system displays an empty screen using the text editor:

```

      1      2      3      4      5      6      7
12345678901234567890123456789012345678901234567890
01|
02|
03|
04|
05|
06|
07|
08|
09|
10|
11|
12|
13|
14|
15|
16|
17|
F1      F2      F3      F4      F5      F6      F7      F10
Delete Line Insert Line Center Exit Store Line Restore Line Pack Help

```

Enter the new message. For more information about using the text editor, see the Text Editor appendix in this volume.

When you finish entering the message, press F4 to exit the text editor. The system displays the following prompt:

Accept (Y/N) ?--

Enter **Y** to save the new message. The system displays the following message:

*Message Saved!*

Enter **N** to quit without saving the new message.

**NOTE:** You cannot enter a blank bulletin board. If no text is entered the system displays the following message:

*Error: Blank bulletin boards NOT allowed!*

The system then returns to the option prompt.

## EDITING A MESSAGE

After you enter E to edit the existing message, the system displays the existing message using the text editor. Edit the message as necessary.

When you finish editing the message, press F4 to exit the text editor. The system displays the following prompt:

*Accept (Y/N) ?--*

Enter **Y** to save the new message. The system displays the following message:

*Message Saved!*

Enter **N** to quit without saving the new message.

## DELETING A MESSAGE

After you enter D at the option prompt to delete an existing message, the system displays the following prompt:

*Delete Message A (Y/N) [N]--*

In the prompt above, A represents the message code you selected earlier. Press the ENTER key or enter **N** to exit the delete process and retain the message.

Enter **Y** to delete the message. The system displays the following messages:

*Message Deleted  
Press NL to continue*

Press the ENTER key and the system returns to the System Management menu.

## SELECTING A MESSAGE TO DISPLAY

After you enter S to select a message, the system displays the following prompt:

*Select Message A for Sign Off Message (Y/N) [Y]--*

To return to the previous prompt without selecting the message, enter **N**.

To select the message to display when users sign off, press the ENTER key or enter **Y**. The system displays a list of sign-on keys:

General Hospital Bulletin Board Processor		
Wed Aug 21, 2002 03:12 pm		
Page:01	Sign-on Keys	##=Current Choices
( 1) A-Admissions Sign-on	(17) T-TEST SIGN ON	
( 2) B-CREATE PRODUCT TAPE	(18) U-UT MASTER	
( 3) C-Computer Operations	(19) V-Video Test	
( 4) D-DRG Grouper Test	(20) W-Word Processing	
( 5) E-Editors		
( 6) F-FINANCIALS		
( 7) G-GEN ACC SIGN ON		
( 8) H-Hardware - FE Signon		
( 9) I-TEST		
(10) J-HBOFAX		
(11) K-E-mail Test		
(12) L-LAB SIGNON		
(13) M-REPORT WRITER		
(14) Q-UT DOWNLOAD		
(15) R-Rx Sign on		
(16) S-Tracking Processors		
Choose sign-on Key(s) to receive Message		
end selection(NL)		

Signoff bulletin boards are displayed to groups of users based on sign-on key. Select the sign-on keys you want to receive the signoff bulletin board message. You can select multiple sign-on key groups to receive signoff bulletin boards.

For example, to send bulletin board message A to Computer Operations users only, select only the C sign-on key.

After you select all the sign-on key groups you want to receive the signoff bulletin board, press the ENTER key. The system displays the following prompt:

Accept (Y/N) ?--

Enter **Y** to complete selection of the signoff bulletin board for users with the sign-on keys you selected. Enter **N** to return to the beginning of the function without selecting the signoff bulletin board.

## System Block Packer

The Block Packer routine reads the DATABASE.packlist, which is generated by the weekly dbverify, to determine which globals to pack.

To access the System Block Packer, select Special Utilities from the Systems Utilities menu, and then select the Block Packer option. The following screen is displayed:

```

General Hospital System Block Packer Processor
                                Tue Oct 14, 2008 03:59 pm
Block Packer Input Options

Option No.  Option
-----
1          Block Packer Schedule
2          Block Packer Manual List
3          Block Packer Ignore List
4          Block Packer History
5          Block Packer Status

Enter option number--

```

Select the desired option. The functions on this screen are explained in the following sections.

## BLOCK PACKER SCHEDULE

When you select the Block Packer Schedule option, the following screen is displayed:

```

General Hospital System Global Block Packer Test Processor
                                Mon Jun 11, 2007 03:58 pm

1 Status
  Enabled
2 Sun  00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
3 Mon  00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
4 Tue  00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
5 Wed  00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
6 Thu  00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
7 Fri  00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
8 Sat  00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
      . . . . .

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

```

When you select an option for a particular day of the week, the following screen is displayed:



Page:01		Hours to Run		##=Current Choices	
( 1) 00	( 5) 04	( 9) 08	(13) 12	(17) 16	(21) 20
( 2) 01	( 6) 05	(10) 09	(14) 13	(18) 17	(22) 21
( 3) 02	( 7) 06	(11) 10	(15) 14	(19) 18	(23) 22
( 4) 03	( 8) 07	(12) 11	(16) 15	(20) 19	(24) 23
Select hours or `A` for all --					

Enter the option for each time you want to run the block packer routine. For example, enter option 5 to run the routine at 4:00 am.

The block packer routine is automatically started each hour and exits if it is not supposed to run. If it is already running, the new one exits. It also exits If it runs into an hour which it is not supposed to run.

## BLOCK PACKER MANUAL LIST

When you select the Block Packer Manual List option from the System Block Packer screen, the following prompt is displayed:

*Enter ID to maintain Block Packer MANUAL list for --*

Enter the ID for which you want to maintain the Block Packer Manual List.

## BLOCK PACKER IGNORE LIST

When you select the Block Packer Ignore List option from the System Block Packer screen, the following prompt is displayed:

*Enter ID to maintain block packer exclusions for --*

Enter the ID for which you want to maintain the block packer exclusions.

## BLOCK PACKER HISTORY

When you select this option, the system displays dates that have Block Packer history. Select a date to view the detail information about the globals that were packed.

## BLOCK PACKER STATUS

When you select this option, the system displays the current status of the Block Packer.

## Removing Jobs

MultiSTAR enables you to remove problem jobs from the system (for example, jobs running in a loop or submitted in the wrong ID).

**WARNING:** Do not use the UNIX *kill* command to remove user jobs. It is important to use the MSE Remove Jobs function to allow proper job cleanup after termination.

Removing jobs in a production environment can cause significant application errors on the system (such as an application program not properly updating the files it is using). Use this function with *extreme caution* and only at the direction of an McKesson representative.

To remove a job from the system (this is considered an *abnormal abort*), select the Remove Jobs From System option from the Application Manager menu.

```

                                General Hospital System Utilities Processor
                                Mon Jun 30, 2003 01:38 pm
System Management Input Options

Option No.  Option
-----
   1      System Backup
   3      Examine Job Status
   4      Remove Jobs From System
   5      Change Log-on Status
   6      Sign On Message
   7      Send a System Message
   8      Sign Off Bulletin Board
   9      Terminal/Port Setup
  10      Halt System
  11      System Utilization Monitors
  12      Special Utilities
  13      Clear Sentinel Support Call
  14      Build site specific Sentinel criteria
  15      Edit System Parameters
  16      Audit Service Interface

Enter option number--
```

The system displays the JOB prompt:

*JOB>*

**NOTE:** While you are in the JOB processor, a help screen can be displayed at any prompt by entering a question mark (?).

To remove a job, you must enter the job number at this prompt. If you do not know the job number, press ENTER and the system displays a list of jobs currently running in the system:

Tue Jul 16, 1991 01:07 pm										5 Jobs Active, 10 Jobs Free			
JOB	WHO	PROGRAM	STATUS	TIME	ELAPSED	BG	ID	PID	ODV	PDV	CDV	DEVICES	
2		UC	HANG	7	1:55:09	1	0	7605	1				
3		%UOMQ	HANG	1	1:55:08	1	0	7606	1				
5	*JW	%UDE	READ*	3585	0:00:16		0	8019	4	4	4	4	
6		%ATASK	HANG	2	1:55:07	1	0	7609	1				
11	*JW	%MUJPK	EXEC		1:49:53		0	7631	3	3	3	3	
JOB>													

A row of current information for each job running in the system is displayed. The WHO column provides the user ID. The PROGRAM column provides the job name. Use these columns to locate the job you want to remove and refer to the JOB column for the job number.

This display may involve multiple screens depending on how many jobs are currently running. Press ENTER to display the next screen. Once the system displays all current jobs you are returned to the JOB> prompt.

To remove the job, enter the job number at the JOB> prompt.

If you enter an invalid job number, the following message is displayed:

*Invalid input*

The JOB> prompt is redisplayed. Enter a valid job number. For example:

*JOB>5*

In this example, job number 5 (submitted by user \*JW and running program %UDE in ID 0) is being removed. When you enter the job number, the system displays the same job information described above for the job you selected. Following this job information, the system prompts you to confirm you want the job removed:

*ZAP Job# 5 From System? (N):*

Press ENTER or enter **N** to return to the JOB> prompt without removing the job.

Enter **Y** to remove the job from the system. The following message displays:

*Waiting nn seconds for Job #5 to HALT.  
Job #5 is removed From System*

The system returns to the JOB prompt:

*JOB>*

To exit the Job processor enter a period (.) at the JOB prompt and press ENTER. The system then returns you to the System Management menu.

## UNREMOVABLE JOBS

Sometimes jobs are in a state from which they cannot be removed. A job whose port is in a CTRL-S state may not be removable. Example: A print job where the printer is offline.

If the job cannot be removed, the system displays a message like the following:

*JOB #nn can NOT be removed from the system  
Will try to remove in background*

The job may or may not terminate. If the process resumes (for example, the printer is put back online), it halts at that point.

If you have further questions about which jobs can and cannot be removed, contact your McKesson representative.

## Set Hourly Jobs

Use the Set Hourly Jobs option on the Setup Processor to set all predefined hourly jobs for a selected ID on the current CPU. When you select this option, the following prompt is displayed:

*Enter ID to setup jobs for--*

If the ID entered does not exist, the system displays the following message:

*Error: Invalid ID!*

If the ID entered exists, but does not have any defined hourly jobs, the system displays the following message:

*No Entries Defined*

The system then prompts you to add hourly jobs for that ID:

*Add Hourly Jobs for ID [x]? (Y/N) [Y]--*

If the ID entered does exist and has hourly jobs defined, the system displays a table of the hourly jobs as shown in the following screen:

General Hospital Hourly Jobs Processor				
Wed Sep 08, 2010 04:54 pm				
Page:01	Defined Hourly Jobs for ID 1			
Job Description		Hours	Days	Additional C
( 1)	Charges	00	All	None
( 2)	Rad Midnight Processing	00	All	None
( 3)	PROSPECTIVES CLEAN UP	23	All	None
( 4)	CUSTOM SPOOLER REPORT - ID 106		All	None
Enter choice to modify or `A` to add --				
next pg(/ or PG DN) Search(TAB)				

The screen contains the following information:

- Job Description (brief description of the hourly job)
- Hours (the hour the job is executed based on a 24 hour clock)
- Days (the day the job is executed)
- Additional Check (optional check to narrow the running time definition to the day of the month)

Select the hourly job definition that you want to edit, or enter **A** to add a new hourly job definition. The system displays the following screen:

General Hospital Hourly Jobs Processor	
Wed Sep 08, 2010 04:06 pm	
1 Program	2 Description
^XGMID	Radiology Midnight Processing
3 Hours To Run	
@ 0000 Hours	
4 Days To Run	
All days of the week	
5 Additional Check	
None	
6 Start Minute	7 Window Length
0 Minutes after the hour	60 Minutes
8 Repeat Count	9 Repeat Interval
0 Times	0 Minutes
10 Last Checked	11 Last Run
Wed Sep 08, 2010 04:00 pm	Wed Sep 08, 2010 12:00 midnight

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

## Field Explanations

### 1. PROGRAM

This field contains the name of the program.

When you enter this field the first time, the system displays the following prompt:

*Enter program name (include `^`) --*

Enter the name of the program you want to run, including the caret (^).

### 2. DESCRIPTION (30-C-O)

This field contains the description of the job.

When you enter this field the first time, the system displays the following prompt:

*Enter description of the job --*

Enter the description of the job.

### 3. HOURS TO RUN

This field sets the time or times of day the system is to execute the program.

When you enter this field, the system displays the following table:

Page:01		Hours to Run			##=Current Choices
( 1 ) 00	( 5 ) 04	( 9 ) 08	(13) 12	(17) 16	(21) 20
( 2 ) 01	( 6 ) 05	(10) 09	(14) 13	(18) 17	(22) 21
( 3 ) 02	( 7 ) 06	(11) 10	(15) 14	(19) 18	(23) 22
( 4 ) 03	( 8 ) 07	(12) 11	(16) 15	(20) 19	(24) 23
Select hours or `A` for all --					
end select(NL)					

Enter one or more numbers for the time of day, separated by a comma, or enter **A** for all hours.

#### 4. DAYS TO RUN

This field sets the days of the week the program is to be run.

When you enter this field, the system displays the following table:

Page:01		Days to Run	##=Current Choices
( 1 ) Sunday	( 5 ) Thursday		
( 2 ) Monday	( 6 ) Friday		
( 3 ) Tuesday	( 7 ) Saturday		
( 4 ) Wednesday			
Select days or `A` for all --			
end select(NL)			

Enter one or more numbers for the days of the week, separated by a comma, or enter **A** for all days of the week.

#### 5. ADDITIONAL CHECK

This field identifies any other checks the programmer may want to verify prior to the running of the program.

When you enter this field the first time, the system displays the following prompt:

*Enter additional check before executing or `N` for no check [N] --*

Enter an additional check or enter **N** for none.

#### 6. START MINUTE

This field sets the minute after the hour for starting the job.

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

*Enter minute after the hour (0/59) [0] --  
Start the job at this minute after the hour*

Enter a number from 0 to 59 to indicate the minute after the hour that you want to start the job. The default is 0 minutes after the hour.

**7. WINDOW LENGTH**

This field sets the amount of time within which the system runs this program. For example: A program is defined to run at 12 a.m., but the system is down and unavailable until 1 a.m. The window length is equal to 120. The system checks the start time and compares with the window. Since only 60 minutes has passed, the system runs the program.

When you enter this field, the system displays the following information and prompt:

*The job will never be started outside the window.  
Within the window, it will be started as early as possible.*

*Enter window length in minutes (1/120) [59] --  
The time interval within which the job is allowed to start*

Enter a number between 1 and 120 for the window length in minutes.

**8. REPEAT COUNT**

This field determines the number of times the job is repeated.

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

*Enter repeat count (0/60) [0] --  
Repeat starting the job for this count*

Enter the repeat count from 0 to 60. The default is 0 times.

**9. REPEAT INTERVAL**

This field determines the length of time between starts.

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

*Enter repeat interval in minutes (0/60) [0] --  
Repeat interval between starts*

Enter the repeat interval in minutes from 0 to 60. The default is 0 minutes.

**10. LAST CHECKED (DISPLAY ONLY)**

This field displays the last date and time the system checked this hourly job definition for running.

**11. LAST RUN**

This field displays the last date and time the defined program was run.



## NETWORK UTILITIES

The MultiSTAR system network functions to provide communications between McKesson MultiSTAR systems at a system level. The operation of the network is managed by using the network utilities.

To access the network utilities, sign on to the system using the C sign-on key. Select Special Utilities, and then select Network Utilities.

The system displays the following menu:

```
General Hospital System Network Control Processor
                                   Mon Aug 27, 2007 10:37 am
Network Control Input Options

  Option No.  Option
  -----
      1      Enable / Disable Network
      2      Review Application / CPU Statuses

      3      Review / Print Configuration

      4      Review Jobstart Queue

      5      Start/Stop Logging Network Patient Locks to the Console

Enter option number--
```

### Option Explanations

#### Enable/Disable Network

This function is used to enable or disable a CPU on the network. This option is normally used to enable the network if it was disabled at IPL time. See Enable/Disable Network for a detailed description of this function.

#### Review Application/CPU Statuses

This function provides an easy way to determine at a glance the status of the entire network. This function enables you to review the status of each application and the CPU associated with that application. See Review Application/CPU Statuses for a detailed description of this function.

#### Review/Print Configuration

This option is used to display or print information regarding the network configuration. See Review/Print Configuration for a detailed description of this function.

**Start/Stop Logging Network Patient Locks to the Console**

This option is used to log the Network Queue lock alerts to the console and or automatically remove users that are locking up the STAR internal network. If the remove user option is used and e-mailing is set up on the STAR system, this option also e-mails an administrator when a user had to be removed for locking up the STAR internal network for a patient lock. See Start/Stop Logging Network Patient Locks to the Console for a detailed description of this function.

**Enable/Disable Network**

When the network for a CPU is disabled, no network transactions are allowed in or out, although jobstarts and report transfers spool until the network is enabled for this CPU. This option is normally used to enable the network if it was disabled at IPL time.

To enable or disable a CPU in the network, sign on to the CPU using the C sign-on key.

Select Enable / Disable Network from the Network Utilities menu.

If the network is operational, the system displays the following prompt:

*Network is currently enabled Stop Networking? (Y/N)--*

To disable the network, enter **Y** (for Yes). To return to the Network Utilities menu, enter **N** (for No).

If the network is disabled, the following prompt is displayed:

*Network is currently disabled. Start Networking? (Y/N)--*

To enable the network, enter **Y** (for Yes). To return to the Network Utilities menu, enter **N** (for No).

**Review Application/CPU Statuses**

The Review Application/CPU Statuses function provides the easiest way to determine at a glance the status of the entire network. This function enables you to review of the status of each application and the CPU associated with that application. After you

select the Review Application/CPU Statuses function, the system displays the following screen:

SYSTEMS Review Application / CPU Statuses Processor					
Tue, Oct 21, 1986 5:35 pm					
Page:01		Applications Defined			
	Name	ID	CPU	Description (*=Disabled)	Network CPU Status
( 1 )	MED	10	2	Patient Care Applications	NETWORKING ENABLED
( 2 )	LAB	10	0	Laboratory Test System	INITIALIZING
( 3 )	*RX	13	2	Pharmacy Applications	NETWORKING ENABLED

## Field Explanations

### NAME (DISPLAY ONLY)

This field displays the abbreviated application name. If the application definition is disabled, an asterisk (\*) displays before the abbreviated name. If an application definition is disabled, networking is disabled for that application. When networking is disabled for a particular application, network transactions are sent to or received by the destination CPU; they are queued until the application is enabled. McKesson is responsible for disabling application definitions.

### ID (DISPLAY ONLY)

This field displays the ID number in which the application is running.

### CPU (DISPLAY ONLY)

This field displays the CPU identification number where the application is running.

### DESCRIPTION (DISPLAY ONLY)

This field displays the application description.

### NETWORK CPU STATUS (DISPLAY ONLY)

This field displays the current network CPU status. Statuses are:

NETWORKING ENABLED The network is enabled for this CPU

INITIALIZING The CPU has not responded to the initialization message

## Review/Print Configuration

This option is used to display or print information regarding the network configuration. To view or print the network configuration, select Review/Print Configuration from the Network Utilities menu.

The system verifies you want to print the configuration by prompting as follows:

*Print the Network Configuration? [Y]--*

Enter **Y** (for Yes) to print or display the network configuration. The system prompts you for the port to route the output to:

*Enter printer number [HOME]--*

Press ENTER to display output on your CRT. To print the output in background on another device, specify the port number of the device.

A sample configuration display follows:

Review/Print Network Configuration Processor				
Local CPU Name :		Main	Tue Sep 7, 1987 03:47 pm	
Local CPU Number:		1		
Applications Defined				
ID	Name	Description	CPU	Remote ID
1	MED	MedStar	1	1
1	RX1	Pharmacy	2	1
1	RAD	Radiology	3	2

## Field Explanations

The *local* CPU is the CPU sending a transaction. The *target* CPU is the CPU receiving a transaction.

### ID (DISPLAY ONLY)

This field displays the ID number on the local CPU.

### NAME (DISPLAY ONLY)

This field displays the abbreviated target application name.

**DESCRIPTION (DISPLAY ONLY)**

This field displays the target application description.

**CPU (DISPLAY ONLY)**

This field displays the target CPU identification number where the application is running.

**REMOTE ID (DISPLAY ONLY)**

This field displays the target ID number where the application is running.

## Start/Stop Logging Network Patient Locks to the Console

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

*PASSWORD --*

At the prompt, enter **STARTLOCK**. If you enter an incorrect password, the system displays the following message:

*Network LOCK status Log invalid password*

The console log displays the following message:

*15:13:49 Network LOCK status Log invalid password (ID0)  
(USER rtruman) (Allstar #30520) (10.71.160.100) (Port 8090)*

If you enter the correct password, the following prompt is displayed:

*What ID to Start/Stop Network LOCK status Log -- ([1],2)*

If Patient Processing and Patient Accounting are within the same database and ID, the following error occurs:

*Error: STAR Patient Processing and Accounting in same database - ABORT!*

If Patient Accounting is not present within the database or ID, the following error occurs:

*Error: STAR Patient Accounting is NOT present - ABORT!*

After you enter an ID, the *Network LOCK status Log is STARTING* message appears and the console log displays the following message:

*Remove user that locks up the network (N,Y) [N]—*

If Yes is entered, the following prompt is displayed:

*Threshold to remove user in seconds (30-1200) [600]—*

If e-mailing is active within the database and the remove user prompt was answered with Yes, the following prompt is displayed:

*Send user removal messages to what email address [None]--*

*15:26:44 Network LOCK status Log is STARTING (ID1)  
(USER rtruman) (Allstar #30520) (10.71.160.100) (Port 8090)*

or

*13:49:49 IM Network lock status log is STARTING (remove user enabled) (ID1)  
(USER rtruman) (Allstar #30520) (10.71.160.231) (Port 8090)*

With the following e-mail:

*IM Network lock status log is STARTING (remove user enabled) (ID1) (USER rtruman)  
(Allstar #30520) (10.71.160.231) (Port 8090)*

The same process is used to stop the status log. After you enter the password and ID, the *Network LOCK status Log is STOPPING* message appears. The console log displays the following message:

*15:27:53 Network LOCK status Log is STOPPING (ID1)  
(USER rtruman) (Allstar #30520) (10.71.160.100) (Port 8090)*

## MULTISTAR SYSTEM BACKUP

The term backup refers to the process of making a copy of the information stored by the system. Backup copies data from the fixed disk(s) to tape. The backup process does not alter information in the system in any way.

### Purpose of Backup

The purpose of the backup process is to make a copy of the information in the system in case the storage media is damaged or destroyed. Since the information is continuously being modified, a backup represents a frozen image taken at a particular point in time.

If the storage media is damaged, the information on the backup can be used to restore the data on the system to normal operating condition.

### Backup Materials

Backup is done from disk to tape. Tapes may be reel or cartridge. They need to be of high quality with few errors, if any. Acclimate tapes to the computer room environment for at least two hours before use.

### Scheduling Guidelines

Run the backup process at the same time every day and at a time that impacts system users the least. The backup time varies depending on the amount of system data.

Run the full concurrent, incremental and journal backup daily. It must be started so that it finishes by approximately 23:30.

Another incremental and journal can be run after midnight processing completes to have another Point In Time to restore to.

### Tape Labeling

Incremental and journaling backup tapes contain a label that indicates the following:

1. It is a database backup tape
2. Database name
3. Tape drive number created on
4. Reel # of backup
5. Creation date

6. Purge date
7. Full backup date
8. MultiSTAR release number

Full backup tape labels contain the volume number in addition to the above information.

The full concurrent backup posts a date/time stamp into the database. The incremental tape label contains this time stamp. In a restore operation, the incremental backup is only restored if the incremental tape label contains a date/time stamp matching the database. This insures incremental backups are only reapplied against their matching full concurrent backups. Include beginning and ending quiesce numbers of that journal file on journal tape handwritten labels.

## Full Concurrent Backup

The full concurrent backup contains all database volumes. The backup is performed while the system is in full operation, which enables users full access to the system.

**NOTE:** The MultiSTAR full concurrent backup procedure does *not* back up MultiSTAR system program files or software not provided by McKesson.

Since database updates occur while the database is being backed up, some information is not included on these tapes. A complete backup requires a full concurrent backup, an incremental backup, and a journal file. The full concurrent backup by itself is not sufficient to recover the system data if a recovery is necessary.

To perform a full concurrent tape backup:

1. Sign on the system through the Master CRT using the **C** sign on key.
2. Select the System Utilities menu option and enter your system code and password when prompted.
3. Select the System Backup option. The system displays the following menu:



System Backup Processor	
System Backup Input Options	
Option No.	Option
1	Full Concurrent Backup
2	Incremental Backup
3	Journal File Backup To Tape
4	Display Tape Backup Labels...

Enter option number--

Select the Full Concurrent Backup function. The system displays the following information about each of the database volumes:

*hh:mm:ss dbbkrs: IM MSE ER NN.N.N.N (MM-DD-CCYY), Version N.N Ready*

Next, if a magnetic tape device (4mm, 8mm, 9-track, or DLT) is being used for backup, the system displays the following prompt:

*Mount Tape (1) On Drive (1) For Volume (0)  
And Type ok When Ready:*

**NOTE:** When using a storage device for backup, this prompt does not display.

In this example, the first line indicates the backup is written to the tape on tape drive 1.

Mount a tape on the appropriate drive.

After you mount the tape, enter **OK**.

If the tape is not a backup tape the following prompt is displayed:

*NG Not a BACKUP tape on drive (1)  
Override Tape (1) Label On Drive (1) For Volume (0) (y/n):*

If you are sure that it is okay to use this tape, enter **Y**.

To terminate the process enter **N**.

While the backup is in progress a status line is displayed at the bottom of the screen:

*D1 V00 RF: CDB: 000001 CTB: 000000 TDB: 000001 TTB: 000000*

**L1:** Indicates link one for output to the storage device.

**D1:** Indicates the backup is occurring on tape drive number one (1).

V00: Indicates that volume 0 of the database is being processed. The next two characters, shown in the table below, denote the type of operation in progress:

--	No status	RF	Read file
AB	Aborting	RL	Read label
AF	Asking for alternate file	RO	Read object
CO	Create object	RQ	Requesting quiesce
CT	Close tape	RT	Read tape
CV	Create volume	RW	Rewind tape
ER	Error	SI	Suspended I/O
FN	Prompting for file name	TD	Prompting for tape drive
FS	File synch	UL	Unloading tape drive
MR	Mount tape request	WF	Write file
OO	Open object	WL	Write label
OR	Override request	WM	Write tape mark
OT	Open tape	WO	Write object
OV	Open volume	WT	Write tape
OW	Prompting to overwrite	??	Unknown status
PT	Position tape		

- CDB: Current number of disk blocks that have been read from the database.
- CTB: Current number of tape blocks that have been written to this tape.
- CSB: Current number of storage blocks that have been written to this storage device.
- TDB: Total number of data blocks that have been read from the database.
- TTB: Total number of tape blocks written to all tapes for this volume.
- TSB: Total number of storage blocks written to all storage devices for this volume.

Once the backup is complete, the system displays a message similar to the following:

*OK Backup completed 12m 17s*  
*Press NL*

The completion message indicates the time, in hours, minutes, and seconds, required to run the backup. In this example, the backup required 12 minutes and 17 seconds.

Press ENTER to return to the backup utilities menu.

The full concurrent tape backup does not freeze the system. Users can work during this process. At its conclusion, there may be some system hesitation while a quiesce is occurring.

## Incremental Backup

Since the database is possibly being modified and updated while the full concurrent backup is running, this backup is not sufficient by itself to recover the database in the event of media failure. The incremental backup backs up all database blocks modified since the full concurrent backup began. While an incremental backup can be run at any time, it is recommended that it be performed just before the start of midnight processing.

To perform an incremental tape backup:

1. Sign on the system through the Master CRT using the **C** sign on key.
2. Select the System Utilities menu option and enter your system code and password when prompted.
3. Select the Backup Utilities option.

The system displays the following menu:

System Backup Processor	
System Backup Input Options	
Option No.	Option
1	Full Concurrent Backup
2	Incremental Backup
3	Journal File Backup To Tape
4	Backup Audit
5	Display Tape Backup Labels...

Enter option number--

Select the Incremental Backup function. The system verifies the full concurrent backup process completed. If it did not, an error message displays and the incremental backup process is terminated.

After passing this check, the system displays the following information about each of the database volumes:

*FULL BACKUP: 0 WED 01-20-94 09:39*

Next, if a magnetic tape device (4mm, 8mm, 9-track, or DLT) is being used for backup, the system displays the following prompt:

*hh:mm:ss dbbkrs: IM MSE ER NN.N.N.N (MM-DD-CCYY), Version N.N Ready*

*Mount Tape (1) On Drive (3) For INCREMENTAL  
And Type ok When Ready:*

**NOTE:** When using a storage device for backup, this prompt does not display.

In this example, the status line indicates the backup is written to the tape on tape drive 3.

Mount a tape on the appropriate drive. The drive used is determined by the IBACKUP database configuration parameter.

After you mount the tape, enter **OK**.

If the tape is not a backup tape, that is, not incremental or journal, the following prompt is displayed:

*NG Not a BACKUP tape  
OVERRIDE TAPE (1) LABEL ON DRIVE (3) FOR INCREMENTAL?:*

If the tape is a journal backup tape, the system displays the following prompt:

*NG Wanted label type (INCREMENTAL) FOUND (JOURNAL)  
OVERRIDE TAPE (1) LABEL ON DRIVE (3) FOR INCREMENTAL?:*

If you are sure that it is okay to use this tape, enter **Y**.

To terminate the process enter **N**.

While the backup is in progress, MSE displays information about the files being backed up to the tape. The system also displays a status line at the bottom of the screen:

*D3 V00 --: CDB: \_\_\_1251 CTB: \_\_\_252 \_58.7 % TDB: \_\_\_1251 TTB: \_\_\_252*

L1: Indicates link one for output to the storage device.

D3: Indicates the backup is occurring on tape drive number one (3).

V00 Indicates that volume 0 of the database is being processed. The next two characters denote the type of operation in progress:

--	No status	RF	Read file
AB	Aborting	RL	Read label
AF	Asking for alternate file	RO	Read object
CT	Close tape	RQ	Requesting quiesce
CV	Create volume	RT	Read tape
ER	Error	RW	Rewind tape

FS	File synch	WF	Write file
MR	Mount tape request	WL	Write label
OR	Override request	WM	Write tape mark
OT	Open tape	WO	Write object
OV	Open volume	WT	Write tape
PT	Position tape	??	Unknown status

CDB: Current number of disk blocks that have been read from the database.

CTB: Current number of tape blocks that have been written to this tape.

CSB: Current number of storage blocks that have been written to this storage device.

TDB: Total number of data blocks that have been read from the database.

TTB: Total number of tape blocks written to all tapes for this volume.

TSB: Total number of storage blocks written to all storage devices for this volume.

Once the backup is complete, the system displays the ending quiesce number, followed by the time the system took to perform the backup, as in the following example:

```
Ending quiesce number: 10459
OK Incremental backup 0 completed 00h 01m 55s
Press NL
```

Press ENTER to return to the backup utilities menu.

**NOTE:** You need to copy the ending quiesce number to the paper labels pasted on the tape reel. If you do not copy this information to the label, you can display the beginning and ending quiesce numbers for a journal backup tape using Display Tape Backup Labels utility.

The incremental backup does not freeze the system. Users may be working during this process. At its conclusion, there may be some system hesitation while an extended quiesce occurs.

## Journal Backup

If you only perform full and incremental backups, there could be a loss of up to one day's transactions in the event of media failure. The journaling facility erases this window of exposure by logging all database updates in such a form that they can be replayed for a full recovery in the event of media failure.

Each day, journal data must be backed up to tape. It is recommended that the journal backup be done just before the incremental backup.

**NOTE:** McKesson recommends you perform at least one journal backup per day during the work week, and at least one journal backup per weekend day.

To perform a journal backup:

1. Select the System Utilities option.
2. Enter your system code and password when prompted.
3. Select the Backup Utilities option.

The system displays the following menu:

System Backup Processor	
System Backup Input Options	
Option No.	Option
1	Full Concurrent Backup
2	Incremental Backup
3	Journal File Backup To Tape
4	Backup Audit
5	Display Tape Backup Labels...

Enter option number--

Select Journal File Backup to Tape.

The system displays the following information about each of the database volumes and both of the journal disk files.

*hh:mm:ss dbbkrs: IM MSE ER NN.N.N.N (MM-DD-CCYY), Version N.N Ready*

*Mount Tape (1) On Drive (3) For JOURNAL*

*And Type ok When Ready:*

The status line in this example indicates that the backup is written to the tape mounted on tape drive 3.

Mount a tape on the appropriate drive. The drive that is used on your system is determined by the JBACKUP database configuration parameter.

After you mount a tape on the appropriate drive, enter **OK** to continue.

If the tape is not a backup tape the system displays the following message:

*NG Not a BACKUP tape*

*OVERRIDE TAPE (1) LABEL ON DRIVE (3) FOR JOURNAL?:*

If the tape is not properly labelled for this type of backup, that is, the tape is not a journal backup tape, the system displays the following message:

*NG Invalid label type*

*OVERRIDE TAPE (1) LABEL ON DRIVE (3) FOR JOURNAL?:*

If you are sure it is okay to use this tape, enter **Y**.

To terminate the process enter **N**.

While the backup is in progress a status line displays at the bottom of the screen:

*D3 V00 --: CDB: \_\_\_113 CTB: \_\_\_113 110.9 % TDB: \_\_\_113 TTB: \_\_\_113  
OK --- Journal backup completed 00h 00m 24s*

**D3:** Indicates the backup is occurring on tape drive number one (3).

**V00:** Indicates that volume 0 of the database is being processed. The next two characters denote the type of operation in progress:

--	No status	PT	Position tape
AB	Aborting	RF	Read file
AF	Asking for alternate file	RL	Read label
CT	Close tape	RQ	Requesting quiesce
CV	Create volume	RT	Read tape
ER	Error	RW	Rewind tape
FS	File synch	WF	Write file
MR	Mount tape request	WL	Write label
OR	Override request	WM	Write tape mark
OT	Open tape	WT	Write tape
OV	Open volume	??	Unknown status

**CDB:** Current number of disk blocks that have been read from the database.

**CTB:** Current number of tape blocks that have been written to this tape.

**TDB:** Total number of data blocks that have been read from the database.

**TTB:** Total number of tape blocks written to all tapes for this volume.

Once the backup is complete, the system displays the following:

OK Backup completed 05m 55s  
Press NL

Press ENTER to return to the backup utilities menu.

## Backup Audit

The Backup Audit utility is a diagnostic tool that checks the MSE log files to ensure that adequate database backups have been performed on your system. McKesson recommends you periodically run this utility to monitor database maintenance and prevent loss of data.

To perform a journal audit:

1. Select the System Utilities option.
2. Enter your system code and password when prompted.
3. Select the Backup Audit option.

The system displays the following menu:

System Backup Processor	
System Backup Input Options	
Option No.	Option
1	Full Concurrent Backup
2	Incremental Backup
3	Journal File Backup To Tape
4	Backup Audit
5	Display Tape Backup Labels...

Enter option number--

Select Backup Audit. The system begins examining each MSE log file in the order in which it was created. The system displays the name of each log file as it examines the file, as in the following example:

```
Checking /hbo/db00/dev.102  MON  Full: 1  Incr: 1  Jrnl: 1  Filled: 0
Checking /hbo/db00/dev.103  TUE  Full: 1  Incr: 1  Jrnl: 1  Filled: 0
Checking /hbo/db00/dev.104  WED  Full: 1  Incr: 1  Jrnl: 3  Filled: 0
Checking /hbo/db00/dev.105  THU  Full: 1  Incr: 1  Jrnl: 2  Filled: 0
Checking /hbo/db00/dev.106  FRI  Full: 1  Incr: 1  Jrnl: 2  Filled: 0
Checking /hbo/db00/dev.107  SAT  Full: 0  Incr: 1  Jrnl: 1  Filled: 0
Checking /hbo/db00/dev.108  SUN  Full: 0  Incr: 1  Jrnl: 1  Filled: 0
Checking /hbo/db00/dev.109  MON  Full: 1  Incr: 1  Jrnl: 1  Filled: 0
Checking /hbo/db00/dev.110  TUE  Full: 1  Incr: 1  Jrnl: 1  Filled: 0
```



---

Checking	/hbo/db00/dev.111	WED	Full: 1	Incr: 1	Jrnl: 1	Filled: 0
Checking	/hbo/db00/dev.112	THU	Full: 1	Incr: 1	Jrnl: 1	Filled: 0
Checking	/hbo/db00/dev.113	FRI	Full: 1	Incr: 1	Jrnl: 1	Filled: 0
Checking	/hbo/db00/dev.114	SAT	Full: 0	Incr: 1	Jrnl: 1	Filled: 0
Checking	/hbo/db00/dev.115	SUN	Full: 0	Incr: 1	Jrnl: 1	Filled: 0
Checking	/hbo/db00/dev.116	MON	Full: 1	Incr: 1	Jrnl: 1	Filled: 0
Checking	/hbo/db00/dev.117	TUE	Full: 1	Incr: 1	Jrnl: 1	Filled: 0
Checking	/hbo/db00/dev.118	WED	Full: 1	Incr: 1	Jrnl: 1	Filled: 0
Checking	/hbo/db00/dev.119	THU	Full: 1	Incr: 1	Jrnl: 1	Filled: 0
Checking	/hbo/db00/dev.120	FRI	Full: 1	Incr: 1	Jrnl: 1	Filled: 0
Checking	/hbo/db00/dev.121	SAT	Full: 0	Incr: 1	Jrnl: 1	Filled: 0
Checking	/hbo/db00/dev.122	SUN	Full: 0	Incr: 1	Jrnl: 1	Filled: 0
Checking	/hbo/db00/dev.123	MON	Full: 1	Incr: 1	Jrnl: 1	Filled: 0
Checking	/hbo/db00/dev.124	TUE	Full: 1	Incr: 1	Jrnl: 3	Filled: 0
Checking	/hbo/db00/dev.126	THU	Full: 1	Incr: 1	Jrnl: 1	Filled: 0
Checking	/hbo/db00/dev.127	FRI	Full: 1	Incr: 1	Jrnl: 1	Filled: 0
Checking	/hbo/db00/dev.128	SAT	Full: 0	Incr: 1	Jrnl: 1	Filled: 0
Checking	/hbo/db00/dev.129	SUN	Full: 0	Incr: 1	Jrnl: 1	Filled: 0
Checking	/hbo/db00/dev.130	MON	Full: 1	Incr: 1	Jrnl: 1	Filled: 0
Checking	/hbo/db00/dev.131	TUE	Full: 1	Incr: 1	Jrnl: 1	Filled: 0
Checking	/hbo/db00/dev.101	WED	Full: 0	Incr: 0	Jrnl: 1	Filled: 0

When the utility finishes checking the backups, the system displays the results of the audit, as in the following example:

*After analyzing the MSE logs from 08-02-2010 to 09-01-2010,  
the following observations were made:*

*22 FULL backups were done in 23 work day(s)  
0 FULL backups were done in 8 weekend day(s)*

*22 INCREMENTAL backups were done in 23 work day(s)  
8 INCREMENTAL backups were done in 8 weekend day(s)*

*30 JOURNAL backups were done in 23 work day(s)  
8 JOURNAL backups were done in 8 weekend day(s)*

*In case all data (including the journal files on disk) has to be restored  
from backup, a full and incremental are required. The recovery can only  
restore data up to the time of the last journal backup. Therefore, it is  
best to perform JOURNAL backups AS FREQUENTLY AS is practical.*

*The number of FULL backups performed meets  
or exceeds the minimum requirements.*

*The number of INCREMENTAL backups performed meets  
or exceeds the minimum requirements.*

*The number of JOURNAL backups performed meets  
or exceeds the minimum requirements.*

The system also produces a report containing this data. The report is saved to the `jnlaudit.report` file in the `/hbo/adbin` directory.

**NOTE:** If you must restore the database and the journal files on disk have been lost, restoration of the journal information must be from tape. If there is not a journal backup to tape, the system is only able to be restored up to the time of the last incremental backup. This could mean hours of rekeying data into the system. Therefore, perform journal backups as frequently as is practical to ensure against loss of data. McKesson recommends you perform at least one journal backup per day during the work week, and at least one journal backup per weekend day.

# Chapter 4 - DISPLAYING SYSTEM INFORMATION

SYSTEM ERROR LOGS .....	4-3
Introduction.....	4-3
Hardware Errors .....	4-3
System Error Summary .....	4-3
Console Log Listing.....	4-4
Searching Log for Error Type .....	4-5
SYSTEM UTILIZATION MONITOR .....	4-7
Disk Space Utilization.....	4-7
Disk Space Projections .....	4-7
CPU Utilization Graph .....	4-9
SYSTEM ACTIVITY .....	4-11
Examining MultiSTAR Job Status .....	4-11
Displaying Information From UNIX .....	4-16
PORT INFORMATION .....	4-17
Displaying Port Information .....	4-17
Printing Port Information.....	4-19
MISCELLANEOUS.....	4-22
Displaying System Availability Statistics .....	4-22
Downtime Information .....	4-22
Displaying Downtime Information .....	4-22
Revising Downtime Information.....	4-23
Print Downtime Reports - Summary .....	4-25
Print Downtime Reports - Detail .....	4-26
Displaying Tildes .....	4-27

## Illustrations

Figure 4.1 Disk Space Utilization .....	4-7
Figure 4.2 CPU Utilization Graph.....	4-10
Figure 4.3 Port Specifications - Detailed Listing .....	4-20
Figure 4.4 Port Specifications - Concise Location Listing .....	4-21
Figure 4.5 Port Specifications - Concise Device/Address Listing .....	4-21
Figure 4.6 System Downtime Detail Report .....	4-27



# SYSTEM ERROR LOGS

## Introduction

One of the most effective methods of tracking system problems is to regularly scan the UNIX master console. Evidence of hardware problems (such as mirrored disk failure or hard tape errors) are almost always reported there. In addition to the master console listing, there are several utilities supplied by your UNIX vendor that can be used to monitor system integrity. Some examples follow.

## Hardware Errors

To confirm the continued proper operation of hardware, monitor `/usr/adm/messages` or `/usr/adm/syslog` (depending on vendor). Review this file online. To send this file to your system printer enter `lp /usr/adm/messages` or `lp /usr/adm/syslog`, depending on your operating system.

**NOTE:** This file can be huge. McKesson recommends you review this file online before printing.

The **dmesg** utility generates the report found in `/usr/adm/messages` and `/usr/adm/syslog`. For more information on the report, read about the **dmesg** utility in the UNIX documentation provided by your hardware vendor.

## System Error Summary

The Error Listers display the errors generated in the MultiSTAR Environment. To display a summary of the system errors, select Special Utilities from the System Utilities menu and then select System Error Summary. The following screen is displayed:

```

                                General Hospital Error Summary
                                Tue May 20, 1991 04:45 pm

System `SYS` Errors
-----
38 on Tue May 13, 1986 (T-7)
17 on Wed May 14, 1986 (T-6)
35 on Thu May 15, 1986 (T-5)
61 on Fri May 16, 1986 (T-4)
 6 on Sat May 17, 1986 (T-3)
12 on Sun May 18, 1986 (T-2)
15 on Mon May 19, 1986 (T-1)
 5 on Tue May 20, 1986 (T-0)

Date--

```

Enter the date to review. The system displays the following screen:

#	Error	Description
-----		
2	5	INVALID COMMAND
1	1287	STRING VALUE REQUIRED
1	1026	UNDEFINED ROUTINE LABEL
2	1029	NON-EXISTENT DEVICE
Press NL--		

## Console Log Listing

To display messages written to the MultiSTAR Console Printer, select Special Utilities from the System Utilities menu and then select Console Log Listing. The following screen is displayed:

General Hospital Console Log Listing	
Tue May 20, 1991 04:45 pm	
SYSTEM `CON` Output	
-----	
238	on Tue May 13, 1986 (T-7)
117	on Wed May 14, 1986 (T-6)
235	on Thu May 15, 1986 (T-5)
261	on Fri May 16, 1986 (T-4)
366	on Sat May 17, 1986 (T-3)
312	on Sun May 18, 1986 (T-2)
315	on Mon May 19, 1986 (T-1)
295	on Tue May 20, 1986 (T-0)
Date--	

Enter the date to review as listed above (using the above example, you could enter T-7 to review messages from Tuesday, May 13th). A table displays all the available message categories and the number of messages for each category.

Select the date for which to view messages or press ENTER for a complete console listing.

The records written to the console printer for the categories selected display for review.

