

Lucent Technologies
Bell Labs Innovations



***StarKeeper*[®] II NMS Planning Guide**

255-114-760
Issue 1
Release 10.0

Copyright © 1998 Lucent Technologies
All Rights Reserved
Printed in USA

Datakit and *StarKeeper* are registered trademarks of Lucent Technologies.

ACCUMASTER is a registered trademark of AT&T.

Comsphere is a registered trademark of Texas Pacific Group.

Datamedia is a registered trademark of DMS Datamedia Corporation.

HP-UX, HP LaserJet, HP PaintJet, HP VUE, HP DeskJet, HP C/ANSI, and HP GlancePlus are registered trademarks of Hewlett-Packard Company.

IBM, NetView and SNA are registered trademarks of International Business Machines Corporation.

INFORMIX and INFORMIX-4GL are registered trademarks of Informix Software, Inc.

MS-DOS and Windows are registered trademarks of Microsoft Corporation.

StarGROUP is a registered trademark of NCR Corporation.

OSF/Motif and Motif are trademarks of Open Software Foundation, Inc.

UNIX is a registered trademark in the United States and other countries, licensed exclusively through X/Open Company Ltd.

The information in this document is subject to change without notice.
Lucent Technologies assumes no responsibility for any errors that may appear in this document.

This document was produced by Customer Training and Information Products (CTIP).

Contents

	Preface	xi
	■ Purpose of the Document	xii
	■ What's New in This Document for Release 10.0	xii
	■ Organization	xiii
	■ Document Conventions	xiv
	■ Related Documentation	xv
	<i>StarKeeper II</i> NMS Documents	xv
	Hewlett-Packard Documents	xv
	INFORMIX® Documents	xv
	BNS-2000 and Data Networking Products Documents	xvi
	Additional Copies	xvi
	■ Training	xvii
1	Overview	1-1
	■ Supported Products	1-1
	■ Supported Graphics System Software	1-2
	■ Supported Core Application Packages	1-2
	■ Distributed Modular Architecture	1-2
	Role of the Core System	1-2
	Optional Core Application	1-3
	Role of the Graphics System	1-3
	Graphics System Software	1-4
	Role of the Co-resident System	1-5
	Role of Netstations	1-5
	Flexible Growth	1-5
	■ New <i>StarKeeper II</i> NMS Features	1-6
	■ Additional Contacts and Support Services	1-6
	Product Information	1-6
	Installation Services	1-6
	Customer Assistance and Support	1-7
	■ <i>StarKeeper II</i> NMS Configurator Tool	1-7

Contents

2	Product Configurations	2-1
	■ New System Configurations	2-2
	Core Systems	2-2
	Graphics Systems	2-7
	Co-resident Systems	2-9
	■ Existing System Configurations	2-9
	Core Systems	2-12
	Graphics Systems	2-13
	Co-resident Systems	2-14
	■ Supported Terminals	2-15
	■ Supported Printers	2-15
	■ System Limits	2-16
	■ OS Shell Support	2-17
	■ Backup/Recovery Hardware Options	2-17

3	Planning Your Network Management Configuration Needs	3-1
	■ General Considerations	3-1
	■ Network Planning Using the <i>StarKeeper II</i> NMS Configurator Tool	3-3
	Assessing Your Data Collection Needs	3-5
	Determining Your Initial Network Configuration	3-5
	Input to the <i>StarKeeper II</i> NMS Configurator Tool	3-7
	Analyzing the Output Reports	3-8
	Modify Planned Network Configuration	3-8
	Adjusting the <i>StarKeeper II</i> NMS Configurator Tool Input	3-9
	■ Connections Worksheet	3-9
	Connections Worksheet Instructions	3-10

Contents

4	Site Preparation	4-1
	■ Requirements for the Hewlett-Packard 700 Series and C200 Site and Environmental Requirements	4-1 4-1
A	<i>StarKeeper II</i> NMS Configurator Tool	A-1
	■ Using the <i>StarKeeper II</i> NMS Configurator Tool	A-1
	Prerequisites	A-2
	Hardware and Software Environment	A-2
	Compatibility	A-2
	Installing the <i>StarKeeper II</i> NMS Configurator Tool	A-3
	Starting the Configurator Tool	A-3
	The Menu Bar	A-3
	File Menu	A-3
	Edit Menu	A-8
	On-line Help	A-8
	■ System Input Screen Descriptions	A-10
	Welcome	A-11
	System Type	A-12
	Operating Environment	A-12
	User Environment	A-13
	Multiple Record Input Screens	A-15
	Node Group Characteristics	A-16
	Other Systems Characteristics	A-18
	Switched Virtual Circuit (SVC) Billing	A-19
	Permanent Virtual Circuit (PVC) Billing	A-20
	Data Retention Period Settings	A-21
	Performance Measurements	A-22
	■ System Output Reports	A-25
	Memory Requirement Report	A-25
	CPU Requirement Report	A-27
	Disk Requirement Report	A-29

Contents

Printing Screens	A-31
Exiting the Configurator Tool	A-31
Ordering Additional Copies	A-31

B	<i>StarKeeper II NMS Configurator Tool Worksheets</i>	B-1
----------	--	-----

GL	Glossary	GL1
-----------	-----------------	-----

IN	Index	IN-1
-----------	--------------	------

Tables

2 Product Configurations

Table 2-1.	Staged System/Software Upgrade Package Configurations for <i>StarKeeper</i> II NMS Products	2-2
Table 2-2.	Minimum Supported HP C200 Hardware Configurations for <i>StarKeeper</i> II NMS Core, Graphics, and Co-resident Systems	2-4
Table 2-3.	HP Software Configurations for <i>StarKeeper</i> II NMS Core Staged Systems	2-5
Table 2-4.	Documentation for <i>StarKeeper</i> II NMS Core Staged Systems	2-6
Table 2-5.	HP Software Configuration for <i>StarKeeper</i> II NMS Graphics Systems	2-7
Table 2-6.	Documentation for <i>StarKeeper</i> II NMS Graphics Systems	2-8
Table 2-7.	Minimum Supported HP 715/33 & 715/75 Hardware Configurations for <i>StarKeeper</i> II NMS Core, Graphics, & Co-resident Systems	2-10
Table 2-8.	Minimum Supported HP 715/64 or 715/100 Hardware Configurations for <i>StarKeeper</i> II NMS Core, Graphics, and Co-resident Systems	2-11
Table 2-9.	HP Software Upgrade for <i>StarKeeper</i> II NMS Core Systems	2-12
Table 2-10.	Documentation for Upgrade to <i>StarKeeper</i> II NMS Core Systems	2-12
Table 2-11.	Upgrades to <i>StarKeeper</i> II NMS R10.0 Graphics Systems	2-13
Table 2-12.	Documentation for Upgrade to <i>StarKeeper</i> II NMS R10.0 Graphics System	2-14
Table 2-13.	Supported Terminals	2-15

3 Planning Your Network Management Configuration Needs

Table 3-1.	Hardware Summary	3-8
Table 3-2.	<i>StarKeeper</i> II NMS Connection Types	3-11

4 Site Preparation

Table 4-1.	Hewlett-Packard 700 Series and C200 Environmental Requirements	4-1
------------	--	-----

Tables

B *StarKeeper II NMS Configurator Tool Worksheets*

Table B-1.	Connections Worksheet	B-2
Table B-2.	Connections to <i>StarKeeper</i> NMS (pre-R3.0) or Other Network Elements	B-3
Table B-3.	Connections to <i>StarKeeper II</i> NMS (R3.0 or Later)	B-3
Table B-4.	User Environment	B-3
Table B-5.	Switched Virtual Circuit (PVC) Billing	B-4
Table B-6.	Permanent Virtual Circuit (PVC) Billing	B-4
Table B-7.	Performance Measurements	B-5
Table B-8.	Performance Measurements (Table B-7 Continued)	B-6
Table B-9.	Performance Measurements (Table B-7 Continued)	B-7

Screens

A	<i>StarKeeper II NMS Configurator Tool</i>	
Screen A-1.	Menu Bar	A-3
Screen A-2.	File Menu	A-4
Screen A-3.	Opening a Saved Data File	A-5
Screen A-4.	Saving a File with a New Filename	A-6
Screen A-5.	Print Menu	A-7
Screen A-6.	Printer Setup	A-8
Screen A-7.	Edit Menu	A-8
Screen A-8.	Welcome	A-11
Screen A-9.	System Type	A-12
Screen A-10.	Operating Environment	A-13
Screen A-11.	User Environment	A-14
Screen A-12.	Node Group Characteristics	A-17
Screen A-13.	Other Systems Characteristics	A-18
Screen A-14.	Switched Virtual Circuit (SVC) Billing	A-19
Screen A-15.	Permanent Virtual Circuit (PVC) Billing	A-20
Screen A-16.	Data Retention Period Settings	A-21
Screen A-17.	Performance Measurements	A-23
Screen A-18.	Sample Configurator Memory Requirement Report	A-26
Screen A-19.	Sample Configurator CPU Requirement Report	A-28
Screen A-20.	Sample Configurator Disk Requirement Report	A-30

Screens

Preface

StarKeeper® II NMS manages, controls, and diagnoses the complete line of BNS-2000 and BNS-2000 VCS nodes as well as concentrators, servers, bridges, routers, gateways, and other network elements. *StarKeeper* II NMS collects alarm information, billing data, and performance measurements from the network and generates reports on request. Two-way communication between *StarKeeper* II NMS and the network allows one centrally located administrator to manage equipment at many locations.

StarKeeper II NMS architecture consists of one or more Core Systems optionally connected to one or more Graphics Systems running various graphics applications. The Core Systems maintain network connectivity and databases, and perform basic network management functions. The *StarKeeper* II NMS SNMP Proxy Agent is an optional Core System application that is available.

The Graphics Systems include the following applications software that provide configuration management and analysis, enhanced alarms and diagnostics capabilities, graphical and tabular reports, and traffic information:

- *StarKeeper* II NMS Graphics System Platform, including
 - Bulletin Board
 - Cut-Through
 - Workstation Administration
- *StarKeeper* II NMS Network Builder
- *StarKeeper* II NMS Network Monitor
- *StarKeeper* II NMS Performance Reporter

Local Area Network Netstations can also be connected to the host machine, allowing multiple users to access the Graphics System software. For small networks, the Graphics System software can reside on the same host machine as the Core System. This configuration is referred to as a Co-resident System. For large networks, multiple Core Systems can divide the load either geographically or functionally.

Purpose of the Document

This guide provides the following:

- an overview of the distributed architecture
- an overview of the *StarKeeper II* NMS Core System, the *StarKeeper II* NMS Graphics System, and Co-resident System (combined Core System and Graphics System capabilities)
- information on the various configurations and the software components of each
- information on *StarKeeper II* NMS packages you can order
- decision paths and flowcharts to help you plan your network management configuration
- instructions and media for using the *StarKeeper II* NMS Configurator Tool. The tool helps you plan your *StarKeeper II* NMS software network and estimate computer resources
- worksheets to help you collect network configuration input for the Configurator Tool

What's New in This Document for Release 10.0

This document is reissued because of changes and additions made since Release 8.0 of *StarKeeper II* NMS. The following list details these changes:

- Support for BNS-2000 Release 5.0
- Support for BNS-2000 VCS Release 6.0
- Changes in software packaging
 - The *StarKeeper II* NMS Core System Support for SMDS software is automatically installed with the *StarKeeper II* NMS Core System software package.

- The *StarKeeper II NMS SNMP Proxy Agent* for SMDS and *StarKeeper II NMS SNMP Proxy Agent* for Frame Relay software packages are combined into one, called the *StarKeeper II NMS SNMP Proxy Agent*.
- The *StarKeeper II NMS SNMP Proxy Agent* software is optionally installed with the *StarKeeper II NMS Core System* software package. The *StarKeeper II NMS Core System* software package includes the license required to install the *StarKeeper II NMS SNMP Proxy Agent* software.
- The *StarKeeper II NMS Network Builder Support* for Frame Relay and *StarKeeper II NMS Network Builder Support* for SMDS software packages are included as part of the *StarKeeper II NMS Network Builder* software package.
- The *StarKeeper II NMS Graphics System* software package comes with an eight-user license. The single-user version of this software package is no longer available.

⇒ NOTE:

Support for a number of systems has been dropped including ISN, BNS-1000 and previously supported nodes. Although prompts for unsupported equipment appear on the screen, disregard these prompts. If used, the results will be undefined. In addition, text references to BNS-2000 VCS refer to *Datakit II VCS*, unless *Datakit II VCS* is specifically mentioned in instances of interworking. Screen captures that refer to *Datakit II VCS* refer to BNS-2000 VCS and/or *Datakit II VCS*, depending on the product that reflects that particular software release.

- Year 2000 Compliance: *StarKeeper II NMS R10.0* provides *Year 2000 Compliance* through the support of four-digit years in most Date fields; two-digit years are also supported in an unambiguous way (refer to **Chapter 1** of the *StarKeeper II NMS Core System Guide* for more details).

Organization

- Chapter 1 introduces various features of *StarKeeper II NMS* and how they can address your network management needs and solve problems in your network. Included in the discussion are the services provided by *StarKeeper II NMS* as well as the *Graphics System* software packages that are offered. Service and support information conclude the chapter.

- Chapter 2 presents the various processors and associated configurations that are available for running *StarKeeper II* NMS. The software components for each configuration are identified as well as the equipment that is offered with staged systems.
- Chapter 3 provides guidelines for efficiently planning your *StarKeeper II* NMS network management configuration. This information addresses new customers and customers who are upgrading their network. Instructions are provided for the *StarKeeper II* NMS Configurator Tool, which can be used to determine your network sizing needs. After your planning is complete, use the worksheets to record the configuration data that can be used in the installation process.
- Chapter 4 discusses your computing environmental considerations and constraints as well as guidelines for optimum system health.
- Appendix A provides instructions for the *StarKeeper II* NMS Configurator Tool, which can be used to determine your network sizing needs. This appendix also discusses input screens and output reports used with the *StarKeeper II* NMS Configurator Tool.
- Appendix B provides worksheets for the collection of input for the *StarKeeper II* NMS Configurator Tool.
- Glossary defines acronyms and terminology used in this guide.