At the end of every page of display, the following screen is displayed:

```

CONSOLE LOG FOR 03/28/91

Midnight processor started for 03/27/91 in ID 135 03/28/91 12:00
Midnight processor started for 03/27/91 in ID 139 03/28/91 12:00
Main processor Bed File Copy started ID 139 Wed Mar 27, 1991 11:59 pm
Midnight processor started for 03/27/91 in ID 141 03/28/91 12:00
Main processor Bed File Copy started ID 135 Wed Mar 27, 1991 11:59 pm
ID 115 00:00:12 End of Day received for Admissions ~FEOD=1
ID 115 00:00:12 End of Day received for Ancillary Charges ~FEOD=1::1
ID 135 00:00:12 End of Day received for Ancillary Charges ~FEOD=:1
Midnight processor started for 03/27/91 in ID 147 03/28/91 12:00
ID 9 00:00:12 End of Day received for Admissions ~FEOD=1
Main processor Set ~%L=1 started ID 141 Wed Mar 27, 1991 11:59 pm
System status changed from 1 to 1
ID 176 00:00:12 End of Day received for Admissions ~FEOD=1
ID 176 00:00:12 End of Day received for Ancillary Charges ~FEOD=1::1
Midnight processor started for 03/27/91 in ID 176 03/28/91 12:00
Main processor Set ~%L=1 completed ID 141 Wed Mar 27, 1991 11:59 pm
Main processor PA Wait for R&B started ID 141 Wed Mar 27, 1991 11:59 pm

Enter number to start - current max is 17343 [17]--

```

Enter the next line number to be displayed. To continue the display in order, press ENTER.

To skip or reposition within the date being displayed, enter the number of the line to display. After the entire console log listing displays, press ENTER to return to the date screen.

If you enter Y, the system finds the number of the next error to print and clears the flag that tells the caretaker there is an error to print. The system then returns to ask for a date. If the caretaker writer is currently printing, it zaps the writer.

To exit the display process, enter a period (.).

## Searching Log for Error Type

To search the system console log for a particular error, select Special Utilities from the System Utilities Menu, and then select Search Log for Error Type. The system prompts you to identify the error number or string to search for, as follows:

*Enter Error Number or String to search for --*

Multiple entries can be made within a single search. Error numbers are checked for validity.

**NOTE:** Enter a question mark (?) to display all defined errors. Enter a period (.) to stop the error number display.

The system displays the following prompt:

*Enter Starting Date --*

Enter the starting date to begin searching the system console log. The system displays the following message:

*Working*

As each occurrence is found, the system displays an screen like the following example:

Console Error List			
-	Line # 150 on 05/04/88 0830		
(ID 0)	ILLEGAL COMMAND NAME	PGM: %UDM	JOB: 12 PP:11
-	Line # 200 on 05/04/88 1000		
(ID 0)	ILLEGAL COMMAND NAME	PGM: %UTD	JOB: 2 PP: 4
-	Line # 500 on 05/04/88 1600		
(ID 0)	ILLEGAL COMMAND NAME	PGM: %UTD	JOB: 6 PP:10
Press NL --			

Press the ENTER key to view the next screen. When the system completes the search, *END LIST* displays.



## SYSTEM UTILIZATION MONITOR

The System Utilization Monitors enable you to view the current and project status of a disk and a graphic display of CPU utilization. To access these functions, select System Utilization Monitors from the System Utilities Processor. The system displays the following screen:

```

General Hospital System Utilization Monitor Processor
                                     Thu Jun 09, 1994 02:50 pm
System Utilization Monitor Input Options

Option No.  Option
-----
      1      Disk space utilization
      2      Disk space projections
      3      CPU Utilization Graph

Enter option number--

```

### Disk Space Utilization

Disk space utilization reports enable you to review the current status of a disk. When you access this function, the system displays a list of database volumes and usage.

Figure 4.1 Disk Space Utilization

MSE - Disk Space/Free Space Utility (4K Blocks)					
Vol	Maps	Tot Blks	Free Spc	%-Free	Host File Name
0	50	25600	20975	81.93	/sdisk3/hbo/db00/QA11.1.v00
1	250	128000	50870	39.74	/sdisk3/hbo/db01/QA11.1.v01
		=====	=====	=====	
		153600	71845	46.77	

Volume 0 normally consists only of ID 0 system programs and globals and spooled reports. For each volume, the number of maps is given. The number of maps times 512 gives the total number of blocks. In the above example, for volume 0, the number of maps is 50. 50 x 512 is 25,600. This is the total number of blocks for this volume. Blocks are usually 8K. The free space for that volume is given in blocks. Percent free space is derived by dividing free space blocks by the total blocks and multiplying by 100. Lastly, the function displays the host file name, giving the full path.

### Disk Space Projections

This option enables you to display a report projecting disk usage based on recent growth patterns.

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

*Enter Volume 0 or all(A) Volumes except 0? [A]--*

To estimate when disk volume 0 is full, enter **0**. To estimate when all disk volumes are filled, press ENTER or enter **A**.

The system then displays the following prompt:

*Enter Start date T- [91]--*

*0 - 179*

Enter the date to be used as a starting point for projections. This date can be up to 179 days prior to today's date. The default is 91 days.

The system then displays the following prompt:

*Enter Increment [7]--*

*1 - 91*

Enter the number of days by which the system increments the graph, enabling you to display patterns of growth in a graphic format. Press ENTER to accept the default of 7.

The system then displays the following prompt:

*Print to Device [HOME]--*

Enter the device on which you want the report to display. You can enter the name of a defined system printer, or press ENTER to display the report on your CRT.

The system displays the report, as in the following example:

```

General Hospital Disk Space Utilization
...10...20...30...40...50...60...70...80...90...100%
04/18/91 *****|*****|*****|*****|*****
04/25/91 *Not Available*
05/02/91 *****|*****|*****|*****|*****
05/09/91 *****|*****|*****|*****|*****
05/16/91 *****|*****|*****|*****|*****
05/23/91 *****|*****|*****|*****|*****
05/30/91 *****|*****|*****|*****|*****
06/06/91 *****|*****|*****|*****|*****
06/13/91 *****|*****|*****|*****|*****
06/20/91 *****|*****|*****|*****|*****
06/27/91 *****|*****|*****|*****|*****
07/04/91 *Not Available*
07/11/91 *Not Available*

Summary
Total blocks = 3,190,908      Blocks remaining = 52,827      % Full= 98%
Growth rate = 376 Blks per day (11,280 Blks/month)
Estimated time until full = 140 days      December 3, 1991
%Confidence in estimate= 22%

Press NL--

```

## CPU Utilization Graph

The CPU Utilization Graph function enables you to view, in a graphic format, information concerning CPU utilization.

This option is only available if you are using the system on an IBM-compatible PC using McKesson's PC Director product and have the graphics option enabled. If you are not using PC Director with the graphics option enabled, the following error message displays:

*Graphics Not Available!*

For more information on PC Director and the graphics option, see your *PC Director Administrator's Guide*.

If you access this function from an IBM-compatible PC using McKesson's PC Director product and have the graphics option enabled, the system displays a table of System Activity Reporter (SAR) files available, as in the following example:

```

                                General Hospital System Utilization Monitor Processor
                                Fri May 13, 1994 10:13 am
Page:01                                UNIX System Activity Reporter Files
( 1) Thu May  5 (sa05)
( 2) Fri May  6 (sa06)
( 3) Sat May  7 (sa07)
( 4) Sun May  8 (sa08)
( 5) Mon May  9 (sa09)
( 6) Tue May 10 (sa10)
( 7) Wed May 11 (sa11)
( 8) Thu May 12 (sa12)
( 9) Fri May 13 (sa13)

Enter choice--

```

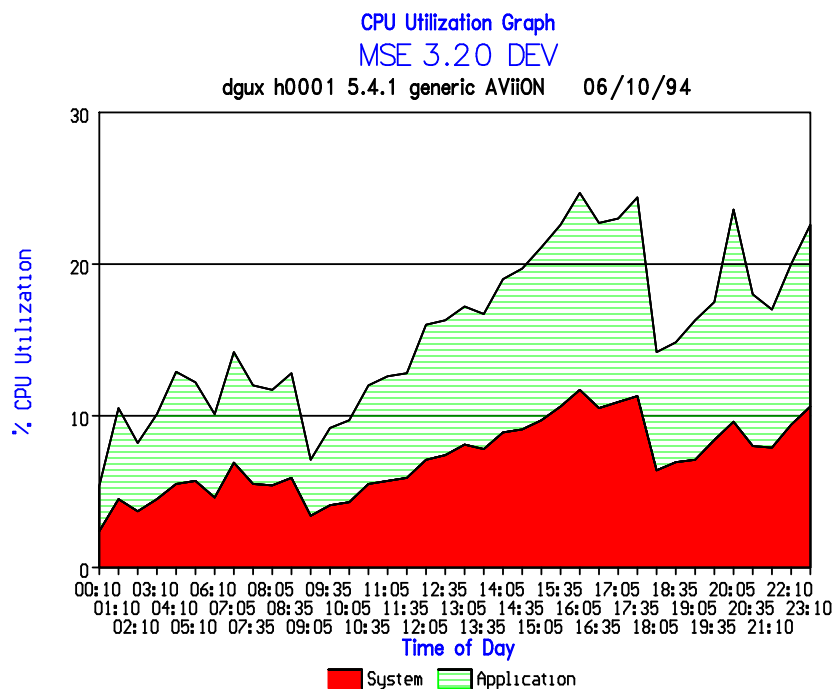
Select the SAR file you want to view. The system displays the following prompt:

*Enter time range in hours [0-23]--*

Enter the first and last hours, in military time separated by a hyphen(-), to display CPU utilization information for the selected SAR. Press ENTER to display the graph for the entire 24-hour day (hours 0-23). For example, to display CPU utilization from 8 a.m. (0800 hours) through 4 p.m. (1600 hours), enter **8-16**. Note that the starting hour (8) includes 8 a.m. and the ending hour (16) includes time up to but not including 5 p.m. (1700 hours).

When the user enters the time range the system displays the CPU utilization graph, as in the following example:

Figure 4.2 CPU Utilization Graph



The system displays the percentage of utilization on the y-axis and the time of day on the x-axis. Note that McKesson's PC Director graphing product graphs only up to 40 points; as such, some utilization spikes during the day may not necessarily be reflected in the graph.

## SYSTEM ACTIVITY

### Examining MultiSTAR Job Status

You can review the current job mix in the MultiSTAR environment using the Examine Job Status utility.

To review active jobs, select Examine Job Status from the System Utilities menu. MultiSTAR displays information about all the jobs currently running, as follows:

Tue Jun 21, 2005 11:23 am					330 Jobs Active (138/192), 270 Jobs Free							
JOB	WHO	PROGRAM	STATUS	TIME	ELAPSED	B	ID	PID	ODV	PDV	CDV	DEVICES
2	*BWM	%MUIMC	PASSTHRU		0:03:38:56		193	14611	192	192	192	192 7
2												
3		UC	QUEUE	50	27:14:33:39	Y	0	9809	19			
4		FAXPDSP	HANG	17	7:08:15:57	Y	134	19963	19			
7	*JAK	%MUIMC	PASSTHRU		0:03:38:10		27	14688	199	199	199	199 4
7												
8	*M B	%UDE	*READ	1400	0:03:38:03		9	14706	207	207	207	207
----	146											
9		%UOMQ	QUEUE	15	27:14:33:38	Y	134	9815	19			
10		%AUDQ	QUEUE	24	27:14:33:38	Y	0	9816	19			
11		ATCHG	HANG	1	27:14:33:29	Y	121	9817	19			
12		CGASIBPC	*READ	118	18:01:39:32	Y	9	18884	213		565	565
14		UCWRTX	QUEUE	10	27:14:33:26	Y	0	9834	19		8000	8000
15		AI2XIBR	OPEN	1	17:22:00:57	Y	9	6221	184			
21		FYBBSP	HANG	21	2:13:22:59	Y	43	16210	19			
22	*MGM	%ULOOK	*READ	1	0:03:34:50		154	15045	91	91	91	91
23	*DLM	%UDE	*READ	663	0:01:23:44		9	26402	381	381	381	381
25		FAXPDSP	HANG	540	0:08:15:54	Y	134	24004	19			
26		AHL7TCPJ	OPEN		4:01:27:33	Y	185	24001	268			
27		ATCHG	HANG	1	27:14:33:30	Y	80	9846	19			
Again? (YES)--												

### Field Explanations

#### JOB (DISPLAY ONLY)

This is a number assigned by MultiSTAR to identify a partition (job) in operation.

#### WHO (DISPLAY ONLY)

This shows the initials of the person logged on the system in programmer mode.

#### PROGRAM (DISPLAY ONLY)

This is the current or most recent program operating in the partition. If there is a greater than sign (>) in front of the program name, they are in the Transaction Line Processor.

#### STATUS (DISPLAY ONLY)

This is the current operational status of the job. Possible statuses are:

Status	Description
GETBP	Get block pointer

Status	Description
DSK-RD	Disk Read
BIL	Logging before image blocks
PGMLD	Program load
GETBK	Get block
GETBKC	Get block conditional
JRNL	Writing a journal record
FLUSH	General flushing
FLUSHB	Non-buffered
FLUSHC	Close
FLUSHE	Echo input
FLUSHF	Full
FLUSHH	Hang
FLUSHN	Number of commands
FLUSHR	Read
FLUSHT	TLP
FLUSHU	Use
EXEC	Executing
HANG	In a hang state
READ	Reading from current device
READ*	Performing binary read from current device
VIEW	Viewing shared memory
WRITE	Writing to current device
WRITE*	Executing binary write to current device
OPEN	Opening a device
LOCK	Attempting to get a MUMPS lock
ZLOCK	Attempting to get a MUMPS lock
ZJOB	Starting a background task
ZGO	Performing a %UPROC*
CLOSE	Closing a device
HOST	Executing a host command
PASST	Pass through
SUSPEND	Job suspended
ZWAIT	Keep ZJOB waiting
DEAD	Dead job

Status	Description
HOST	Running host command
PASSTHRU	DCU Passthrough
QUEUE	Waiting on queue
DBSET	Database SET
DBKILL	Database KILL
DBWAIT	Waiting for database access
PGSAVE	Saving a Mumps program
PGKILL	Killing a MUMPS program
ZJWAIT	Waiting for ZJOBS to complete
JLINE	Waiting in line
TDSET	Tilde SET
TDKILL	Tilde KILL
GCLKILL	Garbage collection, locals, kills
GCLSET	Garbage collection, local, sets
GCLMEM	Garbage collection, local, memory
GCLGEN	Garbage collection, local, general
GCTKILL	Garbage collection, tildes, kills
GCTSET	Garbage collection, tildes, sets
GCTMEM	Garbage collection, tildes, memory
GECGEN	Garbage collection, tildes, general

**\*%UPROC** - This is used in functions where the user is accessing one set of data and there is an option to go to a totally different function and access a different set of data. For instance, a user is in STAR Lab test resulting and they are entering results for the test, and they have the option to add another test to the same order (maybe additional tests were run that were not originally ordered). When the program goes to the order function, it needs to save the current data (results, etc.) that has been entered and 'come back' to the same point in the results entry. So, the program starts %UPROC requesting the order function be started in a new partition of memory, thus 'saving' the results, etc. that were entered so far and the 'point' where the user was in results data entry. Once the new test is ordered, %UPROC 'puts back' the original partition of memory and the user continues entering results with no loss of data.

#### **TIME (DISPLAY ONLY)**

This field displays the time in seconds remaining on a hang or timed command such as an Open, Read, or Lock.

#### **ELAPSED (DISPLAY ONLY)**

This field displays the time since the job began in the format: DDD:HH:MM:SS (number of days:hours:minutes:seconds).

**B (DISPLAY ONLY)**

This is an indicator of whether the job is operating in the background.

**ID (DISPLAY ONLY)**

This is the ID in which the job is currently operating. For networked jobs, it represents the number of levels deep a job is networked.

**PID (DISPLAY ONLY)**

This is the UNIX Process ID number for the job.

**ODV (DISPLAY ONLY)**

This is the originating device for the job.

**PDV (DISPLAY ONLY)**

This is the principal device for the job.

**CDV (DISPLAY ONLY)**

This is the current device for the job.

**DEVICES (DISPLAY ONLY)**

This indicates all devices open for this job.

To obtain a list of all of the functions available to examine jobs, enter a question mark (?) at the JOB> prompt. The following is the list that displays:

**Job Summaries:**

Null	- All jobs
F	- Foreground jobs
B	- Background jobs
AN	- Network jobs
AOn	- Jobs with originating device n
AI n	- Jobs in ID n
ASc	- Jobs with the sign-on key of c
AAc	- Jobs with application c
S	- Jobs in standard swap states
Sn	- Jobs in swap state n
S?	- Select swap states

**Job Details:**

n	- Job n
Jn	- Job n
Pn	- Job with principle device n
Cn	- Job with current device n



On	- Job with originating device n
Dn	- Job with device n
PIDn	- Job with process ID n
Wn	- Who signed on to n

**Miscellaneous:**

?n	- Info for device n
R	- Resource usage report
\$J	- Your job
ALL	- All jobs (including KZJOB)
PCD	- Jobs that are PC Director User's

To obtain additional information about a specific job, enter the job number at the JOB> prompt.

If you enter an invalid job number, the following message is displayed:

*Invalid # !!*

The JOB> prompt is redisplayed.

Enter a valid job number and a screen similar to the following is displayed:

```
Tue May 18, 1993 01:07 pm          5 Jobs Active, 10 Jobs Free
JOB WHO  PROGRAM  STATUS  TIME    ELAPSED BG   ID   PID  ODV  PDV  CDV  DEVICES
12 *JW   %UDM      READ      2:30:44      0  8070    4    4    4    4

Application = '~'          Sign on Key = '~'          Security Mode = Privileged
Breakable?  = Yes          Proc Level   = 0
User        = rntcjlw      Device        = /dev/ttyp1

%UDM:%UDE

X          U   ZK %I,%J S %LL=%X X "ZK:1 %X "%X G %

Again? (N):
```

In this example, the user signed on with the tilde (~) or programmer sign on. The job is breakable, that is, a CTRL-C interrupts the program. The user's is rntcjlw and the principal device is /dev/ttyp1. The current program is %UDM and was called from program %UDE. The program is executing code at label X.

## DISPLAYING INFORMATION FROM UNIX

The UNIX `ps -ef` command displays all currently running processes on your system.

Hewlett-Packard users: GLANCE is an easy to use performance monitor that you may have purchased with your system.

Please refer to the documentation supplied by your hardware vendor for more information on these utilities.

## PORT INFORMATION

### Displaying Port Information

To view information concerning a single MultiSTAR port, select Terminal/Port Setup from the System Utilities menu. The following screen is displayed:

```

General Hospital Terminal/Port Setup Processor
                                Wed Jun 16, 2004 11:41 am
Terminal/Port Setup Input Options

Option No.  Option
-----
I  - Initialize Port Characteristics
L  - List Port Specs
O  - On-Line Instrument Read & Write
P  - Port Modification Utility
T  - Test Terminal / Ripple Print
OP - Output Mgmt: Printer Definition
TD - Tape Drive Modification Utility

Enter option number--

```

Enter **P** for Port Modification Utility. The following prompt is displayed:

*Enter port number, '-' for list w/sort options or 'F' for first available-*

Enter a specific port number to add or modify an existing port. Enter a hyphen (-) to display a list of all ports with options to sort the displayed listing by port number, description, the IP address of the port or device type. Enter **F** to select the first available port in the system.

The system displays a screen of port information. The port information differs depending on the port type (dynamic, physical, software, or virtual). Example screens follow for each port type. For more information about configuring ports, see [“Port Type Descriptions” on page 2-7](#).

#### Dynamic Port:

```

General Hospital Port Modification Processor
                                Wed Sep 07, 2011 04:39 pm
Last edited by : Ding,William D  07/07/11 1439

1 Port Number          2 Device Class          3 Logon Allowed
6                               Dynamic                Yes
4 Sign-on Keys
0 -Computer Operations
5 Spool Status          6 Comment
On                       This port is dynamic

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

```

**Physical Port:**

```

                                General Hospital Port Modification Processor
                                Wed Sep 07, 2011 04:52 pm
Last edited by : Ding,William D 06/07/11 1252

1 Port Number          2 Device Class          3 Logon Allowed
121                    Physical                Yes
4 Sign-on Keys         5 Comment
Select To Edit
6 Spool Status         7 Host Port Name
Off                    /dev/ttypl
8 Device Type          9 Answer Back          10 Terminal Type
CRT, PC W/EMULATOR   No                    system default
11 Clock Rate  12 Stop Bits  13 Data Bits      14 Parity
9600 baud          1          8                    None
15 Keyboard Type      16 Flow Control (Xon/Xoff) 17 Block on Open
system default        Enabled                    No
18 Location           19 Cable Number          20 Phone Number
Basement Service Desk b78-112                    5807

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

```

**Software Port:**

```

                                General Hospital Port Modification Processor
                                Wed Sep 07, 2011 04:58 pm
Last edited by : Ding,William D 06/07/11 1252
Last opened : 09/07/11 13:49
1 Port Number          2 Device Class
121                    Software
3 Spool Status         4 Comment                    5 Device Type
On                                PRINTER, Epson protocol
6 Host Port Name
/dev/pty/ttypl

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

```

**Virtual Port:**

General Hospital Port Modification Processor		
Last edited by : Ding,William D 06/07/11 1252		
1 Port Number 121	2 Device Class Virtual	3 Logon Allowed Yes
4 Sign-on Keys Select To Edit		
5 Spool Status Off	6 Comment	
7 Device Type CRT, PC W/EMULATOR	8 Answer Back No	9 Terminal Type system default
10 Network Protocol TCP	11 Network Address 192.168.1.112	12 Network Port
13 Keyboard Type system default	14 Direction n/a	15 Flush on Open Yes
16 Location 3rd floor elev lobby	17 Cable Number b78-112	18 Phone Number 5672
Accept this screen? (Y/N) [Y]--		

**Printing Port Information**

It is desirable to have a listing of port characteristics for all ports on the system as opposed to viewing the information online port by port. To print a listing of the system port specifications, select List Port Specifications from the Terminal/Port Setup menu. The following displays, prompting you to enter where the output is to be directed.

*Use Device #: (HOME)*

Enter the port number whose information you want to print. To display the list on your screen, press ENTER.

The following displays, prompting you to enter the width of print:

*Paper Width: (80)*

The following displays, prompting you to specify the number of lines per page to perform proper page breaks:

*Lines per Page: (60)*

The following display asks whether you desire a concise or a detailed listing.

*`C`oncise or `D`etailed listing [C]--*

Enter **C** for Concise or **D** for Detailed.

If you enter D for a detailed listing, the system displays information similar to the following:

Figure 4.3 Port Specifications - Detailed Listing

Date: 06/16/92		UNIX CLINICALS SYSTEM		Page: 001
Time: 08:06		Detailed Port Listing		
		ID 1		
Port Characteristics				
-----				
---				
0010	PRINTER,*ANSI protocol 9600 1stopb 8datab none xon pspool Prnt: 115,14,201,216,2G2,2G8,2K1,2R,2R1,33,3A1,3A3,3G1,3J1,3L1,3R1,3R2,44,4G1,4K1,4L1,4R1,5G1,5K1,5L1,5R1,6E,6L1,6L1,71 And Others	Loc: 3A North   	Tel: Cbl:	Dev: /dev/ttypo1 Cmt: LA-324 132 COLUMN
0011	PRINTER,Barcode printer 9600 1stopb 8datab none xoff pspool	Loc: 3A North   	Tel: Cbl:	Dev: /dev/ttyp216 Cmt: 3A BARCODE PRINTER
0012	PRINTER,*DG 6425 9600 1stopb 8datab none xon pspool Prnt: 2G1,2K1,DG6425,ER3,PORT12	Loc: 1 South   	Tel: Cbl:	Dev: /dev/ttyp215 Cmt: DG 6425
0013	PRINTER,*ANSI protocol 9600 1stopb 7datab even xon pspool Prnt: LA210	Loc: 2 West   	Tel: Cbl:	Dev: /dev/ttyp310 Cmt: LA-210
0014	PRINTER,*ANSI protocol 4800 1stopb 8datab none xon pspool Prnt: LA75,RXMP	Loc: 4A North   	Tel: Cbl:	Dev: /dev/ttyp39 Cmt: LA-324 132 COLUMN
0016	PRINTER,Kyrocera Laser 9600 1stopb 8datab none xon pspool Prnt: KYROCERA	Loc: 3B North   	Tel: Cbl:	Dev: /dev/ttyp316: Cmt: LA-324 132 COLUMN
0064	CRT,D2+ logon pspool	Loc: 1 West   	Tel:	Prt: TCP Addr: 111.111.111.6+7004 Cmt: VT320 5
0065	CRT,D2+ logon pspool	Loc: 1 West   	Tel:	Prt: TCP Addr: 111.111.111.6+7005 Cmt: VT320 3

If you select C for a concise listing, the system displays the following prompt:

*'L'ocation or 'D'evice/address information [L]--*

Press ENTER or enter **L** for a concise listing of port information with location information. Enter **D** for a concise listing with device/address information.

The following is an example of a concise location listing:

Figure 4.4 Port Specifications - Concise Location Listing

Date: 06/16/92	1.40 MSE/11.1 UTILITIES	Page: 001
Time: 08:06	Concise Port Listing	
Port Characteristics	Location	Telephone
-----		
0005 9600 18N MODEM,Do Not Remove!!!		
0009 CRT,PC W/EMULATOR		

The following is an example of a concise device/address listing:

Figure 4.5 Port Specifications - Concise Device/Address Listing

Date: 06/16/92		UNIX CLINICALS SYSTEM	Page: 001
Time: 08:06		Concise Port Listing	
Port Characteristics	Cable	Prot	Device/Address
-----			
0010 9600	18N PRINTER, *ANSI protoc		/dev/ttyp28
0011 9600	18N PRINTER, Barcode Prin		/dev/ttyp216
0012 9600	18N PRINTER, *ANSI protoc		/dev/ttyp215
0013 9600	17E PRINTER, *ANSI protoc		/dev/ttyp210
0014 4800	18N PRINTER, *Kyrocera Lase		/dev/ttyp39
0015 9600	18N PRINTER, *ANSI protoc		/dev/ttyp316
0064	CRT, D2+	TCP	111.111.111.16+7004
0065	CRT, Dasher D410	TCP	111.111.111.16+7005
0066	CRT, D2+	TCP	111.111.111.16+7006
0067	CRT, PC W/EMULATOR	TCP	111.111.111.16+7007
0068	CRT, PC W/EMULATOR	TCP	111.111.111.16+7008
0069	CRT, Software		/dev/ttyp1
0071	CRT, PC W/EMULATOR	TCP	111.111.111.16+7010

## MISCELLANEOUS

### Displaying System Availability Statistics

#### DOWNTIME INFORMATION

The MultiSTAR Software Environment (MSE) provides a means of capturing and reporting instances of application system unavailability. This function records data when MultiSTAR is brought down normally and asks for further clarification of the system downtime when it is brought up.

To review and maintain this information, select Special Utilities from the System Utilities menu, and then select the System Downtime Reports option. The following screen is displayed:

General Hospital System Downtime Review Processor		Tue Aug 08, 1991 10:20 am
System Downtime Review Input Options		
Option No.	Option	
1	Revise System Downtime Data	
2	Display System Downtime Data	
3	Print Downtime Summary Report	
4	Print Downtime Detail Report	
Enter option number--		

Enter the number of the desired option.

#### Displaying Downtime Information

The Display System Downtime Data option enables you to view information regarding system downtime. To access this function, select Special Utilities from the System Utilities menu, and then select System Downtime Reports. Select Display System Downtime Data. The system requests you to specify the time period (in days) within which you would like to select downtime episodes for display. The following displays:

*Enter begin date [today] --*

Enter the starting date of the period or press ENTER for today's date only. If you don't specify today's date, the following displays:

*Enter end date [today] --*

Enter the ending date of the period or press ENTER to use today's date as the ending date.

The system displays the date and time of all downtime episodes for the period you specify. Select the episode(s) you want to display.



The following is a sample display:

```

General Hospital System Downtime Data Display Processor

1 Reason for down time
  Power Failure
2 Halt Type          3 HBO notified      4 FE notified      5 Brought Down By
  ABNORMAL           NO                  NO                  JAH
6 System down        7 System up        8 Brought Up By    9 Total Downtime
  04/15/86 10:50     04/15/86 11:31    0 Hrs 41 Mins
10 Additional Downtime Information

Press NL--

```

## Revising Downtime Information

The Revise System Downtime Data option enables you to revise information regarding any instance of system downtime. To access this function, select Special Utilities from the System Utilities menu, and then select System Downtime Reports. Select Revise System Downtime Data and the system requests a time period (in days) to allow selection of the instances to be revised. The following prompt is displayed:

*Enter begin date [today] --*

Enter the starting date of the period or press ENTER to view today's date only.

If you do not specify today's date, the following prompt is displayed:

*Enter end date [today] --*

Enter the ending date of the period or press ENTER to select today's date as the ending date. A list of downtime episodes similar to the following is displayed:

```

General Hospital System Downtime Tracking Processor
Mon Jun 14, 2004 08:43 am

Page:03                      System Down Times
( 1) 09/11/01 1502 Hardware Problem - [Other]
( 2) 10/08/01 2102 [Other]
( 3) 10/15/01 1234 [Other]
( 4) 10/18/01 0745 [Other]
( 5) 10/22/01 2117 [Other]
( 6) 10/23/01 1025 Hardware Maintenance - Configuration Change
( 7) 11/20/01 0804 [Other]
( 8) 12/21/01 1408 Software Install - Application
( 9) 01/23/02 0950 Hardware Problem - [Other]
(10) 03/12/02 2237 [Other]
(11) 03/13/02 2022 [Other]
(12) 03/26/02 2225 [Other]
(13) 04/08/02 0929 Hardware Maintenance - Configuration Change
(14) 04/10/02 0918 Hardware Maintenance - Configuration Change
(15) 04/21/02 2048 Hardware Maintenance - Preventative (PM)
(16) 04/23/02 1236 Hardware Maintenance - Configuration Change
(17) 05/28/02 1347 [Other]

Enter choice--
      next pg(/ or PG DN)  previous pg(/P or PG UP)  Search(TAB)

```

Enter the number of the episode to revise and press ENTER. The following screen is displayed:

General Hospital System Downtime Tracking Processor				
Mon Jun 14, 2004 08:40 am				
1 Reason for down time				
Hardware Maintenance - Configuration Change				
2 Halt Type	3 HBO notified	4 FE notified	5 Brought Down By	
Abnormal shutdown	NO	NO	84819390	
6 System down	7 System up	8 Brought Up By	9 Total Downtime	
04/08/02 0929	04/08/02 0929	kjw		
10 Additional Downtime Information				
x				
Enter field number or '/' starting field number--				

## Field Explanations

### 1. REASON FOR DOWN TIME (U-C-R)

Enter the new reason code or enter hyphen (-) to display a list of reason codes from which you can select.

### 2. HALT TYPE (DISPLAY ONLY)

This field contains the halt type; for example, ABNORMAL.

### 3. HBO NOTIFIED (15-C-O)

Enter the new time if McKesson has been notified, or press ENTER to accept the default of N for no new time.

### 4. FE NOTIFIED (15-C-O)

If your Field Engineer is called in to resolve a hardware problem, enter the date and time of the call here.

### 5. BROUGHT DOWN BY (U-C-R)

This field displays the initials of the person who brought the system down. You can revise these initials.

### 6. SYSTEM DOWN (U-C-O)

The original system down date and time are displayed in the field. To change that information, access this field. When you access this field, the following prompt is displayed:

*Enter new system down date--*

Enter the date the system went down (mm/dd/yyyy) and press ENTER. The following prompt is displayed:

*Enter system down time --*

Enter the time the system went down (hhmm) and press ENTER.

**7. SYSTEM UP (U-C-O)**

This field displays the date and time the system was brought up. You can edit this field.

**8. BROUGHT UP BY (U-C-O)**

This field displays the initials of the person who brought the system up.

**9. TOTAL DOWNTIME (DISPLAY ONLY)**

This field displays the total time in hours and minutes that the system has been down.

**10. ADDITIONAL DOWNTIME INFORMATION (372-C-O)**

Enter new information or edit existing information in this field related to the system being brought up. This information can be useful in tracking the history of downtime episodes for the system.

**Print Downtime Reports - Summary**

The Print Downtime Summary option enables you to print a summary of system unavailability. It provides monthly statistics and statistics sorted by reason.

To access this function, select Special Utilities from the System Utilities menu, and then select System Downtime Reports. Select Print Downtime Summary Report, and the system displays the following:

*Enter begin month [JAN, 91] --*

Enter the starting month for the summary or press ENTER to accept the default month specified in brackets.

The following displays:

*Enter end month [APR, 91] --*

Enter the ending month for the summary, or press ENTER to accept the default month specified in brackets.

The following displays:

*Enter Device to Print [HOME]--*

Enter the output device on which to print (or display) the report.

The following is a sample summary of the monthly statistics:

MONTHLY SYSTEM UPTIME STATISTICS OF AVAILABLE TIME TO USERS	
YEAR : 1991	Printed Sat Apr 26, 1991 04:17 pm
January	98.17%
February	99.44%
March	98.17%
April	99.63%
System Time Available to Users from Jan 01, 91 to Apr 26, 91 98.85%	
Press NL-	

The following is a sample of the Reason Statistics summary:

System Downtime Tracking Report Period :January 1, 91 - April 26, 91		
REASON	# of times	Downtime
Hardware Maintenance - Preventative (PM)	1	1 Hrs 3 Mins
Software Install - Operating System	1	2 Hrs 27 Mins
[Other]	1	0 Hrs 6 Mins
Press NL--		

### Print Downtime Reports - Detail

The Print Downtime Detail Report option enables you to print a report of specific system downtimes. It provides detailed information regarding the instances of system downtime. To access this function, select Special Utilities from the System Utilities menu, and then select the System Downtime Reports option. Select Print Downtime Detail Report, and the system displays the following:

*Enter begin date [today] --*

Enter the starting date of the period or press ENTER for today's date. If you do not specify today's date, the following prompt is displayed:

*Enter end date [today] --*

Enter the ending date of the period or press ENTER for today's date.

The system displays a list of downtime episodes from which you can choose. Select the desired episode(s).

The following displays:

*Enter Device to Print [HOME]--*

Specify the device to print or display the reports. Press ENTER to display the report on the screen, or enter the port number on which to print.

The following is a sample printed report:

Figure 4.6 System Downtime Detail Report

SYSTEM DOWNTIME DETAIL REPORT			
Printed Wed Dec 09, 1992 02:44 pm			
Reason for down time			
Software Install - Operating System			
Halt Type	HBO notified	FE notified	Brought Down By
Normal	NO	NO	PKS
System down	System up	Brought Up By	Total Downtime
11/24/92 1236	11/24/92 1257	PKS	0 Hrs 21 Mins
Additional Downtime Information			
LOAD 12.10 OS UPDATE			

## Displaying Tildes

The Tilde View Utility provides a means of inquiry useful for determining what tilde variables are currently in use on a system. To view the contents of the Tilde Blocks, select Special Utilities from the System Utilities Menu, and then select Display Tildes. The following displays:

*Which tilde block (% ,A-Z)--*

Enter a block name (% ,A-Z) to display the tilde block. If the block you request is A-Z, the block that displays is specific to the ID in which you are currently running.

The name and value of all entries in the block display for each block.

If you enter a question mark (?) at the prompt, the system displays the optional entries (\*A, \*P, \*I, \*Z, \*K).



## Chapter 5 - RESOLVING SYSTEM PROBLEMS

TROUBLESHOOTING YOUR SYSTEM HARDWARE .....	5-3
Terminals.....	5-3
Printers .....	5-4
Disk Hardware Errors .....	5-6
OTHER SYSTEM ERRORS .....	5-7
No Response on a User's CRT .....	5-7
No Response On Any CRT .....	5-8
Port Errors .....	5-8
Partition Errors .....	5-8
HARD CRASH RECOVERY PROCEDURES .....	5-10
MULTISTAR BACKUP RESTORE .....	5-11
Restore A Full Concurrent Backup .....	5-11
Restore An Incremental Backup .....	5-13
Journal Restore .....	5-13
Journal Restore Alternatives .....	5-15
Journal Restore Search Additional Tapes .....	5-20
Journal Restore Process Additional Tapes .....	5-21





## TROUBLESHOOTING YOUR SYSTEM HARDWARE

This section lists some of the common problems found in general hardware operation and suggests solutions for those problems. This section does not address hardware-specific troubleshooting techniques; for that information refer to the documentation for the particular hardware component. This section is intended to be used only as a quick reference.

This section does not contain error messages. For information about system error messages, see [“Appendix D - ERROR MESSAGES”](#).

### Terminals

The following describes procedures for correcting the most commonly occurring problems with CRTs (terminals). If these procedures do not correct the problem, refer to the hardware documentation. If the problem persists, call McKesson.

Problem	Possible Cause	Solution
No power	Power switch is off	Turn power switch on
	Power cord not plugged into power supply outlet or CRT	Plug cord into outlet or CRT
	Power is not supplied to outlet	Check outlet with device known to be working or call an electrician
	Fuse is blown	Replace fuse
Cursor not visible after power-on	Brightness switch is set too low	Turn brightness knob to the right
	Cursor Select key is set wrong	Press Cursor Select key until correct cursor displays
CRT not communicating with computer	BAUD rate is set to wrong value	Reset BAUD Rate switches, turn power off to CRT, and then turn power to CRT back on  Change server or MUX port configuration
	Data cable is not connected correctly	Check connections at both ends
	Keyboard has malfunctioned	Run terminal test and/or exchange keyboard with a working CRT
	The HOLD key has been pressed	Press the HOLD key until the HOLD light is off
	The CRT is in CTRL-S mode	Press CTRL-Q
	CRT has malfunctioned	Run terminal test and/or exchange screen with a working CRT

Problem	Possible Cause	Solution
Miscellaneous characters display on the screen	BAUD rate is not set to correct value	Reset BAUD rate switches, turn terminal off, and then turn terminal on  VT terminals: Enter setup mode, set proper rate and save setup again
	Parity is incorrectly set	Reset parity switches, turn terminal off, and then turn terminal on
	Signal Ground for RS432 interface not properly wired	Wire cable properly
Keys on keyboard stick	Keyboard is dirty	Perform preventive maintenance on CRT
INVALID SIGNON message displays	CAPS LOCK or ALPHA LOCK is off	Press CAPS LOCK or ALPHA LOCK key
	User entered wrong letter code	Enter correct system letter code

## Printers

The following table describes the procedures for correcting the most common problems with printers. If these procedures do not correct the problem, refer to the hardware documentation. If the problem persists, call McKesson.

Problem	Possible Cause	Solution
No power	Power switch is off	Turn power switch on
	Power cord not plugged into power supply outlet or printer	Plug cord into outlet or printer
	Power is not supplied to outlet	Check outlet with device known to be working or call an electrician
	Fuse is blown	Replace fuse
Left or right portions of characters missing	Improper phase setting Improper copies setting	Reset phase control Adjust copies control
Smeared characters	Ribbon too wet	Replace ribbon
	Poor paper quality	Change paper stock

Problem	Possible Cause	Solution
Ribbon breaking or tearing	Jammed ribbon	Replace ribbon
	Worn platen not cushioning paper surface, causing characters to cut through ribbon	Replace ribbon and platen
Paper skews while feeding through printer	Paper tractors misaligned	Adjust paper tractors
	Paper guides too far from edge of paper	Move paper guides closer to paper edges
	Strong air current (from heating or air conditioning duct) blows directly on paper bin	Relocate printer
Does not print or does not complete printing	Incorrect BAUD rate	Reset speed switch  Change MUX port configuration
	Signal cable not properly connected	Check connections on both ends of cable
	Printer not online	Press ONLINE key on printer
	Cover is open	Close cover
	Out of ribbon	Replace ribbon cartridge
	Out of toner	Replace toner
	Out of paper	Add paper
	Ribbon is broken	Replace ribbon cartridge
	Drum needs replacing	Replace drum
	Improperly installed cartridge or jammed ribbon	Reinstall or release jam, and then advance ribbon
	Improperly installed or broken thimble	Replace thimble
	Overheated	Clear ventilation ducts, let printer cool, and then turn on
	Stop command initiated by printer	Press CTRL-Q
	Carriage is at extreme right or left	Turn power off, and then back on
	Other problems	Turn power off, and then back on
Printer prints, but carriage doesn't move	Broken carriage Obstruction in path of carriage	Call service Remove obstruction
Paper feeding incorrectly	Paper slightly curled	Change paper; use paper not curled

Problem	Possible Cause	Solution
Paper tearing	Paper not properly loaded	Reload paper
	Obstruction in paper path	Remove obstruction
	Paper release level engaged	Disengage paper release lever
	Printhead spacing to platen too tight or spacing between paper tractors improperly adjusted	Adjust printhead spacing and/or paper tractors
Improper spacing or characters	Forms tractor improperly installed or adjusted	Reinstall or adjust forms tractor
	Pitch incorrectly set	Check DIP switches; reset to proper configuration
Printing too light	Ribbon worn, jammed, or broken	Replace ribbon
	Toner low	Add/replace toner
	Ribbon or thimble improperly installed	Reinstall ribbon cartridge or thimble
	Forms thickness setting incorrect	Change forms thickness setting

## Disk Hardware Errors

If a disk request results in an error condition, UNIX prints the error message on the console printer and logs the error in the `/usr/adm/messages` file.

Any disk error reported on your console or in `/usr/adm/messages` needs to be given to your hardware service representative.

## OTHER SYSTEM ERRORS

This section details system errors and procedures for correcting the following:

- No response on an individual user's CRT
- No response on any CRT
- Port errors
- Partition errors
- Power failures
- Boot errors

### No Response on a User's CRT

Refer to the following steps if there is no response from an individual user's CRT.

1. Are other MultiSTAR users still operational? If not, refer to No Response On Any CRT later in this section.
2. Check the HOLD key and the ONLINE key, if applicable. Make sure the HOLD key is off.
3. Press CTRL-Q to clear any XOFF state.
4. Attempt to send a message to the user's CRT. If the message displays on the user's CRT, the output communications path and UNIX appear to be operating correctly. If the message does not display on the user's CRT, you probably have a communications, hardware or LAN problem. In this case check your hardware.
5. Do a MultiSTAR Job Watch and find the appropriate job and status for the CRT.

If the status is READ and the job appears to be running normally, there is probably a keyboard or input communications path problem (such as a problem with a cable). In this case check your hardware.

If the status is EXEC, the job is either in a code loop or is completing a lengthy function (such as generating a report).

If the status is not READ or EXEC or if the job is in a code loop, contact McKesson Support for problem identification and resolution.

## No Response On Any CRT

If there is no response from the system and all users are unable to operate:

1. Determine if any ports are usable:
  - Log on as a user on any port.
  - Log on as a user on the Master CRT. If this works enter the application character that doesn't appear to be working.
2. Verify that the caretaker is functioning normally by confirming that the regular 10 minute messages are still printing out on the console printer. If not:
  - Confirm that the console CRT and printer are online, and no error LEDs are lit inside the cabinet.

## Port Errors

Refer to the following procedures when a number of ports are not working:

1. Confirm the following for the affected CRTs:
  - The power is on.
  - The cable is attached.
  - CAPS LOCK or ALPHA LOCK is on.
  - Keystrokes are echoed to the tube when the CRT is offline.
  - The ONLINE light is lit.
  - The CRT is not in a CTRL-S or HOLD status.
  - Port characteristics match the physical device.
2. If a group of contiguous ports is not working, a MUX board, VDA, VDC, or LAN component may be bad. Have it checked out by your Field Engineer.

## Partition Errors

The following are partition error messages:

*NO AVAILABLE PARTITIONS*  
*ATTENTION: YOU APPEAR TO BE ABOUT TO RUN OUT OF PARTITIONS*

If either of these message appears on any CRT when the user logs on:

1. Have the System Manager examine the current Job Status.
2. Determine which job is causing the message.
3. The most common cause of partition errors is a job that locks a resource causing other jobs to wait. Examine the job status and lock tables to determine if this has happened.

The following message is an indication that your system is about to fill the available space on the disk drives:

*ATTENTION: YOU APPEAR TO BE ABOUT TO RUN OUT OF DISK BLOCKS*

If this message displays on any CRT when the user logs on, call your McKesson Service Representative immediately. Make appropriate purges and/or system configuration changes as soon as possible.

## HARD CRASH RECOVERY PROCEDURES

If you have a hard system crash (a sudden loss of power or hardware failure before you have a chance to properly bring the system down) contact McKesson Customer Support before attempting to bring the system up.



## MULTISTAR BACKUP RESTORE

**WARNING:** Perform this procedure only under the supervision of McKesson personnel!

The restore operation restores user data and database information back to the system. All previous information is erased. The restore process requires the latest full concurrent backup and the most recent incremental backup. In the event that the journal disk files have been lost, McKesson personnel can direct you in recreating them and the BIL (Before Image Logging) file.

To restore MultiSTAR files, logon to UNIX as mseadm. Verify MultiSTAR is down using mselook.

### Restore A Full Concurrent Backup

During a restore, the system logs all error messages and many informational messages to a file named using the following convention:

*/hbo/db00/aaa.rnn*

According to this naming convention, aaa is the database name and nn is the day of the month on which the restore procedure is being run.

At the system prompt, enter:

`dbrstr -v -f`

The system then checks to see if the database and ports configuration files exist on the tape. If these files are available, the system displays the following prompt:

*Do you want to restore the database configuration file?*

If the system does not find the configuration files, it does not display this prompt. Enter **N** for no, since the database configuration file is to be modified by McKesson personnel only.

The system displays the following prompt:

*Mount Tape (1) On Drive (1) For Volume (0)  
And Type ok When Ready:*

The first line of this prompt indicates the first backup tape, for volume 0, needs to be mounted on tape drive number 1.

If you mount a tape that is not a backup tape, the system displays the following message:

*NG Not a BACKUP tape on drive (1)*

If you mount a backup tape that contains the wrong database, the system displays the following message:

*NG Wanted database (rel\_1.40) found database (rel\_1.35)*

Mount the tape, and then enter **OK**. For a list of other valid entries at this prompt, enter a question mark (?).

The system displays the following prompt:

*Volume (0) Current Alternate File: /dev/rdisk/filename  
OK To Use (y/n):*

MultiSTAR database volumes are divided into primary and secondary data files to allow flexibility in placing data on your disks. The primary file is always located in /hbo/db0?. The primary file may contain your actual data. If the data is located in a secondary or alternate file, the primary file located in /hbo/db00 points to the alternate file location. This use of primary and secondary data files enables McKesson to find your data easily to provide speedy support when required.

The first line of this prompt indicates the tape contains the backup for volume 0 and displays the alternate file name.

Enter **Y** for Yes to restore the first backup tape. When the first volume is restored the system displays a prompt like the following example:

*DRIVE (1): OK All tapes for Volume (0) completed 5m12*

*Mount Tape (1) On Drive (1) For Volume (1)  
And Type ok When Ready:*

The first line of this prompt indicates the tape drive number, the volume number in parentheses and the time required to complete restoration of the tape in minutes and seconds. In this example volume 0 was restored on tape drive 1 in five minutes and 12 seconds.

The second line of this prompt indicates the next backup tape, for volume 1, needs to be mounted on tape drive number 1.

Mount the next tape and enter **OK**.

The system prompts for verification of alternate files as in the example above for the first tape. Follow the same procedure for each tape until all full concurrent backup tapes are restored.

When the last full concurrent tape is restored, the system displays a message indicating the time required to complete the restore, as in the following example:

*OK Restore completed 12m 34s*

## Restore An Incremental Backup

If you are performing an incremental backup restore as well as the full backup restore, at UNIX prompt enter:

```
dbrstr -i -v
```

The procedure to restore incremental backup tapes is the same as the full backup restore procedure. For a description of the restore procedure, see *Restore a Full Concurrent Backup*.

## Journal Restore

At the conclusion of an incremental restore, the system synchronizes the database volume header files; therefore, the system does not know what journal transactions to reprocess. In order to identify this information to the system, you must restore journaling tapes.

To begin this process, IPL the system. During the IPL process the system displays a message similar to the following:

**NOTE:** Journal recovery is required from quiesce # 99999 through quiesce # 99999

The journal restore process first looks to see if the from quiesce number can be found in the disk journal file. To find the from quiesce number in the journal disk file, the restore process must first open the disk journal file. The open process displays the following:

*Open journal file*

If the open process cannot open the disk journal file, the system displays an error similar to any of the following identifying the problem:

*There is no valid journal file*

*Unable to open journal file hbo/db99/h9999n9.jn9*

*Unable to read file path in journal file /hbo/db99/h9999n9.jn9*

*Unable to read description in journal file /hbo/db99/h9999n9.jn9*

*Journal file /hbo/db99/h9999n9.jn9 is not a circular file*

*Journal file /hbo/db99/h9999n9.jn9 unable to read first record*

*Journal file /hbo/db99/h9999n9.jn9 first record is not a marker record*

*Journal file /hbo/db99/h9999n9.jn9 unable to read second record*

If any of the above errors display, the restore process displays a list of restore alternatives. For more information on this process, see *Journal Restore Alternatives*.

If the system can open the disk journal file successfully, a message similar to the following displays:

*Searching for beginning quiesce number 99999 in journal file /hbo/db99/h99999n9.jn9*

The system performs a binary search to find the beginning quiesce number.

If the system cannot find the beginning quiesce number, the restore process displays a list of restore alternatives.

If the system locates the beginning quiesce number, it displays a message similar to the following:

*Found beginning quiesce number 99999*

The system then displays a prompt similar to the following:

*Journal recovery to begin recovering from Mon Dec 06, 1993 07:00 am*

*OK? (Y/N) [Y]--*

To bypass the journal restore, enter **N**; the system displays a list of restore alternatives. For more information on this process, see Journal Restore Alternatives.

To continue with the journal restore, enter **Y**. The system begins replaying the journal file transactions from the beginning quiesce number found on the disk. As the journal file is being replayed the logical disk block number and the current quiesce number are displayed to the user as follows:

*Journal Restore From Disk*

*Restoring logical disk block 99999 Quiesce number 99999*

If the system encounters a quiesce number greater than the through quiesce number, or if the system reaches the end of the file, the system displays statistics on the restore, as in the following:

```
Journal recovery was required from quiesce # 99999 through quiesce # 99999
Journal recovery binary search found quiesce # 99999 in 99 tries
Journal recovery began recovering from Mon Dec 06, 1993 07:00 am
Journal recovery recovered through Mon Dec 06, 1993 07:14 am
Journal recovery processed 9999 backups
Journal recovery processed 9999 dkills
Journal recovery processed 9999 kills
Journal recovery processed 9999 quiesces
Journal recovery processed 9999 sets
Journal recovery processed 9999 zsets
Journal recovery processed in 999 seconds
Journal recovery competed normally
Journal recovery greater quiesce number reached

Press NL--
```

When you press ENTER, the system moves the statistics into the console log and continues with the normal IPL process.

The journal restore from disk is now completed.

## JOURNAL RESTORE ALTERNATIVES

If the disk journal file cannot be opened, the beginning quiesce number is not found, or the user bypasses the journal restore from the disk journal file, the system displays a table similar to the following:

```
Journal recovery problem
Beginning quiesce # 99999 not found
1) Terminate IPL leaving recovery incomplete
2) Continue IPL leaving recovery complete
3) Search journal backup tape

Enter option number [3]--
```

If you select option 1, the journal recovery and IPL process halts. In this case, *journal data will not be lost*.

**Contact McKesson before selecting option 2.** If you select option 2, the journal recovery process is marked as complete and the IPL process continues. If you select this option, *all journal data will be lost*. If you are not familiar with the process of restoring journaling from tape, call McKesson at this time.

If you select option 3, the system displays the following table:

```
Search journal backup tape options

1) Restore from quiesce # 99999 through quiesce number 99999
2) Change restore range
3) Abort journal restore from tape

Enter option number [1]--
```

If you select option 1, the system displays a table of available magnetic tape drives (as per your configuration):

```
Tape drive options

0) Mag Tape 7000
1) Mag Tape 7001
2) Mag Tape 7002
3) Mag Tape 7003

Enter drive number--
```

Enter the option number for the tape drive on which you plan to mount the journal backup tape containing the from quiesce number. The system displays the following prompt:

*Please mount journal tape 1 containing quiesce number 9999 on tape drive 9  
Enter `READY` when mounted and online--*

Mount the backup tape containing the quiesce number (9999 in the example). For example, the following table shows a series of journal backup tapes for a week. Notice that the tape dated 11/03/94 ends with quiesce number 10300 and the tape dated 11/04/94 begins with quiesce number 10300.

Backup Date	Starting Quiesce	Ending Quiesce
11/01/94	10000	10100
11/02/94	10101	10200
11/03/94	10201	10300
11/04/94	10300	10400
11/05/94	10400	10500
11/06/94	10501	10600
11/07/94	10601	10700

If the from quiesce number was 10159, mount the tape dated 11/02/94. If the from quiesce number was 10300, mount the tape dated 11/03/94 (since this is the oldest tape containing quiesce number 10300).

After you have mounted the appropriate journal backup tape on the selected tape drive and have placed the tape drive online (if needed), enter **READY** at the console.

If the system displays any of the following error messages, the system returns you to the preceding prompt:

*Unable to open tape drive for file 0  
Label record read error  
Not a database backup tape  
Not a journal backup tape  
Not a journal backup tape for this database*

If the journal restore process was successfully able to read the label, the system displays a screen similar to the following:

```
Journal Label Information
MultiSTAR Release      : 9.99 X
Backup Version         : 9.9
Full Backup Date       : 99/99/99 9999
Journal Backup Date    : 99/99/99 9999
Journal Tape Number    : 9
First Marker Date      : 99/99/99 9999
First Quiesce Number   : 9999
```

If the system displays any of the following major error messages, it then prompts you to mount a different tape:

```
Unable to open tape drive for file 1
File 1 record read error
File 1 record 1 is not a 'M'arker record
Press NL to mount a different tape--
```

If you have mounted a tape other than journal tape 1, the system displays a message similar to the following warning:

```
Expecting journal tape 1. You have mounted journal tape 9
```

If there are no major error messages, the system displays the following prompt:

```
Enter 'OK' to process this tape ( '.' to mount a different tape)--
```

If the from quiesce number is located on this tape, enter **OK**. If the from quiesce number is not located on this tape, enter a period (.); the system prompts you to mount tape 1 again.

If you enter OK, the journal restore process searches for the from quiesce number on this tape; the system begins to search the journal restore search tape, displaying a prompt similar to the following:

```
Searching tape block number 99999
```

If the from quiesce number is less than the first marker quiesce number on this tape, the system displays the following prompt:

```
Quiesce is not on this tape
```

```
Must be on a tape created prior to this tape!
Enter 'OK' to process this tape ( '.' to mount a different tape)--
```

Enter a period (.) to mount a different tape and repeat this process. Enter **OK** to override the error message and continue the process with this tape.

**WARNING:** If you enter OK to override this error, all journal transactions created between the from quiesce number and the marker quiesce number is destroyed.

If the first marker quiesce number is less than the from quiesce number, the system reads the tape until one of the following conditions is met:

- A marker record quiesce number greater than the from quiesce number is located.
- A quiesce record quiesce number greater than the from quiesce number is located
- A quiesce record quiesce number equal to the from quiesce number is located
- The end of the tape is reached
- An unexpected end of tape is encountered

If the end of tape or an unexpected end of tape is reached, see the steps described under Journal Restore Search Additional Tapes.

If one of the first three conditions is met, the system displays an error message:

- If the quiesce number was found, the system displays:  
*Search for quiesce number 9999 was successful*
- If the quiesce number was greater than the from quiesce number, the system displays:

*Search for quiesce number 9999 was less than found quiesce 9999*

The system then displays a prompt similar to the following:

*Journal recovery to begin recovering from Mon Dec 06, 1993 07:00 am  
OK? (Y/N) [Y]--*



Enter **Y** and the system begins replaying the journal tape transactions from the beginning quiesce number found on the tape. As the journal tape is being replayed the system displays the physical tape block number and the current quiesce number, as in the following:

*Restoring tape block number 99999 Quiesce number 99999*

The journal tape transactions continue to be replayed until one of the following conditions are met:

- A marker record quiesce number greater than the through quiesce number is found
- A quiesce record quiesce number greater than the through quiesce number is found
- The end of the tape is reached
- An unexpected end of tape condition is encountered

If the end of tape or an unexpected end of tape is reached, see the steps described under Journal Restore Search Additional Tapes.

If a marker or quiesce record is reached that is greater than the through quiesce number, the system displays statistics on the restore, as in the following:

```
Journal recovery was required from quiesce # 99999 through quiesce # 99999
Journal recovery binary search found quiesce # 99999 in 99 tries
Journal recovery began recovering from Mon Dec 06, 1993 07:00 am
Journal recovery recovered through Mon Dec 06, 1993 07:14 am
Journal recovery processed 9999 backups
Journal recovery processed 9999 dkills
Journal recovery processed 9999 kills
Journal recovery processed 9999 quiesces
Journal recovery processed 9999 sets
Journal recovery processed 9999 zsets
Journal recovery processed in 999 seconds
Journal recovery competed normally
Journal recovery greater quiesce number reached

Press NL--
```

When you press ENTER, the system prints the statistics on the console log and continues with the normal IPL process.

The journal tape restore is now completed.

## JOURNAL RESTORE SEARCH ADDITIONAL TAPES

The system displays a prompt similar to the following:

*Please mount journal tape # (or tape 1 from the next backup) on drive #  
Enter 'READY' when mounted and online--*

Mount the appropriate journal backup tape on the tape drive and place the tape drive online (if needed). Then enter **READY** at the console.

If the system displays any of the following error messages, the system returns you to the preceding prompt:

*Unable to open tape drive for file 0  
Label record read error  
Not a database backup tape  
Not a journal backup tape  
Not a journal backup tape for this database*

If the journal restore process was successfully able to read the label, the system displays a screen similar to the following:

Journal Label Information	
MultiSTAR Release	: 9.99 X
Backup Version	: 9.9
Full Backup Date	: 99/99/99 9999
Journal Backup Date	: 99/99/99 9999
Journal Tape Number	: 9
First Marker Date	: 99/99/99 9999
First Quiesce Number	: 99999

If the system displays any of the following major error messages, it then prompts you to mount a different tape:

*Unable to open tape drive for file 1  
File 1 record read error  
File 1 record 1 is not a 'M'arker record  
Press NL to mount a different tape--*

Each journal block contains a sequence number. If you mount a tape other than the journal tape beginning with the next journal block sequence number, the system displays a warning message similar to the following:

*Expecting journal sequence number 9999 received 9999*

If there are no major error messages the system displays the following prompt:

*Enter 'OK' to process this tape ( '.' to mount a different tape)--*

To begin processing this tape, enter **OK**. To return to the preceding prompt, enter a period (.).

If you enter OK, the journal restore process searches for the from quiesce number on this tape; the system displays a prompt similar to the following:

*Searching tape block number 99999*

From this point, the process continues as explained starting here.

## JOURNAL RESTORE PROCESS ADDITIONAL TAPES

At the end of each journal tape restored, the restore process checks to see if the next journal block sequence number can be found on disk. If the next journal block sequence number can be found on disk, the system displays the following prompt:

*The next block to be restored has been found on disk.  
Enter 'OK' to continue from disk ( '.' to mount another tape)--*

Enter **OK** to continue restoring from disk. The system displays a prompt similar to the following:

*Restoring logical disk block 99999 Quiesce number 99999*

The process continues as explained starting here.

If the system cannot find the next journal block sequence number on disk or if you enter a period (.), the system displays a prompt similar to the following:

*Please mount journal tape # (or tape 1 from the next backup) on drive #  
Enter 'READY' when mounted and online--*

Mount the appropriate journal backup tape on the tape drive and place the tape drive online (if needed). Then enter **READY**.

If the system displays any of the following error messages, the system returns you to the preceding prompt:

*Unable to open tape drive for file 0  
Label record read error  
Not a database backup tape  
Not a journal backup tape  
Not a journal backup tape for this database*

If the journal restore process was successfully able to read the label, the following information displays:

```
Journal Label Information
MultiSTAR Release      : 9.99 X
Backup Version         : 9.9
Full Backup Date       : 99/99/99 9999
Journal Backup Date    : 99/99/99 9999
Journal Tape Number    : 9
First Marker Date      : 99/99/99 9999
First Quiesce Number   : 99999
```

If the system displays any of the following major error messages, it then prompts you to mount a different tape:

```
Unable to open tape drive for file 1
File 1 record read error
File 1 record 1 is not a 'M'arker record
Press NL to mount a different tape--
```

Each journal block contains a sequence number. If you mount a tape other than the journal tape beginning with the next journal block sequence number, the system displays a warning message similar to the following:

```
Expecting journal sequence number 9999 received 9999
```

If there are no major error messages the system displays the following prompt:

```
Enter 'OK' to process this tape ('.' to mount a different tape)--
```

To begin processing this tape, enter **OK**. To return to the preceding prompt, enter a period (.).

If you enter OK, the journal restore process searches for the from quiesce number on this tape; the system displays a prompt similar to the following:

```
Searching tape block number 99999
```

From this point, the process continues as explained starting here.

If you do not enter OK, the system returns to the process as described under Journal Restore Search Additional Tapes.

# Chapter 6 - PRINT SPOOLER FUNCTIONS

INTRODUCTION.....	6-3
REPORTS MAINTENANCE.....	6-5
PRINTER MAINTENANCE .....	6-11
Editing Port Assignments .....	6-12
No Ports Assigned.....	6-12
Ports Assigned .....	6-15
Multiple Physical Printer Assignments .....	6-15
FORMS MAINTENANCE .....	6-17
DEFINE BATCH REPORT GROUPS .....	6-18
PRINT CONTROL MAINTENANCE.....	6-21
Define Print Control Sequence.....	6-22
Attach Printer Specific Sequence.....	6-27
Assign PCS's to Reports .....	6-30
Assign PCS's to Printers .....	6-32
Assign PCS's to Ports .....	6-34
CONTROLLING THE PRINT QUEUE .....	6-37
Reviewing the Queue .....	6-37
Fax Queue Review.....	6-40
Reassign Spooled Output .....	6-41
Start/Stop Print Spooler Queuing Function .....	6-44
Print Spooler Control Parameters .....	6-44
Output Driver Maintenance Function.....	6-47
Fax Update List Routines .....	6-47
Spool File Reporting.....	6-49
Spool File Maintenance .....	6-53
PRINT JOB CONTROL.....	6-60
Review Print Job .....	6-60
Recover Spool Files .....	6-62
Abort Print Job.....	6-63
DISPLAYING DISABLED PRINTERS.....	6-64
DEMAND PRINT .....	6-66
VIEW SPOOLED REPORTS .....	6-72
Routing to a Printer .....	6-77
Download the Report.....	6-79
Routing to a Fax Machine .....	6-81
Routing to a UNIX Host File .....	6-82
Routing to a Network Address.....	6-82
Routing to an e-mail address .....	6-83

WRITING TO MICROFICHE TAPES .....	6-84
Microfiche Tape Format .....	6-86
PRINTING SPECIAL FORMS .....	6-88
PRINTING THE SPOOLER CONTROL REPORTS .....	6-91
Reports By Printer/Printer Summary Option .....	6-92
Printers By Report Option .....	6-93
ID Cross Reference Report Option .....	6-94
Open and Spooled Report File Count .....	6-96
STAR FAX.....	6-99
Fax Audit .....	6-100
Distribution Lists .....	6-107
Prefix/Suffix Maintenance.....	6-109
Cover Page .....	6-112
Enable STAR Fax.....	6-114
Redial Parameters.....	6-115
Enable/Disable Fax Cover Page .....	6-116
DOWNLOADING AT LOGOFF SCREEN .....	6-117

## Illustrations

Figure 6.1 View Reports Processor .....	6-75
Figure 6.2 Spooler Control Report - Reports By Printer/Printer Summary.....	6-92
Figure 6.3 Spooler Control Reports - Printers By Report.....	6-94
Figure 6.4 ID Cross Reference Report.....	6-95

## INTRODUCTION

The Print Spooler functions are described in this section. The Spooler menu can be accessed from the System Special Utilities menu using a system operator sign-on:

```

                                General Hospital Special Utilities Processor
                                Tue Jul 06, 2010 11:30 am
System Special Utilities Input Options

Option No.  Option
-----
    1      Block Packer
    3      Backup Scheduling Chart
    5      System Error Summary
    6      Console Log Listing
    7      Search Log for Error Type
    8      Logon Monitor
    9      Display Tildes
   11      System Downtime Reports
   13      Network Utilities
   14      Spooler
   15      Task Processing
   16      Performance Monitor
   17      Signon Restriction

Enter option number--

```

Enter the option number for the Spooler.

**NOTE:** This can also be accessed from the System Management menu using a user application sign-on.

Once you select the Spooler option the spooler menu displays as follows:

```

                                General Hospital Spooler Processor
                                Wed Aug 10, 1994 01:44 pm
Spooler Input Options

Option No.  Option
-----
    1      Reports Maintenance
    2      Printer Maintenance
    3      Forms Maintenance
    4      Assign a Form to a Printer
    5      Define Batch Report Groups
    6      Print Control Maintenance

    7      Queue Control
    8      Print Job Control
    9      Disabled printer display
   10      Demand Print
   11      View Spooled Reports
   12      Write Reports to Tape
   13      Print Special Forms
   14      Spooler Control Reports
   15      STAR Fax

Enter option number--

```

Each print spooler option on this menu is described in this section.

**NOTE:** The first time you access any of the functions on this screen you must enter your logon ID at the following prompt:

*Enter ID Code-*

The system requires this only the first time you access each function.



---

## REPORTS MAINTENANCE

The Reports Maintenance function enables you to add and edit information about reports in the system, including:

- When the report prints (on-demand, immediately, or at a specified time)
- Where the report is sent (to a printer(s) or a fax)
- Whether the report requires special forms
- If the report can be downloaded to a PC
- The security level required to demand print the report
- Whether the report uses print control sequences
- What distribution list and cover page to use for a faxed report

When you select this function the system displays the following prompt:

*Enter report name to add/edit or first letters and a dash (-) --*

Enter the system name of the report or use a hyphen (-) to display and select from a table of report names. If the report does not exist the system displays the following prompt:

*REPORTNAME Does not exist. Add this report (Y/N) ?--*

Where REPORTNAME is the name of the report you identified at the preceding prompt. Enter **Y** to begin defining this report. Enter **N** to return to the preceding prompt.

When you identify the report you want to add or edit, the system displays the following screen:

```

General Hospital Reports Maintenance Processor
                                Tue May 20, 2003 10:40 am

Last edit by #99999 Hope,Tom on 04/22/03 16:09

1 Report Name          2 Description
  FACA                Alphabetic Census (A)
3 Base Report          4 Release #          5 Owner
                                     C
6 When Printed          7 Report Status      8 Retention Days
  Demand                Active                Delete at System Maintenance
9 Restart Method        10 PC Download      11 Security Level
  Demand                No                    0
12 Special Form         13 Print Control    14 Page Index    15 Max # Pages
                                     ::CENUSHEAD:CE    No                500
16 List Update Routine  17 Distribution List          18 Cover Page

19 Printer      Description      Copies  Default type  Start time  End time
  %MVXLIP       Landscape mode    1       Demand    10:00AM    01:00PM
  1N            1 North            1       Both     01:01PM    09:59AM

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

```

The header includes the facility and date and time the screen was accessed. The header line immediately above the fields contains information regarding the last time the screen was edited. It includes employee ID, employee name and the date and time the screen was edited.

## Field Explanations

### 1. REPORT NAME (DISPLAY ONLY)

This field contains the system name of the report.

### 2. DESCRIPTION (30-AN-R)

This field identifies the text name of the report.

### 3. BASE REPORT (1-A-R)

This field identifies this report as being available in the base product. Enter **Y** if the report is available in the base product. Enter **N** if the report is available only on this system. The default is **Y**.

### 4. RELEASE # (5-N-R)

This field identifies the release number of the base product in which this report is available. This system does not allow you to access this field unless you entered **Y** in the Base Report field.

### 5. OWNER (1-A-O)

This field identifies the product code that *owns* this report. Enter the code of the product from which this report is available.

**6. WHEN PRINTED (1-A-R) or (5-AN-R)**

This field determines when the report begins to print. Enter **I** to cause the system to begin printing this report immediately after it is generated. Enter **D** to cause the system to place this report into the Demand Print queue after it is generated. To cause the system to hold this report for printing until a specific time, enter the time in the HH:MM format. The default is **I**.

**NOTE:** To download a report to a PC, this field must be set to Demand. In addition, the Report Status must be Active.

**7. REPORT STATUS (1-A-R)**

This field determines the status of the report in the system. Enter **A** (the default) to make this report active in the system. Enter **I** to make this report inactive in the system.

**NOTE:** Reports must have an Active status to be faxed or downloaded to a PC.

**8. RETENTION DAYS (2-AN-R)**

This field determines how long after the report is generated it is to be retained in the system. When you access this field, the following prompt is displayed:

*# of retention days, or `D`elete after print [0]--*

Enter the number of days to retain the report in the system after it is generated. The minimum number of retention days is 0 (default) and the maximum number of retention days is 45. Enter **D** to delete the report from the system immediately after it is printed.

**9. RESTART METHOD (1-A-R)**

This field determines alternative demand print methods. The only method currently supported is restart on demand (**D**).

**10. PC DOWNLOAD (1-A-R)**

This field enables the user to download the report. Enter **Y** to enable this option; enter **N** if this ability is not to be enabled. The default is **N**.

**11. SECURITY LEVEL (2-N-R) or (30-AN-R)**

This field determines the minimum security level to demand print a report. You can enter a number between 0 and 99 or an at (@) sign, followed by a logical MUMPS expression. The standard security level variable must be established prior to choosing the Spooler menu.

**12. SPECIAL FORM (10-AN-O)**

This field identifies any special paper forms on which this report prints. Enter the name of the form or a hyphen (-) to display and select from a list of report forms. Special forms cannot be used with fax reports at this time.

**13. PRINT CONTROL (DISPLAY ONLY)**

This field displays any print control sequences established for this report. The system sends print control sequences to appropriate printers before, during, and/or after printing the report. For more information about print control sequences, see **“PRINT**

**CONTROL MAINTENANCE” on page 6-21.**

**14. PAGE INDEX (1-A-O)**

This field determines whether the system builds a page index when this report is spooled. Enter **Y** to cause the system to build a page index, thus making the report immediately available to the View Spooled Reports function. Enter **N** if no page index is desired. The default is N.

If this field is set to N (for No) and the report is sent to a fax, the fax download manager builds the page index in order to determine if the page limit for the fax server has been reached.

**15. MAX # PAGES (4-N-O)**

This field identifies the maximum length of this report in number of pages. When generating the report, the system counts the pages as it generates them, comparing the count to this number. When the page count for the report reaches this number, the system suspends the job, thus preventing abnormally large spooler files from being created. The default is 300 pages.

**16. LIST UPDATE ROUTINE (17-C-O) or (TABLE LOOKUP-O)**

This field identifies the name of a routine, specified in the application, that dynamically builds the fax distribution list for the report. The routine name must be preceded by a caret (^). You cannot edit this field if a Distribution List is specified.

Enter the list update routine or select a list update routine from a list. Which list update routines display in the list is determined by the contents of the Owner field.

The system uses the distribution list built by the list update routine specified here only if the report is set up in the When Printed field to print Immediately or at a specified time. If the report is faxed using Demand Print (that is, the When Printed field is Demand) or via the View Spooled Reports function, this routine is not used.

**17. DISTRIBUTION LIST (8-AN-O) or (TABLE LOOKUP-O)**

This field specifies a distribution list to use for fax distribution for the report. Select a distribution list. You cannot edit this field if a routine is specified in the List Update Routine field.

The system uses the distribution list specified here only if the report is set up in the When Printed field to print Immediately or at a specified time. If the report is faxed using Demand Print (that is, the When Printed field is Demand) or via the View Spooled Reports function, this routine is not used.

Fax distribution lists are maintained by the Fax Administrator.

**18. COVER PAGE (4-C-O) or (TABLE LOOKUP-O)**

This field specifies a cover page to use when faxing a report. Enter the cover page code or enter a hyphen (-) and select a cover page from a list. The cover page specified here overrides any cover page defined in the distribution list. If you do not specify a cover page, the default system cover page is used.

Fax cover pages are maintained by the Fax Administrator.

### Printer Assignments

**NOTE:** If you assign multiple printers to a report, the report prints at *all* specified logical printers.

**NOTE:** When assigning timed printers to a report, the printer assignment field calculates whether there are times when no printer is available and does not allow assignment to be accepted unless at least one printer is available at all times of day. If there is no printer available for specific times, the system provides a warning like the following:

<div>Page:01</div> <div>WARNING</div> <div>Report has no active printer assigned for the following times</div> <div>( 1) 1200midni for 600 mi</div> <div>( 2) 1101am for 779 min</div>
--

#### 19. NAME DESCRIPTION COPIES DEFAULT TYPE START TIME END TIME

This field defines the printer assignments for the report. When you access this field, a scrolling screen is displayed at the bottom of the Reports Maintenance screen.

##### NAME (10-AN-R) OR (TABLE LOOKUP-R)

This field identifies the name of the logical printer to be assigned to this report. Enter the printer name or a hyphen (-) to display and select from a list of logical printers.

##### DESCRIPTION (DISPLAY ONLY)

This field contains the printer description. The printer description is defined in the Printer Maintenance function.

##### COPIES (2-N-R)

This field identifies the number of copies of the report to create on the defined printer. The default is 1.

**NOTE:** This field is not supported for fax queue processing. Fax processing sends one copy of a faxed report per destination.

##### DEFAULT TYPE (1-A-O)

This field is used to determine which printers output can be directed to.

If you press ENTER, this field displays DEMAND/BATCH. The printer is included on the list of available alternate printers. If the report runs in batch, the report prints at this printer. If the report is printed using the Demand Print function, the user can select this printer from a list of available alternate printers.

**NOTE:** If you press ENTER for this field, the system functions as it did prior to the 12.1 release.

If you enter N (for None), there is no default printer. If the report is printed using the Demand Print function, this printer is included on the list of available alternate printers.

If you enter B (for Batch), the report prints at this printer when the report is run in batch mode only.

If you enter D (for Demand), when a user runs the report as a demand report, they can select this printer from a list of available alternate printers.

**START TIME (TIME-C)**

This field and the End Time field determine the times during which the printer is available for printing this report. This field is required if an End Time is entered. If this field is left blank, the printer is always available.

**END TIME (TIME-C)**

This field and the Start Time field determine the times during which the printer is available for printing this report. This field is required if a Start Time is entered. If this field is left blank, the printer is always available.

After you complete the fields the system asks if you want to accept your entries to this screen. Enter **Y** to accept the current contents of the screen. Enter **N** to return to the screen without accepting your changes.

**NOTE:** If you assign multiple printers to a report, the report prints at *all* specified logical printers.

## PRINTER MAINTENANCE

Printer Maintenance allows you to maintain the information for the logical printer names used as output devices from the spooler. When you select this option, the system displays the following prompt:

*Enter printer name to add/edit or first letters and a dash (-) --*

Enter the name of the logical printer that you want to add or edit, or enter a hyphen (-) to display and select from a list of existing printers. When you identify the desired printer, the following screen is displayed:

General Hospital Printer Maintenance Processor			
		Thu Jun 23, 2011 04:40 pm	
Last edit by #99999 Hope,Tom on 04/22/09 16:09			
1 Printer Name	2 Description		
137	Printer 137		
3 Driver Name			4 Port Number(s)
SPOOLER			100
Edit 'A'bove data or 'P'orts assigned--			

The header includes the facility and date and time the screen was accessed. The header line immediately above the fields contains information regarding the last time the screen was edited. It includes employee ID, employee name and the date and time the screen was edited.

At the bottom of the screen the system displays the following prompt:

*Edit 'A'bove data or 'P'orts assigned--*

To edit the information displayed, enter **A**. To edit the port assignments, enter **P**. Editing port assignments is discussed following the explanations of the fields on this screen.

### Field Explanations

#### 1. PRINTER NAME (10-AN-DISPLAY ONLY)

This field displays the logical printer name used by the system to reference this printer.

#### 2. DESCRIPTION (30-AN-R)

This field contains the external description of this printer.

### 3. DRIVER NAME (TABLE LOOKUP-R)

This field contains the background driver used for this device. When you access this field, the system displays the following prompt:

*Use Spooler driver (Y)--*

Enter **Y** or press ENTER to use the Spooler driver. Enter **N** to display and select from a table of alternative background drivers.

### 4. PORT NUMBER(S) (DISPLAY ONLY)

This field displays the ports currently assigned to the printer definition.

After you complete the fields, the system asks if you want to accept your entries to this screen. Enter **Y** to accept the current contents of the screen. Enter **N** to return to the screen without accepting your changes.

## Editing Port Assignments

When you access the Printer Maintenance processor, at the bottom of the screen the system displays:

*Edit 'A'bove data or 'P'orts assigned--*

Enter **P** to edit port assignments for the printer.

### NO PORTS ASSIGNED

If there are no ports assigned to the printer, the system displays:

*No Ports Assigned, Add Ports (Y/N) [Y] --*

Enter **N** to return to the preceding prompt. Enter **Y** to begin adding ports.

The system then displays the following screen:

```

                                General Hospital Printer Maintenance Processor
                                Wed Sep 01, 2011 05:14 pm
Last edit by #19589 Ding,William D   on 09/01/11 1710
1 Printer Name      2 Description
  BED                BED CONTROL 1

3 Driver Name              4 Port Number(s)
  SPOOLER                  153

Page:01
      Ports Assigned to Logical Printer BED,  Inactive ports denoted by (*)
      Port  Type              Location
( 1)  153  HP LaserJet        CINDY'S DESK
    
```

At the bottom of the screen the system displays:



Enter port number, 'T'ape drive, 'B'it bucket or define 'N'etwork printer --

Selecting the special devices has the following effects:

- **Tape Drive** - all reports spool and must be written to tape by the computer operator, using the Write to Tape function.
- **Bit Bucket** - all reports print to the bit bucket, no printed output is retained. If the report is spooled (because it is forced to do so in the spooler call), it is available for assignment to another printer later using the Demand Print function.
- **Network Printer** - if the system is connected via the McKesson network software, the report spools to disk on the host system and be transferred to the destination CPU via the network software. If the network is not installed, an error occurs whenever a report is spooled to this printer.

To edit a port, enter the number of the port or enter a hyphen (-) to select from a table of ports defined as printers. After a port number has been entered or selected, the system displays the following screen:

```

                                General Hospital Printer Maintenance Processor
                                Wed Sep 07, 2011 05:14 pm
Last edit by #19589 Ding,William D   on 09/01/11 1710
1 Printer Name      2 Description
BED                BED CONTROL 1
1 Port   Device Type      Location      Status      Answerback
  153   HP LaserJet       CINDY'S DESK   Active       No

2 Page handling (size)    3 Lines/page (download)

4 Lines/inch (download)   5 Chars/inch (download)

6 Print quality (download)
**
    7 Variable one ${1}
    8 Variable two ${2}
    9 Variable three ${3}

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

```

The selected port's characteristics are displayed as a line above the editable fields and includes the following information:

#### DEVICE TYPE

The name of the configuration for the device at the port.

#### LOCATION

The free-text description of the device's location.

**STATUS**

The status (Active or Inactive) of the device at the port.

**ANSWERBACK**

Whether answerback is active (Yes) or not (No).

When defining a printer, you may specify download values for lines/inch, lines/page, characters/inch, and print quality for those printers with the capability to support them.

The following printers have the indicated download capabilities:

Printer	LPI	LPP	CPI	Print Quality
TP2	x			
4433	x	x		
6215	x	x	x	x
6425	x	x	x	x
LIPS	x	x	x	x
6594	x	x	x	x
Epson Protocol	x	x	x	x
Kyocera	x	x	x	x
HP LaserJet	x	x	x	x
IBM Proprinter	x	x	x	x

**Field Explanations**

Depending upon the device in use, the fields in the lower part of the screen may be edited as follows:

**NOTE:** The system displays two asterisks (\*\*) in fields that cannot be edited (for example, the Print Quality field in the preceding screen).

**1. PORT**

Enter a new port number, or a hyphen (-) to list all ports defined as printers, or **N** to define the port as a network printer port..

**2. PAGE HANDLING (SIZE)**

Enter the number of lines on a page or **A** for Automatic (if supported).

**3. LINES/PAGE (DOWNLOAD)**

Enter lines per page. The default is none.

**4. LINES/INCH (DOWNLOAD)**

Enter lines per inch (type-dependent options) or **D** for Disabled. The default is none.

**5. CHARS/INCH (DOWNLOAD)**

If the physical printer supports this, you may specify the characters per inch (usually 10 or 12).

**6. PRINT QUALITY (DOWNLOAD)**

The style of print to be used for this logical printer. It may be *Bold*, *NLQ*, *Draft*, and so on, depending upon the physical printer type specified.

**7. VARIABLE ONE \${1}**

Enter a string to be passed as variable 1 if the port is of the type that prints to a host file or host spooler queue name.

**8. VARIABLE TWO \${2}**

Enter a string to be passed as variable 2 if the port is of the type that prints to a host file or host spooler queue name.

**9. VARIABLE THREE \${3}**

Enter a string to be passed as variable 3 if the port is of the type that prints to a host file or host spooler queue name.

**NOTE:** See Microfiche for magnetic tape drive parameters.

When you accept the screen, the system returns to the preceding screen.

**PORTS ASSIGNED**

If one or more ports have been assigned to the printer, for each port assigned the system displays:

- Number
- Type
- Location

At the bottom of the screen the system displays:

*Enter printer number to add/edit or 'A' to add --*

Enter **A** to add a port assignment, or enter the corresponding option number to edit a port assignment. The system then displays the screen described under No Port Assignments.

**Multiple Physical Printer Assignments**

If you assign multiple ports to a printer, the report prints at one printer only. Typically multiple printer assignments are made to ensure the speedy printing of reports.

The spooler attempts to print the report at the first assigned printer port.

If the first printer port is busy, the spooler attempts to print the report at the second assigned printer port.

If the second printer port is busy, the spooler attempts to print the report at the third assigned printer port, and so on.

The spooler continues to cycle through the list of printer port assignments until it finds a printer port that is not busy.

**WARNING:** If you include a *Bit Bucket* printer in the printer assignments, if previous assigned printers are busy, your report does not print at all. Do *not* include Bit Bucket printer assignments with other printers.

## FORMS MAINTENANCE

Forms Maintenance enables you to define special forms that are routed through the spooler. Forms defined in this function are attached for a report in the Reports Maintenance function. When you select this option, the system displays the following prompt:

*Enter form name to add/edit or first letters and a dash (-) --*

Enter the name of the form that you want to add or edit, or enter a hyphen (-) to display and select from a list of existing forms. When you identify the desired form, the following screen is displayed:

```

                                General Hospital Forms Maintenance Processor
                                Fri Mar 13, 1992 02:23 pm

( 1)Form Name                  : UB82
( 2)Description                : UB82 Claim Forms
( 3)Alignment Program          : U^FCBCPF

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

### Field Explanations

#### 1. FORM NAME (10-AN-DISPLAY ONLY)

This field displays the form used by the system to reference this form.

#### 2. DESCRIPTION (20-AN-R)

This field contains the external description of this form.

#### 3. ALIGNMENT PROGRAM (9-AN-R)

This field contains the name of a program used to align a form prior to printing special forms. This program is supplied by McKesson as it applies to the base application.

After you complete the fields the system asks if you want to accept your entries to this screen. Enter **Y** to accept the current contents of the screen. Enter **N** to return to the screen without accepting your changes.

# DEFINE BATCH REPORT GROUPS

This function enables you to group reports together so they can be printed as a unit through the application or using the Demand Print function. A batch report group can include up to 25 reports. This function also enables you to assign initial and trailing print control sequences by printer type to allow printing of special forms.

When you select this option the system displays the following prompt:

*Enter batch report group name or partial name '-' --*

Enter the batch report group name or enter a hyphen (-) to select a group from a list.

If you enter a full batch report group name and the group is not defined, the system displays the following prompt:

*Batch report group GROUPNAME is not defined! Create? (Y/N) [Y]--*

Press ENTER or enter **Y** (for Yes) to create the batch report group. Enter **N** (for No) to return to beginning of the function.

After you select a batch report group name, the system displays the following screen:

**General Hospital Report Groups Processor**

Wed Aug 12, 1992 09:42 am

( 1)Name : 1500

( 2)Description : 1500 CLAIMS

( 3)Reports : See Table Below

( 4)Initial Sequence :

( 5)Trailing Sequence:

Report	Description	Required
1500A	1500 Claims Facility A	Yes
1500B	1500 Claims Facility B	Yes

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

## Field Explanations

### 1. NAME (DISPLAY ONLY)

This field contains the name of the report batch.

### 2. DESCRIPTION (30-AN-R)

This field contains the description of the report batch.

**3. REPORTS (TABLE LOOKUP-O)**

This field defines the reports assigned to the group. When you access this field, the system displays a list of reports.

**NOTE:** When you create a new report batch group, if you enter a hyphen (-) to select reports, you can select multiple reports at one time. For each report you select, the system sets the Required field to Yes. You can edit the Required field as needed. You can select multiple reports only when you first create a report batch group.

For each report, the following fields display:

**REPORT (10-AN-R) OR (TABLE LOOKUP-R)**

This field identifies the system report name to assign to this report group. Enter the report name or a hyphen (-) to display and select from a list of system report names.

**DESCRIPTION (DISPLAY ONLY)**

This field contains the report description. The report description is defined in the Reports Maintenance function.

**REQUIRED (1-A-R)**

This field determines if the report must complete for the batch report group to be considered complete. If this report is required, enter **Y** (for Yes). If this report is not required, press ENTER or enter **N** (for No). The default is No.

Press the F7 key to exit the scrolling report entry area.

**4. INITIAL SEQUENCE (10-AN-O)**

This field contains the initial print control sequence. Print control sequences are device-dependent commands that load special fonts, draw or shade lines, or make other changes to the printer's setup. For example, to print a report landscape, enter the appropriate print control sequence for your printer in this field.

By identifying an initial print control sequence, you use the formatting commands invoked on all reports defined in the batch. Print control sequences are created and maintained using the Print Control Sequence Maintenance function.

**5. TRAILING SEQUENCE (10-AN-O)**

This field contains the trailing print control sequence. Print control sequences are device-dependent commands that load special fonts, draw or shade lines, or make other changes to the printer's setup. For example, to reset a printer to portrait orientation after a report prints landscape, enter the appropriate print control sequence for your printer in this field.

By identifying a trailing print control sequence, you use the formatting commands invoked on all output from this printer following the batch. Print control sequences are created and maintained using the Print Control Sequence Maintenance function.

After you complete the fields the system asks if you want to accept your entries to this screen. Press ENTER or enter **Y** to accept the current contents of the screen. Enter **N** to return to the screen without accepting your changes. Enter **D** to delete the batch report group.

If you did not change any of the information on the screen, when you press ENTER to accept the screen the system displays the following prompt:

*Delete? (N)--*

Enter **Y** to delete the report group. Press ENTER or enter **N** to exit the screen without deleting the report group.

When you accept the screen, if no reports have been defined for the report batch the system displays the following prompt:

*No reports defined in batch! Delete? (Y/N) [N]--*

Press ENTER or enter **N** (for No) to save the report batch group with no reports. Enter **Y** (for Yes) to delete the batch group and return to the beginning of the function.



## PRINT CONTROL MAINTENANCE

The functions on the Print Control Maintenance menu enable you to define and maintain special codes and text sent to printers, linking these special codes and text to system reports, printers and ports. Using these functions, you can define the following format elements for a report:

- Fonts and typefaces
- Orientation (landscape or portrait)
- Graphic elements (lines or artwork)
- Headers and footers

For example, by sending a command to a printer you can force the printer to begin printing pages in landscape mode, such as you might use for a 132-column wide report. By sending another command to the printer, you can return it to portrait (80-column wide) format.

Using the Define Print Control Sequence function, you define a print control sequence to put the printer into landscape mode, calling it *LANDSCAPE*. Likewise, you define another print control sequence to put the printer into portrait mode, calling it *PORTRAIT*. For more information, see [“Define Print Control Sequence” on page 6-22](#)

Using the Attach Printer Specific Sequence function, you define the printer-specific commands for these sequences, as listed in the printer vendor documentation. For more information, see [“Attach Printer Specific Sequence” on page 6-27](#).

The Assign PCS's to Reports function allows you to assign the system to send the *LANDSCAPE* print control sequence to the printer before printing a report, and send the *PORTRAIT* print control sequence to the printer when the report is finished printing. For more information, see [“Assign PCS's to Reports” on page 6-30](#).

The Assign PCS's to Printers function allows you to assign a print control sequence to a specific printer. For more information, see [“Assign PCS's to Printers” on page 6-32](#).

The Assign PCS's to Ports function allows you to assign a print control sequence to a specified MSE port. For more information, see [“Assign PCS's to Ports” on page 6-34](#).

**NOTE:** If a PCS is assigned to a report, and to the printer and/or the port to which it is output, the precedence order is: report, printer, port. In addition, the assigned PCS does carry over if the port is a host spooler port.