Document Conventions

Certain conventions are used in this document to help make it more usable.

- Some screen displays are boxed:

This is a screen display

- Messages that appear on the screen are printed as follows: `device for printer_name: io_port`
- User input instructions appear in bold italic font: Type ***/usr/bin***.
- Command names are shown in bold font: **help**.
- Directory and file names are shown in italic font: *\$CNMS_DBS/ahp/alarm_log*.
- Variable information, either entered from the keyboard or displayed on the screen, is enclosed in angle brackets: <name>.
- Keys that you press are shown in a box: .

If two keys are shown, press them together. For example, **Ctrl** **q** means to press (and hold) the **Ctrl** key and then enter a q; once both keys are depressed, you release them both.

- Procedural steps are marked by consecutive step numbers.
- Unless otherwise specified, references to other chapters that appear in bold refer to chapters in this guide: **Chapter 1**.

Related Documentation

In conjunction with this guide, you may need to refer to the following documents:

StarKeeper® II NMS Documents

- *StarKeeper® II NMS Core System Guide*
- *StarKeeper® II NMS Graphics System Guide*
- *StarKeeper® II NMS SNMP Proxy Agent Guide*

Hewlett-Packard Documents

- *HP Visual User Environment 3.0 Quick Start*
- *Using Your HP Workstation*
- *Hewlett-Packard DeskJet® 560C Printer User's Guide*
- *Hewlett-Packard DeskJet® 870C Printer User's Guide*
- *Hewlett-Packard LaserJet® IIP Printer User's Manual*
- *Hewlett-Packard LaserJet® IIIP Printer User's Manual*
- *Hewlett-Packard LaserJet® 4 and 4M Printer User's Manual*
- *Hewlett-Packard LaserJet® 6P Printer User's Manual*
- *Hewlett-Packard PaintJet® Color Graphics Printer User's Guide*

INFORMIX® Documents

4GL Documents

- *4GL User Guide*
- *4GL Reference Manual (Vol. 1, 2)*
- *4GL Supplement*
- *4GL by Example*

- *Guide to SQL: Tutorial*
- *Guide to SQL: Reference*

SQL Documents

- *SQL User Guide*
- *SQL Reference Manual*
- *Quick Reference Guide*
- *SQL Supplement*
- *Guide to SQL: Tutorial*
- *Guide to SQL: Reference*

SE Documents

- *DB-Access User Manual*
- *Error Messages*
- *SE Administrator's Guide*
- *SQL Quick Syntax Guide*
- *Guide to SQL: Tutorial*
- *Guide to SQL: Reference*

BNS-2000 and Data Networking Products Documents

Refer to the *Publications* brochure for information on BNS-2000, BNS-2000 VCS, and Data Networking Products documentation.

Additional Copies

If you need to order additional copies of documentation

- contact your Lucent Technologies account representative
- call the Customer Information Center at 1-888-LUCENT8, or
- write to the Customer Information Center, Commercial Sales, P.O. Box 19901, Indianapolis, IN 46219.

Training

To get information about training courses and schedules

- In the U.S.A., call the Lucent Technologies Customer Information Center at 1-888-LUCENT8, Option 2,
- In Europe, contact the Customer Assistance Contact in your country, or
- In other global locations, contact an International Enrollment Coordinator at +1-407-767-2798.

Customers may also obtain training information by accessing the World Wide Web at:

www.lucent.product-training.com/catalog

This chapter lists the supported products for *StarKeeper II* NMS and describes the *StarKeeper II* NMS features including the Graphics System and Core System software packages. For a more complete description of these features, refer to the *StarKeeper II NMS Graphics System Guide* and the *StarKeeper II NMS Core System Guide*. Concluding this chapter is information on support and the *StarKeeper II* NMS Configurator Tool.

Supported Products

StarKeeper II NMS Release 10.0 supports the following network elements and network management systems.

StarKeeper II NMS Core System monitors the following nodes:

- *Datakit II* VCS Releases 4.0 and 5.0
- BNS-2000 VCS R6.0
- BNS-2000 Releases 2.0, 3.0, 4.0, and 5.0

StarKeeper II NMS monitors the following servers:

- Network Access Control (NAC) System Releases 5.0, 6.0, and 7.0
- LCS50 Network Interface for Ethernet Releases 1.2, 1.3, and 3.0
- LCS60 Network Interface for Ethernet Release 1.0, 2.0, and 3.0

⇒ NOTE:

Support for a number of systems has been dropped including ISN, BNS-1000 and previously supported nodes. Although prompts for unsupported equipment appear on the screen, disregard these prompts. If used, the results will be undefined. In addition, text references to BNS-2000 VCS refer to *Datakit II* VCS, unless *Datakit II* VCS is specifically mentioned in instances of interworking. Screen captures that refer to *Datakit II* VCS refer to BNS-2000 VCS and/or *Datakit II* VCS, depending on the product that reflects that particular software release.

Supported Graphics System Software

StarKeeper II NMS supports the following Graphics System software:

- *StarKeeper II NMS Graphics System Platform*. The Graphics System Platform runs on a *StarKeeper II* NMS Graphics System and is required to run *StarKeeper II* NMS Graphics System software packages. R10.0 Graphics System software will support either R7.0, R8.0, R9.0, or R10.0 Core Systems.
- *StarKeeper II NMS Network Monitor*. Network Monitor supports BNS-2000 VCS and BNS-2000.
- *StarKeeper II NMS Network Builder*, which includes Network Builder for SMDS and Network Builder for Frame Relay. Network Builder and Network Builder for Frame Relay supports BNS-2000 VCS and BNS-2000. Network Builder for SMDS supports BNS-2000.
- *StarKeeper II NMS Performance Reporter*. Performance Reporter supports BNS-2000 VCS and BNS-2000.

Supported Core Application Packages

StarKeeper II NMS R10.0 supports the following core application package:

- *StarKeeper II* NMS Simple Network Management Protocol (SNMP) Proxy Agent.

Distributed Modular Architecture

The *StarKeeper II* NMS architecture consists of one or more Core Systems connected to Graphics Systems running the Graphics System software. The Core Systems maintain network connectivity and databases, and perform basic network management functions. The Graphics System software enhances the basic network management functionality by providing easy-to-use, highly visual user interfaces to display and modify the data collected by the Core Systems. The Graphics System software can be installed on several Graphics Systems, yet can be connected seamlessly to the Core Systems. The Core System software can also co-reside on the same host as the Graphics System software for small networks. Multiple users can run the Graphics System software on the same Graphics or Co-resident System using Netstations.

Role of the Core System

Every *StarKeeper II* NMS configuration needs at least one Core System. A single Core System can manage multiple nodes, or as your network grows, the workload can be distributed to multiple Core Systems. A single Core System can support

several functions or it can be assigned to one specialized function (for example, billing or performance). The primary functions of a *StarKeeper II* NMS Core System are listed below:

- Establish, monitor, and maintain connections to network elements
- Collect, store, and forward network information such as alarms, performance data, and call activity data
- Perform self-monitoring tasks such as assuring required disk space is available
- Maintain network connectivity information and configuration information

Multiple Core Systems can divide the workload either geographically or functionally. Functional division of workload can be defined in terms of data collection (alarms, performance measurements, and billing measurements collected by separate Core Systems), internal organizational structure (assigning one Core System to monitor the network connections of Corporate Financial departments), customer size (assigning one Core System for each customer with large configurations and one Core System to monitor customers with smaller configurations), or any other factors specific to your environment. From a single Graphics System, a centrally located network administrator can communicate with multiple Core Systems and manage equipment at many locations. This gives a network administrator access to a consolidated network view even for large networks. As a result, this centralized management can significantly lower network management costs for large networks.

Optional Core Application

***StarKeeper II* NMS SNMP Proxy Agent** — a core application used to provide *StarKeeper II* NMS with an interface to SNMP-based network management applications such as Customer Network Management (CNM) servers or LAN Manager. This package enables SNMP network managers to get information for SMDS and Frame Relay interfaces.

Role of the Graphics System

A Graphics System is a separate workstation that can run one or more Graphics System applications. Many Graphics Systems can co-exist in your network and one Graphics System can be connected to multiple Core Systems. Similar to a Core System, a Graphics System can support several diverse functions or can be dedicated to a specific function.

Graphics System Software

Customers receive all of the following as part of the Graphics System Software:

- **Graphics System Platform**—must be installed on a Graphics System before any other graphics applications are installed. The Graphics System Platform provides graphics capabilities for the installed application packages.

The platform provides the following capabilities:

- *Cut-Through* allows window access to one or more *StarKeeper II* NMSs or other systems for additional interaction. Cut-Through allows you to emulate an asynchronous terminal within the graphics environment and connect to a *StarKeeper II* NMS Core System or a network element console.
- *Bulletin Board* posts messages to the user. When an application sends a message, a glyph is displayed in the Bulletin Board area. There may be multiple glyphs displayed simultaneously. The topic of the Bulletin Board can be determined from the design of the glyph. There are four types of glyphs that may appear in the Bulletin Board area: file system, database, communications, and computer resources.
- *Workstation Administration* allows the user to establish connections to remote *StarKeeper II* NMS machines, to specify files and directories for automatic cleaning, and to administer computer lists for Cut-Through.

The Graphics System Platform also provides a user-friendly graphic interface, based on the OSF/Motif and HP Visual User Environment (VUE), that makes the other *StarKeeper II* NMS Graphics System software easy to use. This state-of-the-art user interface offers windows that display data and commands, menus for user choices, mouse point-and-click selection, color network maps (Network Monitor application), color-coordinated application packages, and help screens. As a result, novices can quickly become productive network managers.

- **Network Monitor** — a Graphics System application used for fault management by providing alarms and diagnostics capabilities on geographic network maps.

Network Monitor provides an easy-to-use map editor and the ability to generate maps automatically. You can also display real-time alarms in network maps and alarm lists.

- **Network Builder** — a Graphics System application used for configuration management and analysis. Network Builder provides a Forms Interface to configure nodes, groups, trunks, and service addresses, and is required for Session Maintenance (a node optional trunk recovery feature). Network Builder allows for configuration of routing and databases, as well as for SMDS and Frame Relay services.

- **Performance Reporter** — a Graphics System application used for routine performance assurance and long-term traffic engineering. Performance reports for resource utilization and error counts are provided as well as thresholding of error counts and performance measurement indicators. Measurements available from *StarKeeper II* NMS help the network administrator observe areas of network usage to anticipate network needs.

Role of the Co-resident System

The Co-resident System combines the functionality of a Core and Graphics System into one workstation. Co-resident Systems can also connect to Core Systems, Graphics Systems, or other Co-resident Systems, but are recommended for single Core, single Graphics System applications. A Co-resident system provides a low-cost network management solution for users with small networks.

Role of Netstations

Netstations connected via an Ethernet LAN to Graphics or Co-resident Systems provide low-cost access to graphics application packages. Users can share the processing power of a workstation by running multiple application packages concurrently via X stations. Only HP Netstations are officially certified or supported by *StarKeeper II* NMS. Other manufacturers' X stations (X terminals) may work properly; however, incompatibilities in fonts, versions, and features have been known to cause improper operation. *StarKeeper II* NMS customer support will only be able to troubleshoot problems occurring in environments that use the HP Netstations.

The same limitations to certification and support apply to remote connections of Netstations. Lucent Technologies customer support is not responsible for LAN administration or LAN troubleshooting due to the many possible LAN configurations. Only direct LAN connections to the HP workstation are officially supported since performance characteristics over remote LAN connections can vary considerably, and *StarKeeper II* NMS requires a high performance connection.

Flexible Growth

StarKeeper II NMS allows for flexible growth of a network. Initially, a Co-resident System can monitor your small network using one or more Graphics System applications. As your network management needs grow, *StarKeeper II* NMS provides flexibility so additional Core Systems, Graphics Systems, Co-resident Systems, and Netstations can be added at any time in any combination. Multiple workstations can be singled out to manage different parts of a network or they can be dedicated to a specific function, such as alarm status monitoring, for the entire network.

***StarKeeper II* NMS Features**

- *StarKeeper II* NMS R10.0 provides support for BNS-2000 Release 5.0.
- *StarKeeper II* NMS R10.0 supports the use of four-digit years in most user-specified date fields. Two-digit years are also supported, with the following assumptions:
 - If a two-digit year, XX, is entered that is between 00 and 70 (inclusive), the four-digit year 20XX will be used
 - If a two-digit year, YY, is entered that is greater than 70, the four-digit year 19YY will be used

Billing (call accounting) dates will be correct only when data is received from a *Year-2000 Compliant* node (BNS-2000 R4 and BNS-2000 VCS/ Datakit II VCS R6 and later). *StarKeeper II* NMS relies on the dates provided when the node delivers call accounting data; non-compliant nodes will not send accurate dates starting in the year 2000.

Some report headings will continue to use two-digit years in the Date field. These will represent the appropriate year and should not be ambiguous to you.

Additional Contacts and Support Services

The following sections outline additional service and support information.

Product Information

For more information on *StarKeeper II* NMS, contact your *StarKeeper II* NMS Account Representative.

Installation Services

Hewlett-Packard hardware installation can be arranged through your Hewlett-Packard Account Representative. Installation of software can be arranged by ordering a *StarKeeper II* NMS Start-up Service through your *StarKeeper II* NMS Account Representative. The *StarKeeper II* NMS Start-up Service is designed to quickly get your system operational. A technical professional will come to your location and install your new *StarKeeper II* NMS.

Some of the services provided include the following:

- confirmation of the hardware installation
- installation of all operation system software and application software

- hands-on training for system administration personnel (formal *StarKeeper II* NMS training is strongly recommended)
- system backups and verification of the entire installation.

This service is performed at your site by a professional from the Broadband Networking - Customer Technical Support Center.

Customer Assistance and Support

Customer assistance for Network Systems customers is provided by the Broadband Networking Customer Assistance Center (CAC) and is accessible by calling 1-800-WE2-CARE.

The Broadband Networking Warranty Policy for software defects is 90 days from the date of shipment or the date of installation, if installed by Lucent Technologies. During this 90-day period, the customer is entitled to free support for software defects. To gain access to the 1-800-WE2-CARE hotline, the customer must have a contract or purchase order on file should a defect-related problem turn out to be services-related.