```
General Hospital Output Management Processor
                                Wed Aug 11, 1993 11:14 am
Output Management Input Options

Option No.  Option
-----
      1      Reports Maintenance
      2      Printer Maintenance
      3      Forms Maintenance
      4      Assign a Form to a Printer
      5      Define Batch Report Groups
      6      Print Control Maintenance

      7      Queue Control
      8      Print Job Control
      9      Disabled printer display

     10      Demand Print
     11      View Spooled Reports
     12      Write Reports to Tape
     13      Print Special Forms
     14      Spooler Control Reports
     15      Star Fax
Enter option number--6
```

Select **Print Control Maintenance**. The system displays the following menu:

```
General Hospital Print Control Maintenance Processor
                                Tue Jun 15, 2004 09:30 am
Print Control Maintenance Input Options

Option No.  Option
-----
      1      Define Print Control Sequence
      2      Attach Printer Specific Sequence

      3      Assign PCS's to Reports
      4      Assign PCS's to Printers
      5      Assign PCS's to Ports

Enter option number--
```

## Define Print Control Sequence

The Define Print Control Sequence processor enables you to create and maintain print control sequences. After you define a sequence, you can use the Attach Printer Specific Sequence function to define the control codes sent to a specific type of printer for a print control sequence.

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

*Enter PCS name or first characters '-' to list --*

To edit information for an existing print control sequence, enter the name of the print control sequence or enter a hyphen (-) to display and select from a list of print control sequences.

To add a new print control sequence, enter the name of the print control sequence. If this print control sequence does not exist, the following prompt is displayed:

*PCS XXX does not exist. Add? (Y/N) [N]--*

where XXX is the name of the new print control sequence.

Enter **Y** to add the print control sequence, or enter **N** to exit without adding the new code.

When you identify the desired print control sequence, the system displays a screen similar to the following:

```
General Hospital Print Control Sequence Maintenance Processor
                                Tue Apr 05, 1994 07:43 am

( 1)PCS Name       : CENSUSFOOT
( 2)Description    : Census Footer

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

## Field Explanations

### 1. PCS NAME (10-AN-R)

This field contains the name of the print control sequence.

**NOTE:** If a PCS name begins with an underscore (\_), it is considered to be one of the most common PCL command sequences used. These PCS codes are McKesson-provided and cannot be edited or deleted.

## 2. DESCRIPTION (30-AN-R)

This field contains the description of the print control sequence.

After you add a new PCS or edit an existing one, the system displays the following prompt:

*Accept this screen? (Y/N/^D'etele) [Y]--*

- Enter **Y** or press ENTER to save the code. The following message is displayed:

*PCS filed*

The following prompt is then displayed:

*Copy PCS to a new PCS (Y/N)? [N]--*

Enter **Y** to create a new PCS based on the current one, or enter **N** or press ENTER to exit screen.

If you enter Y, the following prompt is displayed:

*Enter name of new PCS--*

Enter the name of the new PCS and press ENTER. The following prompt is displayed:

*Copy PCS to YYY (Y/N)? [N]--*

where YYY is the name of the new PCS. Enter **Y** to create the new PCS using the information from the original PCS. If you enter N or press ENTER, the new PCS is not created (and the information from the original PCS is not copied).

- Enter **N** to return to the screen to continue editing fields.
- Enter **D** to delete the PCS code.

The system displays the following message while it checks the ports, reports and printers of all IDs to determine if any are attached to the PCS being deleted:

*Checking PCS attachment to ports, reports and printers in all IDs.  
Please wait!*

If there is a port, report or printer attached to the PCS you are deleting, the following message is displayed:

*ID 1 DT is attached to Report A! Press NL to continue--*

where 1 is the ID where the report resides, DT is the PCS name you are deleting and Report A is the report to which it is attached.

**NOTE:** You receive a separate message for every port, report or printer that is attached to the PCS you are deleting. You must press ENTER to continue at each of the messages to acknowledge them.

When you press ENTER to continue at the last port, report or printer that is attached to the PCS you are deleting, the following message is displayed again:

*Checking PCS attachment to ports, reports and printers in all IDs.  
Please wait!*

This message may be displayed on the screen for several minutes while the system verifies if there are other ports, printers or reports attached to the PCS you are deleting.

When the system completes the check (or if no ports, reports or printers were attached to the PCS you are deleting), the following prompt is displayed:

*Are you sure you want to delete PCS XXX? (Y/N) [N]--*

where XXX is the PCS code.

- Enter **N** or press ENTER if you do not want to delete the PCS code. The following prompt is then displayed:

*Copy PCS to a new PCS (Y/N)? [N]--*

- Enter **Y** to create a new PCS based on the current one, or enter **N** or press ENTER to exit screen. If you enter Y, the following prompt is displayed:

*Enter name of new PCS--*

Enter the name of the new PCS and press ENTER. The following prompt is displayed:

*Copy PCS to YYY (Y/N)? [N]--*

where YYY is the name of the new PCS. Enter **Y** to create the new PCS using the information from the original PCS. If you enter N or press ENTER, the new PCS is not created (and the information from the original PCS is not copied).

**NOTE:** If you are adding a new PCS code and select the D option, the PCS code is not saved and added to the list.

- To delete the code, enter **Y** at the following prompt:

*Are you sure you want to delete PCS XXX? (Y/N) [N]--*

where XXX is the PCS code. The following message is displayed:

*Deleted PCS XXX*

**NOTE:** If you delete a PCS that is attached to a port, report or printer and you access the port, report or printer, the PCS name is still displayed on the screen even though it has been deleted. The description of the PCS is not displayed on the screen. You can edit the port, report or printer to attach a valid PCS. For more information, see the sections about attaching a PCS to a port, report or printer.

If you select an existing code, and exit the screen without editing the fields, the following prompt is displayed:

*Delete? (N)--*

- Enter **Y** to delete the PCS code.

The system displays the following message while it checks the ports, reports and printers of all IDs to determine if any are attached to the PCS being deleted:

*Checking PCS attachment to ports, reports and printers in all IDs.  
Please wait!*

If there is a port, report or printer attached to the PCS you are deleting, the following message is displayed:

*ID 1 DT is attached to Report A! Press NL to continue--*

where 1 is the ID where the report resides, DT is the PCS name you are deleting and Report A is the report to which it is attached.

**NOTE:** You receive a separate message for every port, report or printer that is attached to the PCS you are deleting. You must press ENTER to continue at each of the messages to acknowledge them.

When you press ENTER to continue at the last port, report or printer that is attached to the PCS you are deleting, the following message is displayed again:

*Checking PCS attachment to ports, reports and printers in all IDs.  
Please wait!*

This message may be displayed on the screen for several minutes while the system verifies if there are other ports, printers or reports attached to the PCS you are deleting.

When the system completes the check (or if no ports, reports or printers were attached to the PCS you are deleting), the following prompt is displayed:

*Are you sure you want to delete PCS XXX? (Y/N) [N]--*

where XXX is the PCS code. Enter **Y** to delete the code. The PCS code is deleted and the following message is displayed:

*Deleted PCS XXX*

- Enter **N** or press ENTER if you do not want to delete the PCS code. The following prompt is then displayed:

*Copy PCS to a new PCS (Y/N)? [N]--*

Enter **Y** to create a new PCS based on the current one, or enter **N** or press ENTER to exit screen.

If you enter Y, the following prompt is displayed:

*Enter name of new PCS--*

Enter the name of the new PCS and press ENTER. The following prompt is displayed:

*Copy PCS to YYY (Y/N)? [N]--*

where YYY is the name of the new PCS. Enter **Y** to create the new PCS using the information from the original PCS. If you enter N or press ENTER, the new PCS is not created (and the information from the original PCS is not copied).

## Attach Printer Specific Sequence

The Attach Printer Specific Sequence function enables you to define printer-specific commands for print control sequences. These commands are programming codes supplied by the printer vendor and typically transmitted by application print drivers. By defining these commands for a print control sequence, you can define the format the system uses to print your report.

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

*Enter PCS name or first characters`-` to list --*

Enter the name of the print control sequence or enter a hyphen (-) to display and select from a list of print control sequences. The system displays a screen similar to the following:

```
General Hospital Attach Printer Specific Sequence Processor
                                Tue Apr 05, 1994 07:44 am

Page:01                      Defined Printers - * indicates assigned PCS
( 1)  TP2                      (18)  HP LaserJet
( 2)  4433                      (19)  IBM Proprinter
( 3)  DG 6215
( 4)  B/300
( 5)  B/600
( 6)  4535
( 7)  6321 Hubcap III
( 8)  Barcode Printer
( 9)  DG 6425
(10)  LIPS-10 Laser
(11)  ANSI protocol
(12)  E459x
(13)  TI 6594
(14)  *Kyocera Laser
(15)  Xerox 3700 protocol
(16)  HP Protocol
(17)  Epson protocol

Select printer to define control sequence for --
```

A list of printer types defined in the system is displayed. The system displays an asterisk (\*) by anyprinter types for which printer-specific commands have already been defined for this print control sequence.

Enter the option number of the printer type for which you want to define printer-specific commands for this print control sequence. The system then clears the list from the screen and displays the following prompt:

*Copy Print Control Sequence from another printer? (Y/N) [N] --*

This option enables you to more easily define printer commands for print control sequences by using existing commands as the basis for new commands.

Enter **N** or press ENTER if you do not want to copy the print control sequence commands from another printer.



Enter **Y** to copy the print control sequence commands of another printer. The system displays a screen similar to the following:

```

General Hospital Attach Printer Specific Sequence Processor
                                Tue Apr 05, 1994 07:44 am

Page:01                        Defined Printers
( 1) Kyocera Laser

Select printer to copy control sequence from --

```

A list of printer types for which printer-specific commands have already been defined for this print control sequence is displayed. Enter the option number of the desired printer type.

When you select the printer, or when you copy printer-specific commands from another printer, the system displays a screen similar to the following:

```

General Hospital Attach Printer Specific Sequence Processor
                                Tue Apr 05, 1994 10:41 am

|R! RES; UNIT I; SPD .02; SCP; SCF;
|MZP 4,.2; SFNT 'Swiss742SWC-Italic', 20; ctxt 'Census Report';
|MZP 0,.25; BOX 8.5,10.0; cmnt 'Draw Big Box';
|PAT 20; BLK 8.5, .840; BOX 8.5,.840; cmnt 'Draw shaded box';
|mzp 0, .8; drp 8.5,0; cmnt 'Draw horizontal line';
|mzp .35,.8; drp 0,9.45; mzp 1.25,.8; drp 0,9.45; mzp 2.6, .8; drp 0,9.45;
|mzp 5.25,.8; drp 0, 9.45; mzp 5.65,.8; drp 0,9.45; mzp 5.85,.8; drp 0,9.45;
|mzp 6.25,.8; drp 0,9.45; mzp 6.45,.8; drp 0,9.45;
| rpf; rpp; exit,e;

F1          F2          F3          F4          F5          F6          F7          F10
Delete Line Insert Line Center  Exit    Store Line Restore Line Pack    Help

```

Use this screen to create/edit the print control sequence. The following function keys display at the bottom of the screen:

Key	Function	To Use
F1	Delete Line	Press the F1 key to delete the line at the cursor's position.
F2	Insert Line	Press the F2 key to insert a blank line above the line the cursor is currently on.
F3	Center	Press the F3 key to center the line the cursor is currently on.
F4	Exit	Press the F4 key to exit the screen and return to the preceding screen.
F5	Store Line	Press the F5 key to copy the line the cursor is currently on into a buffer.
F6	Restore Line	Press the F6 key to paste the line placed into the buffer (using the F5 key) to the line the cursor is currently on.
F7	Pack	Press the F7 key to remove blanks on the line the cursor is currently on.
F10	Help	Press the F10 key to display information about moving around this screen and how to add and delete information from the screen.

When you finish creating/editing the print control sequence, press the F4 key. The system then returns to the preceding screen.

## Assign PCS's to Reports

The Assign PCS's to Reports function enables you to assign print control sequences to defined spooler reports in the system. By assigning one or more print control sequences to a report, when the system prints the report on one of the printer types for which commands have been defined for the print control sequence, the system sends the commands as appropriate before, during, and/or after printing the report.

For example, you assign the print control sequence CENSUS HEAD to print at the top of each page of the Patient Census report. You have defined printer-specific commands for the CENSUS HEAD print control sequence for printer type A, but not for printer type B.

When the Patient Census report prints on printers defined as printer type A, the system uses the CENSUS HEAD print control sequence at the top of each page of the report. When the Patient Census report prints on printers defined as printer type B, the system does not use the CENSUS HEAD print control sequence.

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

*Enter report name to assign PCS to or first letters and a dash (-) --*

Enter the name of the report to which you want to assign a print control sequence, or enter a hyphen (-) to display and select from a list of reports.

When you identify the desired report the system displays a screen similar to the following:

```

General Hospital Assign PCS's to Reports Processor
                                Fri Jun 24, 2005 07:46 am

( 1)Name / Code                  : FACA
( 2)Pre-report PCS               :
( 3)Post-report PCS              :
( 4)Every page, at the Top       :
( 5)Every page, at the Bottom:
( 6)Odd pages, at the Top        :
( 7)Odd pages, at the Bottom :
( 8)Even pages, at the Top       :
( 9)Even pages, at the Bottom:
Page:01                          Defined Print Control Sequences
( 1) BIGBOX      Boxes for census repor
( 2) CENSUSFOOT  Census Footer
( 3) CENSUSHEAD  Census Header
( 4) P           THIS IS A TEST PRINTER
( 5) TEST        Test Kyocera
( 6) TITLE       TITLE PAGE

Enter choice--

```

## Field Explanations

### 1. NAME/CODE (DISPLAY ONLY)

This field displays the name of the report, as selected when accessing this screen.

### 2. PRE-REPORT PCS (TABLE LOOKUP)

This field identifies the print control sequence to be sent before this report begins printing at the printer.

### 3. POST-REPORT PCS (TABLE LOOKUP)

This field identifies the print control sequence to be sent after this report finishes printing at the printer.

### 4. EVERY PAGE, AT THE TOP (TABLE LOOKUP)

This field identifies the print control sequence to be sent before the start of a new page (following the form feed breaking the page).

### 5. EVERY PAGE, AT THE BOTTOM (TABLE LOOKUP)

This field identifies the print control sequence to be sent at the end of a page (before the form feed breaking the page).

### 6. ODD PAGES, AT THE TOP (TABLE LOOKUP)

This field identifies the print control sequence to be sent before the start of a new odd-numbered page (following the form feed breaking an even-numbered page).

**7. ODD PAGES, AT THE BOTTOM (TABLE LOOKUP)**

This field identifies the print control sequence to be sent at the end of an odd-numbered page (before the form feed breaking the odd-numbered page).

**8. EVEN PAGES, AT THE TOP (TABLE LOOKUP)**

This field identifies the print control sequence to be sent before the start of a new even-numbered page (following the form feed breaking an odd-numbered page).

**9. EVEN PAGES, AT THE BOTTOM (TABLE LOOKUP)**

This field identifies the print control sequence to be sent at the end of an even-numbered page (before the form feed breaking the even-numbered page).

When you finish editing the fields of this screen, the system displays the following prompt:

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

Enter **Y** or press ENTER to accept the changes to the screen and return to the initial prompt of this function. The system displays the following message:

*Assigned PCS's to report*

Enter **N** to continue editing the screen.

**NOTE:** If you delete a PCS that is attached to a port, report or printer and you access the port, report or printer, the PCS name is still displayed on the screen even though it has been deleted. The description of the PCS is not displayed on the screen. You can edit the port, report or printer to attach a valid PCS.

## Assign PCS's to Printers

The Assign PCS's to Printers function allows you to assign a print control sequence to a specific printer. Whatever output is sent to the port uses the PCS that has been assigned.

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

*Enter printer name to assign PCS to or first letters and a dash (-) --*

Enter the name of the printer to which you are assigning a print control sequence, or enter a hyphen (-) to display and select from a list of printers.

When you identify the desired printer, a screen similar to the following is displayed:

```

General Hospital Assign PCS's to Printers Processor
                                Fri Jun 24, 2005 10:57 am

( 1)Name / Code                  : 1E
( 2)Pre-report PCS               :
( 3)Post-report PCS              :
( 4)Every page, at the Top       :
( 5)Every page, at the Bottom:
( 6)Odd pages, at the Top        :
( 7)Odd pages, at the Bottom:
( 8)Even pages, at the Top       :
( 9)Even pages, at the Bottom:
Page:08                          Defined Print Control Sequences
( 1) _B14      HP PORT LEGAL 6LPI 10C  ( 9) _B22      HP PORT LETTER 6LPI 16
( 2) _B15      HP PORT LEGAL 6LPI 12C  (10) _B23      HP PORT LETTER 8LPI 10
( 3) _B16      HP PORT LEGAL 6LPI 16.  (11) _B24      HP PORT LETTER 8LPI 12
( 4) _B17      HP PORT LEGAL 8LPI 10C  (12) _B25      HP PORT LETTER 8LPI 16
( 5) _B18      HP PORT LEGAL 8LPI 12C  (13) _B26      HP TRAY 1
( 6) _B19      HP PORT LEGAL 8LPI 16.  (14) _B27      HP TRAY 2
( 7) _B20      HP PORT LETTER 6LPI 10  (15) _B28      HP TRAY 3
( 8) _B21      HP PORT LETTER 6LPI 12  (16) _B29      HP RESET PRINTER

Enter choice--
              next pg(/ or PG DN)  previous pg(/P or PG UP)  Search(TAB)

```

## Field Explanations

### 1. NAME/CODE (DISPLAY ONLY)

This field displays the name of the printer, as selected when accessing this screen.

### 2. PRE-REPORT PCS (TABLE LOOKUP)

This field identifies the print control sequence to be sent before a report begins printing at the printer.

### 3. POST-REPORT PCS (TABLE LOOKUP)

This field identifies the print control sequence to be sent after a report finishes printing at the printer.

### 4. EVERY PAGE, AT THE TOP (TABLE LOOKUP)

This field identifies the print control sequence to be sent before the start of a new page (following the form feed breaking the page).

### 5. EVERY PAGE, AT THE BOTTOM (TABLE LOOKUP)

This field identifies the print control sequence to be sent at the end of a page (before the form feed breaking the page).

### 6. ODD PAGES, AT THE TOP (TABLE LOOKUP)

This field identifies the print control sequence to be sent before the start of a new odd-numbered page (following the form feed breaking an even-numbered page).

### 7. ODD PAGES, AT THE BOTTOM (TABLE LOOKUP)

This field identifies the print control sequence to be sent at the end of an odd-numbered page (before the form feed breaking the odd-numbered page).

**8. EVEN PAGES, AT THE TOP (TABLE LOOKUP)**

This field identifies the print control sequence to be sent before the start of a new even-numbered page (following the form feed breaking an odd-numbered page).

**9. EVEN PAGES, AT THE BOTTOM (TABLE LOOKUP)**

This field identifies the print control sequence to be sent at the end of an even-numbered page (before the form feed breaking the even-numbered page).

When you finish editing the fields of this screen, the system displays the following prompt:

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

Enter **Y** or press ENTER to accept the changes to the screen and return to the initial prompt of this function. The system displays the following message:

*Assigned PCS's to printer*

Enter **N** to continue editing the screen.

**NOTE:** If you delete a PCS that is attached to a port, report or printer and you access the port, report or printer, the PCS name is still displayed on the screen even though it has been deleted. The description of the PCS is not displayed on the screen. You can edit the port, report or printer to attach a valid PCS.

## Assign PCS's to Ports

The Assign PCS's to Ports function allows you to assign a print control sequence to a specified MSE port. Whatever output is sent to the port uses the PCS that has been assigned.

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

*Enter port to assign PCS to or `` for list --*

Enter the port to which you are assigning a print control sequence, or enter a hyphen (-) to display and select from a list of ports.

When you identify the desired port, the system displays a screen similar to the following:

```

General Hospital Assign PCS's to Ports Processor
                                Fri Jun 24, 2005 11:13 am

( 1)Name / Code                  : 16
( 2)Pre-report PCS               :
( 3)Post-report PCS              :
( 4)Every page, at the Top       :
( 5)Every page, at the Bottom:
( 6)Odd pages, at the Top        :
( 7)Odd pages, at the Bottom    :
( 8)Even pages, at the Top       :
( 9)Even pages, at the Bottom:
Page:07                          Defined Print Control Sequences
( 1) UMHEADER   Utilization Management ( 9) _A6      HP LANDS LEGAL 8LPI 16
( 2) UMREV      Utilization Management (10) _A7      HP LANDS LETTR 6LPI 10
( 3) VSMCONTROL BOLD CHARACTER          (11) _A8      HP LANDS LETTR 6LPI 12
( 4) _A1        HP LANDS LEGAL 6LPI 10  (12) _A9      HP LANDS LETTR 6LPI 16
( 5) _A2        HP LANDS LEGAL 6LPI 12  (13) _B10     HP LANDS LETTR 8LPI 10
( 6) _A3        HP LANDS LEGAL 6LPI 16  (14) _B11     HP LANDS LETTR 8LPI 12
( 7) _A4        HP LANDS LEGAL 8LPI 10  (15) _B12     HP LANDS LETTR 8LPI 16
( 8) _A5        HP LANDS LEGAL 8LPI 12  (16) _B13     HP PORT 66LPP

Enter choice--
              next pg(/ or PG DN)  previous pg(/P or PG UP)  Search(TAB)

```

## Field Explanations

### 1. NAME/CODE (DISPLAY ONLY)

This field displays the name of the port, as selected when accessing this screen.

### 2. PRE-REPORT PCS (TABLE LOOKUP)

This field identifies the print control sequence to be sent before a report is sent to the port.

### 3. POST-REPORT PCS (TABLE LOOKUP)

This field identifies the print control sequence to be sent after a report is sent to the port.

### 4. EVERY PAGE, AT THE TOP (TABLE LOOKUP)

This field identifies the print control sequence to be sent before the start of a new page (following the form feed breaking the page).

### 5. EVERY PAGE, AT THE BOTTOM (TABLE LOOKUP)

This field identifies the print control sequence to be sent at the end of a page (before the form feed breaking the page).

### 6. ODD PAGES, AT THE TOP (TABLE LOOKUP)

This field identifies the print control sequence to be sent before the start of a new odd-numbered page (following the form feed breaking an even-numbered page).

**7. ODD PAGES, AT THE BOTTOM (TABLE LOOKUP)**

This field identifies the print control sequence to be sent at the end of an odd-numbered page (before the form feed breaking the odd-numbered page).

**8. EVEN PAGES, AT THE TOP (TABLE LOOKUP)**

This field identifies the print control sequence to be sent before the start of a new even-numbered page (following the form feed breaking an odd-numbered page).

**9. EVEN PAGES, AT THE BOTTOM (TABLE LOOKUP)**

This field identifies the print control sequence to be sent at the end of an even-numbered page (before the form feed breaking the even-numbered page).

When you finish editing the fields of this screen, the system displays the following prompt:

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

Enter **Y** or press ENTER to accept the changes to the screen and return to the initial prompt of this function. The system displays the following message:

*Assigned PCS's to port*

Enter **N** to continue editing the screen.

**NOTE:** If you delete a PCS that is attached to a port, report or printer and you access the port, report or printer, the PCS name is still displayed on the screen even though it has been deleted. The description of the PCS is not displayed on the screen. You can edit the port, report or printer to attach a valid PCS.



## CONTROLLING THE PRINT QUEUE

The Queue Control function provides parameter control for the Spooler. To access the Queue Control process select the Queue Control option from the Spooler menu.

```

                                General Hospital Output Management Processor
                                Wed Aug 11, 1993 09:27 am
Output Management Input Options

Option No.  Option
-----
    1      Reports Maintenance
    2      Printer Maintenance
    3      Forms Maintenance
    4      Assign a Form to a Printer
    5      Define Batch Report Groups
    6      Print Control Maintenance

    7      Queue Control
    8      Print Job Control
    9      Disabled printer display

   10      Demand Print
   11      View Spooled Reports
   12      Write Reports to Tape
   13      Print Special Forms
   14      Spooler Control Reports
   15      Star Fax
Enter option number--7
```

Once you select the Queue Control function, the system displays the following menu:

```

                                General Hospital Queue Control Processor
                                Fri Sep 09, 2011 11:40 am
Queue Control Input Options

Option No.  Option
-----
    1      Queue Review
    2      Fax Queue Review
    3      Reassign Spooled Output

    4      Start/stop print spooler queuing

    5      Print Spooler Control Parameters
    6      Output Driver Maintenance
    7      Fax Update List Routines

    8      Spool File Reporting
    9      Spool File Maintenance

Enter option number--
```

## Reviewing the Queue

The Queue Review function provides the ability to review the current status of print jobs waiting to print on the various devices handled by the spooler. To access Queue

Review select the Queue Review from the Queue Control menu. The system prompts you for the queue you want to display:

*Review which queue (System)--*

Press ENTER to select the System queue.

The Queue Review processor reviews each port on the system:

```
General Hospital Queue Review Processor
                                Fri Feb 22, 1991 08:43 am
ID-1  Spooler-Active  Max jobs-15  Printing-1  Partitions-39
                                Queue: System
Page:01      Ports with Reports in System Print Queue
( 1) 17

Enter number of port to review--1
```

At the top of this screen the system displays the ID number, the spooler status, the maximum number of jobs, the number of jobs printing, the number of partitions and the queue you selected.

If a port has data spooled and waiting to print, the system lists the port for selection. Enter the displayed option number for the port you want to review.

Once you select the port to review the system displays the following screen:

```
General Hospital Queue Review Processor
                                Fri Feb 22, 1991 08:43 am
ID-1  Spooler-Active  Max jobs-15  Printing-1  Partitions-39
                                Queue: System
Page:01      Printer status for port(s) 17
Port  Spool Status  Printer Status Form      Type      Location
( 1)  17  Active      Busy      STANDARD  *ANSI protoc  Industry Standa

Enter NL to review queued reports--
```

For each report spooled to the selected port, the screen provides the following:

## Field Explanations

### PORT NUMBER

This is the port number you selected on the previous screen.

### SPOOL STATUS

This is Active if the spooler is turned on and Inactive if the spooler is turned off for the port.

### PRINTER STATUS

The possible printer status values and their meanings:

**BUSY**            The port is currently being used by a job. No status checking can be done.

**ON-LINE**        The port is not in use by another job.

### FORM

Standard is the default value for this field. The only other possible values are any special forms you defined under form definition.

### TYPE

This field contains the type value from the Port Definition.

### LOCATION

This field contains the location from the Port Definition.

If you press ENTER at the previous screen the reports for each port display in order. A sample screen follows:

```

                                General Hospital Queue Review Processor
                                Fri Feb 22, 1991 08:43 am
                                ID-1   Spooler-Active   Max jobs-15   Printing-1   Partitions-39
                                Queue: System

Page:01                      Reports queued to printer(s) 17
  Name      ID  Date  Time  Description  Form      Status   Prints When
( 1) FIN    1  02/22  8 39am  Financials De      Active   Demand

Enter NL to review next printer queue--

```

This screen provides the following information on each report from the Report Definition table:

- The report name
- The ID in which the report was created
- The date the report was created
- The time the report was created
- The report description
- The report form
- The report status
- When the report prints

To view the next print queue press ENTER. To exit the processor enter a period (.).

## Fax Queue Review

The Fax Queue Review function displays a list of PCDFAX fax reports that have been queued to the fax server, but have not yet been processed by the fax download manager. Note that this function displays only those fax reports that have been sent using McKesson's PCDFAX products; other fax reports display in the Queue Review function, as discussed beginning here.

When you select this function, the system compiles and sorts a list of fax reports in the queue awaiting the fax server. If there are no fax reports in the queue, the system displays the following message:

*There are no queued fax requests! Press NL to continue--*

Press ENTER to return to the menu.

If there are fax reports in the queue, the system displays them chronologically by their creation date and time, as on the following screen:

General Hospital Fax Queue Review Processor						
Fri Aug 13, 1993 09:48 am						
Page:01		Unprocessed Fax Requests				
Name	ID	Date	Time	Description	Prints When	
( 1 ) LABFAXA	2	08/12	9 21am	Fax Panic Reports	Immediate	
( 2 ) LABFAXP	2	08/12	9 21am	Fax Primary Reports	Immediate	
( 3 ) LABFAXS	2	08/12	9 21am	Fax Summary Reports	Immediate	
( 4 ) LABFAXA	2	08/12	9 24am	Fax Panic Reports	Immediate	
( 5 ) LABFAXP	2	08/12	9 24am	Fax Primary Reports	Immediate	
( 6 ) LABFAXS	2	08/12	9 24am	Fax Summary Reports	Immediate	
( 7 ) LABFAXA	2	08/12	9 25am	Fax Panic Reports	Immediate	
( 8 ) LABFAXP	2	08/12	9 25am	Fax Primary Reports	Immediate	
( 9 ) LABFAXS	2	08/12	9 25am	Fax Summary Reports	Immediate	
Press NL to exit--						
next page(/)						

This screen provides the following information on each fax report in the queue awaiting processing by the fax server:

- The report name
- The ID in which the report was created
- The date the report was created
- The time the report was created
- The report description
- When the report prints

Press ENTER to exit the display and return to the Queue Control menu.

## Reassign Spooled Output

The Reassign Spooled Output function enables you to redirect the spooled data to a different device. Use this function when a given printer fails and you need to print the output before the device can be serviced. You can also use this function to move spooled output from the active queue into the demand queue.

To access this function select the Reassign Spooled Output option. The system displays the printers in the system queue that have spooled output:

```

                General Hospital Reassign Spooled Output Processor
                                Fri Feb 22, 1991 08:48 am
Page:01                Printers in System Print Queue
( 1) 17

Select printer to reassign--

```

Enter the option number for the printer(s) you want to reassign. Once you select printers, the system displays output spooled for that device:

```

                General Hospital Reassign Spooled Output Processor
                                Fri Feb 22, 1991 08:48 am
Page:01                Printer status for port(s) 17
      Port  Spool Status  Printer Status Form      Type      Location
( 1)  17   Active      Busy          STANDARD  *ANSI protoc  Industry Standa

Enter NL to continue--

```

For each printer the system displays the following:

## Field Explanations

### PORT NUMBER

This is the port number you entered on the previous screen.

### SPOOL STATUS

This is Active if the spooler is turned on and Inactive if the spooler is turned off.

### PRINTER STATUS

The possible printer status values and their meanings:

**BUSY** The port is currently being used by a job. No status checking can be done.

**ON-LINE** The port is not in use by another job. If the port is specified as Answerback, the printer responded correctly.

**FORM**

*Standard* is the default value for this field. The only other possible values are any special forms you defined under report definition.

**TYPE**

This field contains the type value from the Port screen.

**LOCATION**

This field contains the location from the Port screen.

Press ENTER at the previous screen and the system prompts for a new port.

*Reassign Output To Port Or 'D'demand Queue  
Enter Port Number or 'D' For Demand Queue--19*

If you enter D to place the report back into the demand queue, the system displays the following:

*Reassign Spooled Output For Port(s) 17 to Demand Print Queue. OK? (Y/N)*

Enter **Y** to complete the reassignment to the demand print queue. The system displays the following:

*Reassigning*

In this example port 17 is reassigned to port 19.

After you enter the new port number, the system displays information on the new printer.

General Hospital Reassign Spooled Output Processor	
Fri Feb 22, 1991 08:48 am	
( 1)Port Number	: 19
( 2)Terminal Type:	PRINTER, Kyocera Laser
( 3)Answerback	: No
( 4)Printer Names:	19
( 5)Spool Status	: On
( 6)Location	: Laser Printer
( 7)Phone Number	: 393-6000
( 8)Comment	: Installed 02/22/91
Reassign Spooled Output For Ports 17 To Port 19. OK? (Y/N)	

The fields on this screen are for display only and cannot be modified. The system displays this information from the Port table. For more information and field explanations, refer to the System Management section, earlier in this volume.

The prompt on this screen asks you to confirm the port change. Enter **Y** to accept the change. Enter **N** to exit the processor.

Once you confirm the change the following prompt enables you to activate the new port for spooling:

*Activate Port 19 For Spooling? (Y/N) [Y]*

Enter **Y** or press ENTER to print spooled output on the new device.

## Start/Stop Print Spooler Queuing Function

The Start/Stop Print Spooler Queuing function enables you to shut down spooler output to all devices and all queues. This is typically used during shutdown processes. When you select this option the system displays the following prompt:

*The Spooler queuer will be terminated for all lds. Accept (Y/N)?--*

Enter **Y** to shut down spooler output to all devices and all queues. Enter **N** to return to the Queue Control menu.

## Print Spooler Control Parameters

The Print Spooler Control Parameters option provides the main spooler tuning parameters on one screen. Adjustments to these values affect the limits and timings of the print spooler.

When Print Control Maintenance is selected, the system displays the following screen:

General Hospital Spooler Parameters Processor					
Fri Sep 09, 2011 03:12 pm					
1 Max Print Jobs	2 Printer Port DL T/O	3 Queue Lock T/O			
40 jobs	5 minutes	2 seconds			
4 Report Page Limit	5 Queue Hang Time	6 Answerback T/O			
2000 pages	1 second	1 second			
Enter field number or '/' starting field number--					



## Field Explanations

### 1. MAX PRINT JOBS (3-N-R)

This field determines the maximum number of MSE jobs the spooler uses as print jobs. When you access this field, the following prompt is displayed:

*Enter new maximum number of spooler print jobs (10-100) [30]--  
Enter the number of MSE jobs the spooler can use (10 to 100).*

Enter a number between 10 and 100 for the maximum number of spooler print jobs, or press ENTER to accept the default of 30. Then enter a number between 10 and 100 for the number of MSE jobs the spooler can use.

### 2. PRINTER PORT DL TIMEOUT (2-N-R)

This field determines the number of minutes the spooler waits before attempting to resend a queued request to a printer after each failed attempt to open the printer's port. When you access this field, the following prompt is displayed:

*Enter new printer disabled list timeout (1-60) [5]--*

Enter the number of minutes to wait between attempts to send output to a disabled printer port (0 to 60).

### 3. QUEUE LOCK TIMEOUT (2-N-O)

This field defines the amount of time in seconds that the spooler attempts to lock a report exclusively so that it can begin printing. The setting of this parameter determines how long a print operation waits before moving on to the next report in queue when multiple jobs are attempting to print the same report simultaneously. The following prompt is displayed when this field is accessed:

*Enter print queue lock timeout (0-10) [2]--*

Enter the number of seconds (0 to 10) before timeout occurs and the report is skipped for the current pass of the print queue.

### 4. REPORT PAGE LIMIT (6-N-O)

This field defines the maximum number of pages allowed in a spooled report. This helps prevent runaway reports from endlessly looping, eventually filling up all available disk blocks and crashing the system. The following prompt is displayed when this field is accessed:

*Enter new max pages per spooled report --  
Enter the maximum number of pages (10 to 999999) to limit spooled report size.*

Enter a number for the maximum pages per spooled report. Then enter a number between 10 and 999,999 for the maximum number of pages.

**NOTE:** The system checks the spooling report against the value you enter using this function. If the number of pages spooled exceeds this value, the system prints a warning message on the console printer and then halts the print spooler job and waits to continue. The user must then either:

- Halt the job.
- Increase the maximum number of pages for the report (see Report Maintenance).
- Increase the maximum number of pages for all spooled report, using this function.

#### **5. QUEUE HANG TIME (2-N-O)**

This field defines the amount of time in seconds between searches of the system queue. The following prompt is displayed when this field is accessed:

*Enter new queue hang time (0-10) [2]--*

*Enter the number of seconds (0 to 10) for spooler to idle between passes of the print queue.*

Enter a number of seconds between 0 and 10 to set the queue hang time, or press ENTER to accept the default of 2 seconds. Then enter a number of seconds between 0 and 10 for the spooler to idle between searches.

#### **6. ANSWERBACK TIMEOUT (1-N-O)**

This field defines the number of seconds to wait for a response to status inquiries for printers with answerback capability. The following prompt is displayed when this field is accessed:

*Enter new printer answerback timeout (1-9) [5]--*

*Enter the number of seconds (1 to 9) for spooler to wait for a status inquiry response.*

Enter a number of seconds between 1 and 9 to set the time to wait for a response, or press ENTER to accept the default of 5 seconds. Then enter a number of seconds between 0 and 9 for the spooler to wait for a response.

After initially accepting changes to one or more fields in the Print Spooler Control Parameter screen, the pending changes are redisplayed so that the user can view the previous values and verify that the pending changes are appropriate.

General Hospital Spooler Parameters Processor		
Fri Sep 09, 2011 04:36 pm		
1 Max Print Jobs	2 Printer Port DL T/O	3 Queue Lock T/O
45 jobs	10 minutes	2 seconds
4 Report Page Limit	5 Queue Hang Time	6 Answerback T/O
25000 pages	1 second	3 seconds
Field 1:Max Print Jobs changed from 99 jobs to 45 jobs		
Field 2:Printer Port DL T/O changed from 5 min to 10 min		
Field 6:Answerback T/O changed from 5 sec to 3 sec		
Accept (Y/N)?-		

After you verify the pending value changes, the system asks again if you want to accept your entries to this screen. Enter **Y** to accept the current contents of the screen. Enter **N** to return to the screen without accepting your changes.

## Output Driver Maintenance Function

The Output Driver Maintenance function enables you to use the spooler to write to special output devices. This function is called for each logical printer that has the driver specified in its setup definitions. Drivers are created by McKesson for use in special interfaces. The driver must first be defined before it can be specified in the printer setup. You must enter the name and description of the driver as well as the program to be executed.

## Fax Update List Routines

This function updates a specified dynamic fax distribution list. The list updated is one maintained by the system using a specified program routine. When you use this function to update the dynamic fax distribution list, the system uses information in the application database to create a new fax distribution list.

**NOTE:** Since fax update list routines are system routines, they must be built by McKesson employees.

Dynamic fax distribution lists are identified for a specific report using the Owner and List Update Routine fields in Reports Maintenance. For more information, see the explanation of the Reports Maintenance function.

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

*Enter owner's product code--*

Enter the product code of the product that owns the fax list routine. Fax list routines must be assigned to a specific product.

When you identify the product the system displays the following prompt:

*Enter update list routine code, or '-' to list--*

Enter the list update routine or enter a hyphen (-) to display and select a routine from a list. The list update routines displayed are determined by the owner you identified at the preceding prompt.

To add a new list update routine, enter the name of the routine. The system prompts if you want to add the routine. Enter **Y** to add the routine; enter **N** to return to the preceding prompt.

When you select a list update routine, the system displays the following screen:

General Hospital Fax Update List Routines Processor		
Sun Sep 12, 1993 11:26 am		
1 Product Code	2 List Code	3 Update List Description
L	SUMMARY	LAB SUMMARY REPORTS
4 Update List Routine		
^LSUMR		
Enter field number or '/' starting field number--		

## Field Explanations

### 1. PRODUCT CODE (DISPLAY ONLY)

This field displays the product code of the owner of this fax list routine.

**2. LIST CODE (DISPLAY ONLY)**

This field displays the name of the fax list routine.

**3. UPDATE LIST DESCRIPTION (25-C-O)**

This field contains a description of the fax list routine.

**4. UPDATE LIST ROUTINE (125-C-R)**

This field identifies the application routine used to dynamically build the fax distribution list. You must enter the leading carat (^) preceding this routine name. Fax list routines are defined by McKesson.

When you complete the fields the system prompts you to accept the screen. Enter **Y** to accept the screen and return to the *product owner code* field. Enter **N** to return to the screen and edit the fields. Enter **D** to delete the settings for this fax list routine.

## Spool File Reporting

The Spool File Reporting and Maintenance functions enable you to control the amount of disk space allocated to your spool files. You use Spool File Reporting to find out the status (size, age, and purge date) of your spool files and generate status reports. You use the Spool File Maintenance function to change the date on which spool files are purged, or to purge spool files directly. When disk resources are limited, changing purge dates and purging enables you to allocate disk space efficiently.

For example, if you are low on disk space when you need to print your monthly reports, you would use Spool File Reporting to view the status of your spool files and determine which information to purge. Then, you would use Spool File Maintenance to purge the files directly or, alternatively, to change the purge dates by making them sooner or later than the effective purge dates.

The Spool File Report processor enables you to select and sort spool files and display the results. To access this function, select the Queue Control option from the Output Management Input Options (Spooler) menu. The Queue Control Input Options menu displays. Select the Spool File Reporting option to display the following Spool File Report Processor screen.

General Hospital Spoolfile Report Processor								
Tue Aug 29, 1995 11:26 am								
Volume 0: (4K blks)			Total Blocks:243200		Free Blocks:79301 (32.61%)			
1 ID	2 Queue Name	3 Report Name	4 Printer Name					
5	System	All Reports	All Printers					
5 Spoolfile Size	All spoolfiles regardless of size				6 Report Age	All spoolfiles regardless of age		
7 Purge Date	All spoolfiles regardless of purge date				8 Primary Sort Key	9 Sort Order		
					Spoolfile Size	Descending		
Please wait -- Gathering spooler info -- Reports examined: 800								

## Field Explanations

### 1. ID (3-N-R)

This field displays the ID number in which the reports were created. The default is the current ID.

### 2. QUEUE NAME (U-AN-O)

This field displays the name of the queue in which the reports were created. If only one queue is available, the default queue name, System, displays. If more than one queue is available, a list displays. Select the desired queue.

### 3. REPORT NAME (12-ANC-R) or (TABLE LOOKUP-R)

This field displays the name(s) of the report(s) to be included.

- If you know the name of the report, enter the name.
- To perform a lookup, enter a hyphen (-).
- To select all reports that begin with the same character sequence, enter the sequence followed by an asterisk (\*). For example, to select all reports beginning with FIN, you would enter FIN\*.
- To select all reports, the default, press ENTER.

### 4. PRINTER NAME (U-ANC-R) or (TABLE LOOKUP-R)

This field displays the name(s) of the printer(s) to which the report(s) was spooled. You can select a single printer or all printers (the default).

- To select a single printer, enter the name.
- To look up a printer, enter a hyphen (-). For the selected ID, a list of all printers with reports spooled to them displays.
- To select all printers, press ENTER.

**NOTE:** If a report has multiple printers assigned, the system displays each printer name with a check to indicate a match.

### 5. SPOOLFILE SIZE (U-N-R)

This field enables you to select spool files based on a range of sizes. Select one of the following options:

<lower>-<higher>	Enter a range, such as 1000-5000 bytes. Selects all spool files greater than or equal to <lower> bytes and less than or equal to <higher> bytes.
<lower>-	Enter a lower limit, such as 1000-, a minimum of 1000 bytes. Selects all spool files greater than or equal to <lower> bytes.
<higher>	Enter an upper limit, such as -5000, a maximum of 5000 bytes. Selects all spool files less than or equal to <higher> bytes.

<lower>- <higher>	Enter a range, such as 1000-5000 bytes. Selects all spool files greater than or equal to <lower> bytes and less than or equal to <higher> bytes.
A	Enter <b>A</b> . Selects all spool files regardless of size. This is the default

**6. REPORT AGE (U-N-R)**

This field enables you to select spool files by age (the number of days old). In general, you use the report age and purge date to select your reports. Typically, you would select all reports regardless of age for a specific purge date or range, or reports of a specific age regardless of their purge date. Select one of the following options:

<age>	Enter a specific age, such as 14 days old. Selects all spool files <age> days old.
<lower>- <higher>	Enter a range, such as 14-21 days old. Selects all spool files greater than or equal to <lower> days old and less than or equal to <higher> days old.
<lower>-	Enter a lower limit, such as 14-, a minimum of 14 days old. Selects all spool files greater than or equal to <lower> days old.
-<higher>	Enter an upper limit, such as -21, a maximum of 21 days old. Selects all spool files less than or equal to <higher> days old.
A	Enter <b>A</b> . Selects all spool files regardless of age. This is the default.

**7. PURGE DATE (DATE-R)**

This field enables you to select spool files by purge date. The default is all spoolfiles regardless of purge date. Select one of the following choices:

<date>	Enter a specific date, such as 10/31/95. Selects all spool files scheduled to be purged on <date>.
<lower>- <higher>	Enter a range, such as 10/28/95-10/31/95. Selects all spool files with a purge date greater than or equal to <lower> old and less than or equal to <higher>.
<lower>-	Enter a lower limit, such as 10/28/95. Selects all spool files with a purge date greater than or equal to <lower>.
-<higher>	Enter an upper limit, such as 10/31/95. Selects all spool files with a purge date less than or equal to <higher>.
A	Enter <b>A</b> . Selects all spool files regardless of purge date. This is the default.

**8. PRIMARY SORT KEY (1-A-R)**

This field enables you to sort the report by Report Name, Report Age, Purge Date, or Spool File Size. The default is Report Name.

**9. SORT ORDER (1-A-R)**

This field enables you to sort the report in ascending or descending order. The default is ascending.

After you complete the fields, the system asks if you want to accept your entries to this screen. Enter **Y** to accept the current contents of the screen. Enter **N** to return to the screen without accepting your changes.

Once you accept the screen, the system begins to process the spool files. The status of the processing is displayed at the bottom of the screen.

*Please wait -- Gathering spooler information -- Report examined:*

The system selects the spool files for inclusion on the report, formats the report, and displays the following message:

*Formatting...*

Once the report completes, it is put in a temporary file for review.

Each report consists of two lines. The first line contains the report name, date and time spooled, the age, the purge date, size, and percent utilization. The second line of each report lists as many of the printers assigned to this report that fit on one line, along with the date the report was printed on that printer. An example of this report follows:

General Hospital Spoolfile Report Processor						
Tue Aug 29, 1995 1:26 pm						
Volume 0: (4K blks)		Total Blocks:243200		Free Blocks:79301		(32.61%)
Page:01		Spooled Reports - ID 5				
	Report Name	Dt/Tm Spooled	Age	Purge	Size	Util%
( 1)	PWLDDA	08/29/95 1215am	0	09/01/95	2m	0.21%
	BIT Never					
( 2)	PWLDDA	08/28/95 1213am	1	08/31/95	2m	0.21%
	BIT Never					
( 3)	PWLDDA	08/27/95 1214am	2	08/30/95	2m	0.21%
	BIT Never					
( 4)	PWLDDA	08/26/95 1212am	3	08/29/95	2m	0.21%
	BIT Never					
( 5)	FGL15001	08/25/95 1038am	4	09/01/95	1m	0.19%
	BIT Never					
( 6)	FBR900A	08/29/95 1219am	0	09/03/95	579k	0.06%
	TGDS Never					
( 7)	FBR900A	08/28/95 1217am	1	09/02/95	576k	0.06%
	TGDS Never					
( 8)	FBR900A	08/27/95 1218am	2	09/01/95	575k	0.06%
	TGDS Never					
Enter Choice--						
next page (/)						

## Report Information

### REPORT NAME

The name of the report.

### DT/TM SPOOLED

The date and time the report was spooled.

### AGE

The age of the spool files in days.



**PURGE**

The date on or date range within which the spool files are scheduled to be purged.

**SIZE**

The size of the report. If the report is larger than one megabyte, its size is shown in megabytes. Less than one megabyte, but greater than one kilobyte, size is shown in kilobytes. For reports smaller than one kilobyte, size is shown in bytes.

**UTIL%**

The size of the report divided by the size of volume zero (0). If the system utilization is less than 0.01 percent, the field is left blank.

To obtain more information about a particular report, select the report. The system displays the following screen:

To view information about another report, press ENTER. The system displays a table listing the available reports. Select the desired report. When you complete your review of the reports, press ENTER to return to the Spool File Report Processor menu.

## Spool File Maintenance

The Spool File Maintenance function enables you to control the amount of disk space allocated to your spool files. You use Spool File Maintenance to select the spool files and to change their purge dates, or to purge the selected spool files directly.

For example, at the end of the month, if you are low on disk space, you would use Spool File Maintenance to view the status of your spool files and select the information to purge. Then, you would use Spool File Maintenance to purge the files directly or, alternatively, to change the purge dates by making them sooner or later than their effective purge dates.

In the example shown in the following screens, end of month report processing starts in two days. The operator estimates a need for 1000 blocks of disk space. Reports to be purged on 11/03/95 or before may be purged, since reports are only kept for 30 days. Reports with a purge date between 10/29/95 and 11/02/95 and a minimum of 7 days old are selected for purging. The report is sorted by size in descending order to permit quick review. To obtain the needed disk space, the purge date for all reports meeting this criteria would have their purge dates changed to 10/29/95. The system would purge these spool file reports during midnight processing.

To access this function, select the Spool File Maintenance option from the Spooler menu.

The Spool File Maintenance Processor screen is displayed:

```

                                General Hospital Spool File Maintenance Processor
                                Sat Oct 29, 1995 02:16 pm
Volume 0: (8K blks)  Total Blocks:250000  Free Blocks:44629 (17.85%)
1 ID      2 Queue Name      3 Report Name      4 Printer Name
1         System           All Reports        All Printers
5 Spoolfile Size      6 Report Age
  Minimum of 1000 bytes  Minimum of 7 days old
7 Purge Date          8 Primary Sort Key      9 Sort Order
  Between 10/29/95 and 11/02/95  Spoolfile Size      Descending

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

```

## Field Explanations

### 1. ID (3-N-R)

This field displays the ID number in which the reports were created. The default is the current ID.

### 2. QUEUE NAME (U-AN-O)

This field displays the name of the queue in which the reports were created. If only one queue is available, the default queue name, System, is used. If more than one queue is available, a list displays. Select the desired queue.

### 3. REPORT NAME (12-ANC-R) or (TABLE LOOKUP-R)

This field displays the name(s) of the report(s) to be included.

- If you know the name of the report, enter the name.
- To perform a lookup, enter a hyphen (-).
- To select all reports that begin with the same character sequence, enter the sequence followed by an asterisk (\*). For example, to select all reports beginning with FIN, you would enter FIN\*.
- To select all reports, the default, press ENTER.

### 4. PRINTER NAME (U-N-R)

This field displays the name(s) of the printer(s) to which the report(s) was spooled. You can select a single printer or all printers (the default).

- To select a single printer, enter the name.

- To look up a printer, enter a hyphen (-). For the selected ID, a list of all printers with reports spooled to them displays.
- To select all printers, press ENTER.

**NOTE:** If a report has multiple printers assigned, the system displays each printer name with a check to indicate a match.

### 5. SPOOLFILE SIZE (U-N-R)

This field enables you to select spool files based on a range of sizes. Select one of the following options:

<lower>-<higher>	Enter a range, such as 1000-5000 bytes. Selects all spool files greater than or equal to <lower> bytes and less than or equal to <higher> bytes.
<lower>-	Enter a lower limit, such as 1000-, a minimum of 1000 bytes. Selects all spool files greater than or equal to <lower> bytes.
-<higher>	Enter an upper limit, such as -5000, a maximum of 5000 bytes. Selects all spool files less than or equal to <higher> bytes.
A	Enter <b>A</b> . Selects all spool files regardless of size. This is the default.

### 6. REPORT AGE (U-N-R)

This field enables you to select spool files by age (the number of days old). In general, you use the report age and purge date to select your reports. Typically, you would select all reports regardless of age for a specific purge date or range, or reports of a specific age regardless of their purge date. Select one of the following options:

<age>	Enter a specific age, such as 14 days old. Selects all spool files <age> days old.
<lower>-<higher>	Enter a range, such as 14-21 days old. Selects all spool files greater than or equal to <lower> days old and less than or equal to <higher> days old.
<lower>-	Enter a lower limit, such as 14-, a minimum of 14 days old. Selects all spool files greater than or equal to <lower> days old.
-<higher>	Enter an upper limit, such as -21, a maximum of 21 days old. Selects all spool files less than or equal to <higher> days old.
A	Enter <b>A</b> . Selects all spool files regardless of age. This is the default.

**7. PURGE DATE (DATE-R)**

This field enables you to select spool files by purge date. The default is all spoolfiles regardless of purge date. Enter one of the following choices:

<date>	Enter a specific date, such as 10/31/95. Selects all spool files scheduled to be purged on <date>.
<lower>-<higher>	Enter a range, such as 10/28/95-10/31/95. Selects all spool files with a purge date greater than or equal to <lower> old and less than or equal to <higher>.
<lower>-	Enter a lower limit, such as 10/28/95. Selects all spool files with a purge date greater than or equal to <lower>.
-<higher>	Enter an upper limit, such as 10/31/95. Selects all spool files with a purge date less than or equal to <higher>.
A	Enter <b>A</b> . Selects all spool files regardless of purge date.

**8. PRIMARY SORT KEY (1-A-R)**

This field enables you to sort the report by Report Name, Report Age, Purge Date, or Spool File Size. The default is Report Name.

**9. SORT ORDER (1-A-R)**

This field enables you to sort the report in ascending or descending order. The default is ascending.

After you complete the fields, the system asks if you want to accept your entries to this screen. Enter **Y** to accept the current contents of the screen. Enter **N** to return to the screen without accepting your changes.

Once you accept the screen, the system begins to process the spool files. The status of the processing is displayed at the bottom of the screen. The system selects the spool files for inclusion on the report and formats the report. During formatting the following message displays:

*Formatting...*

Once the report completes, it is put in a temporary file for review.

Each report consists of a two line entry. The first line contains the report name, date and time spooled, the age, the purge date, size, and percent utilization. The second line lists as many of the printers assigned to this report that fit on one line, along with the date the report was printed on that printer.

An example of this report follows:

General Hospital Spool File Maintenance Processor						
Volume 0: (8K blks)			Total Blocks:250000		Free Blocks:44651 (17.86%)	
Page:01			Spooled Reports - ID 9		Sat Oct 29, 1995 02:20 pm	
Report Name	Dt/Tm Spooled	Age	Purge	Size	Util%	##=Current Choices
( 1 ) HPRG0501	10/03/95 0338pm	9	11/02/95	15k		
BIT Never						
( 2 ) HPRG0501	10/03/95 0139pm	9	11/02/95	11k		
BIT Never						
( 3 ) HPRG0501	10/03/95 1049am	9	11/02/95	8k		
BIT Never						
( 4 ) HPRG0501	09/29/95 0155pm	13	10/29/95	7k		
BIT Never						
( 5 ) HPRG0501	10/02/95 0156pm	10	11/01/95	4k		
BIT Never						
( 6 ) HPRG0501	10/03/95 1039am	9	11/02/95	4k		
BIT Never						
( 7 ) GMRSB201	10/02/95 1234am	10	11/01/95	2k		
BIT Never						
( 8 ) GMRSB201	10/01/95 1241am	11	10/31/95	2k		
BIT Never						
Enter choices (e.g. 1,7,5-9) or '-'choices to remove--						
end selection(NL) next page(/)						

## Report Information

### REPORT NAME

The name of the report.

### DT/TM SPOOLED

The date and time the report was spooled.

### AGE

The age of the spool files in days.

### PURGE

The date on or date range within which the spool files are scheduled to be purged.

### SIZE

The size of the report. If the report is larger than one megabyte, its size is shown in megabytes. Less than one megabyte, but greater than one kilobyte, size is shown in kilobytes. For reports smaller than one kilobyte, size is shown in bytes.

### UTIL%

The size of the report divided by the size of volume zero (0). If the system utilization is less than 0.01 percent, the field is left blank.

At this point, you may select the spool file(s) you want to either purge or change the purge dates for. The system displays the following prompt:

Enter choices (e.g. 1, 7, 5-9) or '-' choices to remove-- 1-2  
end selection (NL)

Select the spool files. Press ENTER, the system displays the following prompt:

*Change purge dates or Purge spool files (C/P) [C] --*

Enter **C** to change the purge dates or enter **P** to purge the selected spool files.

If you selected to change the purge dates, the system displays the following screen with detailed information for the spool file.

```

                                General Hospital Spool File Maintenance Processor
                                Sat Oct 29, 1995 02:26 pm
Volume 0: (8K blks)  Total Blocks:250000  Free Blocks:44629 (17.85%)

ID:                9
Queue:             System
Report Name:       HPRG0501
Date Spooled:      10/03/95 03:38 pm (9 days old)
Purge Date:        11/02/95
Spoolfile Size:    16,308 bytes
Printer(s):        BIT          Printed: **Never Printed**

Change spoolfile purge date to [10/29/95]--

```

The system then prompts you for the new purge date:

*Change spool file purge date to [08/29/95] --*

Enter a new purge date or accept the displayed default date (today's date). You are then prompted to complete the update process:

*(U)pdate/Update (All)/(S)kip/(Q)uit [U] --*

Select one of the following update options:

- |                   |   |
|-------------------|---|
| <b>Update</b>     | Enter <b>U</b> to update the purge date for this spool file to the date selected and then display the next one selected. The selected date becomes the default. |
| <b>Update All</b> | Enter <b>A</b> to update immediately all selected spool files with the new purge date.  |
| <b>Skip</b>       | Enter <b>S</b> to skip updating this spool file's purge date and proceed to the next spool file.  |
|                   | <b>Note:</b> Entering a period (.) or ENTER is the same as entering a Skip.   |
| <b>Quit</b>       | Enter <b>Q</b> to stop the Update Purge Dates function without updating any purge dates.  |

If you selected to purge spool files, the system displays detailed information for the spool file and the following prompt is displayed:

*Ok to purge this spool file ((Y)es/ (N)o/ Purge (A)ll / (Q)uit) [N]*

Select one of the following purge options:

- |                  |   |
|------------------|---|
| <b>Yes</b>       | Enter <b>Y</b> to purge this spool file and then display the next spool file.   |
| <b>No</b>        | Enter <b>N</b> if you do not want to purge this spool file. The next selected spool file is displayed.<br><b>Note:</b> Entering a period (.) or ENTER is the same as if you entered No. The spool file is not purged. |
| <b>Purge All</b> | Enter <b>A</b> to purge all selected spool files.   |
| <b>Quit</b>      | Enter <b>Q</b> to stop the Update Purge Dates function without updating any purge dates.  |

If a spool file was never printed, the system prompts you twice to confirm your request to purge the selected spool file even in Purge All mode.

If a spool file is currently queued to print or if a page index is being created for View Spooled Reports, the system cannot purge the file. When the system completes purging spool files, the Queue Control Processor menu displays.

## PRINT JOB CONTROL

The Print Job Control function provides a dynamic display of the reports printing on the system.

```

                                General Hospital Output Management Processor
                                Wed Aug 11, 1993 09:27 am
Output Management Input Options

Option No.  Option
-----
      1      Reports Maintenance
      2      Printer Maintenance
      3      Forms Maintenance
      4      Assign a Form to a Printer
      5      Define Batch Report Groups
      6      Print Control Maintenance

      7      Queue Control
      8      Print Job Control
      9      Disabled printer display

     10      Demand Print
     11      View Spooled Reports
     12      Write Reports to Tape
     13      Print Special Forms
     14      Spooler Control Reports
     15      Star Fax
Enter option number--8

```

To access this function select the Print Job Control option from the Spooler menu.

Once you select the Print Job Control option, the system displays the following screen:

```

                                General Hospital Print Job Control Processor
                                Fri Feb 22, 1991 08:45 am
Print Job Control Input Options

Option No.  Option
-----
      1      Review Print Job
      2      Recover Spooled File
      3      Abort Print Job

Enter option number--1

```

### Review Print Job

Select the Review Print Job option and the system displays the following prompt:

*Display busy printers as offline (Y) ? --*



To display busy printers as offline, enter **Y** or press **ENTER**. To have the system access the printer and determine its status, enter **N**.

Once you respond to the previous prompt, the system displays the following screen:

General Hospital Review Print Job Processor									
Fri Feb 22, 1991 08:47 am									
ID-1		Spooler-Active		Max jobs-15		Printing-1		Partitions-39	
Spooler Jobs Currently Printing (Busy=Offline)									
Dev	Location	Report	Form	Size	Status	Time (Mins)			
17	Industry Standard	FIN	STANDARD	5.0K	PRINTING	6			
Review again (Y) ?--									

At the top of this screen the system displays the ID number, the spooler status, the maximum number of jobs, the number of jobs printing and the number of partitions. Below this line of information the system displays the screen title, Spooler Jobs Currently Printing. If you requested that busy printers display as offline, the screen title is followed by (Busy=Offline).

This screen provides the following for each spooler job printing on the system:

## Field Explanations

### PORT NUMBER

This is the port number for each spooler job.

### LOCATION

This field contains the location of the printer.

### REPORT

This is the spool report name.

### FORM

The default value for this field is Standard. The only other possible values are any special form names you entered when defining your report.

### SIZE

This field contains the number of bytes of storage required by the spool file.

**PRINTER STATUS**

The possible printer status values and their meanings:

<b>BUSY</b>	The port is currently being used by a job. No status checking can be done.
<b>ON-LINE</b>	The port is not in use by another job.
<b>TIME (MINS)</b>	This field contains the number of minutes the report has been printing.

**Recover Spool Files**

If a program that is producing a spooled report or other spooled output terminates abnormally, the spool file may not be accessible. To access the spooled output from such a program, use the Recover Spool Files utility

To recover spool files, select the Recover Spooled Files option from the Print Job Control menu. The system displays a list of lost spooled files:

```

General Hospital Recover Spooled File Processor
                                Fri Feb 22, 1991 10:02 am
Page:01                                ##=Current Choices
Recover Crashed Spooler Files - * may still be in progress
Report      Creation Date Printer    ID  Program  Comment
( 1) *FIN    02/22/91 1000 BIT        1  FURPRT   Corrected Report

Enter choices (e.g. 1,7,5-9) or '-'choices to remove--

```

Enter the option number(s) of the spooled reports to be recovered. The system displays the following prompt:

*Report FIN may be in progress - Are you sure ? (Y/N) [N] --*

The asterisk (\*) to the left of the report name on the previous screen indicates that the program may still be running. Verify that it has terminated before attempting to recover the spool file.

Enter **Y** at the previous prompt to continue the file recovery:

*Move report(s) to Demand queue or print Immediately? (D/I) [D]--*

Enter **D** to move the recovered spool files to the demand queue for later printing. Enter **I** to print the recovered files immediately. The system displays the following message:

*Recovering File ( )*

## Abort Print Job

The Abort Print Job utility enables you to stop a spool file being printed. When you select this function the system displays the print jobs currently executing:

```

                                General Hospital Abort Print Job Processor
                                Fri Feb 22, 1991 08:45 am
Page:01                                ##=Current Choices
                                Reports Printing at 02/22/91 0845
Job   Port   Elapsed Time   Report Name   Size (bytes)   Comment
( 1)   7     17           4 min   FIN           5,100   Corrected Report

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

Enter the option number(s) for the job(s) you want to abort. The system then prompts you to confirm you want to abort these jobs:

*Are you sure? (Y/N) [Y]--*

Enter **Y** or press ENTER to continue. The system displays the job number, report name and port number of each job being aborted:

*Terminating print job #7, Report=FIN, Port=17*

## DISPLAYING DISABLED PRINTERS

The Disabled Printer Display function enables you to identify the printers not currently ready for printing. The display is organized by logical printer names assigned to each ID.

```

                                General Hospital Output Management Processor
                                Wed Aug 11, 1993 09:27 am
Output Management Input Options

Option No.  Option
-----
    1      Reports Maintenance
    2      Printer Maintenance
    3      Forms Maintenance
    4      Assign a Form to a Printer
    5      Define Batch Report Groups
    6      Print Control Maintenance

    7      Queue Control
    8      Print Job Control
    9      Disabled printer display

   10      Demand Print
   11      View Spooled Reports
   12      Write Reports to Tape
   13      Print Special Forms
   14      Spooler Control Reports
   15      Star Fax
Enter option number--9

```

To access this function select the Disabled Printer Display option from the Spooler menu. The system displays the following screen:

```

                                General Hospital Disabled Printer Display Processor
                                Thu Aug 05, 1993 03:30:22
Building printer table. Please wait.....

Port Status  Location      Telephone      Type
Page:01
( 1) 0003 Ready  LAB              Printers      HP LaserJet
( 2) 0004 Ready  ADMISSIONS      Kyocera Laser

Enter 'A'gain or NL to quit--

```

## Field Explanations

### PORT

This is the port assigned to the printer.

**STATUS**

This is the operational status of the printer. The status can be:

<b>Busy</b>	The port is currently being used by a job. No status checking can be done.
<b>Offline</b>	The printer is in use by another job but is either offline or is a Control S (^S) state.
<b>Prtr DL</b>	The port has been placed on the Printer Disabled List.
<b>Ready</b>	The port is not in use by another job.

---

**LOCATION**

This is the location of the printer.

**TELEPHONE**

This field contains the telephone number at the location of the printer.

**TYPE**

This is the device type for the printer.

To update the screen with current data, enter **A**. To exit this function, press ENTER.

## DEMAND PRINT

The Demand Print function enables you to print or reprint reports that have been spooled to the disk using the system spooler.

If the report is specified to be a Demand Report in the report definition process, it is available for Demand Printing as soon as the report has finished spooling to disk.

If the report is specified to be an Immediate Print Report, it is available for Demand Printing if it is spooled to disk and the Immediate Print has completed.

Demand Print can be used for:

- Controlling the print order of reports. This permits you to define batches of reports in an order that best suits your needs.
- Reprinting of reports. This permits you to reprint up to a specified number of days after the report is created.
- Downloading of a report or a batch of reports to a PC.

When a report is spooled, it is placed in one of the following two queues in the system:

- The Print queue holds all reports waiting to print on a device. Once that device is available and all print criteria are satisfied (criteria such as: the queue is running, the report and printer are defined as active, any specified print time has been reached and the correct form is on the printer), the system prints the report and moves it to the demand queue for that printer.
- The Demand queue contains reports available for reprint. Reports specified as demand reports go directly to the demand queue rather than passing through the print queue. The demand queue consists of previously printed reports and reports specified as demand reports. These are the reports available to the demand print process and are deleted from the demand queue when the retention time specified in the report definition is exceeded.

To access the Demand Print function, select the Demand Print option from the Spooler Management menu.

```

General Hospital Output Management Processor
                                Wed Aug 11, 1993 09:27 am
Output Management Input Options

Option No.  Option
-----
      1      Reports Maintenance
      2      Printer Maintenance
      3      Forms Maintenance
      4      Assign a Form to a Printer
      5      Define Batch Report Groups
      6      Print Control Maintenance
      7      Queue Control
      8      Print Job Control
      9      Disabled printer display
     10      Demand Print
     11      View Spooled Reports
     12      Write Reports to Tape
     13      Print Special Forms
     14      Spooler Control Reports
     15      STAR Fax

Enter option number--10

```

Once you select the **Demand Print** option, the system displays the following screen. The system uses the parameters you set on this screen to build this demand print set.

```

General Hospital Demand Print Processor
                                Sat May 17, 1991 05:27 pm

( 1)Source Printer      : FIN
( 2)Report / Batch     : FSR9/0A
( 3)Starting date      : 02/05/91
( 4)Starting time      : 11:00 am
( 5)Ending date        : 02/16/91
( 6)Ending time        : 12:00 am
( 7)Queue Name         : System
( 8)Destination        : HSP

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

```

## Field Explanations

### 1. SOURCE PRINTER (T-C-R) or (TABLE LOOKUP-R)

Enter the printer to which the report(s) were originally directed.

### 2. REPORT/BATCH (1-A-O)

Enter **B** to specify batch or **R** to specify reports. If you specify batch you can select predefined report batches. If you specify reports you can select report name(s) for all reports currently available for printing.

**3. STARTING DATE (DATE-O)**

Enter the date to begin searching for the selected reports. The report must have completed generating on or after this date to be included in your selection criteria.

**4. STARTING TIME (TIME-O)**

Enter the time to begin searching for the selected reports. The report must have completed generating at or after this time to be included in your selection criteria.

**5. ENDING DATE (DATE-O)**

Enter the date to stop searching for the selected reports. The report must have completed generating on or before this date to be included in your selection criteria. The default is the current date.

**6. ENDING TIME (TIME-O)**

Enter the time to stop searching for the selected reports. The report must have completed generating at or before this time to be included in your selection criteria. The default is the current time.

**7. QUEUE NAME (U-C-O)**

Enter the name of the queue where you want to place the selected report(s). The default is the SYSTEM queue.

**8. DESTINATION (T-C-O) or (TABLE LOOKUP-O)**

This field specifies the destination to which you want to route the selected report(s). This may differ from the original destination to which the report was routed. There are three destination options:

- Route the report(s) to a printer. The default is the source printer.
- Route the report(s) to a fax, if McKesson's PCDFAX product is installed and STAR Fax is not enabled.
- Download the report(s) to a PC, if the report download parameter is enabled (see Reports Maintenance) and the user has PC Director or STAR Navigator installed.

When you access this field, the prompt that displays depends on the destination option enabled. In this example, all three options are available and enabled, so the following prompt is displayed:

*Enter printer(P), fax report(F), or download report(D)--*

**P ROUTING A REPORT TO A PRINTER**

Enter **P** to route the report to printer(s). If PCDFAX is not installed or if you enter P to route the report to a printer, the system prompts you to select a printer.



**F ROUTING A REPORT TO A FAX**

Enter **F** to fax the report using PCDFAX or select a printer that is a fax device, the system displays the following prompt:

*First letters '-' for list, or NL to enter information--*

Enter a hyphen (-) to select a fax destination from a distribution list or press ENTER to enter the fax destination manually.

After you specify the fax destination, the system displays the following prompt:

*Enter override comment--*

The override comment appears in the Fax audit trail. Suggested information to enter for this comment would be your name and phone extension and some brief description.

Once you enter these parameters and accept the screen, the system searches the available reports and displays the following message:

*Compiling list! Please wait!*

Once the report completes, it is placed in a temporary file for review.

**D DOWNLOADING A REPORT**

Enter **D** to download the report or report batch. Download displays in the field. When the sort/copy option completes, the following screen is displayed:

General Hospital System Demand Print Processor					
Wed Mar 06, 1996 02:08 pm					
Spooled	Description	Printed	#	Comment	Form
( 1) 03/05,1346	PC DOWNLOAD TEST	03/05,1500	1		
( 2) 03/05,1346	PC DOWNLOAD TEST	03/05,1500	1		
1 File Name	2 Download Drive	3 Download Directory			
Various.NNN	C:	\HBO\			
Accept? (Y/N) [Y]--					

Enter **Y** to accept the default file name and location. Enter **N** to modify the download location and/or file name.

## Field Explanations

### 1. FILE NAME (12-AN-R)

This field is used to define the file name to which to download the report. The default is reportname.nnn. If the defaults are accepted, the report downloads to the PC as reportname.nnn where nnn is a counter. When the field is accessed, the following message and prompt display:

*Warning! The file will be overwritten in the download directory.  
Enter file name--*

**NOTE:** If Batch or Multiple Reports is selected, the file name cannot be edited. The field displays Various.nnn.

### 2. DOWNLOAD DRIVE (1-A-R)

This field is used to direct the report download to a user-specified drive. When the field is accessed the following prompt is displayed:

*Enter download drive--*

Only an alphabetic or alphabetic with a colon (:) entry is accepted. The default drive is the PCD or STAR Navigator drive.

### 3. DOWNLOAD DIRECTORY (65-ANP-O)

This field is used to direct the report download to a user-specified directory. When the field is accessed the following prompt is displayed:

*Enter download directory--*

A blank entry is valid. The system checks for beginning and ending '\ ' and appends if necessary. A check is also made for '/' characters. If any are present, they are changed to '\ '. The default directory is the PCD or STAR Navigator directory.

**NOTE:** Notes on Routing Batch Reports:

If you select the Batch option, all reports defined for the batch must have completed before processing can begin (except for reports marked as not required for completion in the batch definition). If any of the reports are incomplete, each report name displays on the screen so you can see which reports still need to be completed before the batch is available. If there was a problem with a report during generation, the system error displays with an asterisk (\*) to indicate that you need to contact your McKesson representative to correct and re-run the report.

When displaying the incomplete reports, any comment associated with the report at generation displays in dim video. Otherwise, the system displays the report description.

If you want to print some of the reports that have completed, choose the Reports option to select those reports.

The system displays the selected report(s) for review. You can delete report(s) from the batch or sort the reports into a specific order for printing:

*Move (M), Change number of copies (C) or Remove from list (R)--*

Upon completion of the sort/copy option, the system queues the selected reports, in the specified order, to the destination printer. As the system reviews the queue, it determines if the printer is available, prints the reports and displays the following:

*Queuing!*

If download is selected, when the screen is accepted, the system initiates the report download process. The download status box displays. At this point, you have the option to abort the process. If any errors occur, the appropriate error message displays in the status box. The system aborts the download process and the Demand Report input screen is displayed. From this screen, you have the option to retry the download. If the download is successful, the Demand Report input screen is displayed.

## VIEW SPOOLED REPORTS

The View Spooled Reports function enables you to view reports that have been spooled and not yet deleted from the system. A spooled report must be either a *Demand Report* or is *force-spooled* by the application. You can view these reports online from your PC or terminal, and then send the report to a printer, or download the report to a PC.

When you select this option from the Spooler menu the system displays the following prompt:

*Enter report name or leading chars '-' for a list--*

Enter the system name of the report that you want to view, or use a hyphen (-) to display and select from a list of reports, as in the following screen:

```

                                General Hospital View Reports Processor
                                Tue Mar 17, 1992  08:43 am
Page:01
                                Reports defined in ID 97
      Name      Description      Retention Time  Print Queue
( 1) FARDBL    PA Daily Balancing Report      3 day(s)      Demand
( 2) FARDBLM   PA Daily Balancing Report (M)   until midnight Demand
( 3) FARDBLP   PA Daily Balancing Report (P)   2 day(s)      Demand
( 4) FARDLRASU -ASU                        until midnight Demand
( 5) FARDLRASUP -ASU (P)                  until midnight Demand
( 6) FARDLRATP -ATP                        until midnight Demand
( 7) FARDLRATPP -ATP (P)                  until midnight Demand
( 8) FARDLRBLB -BLB                        until midnight Demand
( 9) FARDLRBLBP -BLB (P)                  until midnight Demand
(10) FARDLRCAR -CAR                        3 day(s)      Immediate
(11) FARDLRCARP -CAR (P)                  until midnight Demand
(12) FARDLRCPD -CPD                        until midnight Demand
(13) FARDLRCPDP -CPD (P)                  until midnight Demand
(14) FARDLRCRN -CRN                        until midnight Demand
(15) FARDLRCRNP -CRN (P)                  until midnight Demand
(16) FARDLRCSR -CSR                        until midnight Demand

Enter choice--
                                next page(/)

```

After you identify the report you want to view, the system displays the followingscreen:

```

                                General Hospital View Spooled Reports Processor
                                Sun Aug 11, 2002  09:53 pm
( 1)Report Name : ADRZ-Daily Admission Report
( 2)Starting date: Sun Aug 11
( 3)Starting time: 12:00 midnight
( 4)Ending date : Sun Aug 11
( 5)Ending time : 11:09 pm
( 6)Printer Name : HSP

Enter field number or '/' starting field number--
                                next screen(/) or previous screen(/P) [/]

```

Use this screen to define the search constraints for the time period in which the report was generated and the device to which it was generated.

## Field Explanations

### 1. REPORT NAME (U-C-R or TABLE LOOKUP)

This is the report name to be viewed.

### 2. STARTING DATE (DATE)

This field determines the first date to be used in searching the system for generated copies of the selected report.

### 3. STARTING TIME (TIME)

This field determines the earliest time to be used in searching the system for generated copies of the selected report.

### 4. ENDING DATE (DATE)

This field determines the last date to be used in searching the system for generated copies of the selected report.

### 5. ENDING TIME (TIME)

This field determines the latest time to be used in searching the system for generated copies of the selected report.

### 6. PRINTER NAME (8-AN-R)

This field identifies the destination printer(s) to be included in the search criteria. Enter the name of the printer. You can also enter a hyphen (-) to include all printers *for all system IDs* in the search. Search across all printers can be costly in time and system resources.

After you complete the fields the system asks if you want to accept your entries to this screen. Enter **Y** to accept the current contents of the screen. Enter **N** to return to the screen without accepting your changes. The system then begins the search according to the criteria you defined, displaying the following screen:

General Hospital View Reports Processor			
		Tue Mar 17, 1992 08:43 am	
Report : FARDBL PA Daily Balancing Report			
Page:01			
Copy Spooled	Last Printed	Pages	Comment
( 1) 03/17/92 0740	Not Printed	2	
( 2) 03/16/92 1122	Not Printed	2	
( 3) 03/16/92 1004	03/16/92 1004	3	
( 4) 03/15/92 1545	03/16/92 0740	3	
Enter choice--			

If the system does not find any reports matching the search criteria, the following message displays at the bottom of the screen:

*No Entries Defined*

For each report matching the search criteria the system displays the date and time the report was generated, the date and time the report was last printed, the length of the report in pages, and any comments entered.

To view a report, enter the option number of the report. The system displays the following report on the screen:

Figure 6.1 View Reports Processor

General Hospital View Reports Processor											
Report : FARDEL PA Daily Balancing Report						Tue Mar 17, 1992 08:43 am					
Spooled: 03/17/92 0740						Position #####					
Date: 03/17/92						Last Printed: Not Printed					
Time: 07:40 am						Page: 1					
GENERAL HOSPITAL						Report: FARDEL					
PA Daily Balancing Report											
for 03/16/92											
Fin	Pre-				Total		Unbilled	Billed			Account
Cls	Disch	Pre-Discharge	Disch	Discharged	Accts	LOS	Charges	Charges	Payments	Adjustments	Balance
Emergency:											
02	99999	99,999,999.99	99999	99,999,999.99	99999	99999	9,999,999.99	9,999,999.99	9,999,999.99	9,999,999.99	999,999,999.99
08	99999	99,999,999.99	99999	99,999,999.99	99999	99999	9,999,999.99	9,999,999.99	9,999,999.99	9,999,999.99	999,999,999.99
18	99999	99,999,999.99	99999	99,999,999.99	99999	99999	9,999,999.99	9,999,999.99	9,999,999.99	9,999,999.99	999,999,999.99
XX	99999	99,999,999.99	99999	99,999,999.99	99999	99999	9,999,999.99	9,999,999.99	9,999,999.99	9,999,999.99	999,999,999.99
YY	99999	99,999,999.99	99999	99,999,999.99	99999	99999	9,999,999.99	9,999,999.99	9,999,999.99	9,999,999.99	999,999,999.99
Tot:	99999	99,999,999.99	99999	99,999,999.99	99999	99999	9,999,999.99	9,999,999.99	9,999,999.99	9,999,999.99	999,999,999.99
Inpatient:											
02	99999	99,999,999.99	99999	99,999,999.99	99999	99999	9,999,999.99	9,999,999.99	9,999,999.99	9,999,999.99	999,999,999.99
08	99999	99,999,999.99	99999	99,999,999.99	99999	99999	9,999,999.99	9,999,999.99	9,999,999.99	9,999,999.99	999,999,999.99
28	99999	99,999,999.99	99999	99,999,999.99	99999	99999	9,999,999.99	9,999,999.99	9,999,999.99	9,999,999.99	999,999,999.99
30	99999	99,999,999.99	99999	99,999,999.99	99999	99999	9,999,999.99	9,999,999.99	9,999,999.99	9,999,999.99	999,999,999.99
XX	99999	99,999,999.99	99999	99,999,999.99	99999	99999	9,999,999.99	9,999,999.99	9,999,999.99	9,999,999.99	999,999,999.99
YY	99999	99,999,999.99	99999	99,999,999.99	99999	99999	9,999,999.99	9,999,999.99	9,999,999.99	9,999,999.99	999,999,999.99
Outpatient:											
02	99999	99,999,999.99	99999	99,999,999.99	99999	99999	9,999,999.99	9,999,999.99	9,999,999.99	9,999,999.99	999,999,999.99
08	99999	99,999,999.99	99999	99,999,999.99	99999	99999	9,999,999.99	9,999,999.99	9,999,999.99	9,999,999.99	999,999,999.99
Page: 1 - 3						Display Columns: 1 through 132 Maximum: 132					
F1Page Up F2Page Dn F3 GoTo F4 Skip 10% F5 Print F6Nxt Rpt F7 Exit ?											

At the bottom of the screen the system displays the following function keys. Use these function keys to view, print, or exit this report.

**F1 Page Up**

Press the F1 key to view the preceding page of the report.

**F2 Page Dn**

Press the F2 key to view the next page of the report.

**F3 GoTo**

Press the F3 key to go to the first, last, middle, or a specified page of the report display. The system displays the following prompt:

*GO TO `T`op page, `B`ottom page, `M`iddle page, or page number [T]--*

Enter **T** or press ENTER to go to the first page of the report. Enter **B** to go to the last page of the report. Enter **M** to go to the middle page of the report. To go to a specific page, enter the number of the page.

**F4 Skip 10%**

This key operates differently depending on the size of the report. If there are less than 10 pages for this report, when you press the F4 key the system scrolls down 18 lines to display the next screen of report information. If there are 10 or more pages for this report, when you press the F4 key the system scrolls down 10% through the report, or the total number of report pages divided by 10. For example, if there are 100 pages in the report, when you press the F4 key the system displays page 10.

**F5 Prt**

Press the F5 key to print. One or all of the following options are displayed, depending on how printing is configured in the Edit System Parameters function. The system displays the following table:

General Hospital View Spooled Reports Processor	
Report :ADRZ Daily Admission Report	Position:#-----
Spooled: 06/14/04 1006	Last Printed: 06/14/04 1222
Page:01	
( 1) Print	
( 2) Download	
( 3) Fax	
( 4) Host File	
( 5) Network Address	
( 6) Email	
Enter choice--	



If you select any of the methods of printing, the following prompt is displayed:

*Enter range of pages to print (i.e. 4-7, 8) (max 2)--*

To print a single page, enter the number of the page. To print multiple pages, enter a range of page numbers by entering the first page to print, a hyphen (-), and the last page to print.

If you selected Print, see [“Routing to a Printer” on page 6-77](#).

If you selected Download, see [“Download the Report” on page 6-79](#)

If you selected Fax, see [“Routing to a Fax Machine” on page 6-81](#).

If you selected Host File, see [“Routing to a UNIX Host File” on page 6-82](#).

If you selected Network Address, see [“Routing to a Network Address” on page 6-82](#).

If you selected Email, see [“Routing to an e-mail address” on page 6-83](#).

## Routing to a Printer

After you enter the page numbers to be printed, the following prompt is displayed:

*Enter printer name or partial name ` ` for list [DEFAULT]--*

You can either enter the printer name or perform a table lookup and select the printer from the list. The default that displays in the prompt is the printer that is associated with the report you are viewing.

Once a printer is selected, the following prompt is displayed:

*Enter initial PCS code, ` ` for list, or NL for none--  
`= ` for report defined default*

If you enter a specific PCS (Print Control Sequence) code to print the report in accordance with the PCL (Print Control Language) commands defined in that PCS, the following prompt is displayed:

*Print report to PRINTER using XXX PCS (Y/N)? [Y]--*

where PRINTER is the printer name and XXX is the name of the PCS code selected.

If you enter N, you are prompted to select a printer again.

If you enter Y, the following prompt is displayed:

*Queuing Print Request*

The report is redisplayed on the screen.

If you enter a hyphen (-) and press ENTER, a display of all the PCS codes defined for your site, a screen similar to the following is displayed:

Page:06		Defined Print Control Sequences	
( 1) _A2	HP LANDS LEGAL 6LPI 12	(11) _B12	HP LANDS LETTR 8LPI 16
( 2) _A3	HP LANDS LEGAL 6LPI 16	(12) _B13	HP PORT 66LPP
( 3) _A4	HP LANDS LEGAL 8LPI 10	(13) _B14	HP PORT LEGAL 6LPI 10C
( 4) _A5	HP LANDS LEGAL 8LPI 12	(14) _B15	HP PORT LEGAL 6LPI 12C
( 5) _A6	HP LANDS LEGAL 8LPI 16	(15) _B16	HP PORT LEGAL 6LPI 16.
( 6) _A7	HP LANDS LETTR 6LPI 10	(16) _B17	HP PORT LEGAL 8LPI 10C
( 7) _A8	HP LANDS LETTR 6LPI 12	(17) _B18	HP PORT LEGAL 8LPI 12C
( 8) _A9	HP LANDS LETTR 6LPI 16	(18) _B19	HP PORT LEGAL 8LPI 16.
( 9) _B10	HP LANDS LETTR 8LPI 10	(19) _B20	HP PORT LETTER 6LPI 10
(10) _B11	HP LANDS LETTR 8LPI 12	(20) _B21	HP PORT LETTER 6LPI 12
Enter choice--			
next pg(/ or PG DN) previous pg(/P or PG UP) Search(TAB)			

Enter the number of the PCS code choice desired. The following prompt is displayed:

*Print report to PRINTER using XXX PCS (Y/N)? [Y]--*

where PRINTER is the printer name and XXX is the name of the PCS code selected.

If you enter N, you are prompted to select a printer again.

If you enter Y, the following prompt is displayed:

*Queuing Print Request*

The report is redisplayed on the screen.

Press ENTER to print the report without selecting a PCS. The following prompt is displayed:

*Print report to PRINTER? [Y]--*

where PRINTER is the printer name selected.

If you enter N, you are prompted to select a printer again.

If you enter Y, the following prompt is displayed:

*Queuing Print Request*

The report is redisplayed on the screen.

Enter an equal sign (=) and press ENTER to print the report using specifications defined in the report.

The following prompt is displayed:

*Print report to PRINTER using XXX PCS (Y/N)? [Y]--*

where PRINTER is the printer name and XXX is the name of the PCS code already defined in the report.

If you enter N, you are prompted to select a printer again.

If you enter Y, the following prompt is displayed:

*Queuing Print Request*

The report is redisplayed on the screen.

## Download the Report

After you enter the page numbers to be printed, the following screen is displayed:

General Hospital View Spooled Reports Processor	
Report :ADRA Admission Report (A)	Mon Jun 14, 2004 01:41 pm
Spooled: 06/14/04 0031	Position:#####
1 File Name	Last Printed: Not Printed
ADRA.001	
2 Download Drive	
C:	
3 Download Directory	
\WINNT\	
Accept (Y/N)? [Y]--	

The default download location is the location of the PCD or STAR Navigator configuration and the default file name is reportname.nnn where nnn is a counter.

Enter **Y** to accept the default file name and location. Enter **N** to modify the download location and/or file name.

## Field Explanations

### 1. FILE NAME (12-AN-R)

This field allows the user to define the file name to which to download the report. The default is reportname.nnn. If the defaults are accepted, the report downloads to the

PC as reportname.nnn where nnn is a counter. When the field is accessed the following message and prompt display:

*Warning! If file exists it will be overwritten!*  
*Enter file name--*

## **2. DOWNLOAD DRIVE (1-A-R)**

This field allows the user to direct the report download to a drive of his/her choosing. When the field is accessed the following prompt is displayed:

*Enter download drive--*

Only an alphabetic or alphabetic with a colon (:) entry is accepted. The default drive is the PCD or STAR Navigator drive.

## **3. DOWNLOAD DIRECTORY (65-ANP-R)**

This field is used to direct the report download to a user-specified directory. When the field is accessed the following prompt is displayed:

*Enter download directory--*

A blank entry is valid. The system checks for beginning and ending '\ ' and appends if necessary. A check is also made for '/' characters. If any are present, they are changed to '\ '. The default directory is the PCD or STAR Navigator directory.

Once the screen is accepted, the system initiates the report download process. The download status box displays. At this point, you have the option to abort the process.

If any errors occur, the system displays a message in the status box. The download process is aborted and the you are returned to the View Spooled Reports report display screen. You then have the option to retry the download.

If the download is successful, you are returned to the View Spooled Reports report display screen.

You can also move up or down in viewing the report as follows:

- Use the up arrow key to move the screen display up one line.
- Use the down arrow key to move the screen display down one line.
- Use ENTER to move the screen display down 18 lines to display the next screen of report information.
- Use the Page Down key to move the screen display down 18 lines to display the next screen of report information.

- Use the Page Up key to move the screen display up 18 lines to display the preceding screen of report information.

## Routing to a Fax Machine

If you route the report to a fax machine the system displays the following screen:

```

General Hospital View Reports Processor
Mon Jun 08, 1992 09:45 am
Report : PSPCHGA Vendor Price Change Report Position|#####|
Spooled: 06/08/92 0919 Last Printed: Not Printed
1 Sending Information      2 Override Comment      3 Cover Page
->