You can also call the hotline for any reason if you have a maintenance contract covering *StarKeeper II* NMS. If you have any other questions or problems not related to software defects and you do not have a maintenance contract, you simply need to provide a purchase order number at the time of your initial call to the hotline. Also, third party vendors' software warranties remain intact as a part of your *StarKeeper II* NMS package.

StarKeeper II NMS Configurator Tool

The *StarKeeper II* NMS Configurator Tool is included with this document to help you plan your *StarKeeper II* NMS network. To use the tool you must collect the following information about your network:

- the specific number of nodes monitored
- the number of console connections/estimated alarm arrival rate
- the number of billing connections/estimated billing arrival rate
- the performance measurements collected on each node monitored.

Based on this information, the Configurator Tool calculates the required sizing for

- memory
- CPU
- disk space.

This tool helps determine the number of *StarKeeper II* NMS Core Systems, Graphics Systems, Co-resident Systems, and the hardware configuration required to manage your specific network. See the section titled **Network Planning Using the *StarKeeper II* NMS Configurator Tool** in **Chapter 3** for details.

This chapter discusses the various hardware and software configurations that are available for running *StarKeeper* II NMS. The information contained in this chapter will help you select a hardware and software configuration to meet your needs.

- If you are a new customer and planning for a new *StarKeeper* II NMS installation, refer to the section titled **New System Configurations**.
- If you are a current customer running *StarKeeper* II NMS R7, R8, or R9, refer to the section titled **Existing System Configurations**.

Each section includes a description of software configurations and hardware platforms supported for them, and is organized by products and processor types.

StarKeeper II NMS is available from Lucent Technologies as a staged system or as a software upgrade package. See Table 2-1 for more information on the configuration of the software upgrade package and staged system.

A **staged system** product is a complete set of hardware, software, and documentation required to run *StarKeeper* II NMS products. All required hardware is supplied ready for assembly. Core System, Graphics System, and other essential software is installed at the factory to minimize customer start-up time. Registration procedures are required at the customer site to make the system operational, but start-up time is minimized.

A **software upgrade package** is a collection of software products and documents, including *StarKeeper* II NMS software, bundled together to simplify the effort required to purchase all necessary upgrade software from multiple vendors. Software upgrade packages include all of the necessary software required to operate your *StarKeeper* II NMS system.

⇒ NOTE:

Future releases of *StarKeeper* II NMS may offer additional hardware configurations, or be certified with more recent software versions. Contact your Lucent Technologies Account Representative for the most current configuration information.

The following table shows the staged system (SS) and software upgrade package (SUP) options available.

Table 2-1. Staged System/Software Upgrade Package Configurations for *StarKeeper II* NMS Products

<i>Hardware Platform</i>	<i>Core System</i>	<i>Co-resident System</i>	<i>Graphics System</i>
HP C200	SS	SS	SS
HP 715/64 or 715/100	SUP	SUP*	SUP
HP 715/33 or 715/75	SUP	SUP*	SUP

* To purchase a software upgrade package for a Co-resident System, the customer must purchase a Core System software package and a Graphics System software package.

⇒ NOTE:

The Graphics System software package includes the Graphics System Platform, Network Monitor, Network Builder, and Performance Reporter software.

The maximum number of users currently supported in *StarKeeper II* NMS R10.0 is eight.

New System Configurations

This section discusses configurations that are available for new staged Core, Graphics, or Co-resident systems.

All *StarKeeper II* NMS software is licensed for installation on a single, specific machine. When the software is installed on a machine, you must register the software with Lucent Technologies.

Core Systems

New customers can purchase a staged *StarKeeper II* NMS Core System on a Hewlett-Packard Model C200 workstation. See Table 2-1 for more information on the configurations of the staged system.

These systems are part of the Hewlett-Packard PA-RISC 8200 series of computers that provide high performance at a competitive cost.

Hewlett-Packard Apollo 9000 Series C200

Table 2-2 describes the hardware configuration required for a Hewlett-Packard C200 to run a *StarKeeper II* NMS System. The HP C200 is staged with 128 MB of RAM and two 4-GB hard disk drives. It also includes three GSC/PCI slots and one EISA slot, which is required to install the *Datakit II* VCS Host Interface board.

Contact your Lucent Technologies account representative for the most current configuration information. Contact your Hewlett-Packard account representative to purchase additional disk drives or memory not offered directly from Lucent Technologies.

Dial backup and direct network connections from the Hewlett-Packard workstation are not currently supported because of the two-port limitation of the hardware.

Table 2-2. Minimum Supported HP C200 Hardware Configurations for StarKeeper II NMS Core, Graphics, and Co-resident Systems

Hardware Components	HP C200
Central Processing Unit	200-MHz PA-RISC
Memory Configuration (RAM) (min/max)	128-MB/1.5GB
Hard Disk Configuration	Two 4-GB SCSI II disk drives
Tape Drive	12-GB DDS3 DAT tape drive (24-GB with compression)
Standard Interfaces	IEEE 802.3 ThickNet Ethernet LAN Interface One EISA slot Three GSC/PCI slots Two PS2 ports SCSI II external port Two RS-232C ports One parallel port Keyboard Adapter Module
Datakit II VCS Fiber Optic Interface	Installs in EISA slot
Laser Printer (optional)	HP LaserJet 4M Plus printer with RS-232 and Centronics interface HP Laser Jet 6P Printer with 6MB memory, two high-speed ECP IEEE 1284 bi-directional parallel ports (one large B-type, one small C-type connector), one fast IrDA-compliant infrared port and one LocalTalk port (requires optional Postscript SIMM)
Color Printer (optional)	HP DeskJet 560C Color Ink Jet printer with Centronics parallel interface HP DeskJet 870C with Centronics parallel, 1284 compliant with 1284-B receptacle for the printer port, RS-422-A serial 57.6 Kbps, Appletalk 203.4 Kbps and high-speed serial port.
Monitor	High resolution 19 inch color monitor
Keyboard	HP PC/AT style keyboard
Mouse	Three-button high-resolution mouse
Netstation (optional)	HP ENVIZEX 20CpS Netstation with 6MB RAM (required for multi-user graphics system) HP ENVIZEX II Netstation with 8MB RAM (required for multi-user graphics system)
Ethernet LAN (optional)	Ethernet-compatible LAN (required to connect Netstation users to Graphics or Co-resident Systems to share the multi-user application packages)

⇒ NOTE:

The 128-MB RAM and two 4-GB disk drives is the minimum acceptable configuration for small networks. Larger network configurations may require more memory. Customers should use the StarKeeper II NMS Configurator Tool to plan their needs.

Table 2-3 describes the software configurations required for operation of *StarKeeper II* NMS Core Systems on Hewlett-Packard C200 platforms, and specifies software included/installed in staged systems.

Table 2-3. HP Software Configurations for *StarKeeper II* NMS Core Staged Systems

<i>R10.0 Software Components</i>	<i>Core Staged System</i>
HP-UX® 8-user Runtime Rev. 10.20 (A.C.E.)	Installed
HP-UX Install Tape Rev. 10.20 (A.C.E.)	Included
HP-UX Runtime Support Rev. 10.20	Included
HP Maintenance Update, v 3.0	Installed
HP EISA <i>Datakit</i> Software Release A.03.20	Installed
HP GlancePlus Version B.10.20.127	Installed
<i>StarKeeper II</i> NMS Core Staging Tape	Included
<i>StarKeeper II</i> NMS Core System Software	Installed
INFORMIX-SE V7.23.UCI	Installed
INFORMIX-SQL® V7.20.UC1	Installed
INFORMIX-4GL® V7.20.UC1	Installed
INFORMIX-CONNECT V7.23.UC5	Installed
INFORMIX-ESQL® V7.23.UC5 (optional)	Not Included
HP C/ANSI® C Developer's Bundle (optional)	Not Included

The *StarKeeper II* NMS Core Staging Tape allows customers to restore their staged system product to an original factory-staged condition.



CAUTION:

This tape will destroy all user files. It should only be used if a complete disk failure occurs and alternate backup methods are not available.

The tape also provides backup media for HP-UX, EISA *Datakit* Software, and HP GlancePlus. The tape is not available to customers with software packages. HP-UX media is provided with upgrades.

A single *StarKeeper II* NMS installation tape is used to deliver most *StarKeeper II* NMS software, including Core System and Graphics System software and INFORMIX-SE, -4GL, -SQL and -CONNECT software. This single tape simplifies the installation procedures for all of these products. Licensing is used to control access to each of the software packages contained on the tape. This tape is provided with staged systems, but is pre-loaded on staged systems.

Similarly, most of the HP software for Core Systems has now been packaged together on another single 4mm DDS cartridge tape known as the *HP Composite Software Tape for StarKeeper II NMS R10.0*.

The software included on this tape consists of the following:

- HP-UX 8-user Runtime Revision 10.20 (A.C.E.)
- EISA *Datakit* Software, A.03.20
- HP GlancePlus for Series 700 Software, v B.10.20.127
- HP Maintenance Update, v 3.0

Staged systems and software packages are packaged with documentation for included software. Table 2-4 lists the documentation for the *StarKeeper II* NMS Core Systems. Staged systems include the HP-UX User and Administration guides.

Table 2-4. Documentation for *StarKeeper II* NMS Core Staged Systems

Documentation	Core Staged System
<i>HP Owner's Guide</i> and General Usage manuals	Included
<i>HP-UX User's Guides</i>	Included
<i>HP-UX System Administration and Installation Guides</i>	Included
<i>HP Datakit Fiber Optic Interface Installation and System Administration Manual</i>	Included
<i>HP Datakit Fiber Optic Interface Release Notes</i>	Included
<i>HP GlancePlus/UX User's Guide</i>	Included
<i>Getting Started with StarKeeper II NMS</i>	Included
<i>StarKeeper II NMS Core System Guide</i>	Included
<i>StarKeeper II NMS Planning Guide</i>	Included
<i>StarKeeper II NMS SNMP Proxy Agent Guide</i>	Included
<i>StarKeeper II NMS Core System Software Purchase Agreement</i>	Included
<i>StarKeeper II NMS SNMP Proxy Agent Software Purchase Agreement</i>	Included
Release Notes	Included
INFORMIX-4GL Documents (see Preface for complete list) and License Card	Included
INFORMIX-SQL Documents (see Preface for complete list) and License Card	Included
INFORMIX-SE Documents (see Preface for complete list) and License Card	Included
INFORMIX-CONNECT Documents and License Card	Included

Graphics Systems

The *StarKeeper* II NMS Graphics System Software Package (including the Graphics System Platform, Network Monitor, Network Builder, and Performance Reporter), for new customers, is supported on the Hewlett-Packard Model C200 color Workstation and HP ENVIZEX II Netstations. (The HP ENVIZEX II Netstation is the only supported model currently available.)

The Graphics System Software package comes in an eight-user license version. If more than one user requires concurrent access to an application, or concurrent access to an application is required from a Netstation, purchase a Netstation for each user not using the console.

Minimum hardware configurations are shown in Table 2-2. The HP C200 system is staged with 128-MB of RAM and two 4-GB hard disk drives.

Table 2-5 describes the Graphics System software components included in the staged systems. The Graphics System Platform, Network Monitor, Performance Reporter, and Network Builder application packages are bundled together and can only be installed on a system as the Graphics System software package.

Table 2-5. HP Software Configuration for *StarKeeper* II NMS Graphics Systems

<i>R10.0 Software Components</i>	<i>Staged System</i>
HP-UX 8-user Runtime Rev. 10.20 (A.C.E.)	Installed
HP-UX Install Tape Rev.10.20 (A.C.E.)	Included
HP-UX Runtime Support Rev. 10.20	Included
HP Netstation Software Version B.09.01	Installed
HP Maintenance Update v 3.0	Installed
EISA <i>Datakit</i> Software Release A.03.20	Installed
HP GlancePlus Version B.10.20.127	Installed
<i>StarKeeper</i> II NMS Graphics System Software (Includes Graphics System Platform, Network Builder, Network Monitor, and Performance Reporter)	Installed
<i>StarKeeper</i> II NMS Graphics System Staging Tape	Included

The *StarKeeper* II NMS Graphics System Staging Tape allows staged system customers to restore their system to an original factory-staged condition.



CAUTION:

This tape will destroy all user files. Use this tape only if a complete disk failure occurs where alternate backup methods are not available.

The tape provides backup media for HP-UX, EISA *Datakit* Software, and HP GlancePlus for staged system customers.

A single *StarKeeper* II NMS installation tape is used to deliver most *StarKeeper* II NMS software, including Core System and Graphics System software, and INFORMIX-SE, -4GL, and -SQL software. This single tape simplifies the installation procedures for all of these products. Licensing is used to control access to each of the software packages contained on the tape. This tape is provided with staged systems as well as with software upgrade packages, but is pre-loaded on staged systems.

Similarly, most of the HP software for Graphics and Co-resident Systems is now packaged together on another single 4mm DDS cartridge tape, known as the *HP Composite Software Tape for StarKeeper II NMS R10.0*.

The software included on this tape consists of the following:

- HP-UX 8-user Runtime Revision 10.20 (A.C.E.)
- EISA *Datakit* Software, A.03.20
- HP GlancePlus for Series 700 Software, v B.10.20.127
- HP Maintenance Update, v 3.0
- HP Netstation Software, v B.09.01 (for Graphics and Co-resident Systems)

Staged systems are packaged with documentation for included software. Table 2-6 lists the documentation for *StarKeeper* II NMS Graphics Systems. Staged system products now include the HP-UX User and Administration guides.