Enter cover page code, or first letters`` to list--

```

## Field Explanations

## 1. SENDING INFORMATION (TABLE LOOKUP-R)

This field identifies sending information for the fax report (To, From, and Phone number). To select sending information from an existing distribution list, enter a hyphen (-).

Press ENTER to display a screen where you can specify sending information manually.

After you enter each item of sending information, press ENTER to advance to the next field.

- To move between fields, use the arrow keys.
- To insert another line of sending information, press the F3 key.
- To delete a line of sending information, press the F4 key.
- To exit and save the sending information, press the F7 key.

## 2. OVERRIDE COMMENT (20-C-O)

This field specifies an override comment. The override comment appears in the Fax audit trail, which is reviewed regularly by the Fax Administrator. Suggested information to enter for this comment would be your name and phone extension and some brief description.

**3. COVER PAGE (4-C-O) or (TABLE LOOKUP-O)**

This field specifies a cover page to use when faxing a report. Enter the cover page code or enter a hyphen (-) and select a cover page from a list. If you do not specify a cover page, the default system cover page is used.

Fax cover pages are maintained by the Fax Administrator.

**F6 Nxt Rpt**

Press the F6 key to view the next report meeting the search criteria.

**F7 Exit**

Press the F7 key to exit this screen and return to the preceding screen.

You can also move up or down in viewing the report using the following keys:

- The up arrow key on your keyboard moves the screen display up one line
- The down arrow key on your keyboard moves the screen display down one line
- ENTER moves the screen display down 18 lines to display the next screen of report information
- The PAGE DOWN key moves the screen display down 18 lines to display the next screen of report information
- The PAGE UP key moves the screen display up 18 lines to display the preceding screen of report information

When you finish viewing the report, press F7. The system returns you to the screen used to define search constraints.

## Routing to a UNIX Host File

If printing to a host file is enabled in the Edit System Parameters function, the following prompt is displayed:

*Enter file name--*

Enter a valid UNIX file name and the spooler routes the print job to the UNIX host under the /tmp directory as the file name entered.

## Routing to a Network Address

If printing to a network address is enabled in the Edit System Parameters function, the following prompt is displayed:

*Enter Network address--*

Enter a valid TCP/IP address to which the print job is routed and the report is queued to print.

## Routing to an e-mail address

If printing to an e-mail address is enabled in the Edit System Parameters function, the following prompt is displayed (after you enter the page numbers to be printed):

*Enter email address to send report to--*

Enter a valid e-mail address to which the print job is routed and the report is queued to e-mail.

# WRITING TO MICROFICHE TAPES

The Write Reports to Tape function enables you to create magnetic tape reports using reports in the print queue. This is the only way to remove magnetic tape reports from the print queue.

To access this function, select the Write Reports to Tape function from the Spooler menu:

```

General Hospital Output Management Processor
Wed Aug 11, 1993 09:27 am
Output Management Input Options

Option No.  Option
-----
1      Reports Maintenance
2      Printer Maintenance
3      Forms Maintenance
4      Assign a Form to a Printer
5      Define Batch Report Groups
6      Print Control Maintenance

7      Queue Control
8      Print Job Control
9      Disabled printer display

10     Demand Print
11     View Spooled Reports
12     Write Reports to Tape
13     Print Special Forms
14     Spooler Control Reports
15     Star Fax
Enter option number--12

```

The system displays the spooled reports in the magnetic tape queue:

```

General Hospital Write Reports to Tape Processor

Page:01                                     ###=Current Choices

Spooled Reports in Magnetic Tape Queue

Spooled  Report Description  Printed  Comment
(1) 06/10,1602 Admissions    06/11,1745  July,1990

Select the reports to write to tape or (A)11--

```



## Field Explanations

### SPOOLED

The month, day and time the report was spooled to disk in MM/DD,TTTT format.

### REPORT DESCRIPTION

The description given the report during report definition.

### PRINTED

The month, day and time the report was last printed in MM/DD,TTTT format.

### COMMENT

The comment created by the application software. This field is used to distinguish each version of the report from others with the same name (the comment in this example labels the report as an admissions record for the month of July, 1990).

At the bottom of the screen, the system displays the following prompt:

*Select the reports to write to tape or (A)!!--*

Enter **A** to select All reports or enter the option numbers of the reports you want to remove from the print queue. Press ENTER to end the selection process. The following message displays while the system creates the file with the list of reports to write to the tape:

*Setting up report information! Please wait!*

The system then prompts you to mount the tape:

*Mount tape number 1 and then enter 'READY'--  
when the tape drive is on-line and ready*

Mount the tape with the write ring installed and enter **READY**. The system displays the following:

*Labeling tape!  
Writing (Report Description) to File # on tape number 1*

If the report(s) are too lengthy to fit on the first tape, the system prompts you to mount a second tape:

*Mount tape number 2 and then enter 'READY'--  
when the tape drive is on-line and ready*

Continue mounting additional tapes as prompted. Once all the reports selected are written to tape and the tape has rewound, the system displays the following:

*Deleting queue entries for reports copied to tape!*

At this point the tape jobs you selected are moved from the tape queue to the demand queue. Once the system deletes the queue entries for the reports copied to tape, the following message displays:

*Tape job complete! --Press NL to continue--*

Press ENTER to return to the Spooler menu. This prompt does not timeout for one hour, which allows you time to complete other tasks and still see that tape processing was successful.

## Microfiche Tape Format

The tape output is produced by the Write Reports to Tape function according to the following physical format specifications:

- The tape is written in ASCII format.
- The tape is written in blocked output.
- There are 2040 bytes per block.
- There are 255 bytes per record.
- Tape density defaults to the maximum capacity of the system's tape drive.
- The end of a file is marked with a single EOF marker.
- The end of a volume (in the case of multitape jobs) is marked with two consecutive EOF markers.

The end of the tape is marked with three consecutive EOF markers. File 0 of each tape consists of header information. The first five records of the header file are always the same:

1. The name of the computer system generating the tape.
2. This is a two piece field delimited by a colon (:). The first piece is the name of the application creating this tape (\$ZA). The second piece is the logon character of the job creating this tape (\$ZB).
3. The time this tape was created. For example, August 26, 1990 at 10:19 AM would appear as 08/26/90 1019.
4. The volume number of this tape.
5. The number of reports in this set of tapes.

Following the block containing the number of reports are descriptor blocks for each report in the tape.

For example, the first descriptor block describes the first report, the second describes the second report, and so on.

These blocks consist of a two piece field separated by a colon (:). The first piece is the logical name of the report. The second piece is the description of the report.

## PRINTING SPECIAL FORMS

The Print Special Forms function is used to let the spooler know what form is on a printer and to mount a form so queued requests print:

```

                                General Hospital Spooler Processor
                                Wed Aug 11, 1993 09:27 am
Output Management Input Options

      Option No.  Option
      -----
          1      Reports Maintenance
          2      Printer Maintenance
          3      Forms Maintenance
          4      Assign a Form to a Printer
          5      Define Batch Report Groups
          6      Print Control Maintenance

          7      Queue Control
          8      Print Job Control
          9      Disabled printer display

         10      Demand Print
         11      View Spooled Reports
         12      Write Reports to Tape
         13      Print Special Forms
         14      Spooler Control Reports
         15      Star Fax
Enter option number-- 13

```

To print special forms select the Print Special Forms option from the Output Management menu.

If there are requests queued that require a new form to be mounted the following screen is displayed:

```

                                General Hospital Print Special Forms Processor
                                Thu Feb 25, 1991 09:30 am
Page: 01                                Outstanding Forms
      Form Name      Printers (`*`=unavailable)
      -----
1)  CHECKS          HSP1,*HSP2

Enter choice --

```

The printers are the logical printer names. An asterisk (\*) in front of a printer name means the printer is not available.

The prompt indicates when there are no outstanding requests and informs you to press ENTER to return to the menu.

Enter the option number for the form you want to print. If the form is queued for more than one printer you must choose which requests you want to print. If you want to print all of the requests to the same printer you must use the Reassign Spooled Output function to reroute all of the requests to the same printer. For more information refer to Reassigning Print Jobs, later in this section.

Once you select the form the following screen is displayed:

```

General Hospital Print Special Forms Processor
                        Thu Feb 25, 1991 09:30 am

***** USER REROUTE TO DIRECT ALL OUTPUT TO DESIRED PRINTER *****

Outstanding Requests for form CHECKS (`*`=unavailable)
Printer      Port Description      Location
-----
1) HSP1      Printer, High Speed Printer      Data Processing
2)*HSP2      Printer, High Speed Printer      Data Processing

Enter choice --

```

The printer name is the logical printer name. An asterisk (\*) in front of the printer name means the printer is not available.

If the printer is not available you are prompted for the port number of another printer. You can enter a hyphen (-) at this prompt to list the printers on the system.

If the printer is available the system prompts you to mount the form on the printer:

*Please mount the form on port 15. Enter 'READY' when mounted --*

Once you have mounted the form you can align the form if an alignment program is available. You can print the alignment pattern as many times as needed to align the form.

If there are characteristics (for example, compressed print) defined with the printer they are downloaded. If no characteristics are defined the printer uses the default printer characteristics defined for the port.

**NOTE:** All reports that have the same form name print without further intervention. Reports with a different form name are queued.

To premount a form you must specify which form you want to mount:

*Enter form name, first letters '-' or 'S' standard --*

Enter a hyphen (-) for a list of available forms or **S** to mount the standard form.

Next you must specify the port number for the printer by selecting the logical printer name you are going to use. This determines the download characteristics for the printer.

*Enter the printer name or first letters '-' to list--*

If the selected printer is unavailable you must pick a different printer.

Once you have mounted the form you can align the form if an alignment program is available. You can print the alignment pattern as many times as needed to align the form. If there are characteristics (for example, compressed print) defined with the printer they are downloaded. If no characteristics are defined the printer uses the default printer characteristics defined for the port.

The form name for the selected port is now changed. The system prints all reports requiring that form.

## PRINTING THE SPOOLER CONTROL REPORTS

The Spooler Control Reports function provides cross-reference reports including logical printer names, logical report names, and the ports on the system. To print these reports, select the Spooler Control Reports function from the Spooler menu.

```

                                General Hospital Output Management Processor
                                Wed Aug 11, 1993 09:27 am
Output Management Input Options

Option No.  Option
-----
    1      Reports Maintenance
    2      Printer Maintenance
    3      Forms Maintenance
    4      Assign a Form to a Printer
    5      Define Batch Report Groups
    6      Print Control Maintenance

    7      Queue Control
    8      Print Job Control
    9      Disabled printer display

   10      Demand Print
   11      View Spooled Reports
   12      Write Reports to Tape
   13      Print Special Forms
   14      Spooler Control Reports
   15      Star Fax
Enter option number--14
```

Once you select the Spooler Control function, the system displays the following menu:

```

                                General Hospital Spooler Control Reports Processor
                                Wed Oct 29, 2008 10:37 am
Spooler Control Reports Input Options

Option No.  Option
-----
    1      Reports by Printer/Printer Summary
    2      Printers by Report
    3      ID Cross Reference Report
    4      Open and Spooled Report File Count

Enter option number--
```

## Reports By Printer/Printer Summary Option

The Reports by Printer/Printer Summary option provides a detailed list of the logical printer names within the executing ID.

Once you select this function, the system displays the following prompt:

*Enter port number to receive printer summary report --*

Enter the printer port number to which you want the report routed. This is processed in background. The system displays the following prompt:

*Do you want reports assigned to printers to list (N) --*

If you want the report to include all logical report names assigned to the logical printer, enter **Y**. Otherwise enter **N** or press ENTER and the report contains only the assignment of logical printer names to ports.

An example of this report follows:

Figure 6.2 Spooler Control Report - Reports By Printer/Printer Summary

Printer	Port	Description	Location	Ans	LPP	8/LPI
FIRST	26	FIRST DESC	4TH FLOOR	YES	AUTO	NO
		Reports: REPORT	REPORT 1 DESCRIPTION			Copies: 1
		REPORTX	REPORT X DESCRIPTION			Copies: 2
		REPORTY	REPORT Y DESCRIPTION			Copies: 3
SECOND	15	PRNT 2 DESC	4TH FLOOR	YES	AUTO	NO
		Reports: REPORT	REPORT 1 DESCRIPTION			Copies: 1

## Field Explanations

### PRINTER

This field contains the logical name of each printer and prints on the left side of the report.

### PORT

This field contains the port number from the Printer Definition screen and prints on the same line and to the right of the Printer field.

### DESCRIPTION

This field contains the printer description from the Printer Definition screen and prints on the same line and to the right of the Port field.

### LOCATION

This field contains the printer location from the Port Definition screen and prints on the same line and to the right of the Description field.



**ANS**

This field contains YES if the printer has answerback capability and NO if it does not. This is determined on the Port Definition screen and prints on the same line and to the right of the Location field.

**LPP**

This field contains the lines per page defined for output produced on the printer. If the default number of lines per page for the printer is used, this field contains Auto rather than the number. This field prints on the same line and to the right of the Ans field.

**8/LPI**

This field contains YES if the printer is defined for 8 lines per inch or NO if the printer is defined for 6 lines per inch. This is determined on the Printer Definition screen and prints on the same line and to the right of the LPP field.

### **Report Information**

If you requested that reports assigned to printers be listed on this report, the following fields print below the line containing the above printer fields. Otherwise, these fields do not print on the report.

**REPORTS**

This field contains the logical report names and the report descriptions for any reports assigned to the logical printer described above. This field is centered on the report and is repeated if multiple reports are assigned to the printer.

**COPIES**

This field contains the number of copies to be printed. This field prints on the right side of the report and is repeated if multiple reports are assigned to the printer.

## **Printers By Report Option**

The Printers by Report option provides a detailed list of the logical report names within the executing ID and the logical printer names to which each logical report is assigned. Once you select this function, the system displays the following prompt:

*Enter port number to receive printer report --*

Enter the printer port number to which you want the report routed. An example of this report follows:

Figure 6.3 Spooler Control Reports - Printers By Report

Report	Description	Form Name
REPORT	REPORT 1 DESCRIPTION	CHECKS
	Printers: FIRST	No. Copies 1
	SECOND	No. Copies 2
REPORTX	REPORT X DESCRIPTION	
	Printers: FIRST	No. Copies 3
REPORTY	REPORT Y DESCRIPTION	
	Printers: FIRST	No. Copies 2
	SECOND	No. Copies 1

## Field Explanations

### REPORT

This field contains the logical report name for each report and prints on the left side of the report.

### DESCRIPTION

This field contains the report description for each report and prints on the same line and to the right of the Report field.

### FORM NAME

This field contains the name of a special form (such as checks) on which the report prints. This field is blank if no special form is needed. It prints on the same line and to the right of the Description field.

## Printer Information

The following fields print below the line containing the above report fields.

### PRINTERS

This field contains the logical names of the printers to which the above reports are assigned. This field prints directly below the Description field and is repeated if reports are assigned to multiple printers.

### NO. COPIES

This field contains the number of copies printed. This field prints on the same line and to the right of the Printers field. It is repeated if reports are assigned to multiple printers.

## ID Cross Reference Report Option

The ID Cross Reference Report option provides a detailed list of all ports in each ID with their assigned logical printer names and logical report names. Once you select this function, the system displays the following prompt:

*List logical printer names (Y/N) [Y] --*

Enter **Y** or press ENTER to include logical printer names on the report. Otherwise enter **N**. The system displays the following prompt:

*List logical report names (Y/N) [N] --*

Enter **Y** to include logical report names on the report. Otherwise enter **N** or press ENTER. The system displays the following prompt:

*Enter port number to receive report --*

Enter the printer port number to which you want the report routed. An example of this report follows:

Figure 6.4 ID Cross Reference Report

PORT	LPN	ID	PRINTER DEFINITION
Port:0	Printer: XXX	ID: NN Inactive	Answer-OFF Auto-Page 6 LPI
Port:2	Printer: YYY	ID: NN Active SYSQUE	Answer-ON Auto-Page 6 LPI
		Report: N/S Immed Ret-0 Secure-0 Active	

## Field Explanations

### PORT

This field contains the port number from the Port Definition screen and prints on the left side of the report.

### LPN

If you requested that logical printer names be listed on this report, this field contains the logical printer name and prints on the same line and to the right of the Port field.

### ID

This field contains the ID in which the report was created. It prints directly below the LPN field.

### PRINTER DEFINITION

This field contains the following indicators describing the definition of the printer:

**Printer Status (Inactive)** - This is either Active or Inactive depending on the status of the printer. This indicator prints on the same line and to the right of the ID field.

**Queue Name (SYSQUE)** - If the printer is active, the name of the queue prints to the right of the Printer Status.

**Answer** - This is ON if the printer has answerback capability and OFF if it doesnot. This indicator prints to the right of the Queue Name.

**Lines Per Page (Auto-Page)** - This indicator contains the lines per page defined for output produced on the printer. If the default number of lines per page for the printer is used, this field contains Auto rather than the number of lines. This indicator prints to the right of the Answer.

**Lines Per Inch (6 LPI)** - This is the number of lines per inch defined for output produced on the printer. It prints to the right of the Lines Per Page.

### Report Information

If you requested that logical report names be listed on this report, the following fields print below the line containing the above printer fields. Otherwise, these fields do not print on the report.

#### REPORT

This field contains the logical report name for any reports assigned to the logical printer described above. This field prints directly below the Queue Name indicator in the Printer Definition field.

#### REPORT PRINT STATUS (Immed)

This field determines if the report prints immediately once it is sent to the printer. This prints to the right of the Report field directly below the Answer indicator in the Printer Definition field.

#### RET

This field contains the number of days retention assigned to the report. This prints to the right of the Report Print Status field.

#### SECURE

This field contains the security code assigned to the report. This prints to the right of the RET field directly below the Lines Per Page indicator in the Printer Definition field.

#### REPORT DEFINITION STATUS (Active)

This field contains the status defined for the report as either Active or Inactive and prints to the right of the Secure field directly below the Lines Per Inch indicator in the Printer Definition field.

## Open and Spooled Report File Count

The Open and Spooled Report File Count option provides a listing and count of all reports in all IDs. This listing is mainly a tool to assist in troubleshooting issues with spooler files in instances where runaway jobs may have generated large numbers of spooler files or to determine if any spooler files were left open after an abnormal database shutdown.

When this function is selected, the system displays the following prompt:

*Count (O)pen or (S)pooled reports [S] --*

Enter **S** or press ENTER to count all spooled report files. Otherwise enter **O** to count all spooler files currently in an open state.

The system then prompts for the port number to direct the output to, as in the following example:

*Enter port number for spooled report count [135] --*

Enter the port number to receive the Report file count report, or press ENTER to display the count report on the current device.

When you select to count all spooled report files, the system displays a screen like the following, showing the count for each report along with a total count:

General Hospital Open and Spooled Report File Count Processor					
Wed Oct 29, 2008 10:58 am					
Page:01		Spooled Report Files			
Report	Count	Report	Count	Report	Count
( 1) AXRRXRR0	1248	(17) CFRSAR	168	(33) CFRSBH	108
( 2) PRXI14	765	(18) FFR367A	162	(34) CFRSBR	108
( 3) AXRRXRR2	448	(19) FFR367B	153	(35) PIPYXA	99
( 4) %ERTRAP	384	(20) PRXS14	139	(36) UFMFA	99
( 5) PRXA14	367	(21) FINB	137	(37) DISPC	96
( 6) CFRSC	288	(22) FIND	137	(38) GMRIAR01	91
( 7) FFR630A	247	(23) FMRLB1C	132	(39) CFRSC3644	90
( 8) FFR640A	247	(24) CFOBSA	123	(40) CFRSJ	90
( 9) FINA	205	(25) FMRLBKC	117	(41) CFRSJ0801	90
(10) FINC	200	(26) FMRLBYC	117	(42) CFRSJ2003	90
(11) CFRSA	198	(27) CFRSBP	114	(43) CFRSJ3241	90
(12) CFRSB	198	(28) CFRSCA	114	(44) CFRSL	90
(13) CFRSD	198	(29) CFRSAD	108	(45) CFRSL0801	90
(14) CFRSAA	174	(30) CFRSAH	108	(46) CFRSL2003	90
(15) CFRSAP	174	(31) CFRSAW	108	(47) CFRSL3241	90
(16) CFRSBA	174	(32) CFRSBD	108	(48) FAHCFSFNC	88
Total Files 109312					
next pg(/ or PG DN) Search(TAB)					

When you select to count all open spooler files, the system displays a screen like the following, showing the report, the ID, and the count along with the total report count:

General Hospital Open and Spooled Report File Count Processor						
Wed Oct 29, 2008 10:45 am						
Page:01		Spooled Report Files				
Report	ID	Count	Report	ID	Count	
( 1) PRXI14		13				
( 2)	ID 24	8				
( 3)	ID 30	1				
( 4)	ID 31	1				
( 5)	ID 32	1				
( 6)	ID 33	1				
( 7)	ID 47	1				
( 8) PRXF14		4				
( 9)	ID 24	4				
(10) PRXP14		4				
(11)	ID 24	4				
(12) HPRCNV02		2				
(13)	ID 9	2				
(14) PSPLDA		1				
(15)	ID 9	1				
Total Files		24				

## STAR FAX

This menu offers a series of functions that you use to define, maintain, and control fax output capabilities from your system. When you select this option, the system displays the following menu:

General Hospital STAR Fax Processor	
Wed Mar 31, 1999 10:12 am	
STAR Fax Input Options	
Option No.	Option
1	Queue Review
2	Fax Audit
3	Distribution Lists
4	Prefix/Suffix Maintenance
5	Cover Page Information
6	Enable STAR Fax
7	Redial Parameters
8	Enable/Disable Fax Cover Page

Enter option number--

This menu offers the following functions:

### Queue Review

This function is identical to the Queue Review function found under Queue Control. For more information, see *Reviewing the Queue*.

### Fax Audit

This function displays information about the transmission of a fax report. For any fax report generated, you can display the device to which it was sent, the date and time it was sent, and additional status information regarding whether the report was acknowledged by the remote fax device and, if not, reasons for the failure of the transmission.

### Distribution Lists

Use the Distribution Lists function to maintain fax distribution lists. Distribution lists provide a quick method for users to specify fax sending information for frequently used destinations. When users send fax requests via the Demand Print, View Spooled Reports, or Reports Maintenance functions, they can select a fax distribution list instead of having to enter sending information manually.

### Prefix/Suffix Maintenance

Use the Prefix/Suffix Maintenance function to turn prefix/suffix functionality on and off and to define prefixes and suffixes to append to phone numbers. When prefix/suffix functionality is active, when a phone number for a receiving fax machine is entered,

the system verifies phone numbers and appends the appropriate prefix and/or suffix prior to submitting the fax requests to the fax server.

**Cover Page**

This function enables you to define cover pages for your fax transmissions. The system automatically displays the Hospital Name, To, From, and Date information on all cover pages, regardless of whether a cover page has been defined. This function provides you the ability, using print control sequences, to define information to display above and below this information.

**Enable STAR Fax**

This function activates system-wide fax capability, so that when you print a report using a STAR application, the system prompts whether you want the report sent to a fax device.

**Redial Parameters**

This function enables you to define the delay time in seconds between retransmission of faxes for local and long distance calls. With Redial Parameters enabled, the system waits the specified amount of time (delay in seconds) before trying to retransmit the fax, increasing the chances of making a successful connection.

**Enable/Disable Fax Cover Page**

This function enables you to turn off the fax cover page that is automatically generated for each fax transmitted or to turn it back on after it was disabled.

## Fax Audit

This function displays information about the transmission of a fax report. For any fax report generated, you can display the name of the device to which it was sent, the date and time it was sent, and additional status information regarding whether the report was acknowledged by the remote fax device, and if not reasons for the failure of the transmission.

When you select this function, the system displays a list of all fax reports that have been generated and are still available. Reports are available in this queue based on the setting for their retention days, as defined in Reports Maintenance.

General Hospital Fax Audit Processor	
Thu Jan 16, 1997 02:24 pm	
Page:01	Reports In Fax Audit
Name	Description
( 1) XFAXA	Radiology Report Faxing (A)
Select report to view audit for--	



To display the status of a fax report, enter its option number.

The system then displays a screen similar to the following to identify the transmissions of the selected report you want to display in the fax audit.

```

                                General Hospital Fax Audit Processor
                                Thu Jan 16, 1997 02:24 pm

Report: XFAXA - Radiology Report Faxing (A)

Audit Review Parameters
( 1)Starting Date: Thu Jan 16
( 2)Starting Time: 12:00 midnight
( 3)Ending Date  : Thu Jan 16
( 4)Ending Time  : 11:59 pm
( 5)Errors Only? : No
( 6)Print        : No

Enter field number or '/' starting field number--
                        next screen(/) or previous screen(/P) [/]
```

## Field Explanations

### 1. STARTING DATE (DATE-O)

Enter the date to begin searching for the selected report. The report must have finished generating on or after this date to display in the queue list. The default is the current date.

### 2. STARTING TIME (TIME-O)

Enter the time to begin searching for the selected report. The report must have finished generating at or after this time to display in the queue list. The default is midnight of the starting date.

### 3. ENDING DATE (DATE-O)

Enter the date to stop searching for the selected report. The report must have finished generating on or before this date to display in the queue list. The default is the current date.

### 4. ENDING TIME (TIME-O)

Enter the time to stop searching for the selected report. The report must have finished generating at or before this time to display in the queue list. The default is one minute before midnight.

### 5. ERRORS ONLY? (1-A-R)

This prompt enables you to limit the queue list to only those reports that the system was unable to transmit completely. Enter **Y** to display only reports that were not completely transmitted. Enter **N** to display all reports regardless of the success of their transmission.

## 6. PRINT (1-A-O)

This prompt enables you to print automatically the previously selected fax audit report.

### To Enable Printing

Enter **6** and press ENTER. The following prompt is displayed:

*Enter printer name or first letters ' \_ '--*

Enter the printer name or a dash (-) to perform a table lookup. The list of available printers displays:

```

                                General Hospital Fax Audit Processor
                                Thu Jan 16, 1997 02:24 pm
Report: XFAXA - Radiology Report Faxing (A)

Audit Review Parameters
( 1)Starting Date: Thu Jan 16
( 2)Starting Time: 12:00 midnight
( 3)Ending Date  : Thu Jan 16
( 4)Ending Time  : 11:59 pm
( 5)Errors Only? : No
( 6)Print?       : No

Page:01
                                Printers
      Name      Description      Ports
( 1) BIT       Bit Bucket       8050
( 2) CTGANSI   CTG TEST PRINTER ANSI      96
( 3) CTGBAR    CTG TEST BARCODE PRINTER    97
( 4) DOCUMAX   DS printer to emul dg6425    109
( 5) FAXBOX    TEST FAXBOX             288, 78
( 6) ITF_NIC   itf mse test port print serv 83

Enter choice-- 1
                                next page(/)

```

Enter the desired printer. Press ENTER. The response is changed to Yes.

### To Disable Printing

To disable the Print function, enter **6** at the *Enter field number* prompt and press ENTER. The Print field setting is changed to No. Printing is disabled. When you finish entering the search criteria, press ENTER. The system displays the following screen:

```

                                General Hospital Fax Audit Processor
                                Thu Jan 16, 1997 02:24 pm

Page:01
                                Fax Audit Entries For Report XFAXA
      Printer      Created      Transmitted      Status      Comment
( 1) XFAX         01/16 1109A 01/16 1112A  Distribution Error  Rad Final Report
( 2) FAX30        01/16 1120A 01/16 1123A  Deleted           Rad Final Report

Select entries to review or (A)ll--
                                end selection(NL)

```

## Report Information

For each attempted transmission of the selected fax report, the system displays the following information:

<b>Printer</b>	The name of the device to which the report was sent.
<b>Created</b>	The date and time at which the system created the fax report.
<b>Transmitted</b>	The date and time at which the system attempted to transmit the fax report.
<b>Status</b>	<p>The status of the transmission. Available statuses include:</p> <p><b>Distributed</b></p> <p>The fax report was sent and acknowledged as received by all fax machines on the distribution list.</p> <p><b>Not Distributed</b></p> <p>The fax report was sent but was not acknowledged as received by at least one fax machine on the distribution list. The system continues to attempt to transmit the fax report until either the report is received by all fax machines on the distribution list or until 24 hours after the number of days set in the Retention Days field in Reports Maintenance has elapsed.</p>
<b>Status</b>	<p><b>No Distribution List</b></p> <p>The fax report was not sent because no distribution list for the report was established.</p> <p><b>In Progress</b></p> <p>The device is in the process of transmitting or attempting to transmit the fax report.</p>
<b>Comment</b>	The comment entered for this report, if the report was transmitted using the Demand Print function. If the report was not transmitted using the Demand Print function, the report description for this report (entered using the Reports Maintenance function) displays.

## Displaying Detail Information

To display detail information. . .	Enter. . .
about the distribution list for a fax report,	the option number of the desired fax report.
for multiple fax reports,	the option number of each report.
a range of fax reports	enter the option number of the first report in the range, a hyphen (-), and then the last report in the range.
for all fax reports on the list,	<b>A.</b>

When you have selected all desired fax reports, press ENTER.

The system then displays a screen similar to the following:

```

                                General Hospital Fax Audit Processor
                                Thu Jan 16, 1997 02:24 pm

Selection 1 of 2
( 1)Report      : XFAXA - Radiology Report Faxing (A)
( 2)Printer     : XFAX - FAX MACHINE
( 3)Created     : 01/16/97 1441
( 4)Status      : Distribution Error
( 5)Transmitted : 01/16/97 1447
( 6)Comment     : Rad Final Report

Page:01
To          Destinations For This Report
( 1) Phone - 5489      Status For Destination      Telephone Number
                        Could Not Connect          +5489

Press NL to continue--

```

## Report Information

For the selected report, the system displays the following information:

Field	Description
Report	The name of the fax report.
Printer	The name of the device to which the report was sent.
Created	The date and time on which the report was created.
Status	<p>The transmission status of the report. Available statuses include:</p> <p><b>Distributed</b> The system successfully sent the report to all recipients.</p> <p><b>Distribution Error</b> The system was unable to successfully send the report to one or more recipients.</p> <p><b>In Progress</b> The system is currently attempting to send the report to one or more recipients.</p>
Transmitted	The date and time on which the fax report was transmitted.
Comment	<p>One of the following comments:</p> <ul style="list-style-type: none"> <li>The comment entered for this report, if the report was transmitted using the Demand Print function.</li> <li>If the report was not transmitted using the Demand Print function, the report description for this report (entered using the Reports Maintenance function) displays.</li> </ul>

At the bottom of the screen, the system displays information about each transmission of the report, including:

To	The name of the report recipient, as defined in the Distribution Lists function.
Status for Destination	The status of the transmission. See the table of statuses below. <b>Note:</b> For all of these statuses except Deleted, Max Retries Exceeded, Invalid Phone Number, Fax Sent OK and Could Not Connect, the system continues to attempt to transmit the fax report until either the report is received by all fax machines on the distribution list or until 24 hours after the number of days set in the Retention Days field in Reports Maintenance has elapsed.
Telephone Number	The phone number to which the report was sent, as defined in the Distribution Lists function. <ul style="list-style-type: none"> <li>• If a prefix or suffix was appended to the phone number, a plus sign (+) displays.</li> <li>• If the system appended a prefix to the phone number, the plus sign precedes the number.</li> <li>• If the system appended a suffix to the phone number, the plus sign follows the number.</li> </ul>

Transmission Status Message	Explanation
Fax Sent OK	The fax was sent successfully.
No Dial Tone	The local fax device could not connect to a phone line.
Busy	The phone line at the remote fax device was in use.
Could Not Connect	The remote fax device did not answer or something other than a fax device responded. For this error, the system does not continue to attempt the fax transmission.
Failure to Train	The remote and local fax devices could not synchronize communications.
Disconnected	The transmission was interrupted in progress.
Incompatible Fax	The remote fax device is not using an acceptable protocol.
Device Reset	Power to the local fax device was interrupted or the reset button was pressed during transmission.
Response Timeout	The local fax device did not respond to the system spooler in the established time frame.
Deleted	The fax was deleted and cannot be resent.

Max Retries Exceeded	The system has retried sending a local or long distance fax transmission for the maximum number of retries specified and failed on the last specified try. The fax is deleted from the queue and is not resent.
Invalid Phone Number	The phone number provided is invalid based on a validity check. A valid phone number can be incorrect.

When you are finished viewing the information on this screen, press ENTER. The system either displays the next report or returns to the previous screen.

### Deleting a Queued Fax Request

As you view the status of each fax request from the currently selected fax audit report, you have the option to delete any fax requests that the system has queued. Queued fax requests have a status of *Queued*. The following screen provides an example of a queued fax request:

General Hospital Fax Audit Processor			
Thu Jan 16, 1997 02:24 pm			
Selection 2 of 2			
( 1)Report	:	FAX30 - Radiology Report Faxing (A)	
( 2)Printer	:	FAX30 - FAXBOX/30	
( 3)Created	:	01/16/97 1120	
( 4)Status	:	Distribution Error, Queued	
( 5)Transmitted:	:	01/16/97 1123	
( 6)Comment	:	Rad Final Report	
Page:01			
Destinations For This Report			
To		Status For Destination	Telephone Number
( 1) JOE		Busy	+3954302
Enter (D)delete or Press NL to continue--			

If the fax request can be deleted, the system displays the following prompt:

*Enter (D)delete or Press NL to continue--*

To delete a fax, enter **D** and press ENTER. The following prompt is displayed:

*Enter Y to Delete this fax request (Y/N) [N]*

To cancel the deletion request, press enter **N** (No), and press ENTER.

To complete the deletion request, enter **Y** (Yes). The system displays the message, *Deleted!*

Press ENTER to continue. The system displays the next fax request or returns to the previous screen.

**NOTE:** To verify that the fax request(s) have been deleted, you must return to the Fax Audit Entries for Report screen. The system displays a status of *Deleted* for each fax request you have deleted.

## Distribution Lists

Use this function to maintain fax distribution lists. Fax distribution lists provide a quick method for users to specify fax sending information for frequently used destinations. When users send fax requests via the Demand Print, View Spooled Reports, or Reports Maintenance functions, they can select a fax distribution list instead of having to enter sending information manually.

You can define different distributions lists for each ID. For example, you may want to define one set of distribution lists for the test ID and another set of distribution lists for the live ID.

After you select the Distribution Lists function, the system displays the following prompt:

*Enter System ID Number [1]--*

Enter the ID number whose distribution lists you want to edit or press ENTER to accept the default ID. After you specify an ID, the system prompts you to select a distribution list:

*Enter distribution list code, or '-' to list--*

Enter a distribution list code or enter a hyphen (-) to select a distribution list from a table. If you enter a distribution list code that does not exist, the system adds the new code.

After you select a distribution list, the system displays the following screen:

General Hospital Distribution Lists Processor		
Fri Aug 14, 1992 08:18 am		
1 List Code	2 Description	3 Cover Page
%TEST	TEST LIST	TEST
4 Sending Info		
To	From	Phone
MARGARET OLIVER	STEVE PORTER	555-1844
Accept this screen (Y/N/D) [Y]--		

## Field Explanations

### 1. LIST CODE (9-C-R)

This field contains the distribution list name code. When using the Reports Maintenance, View Spooled Reports and Demand Print functions, users can select distribution lists by entering this code. This code displays when users choose a distribution list from a table in the Reports Maintenance, View Spooled Reports and Demand Print functions.

### 2. DESCRIPTION (U-C-R)

This field contains a distribution list description. This information displays when users choose a distribution list in the Reports Maintenance, View Spooled Reports and Demand Print functions.

### 3. COVER PAGE (TABLE LOOKUP-O)

This field specifies a cover page to use when reports are faxed using this distribution list. You define cover pages using the Cover Page function, as explained beginning here.

### 4. SENDING INFO (SPECIAL FORMAT-R)

This field identifies sending information for the fax report (To, From, and Phone number). When you access this field, a scrolling entry area displays at the bottom of the screen. This area contains the following subfields:

#### TO (25-C-R)

This field specifies the name of the person to send the fax to.

#### FROM (25-C-O)

This field specifies the name of the person who sent the fax.

#### PHONE (25-SPECIAL FORMAT-O)

This field specifies the phone number of the receiving fax machine. If the prefix/suffix functionality is active, when you enter a phone number, the system verifies the phone number has a valid format. For detailed information on valid phone number entries, see the Prefix/Suffix Maintenance function.

After you enter each item of sending information, press ENTER to advance to the next field.

- To move between subfields, use the arrow keys.
- To insert another line of sending information, press the F3 key.
- To delete a line of sending information, press the F4 key.
- To exit and save the sending information, press the F7 key.

When you complete the fields on this screen, the system displays the following prompt:

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



Press ENTER or enter **Y** to accept changes you made. Enter **N** to return to editing the screen without saving any changes. Enter **D** to delete the distribution list. Enter a period (.) to exit the function without saving any changes.

## Prefix/Suffix Maintenance

Use the Prefix/Suffix Maintenance function to define prefixes and suffixes to append to phone numbers. If prefix/suffix is active (see the Prefix/Suffix Active? field below), when a phone number for a receiving fax machine is entered, the system verifies the phone number and appends the appropriate prefix and/or suffix prior to submitting the fax request to the fax server.

If prefix/suffix is active, the following rules apply when checking fax phone numbers for validity:

- If the phone number is **preceded by a pound sign (#)**, the number is used as entered; that is, no prefix or suffix is appended and no validity check is performed.
- If the phone number is **10 digits long** the system evaluates the area code and exchange code to determine if the number is local or long distance.
  - If the area code is not listed as local, the phone number is long distance and the system appends the long distance prefix and suffix.
  - If the area code is listed as local, the system evaluates the exchange code as follows:
    - If the exchange code is listed as local or the exchange code for the area code is None, the phone number is local and the system appends the outside line prefix and suffix.
    - If the exchange code is not listed as local and the list of exchange codes for the area code does not include None, the phone number is long distance and the system appends the long distance prefix and suffix.
- If the fax number is *seven (7) digits long*, the system appends the outside line prefix and suffix.
- If the fax number is *less than seven (<7) digits long*, the system appends the internal prefix and suffix.

If prefix/suffix is active and if the receiving fax phone number does not conform to these rules, the system rejects the phone number as invalid and asks the user to reenter it.

**NOTE:** Phone number prefixes and suffixes are CPU-specific; that is, all users on the same CPU use the same prefixes and suffixes. Phone number prefixes and suffixes are the same across all IDs on a CPU.

## Special Characters:

With the following exceptions, all special characters and letters are ignored:

**Pound sign (#)** — If the first position of the phone number is a pound sign (#), the system uses the phone number as is with no error checking and without appending any prefix or suffix. If prefix/suffix is not active, the system does not strip off the pound sign (#), and the phone number cannot connect.

**Comma (,)** — A comma (,) represents a one-second pause. For example, a long distance prefix of 9,,1, dials the number 9, pauses three seconds, dials the number 1, and then pauses one second.

After you select the Prefix/Suffix Maintenance function, the system displays the following screen:

General Hospital Prefix/Suffix Maintenance Processor	
Tue May 18, 2000 01:45 pm	
1 Long Distance Prefix	2 Long Distance Suffix
9,1	
3 Outside Line Prefix	4 Outside Line Suffix
9,	
5 Internal Prefix	6 Internal Suffix
7 Prefix/Suffix Active?	
Yes	
8 Local Area/Exchange Codes	
See Table (Dialing on Local)	
Enter field number or '/' starting field number--	

## Field Explanations

### 1. LONG DISTANCE PREFIX (36-C-O)

This field specifies the prefix to append before phone numbers for long distance calls. The most common prefixes are the number required to access an outside line and the long distance prefix (1). In the example above, to access an outside line and make a long distance call, the prefix 9,1 is dialed before the phone number.

### 2. LONG DISTANCE SUFFIX (36-C-O)

This field specifies the suffix to append after phone numbers for long distance calls.

A common suffix for long distance calls is an authorization code. For example, if you must append a 7-digit code for long distance tracking and security purposes, enter that code here.

**3. OUTSIDE LINE PREFIX (36-C-O)**

This field specifies the prefix to append before phone numbers for local outside line calls.

For example, if you must dial a 9 before any phone number to access an outside line, enter **9** in this field.

**4. OUTSIDE LINE SUFFIX (36-C-O)**

This field specifies the suffix to append after phone numbers for local outside line calls.

**5. INTERNAL PREFIX (36-C-O)**

This field specifies the prefix to append before phone numbers for internal calls.

**6. INTERNAL SUFFIX (36-C-O)**

This field specifies the suffix to append after phone numbers for internal calls.

**7. PREFIX/SUFFIX ACTIVE? (1-A-R)**

This field determines if phone number verification is active and if prefixes and suffixes are automatically appended to phone numbers. If this field displays No, the system does not perform any checks on or add any prefixes or suffixes to destination fax phone numbers. Do not append a pound sign (#) to phone numbers when prefix/suffix is inactive.

**8. LOCAL AREA/EXCHANGE CODES (TABLE LOOKUP-R)**

This field specifies the local areacodes and the exchange codes associated with each area code for the phone line connected to the fax server. A phone number is considered local only if the local area code is listed in this field and if the Local Exchange Code table for this area code includes this exchange code or None.

To add a new code, enter **A**. To delete a code from the table, select an existing area code and answer the delete question immediately following.

To add/modify/delete exchange codes for a particular area code, select a new or existing area code and answer the prompt to use local exchange codes. Answering **Y** brings up the list of exchange codes. Answering **N** deletes the exchange codes from the area code. Once the list of exchange codes appear, you have the option to delete or add. To delete an exchange code, select the exchange code and answer the delete question. To add an exchange code, enter **A** to add. Once the prompt comes up to enter an exchange code, you can either enter one exchange code at a time, or enter multiple exchange codes at one time by separating them with a comma (,) (for example, 388,399,933).

After modifying the field if more than one area code is entered, the following prompt is displayed:

*Are all of these area codes dialed locally? (Y/N)--:*

Answer **Y** to have the fax server include the area code when dialing local numbers within the area codes defined in the area codes field. Answer **N** to not dial area codes for local calls.

## Cover Page

Use this function to maintain the Cover Page table. The Cover Page table provides a quick method for users to specify fax cover pages to send with fax requests. You can use print control sequences to add graphic elements and display text in a variety of fonts and typefaces. When fax requests are sent via the View Spooled Reports, or Reports Maintenance functions, users can select an alternate cover page from this table.

When no cover page is specified, the system default cover page is used. This cover page includes the following information:

- Hospital name
- Fax recipient
- Fax sender
- Date and time of transmission

This information displays on *all* Star Fax cover pages. If you define additional cover page information, the system displays the above fields of information on the cover page, preceded and/or followed by the information you define.

After you select the Cover Page Table function, the system displays the following prompt:

*Enter cover page code, or '-' to list--*

Enter a cover page code or enter a hyphen (-) to select a cover page from a table. If you enter a cover page list code that does not exist, the system adds the new code.

After you select a cover page, the system displays the following screen:

```

                                General Hospital Cover Page Processor
                                Thu Nov 17, 1994 03:20 pm

1 Code          2 Cover Page Description
FAX            FAX COVER

3 Header PCS Names
BDW, LAND

4 Trailer PCS Names
->

Page:01          Defined Printer Control Sequences
( 1) %FAX        Fax Handling PCS
( 2) BDW          BRENT'S SEQUENCE
( 3) LAND         LANDSCAPE MODE
( 4) RETYY56      1234567890123456789012
( 5) T12          Test
( 6) VSMCONTROL  BOLD CHARACTER

Select PCS--

```

## Field Explanations

### 1. CODE (DISPLAY ONLY)

This field contains the cover page code. This code is used to select an alternate cover page in the View Spooled Reports and Reports Maintenance functions.

### 2. COVER PAGE DESCRIPTION (U-C-R)

This field contains the cover page description. This description displays when users choose a cover page using a table lookup in the View Spooled Reports and Reports Maintenance functions.

### 3. HEADER PCS NAMES (TABLE LOOKUP)

This field identifies the print control sequences used to create the information printed above standard cover page fields on this cover page. When you access this field, the system displays a table of print control sequences. Enter the option number of the print control sequence. For more information on print control sequences, see Print Control Maintenance.

The system then displays the following prompt:

*Select another? (Y/N [N])--*

If you do not want to add another print control sequence in this cover page header, enter **N**. To use another print control sequence in this cover page header, enter **Y**. The system then returns you to the table of print control sequences.

### 4. TRAILER PCS NAMES (TABLE LOOKUP)

This field identifies the print control sequence(s) used to create the information printed below standard cover page fields on this cover page. When you access this field, the

system displays a table of print control sequences. Enter the option number of the print control sequence. For more information on print control sequences, see Print Control Maintenance.

The system then displays the following prompt:

*Select another? (Y/N [N])--*

If you do not want to add another print control sequence in this cover page trailer, enter **N**. To use another print control sequence in this cover page trailer, enter **Y**. The system then returns you to the table of print control sequences.

When you finish editing the screen, the system prompts you to accept your changes. Press ENTER or enter **Y** to accept changes you made. Enter **N** to return to editing the screen without saving any changes. Enter **D** to delete the cover page table entry. Enter a period (.) to exit the function without saving any changes.

## Enable STAR Fax

This function activates system-wide fax capability, so that when you print a report using a STAR application, the system prompts whether you want the report sent to a fax device.

**NOTE:** *If you are currently using McKesson's PCDFAX product, you can fax a report using STAR Fax with this option set to **Disabled**.*

If you are currently using PCDFAX, by leaving this option set to *Disabled*, the Demand Print function continues to prompt whether you want to print or fax a report. Selecting the *fax* option at this prompt directs the report directly to PCDFAX.

If you are currently using PCDFAX, you can fax a report using STAR Fax from the Demand Print function by selecting *print* and routing the report to a fax device. By routing the report to the appropriate device from the Reports Maintenance function, you can also direct a report to a fax device using either STAR Fax or PCDFAX.

When you access this function, the system checks whether PCDFAX is installed in your system. If PCDFAX is installed, the system displays the following message:

*Note: If PCD Fax is present in your system and you want to use it with Star Fax then exit without making any change.*

If STAR Fax is inactive, the system displays the following prompt at the bottom of the screen:

*STAR Fax is Disabled. Enable STAR Fax? (Y/N) [N]--*

Enter **Y** to activate system-wide fax capability; the system displays *STAR Fax is Enabled!* and returns to the menu. Enter **N** or press ENTER to exit without activating system-wide fax capability.

If *STAR Fax is active*, the system displays the following prompt at the bottom of the screen:

```
STAR Fax is Enabled. Disable STAR Fax? (Y/N) [N]--
```

Enter **Y** to de-activate system-wide fax capability; the system displays *STAR Fax is Disabled!* and returns to the menu. Enter **N** or press ENTER to exit without de-activating system-wide fax capability.

## Redial Parameters

This function enables you to define the delay time in seconds between retransmission of faxes for local and long distance calls. With Redial Parameters enabled, the system waits the specified amount of time (delay in seconds) before trying to retransmit the fax, increasing the chances of making a successful connection.

General Hospital Redial Parameters Processor			
Mon Jan 06, 1997 01:52 pm			
1 Local Delay	2 Local Retries		
->			
3 Long Distance Delay	4 Long Distance Retries		
Enter LOCAL retry delay (seconds) [30]--			

## Field Explanations

### 1. LOCAL DELAY

Enter the time in seconds that you want the system to delay before retrying a local fax transmission. The default is 30 seconds.

### 2. LOCAL RETRIES

Enter the number of times that you want the system to try resending the fax to this local number. The default is ten retries. When a zero (0) is entered, the system keeps trying until a successful connection is made.

### 3. LONG DISTANCE DELAY

Enter the time in seconds that you want the system to delay before retrying a long distance fax transmission. The default is 30 seconds.

#### 4. LONG DISTANCE RETRIES

Enter the number of times that you want the system to try resending the fax to this long distance number. The default is ten retries. When a zero (0) is entered, the system keeps trying until a successful connection is made.

### Enable/Disable Fax Cover Page

This function enables you to turn off the fax cover page that is automatically generated for each fax transmitted or to turn the fax cover page back on after it was disabled.

The following is an example of the screen that displays when the cover page is enabled. The explanatory information in the middle of the screen remains the same, whether the fax cover page capability is enabled or disabled.

```
General Hospital Enable/Disable Fax Cover Page Processor
                                     Wed Mar 30, 2000 10:14 am

      ENABLING the Fax Cover Page means that a leading page will
      be transmitted that contains the Hospital name, date and
      time, recipient name, the sender's name plus any other
      pertinent information supplied in the Fax Cover Page
      Header and Trailer sections.

      DISABLING the Fax Cover Page means that the above described
      information is NOT transmitted to the recipient.

Fax Cover Page is ENABLED.  Disable Fax Cover Page (Y/N)--
```

If the Fax Cover Page is inactive, the system displays the following prompt at the bottom of the screen:

*Fax Cover Page is DISABLED. Enable Fax Cover Page? (Y/N)-*

Enter **Y** to activate fax cover page capability; the system displays *Cover Page Enabled!* and returns to the menu. Enter **N** or press ENTER to exit without activating fax cover page capability.

If the Fax Cover Page is active, the system displays the following prompt at the bottom of the screen:

*Fax Cover Page is Enabled. Disable Fax Cover Page? (Y/N) [N]--*

Enter **Y** to de-activate fax cover page capability; the system displays *Cover Page Disabled!* and returns to the menu. Enter **N** or press ENTER to exit without de-activating fax cover page capability.



## DOWNLOADING AT LOGOFF SCREEN

To better facilitate the downloading of reports from STAR, the Download at Logoff function is enhanced to allow you to edit the file name and download location when appropriate.

When logging out of the system, if the Download at Logoff parameter is enabled, the system searches the spooler for your mapped reports. During the search, the following message displays:

*Searching for reports!*

If no instance of the report exists in the spooler, the logoff continues and you are logged out of the system. If report instances do exist in the spooler, the system displays the following prompt:

*Transmit reports now (Y/N) [Y]--*

Enter **N** to bypass the download process and continue to log out of the system. Enter **Y** to continue the report download process. If Y is entered, a list of available reports displays:

General Hospital System Report Download Processor	
Page: 01	Mon Mar 04, 1996 02:45 pm ##=Current Choices
Report Name	Report Description
( 1) ADRA	Admission Report (A)
( 2) GMRAAP01	ANTICIPATED AUTO REORDER PO (01)
( 3) GMRANP01	ANTICIPATED NONAUTO REORDER (01)
( 4) GMRAPC	INVENTORY AVG PRICE ADJ LOG
( 5) GMRAPC01	INVENTORY AVG PRICE ADJ LOG (01)
( 6) GMRAPD01	Avg Prc Adj from Distributi (01)
( 7) GMRAPP01	Anticipated POs-Items Appr (01)
( 8) GMRAPR01	Avg Prc Adj from Receipts (01)
( 9) GMRDCR	Daily Capital Item Receiving
(10) GMRDCR01	Daily Capital Item Receivin (01)
(11) GMRDJR01	Daily Journal (01)
(12) GMRDRR	DAILY RECEIVING REPORT
(13) GMRDRR01	DAILY RECEIVING REPORT (01)
(14) GMREXL01	EXPEDITE LIST (01)
(15) GMRIAR	Inventory Adjustment Report
(16) GMRIAR01	Inventory Adjustment Report (01)
Enter choices (e.g. 1,7,5-9) or '-'choices to remove-- end selection(NL) next page(/)	

After the report selection is complete, the system displays a table of available report instances for each report selected:

```

                                General Hospital System Report Download Processor
                                Mon Mar 04, 1996 03:05 pm

Page: 01
##=Current Choice

                                Available Reports
                                Spooled      Last Printed      Report name      Report Description
( 1) 02/28/96 12 00 am      Never Printed      ADRA              Admission Report
( 2) 02/29/96 12 00 am      Never Printed      ADRA              Admission Report
( 3) 03/01/96 12 00 am      Never Printed      ADRA              Admission Report
( 4) 03/02/96 12 00 am      Never Printed      ADRA              Admission Report
( 5) 03/02/96 12 01am      Never Printed      GMRAAP01          Anticipated Auto Re
( 6) 03/03/96 12 01am      Never Printed      GMRAAP01          Anticipated Auto Re
( 7) 03/04/96 12 01am      Never Printed      GMRAAP01          Anticipated Auto Re

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

```

After the report instance selection is complete, you have the option to modify the following:

- File name (available for single report download)
- Download location

The following screen is displayed:

```

                                General Hospital System Report Download Processor
                                Tue Mar 05, 1996 10:49 am

1 File Name                      2 Download Drive      3 Download Directory
  Various.NNN                    C:                     \HBO\

Accept (Y/N) [Y]--

```

## Field Explanations

### 1. FILE NAME (12-AN-R)

This field defines the name of the file to which to download the report. The default is reportname.nnn. If the defaults are accepted, the report downloads to the PC as

reportname.nnn where nnn is a counter. When the field is accessed, the following message and prompt display:

*Warning! The file will be overwritten in the download directory.  
Enter file name--*

**NOTE:** The file name override option is not available for multireport download. However, the report description is downloaded in the RPT.bat file.

## **2. DOWNLOAD DRIVE (1-A-R)**

This field is used to direct the report download to a user-specified drive. When the field is accessed the following prompt is displayed:

*Enter download drive--*

Only an alphabetic or alphabetic with a colon (:) entry is accepted. The default drive is the PCD or STAR Navigator drive.

## **3. DOWNLOAD DIRECTORY (65-ANP-R)**

This field is used to direct the report download to a particular directory of his/her choosing.

When the field is accessed the following prompt is displayed:

*Enter Download directory--*

A blank entry is valid. the system checks for beginning and ending '\' and appends if necessary. a check is also mad for '/' characters. If any are present, they changed to '\'. The default directory is the PCD or STAR Navigator directory.

Once the screen is accepted, the system initiates the report download process. the download status box displays. At this point, you have the option to abort the process. If any errors occur, the message displays in the status box. The process is aborted and you are prompted to restart the download process. If the download is successful, you are logged off the system.



# Appendix A - TEXT EDITOR

INTRODUCTION.....	A-3
FUNCTION KEYS.....	A-4



## INTRODUCTION

Various applications and utilities use the text editor to enable you to enter and edit free-form information. The text editor screen limits data entry to a maximum of 75 characters across and 17 lines down:

	1	2	3	4	5	6	7
01	1	2	3	4	5	6	7
02	1	2	3	4	5	6	7
03	1	2	3	4	5	6	7
04	1	2	3	4	5	6	7
05	1	2	3	4	5	6	7
06	1	2	3	4	5	6	7
07	1	2	3	4	5	6	7
08	1	2	3	4	5	6	7
09	1	2	3	4	5	6	7
10	1	2	3	4	5	6	7
11	1	2	3	4	5	6	7
12	1	2	3	4	5	6	7
13	1	2	3	4	5	6	7
14	1	2	3	4	5	6	7
15	1	2	3	4	5	6	7
16	1	2	3	4	5	6	7
17	1	2	3	4	5	6	7

F1	F2	F3	F4	F5	F6	F7	F10
Delete Line	Insert Line	Center	Exit	Store Line	Restore Line	Pack	Help

Even though this example shows the maximum of 75 columns across and 17 lines down, a particular utility or application may use less than this.

The text area is outlined by the line numbers on the left and each line ends in a vertical bar (|) on the right. Each vertical bar serves as an end-of-text marker for the line of text. Column headings display across the top of the text edit area and certain function keys and their use display across the bottom of the edit area. The cursor is initially located at the HOME position (the top left corner of the edit area).

## FUNCTION KEYS

The following keys perform special functions within this text editor:

<b>ANSI or DEC® VT Terminal Keys</b>	<b>IBM 3151 DEC VT220 Emulation Mode</b>	<b>Data General Terminal Keys</b>	<b>Function</b>
F6	F5	F1	Delete the current line (indicated by the cursor location).
F7	F6	F2	Insert a line at the cursor location and move all listing lines down by one.
F8	F7	F3	Center the current line of text on the screen.
F9	F8	F4	Exit the editor function
F10	F9	F5	Copy the current line into a save buffer to be used for later retrieval into another location in the editor (see F6).
F11	F10	F6	Place the line in the save buffer into the editor area at the line containing the cursor (see F5).
F12	F11	F7	Pack text beginning at the cursor to the end of the text area, terminating at the first blank line encountered. The text is packed by placing one space between each word.
F13 NOTE: If you do not have an F13 function key on your keyboard, use ALT-F3 to complete the function.	F12	F10	Display help screens for the supported function keys. Move the cursor up one line, maintaining the current column.
Down Arrow	DownArrow	Down Arrow	Move the cursor down one line, maintaining the current column.
Right Arrow	Right Arrow	Right Arrow	Move the cursor one column to the right.
Left Arrow	Left Arrow	Left Arrow	Move the cursor one column to the left.
REMOVE /DEL	Clear	DEL	Delete the current character, closing the line to the left (destructive backspace).
SELECT/ END	Delete	ERASE EOL	Erase from the cursor to the end of the current line.
N/A	N/A	ERASE PAGE	Erase the entire text area.



ANSI or DEC® VT Terminal Keys	IBM 3151 DEC VT220 Emulation Mode	Data General Terminal Keys	Function
TAB	TAB	TAB	Move to the next tab position (every 10 characters).
N/A	N/A	SHIFT/ Right Arrow	Insert one character.
N/A	N/A	SHIFT/ Left Arrow	Delete one character.
N/A	N/A	HOME/ Right Arrow	Move the cursor to last character on the line.
N/A	N/A	HOME/ Left Arrow	Move the cursor to first character on the line.
N/A	N/A	HOME/ Up Arrow	Move the cursor to top line, maintaining the current column.
N/A	N/A	HOME/ Down Arrow	Move the cursor to bottom line, maintaining the current column.
N/A	N/A	HOME/ HOME	Move the cursor to the HOME position (top left corner).

**NOTE:** There are two ways to exit the text editor.

- Press the appropriate key to exit. On Data General® keyboards, press the F4 key. On ANSI or DEC VT keyboards, press the F9 key.
- Enter data in the bottom right position of the screen. This means that if you begin entering text at the HOME position and continue until the entire text area is full, the editor function stops once you reach the bottom right corner of the screen.



## Appendix B - PLATFORM-SPECIFIC INFORMATION

INTRODUCTION .....	B-3
HP-UX COMMAND SUMMARY .....	B-4
Run Levels .....	B-4
Shutdown Command .....	B-4
Reboot Command .....	B-5
IBM AIX COMMAND SUMMARY .....	B-6
Run Levels .....	B-6
Shutdown Command .....	B-6
Command Syntax .....	B-6
Halt Command .....	B-7
Command Syntax .....	B-7
Telinit Command .....	B-8
Command Syntax .....	B-8
Booting the AIX Operating System .....	B-8



## INTRODUCTION

This appendix provides a summary of platform-specific information for your convenience. Use this section as a general guide for powering up the hardware and completing the boot procedures for your system. Revisions to UNIX or your hardware could cause console messages and procedures on your system to deviate from those shown here. Always refer to the documentation from your hardware vendor for the most current detailed information.

## HP-UX COMMAND SUMMARY

### Run Levels

A UNIX system always exists in a predefined run level. The two run levels you deal with on your Hewlett-Packard system are run level 2 and run level s.

Run level s is a special single user run level. You are only in this run level when performing system management functions from your system console. No other users are allowed on your system.

Run level 2 is the standard multiuser run level your STAR applications require.

### Shutdown Command

The shutdown command changes your system from run level 2 (multiuser) to run level s (single user) and then optionally halts or reboots the system.

**WARNING:** You must bring down MultiSTAR before shutting down, halting or rebooting UNIX. Failure to do so can damage your database. See Bringing Down The MultiSTAR Environment in [“Chapter 3 - SYSTEM OPERATIONS”](#) for more information.

The **shutdown** command:

- Warns all users of the coming shutdown.
- Stops user and system processes.
- Writes the contents of all I/O buffers to disk.
- Unmounts user file systems.
- Puts the system in single user mode.

The syntax for the **shutdown** command is:

*shutdown [options]*

If the **shutdown** command is entered with no parameters it brings the system into single-user mode. Options include:

- h halts the system after it reaches single-user mode. The only way to restart the system at this point is to recycle the power or reset the hardware.
- r reboots the system after it reaches single-user mode.

A grace period (in seconds) can be specified. The shutdown process waits the specified period before terminating user processes. The default grace period is 60 seconds.

Only enter the **shutdown** command when logged in as root at the system console.

The following example shuts down and then halts your system with a five-minute grace period. You are given a choice of supplying your own logoff message or using the system default message. In this example, user entries are shown in boldface type.

```
root# cd /
root# shutdown -h 300
Do you want to send your own message? (y or n): y
Type your own message followed by ctrl d . . .
Please log off now. The system will be up in one hour!
<<ctrl-d>>
```

(five minutes later)

```
Do you want to continue? (y or n): y
```

**NOTE:** Not all messages generated by the **shutdown** command are shown in this example.

## Reboot Command

The reboot command reboots or halts the system once you are in single user mode.

**WARNING:** You must bring down MultiSTAR before shutting down, halting or rebooting UNIX. Failure to do so can damage your database. See Bringing Down The MultiSTAR Environment in “[Chapter 3 - SYSTEM OPERATIONS](#)” for more information.

The syntax for the **reboot** command is:

```
reboot [options]
```

Options:

**-h** Halt the system.

If no options are specified the system reboots.

The following example reboots the system into multiuser mode. In this example, user entries are shown in boldface type.

```
root# reboot
```

# IBM AIX COMMAND SUMMARY

## Run Levels

A UNIX system exists in a specific run level. On an RS/6000 system, AIX is either running in run level 2 or run level 3.

- Run level 2 is the standard multiuser run level for an RS/6000 system. In order to run STAR applications, your RS/6000 system must be in run level 2.
- Run level 3 is the maintenance mode for an RS/6000 system. Your system needs to be in run level 3 only when you are performing system management functions from the system console. When the system is in run level 3, no other users are permitted to use the system.

## Shutdown Command

You use the `AIXshutdown` command to change the system run level from 2 to run level 3. This puts the system into maintenance mode, thus making it unavailable to MultiSTAR.

**IMPORTANT:** Before using the AIX shutdown command, you must bring down the MultiSTAR environment. If you do not bring MultiSTAR down before using the shutdown command you can damage your database. For information on bringing down MultiSTAR, see Stopping MultiSTAR in [“Chapter 3 - SYSTEM OPERATIONS”](#).

When you invoke the shutdown command, the system:

- Warns all users on the system that a system shutdown is pending
- Stops user and system processes
- Writes the contents of all I/O buffers to disk
- Unmounts user file systems
- Puts the system in run level 3 (maintenance mode)

When the system is in run level 3, only a single user from the system console can access the system.

## COMMAND SYNTAX

The syntax for the shutdown command is:

`shutdown [options]`



Only enter this command when logged in as root (enter `cd\`) at the system console.

If you enter shutdown with no options, the system transmits a warning to all users that the system is to be shutdown in one minute. After the minute has passed, the system is halted. On some models, the system is also powered down.

Options:

**-m** brings the system to maintenance mode (run level 3)

**+n** defines the number of minutes between the transmission of the system halt warning and the time the system logs all users off the system. The default is one minute.

In the following example of the shutdown command, the system transmits a warning, and then logs all users off after five minutes. The system is then in run level 3 (maintenance mode). Entries are shown in boldface.

```
root# cd /  
root# shutdown -m +5
```

## Halt Command

You use the halt command to halt execution of AIX. On some models, the system is also powered down. Only use this command when the system is in run level 3 (maintenance mode) and you are logged on as root.

**IMPORTANT:** Before using the AIX halt command, you must first bring down the MultiSTAR environment, and then use the AIX shutdown command to put the system into maintenance mode. If you do not bring MultiSTAR down, then use shutdown to put the system into maintenance mode before using the halt command you can damage your database. For information on bringing down MultiSTAR, see Stopping MultiSTAR in “[Chapter 3 - SYSTEM OPERATIONS](#)”. Also see the Shutdown Command in this section.

## COMMAND SYNTAX

To halt the system, log on as root from the system console. With the system in maintenance mode (run level 3), enter the following:

```
halt
```

The system displays:

```
....Halt completed....
```

## Telinit Command

You use the `telinit` command to return the system from maintenance mode (run level 3) to multiuser mode (run level 2). This command enables you to restore the system to use after performing system management functions in run level 3 that were not serious enough to require you halt and boot the system.

**NOTE:** If you have performed system management functions affecting networking do not use this command to return the system to run level 2. Instead, halt and boot the system. For more information on halting the system, see the `Halt Command`. For more information on booting the system, see below.

### COMMAND SYNTAX

To return the system to run level 2 from run level 3, log on as root from the system console. With the system in maintenance mode (run level 3), enter the following:

```
telinit 2
```

The system displays:

```
INIT: New run level 2
INIT: MULTI USER MODE
```

## Booting the AIX Operating System

If the system has undergone a power failure or has been halted, you need to boot the system to make it operational again. To perform a normal boot on the RS/6000 system:

1. Set the key switch on the Central Processing Unit (CPU) to *NORMAL*.
2. Press the *RESET* button on the front of the CPU.

**NOTE:** On some models, the system is powered off when a halt is run. For these models, press the *POWER* button instead of the *RESET* button.

The system begins to boot. The LED display on the front of the CPU displays the status of the system as it comes up. If the LED display fails to proceed through the messages, freezing for more than five minutes, see the *IBM Problem Solving Guide* supplied with your system.

McKesson has configured your system to boot directly into run level 2 (multiuser mode) by default.

# Appendix C - TERMINAL TYPE CONVERSION TABLES

INTRODUCTION..... C-3

VT320 TERMINALS ..... C-4

IBM 3151 TERMINALS ..... C-8

HP 700/60 TERMINALS..... C-12



## INTRODUCTION

This appendix displays mappings for keyboards on Data General and other terminals. This table applies only to terminals using the McKesson default MultiSTAR keyboard mapping tables.

In all STAR system documentation, user keystrokes are documented according to Data General terminals. If you are not using a Data General terminal, you can use this appendix to locate the analogous keystroke for your terminal type. The tables in this appendix display keystrokes mappings for the following terminals:

- VT320
- IBM 3151
- HP 700/60

To use these tables, locate the table for your terminal type. The first column displays keystrokes for Data General terminals; the second column displays the keystroke for your terminal type that MSE considers equivalent.

Many of the keystrokes listed are *chorded*, meaning that you must hold down one or more key before pressing the operative key. Chorded keystrokes use combinations of the SHIFT, CONTROL, or ALT key with other keystrokes. To use a chorded keystroke, hold down the SHIFT, CONTROL, or ALT key, as indicated in the table, and press the last key in the chord. For example, on an IBM 3151 terminal, to perform the equivalent of the DG terminal's F13 keystroke, hold down the CONTROL key and press the PF3 key.

**NOTE:** If you do not have an F13 function key on your keyboard, use ALT-F3 to complete the function.

## VT320 TERMINALS

DG	VT320
F1	F6
F2	F7
F3	F8
F4	F9
F5	F10
F6	F11
F7	F12
F8	F13 NOTE: If you do not have an F13 function key on your keyboard, use ALT-F3 to complete the function.
F9	F14 NOTE: If you do not have an F14 function key on your keyboard, use ALT-F4 to complete the function.
F10	F15 NOTE: If you do not have an F15 function key on your keyboard, use ALT-F5 to complete the function.
F11	F16 NOTE: If you do not have an F16 function key on your keyboard, use ALT-F6 to complete the function.
F12	F17 NOTE: If you do not have an F17 function key on your keyboard, use ALT-F7 to complete the function.
F13 NOTE: If you do not have an F13 function key on your keyboard, use ALT-F3 to complete the function.	F18 NOTE: If you do not have an F18 function key on your keyboard, use ALT-F8 to complete the function.
F14 NOTE: If you do not have an F14 function key on your keyboard, use ALT-F4 to complete the function.	F19 NOTE: If you do not have an F19 function key on your keyboard, use ALT-F9 to complete the function.

DG	VT320
F15 NOTE: If you do not have an F15 function key on your keyboard, use ALT-F5 to complete the function.	F20 NOTE: If you do not have an F20 function key on your keyboard, use ALT-F10 to complete the function.
S/F1	-
S/F2	-
S/F3	-
S/F4	-
S/F5	-
S/F6	-
S/F7	-
S/F8	-
S/F9	-
S/F10	-
S/F11	-
S/F12	-
S/F13 NOTE: If you do not have an F13 function key on your keyboard, use ALT-F3 to complete the function.	-
S/F14 NOTE: If you do not have an F14 function key on your keyboard, use ALT-F4 to complete the function.	-
S/F1	-
C/F1	-
C/F2	-
C/F3	-
C/F4	-
C/F5	-
C/F6	-
C/F7	-
C/F8	-
C/F9	-
C/F10	-
C/F11	-

DG	VT320
C/F12	-
C/F13 NOTE: If you do not have an F13 function key on your keyboard, use ALT-F3 to complete the function.	-
C/F14 NOTE: If you do not have an F14 function key on your keyboard, use ALT-F4 to complete the function.	-
C/F15 NOTE: If you do not have an F15 function key on your keyboard, use ALT-F5 to complete the function.	-
S/C/F1	-
S/C/F2	-
S/C/F3	-
S/C/F4	-
S/C/F5	-
S/C/F6	-
S/C/F7	-
S/C/F8	-
S/C/F9	-
S/C/F10	-
S/C/F11	-
S/C/F12	-
S/C/F13 NOTE: If you do not have an F13 function key on your keyboard, use ALT-F3 to complete the function.	-
S/C/F14 NOTE: If you do not have an F14 function key on your keyboard, use ALT-F4 to complete the function.	-
S/C/F15 NOTE: If you do not have an F15 function key on your keyboard, use ALT-F5 to complete the function.	-
C1	-



---

DG	VT320
C2	-
C3	-
C4	-
S/C1	-
S/C2	-
S/C3	-
S/C4	-
HOME	FIND
S/HOME	-
ERASE PAGE	-
ERASE PAGE	-
ERASE EOL	SELECT/END
(CMD)/PRINT	-
S/(CMD)/PRINT	-
S/UP ARROW	-
S/DOWN ARROW	-
S/LEFT ARROW	-
S/RIGHT ARROW	-
DEL	REMOVE/DEL

## IBM 3151 TERMINALS

DG	IBM3151
F1	F5
F2	F6
F3	F7
F4	F8
F5	F9
F6	F10
F7	F11
F8	F12
F9	PRINT
F10	PRINT LINE
F11	HOLD
F12	C/JUMP
F13 NOTE: If you do not have an F13 function key on your keyboard, use ALT-F3 to complete the function.	C/PF3
F14 NOTE: If you do not have an F14 function key on your keyboard, use ALT-F4 to complete the function.	C/SEND LINE
F15 NOTE: If you do not have an F15 function key on your keyboard, use ALT-F5 to complete the function.	C/SETUP
S/F1	-
S/F2	-
S/F3	-
S/F4	-
S/F5	-
S/F6	-
S/F7	-
S/F8	-
S/F9	-
S/F10	-

DG	IBM3151
S/F11	-
S/F12	-
S/F13 NOTE: If you do not have an F13 function key on your keyboard, use ALT-F3 to complete the function.	-
S/F14 NOTE: If you do not have an F14 function key on your keyboard, use ALT-F4 to complete the function.	-
S/F15 NOTE: If you do not have an F15 function key on your keyboard, use ALT-F5 to complete the function.	-
C/F1	-
C/F2	-
C/F3	-
C/F4	-
C/F5	-
C/F6	-
C/F7	-
C/F8	-
C/F9	-
C/F10	-
C/F11	-
C/F12	-
C/F13 NOTE: If you do not have an F13 function key on your keyboard, use ALT-F3 to complete the function.	-
C/F14 NOTE: If you do not have an F14 function key on your keyboard, use ALT-F4 to complete the function.	-
C/F15 NOTE: If you do not have an F15 function key on your keyboard, use ALT-F5 to complete the function.	-

DG	IBM3151
S/C/F1	-
S/C/F2	-
S/C/F3	-
S/C/F4	-
S/C/F5	-
S/C/F6	-
S/C/F7	-
S/C/F8	-
S/C/F9	-
S/C/F10	-
S/C/F11	-
S/C/F12	-
S/C/F13 NOTE: If you do not have an F13 function key on your keyboard, use ALT-F3 to complete the function.	-
S/C/F14 NOTE: If you do not have an F14 function key on your keyboard, use ALT-F4 to complete the function.	-
S/C/F15 NOTE: If you do not have an F15 function key on your keyboard, use ALT-F5 to complete the function.	-
C1	-
C2	-
C3	-
C4	-
S/C1	-
S/C2	-
S/C3	-
S/C4	-
HOME	INSERT
S/HOME	-
ERASE PAGE	-
ERASE EOL	DELETE

---

DG	IBM3151
(CMD)/PRINT	-
S/(CMD)/PRINT	-
S/UP ARROW	<-TAB
S/DOWN ARROW	ERASE EOF
S/LEFT ARROW	-
S/RIGHT ARROW	-
DEL	CLEAR

## HP 700/60 TERMINALS

DG	HP 700/60
F1	F1
F2	F2
F3	F3
F4	F4
F5	F5
F6	F6
F7	F7
F8	F8
F9	F9
F10	F10
F11	F11
F12	F12
F13 NOTE: If you do not have an F13 function key on your keyboard, use ALT-F3 to complete the function.	1 key to the right of the pause key
F14 NOTE: If you do not have an F14 function key on your keyboard, use ALT-F4 to complete the function.	2 keys to the right of the pause key
F15 NOTE: If you do not have an F15 function key on your keyboard, use ALT-F5 to complete the function.	3 keys to the right of the pause key
S/F1	-
S/F2	-
S/F3	-
S/F4	-
S/F5	-
S/F6	-
S/F7	-
S/F8	-
S/F9	-
S/F10	-

DG	HP 700/60
S/F11	-
S/F12	-
S/F13 NOTE: If you do not have an F13 function key on your keyboard, use ALT-F3 to complete the function.	-
S/F14 NOTE: If you do not have an F14 function key on your keyboard, use ALT-F4 to complete the function.	-
S/F15 NOTE: If you do not have an F15 function key on your keyboard, use ALT-F5 to complete the function.	-
C/F1	-
C/F2	-
C/F3	-
C/F4	-
C/F5	-
C/F6	-
C/F7	-
C/F8	-
C/F9	-
C/F10	-
C/F11	-
C/F12	-
C/F13 NOTE: If you do not have an F13 function key on your keyboard, use ALT-F3 to complete the function.	-
C/F14 NOTE: If you do not have an F14 function key on your keyboard, use ALT-F4 to complete the function.	-
C/F15 NOTE: If you do not have an F15 function key on your keyboard, use ALT-F5 to complete the function.	-

DG	HP 700/60
S/C/F1	-
S/C/F2	-
S/C/F3	-
S/C/F4	-
S/C/F5	-
S/C/F6	-
S/C/F7	-
S/C/F8	-
S/C/F9	-
S/C/F10	-
S/C/F11	-
S/C/F12	-
S/C/F13 NOTE: If you do not have an F13 function key on your keyboard, use ALT-F3 to complete the function.	-
S/C/F14 NOTE: If you do not have an F14 function key on your keyboard, use ALT-F4 to complete the function.	-
S/C/F15	-
C1	-
C2	-
C3	-
C4	-
S/C1	-
S/C2	-
S/C3	-
S/C4	-
HOME	HOME
S/HOME	-
ERASE PAGE	-
ERASE EOL	END
(CMD)/PRINT	-
S/(CMD)/PRINT	-



---

<b>DG</b>	<b>HP 700/60</b>
S/UP ARROW	PAGE UP
S/DOWN ARROW	PAGE DOWN
S/LEFT ARROW	-
S/RIGHT ARROW	-
DEL	DELETE



# Appendix D - ERROR MESSAGES

ERROR MESSAGES OVERVIEW ..... D-3

    Console Error Message Example ..... D-3

    Severity Level Table ..... D-3

    Major Error Codes Table ..... D-4



## ERROR MESSAGES OVERVIEW

This appendix contains information about the error messages that may be recorded on the system console printer during operation. Messages printed on the console contain information used in troubleshooting the error. This information includes:

- the time the error occurred
- severity level of the error message
- user and system information

### Console Error Message Example

An example of a console error is:

```
11:24:27 MN (5-5) ATTEMPT TO ACCESS A NON-OPENED DEVICE
ID: __2 Job: __14 Parent: __45 Port: __15 USER: __iauser
Current: __TFRPT Line: __3 Previous: __TMENU
MSE File: _____tmserou.c MSE Line: _____957
```

where:

#### **MN (5-5) ATTEMPT TO ACCESS A NON-OPENED DEVICE**

is the error with its *Severity Level (Major Error Code - Minor Error Code)* and error description.

- For detailed information about severity level, see the [“Severity Level Table” on page D-3](#).
- For detailed information about major error codes, see the [“Major Error Codes Table” on page D-4](#).
- The minor error code is used by McKesson for troubleshooting. Since the minor code is related to the major error code it accompanies, and because the minor code listing is extensive, it is not included in this manual.

### Severity Level Table

The severity indications and suggested actions in this table are general guidelines. Please follow any specific error reporting procedures that your support representative may give you. The severity codes are as follows:

Severity	Meaning	Report to McKesson
IM	Information only message	NO

WR	Non critical error. These errors do not necessarily represent a problem regarding the proper operation of the system.	NO
MN	Non critical error. These errors do not necessarily represent a problem regarding the proper operation of the system. However, if the frequency of the error increases, it needs to be reported to McKesson.	NO
MJ	Significant system error. Errors of this severity do not occur during normal operation. Contact your support representative within one business day when you encounter this type of error.	YES (next business day)
CR	Critical system error. A critical error condition has been detected that can cause MSE to operate improperly or to fail. Contact your support representative immediately.	YES (immediately)

## Major Error Codes Table

Major Error Codes are as follows:

Major Error Code	Description
0	Internally detected errors
1	Command errors
2	Argument errors
3	Expression errors
4	Reference errors
5	Value errors
6	Environment errors
7	Disk errors
100	ZERROR Command reference

## Appendix E - MIDNIGHT PROCESSING

INTRODUCTION.....	E-3
DISALLOW LOGON AND SEND DOWN MESSAGE .....	E-6
REMOVE USERS FROM SYSTEM.....	E-7
DAILY PROCESSING .....	E-8
MIDNIGHT PROCESSING MANAGEMENT .....	E-11
Daily Processing.....	E-12
Midnight Processor Run Control .....	E-12
Pause / Resume Midnight Processing .....	E-16
Pausing Midnight Processing .....	E-16
Resuming Midnight Processing .....	E-16
Hourly Jobs .....	E-17
Restart Aborted Sub Run Processor .....	E-19
ALLOW LOGON AND SEND UP MESSAGE .....	E-20
ENABLE/DISABLE AUTO LOGON & SEND UP MESSAGE.....	E-21
SYSTEM BACKUP.....	E-22
CHANGE SYSTEM UP MESSAGE .....	E-23
CHANGE SYSTEM DOWN MESSAGE .....	E-25
CHANGE LOGON STATUS.....	E-27
SEND A SYSTEM MESSAGE .....	E-28
MIDNIGHT PROCESSING STATISTICS.....	E-29
MIDNIGHT PROCESSING STEPS.....	E-32





## INTRODUCTION

Midnight Processing is a series of system maintenance procedures and their supporting utilities performed on a daily basis. A typical list of STAR Patient Care midnight processing functions includes:

- System Backup
- End of Day Processing
- SIM/FIM maintenance
- Non-STAR Financials Batch Interfaces
- Purge Patient Data
- Inactivate Patient Accounts
- Automatic Discharges
- Automatic Charging
- Batch Reporting
- Medical Records Processing
- Chart Management Processing
- Purge Physician Messages
- Nurse Staffing Processing
- Scheduling Processing
- Bed File Copy

Although the basic Midnight Processing procedures are the same for most STAR Series Systems, the steps involved and the order in which they are performed may vary according to hospital procedures. This section presents information about using the midnight processing functions and supporting utilities in generic form. Your McKesson representative provides you with the exact procedures for your system if they are different from those presented here.

To access the Midnight Processing Menu from the M sign-on menu in Data Processing, select System Management, and then Midnight Processing. The following menu displays:

```

General Hospital Midnight Processing Processor
                                Tue Apr 12, 1994 08:38 am
Midnight Processing Input Options

Option No.  Option
-----
    1      Disallow Log-on & Send Down Message
    2      Remove Users From System
    3      Daily Processing
    4      Midnight Processing Management
    5      Allow Log-on & Send Up Message

    6      Enable/Disable Auto Log-on & Send Up Message
    7      System Backup
    8      Change System Up Message
    9      Change System Down Message
   10      Change Log-on Status

   11      Send a System Message

   12      Midnight Processing Statistics
   13      Midnight Processing Steps
Enter option number--

```

You use the functions on the Midnight Processing Menu to perform regular system midnight processing functions. These functions include:

- **Disallow Logon & Send Down Message**

This function enables you to prevent system users from signing on to the system and transmits a message to users on the system, warning them that they must logoff immediately so that Midnight Processing can be run.

- **Remove Users From System**

This function enables you to sign users off the system. You must be using the CRT connected to port 0 of the CPU and the system logon status set to *System Unavailable* to use this function.

- **Daily Processing**

This function begins the actual Midnight Processing steps.

- **Midnight Processing Management**

This option accesses the Midnight Processing Management menu. This menu provides functions you can use to maintain midnight processing operations and perform special processes.

- **Allow Logon & Send Up Message**

This function changes the system status to enable users to logon to the system and transmits a message informing users that the system is available for logon.

- **Enable/Disable Auto Logon & Send Up Message**

This function changes the system status to either enable or disable access for users to logon to the system. The function also transmits a message informing users that the system is available or unavailable for logon.

- **System Backup**

This option accesses functions you can use to backup all or portions of the system database.

- **Change System Up Message**

You use this function to define the message displayed when the system is again available for logon.

- **Change System Down Message**

You use this function to define the message displayed when the system is made unavailable for logon.

- **Change Logon Status**

This option enables you to change the logon status. You must be using the CRT connected to port 0 of the CPU to access this function.

- **Send a System Message**

This option enables you to send a system message to any CRT on the system.

- **Midnight Processing Statistics**

This function enables you to display run statistics on midnight processing sub runs and sub run steps.

- **Midnight Processing Steps**

This function identifies and defines the steps and sub run steps performed by the system during midnight processing.

---

## DISALLOW LOGON AND SEND DOWN MESSAGE

The Disallow Logon and Send Down Message function removes users from the system prior to running midnight processing. When you run this function, the system:

- Prevents system users from signing on to the system.
- Sends a message warning users on the system to complete any transaction they are performing and logoff immediately so that Midnight Processing can be run.

The system automatically removes, without warning, any users still signed on to the system when Daily Processing is started. Use the Disallow Logon and Send Down Message function to give users time to complete the transaction they are currently performing. McKesson suggests this function be run approximately 10 minutes prior to starting Daily Processing.

When you access this function, the system displays the following message on the upper left of the screen:

*Disallow User Log-on/Send System Down Message*

At the bottom of the screen, the system displays the following prompt:

*Accept? (Y/N) --*

Enter **Y** to prevent user sign-on and send the system down message. Enter **N** to return to the Midnight Processing Menu.

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

*Background Job Starting!*

### Impact

- Users are no longer able to sign on to the system.
- The system down message displays on all CRTs on the CPU.

### Output

- The hospital defined System Down Message is displayed on all CRTs on the CPU. You can revise this message using the Change System Down Message function described later in this section.
- The following messages print on the system console printer:

*System status changed from 1 to 0  
System Down Message Sent Mon Apr 02, 1994 11:45pm*

## REMOVE USERS FROM SYSTEM

The purpose of this function is to enable you to sign users off the system in order to begin Preventive Maintenance on system hardware (PM), load a software tape, etc. It is often used in cases when CRTs are signed on to the system and are left unattended.

You must be using the CRT connected to port 0 of the CPU to access this function.

**CAUTION:** Before you remove users from the system, the Logon status needs to be set to *System Unavailable*.

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

*Are you sure you want to remove users? (YES/N) --*

Enter **YES** to sign off all users. Enter **N** to exit the function without signing off users.

### Impact

All users are removed from the system. The system is now available for PM or any other downtime use.

---

## DAILY PROCESSING

This function actually begins the midnight processing batch processes, maintaining files, preparing the day's transactions for any batch interfaces, and compiling the daily reports. You must be using the CRT connected to port 0 of the CPU to access this function.

When you access this function, the system checks to ensure midnight processing is not already in progress. If midnight processing is already in progress, the system displays the following message displays and returns you to the menu:

*Midnight processor in progress!*

Selecting the Data Processing option when the last run of midnight processing has not completed successfully causes the system to run in restart mode. Only the steps that did not complete successfully are restarted. The system displays the following message on the middle left of the screen:

*RESTART, at (step name)*

This message includes the first step of midnight processing that is restarted (for example, Census Reports). Do not run midnight processing when the RESTART message displays without first consulting with a McKesson representative.

When restarting midnight processing, or when you access Daily Processing and midnight processing is not in progress, the system displays a prompt similar to the following:

*Run midnight processor for Monday April 18, 1994? (YES/N)--*

If the date in this prompt is not correct, enter **N** and contact your McKesson representative immediately.

The following messages display:

*started for 4/18/94 in ID 1*

*System status changed from 0 to 0*

*Comm halting*

*Comm halted*

*Removing users*

*All users removed*

*Backup started*

At this point in the process, the system backup utility for incremental tape backup is executed by midnight processing. For more information, see MultiSTAR System Backup in “Chapter 3 - SYSTEM OPERATIONS”.

**NOTE:** It is possible to bypass backup for specific Midnight Processing runs by setting the Backup Bypass flag on the Midnight Processing Control screen.

When the incremental backup is complete the following messages display:

*Backup complete*  
*Background process starting*

At this point, the remainder of the midnight processing steps run in background, and the operator is returned to the midnight processing menu.

### Impact

- All communication lines have been closed
- All users have been removed from the system
- System is unavailable for user sign-on
- An incremental backup has been completed (unless it has been bypassed)
- Midnight processing steps are running in the background

### Output

- Messages similar to the following may print on the system console printer:

*Midnight processor started for 4/18/94 in ID 1*  
*Midnight processor System status changed from 0 to 0*  
*Midnight processor Comm halting*  
*Midnight processor Comm halted*  
*Midnight processor Removing users*  
*Midnight processor All users removed*

- For each step of midnight processing messages similar to the following print on the system console printer indicating the date and time that each step was started and completed:

*Midnight processor (step name) started in ID 1 4/18/94 12:00*  
*Midnight processor (step name) completed in ID 1 4/19/94 12:10*

- Approximately once every hour, until midnight processing is complete, a message similar to the following prints on the console printer:

*Midnight processor NOT complete in ID 1 as of Tue Apr 19, 1994 1:00 am*

- Once all midnight processing steps are completed, a message similar to the following prints on the system console printer:

*Midnight processor completed for 4/18/94 in ID 1*



## MIDNIGHT PROCESSING MANAGEMENT

Midnight Processing Management menu enables you to access functions you use to manage the operations performed during midnight processing. You can use these functions to:

- Begin a midnight processing run
- View and maintain parameters governing the run status of midnight processing
- Restart an aborted midnight processing sub run
- Temporarily pause a midnight processing run or resume a paused midnight processing run
- Bypass or begin a demand run of selected patient accounting hourly midnight processing jobs

When you access Midnight Processing Management, the system displays a text editor area, prompting you to explain your reason for accessing this menu. Enter the reason you are entering this menu. This reason must be at least 12 characters in length. Press F4 to accept your entry.

The system prints the reason you enter here on the console printer, along with your user ID, the date, and the time. The system also copies the reason, your user ID, the date, and the time to disk, storing this information for the number of days entered to the Purge Days field in the Midnight Processor Run Control function.

When you press F4 after entering your reason for entering this menu, the system displays the Midnight Processing Management Processor:

General Hospital Midnight Processing Management Processor	
Tue Apr 12, 1994 08:45 am	
Midnight Processing Management Input Options	
Option No.	Option
-----	
1	Daily Processing
2	Midnight Processor Run Control
3	Pause/Resume Midnight Processing
4	Hourly Jobs
5	Re-Start Aborted Sub Run Processor
Enter option number--	

## Daily Processing

This function actually begins the midnight processing batch processes, maintaining files, preparing the day's transactions for any batch interfaces, and compiling the daily reports. You must be using the CRT connected to port 0 of the CPU to access this function.

## Midnight Processor Run Control

The Midnight Processor Run Control function controls several aspects of how the system performs batch processing. For example, this function controls when midnight processing runs and the number of steps to perform.

When you access this function, the system checks that midnight processing is not currently running. If midnight processing is currently running, the system displays MPC still in progress, no changes allowed. Press ENTER. The system does not permit you to edit any fields on this screen while midnight processing is running. Press ENTER to exit the screen.

If midnight processing is not currently running, the system displays a screen similar to the following:

```

                                General Hospital A Midnight Processor Run Control Processor
                                                Wed Nov 17, 1993 04:00 pm

( 1)Backup Switch: Completed/Required for next run
( 2)Last Run      : 11/16/93
( 3)Backup Date   : Thursday August 19, 1993 08:15:31 am
( 4)Run Start     : Wednesday November 17, 1993 00:00:04 am
( 5)Run Stop      : Wednesday November 17, 1993 00:43:16 am
( 6)# of Steps    : 8
( 7)Edit By       : #32103 11/08/93 1711
( 8)Log Rec Rtn   : 12
( 9)Purge Days    : 6
(10)Multiple Days:
(11)Short MPC     :
(12)Console       : Yes
(13)Overdue Msg   : 5% longer than average
(14)Batch Keys    : IFAS;5:BEDCHG;5:PAC;5
(15)Visit Keys    : C;1 E G HP I IQ L M MA MB MC MD ME MM MN
                   MP MS MT MU MV MW OPD P R U V MO