Table 2-6. Documentation for *StarKeeper* II NMS Graphics Systems

<i>Documentation</i>	<i>Staged System</i>
<i>HP Owner's Guide and General Usage manuals</i>	Included
<i>HP-UX User's Guides</i>	Included
<i>HP-UX System Administration and Installation Guides</i>	Included
<i>Datakit VCS Fiber Optic Interface Installation, User and System Administration Manual</i>	Included
<i>HP GlancePlus/UX User's Guide</i>	Included
8-User <i>StarKeeper</i> II NMS Graphics System Software Purchase Agreement	Included
Release Notes	Included
<i>Getting Started with StarKeeper II NMS</i>	Included
<i>StarKeeper II NMS Graphics System Guide</i>	Included
<i>StarKeeper II NMS Core System Guide</i>	Included
<i>StarKeeper II NMS Planning Guide</i>	Included

Co-resident Systems

The *StarKeeper* II NMS Co-resident System combines the functionality of a Core and a Graphics System. Table 2-2 specifies the hardware requirements for a Co-resident System. The software required/included is the same as the software required/included for a Core System (see Table 2-3) and a Graphics System (see Table 2-5). The documentation includes all the documentation provided for a Core System (see Table 2-4) and a Graphics Systems (see Table 2-6). Use the *StarKeeper* II NMS Configurator Tool to estimate the computer resources required by your system.

Existing System Configurations

Several upgrade options are available on the HP 715/33, HP 715/64, HP 715/75, and HP 715/100 workstations for customers with existing *StarKeeper* II NMS R7.0, R8.0, or R9.0 systems:

- Upgrade a Core System to R10.0.
- Upgrade a Graphics System to R10.0.
- Upgrade a Co-resident System to R10.0.

⇒ NOTE:

Upgrades are **not** supported on the HP 720 or 730 systems.

To perform these upgrades, a minimum of two 2-GB disks is required. These upgrade options are discussed in more detail in the following sections.

Hewlett-Packard Apollo 9000 Series 715/33, HP 715/64, 715/75, or 715/100 Workstations

All upgrades of existing customer 715/33 or 715/75 configurations *must* conform to the hardware configuration described in Table 2-7.

All upgrades of existing customer 715/64 or 715/100 configurations *must* conform to the hardware configuration described in Table 2-8.

Contact your Lucent Technologies account representative for the most current configuration information. Contact your Hewlett-Packard account representative to purchase additional disk drives or memory not offered directly from Lucent Technologies.

Table 2-7. Minimum Supported HP 715/33 & 715/75 Hardware Configurations for StarKeeper II NMS Core, Graphics, & Co-resident Systems

Hardware Components	HP-9000 715/33 or 715/75
Central Processing Unit	33-MHz PA-RISC (715/33 only) 75-MHz PA-RISC (715/75 only)
Memory Configuration	64-MB RAM expandable to: 192 MB with 64-MB expansion kits (6, 32-MB SIMMs) on 715/33's 256 MB with 64-MB expansion kits (8, 32-MB SIMMs) on 715/75's
Hard Disk Configuration	Two 2-GB SCSI II disk drives
Tape Drive	2.0-GB 4-mm DDS-format tape drive
Standard Interfaces	IEEE 802.3 ThickNet Ethernet LAN Interface HP EtherTwist Transceiver (only required if NO LAN connection is needed) One EISA slot SCSI II external port Two RS-232C ports One Centronics parallel port HP-HIL port
<i>Datakit II</i> VCS Fiber Optic Interface	Installs in EISA slot
Monitor	High-resolution 19 inch or 20 inch grayscale monitor (for Core Systems) High-resolution 19 inch or 20 inch color monitor (for Graphics or Co-resident Systems)
Keyboard	HP PC/AT style keyboard
Mouse	Three-button, high-resolution mouse
Laser Printer (optional)	HP LaserJet 4M printer with RS-232 and Centronics interface
Color Printer (optional)	HP PaintJet or DeskJet 560C Color Ink Jet printer with Centronics interface and cable
Netstation (optional)	HP ENVIZEX 19CaS, 20 CaS, or 20CpS Netstation with 6MB RAM (required for multi-user graphics application packages) HP ENVIZEX II Netstation with 8MB RAM (required for multi-user graphics system)
Ethernet LAN (optional)	Ethernet-compatible LAN (required to connect Netstation users to Graphics or Co-resident Systems to share the multi-user application packages)

**CAUTION:**

The 64-MB RAM and two 2-GB disk drives is the minimum acceptable configuration for small networks. Larger network configurations may require more memory and disk space. Customers should use the StarKeeper II NMS Configurator Tool to plan their needs.

Table 2-8. Minimum Supported HP 715/64 or 715/100 Hardware Configurations for StarKeeper II NMS Core, Graphics, and Co-resident Systems

<i>Hardware Components</i>	<i>HP-9000 715/64 or 715/100</i>
Central Processing Unit	64-MHz PA-RISC (715/64 only) 100-MHz PA-RISC (715/100 only)
Memory Configuration	64-MB RAM (for small networks) expandable to: 256 MB with 64-MB expansion kits (8, 32-MB SIMMs)
Hard Disk Configuration	Two 2-GB SCSI II disk drives
Tape Drive	2.0-GB 4-mm DDS-format tape drive
Standard Interfaces	IEEE 802.3 ThickNet Ethernet LAN Interface HP EtherTwist Transceiver (only required if NO LAN connector is needed) One EISA slot SCSI II external port Two RS-232C ports One Centronics® parallel port Keyboard Adapter Module
<i>Datakit II VCS Fiber Optic Interface</i>	Installs in EISA slot
Laser Printer (optional)	HP LaserJet 4M Plus printer with RS-232 and Centronics interface
Color Printer (optional)	HP PaintJet or DeskJet 560C Color Ink Jet printer with Centronics parallel interface
Monitor	High resolution 20 inch color monitor
Keyboard	HP PC/AT style keyboard
Mouse	Three-button high-resolution mouse
Netstation (optional)	HP ENVIZEX 20CpS Netstation with 6MB RAM (required for multi-user graphics system) HP ENVIZEX II Netstation with 8MB RAM (required for multi-user graphics system)
Ethernet LAN (optional)	Ethernet-compatible LAN (required to connect Netstation users to Graphics or Co-resident Systems to share the multi-user application packages)

**CAUTION:**

The 64-MB RAM and two 2-GB disk drives is the minimum acceptable configuration for small networks. Larger network configurations may require more memory and disk space. Customers should use the StarKeeper II NMS Configurator Tool to plan their needs.

Core Systems

The software configuration required and the software provided in the upgrade to R10.0 Core Systems is shown in Table 2-9.

Table 2-9. HP Software Upgrade for StarKeeper II NMS Core Systems

R10.0 Software Components	Upgrade from R7.0, R8.0, R9.0 Core System
HP-UX 8-user Runtime Rev. 10.20 (A.C.E.)	Included
HP-UX Install Tape Rev. 10.20 (A.C.E.)	Included
HP-UX Runtime Support Rev. 10.20	Included
HP Maintenance Update, v 3.0	Included
EISA Datakit Software Release A.03.20	Included
HP GlancePlus Version B.10.20.127	Included
INFORMIX-SE V7.23.UCI	Included
INFORMIX-4GL V7.20.UC1	Included
INFORMIX-SQL V7.20.UC1	Included
INFORMIX-CONNECT V7.23.UC5	Included
INFORMIX-ESQL V7.23.UC5 (optional)	Not Included
HP C/ANSI C Developer's Bundle (optional)	Not Included
StarKeeper II NMS Core System Software	Included

Table 2-10 lists the documentation required and the documentation provided in the R10.0 upgrade.

Table 2-10. Documentation for Upgrade to StarKeeper II NMS Core Systems

Documentation	Upgrade from R7.0, R8.0, R9.0 Core System
<i>Upgrading from HP-UX 9.x to 10.0</i>	Included
<i>Installing HP-UX 10.20 and Updating from HP-UX 10.0x to 10.20</i>	Included
<i>System Administration Tasks Manual</i>	Included
<i>HP Datakit Fiber Optic Interface Installation and System Administration Manual</i>	Reuse
<i>HP Datakit Fiber Optic Release Notes</i>	Reuse
<i>HP GlancePlus/UX User's Guide</i>	Reuse
<i>StarKeeper II NMS Core System Guide</i>	Included
<i>StarKeeper II NMS Planning Guide</i>	Included
<i>StarKeeper II NMS SNMP Proxy Agent Guide</i>	Included

Table 2-10. Documentation for Upgrade to StarKeeper II NMS Core Systems—Continued

<i>Documentation</i>	<i>Upgrade from R7.0, R8.0, R9.0 Core System</i>
StarKeeper II NMS Core System Software Purchase Agreement	Included
StarKeeper II NMS SNMP Proxy Agent Software Purchase Agreement	Included
Release Notes	Included
INFORMIX-4GL Documents (see Preface for complete list) and License Card	Included
INFORMIX-SQL Documents (see Preface for complete list) and License Card	Included
INFORMIX-SE Documents (see Preface for complete list) and License Card	Included
INFORMIX-CONNECT Documents and License Card	Included

Graphics Systems

The R10.0 Graphics System software contains the R10.0 Graphics System Platform, Network Builder, Network Monitor and Performance Reporter. The Graphics System software upgrade packages include the Graphics System software, as well as documentation and the Software Purchase Agreement.

The software configuration required and the software provided in the upgrade to R10.0 Graphics Systems is shown in Table 2-11.

Table 2-11. Upgrades to StarKeeper II NMS R10.0 Graphics Systems

<i>R10.0 Software</i>	<i>Software Upgrade from R7.0, R8.0, R9.0</i>
HP-UX 8-user Runtime Rev. 10.20 (A.C.E.)	Included
HP-UX Install Tape Rev. 10.20 (A.C.E.)	Included
HP-UX Runtime Support Rev. 10.20	Included
HP Maintenance Update V3.0	Included
HP Netstation Software Version B.09.01	Included
HP GlancePlus for Series 700 Software Version B.10.20.127	Included
EISA <i>Datakit</i> Software, Release A.03.20	Included
StarKeeper II NMS Graphics System Software Package (includes Graphics System Platform, Network Builder, Network Monitor, and Performance Reporter)	Included

Table 2-12 lists the documentation required and the documentation provided in the R10.0 upgrade.

Table 2-12. Documentation for Upgrade to StarKeeper II NMS R10.0 Graphics System

R10.0 Documentation	Software Upgrade from R7.0, R8.0, R9.0
<i>Upgrading from HP-UX 9.x to 10.0</i>	Included
<i>Installing HP-UX 10.20 and Updating from HP-UX 10.0x to 10.20</i>	Included
<i>System Administration Tasks Manual</i>	Included
<i>StarKeeper II NMS Graphics System Guide</i>	Included
<i>StarKeeper II NMS Planning Guide</i>	Included
<i>StarKeeper II NMS Core System Guide</i>	Included
<i>HP Datakit Fiber Optic Interface Installation and System Administration Manual</i>	Reuse
HP Datakit Fiber Optic Interface Release Notes	Reuse
HP GlancePlus/UX User's Guide	Reuse
<i>StarKeeper II NMS Graphics System Software Purchase Agreement</i>	Included
Release Notes	Included

Co-resident Systems

A Co-resident System consists of a Core System software package and a Graphics System software package.

Upgrading an existing Co-resident System to R10.0

If you are upgrading an existing Co-resident System to R10.0, you should order the appropriate Core and Graphics System upgrade packages. You will receive all of the software and documentation items detailed in the previous sections for Core and Graphics System upgrades.

Key Points to Remember

Listed below are some key points to remember about the upgrade options:

- All R10.0 software requires EISA *Datakit* Software Release A.03.20.
- All HP 715 Core, Graphics and Co-resident Systems require at least two 2-GB disks and 64-MB of RAM.

- Upgrades are **not** supported on the HP 720/730 systems.
- The HP C200 is staged with 128 MB of RAM and two 4-GB hard disk drives.
- More memory may be required depending on your configuration.
- More disk space may be required depending on your configuration.
- To use Netstations you must install an Ethernet LAN, an HP-UX 10.20 eight-user license, HP Netstation software, and a Graphics System Software package.

Supported Terminals

Table 2-13 lists the terminals supported by *StarKeeper* II NMS. Terminfo and termcap files are provided with *StarKeeper* II NMS software for all supported terminals.

Table 2-13. Supported Terminals

<i>Terminal</i>
Datamedia® Color-Scan KS22921-L2
AT&T 615 MT (Multi-tasking Terminal)
AT&T 4425
Cut-Through connection window
HP 700 series color console
HP 700 series monochrome console
HP 700/RX 19Ca Netstation (R4.2 or later)
HP ENVIZEX 19CaS Netstation (R5.0 or later)
HP ENVIZEX 20CaS Netstation (R6.1 or later)
HP ENVIZEX 20CpS Netstation (R7.0 or later)
HP ENVIZEX II Netstation (R9.0 or later)

Supported Printers

The following printers are supported by *StarKeeper* II NMS on the Hewlett-Packard Workstation:

- Hewlett-Packard LaserJet 4M Printer with 6MB memory (total), RS-232 serial interface and Centronics parallel interface, or Hewlett-Packard Laser Jet 6P Printer with 6MB memory, two high-speed ECP IEEE 1284 bi-directional parallel ports (one large B-type, one small C-type connector), one fast IrDA-compliant infrared port and one LocalTalk port (requires

optional Postscript SIMM). Graphics can be printed on the Hewlett-Packard LaserJet Printers when they are connected to a Graphics System running a Graphics System application such as Network Monitor. Also, *StarKeeper II* NMS Core Systems can be configured to print their ASCII reports to the Hewlett-Packard LaserJet 4M and 6P Printers. See the *StarKeeper II NMS Core System Guide* for setup instructions.

- Hewlett-Packard DeskJet 560C Color Ink Jet Printer with Centronics parallel interface, or Hewlett-Packard DeskJet 870C with Centronics parallel, 1284 compliant with 1284-B receptacle for the printer port, RS-422-A serial 57.6 Kbps, Appletalk 203.4 Kbps and high-speed serial port. The Hewlett-Packard Color Ink Jet Printer is intended for connection to a Graphics System running Graphics System software that can produce color output. Customers can also print Core System ASCII reports, but should not use this to meet high-volume output requirements.
- Hewlett-Packard LaserJet IIP, IIIP, or PaintJet Printers are no longer offered, but continue to be supported. In order for the Hewlett-Packard LaserJet IIP and IIIP to print correctly, the Postscript cartridge, which is not supported, must be removed.

⇒ NOTE:

These printers can be installed so that multiple Graphics Systems can share a single printer. See the *StarKeeper II NMS Core System Guide* for more information.

System Limits

As a *StarKeeper II* NMS customer, it is important that you are aware of the system limits:

- Core System - 100 database executions (dbexec) per *StarKeeper II* NMS Core System. This number can be calculated as follows:
 1. Add 4 for each Graphics System connected to this Core System.
 2. Add 1 for each Core System connected to this Core System plus 1 for this Core System itself.
 3. Add 1 for each SNMP agent on this Core System.
 4. Add 1 for each anticipated active Network Builder form.
 5. Add 1 for each anticipated active Network Monitor Display Info Window or Editor Window.

For example, if you have eight Graphics Systems and seven Core Systems (15 connections maximum) connected to this Core System, and through Netstations or otherwise you have ten active Network Builder forms, five active Network Monitor Display Info Windows, and five active Network Monitor Editor Windows, then the number of dbexecs is:

4x8 = 32 Graphics Systems
1x8 = 8 Core Systems (Includes this Core System)
1x10 = 10 active Network Builder forms
1x5 = 5 active Network Monitor Display Info Windows
1x5 = 5 active Network Monitor Editor Windows
Total = 60

- Core System
 - 10,000 alarm thresholds
 - 508 connections, calculated as the sum of admin, billing, console and performance connections, workstation connections (i.e., those connections between *StarKeeper II* NMS systems; see next item), and remote user logins. (This limit is constrained by the availability of a single EISA slot on the HP hardware platforms.)
- Core/Graphics System - 15 connections between *StarKeeper II* NMS Cores and/or Graphics Systems.
- Network Monitor
 - 32 concurrent maps
 - 16 alarm lists
 - 1,800 outstanding alarms
 - the default is 300 nodes, but it can be changed by editing the \$AP_ROOT/lib/app_init file; 999 trunks; and 999 concentrators can be monitored

OS Shell Support

The *StarKeeper II* NMS customer should be aware that *StarKeeper II* NMS only supports the K shell (/bin/ksh). The Bourne shell (/bin/sh) and the C shell (/bin/csh) are not supported. All Core or Graphics System administrators should specify bin/ksh as the default shell for all users of *StarKeeper II* NMS products.

Backup/Recovery Hardware Options

StarKeeper II NMS R10.0 is staged with two 4-GB disks. This allows collection and storage of more data than in previous releases. The **skbackup** command is used for backup, and depending on the hardware option chosen - regular tape drive, fast tape drive, or disk-to-disk - the *StarKeeper II* NMS will experience a certain amount of downtime during which the backup is run. Detailed information for estimating the amount of data you will be backing up and the time it will take for backup is given in Chapter 7 of the *StarKeeper II NMS Core System Guide*.

Planning Your Network Management Configuration Needs

3

This chapter provides general considerations and guidelines for efficiently planning your *StarKeeper II* NMS network management configuration needs. First, use the decision paths for suggestions on planning; then, follow the instructions for using the *StarKeeper II* NMS Configurator Tool to help determine your precise requirements. After planning is completed, use the worksheets to record the configuration data that can be used later during installation.

General Considerations

StarKeeper II NMS provides a flexible means to monitor your network. In addition, *StarKeeper II* NMS can be customized to fit your needs. To take advantage of the full capability of *StarKeeper II* NMS, assess your specific needs before you configure your network. With all the additional functionalities of *StarKeeper II* NMS, consider the following before you begin to plan your *StarKeeper II* NMS configuration:

- Four types of connections are possible for all nodes: console, billing, performance, and administration. These connections allow the *StarKeeper II* NMS Core System to collect alarm, billing, configuration, and performance measurement data from the node. They are also a major factor in determining the CPU, memory, and disk usage on a computer system running the *StarKeeper II* NMS Core System. Refer to Table 3-1 of this document and the *StarKeeper II NMS Core System Guide* for more detail on how connections are used.
- The minimum memory required on all Core, Co-resident, and Graphics systems is 64 MB for all 715s, and 128 MB for the C200. The HP 715/33 has a maximum of 192 MB. The HP 715/64, 715/75, and 715/100 systems have a maximum of 256 MB. The HP C200 system has a maximum of 1.5 GB.

- The HP 715 workstations require a minimum of two 2-GB disk drives. The HP C200 is staged with two 4-GB disk drives.

Contact your Lucent Technologies account representative for the most current configuration information. Contact your Hewlett-Packard account representative to purchase additional disk drives not offered directly from Lucent Technologies.

- The Simple Network Management Protocol (SNMP) Proxy Agent must be installed on the HP 715/64, 715/75, 715/100, or C200 models, but is not supported on the 715/33 processor. In an SNMP environment, response time to SNMP queries by the SNMP Proxy Agent is critical. The SNMP Proxy Agent needs to respond to SNMP requests quickly, to be able to handle a large volume of SNMP requests, and to support multiple SMDS/Frame Relay interfaces. Given these constraints and if performance is a consideration, it is highly recommended that the SNMP Proxy Agent be installed on the HP 715/64, 715/75, 715/100, or C200 models to achieve the desired performance.
- If you are monitoring your network via network connections (such as RS-232 types) that use slower transmission speed—for example, 9.6 kB—data on the node side may be overwritten before it is sent to a *StarKeeper II* NMS Core System causing loss of performance measurement or alarm data. This problem is more likely to occur if the node is transmitting large amounts of data.
- All *StarKeeper II* NMS Core Systems can support up to 15 connections to either Graphics Systems running Graphics System software or other *StarKeeper II* NMS Core Systems. A Graphics System running Graphics System software can connect to a maximum of 15 *StarKeeper II* NMS Core Systems. For example, a Graphics System running the Network Monitor application can collect alarms from up to 15 *StarKeeper II* NMS Core Systems. A Graphics System running Performance Reporter can connect to 15 Core Systems to generate performance reports.

⇒ NOTE:

Both of these examples could be further limited by performance constraints on the Graphics System or on the *StarKeeper II* NMS Core System. You will need to use the *StarKeeper II* NMS Configurator Tool to help you analyze your configuration.

⇒ NOTE:

The *StarKeeper II* NMS software download feature is not part of the Configurator Tool.

Network Planning Using the *StarKeeper II NMS Configurator Tool*

Chapter 2 presented detailed information on different hardware configurations supported by *StarKeeper II NMS*. After you have made an initial selection of the hardware platforms that best suit your needs, you must plan your network configuration to make sure the system(s) you have selected can accommodate your network processing load.

The next few sections provide detailed suggestions for sizing your system. This information is applicable if you are a new customer, an existing customer upgrading from a previous release of *StarKeeper II NMS*, or if you are expanding a network already monitored by *StarKeeper II NMS*.

The *StarKeeper II NMS Configurator Tool* is required to estimate the performance characteristics of your *StarKeeper II NMS* computer system and to insure that you have not exceeded its capacity, resulting in an inoperative system.

The remainder of this chapter is organized according to Figure 3-1, which shows the overall process of planning your network using the *StarKeeper II NMS Configurator Tool*. The initial steps include assessing your data collection needs and determining the initial input to the *StarKeeper II NMS Configurator Tool* based on these needs and the current configuration of your network. You should then follow the iterative steps of running the *StarKeeper II NMS Configurator Tool*, analyzing the output reports of the Tool, and adjusting the input based on these reports. Once the *StarKeeper II NMS Configurator Tool* determines that none of the computer systems are overloaded, you should reconfigure the actual or planned network to match the *StarKeeper II NMS Configurator Tool* input.

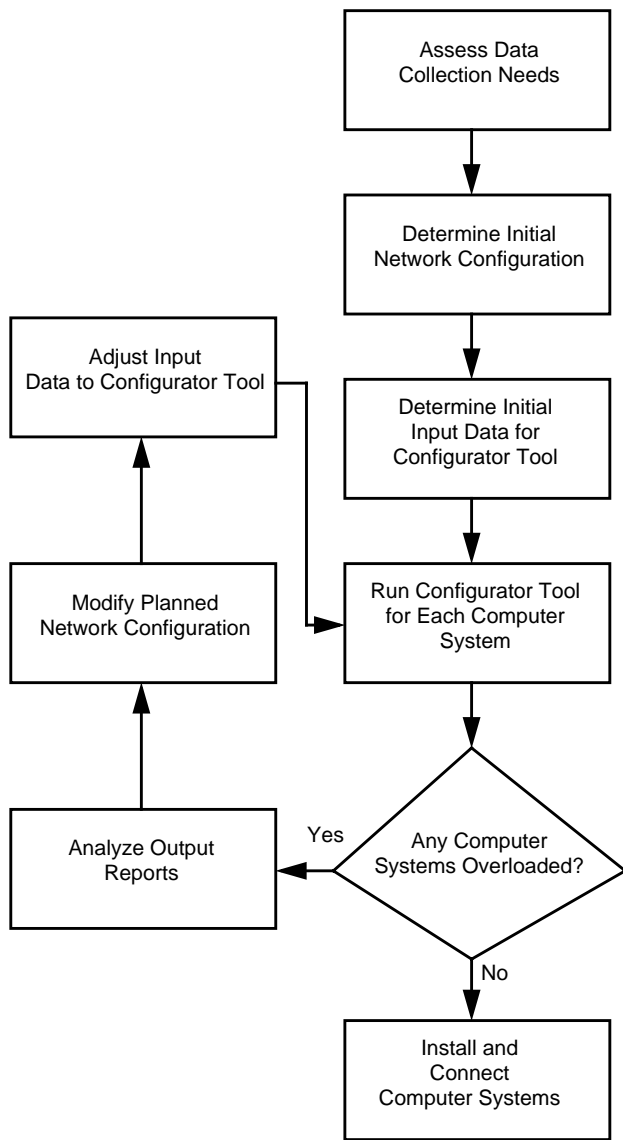


Figure 3-1. Planning Your Network Management System

Assessing Your Data Collection Needs

Before completing an initial network configuration, you must identify the types of data that will be collected by each *StarKeeper II* NMS Core System. The types of data that can be collected include the following:

- Alarm data - messages that are generated by nodes and network elements when a fault or reportable event occurs. The messages are collected by default when a node is monitored by *StarKeeper II* NMS.
- Performance data - data generated by nodes that can be used to evaluate the availability, efficiency, and capacity characteristics of physical and logical network resources.
- Billing data - data generated by nodes that reflects cumulative usage characteristics of physical and logical network resources. Billing data can be used for allocating costs, but may also be used to supplement performance data for a more complete picture of system performance.
- Uploaded/downloaded data - data defining equipment and services available on a node. The data exists on the node but *StarKeeper II* NMS Core Systems maintain a copy to provide backup.

You should evaluate your needs to see if all of these types of data need to be collected. *StarKeeper II* NMS Core System machine resource needs are significantly impacted by the types and amount of data collected. You may avoid machine upgrades or purchases of resources by collecting only necessary data. The types of data collected will be recorded in the *StarKeeper II* NMS Configurator Tool input screens.

The worksheets in **Appendix B** will help you organize your data.

Determining Your Initial Network Configuration

After you have determined the type of data that must be collected, you will need to create an initial *StarKeeper II* NMS configuration. The network management organization and the networking environment must be considered when selecting the initial *StarKeeper II* NMS configuration. The first step is to determine the number of Core and Graphics Systems necessary to support the network management organization's goals and staff. For example, if the data network supports a strategic portion of the company's business, then there could be a dedicated staff that looks at the network data checking for potential problems and planning for the future. Since multiple users will need to view network data simultaneously, several Graphics Systems and Netstation will be required. If the planning department runs many standard and custom reports, it may require its own Core System that collects performance data. Alternatively, if the data network is supporting a development environment and many users are re-administering the nodes daily, then minimal centralized network management will be needed.

The first step is to determine the number of Core and Graphics Systems independent of the network load. Then, run each machine through the Configurator Tool to determine if the machine is overloaded.

Co-resident Systems

The Co-resident System combines a Core System with Graphics System software on one HP workstation. It is a good entry-level system for small network management staffs. Note that memory requirements are substantial and the network size supported by a Co-resident System is thereby reduced. If you need more than one Core System, it is recommended that dedicated Core Systems rather than Co-resident Systems be used to provide the highest overall system reliability. Be sure that your network management needs can be supported by running the Configurator Tool. Another disadvantage of multiple Co-resident Systems is that all *StarKeeper II* NMS software, including Graphics System software, must be shut down if normal maintenance or file system backups are required. If your users require continuous access to their Graphics System software (for example, Network Monitor), these users should be moved to their own Graphics System(s).

Core Systems

You may choose to install multiple *StarKeeper II* NMS Core Systems so that different organizations or regions can control access to their own areas of responsibility in a network. If you have high availability requirements, you may also choose to maintain two or more *StarKeeper II* NMS Core Systems with sufficient excess capacity so that a machine with excess capacity could take over for a failed machine.

If you plan to have multiple *StarKeeper II* NMS Core Systems, you need to consider the following strategies separately or in combination:

- Split your nodes geographically (for example, east, west, north) or organizationally (for example, R&D, production, sales) so each *StarKeeper II* NMS Core System collects all billing, performance, and configuration data for a subset of your network.
- Split your nodes functionally by assigning each *StarKeeper II* NMS Core System to a specific task. One *StarKeeper II* NMS Core System can collect all the alarms, another can collect all the performance measurement data, and a third can collect all the billing data. For example, if billing information is sensitive, the data can be collected on a dedicated Core System that is placed in a secure area. Note that the console and administration connections of the same node must be monitored by the same *StarKeeper II* NMS Core System.
- Reserve some of your *StarKeeper II* NMS Core Systems to back up a primary *StarKeeper II* NMS Core System in case of failure.

As you analyze your design using the *StarKeeper II* NMS Configurator Tool, you may find it necessary to modify your design by reallocating functions or nodes, or by adding or deleting *StarKeeper II* NMS Core Systems.

Graphics Systems

When planning to use graphics, you must consider the following:

- The number of users that need concurrent access to each Graphics System. This number determines the number of Netstations connected to the system.
- The number of windows each user will invoke for each Graphics System application. For Network Monitor users, this pertains to the number of alarm lists and maps invoked concurrently. For Network Builder and Performance Reporter users, this applies to the number of input forms or report windows which will be invoked concurrently.