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

```

## Field Explanations

### 1. BACKUP SWITCH (1-A-R)

This field enables the operator to bypass the backup before running midnight processing and displays Completed to indicate the last backup is complete. To start midnight processing without first doing a backup, enter **Y**. To require a backup before starting midnight processing, enter **N**.

**NOTE:** If you are using STARBASE, all users must be logged off during this backup. If you are using MSE, users may remain logged on during the backup.

**2. LAST RUN DATE (DISPLAY ONLY)**

This field displays the date for which midnight processing was last run. The system updates this date when midnight processing completes; if midnight processing has begun but not completed the field displays Still in Progress next to the run date. This date is usually the day prior to the dates displayed in the Run Start and Run Stop fields.

**3. BACKUP DATE (DISPLAY ONLY)**

This field displays the day, date and time at which a backup of the system was last completed.

**4. RUN START (DISPLAY ONLY)**

This field contains the day, date and time at which midnight processing was last started.

**5. RUN STOP (DISPLAY ONLY)**

This field contains the day, date and time at which midnight processing last completed. The system clears this field when a new batch begins running. If midnight processing has begun but not completed the field displays Still in Progress.

**NOTE:** If the Run Start field contains a start time but the Run Stop field is blank, the system has not finished performing midnight processing and you may need to restart or resume it.

**6. # OF STEPS (DISPLAY ONLY)**

This field contains the total number of midnight processing steps (%S) in the step processor.

**7. EDIT BY (DISPLAY ONLY)**

This field contains the ID number of the employee signed on to the CRT from which changes to the step processor were last saved.

**8. LOG REC TRN (U-N-O)**

This field specifies the number of days for which the system retains log records of ^CL. (^CL contains ADT transactions used for census reports.)

**9. PURGE DAYS (2-N-R)**

This field identifies the number of days the system retains midnight processing statistics. During midnight processing, the system purges statistics whose date is equal to or older than this value. McKesson recommends you set this field to 15; the maximum value you can enter in this field is 60.

**NOTE:** The system also uses this value to determine the length of days the system retains data regarding access to the Midnight Processor Management Processor.

**10. MULTIPLE DAYS (1-A-O)**

This field identifies whether midnight processing is to be run for multiple days. You can only access this field if the Last MPC Run Date field contains a date at least two days prior to the current date. You cannot access this field if Patient Care is on the same CPU as Financials; currently, this field applies only to STAR Financials Patient Accounting.

When running midnight processing for multiple days on STAR Financials, the system only processes scheduled optional batch job and any of the jobs necessary for daily balancing. For products other than STAR Financials Patient Accounting, the system runs all jobs within the sub run.

**NOTE:** If a STAR Financials Patient Accounting job is run in a multiple day run, the system indicates this by displaying an asterisk (\*) next to the job in the FPAD sub run display.

When running midnight processing for multiple days, the system presents the operator the option to balance and back up the system before proceeding to the next day's run. The system locks all other users out of the system between each day's runs. The system processes the last run of a multiple day run as a short MPC run.

To run midnight processing for multiple days, enter **Y**. To run midnight processing as usual, enter **N**.

**11. SHORT MPC (1-A-O)**

This field determines whether the system runs the shortened version of midnight processing. With this version, the system processes only those STAR Financials Patient Accounting jobs necessary for daily balancing. For other product sub runs, the system runs all jobs.

To run the short midnight processing, enter **Y**. To run the complete midnight processing, enter **N**.

**12. CONSOLE (1-A-R)**

This field identifies whether non-midnight processing program messages print on the console printer. This field does not affect the console monitor — only the console printer. An example non-midnight processing program message is Dmd Bill Printed for acct 999123.

To print non-midnight processing messages on the console printer, enter **Y** for Yes. To suppress these messages from printing on the console printer, enter **N** for No. McKesson recommends you set this field to Yes in ID 1 and No in ID 2.

**NOTE:** Midnight processing program messages do not usually print on the console printer. Midnight processing messages never print on the console for McKesson internal systems.

**13. OVERDUE MSG (3-N-O)**

This field identifies the overdue factor the system allows when determining whether midnight processing is running longer than normal.

Enter a percentage value, from 1 to 100. The system uses this percentage value and the value for the mean average run time of midnight processing for the past 30 days to identify a warning threshold. If midnight processing runs longer than the mean average run time by this percentage, the system prints the following message on the console:

*MPC Overdue*

If the STAR Sentinel product is in use and the message is generated during midnight processing on ID 1, the system automatically activates the Sentinel pager, transmitting the following message:

*Call Lights Out*

For example, if the mean average run time for midnight processing is one hour and you set this value to 50, the warning threshold would be one hour and 30 minutes. If midnight processing took longer than one hour and 30 minutes to run, the system reacts as described above.

**14. BATCH KEYS (DISPLAY ONLY)**

This field contains the batch keys and retention days of the interface files generated to other systems during midnight processing. The system stores batch key records in ^CX; these records are established during system installation.

For example, STAR Patient Care may have an interface to a non-McKesson radiology system. This field identifies the interface and determines the number of days that the interface record is to be stored on the system.

**15. VISIT KEYS (TABLE LOOKUP-O)**

This field is used by STAR Patient Care to identify the nodes of information saved when the system performs nightly purging. If the hospital is experiencing a shortage of disk space, they could increase available disk space by having a McKesson employee eliminate unnecessary nodes from this field.

STAR Financials may need to retain some data that Patient Care may not otherwise retain; therefore, McKesson recommends you enter the following Visit Keys in this field:

C;1 E G I L HP M MA MB MD ME MM MN MP MS MT MU MV P OPD R U V

After you access this field, the system displays a Building Visit Key Table ... Please Wait! message while it generates a list of nodes. The option numbers of nodes currently being saved are displayed in reverse video. To select additional nodes, enter the nodes' option number(s). To remove a node, enter a hyphen (-) and the node's option number.

## Pause / Resume Midnight Processing

This function enables you to pause a midnight processing subrun. The system completes any jobs currently running, but all subruns in progress are paused and no new steps or subruns are begun. If midnight processing is currently paused, this function resumes the midnight processing subrun; the system completes paused subruns and begins remaining subruns according to their sequence.

When you access this function, the system checks that midnight processing is either currently running or is paused. If midnight processing is not currently running, the system displays the following message:

*Error: Midnight Processing is not currently running!*

### PAUSING MIDNIGHT PROCESSING

If midnight processing is running, the system displays a prompt similar to the following:

*Do you wish to pause Midnight Processing for MM/DD/YY currently in progress? (YES/NO)--*

The date on which this midnight processing run was initiated is displayed. To exit this function without pausing the midnight processing run, enter **NO**. To pause the midnight processing run, enter **YES**; the system displays a message similar to the following:

*\*\*\* Please wait, pausing Midnight Processing for MM/DD/YY! \*\*\**

The system then displays the midnight processing jobs currently running. The system must complete these jobs before pausing midnight processing. Beneath this list of jobs, the system displays a message similar to the following:

*\*\*\* Sun Run NNNN will pause after step NN completes! \*\*\**

The message indicates the sub run code and the number of the sub run step that must complete before the system can pause midnight processing. When the system completes this step, the following message displays:

*\*\*\* ID N Midnight Processing for MM/DD/YY has been paused! \*\*\**

The message displays the number of the ID in which midnight processing is to be paused. At this point, the midnight processing run for the date displayed is paused.

### RESUMING MIDNIGHT PROCESSING

If midnight processing is paused, the system displays the following prompt:

*Continue Midnight Processing for MM/DD/YY in ID N? (YES/NO)--*

The date on which the paused midnight processing run was initiated and the ID in which the midnight processing run was paused is displayed. To exit this function without resuming the paused midnight processing run, enter **NO**. To resume the paused midnight processing run, enter **YES**; the system displays a message similar to the following:

*\*\*\* ID N Midnight Processing for MM/DD/YY has been resumed! \*\*\**

Following this message, the system displays a message similar to the following as each paused sub run is restarted:

*ID X Sub Run NNNN resumed at step NN, XXXXX, for MM/DD/YY at HH:MM:SS*

The message displays:

- The ID (X in our example) in which the midnight processing run was paused
- The code (NNNN in our example) for the sub run being resumed
- The number (NN in our example) and description (XXXXX in our example) of the sub run step being resumed
- The date (MM/DD/YY in our example) on which the midnight processing run was initiated
- The time (HH:MM:SS in our example) at which the sub run is being resumed

After displaying information for the last paused sub run, the system exits the function.

## Hourly Jobs

This function enables you to bypass or run on demand one or more midnight processing hourly jobs. Hourly jobs are identified for your system by McKesson personnel. The system typically initiates these jobs at the specified hour for a midnight processing run. If you select to run the job now, the system begins the job for the identified date and the system does not need to run the job at the specified hour in the midnight processing run. If you select to bypass the job, the system bypasses the job for the next midnight processing run; the job is still set to run during all subsequent midnight processing runs.

**NOTE:** This feature is available only for STAR Financials Patient Accounting midnight processing hourly jobs.

When you access this function, the system checks to determine whether midnight processing is currently running. If midnight processing is currently running, the system displays the following message:

*Function not available -- Midnight Processing is active!*

If midnight processing is not running, the system displays a screen similar to the following:

General Hospital Hourly Jobs Processor						
Tue Jan 04, 1994 04:21 pm						
Page:01	Hourly Jobs					
Seq	Program	Description	Product	Subrun	Run/Hr	Bypass
( 1 )	^FYBBSP	Billing Selection	PA	FPAD	22	
( 2 )	E0^FBBPRO	Proration	PA	FPAD	21	
( 3 )	^FFBFUS	Follow Up Selection	PA	FPAD	20	
Enter choice--						

All identified midnight processing hourly jobs are displayed. For each hourly job, the system displays:

- The sequence number of the job
- The name of the program run by this hourly job
- The description of the hourly job
- The name of the STAR product processed by this hourly job. Currently, the only STAR products processed in STAR Financials Patient Accounting; as such, this field displays PA.
- The code of the sub run that includes this hourly job
- The hour at which this hourly job is scheduled to be processed; if the job is being bypassed, the system displays BYPASS in this column

Enter the sequence number for the hourly job you want to either run now or bypass. The system displays the following prompt:

*Run JOB NAME now (N) or bypass for MM/DD/YY MPC (B)?--*

The name of the selected job (JOB NAME in our example) and the date of the next scheduled midnight processing run is displayed.

Enter **B** to bypass running the selected hourly job during the next midnight processing run; the job is still set to run during all subsequent midnight processing runs. The system displays BYPASS in the Run/Hr Bypass column. After the system completes



the next midnight processing run, the system restores the hourly job to this screen as it previously displayed, with its identified run hour in the Run/Hr Bypass column.

Enter **N** to begin running the selected hourly job now. The system displays the following prompt:

*Enter effective date to run JOB NAME [MM/DD/YY] --*

The name of the selected job (JOB NAME in our example) and prompts for the date for which the selected hourly job is processed is displayed. The system defaults to the next midnight processing run date. Press ENTER to accept this default, or enter another date using standard STAR date entry techniques. To exit the function without starting an hourly job, enter a period (.) then press ENTER.

When you enter the date, the system begins processing the selected hourly job and exits the function.

## **Restart Aborted Sub Run Processor**

This function enables you to restart midnight processing sub runs that aborted. This function is not identical to the Daily Processing function, since this function restarts only aborted sub runs. Use the Daily Processing function to restart an entire midnight processing run that has aborted.

Midnight Processing must be active to use this function. When you access this function, the system checks to determine whether midnight processing is currently running. If midnight processing is not running, the system displays the following message:

*Midnight Processor must be in progress!*

If midnight processing is running, the system displays a menu of aborted sub runs. Enter the option number of the sub run you want to restart.

## ALLOW LOGON AND SEND UP MESSAGE

This function changes the system status, enabling users to logon to the system, and transmits a message informing users that the system is available for logon. Typically, this function is used after the system has been down for PM or to load a software tape.

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

*Allow User Log-on/Send System Up Message  
Accept? (Y/N) --*

Enter **N** to return to the menu without changing the system logon status. Enter **Y** to allow users on the system and to send the up message; the system changes the logon status and prints the following message the system console log printer:

*System status changed from 0 to 1*

A background job is started to send the system up message to all CRTs not currently signed on to the system. The system displays the following message, and then returns to the menu.

*Background Job Starting*

### Impact

The system logon status is changed to enable all users to sign on to the system. The hospital-defined System Up Message is sent to all users not currently signed on to the system.

## ENABLE/DISABLE AUTO LOGON & SEND UP MESSAGE

One of the steps in the Midnight Processor changes the system status to allow user logon and sends a system up message to all CRTs not currently in use. The Enable/Disable Auto Logon & Send Up Message function allows you to enable or disable this Midnight Processor step. Typically, this function is used when Preventive Maintenance (PM) or a software update is to be performed after midnight processing, but before users are allowed to sign on to the system.

When you access this function the system displays a prompt similar to the following:

*Midnight Processing*

\*\*\*\*\* *Enabled or Disabled* \*\*\*\*\*

*Enter enable(E) or disable(D)? --*

The current status, Enabled or Disabled, of this midnight processing step is displayed. Enter **E** to enable the automatic logon and system up message, or enter **D** to disable it. The system then returns to the menu.

### Impact

If you enter E, the system executes the midnight processor step that changes the system status to allow user logon and sends a system up message to all CRTs not currently in use. If you enter D, the system disables this midnight processor step, so that the system does not automatically enable user access nor send the system up message at the end of midnight processing.

## SYSTEM BACKUP

The term backup refers to the process of making a copy of the information stored in the system. With fixed media, this backup copies data from the fixed disk(s) to tape.

The backup procedure does not alter the information in the system in any way. No information is lost while the backup is taking place, and no additional information is added.

## CHANGE SYSTEM UP MESSAGE

The *system up message* is the message sent at the end of midnight processing to all CRTs not currently signed on to the system. This function enables you to modify this message.

When you access this function, the system displays a screen similar to the following. If you have already entered a message, the system displays the current system up message.

	1	2	3	4	5	6	7
12345678901234567890123456789012345678901234567890123456789012345							
01	*****						
02	*						*
03	*						*
04	*						*
05	*						*
06	*						*
07	*						*
08	*						*
09	*						*
10	*						*
11	*						*
12	*						*
13	*						*
14	*						*
15	*						*
16	*						*
17	*****						
	F1	F2	F3	F4	F5	F6	F7 F10
	Del Line	Ins Line	Center	to Exit	Str Line	Rst Line	pack Help

Enter or edit the message. You can use the following special keys to modify the text:

F1 — deletes a line

F2 — inserts a line

F3 — centers a line

F4 — ends the transaction

F5 — exits and saves the text

F6 — copies the saved line

F7 — packs the message

F10 — displays help text

SHIFT-LEFT ARROW — deletes a character/space in a line

SHIFT-RIGHT ARROW — inserts a space in a line

TAB — advances the cursor 10 spaces to the end of the line

ERASE EOL — erases all characters from the cursor to the end of the line

ERASE PAGE — erases the entire form

HOME — press twice to advance the cursor to the upper-left corner of the form

HOME, then RIGHT ARROW — returns the cursor to the end of the current line (do not press the keys simultaneously)

HOME, then LEFT ARROW — returns the cursor to the first character of the current line (do not press the keys simultaneously)

HOME, then UP ARROW — advances the cursor to the top line of the current column (do not press the keys simultaneously)

HOME, then DOWN ARROW — advances the cursor to the bottom line of the current column (do not press the keys simultaneously)

### **Impact**

The revisions made to the system up message becomes effective immediately; the new message is transmitted the next time the system up message is sent.

## CHANGE SYSTEM DOWN MESSAGE

The *system down message* is the message sent to all CRTs currently signed on to the system when the Disallow Logon & Send DownMessage function is run. This function enables you to modify the system down message.

When you access this function, the system displays a screen similar to the following. If you have already entered a message, the system displays the current system down message.

	1	2	3	4	5	6	7
12345678901234567890123456789012345678901234567890123456789012345							
01	*****						
02	*						*
03	*						*
04	*						*
05	*						*
06	*						*
07	*						*
08	*						*
09	*						*
10	*						*
11	*						*
12	*						*
13	*						*
14	*						*
15	*						*
16	*						*
17	*****						
	F1	F2	F3	F4	F5	F6	F7 F10
	Del Line	Ins Line	Center	to Exit	Str Line	Rst Line	pack Help

Enter or edit the message. You can use the following special keys to modify the text:

F1 — deletes a line

F2 — inserts a line

F3 — centers a line

F4 — ends the transaction

F5 — exits and saves the text

F6 — copies the saved line

F7 — packs the message

F10 — displays help text

SHIFT-LEFT ARROW — deletes a character/space in a line

SHIFT-RIGHT ARROW — inserts a space in a line

TAB — advances the cursor 10 spaces to the end of the line

ERASE EOL — erases all characters from the cursor to the end of the line

ERASE PAGE — erases the entire form

HOME — press twice to advance the cursor to the upper-left corner of the form

HOME, then RIGHT ARROW — returns the cursor to the end of the current line (do not press the keys simultaneously)

HOME, then LEFT ARROW — returns the cursor to the first character of the current line (do not press the keys simultaneously)

HOME, then UP ARROW — advances the cursor to the top line of the current column (do not press the keys simultaneously)

HOME, then DOWN ARROW — advances the cursor to the bottom line of the current column (do not press the keys simultaneously)

### **Impact**

The revisions made to the system down message become effective immediately; the new message is transmitted the next time the system down message is sent.



## CHANGE LOGON STATUS

The logon status controls your access to the system. To change the current log on status, select this option from the Midnight Processing menu. You must be using the CRT connected to port 0 of the CPU to access this function.

For more information about this function, see [“System Logon Status” on page 3-18](#).

## SEND A SYSTEM MESSAGE

To send a system message to any CRT on the system, select the Send a System Message option from the Midnight Processing menu.

## MIDNIGHT PROCESSING STATISTICS

This function enables you to display daily run statistics on midnight processing sub runs and sub run steps.

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

```

      General Hospital Midnight Processing Statistics Processor

Page:01                      Midnight Processing Dates      ##=Current Choices
( 1) Nov 21,93
( 2) Nov 20,93
( 3) Nov 19,93
( 4) Nov 18,93
( 5) Nov 17,93
( 6) Nov 16,93

Enter selections (1,3,4-7) or `~` to remove [11/21/93]
                        end selection(NL)

```

Dates for which the system has retained midnight processing statistics are displayed. The system retains midnight processing statistics according to the setting of the Purge Days field in Midnight Processor Run Control.

Enter the option number of the date(s) for which you want to view midnight processing run statistics. To view information for the most recent midnight processing run, press ENTER.

**NOTE:** If you select multiple dates, the system displays statistics for each date, starting with the most recent date and moving backward chronologically.

The system displays a screen similar to the following:

```

      General Hospital Midnight Processing Statistics Processor

      Midnight Processing for Sunday, 11/21/93
      Started: 11/22/93 12:00am   Completed: 11/22/93 12:35am

STEP  DESCRIPTION                START    FINISH    ELAPSED    PRI-    PRE
                                ORTY BKGRD STEPS  JOB
1  Bed File Copy                 00:00:16 00:00:16 00:00:00 00
2  FIM/SIM Update                00:00:18 00:00:18 00:00:00 00
3  RX Downtime Sub Run           00:00:18 00:00:18 00:00:00 00
4  Daily Reset                   00:00:18 00:00:18 00:00:00 00
5  System Allow Sign-On          00:00:28 00:00:31 00:00:03 00      3
6  RX Uptime Sub-run             00:00:31 00:00:31 00:00:00 00
7  Patient Care Sub-run          00:00:31 00:00:31 00:00:00 00
8  PA Daily Sub-Run              00:00:31 00:35:13 00:34:42 00

      F1PriorDate F2NextDate F4Print F5SelectSubRun F7Exit

```

For each midnight processing step, the system displays the sequence number of the step, the step description, the time at which the system began the step, the time at which the system completed the step, the amount of time the system took to run the step, the step priority, whether the step runs in background, the number(s) of any step(s) that must run successfully before the specific step, and the job number of any steps that are still in process. If a midnight processing step has aborted, the JOB column displays *Aborted*. If the job is still running, the system displays the job number in this column.

The system offers the following function keys at the bottom of the screen:

### F1PriorDate

Press F1 to display statistics for the previous day's midnight processing run. If you did not select a date prior to this date in the date selection screen (the screen preceding this display), an error message displays.

### F2NextDate

Press F2 to display statistics for the next day's midnight processing run. If you did not select a date following this date in the date selection screen (the screen preceding this display), an error message displays.

### F4Print

Press F4 to print the statistics for this run of midnight processing. The system displays a menu of printers to which you can print the report. Enter the option number of the desired printer. The system displays *Printing!*, and then returns to the screen.

### F5SelectSubRun

Press F5 to display run statistics on the individual sub run steps. The system displays a list of sub runs. Enter the option number of the sub run to display.

The system then displays a screen similar to the following:

General Hospital Midnight Processing Statistics Processor							
Sub Run AP 2nd Sub-run for Sunday, 11/21/93							
Start: 11/22 00:30		Complete: 11/22 00:30		Restart:			
STEP	DESCRIPTION	START	FINISH	ELAPSED	PRI- ORTY BKGRD	PRE STEPS	JOB
1	AP Bal & Mgt Sum	00:30:11	00:30:16	00:00:05	00		
2	AP Employee Prod Rpr	00:30:16	00:30:17	00:00:01	00		
3	AP Month End	00:30:18	00:30:18	00:00:00	00		
4	AP Cal Year End	00:30:18	00:30:18	00:00:00	00		
5	AP Fiscal Year End C	00:30:18	00:30:18	00:00:00	00		
F1PriorDate F2NextDate F4Print F5PriorPage F6NextPage F7Exit							

The sequence number of the sub run step, the sub run step description, the time at which the system began the sub run step, the time at which the system completed the sub run step, the amount of time the system took to run the sub run step, the priority

or the sub run step, whether the sub run step runs in background, the number(s) of any sub run step(s) that must run successfully before the specific sub run step, and the job number of any sub run steps that are still in process are displayed. If a midnight processing sub run step has aborted, the JOB column displays *Aborted*.

**F7Exit**

Press F7 to exit the screen.

Midnight Processing usually performs the following procedures:

1. **End of Day Processing:** Performs Room and Bed Charging and sends End of Day records to the financial system.
2. **FIM/SIM Update:** Performs maintenance on the Financial Item Master (FIM) and the Service Item Master (SIM).
3. **System Allow Sign on:** Changes sign-on status if users were off the system for backups or midnight processing was started before midnight.
4. **Pharmacy Sub Run:** The steps in this sub run. The STAR Pharmacy steps are all found in the FRX2 sub run
  - a. The Priority defined for each of the STAR Pharmacy steps is usually 00 unless STAR Pharmacy and STAR Patient Care reside in the same ID. If the two products share an ID, the priority for the Bed File Copy step is 70.
  - b. The priority for the RX Workload Stat and RX WorkloadReports steps is *a/ways* 02.
  - c. The Patient Purge step is to be included in midnight processing only if STAR Pharmacy is stand-alone (not networked to STAR Patient Care). Since STAR Patient Care passes network transactions, this step is not necessary when the two products are networked.
  - d. The Log Purge/Purge Old Data step is to be included in midnight processing only if Patient Purge (^CFPRG) is not running in the STAR Pharmacy CPU. This program purges items that are not networked from STAR Patient Care.
5. **Patient Care Sub Run:** The steps in this sub run.
6. **Financial Sub Run:** The steps in this sub run.

## MIDNIGHT PROCESSING STEPS

This function enables you to display information about the subrun steps performed by the system during midnight processing. You cannot edit these steps from this function; this ability is only given to McKesson employees.

When you access this function the system displays a list of sub runs performed during midnight processing, as in the following example screen:

```

General Hospital Midnight Processing Steps Processor
                                Wed Jun 01, 1994 04:37 pm
Page:01                               Sub Runs
( 1) FAP1-AP 2nd Sub-run
( 2) FAPD-AP Daily Sub-run
( 3) FFAD-FA Daily Sub-run
( 4) FGLD-GL Daily Sub-run
( 5) FMMD-MM Daily Sub-run
( 6) FMMM-MM Monthly Sub-Runv
( 7) FMMY-MM Yearly Sub-Runv
( 8) FPAD-PA Daily Run
( 9) FPXD-PC Daily Run
(10) FPRD-PR Daily Sub-run
(11) FRX2-RX Uptime Sub-run
(12) FRXD-RX Daily Run

Enter choice--

```

Enter the number of the sub run whose steps you want to display. The system displays a screen similar to the following:

```

General Hospital Midnight Processing Steps Processor
                                Wed Jun 01, 1994 04:41 pm
                                FAPD-AP Daily Sub-run
                                PRI-      PRE
STEP  DESCRIPTION          ROUTINE          ORTY BKGD STEPS
  1  AP Down Start          ZP ^FUBBS:"AP System Downtime Batch  00
  2  AP Initialize          GINIT          00
  3  AP Pat Ref Inv          S P%="GABPATR" D B^FYBOPT          00
  4  AP Auto Approve          GABPOAA          00
  5  AP Daily Dist          GABDD          00      4
  6  AP Daily Dis Reg          S P%="GARDR" D B^FYBOPT          00
  7  AP Daily Audit          GARDA          00
  8  AP Unapp Voucher          GARUV          00
  9  AP Del Vouch Rpt          GARDV          00
 10  AP Voided Checks          GARVC          00
 11  AP PO Var Rpt          S P%="GARPOV" D B^FYBOPT          00
 12  AP Manual Ck Upd          GABMCU          00
 13  AP ME Accruals          S P%="GYBDTMB" D B^FYBOPT          00
 14  AP Create GL Ent          GTBGLE          00
 15  AP Workfile Kill          GUBKILL          00

                                F4Print F5PriorPage F6NextPage F7Exit

```

For each step in the sub run, the system displays the following information:

**STEP**

This column displays the number of this step in the sub run. Steps are processed in order of their step number.

**DESCRIPTION**

This column displays the text description of this sub run step.

**ROUTINE**

This column displays the routine the system performs in executing this sub run step.

**PRIORITY**

This column displays the priority used by the system to run the job. Priorities range from 00 (the default) to 70.

**BKGD**

This column indicates whether this step runs in background. This is determined by McKesson.

**PRESTEPS**

This column displays the number of any steps in this sub run that must be performed prior to this step.

You have the following options available, as represented by the Function Keys displayed at the bottom of the screen:

**F4 PRINT**

Press F4 to print the steps for this sub run.

**F5 PRIORPAGE**

Press F5 to display the previous screen of steps. If there is not enough steps for this sub run to require multiple screens, this option does not display.

**F6 NEXTPAGE**

Press F6 to display the next screen of steps. If there is not enough steps for this sub run to require multiple screens, this option does not display.

**F7 EXIT**

Press F7 to exit this screen and return to the preceding screen.





---

# Index

## A

- Abort Print Job 6-63
- Adding A Message 3-39, 3-43
- Allow logon and send up message E-20
- Alternate STAR environment
  - select 3-25
- Ambulatory Care 2-45
- Application logon status 3-19
  - edit groups 3-19
  - enable all groups 3-22
  - enable select groups 3-21
- Assign PCS's to ports 6-34
- Assign PCS's to printers 6-32
- Assign PCS's to reports 6-30
- Attach Printer Specific Sequence 6-27
- Audit Service 2-54
- Audit Service Interface 2-54
- Automatic Shutdown 3-12

## B

- Backup 2-33, 3-61
  - full concurrent and incremental tape
    - labeling scheme 2-34
  - full concurrent backup 3-62
  - incremental 3-65
  - journal 3-67
  - journal audit 3-70
  - materials 3-61
  - purpose 3-61
  - restore 5-11
  - scheduling guidelines 3-61
  - tape labeling 3-61
- Backup Audit 3-70
- Batch report groups, defining 6-18
- Before and After Image Logging 2-34
- Benefits of MultiSTAR 1-4
- Block Packer 3-45
  - History 3-47
  - Ignore List 3-47
  - Manual List 3-47
  - Schedule 3-46
  - Status 3-47
- Booting the AIX Operating System

- IBM AIX Command Summary B-8

- Bringing Down the MultiSTAR Software Environment 3-7

- Bringing Up the MultiSTAR Software Environment 3-3

## C

- Change logon status 3-17, E-27
- Change logon status for a reserved port 3-23
- Change system down message E-25
- Change system up message E-23
- Changing the Date and Time 3-38
- Components of MultiSTAR 1-8
- Components, MultiSTAR 1-11
- Components, MultiSTAR 1-8
- Console Error Message Example D-3
- Console Log Listing 4-4
- Controlling the print queue 6-37
- Cover Page 6-100, 6-112
- CPU Utilization Graph 4-9

## D

- Daily Processing E-8, E-12
- Database Structure, MultiSTAR environment 1-25
- Define Print Control Sequence 6-22
- Defining batch report groups 6-18
- Defining Ports To MultiSTAR 2-3
- Defining Report Groups 2-31
- Defining Tape Drives to MultiSTAR 2-17
- Deleting A Message 3-40, 3-44
- Demand Print function 6-66
- Directory Naming 1-21
- Disabled Printer Display 6-64
- Disallow logon and send down message E-6
- Disk Hardware Errors, troubleshooting 5-6
- Disk Space Projections 4-7
- Disk Space Utilization 4-7
- Disks 1-14
- Displaying Downtime Information 4-22
- Displaying Information From UNIX 4-16
- Displaying Port Information 4-17
- Displaying System Availability Statistics 4-22
- Displaying Tildes 4-27

Distribution Lists 6-99  
Downloading at Logoff 6-117  
Downloading the report 6-79  
Downtime Information 4-22  
Dual Initiated High Availability 1-19  
dynamic fax distribution list 6-47  
Dynamic Ports 2-7, 4-17

## E

Edit Groups 3-19  
Editing A Message 3-40, 3-44  
Editing Port Assignments 6-12  
    no ports assigned 6-12  
    ports assigned 6-15  
Editing System Parameters 3-26  
Enable All Groups 3-22  
Enable Select Groups 3-21  
Enable STAR Fax 6-100, 6-114  
Enable/Disable auto logon and send up  
    message E-21  
Enable/Disable Fax Cover Page 6-100, 6-116  
Enable/Disable Network 3-56  
Error Messages  
    console error message example D-3  
    Major Error Codes Table D-4  
    overview D-3  
    Severity Level Table D-3  
Examining MultiSTAR Job Status 4-11

## F

Fax Audit 6-99, 6-100  
Fax distribution lists 6-107  
Fax machine, routing 6-81  
Fax Queue Review 6-40  
Fax Update List Routines 6-47  
Files, MultiSTAR environment 1-23  
Force users off system  
    Midnight Processing E-7  
Forms Maintenance 2-31, 6-17  
Formulary Maintenance 2-44  
Formulary Maintenance inpatient STAR  
    Pharmacy parameters 2-44  
Full Concurrent And Incremental Tape  
    Labeling Scheme 2-34  
Full Concurrent Backup 3-62  
    restoring 5-11  
Function keys, text editor A-4

## G

General tasks 3-26

Graphing Port Usage 2-26

## H

Halt Command  
    IBM AIX Command Summary B-7  
Hard crash recovery procedures 5-10  
Hardware and Software Requirements for  
    MultiSTAR to MultiSTAR Networking 1-  
    17  
Hardware Errors 4-3  
High Availability 1-18  
Host Spooler Printer Ports 2-14  
Hourly Jobs E-17  
HP 700/60 Terminals C-12  
HP-UX Command Summary B-4  
    Reboot Command B-5  
    Run Levels B-4  
    Shutdown Command B-4

## I

IBM 3151 Terminals C-8  
IBM AIX Command Summary B-6  
    Booting the AIX Operating System B-8  
    Halt Command B-7  
    Halt Command syntax B-7  
    Run Levels B-6  
    Shutdown Command B-6  
    Shutdown Command syntax B-6  
    Telinit Command B-8  
    Telinit Command syntax B-8  
ID Cross Reference Report option 6-94  
Identify Group of Screens 2-47  
Identify Screen Using Screen Name 2-45  
Identify Screen Using System Flow 2-45  
Implementation of a FAIL-SAFE Database  
    Before Image Log Method 2-34  
Incremental Backup 3-65  
Incremental backup, restoring an 5-13  
Inpatient parameters 2-44  
    Formulary Maintenance 2-44  
    Order Maintenance 2-44

## J

Job Details 4-14  
Job status, examining 4-11  
Job statuses, miscellaneous 4-15  
Job statuses, operational 4-11  
Job Summaries 4-14  
Journal Backup 3-67  
Journal Restore 5-13

Journal Restore Alternatives 5-15  
Journal Restore Process Additional Tapes 5-21  
Journal Restore Search Additional 5-20  
Journaling Operation 2-36

## L

Logs  
    system error 4-3

## M

Maintaining site screen parameters 2-45  
    identify group of screens 2-47  
    identify screen using screen name 2-45  
    identify screen using system flow 2-45  
Maintaining User Messages 3-39  
    adding a message 3-39  
    deleting a message 3-40  
    editing a message 3-40  
    selecting a message to display 3-40  
Major Error Codes Table D-4  
Managing Ports 2-20  
    on-line instrument read/write 2-22  
    testing terminals 2-20  
    using the port usage log 2-25  
    using the signon monitor 2-24  
Memory 1-14  
Message  
    send E-28  
Microfiche Tape Format 6-86  
Midnight Processing  
    Functions E-4  
        Allow logon and send up message E-20  
        Change logon status E-27  
        Change system down message E-25  
        Change system up message E-23  
        Daily Processing E-8, E-12  
        Disallow logon and send down message E-6  
        Enable/Disable auto logon and send up message E-21  
        Hourly Jobs E-17  
        Management menu E-11  
        Midnight Processor Run Control E-12  
        Pause/Resume E-16  
        Remove users from system E-7  
        Restart Aborted Sub Run Processor E-19

    Send a system message E-28  
    statistics E-29  
    steps E-32  
    system backup E-22  
    introduction E-3  
Midnight Processing Management E-11  
Midnight Processing Menu E-4  
Midnight Processing statistics E-29  
Midnight Processing steps E-32  
Monitor, system utilization 4-7  
MSE Failover 1-17, 2-35  
Multiple Physical Printer Assignments 6-15  
Multiprocessing support 1-5  
MultiSTAR backup restore 5-11  
    journal restore 5-13  
    journal restore alternatives 5-15  
    journal restore process additional tapes 5-21  
    journal restore search additional tapes 5-20  
    restore a full concurrent backup 5-11  
    restore an incremental backup 5-13  
MultiSTAR components 1-8  
    how they work together 1-11  
MultiSTAR Journaling 2-36  
    operation 2-36  
    recovery from power fail 2-37  
    restoring the database 2-39  
MultiSTAR Networking 1-15  
MultiSTAR Process Structure 1-10  
MultiSTAR Software Environment 1-21  
    database structure 1-25  
    directory naming 1-21  
    files 1-23  
    multiSTAR subdirectories 1-21  
    programs 1-21  
MultiSTAR Subdirectories 1-21  
MultiSTAR system backup 3-61  
MultiSTAR tape drives  
    defining 2-17  
MultiSTAR to MultiSTAR Networking 1-17

## N

Network Configuration 1-17  
Network Utilities 3-55  
Networking Communications 1-16  
    hardware and software requirements 1-17  
No Ports Assigned 6-12  
No Response on a User's CRT 5-7

No Response On Any CRT 5-8

## O

On-line Instrument Read/Write 2-22

Open and Spooled Report File Count option 6-96

Order Maintenance 2-44

Order Maintenance inpatient STAR Pharmacy parameters 2-44

Other system errors 5-7

    No Response on a User's CRT 5-7

    No Response On Any CRT 5-8

    partition errors 5-8

    port errors 5-8

Output Driver Maintenance function 6-47

## P

Partition Errors 5-8

Pause Midnight Processing E-16

Physical Ports 2-8, 4-18

Platform-specific information B-1

    HP-UX Command Summary B-4

    IBM AIX Command Summary B-6

    introduction B-3

Port definition 2-3

Port Errors 5-8

Port information, displaying 4-17

Port number reservations 2-6

Port numbering assignments 2-6

Port reservations by device type 2-6

Port Specifications 4-20

Port type descriptions 2-7

Port Utilization 2-28

Ports

    defining 2-3

    defining tape drives to MultiSTAR 2-17

    displaying information 4-17

    dynamic 2-7, 4-17

    host spooler printer ports 2-14

    information 4-17

    managing 2-20

    numbering assignments by device type 2-6

    physical 2-8, 4-18

    print port information 4-19

    reserved 3-23

    software 2-11, 4-18

    specifications concise device/address  
        listing 4-21

    specifications concise location listing 4-21

    specifications detailed listing 4-20

    type descriptions 2-7

    virtual 2-12, 4-19

Ports Assigned 6-15

Prefix/Suffix Maintenance 6-99, 6-109

Print Control Maintenance 6-21

    assign PCS's to ports 6-34

    assign PCS's to printers 6-32

    assign PCS's to reports 6-30

    attach printer specific sequence 6-27

    define print control sequence 6-22

Print Downtime Reports - Detail 4-26

Print Downtime Reports - Summary 4-25

Print Job Control 6-60

Print queue, controlling 6-37

Print Special Forms 6-88

Print Spooler Control Parameters 6-44

Print Spooler functions 6-3

Printer Maintenance 6-11

    editing port assignments 6-12

    multiple physical printer assignments 6-15

Printer output management 2-29

    defining report groups 2-31

    forms maintenance 2-31

    printers 2-31

    reports 2-30

    theory 2-30

Printer Specific Sequence, attaching 6-27

Printer Summary option 6-92

Printers 2-31

Printers by Report option 6-93

Printers, troubleshooting 5-4

Printing Port Information 4-19

Processors 1-14

Programs, MultiSTAR environment 1-21

Purpose of Backup 3-61

## Q

Queue Control 6-37

Queue Review 6-99

Queue, reviewing the 6-37

## R

Reassigning Spooled Output 6-41

Reboot Command

    HP-UX Command Summary B-5

Recover Spool Files 6-62

Recovery From Power Fail 2-37

Recovery procedures, hard crash 5-10

- Redial Parameters 6-100, 6-115
- Relationship of Reports, Printers, Ports, and Output Destinations 2-30
- Remote Access Flow 1-13
- Remote Jobstart 1-16
- Remote Spooling 1-16
- Remove Users From System E-7
- Removing Jobs 3-47
- Report groups
  - defining 2-31
- Reports 2-30
  - downtime detail 4-26
  - downtime summary 4-25
  - ID Cross Reference Report option 6-94
  - Open and Spooled Report File Count option 6-96
  - Printer/Printer Summary option 6-92
  - Printers by Report option 6-93
- Reports by Printer/Printer Summary option 6-92
- Reports Maintenance function 6-5
- Reserved Ports
  - change logon status 3-23
- Restart Aborted Sub Run Processor E-19
- Restore A Full Concurrent Backup 5-11
- Restore An Incremental Backup 5-13
- Restore backup 5-11
  - full concurrent 5-11
  - incremental 5-13
  - journal 5-13
  - journal restore alternatives 5-15
  - journal restore process additional tapes 5-21
  - journal restore search additional tapes 5-20
- Restore procedures, MultiSTAR 5-11
- Restoring the database 2-39
- Restoring the journal 5-13
- Resume Midnight Processing E-16
- Review Application/CPU Statuses 3-56
- Review Print Job 6-60
- Review/Print Network Configuration 3-58
- Reviewing the fax queue 6-40
- Reviewing the queue 6-37
- Revising Downtime Information 4-23
- Routing to a Fax Machine 6-81
- Routing to a Network Address 6-82
- Routing to a Printer 6-77

- Routing to a UNIX Host File 6-82
- Routing to an e-mail address 6-83
- Run Levels
  - HP-UX Command Summary B-4
  - IBM AIX Command Summary B-6

## S

- Scheduling Guidelines 3-61
- Searching Log for Error Type 4-5
- Select alternate STAR environment 3-25
- Selecting A Message To Display 3-40, 3-44
- Send a system message E-28
- Set Hourly Jobs 3-50
- Setting the time to display a message 3-41
- Severity Level Table D-3
- Shutdown Command
  - HP-UX Command Summary B-4
  - IBM AIX Command Summary B-6
- Sign Off Bulletin Board 3-42
  - adding a message 3-43
  - deleting a message 3-44
  - editing a message 3-44
  - selecting a message to display 3-44
- Sign On Messages 3-38
- Sign-on Restriction 3-14
- Site release screen parameters 2-40
  - site screen group maintenance 2-50
  - site screen group parameters 2-51
  - site screen parameters 2-40
- Site screen group maintenance 2-50
  - exit function 2-51
- Site screen group parameters 2-51
- Site screen parameters 2-40
  - maintaining 2-45
  - STAR Patient Care 2-41
  - STAR Patient Care Order Management 2-43
  - STAR Pharmacy 2-43
- Software Ports 2-11, 4-18
- Special Forms, print 6-88
- Spool File Maintenance 6-53
- Spool File Reporting 6-49
- Spooled output, reassigning 6-41
- Spooler Control Reports function 6-91
- Spooler functions 6-1
- STAR Audit Service 2-54
- STAR Audit Service Interface 2-54
- STAR Fax 6-99
- Cover Page 6-112



- Enable STAR Fax 6-114
- Enable/Disable Fax Cover Page 6-116
- Fax Audit 6-100
- Fax distribution lists 6-107
- Prefix/Suffix Maintenance 6-109
- Redial Parameters 6-115
- STAR Patient Care 2-41
- STAR Patient Care Order Management 2-43
- STAR Pharmacy 2-43
  - ambulatory care parameters 2-45
  - inpatient parameters 2-44
- Start/Stop Print Spooler Queuing function 6-44
- Starting And Stopping The Signon Monitor 2-24
- Starting MultiSTAR 3-3
- Stopping MultiSTAR 3-7
- System activity 4-11
- System backup E-22
- System Block Packer 3-45
- System Downtime Detail Report 4-27
- System error logs 4-3
  - console log listing 4-4
  - hardware errors 4-3
  - introduction 4-3
  - searching log for error type 4-5
  - summary 4-3
- System Error Summary 4-3
- System logon status 3-18
- System message
  - send E-28
- System recovery features 2-32
  - backup 2-33
  - before and after image logging 2-34
  - implementation of a fail-safe database
    - before image log method 2-34
  - MSE Failover 2-35
  - theory 2-32
- System Requirements 1-14
  - disks 1-14
  - memory 1-14
  - processors 1-14
- System Unavailable
  - message E-7
- System utilization monitor 4-7
  - CPU utilization graph 4-9
  - disk space projections 4-7
  - disk space utilization 4-7

## T

- Tape drives
  - defining to MultiSTAR 2-17
- Tape Labeling 3-61
- tape output 6-86
- Technology Changes 1-3
- Telinit Command
  - IBM AIX Command Summary B-8
- Terminal Access Flow 1-12
- Terminal Connection Capabilities 1-15
  - MSE Failover 1-17
  - MultiSTAR network 1-15
  - networking communications 1-16
  - remote jobstart 1-16
  - remote spooling 1-16
  - virtual terminal support 1-15
- Terminal Type Conversion Tables
  - HP 700/60 Terminals C-12
  - IBM 3151 Terminals C-8
  - introduction C-3
  - VT 320 Terminals C-4
- Terminals, troubleshooting 5-3
- Testing Terminals 2-20
- Text Editor A-3
  - function keys A-4
  - introduction A-3
- Theory, system management 2-30
- Theory, system recovery 2-32
- Tildes, displaying 4-27
- Transmission Status Message 6-105
- Troubleshooting
  - disk hardware errors 5-6
  - printers 5-4
  - terminals 5-3
- Troubleshooting system hardware 5-3
- Turning Off the Hardware 3-13

## U

- Understanding MultiSTAR 1-3
- Unremovable Jobs 3-50
- User and port definition 2-3
- Using The Port Usage Log 2-25
- Using the Signon Monitor 2-24
  - graphing port usage 2-26
  - starting and stopping the signon monitor 2-24
- Utility Programs, MultiSTAR environment 1-22

## **V**

View Spooled Reports 6-72

Virtual Ports 2-12, 4-19

Virtual Terminal Support 1-15

VT 320 Terminals C-4

## **W**

What Are MultiSTAR, UNIX, and Linux? 1-3

Write Reports to Tape 6-84





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