Input to the *StarKeeper II* NMS Configurator Tool

Several categories of information about the network must be collected and input into the *StarKeeper II* NMS Configurator Tool. If you do not know how your network usage relates to these inputs, the *StarKeeper II* NMS Configurator Tool help screens provide hints for these values.

The following types of information are required as input for the *StarKeeper II* NMS Configurator Tool (see **Appendix A** and **B** for more details):

- Operating/user environment characteristics, such as machine type (for example, HP C200), number of Graphics System Platform users, and number of Core System users
- Node characteristics, such as average number of alarms arriving per day
- Other system characteristics, for example, a *StarKeeper II* NMS Core System can collect alarms from other systems, such as remote *StarKeeper* NMSs, the *Datakit II* VCS Network Interface, and StarGROUP Network Managers. The average number of alarms arriving per day must be entered for each system being monitored by the *StarKeeper II* NMS Core System
- Switched Virtual Circuit (SVC) billing characteristics
- Data Retention Periods
- Permanent Virtual Circuit (PVC) billing characteristics, such as the number of PVCs
- Performance Measurements

Appendix A contains detailed instructions on how to use the *StarKeeper II* NMS Configurator Tool. **Appendix B** contains a set of worksheets to help you collect

the *StarKeeper II* NMS Configurator Tool input information, and then, summarize the results.

Analyzing the Output Reports

Once you have completed entering data into the *StarKeeper II* NMS Configurator Tool (see **Appendix A**), you can print three output reports:

- Memory Requirement Report (see Screen A-18).
- CPU Requirement Report (see Screen A-19).
- Disk Requirement Report (see Screen A-20).

Compare the memory and disk requirements from the Configurator Tool to the values in Table 3-1 to see if your machine is overloaded. If clean-up causes the CPU to reach 100%, it is acceptable as long as the interval of 100% CPU does not extend into normal working hours. Be sure to reserve resources for user commands and network growth when analyzing the output reports.

If memory usage exceeds memory resources, system performance may be degraded, depending on the amount exceeded. If the amount is small, some performance degradation caused by paging may be acceptable, but cannot be accurately predicted.

Table 3-1. Hardware Summary

<i>Platform</i>	<i>Core</i>	<i>WS</i>	<i>Co-Resident</i>	<i>MHz</i>	<i>Min Mem</i>	<i>Max Mem</i>	<i>Min Disk</i>
					<i>(Megabytes)</i>		
HP 715/33	Y	Y	Y	33	64	192	4000
HP 715/75	Y	Y	Y	75	64	256	4000
HP 715/64	Y	Y	Y	64	64	256	4000
HP 715/100	Y	Y	Y	100	64	256	4000
HP C200	Y	Y	Y	200	128	1500	8000

Modify Planned Network Configuration

One or more of the following strategies may be used to reduce machine resource requirements calculated by the *StarKeeper II* NMS Configurator Tool:

- Reduce machine resource requirements. Move one or more nodes from an overloaded *StarKeeper II* NMS Core System to a less loaded *StarKeeper II* NMS Core System. For example, moving a large node collecting billing and performance measurements can significantly reduce the machine resource requirements for the overloaded *StarKeeper II* NMS Core System. Of

course, you must run the *StarKeeper II* NMS Configurator Tool for both *StarKeeper II* NMS Core Systems to ensure the problem is not moved to another machine.

- Increase the machine resource capacity by purchasing more memory or by purchasing additional disk resources for your machine. In cases of CPU utilization overload or machines with requirements that exceed the maximum memory and configurable disk space, you may have to purchase another *StarKeeper II* NMS Core System. The new *StarKeeper II* NMS Core System may be able to provide the required machine resources. If the new *StarKeeper II* NMS Core System cannot handle the machine resource requirements alone, the load can be shared between the new and old *StarKeeper II* NMS Core Systems.

- Reassess your data collection requirements and collect only the performance measurements and billing data you absolutely need. In the case of performance measurements, you can collect a subset of the types of performance measurements, for example, only connection and trunk measurements.

Also, collecting only specific module/port level measurements on an as-needed basis (for example, to analyze a specific node's performance problem) can significantly reduce the load on a *StarKeeper II* NMS Core System. Module or port level measurements can produce large volumes of data which can severely overload a *StarKeeper II* NMS Core System. Severe overloading is especially true in the case of SAM, BSC3270, TSM8, FRM, and SMDS modules.

- Assess database retention periods for billing and performance data. You can reduce the amount of disk space needed by reducing the database retention periods.
- If your Core Systems are extremely underutilized, you may wish to monitor the network with fewer Core Systems.

Adjusting the *StarKeeper II* NMS Configurator Tool Input

Modify the data in the Configurator input screens to match your revised network configuration, and obtain new output reports. The process can be repeated as many times as required until an acceptable network configuration is obtained.

Connections Worksheet

After you have determined your exact network configuration, use the following connections worksheets to record the configuration data. This information is important and will be required during the installation of *StarKeeper II* NMS. Table

3-2 details the *StarKeeper II* NMS connection types and can be used as a reference when filling in your connections worksheet. For a more detailed description, refer to the *StarKeeper II NMS Core System Guide*.

Connections Worksheet Instructions

Each worksheet in **Appendix B** allows you to enter the name of the remote element to which you will be setting up a connection.

If you are configuring a *StarKeeper II* NMS Graphics System, you can only set up connections to other *StarKeeper II* NMS Core Systems. Once the connection is established from the Graphics System to the Core System, there is no need to set up a connection from the Core System to the Graphics System. The Core System is still required to have a fiber connection to the network so it may receive the call from the Graphics System.

Table 3-2. StarKeeper II NMS Connection Types

Type	Description
console	<p>Usage of this connection type depends on the entity that is connected to <i>StarKeeper II NMS</i>. BNS-2000 VCS and BNS-2000 nodes use this connection more extensively than other entities.</p> <p>For all entities, this connection type is used with the console command. To collect alarms, the connection status must be set to active. For use by the console command, the status cannot be active. For all system types other than BNS-2000 VCS or BNS-2000, this connection cannot be made active.</p>
billing	<p>One connection to <i>StarKeeper II NMS</i> for each node that reports billing data. See Billing Management in the <i>StarKeeper II NMS Core System Guide</i> for instructions on entering required billing parameters.</p>
performance	<p>Collects performance measurement data from nodes. See Performance Measurements Management in the <i>StarKeeper II NMS Core System Guide</i> for instructions on entering required data.</p>
administration	<p>Permits the transfer of data from nodes to the <i>StarKeeper II NMS</i> database, using <i>StarKeeper II NMS</i> Network Builder, skload, and cfg_sync commands. Also accommodates the smverify and smstat commands to monitor Session Maintenance trunks that support this feature. (This administration connection and the console connection to the node must be monitored from the same <i>StarKeeper II NMS</i>.)</p>
MRCM	<p>Connects to the M port of the MRCM module. Refer to MRCM Connections in the <i>StarKeeper II NMS Core System Guide</i>.</p>
dial backup	<p>Supports node connections with modems—as a backup to the standard console connection.</p>
alarms	<p>Collects alarms from external system elements other than nodes.</p>
<i>StarKeeper II NMS</i>	<p>Permits the transfer of configuration information between <i>StarKeeper II NMS</i> machines specifically for the sk_sync command. (Refer to the <i>StarKeeper II NMS Core System Guide</i> for setup instructions.)</p>

Site Preparation

4

Proper preparation of the computing environment and site ensures optimum system performance. This chapter tells you how to set up your facility to maintain appropriate conditions for your computing environment.

Requirements for the Hewlett-Packard 700 Series and C200

Site and Environmental Requirements

- All of the workstation/server's components operate on either 115 V (60 Hz) or 230 V (50 Hz) input power. Both U.S. and Canada provide 115 V (60 Hz) input power.
- None of the workstation/server's components require special air conditioning for cooling. However, avoid operating your workstation/server in direct sunlight or in a confined area where heat buildup, chemicals, or dirt can shorten the working life of the components.
- Avoid operating the workstation/server in proximity to radio, TV, or radar antennae to minimize erratic operation from strong electromagnetic radiation.

Table 4-1. Hewlett-Packard 700 Series and C200 Environmental Requirements

Operating Temperature	0 - 40°C (32 - 104°F)
Storage Temperature	-40 - 71°C (-40 - 160°F)
Operating Humidity (40°C)	15 ± 95% R.H.
Max. Operating Altitude	4570m (15,000 ft.)
Max. Storage Altitude	15,240m (50,000 ft.)

StarKeeper II NMS Configurator Tool



Using the StarKeeper II NMS Configurator Tool

The *StarKeeper II NMS Configurator Tool* runs on a personal computer and is used to estimate the computer resources (memory, CPU, and disk) required by a computer system (Hewlett-Packard 715/33, 715/64, 715/75, 715/100, or C200) running *StarKeeper II NMS*. These resources are needed to handle the workload presented by the graphics applications, the nodes, and the other systems in the monitored network.

After entering the necessary information for each *StarKeeper II NMS Core*, *Graphics*, and *Co-resident System* in your network, the *StarKeeper II NMS Configurator Tool* computes memory and disk usage for

- HP-UX operating system
- *StarKeeper II NMS*
- alarm connections
- billing connections
- performance connections
- connections to other systems
- Core System and Graphics System applications

The *StarKeeper II NMS Configurator Tool* similarly computes an estimate of the CPU hourly usage for processing alarms, performance measurements, billing data, and cleanup. This step is repeated for each *Core*, *Graphics*, and *Co-resident System* in your network.

Prerequisites

Basic knowledge of Microsoft Windows[®] commands is required to run the Configurator Tool. You must also collect information about your network for input into the tool. See **Input to the StarKeeper II NMS Configurator Tool** in **Chapter 3** for more information. The worksheets in **Appendix B** may be helpful in collecting the required information.

Hardware and Software Environment

The following hardware and software is required to run the *StarKeeper II NMS Configurator Tool* on a personal computer (PC):

- IBM[®] PC compatible with a 80386 SX or higher processor
- 4MB or more of memory
- EGA or higher resolution display
- Microsoft compatible mouse
- a printer to print reports

The R10.0 Configurator Tool runs on Microsoft Windows 95.

Compatibility

The *StarKeeper II NMS Configurator Tool* is designed to work only with *StarKeeper II NMS Release 10.0 Core, Graphics and Co-resident Systems*. It accounts for the resources required to monitor *Datakit II VCS Releases 4.0 and 5.0 nodes*, *BNS-2000 VCS Release 6.0 nodes*, and *BNS-2000 Release 2.0, 3.0, 4.0, and 5.0 nodes* and remote *StarKeeper NMSs*. The *StarKeeper II NMS Configurator Tool* assumes that the computer system running *StarKeeper II NMS* is dedicated to the *StarKeeper II NMS* application. Other processes, such as *pi*, *sequence* scripts, and custom INFORMIX reports should be accounted for separately.

You are responsible for determining the required resources for these custom applications and reserving adequate system resources.

The *StarKeeper II NMS Configurator Tool* included with this document is not compatible with any other release of *StarKeeper II NMS*. The resources required to operate the *StarKeeper II NMS Customer Control System (CCS)* and the *StarKeeper II NMS Network Management Protocol (NMP) Interface to ACCUMASTER Integrator* are not included.

Installing the *StarKeeper II NMS Configurator Tool*

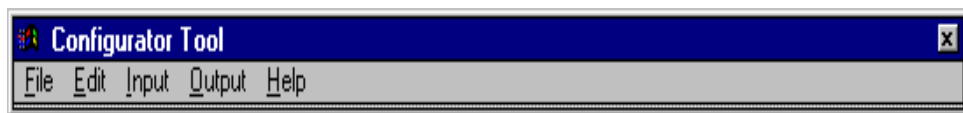
The Configurator Tool is installed by running the SETUP program on Disk 1. See your Windows 95 documentation for instructions on how to run a program from the floppy drive. You will then be asked to specify a target drive and directory for the Configurator Tool software (C:\CONF10 is the default). Then SETUP copies all the files on the Configurator Tool diskettes to your hard drive. If the target subdirectory does not exist, SETUP will create it. If you are installing over a previous version of the Configurator Tool, SETUP will write over the existing files.

Starting the Configurator Tool

The Configurator Tool is started by running the CFGTOOL.EXE file, which is identified with a toolbox icon. This file resides in the target drive and directory you specified during installation. The Configurator Tool can be started with the Run command or by double clicking the CFGTOOL.EXE file in the Configurator Tool applications group. See your Windows 95 documentation for details on how to start an application.

The Menu Bar

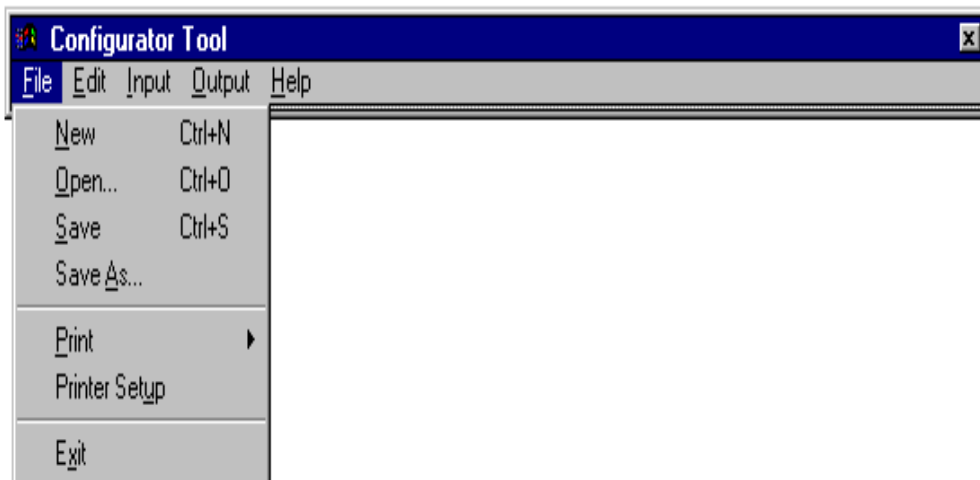
The menu bar (Screen A-1) contains the commands you use with the Configurator Tool. Any of the menus shown on the menu bar can be accessed via the mouse or by using a shortcut key. A shortcut key allows you to quickly choose a menu via the keyboard. The five menus for the Configurator Tool can be chosen by pressing the **Alt** key plus the underlined letter, for example, **Alt** **f** for File, **Alt** **e** for Edit, etc.



Screen A-1. Menu Bar

File Menu

The **F**ile menu (Screen A-2) provides various functions that are available for most standard windows applications. The menu items are grouped according to functionality, with file operations first, followed by print operations and ending with the exit function, as shown below. Each group of operations is described in the follow sections.



Screen A-2. File Menu

File Operations

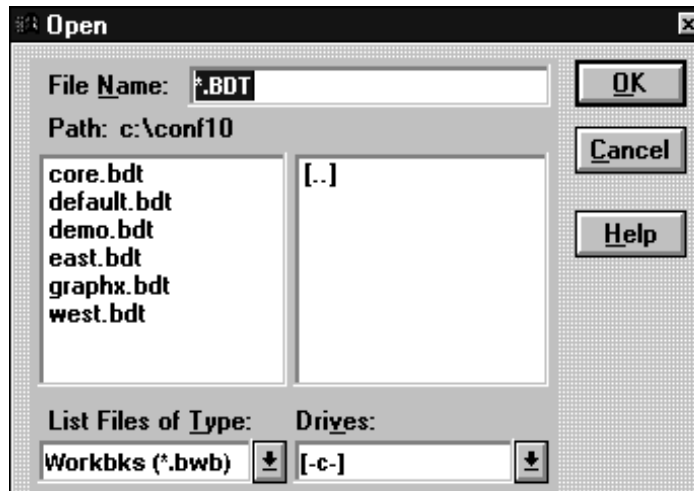
The Configurator Tool consists of a single executable file and one or more data files. The tool is initially delivered with one executable file, **CFGTOOL.EXE**, and one data file, **DEFAULT.BDT**, neither of which should be overwritten by the user. Additional data files can be created to represent the different data configurations analyzed with the Configurator Tool.

New

File|New loads the default data configuration (**DEFAULT.BDT**) for the Configurator Tool. This data can be modified and saved into a named data file using File|Save As..., which will be described later. The File|Save command will be grayed out whenever the File|New command is selected, so as not to overwrite the **DEFAULT.BDT** file.

Open...

The File|Open... command loads a saved data file. An example of the File|Open... dialog box is shown in Screen A-3.



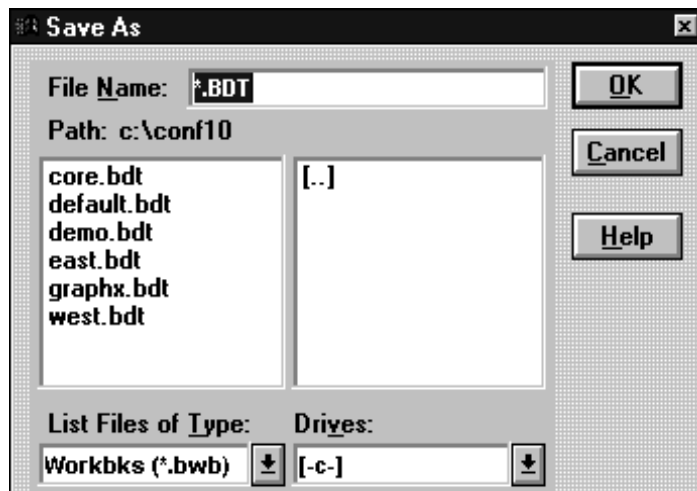
Screen A-3. Opening a Saved Data File

Save

The File|Save command will save the current data file, overwriting the original. The File|Save As... command should be used if you don't want to overwrite the current data file.

Save As...

The File|Save As... command saves the current data file with a new filename. The dialog box for this command is shown in Screen A-4.

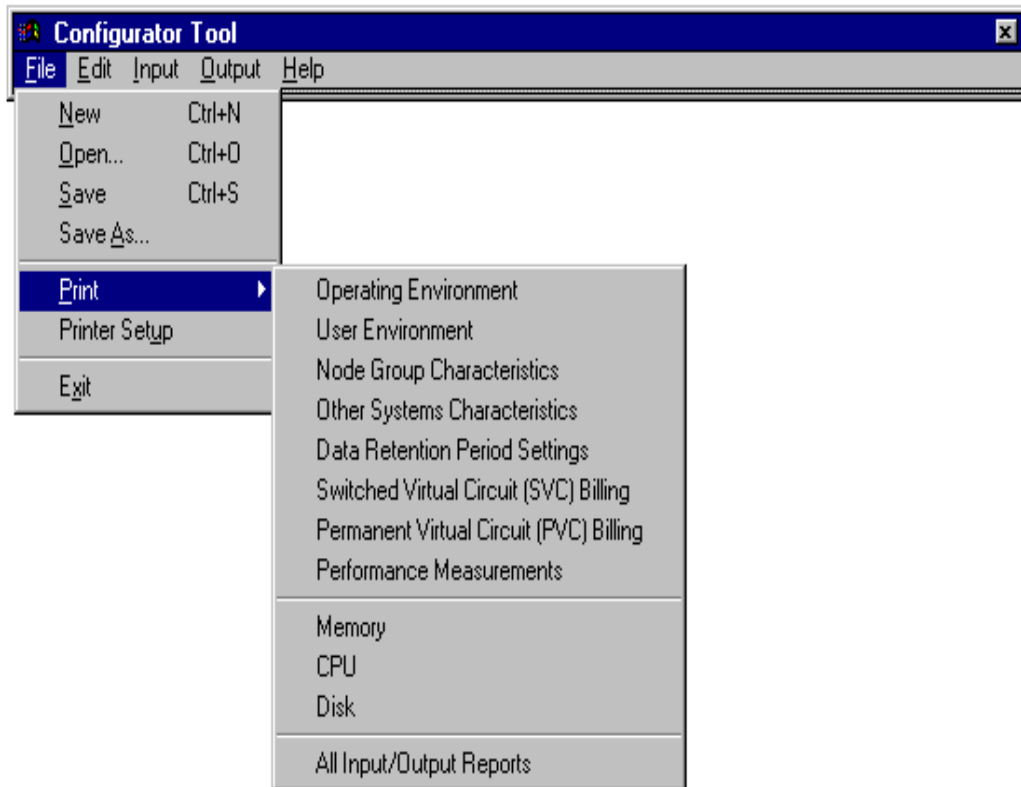


Screen A-4. Saving a File with a New Filename

Print Operations

Print

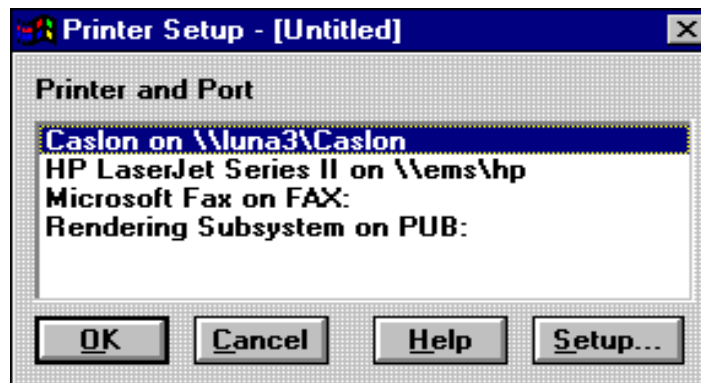
The File|Print command is used to print the input and output screens, either individually or all at once. The menu for the print function is shown in Screen A-5.



Screen A-5. Print Menu

Printer Setup...

The File|Printer Setup... command calls the Windows Printer Setup dialog, which allows you to select a printer and specify printer options. An example of the printer setup screen is shown in Screen A-6.



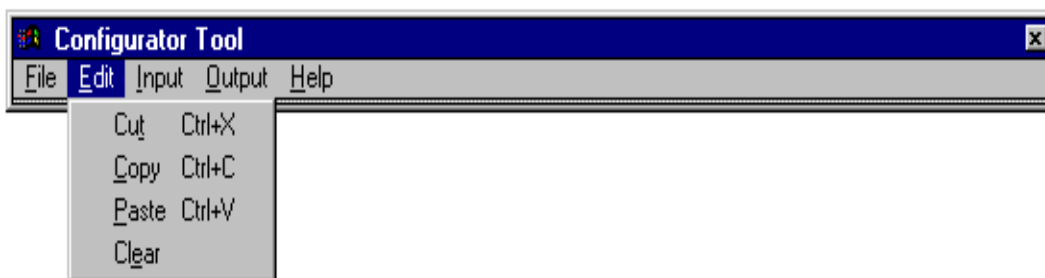
Screen A-6. Printer Setup

Exit

The File|Exit command is used to exit the Configurator Tool.

Edit Menu

The Edit menu provides access to the standard windows Clipboard functions: Cut, Copy, Paste and Clear. Cut, Copy and Paste are available at any time via the shortcut keys shown in the Edit menu, see Screen A-7.



Screen A-7. Edit Menu

On-line Help

Help screens for each *StarKeeper II* NMS Configurator Tool input and output screen are available by clicking the Help button on the screen. The on-line help provides guidelines for acceptable values of each field. If you are in doubt, select

Help from the menu bar. Help screens can be printed on the printer connected to your personal computer, or a network printer.

On-line help screens may also be obtained by placing the cursor on any screen item and pressing the **F1** function key.

The status bar at the bottom of each screen also contains some helpful hints.

System Input Screen Descriptions

Graphics Systems users need only use the Operating Environment and User Environment screens. Edit these screens by inputting operating and user environment data. In addition to this screen, Co-resident and Core System users must use any or all other input screens depending on their system data. These other input screens query for data on nodes, performance, billing, alarm rates, PVCs, etc. on the systems being monitored. After inputting data, all users can review the three output screens (Memory, CPU, and Disk).

Ten input screens are available to enter detailed information about the network to be configured. Based on the input, the *StarKeeper II NMS Configurator Tool* produces three different output reports (as described in **System Output Reports**). When the screens appear, enter the required information as follows:

- **Welcome**
Specify whether a new or saved data file is to be loaded.
- **System Type**
Specify on which type of system *StarKeeper II NMS* is running.
- **Operating Environment**
Enter information about the operating environment, such as
 - the machine type on which *StarKeeper II NMS Release 10.0* is installed.
 - if the Core System, Graphics System, or Co-Resident System software is installed.
 - the number of connections to other *StarKeeper II NMS* machines.
- **User Environment**
 - the number and each type of user on the machine.
 - if the SNMP Proxy Agent software is installed.
- **Node Group Characteristics**
Group all nodes in the network that share the same characteristics, including the node release, if billing is required, and other parameters.
- **Other System Characteristics**
Input on all remote systems, such as *Datakit II VCS Network Interface*, *StarGROUP Network Managers*, remote *StarKeeper NMSs* that will be connected to a master *StarKeeper II NMS* machine.
- **Switched Virtual Circuit (SVC) (Billing only)**
Enter information about the working environment of all terminals connected through SVCs.
- **Permanent Virtual Circuit (PVC) (Billing only)**

Enter information regarding the number of terminals connected through PVCs and how often a continuation record is sent from the PVCs.

- Data Retention Period Settings

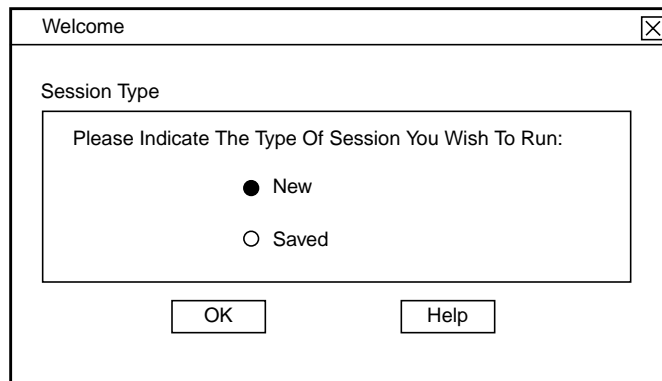
Specify how long billing and performance data are to be kept on the system.

- Performance Measurements

Enter information about the measurements of each type that are being polled by *StarKeeper II NMS*.

Welcome

This screen (Screen A-8) prompts you to specify whether a new or saved data file is to be loaded. The default is New. This screen appears only when the Configurator Tool is first used.



Screen A-8. Welcome

- New

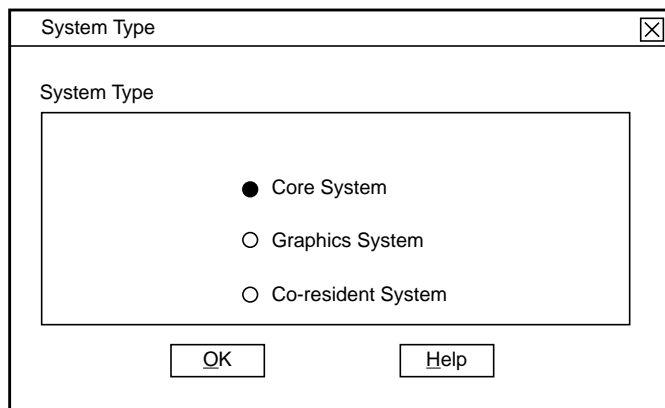
Selecting New loads the default data configuration (DEFAULT.BDT) for the Configurator Tool

- Saved

Selecting Saved opens a previously saved data file.

System Type

This screen (Screen A-9) is displayed only if you selected New on the Welcome screen. Core System is the default. This screen appears only when the Configurator Tool is first used.



Screen A-9. System Type

Operating Environment

This input screen (Screen A-10) prompts you to enter the required information about the operating environment of *StarKeeper II NMS Release 10.0*.

Operating Environment

System Type

Core System Graphics Co-resident

Machine Type

715/33 715/75 C200

715/64 715/100

Disks

1 2

Connections To Other StarKeeper II NMS Machines:

OK Print Help

Screen A-10. Operating Environment

- System Type:
Select the system type on which *StarKeeper II NMS Release 10.0* is running. The default system type is Core.
- Machine Type:
Enter the machine type in which *StarKeeper II NMS Release 10.0* is running.
- Disks:
Number of disks is set to 2 for *StarKeeper II NMS Release 10.0*.
- Connections To Other StarKeeper II NMS Machines:
The default for this control is 0; you can enter a maximum value of 15.

User Environment

This input screen (Screen A-11) prompts you to enter the required information about the user environment of *StarKeeper II NMS Release 10.0*.

User Environment

Core System

Core System Users: 1

SNMP Proxy Agent Installed

SNMP Entities Monitored: 9999

SNMP Requests/Day Per Entity: 9999

Graphics System

Graphics System Users: 3

Network Monitor

Users: 3

Maps Per User: 1

Alarm Lists Per User: 1

Network Builder

Users: 0

Forms Per User: 0

Performance Reporter

Users: 0

Forms Per User: 0

OK Print Help

Screen A-11. User Environment**■ Core System**

This box is applicable for both Core and Co-resident systems.

— Core System Users:

The default for this control is 1; you can enter a maximum value of 20.

— SNMP Proxy Agent Installed:

This control is grayed out if the Machine Type is 715/33. It is not grayed out for all other machine types.

— SNMP Entities Monitored:

This control is grayed out unless the SNMP Proxy Agent Installed checkbox is checked. You can enter a value ranging from 0-9999 here.

— SNMP Requests/Day Per Entity:

This control is grayed out unless the SNMP Proxy Agent Installed checkbox is checked. You can enter a value ranging from 0-9999 here.

■ Graphics System

This box is applicable for Graphics and Co-resident Systems.

- Graphics System Users:
Enter number of users simultaneously running the Graphics System software. This number should be 0 unless a Graphics System is installed. Valid entries are 0 to 8.
- Network Monitor Users:
Enter the number of users simultaneously running the Network Monitor application. A Graphics System must be installed before Network Monitor can be used. Valid entries are 0 to 8.
- Network Monitor Maps Per User:
Enter the number of maps that will be brought up at the same time by each Network Monitor user. Valid entries are 0 to 64. The default is 1.
- Network Monitor Alarms Per User:
Enter the number of alarm lists that will be up and running at the same time by each Network Monitor user. Valid entries are 0 to 64; the default is 2.
- Network Builder Users:
Enter the number of users simultaneously running the Network Builder application. A Graphics System must be installed before Network Builder can be used. Valid entries are 0 to 8.
- Network Builder Forms Per User:
Enter the number of forms that will be brought up that are related to the Network Builder. Valid entries are 0 to 64; the default is 2.
- Performance Reporter Users:
Enter the number of users simultaneously running the Performance Reporter application. A Graphics System must be installed before Performance Reporter can be used. Valid entries are 0 to 8.
- Performance Reporter Forms Per User:
Enter the number of windows that will be brought up that are related to the Performance Reporter. Valid entries are 0 to 64; the default is 2.

Multiple Record Input Screens

Each of the data input screens can be classified as either a single record input screen or a multiple record input screen. Most of the data input screens for the Configurator Tool are single record input screens familiar to users of standard windows based applications. However, four of the data input screens are multiple record input screens designed especially for the Configurator Tool. These are:

- Node Group Characteristics

- Other Systems Characteristics
- Switched Virtual Circuit (SVC) Billing
- Permanent Virtual Circuit (PVC) Billing

There are a few notable differences between the multiple record input screens and the single record input screens. One difference is that the multiple record screens have buttons labeled , , , , and , which are not found on the single record input screens.

The button is used to enter a new record or apply changes to an existing record. The current multiple record input screen remains open after the apply operation is complete.

The button will do the same; however, the multiple record input screen is closed once the record has been applied.

The button is used to enter a new record by bringing up an input screen with default values in it. The user must then fill in the screen and click the button to apply the new record.

The button is used to cancel a new record or delete a record that already has been applied.

The button performs one of two operations, depending on whether the button was clicked while viewing or editing an already applied record or whether it was clicked in the middle of entering a new record. If was selected while viewing or editing an already applied record, the changes to the current record, if any, are discarded and the screen is closed. Otherwise, if was chosen while entering a new record, the new record is discarded prior to closing the screen.

The and buttons are used to retrieve the previous and next records, respectively, once two or more records have been entered using the current multiple record input screen.

Node Group Characteristics

This input screen (Screen A-12) prompts you to group nodes in the network that share the same characteristics. Fields and explanations are as follows:

Node Group Characteristics

Node Group Name:

Node Type

BNS-2000

Datakit II VCS or BNS-2000 VCS

Nodes:

Alarm Rate:

Upload/Download

Billing

Performance Measurements

Node Backplane Detail Meas

Screen A-12. Node Group Characteristics

- **Node Group Name:**
Name the node group for easy identification. The name can be any alphanumeric value up to five characters.
- **Node Type:**
The default is BNS-2000.
- **Number Nodes:**
Enter the number of nodes in the node group (0-999).
- **Alarm Rate:**
Enter the expected alarms arrival rate per node, per day for this node group (0-9999). The suggested alarm arrival rate is 300 alarms, per node, per day. When a 0 alarm arrival rate is used, the program assumes that console connections do not exist for this node group.
- **Upload/Download:**
Check if uploads or downloads are performed on the node group.
- **Billing:**
Check If billing data is being collected from the node group.
- **Performance Measurements:**
Check if performance reports are collected from the node group.

- Node Backplane Detail Meas:

Check if detailed node backplane utilization measurements are collected from this node. This option pertains to BNS-2000 nodes only.

The administrative connections are automatically assumed if the Alarm Rate column is not 0.

Other Systems Characteristics

This screen (Screen A-13) prompts you to enter information on other systems such as remote *StarKeeper* NMSs, *Datakit* II VCS Network Interface, and StarGROUP Network Managers connected to a master *StarKeeper* II NMS machine.

Other Systems Characteristics

Group Name:

Systems:

Alarm Rate:

Screen A-13. Other Systems Characteristics

- Group Name:

Name the other system group for identification purposes. It can be any alphanumeric value up to five characters.

- Systems:

Enter the number of other systems in this other system group (1-999).

- Alarm Rate:

Enter the expected alarm arrival rate per other system per day from this group (0-9999). The suggested alarm arrival rate is 300 alarms, per system, per day.

Switched Virtual Circuit (SVC) Billing

The working patterns (that is, connect/disconnect) of the terminals connected to SVCs are recorded here (Screen A-14).

Screen A-14. Switched Virtual Circuit (SVC) Billing

- Terminals:

Terminals with the same work hours should be grouped together. Enter the number of terminals in the same billing group. Enter a value from 0 to 9999.

- Shift1/Shift2:

Two shifts can be entered for each terminal group per day, where the second shift is optional. Work shift hours must be entered based on 24-hour time (that is, 00 through 23). For each shift, the end hour must be greater than the start hour. If a work shift hour is over the day boundary (that is, 10:00 p.m. until 2:00 a.m.), it must be broken up as two shifts: shift1 entered as 22 through 24; shift2 entered as 00 through 02. The acceptable values for Start hours are 00 through 23, and the acceptable values for End hours are 01 through 24. Fractional hours cannot be entered.

For terminals located in different time zones, use *StarKeeper II* NMS time as the standard. All time differences must be converted to *StarKeeper II* NMS time.

- Arrival Rate:

Enter the expected billing records arrival rate per terminal per day (0-999). The suggested rates are listed below:

- development environment

- 3 (connect/disconnect) pairs, per an 8-hour day, per terminal
- office environment
- 8 (connect/disconnect) pairs, per an 8-hour day, per terminal
- campus environment
- 16 (connect/disconnect) pairs, per an 8-hour day, per terminal

Permanent Virtual Circuit (PVC) Billing

Periodic continuation records are sent to *StarKeeper II* NMS for PVCs. The times when these continuation records arrive are recorded here (Screen A-15).

Permanent Virtual Circuit (PVC) Billing

Endpoints: Start Hour:

Interval

6 hours

12 hours

24 hours

Apply

New Delete Previous Next

OK Cancel Print Help

Screen A-15. Permanent Virtual Circuit (PVC) Billing

- **Endpoints:**
Enter the number of PVCs (0-9999). They should be grouped by PVCs with the same start hour and the same time interval to send continuation records.
- **Start Hour:**
Enter the hour of the day in which the first continuation record is to arrive. Ports located in different time zones should use *StarKeeper II* NMS time as the standard and convert the time differences accordingly. The Start hour should always be entered in 24-hour time with the acceptable values being 00 through 23. No fractional hours can be entered.

- Interval:

Enter the time interval in which a continuation record is to be sent from PVCs. The valid hours are 6, 12, and 24.

Data Retention Period Settings

This input screen (Screen A-16) prompts you to specify how long billing and performance data are to be kept on the system:

The screenshot shows a dialog box titled "Data Retention Period Settings". It contains two main sections: "Billing Date" and "Performance Data".

Billing Date

- Switched Calls: 3 days
- Periodic Calls: 4 days

Performance Data

- Daily: 2 days
- Weekly: 3 weeks
- Monthly: 3 months

At the bottom of the dialog, there are three buttons: "OK", "Print", and "Help".

Screen A-16. Data Retention Period Settings

- Billing Data (Switched Calls)

Enter the number of days in which switched call billing data is kept in the billing database before it is deleted. The *StarKeeper II* NMS default is three days. Valid entries are 1 through 99.

- Billing Data (Periodic Calls)

Enter the number of days in which periodic billing data is kept in the billing database before it is deleted. The *StarKeeper II* NMS default is four days. This value must be greater than the retention period for switched calls. Valid entries are n through 100, where n is one more than the value selected for Switched Calls.

- Performance Data (Daily)
Enter the number of days in which daily performance data is kept in the performance database before it is deleted. The *StarKeeper* II NMS default is two days. Valid entries are 1 through 7.
- Performance Data (Weekly)
Enter the number of weeks in which weekly summarized performance data is kept in the performance database before it is deleted. The *StarKeeper* II NMS default is three weeks. Valid entries are 1 through 4.
- Performance Data (Monthly)
Enter the number of months in which monthly summarized performance data is kept in the performance database before it is deleted. The *StarKeeper* II NMS default is three months. Valid entries are 1 through 4.

Performance Measurements

This input screen (Screen A-17) prompts you to enter information about the specific performance measurements collected by *StarKeeper* II NMS. This information is network-wide and should reflect the total numbers for the entire network, not by node or node group. For example, the number of receiving groups is defined as all the receiving groups on **ALL** the nodes whose connection data are polled hourly by *StarKeeper* II NMS. Note also that most of the numbers are the numbers of hardware components in the network, except for cases such as receiving groups and frame relay DLCIs. Enter the following information to accurately compute the volume of performance measurements:

Performance Measurements		
Enter the total number for each item in the network.		
Bisync module: <input type="text" value="0"/>	Group (rcv): <input type="text" value="0"/>	SMDS AI: <input type="text" value="0"/>
Bisync port: <input type="text" value="0"/>	LPM module: <input type="text" value="0"/>	SMDS GAR: <input type="text" value="0"/>
Bisync terminal: <input type="text" value="0"/>	LPM LAN port: <input type="text" value="0"/>	SMDS Trunk (ICI): <input type="text" value="0"/>
Concentrator: <input type="text" value="0"/>	LPM FR port: <input type="text" value="0"/>	SMDS Trunk (non-ICI): <input type="text" value="0"/>
CPMML: <input type="text" value="0"/>	LPM DLCI: <input type="text" value="0"/>	Trunk (non-SMDS): <input type="text" value="0"/>
DKAP module: <input type="text" value="0"/>	M1 Shelf: <input type="text" value="0"/>	Trunk (Sess Mtce): <input type="text" value="0"/>
DKAP chan set: <input type="text" value="0"/>	SAM8: <input type="text" value="0"/>	TSM8: <input type="text" value="0"/>
FRM module: <input type="text" value="0"/>	SAM16: <input type="text" value="0"/>	TSM-T1 module: <input type="text" value="0"/>
FRM port: <input type="text" value="0"/>	SAM64: <input type="text" value="0"/>	TSM-T1 port: <input type="text" value="0"/>
FRM DLCI: <input type="text" value="0"/>	SAM504: <input type="text" value="0"/>	TSM-T1 channel: <input type="text" value="0"/>
FRM-M2 module: <input type="text" value="0"/>	SAMML: <input type="text" value="0"/>	X.25: <input type="text" value="0"/>
FRM-M2 pport: <input type="text" value="0"/>	SDLC8: <input type="text" value="0"/>	X.25P: <input type="text" value="0"/>
FRM-M2 vport: <input type="text" value="0"/>		X.75: <input type="text" value="0"/>
FRM-M2 DLCI: <input type="text" value="0"/>		
<input type="button" value="OK"/> <input type="button" value="Print"/> <input type="button" value="Help"/>		

Screen A-17. Performance Measurements

All fields on this screen require a value of 0-999999 inclusive, with a default of 0.

- Bisync module, Bisync port and Bisync terminal:
Enter the number of bisynchronous modules, ports and terminals on all the nodes being monitored.
- Concentrator:
Enter the number of concentrators on all the nodes being monitored.
- CPMML:
Enter the number of multi-link CPM modules on all nodes being monitored.
- DKAP module and DKAP chan set:
Enter the number of BNS-2000 VCS Application Processor modules and channel sets on all the nodes being monitored.

- FRM module, FRM port and FRM DLCI:
Enter the number of FRM modules, ports and DLCIs configured on all of the nodes being monitored.
- FRM-M2 module, FRM-M2 pport and FRM-M2 vport, and FRM-M2 DLCI:
Enter the number of FRM-M2 modules, physical ports, virtual ports, and DLCIs configured on all of the nodes being monitored.
- Group (rcv):
Enter the number of receiving groups configured on all nodes being monitored.
- LPM module, LPM LAN port, LPM FR port, and LPM DLCI:
Enter the number of LPM modules, LAN ports, frame relay ports and DLCIs configured on all of the nodes being monitored.
- M1 shelf:
Enter the number of M1 shelves configured on all of the BNS-2000 nodes being monitored.
- SAM8, SAM16, SAM64, and SAM504:
Enter the number of SAM8s, SAM16s, SAM64s, and SAM504s configured on all of the nodes being monitored.
- SAMML:
Enter the number of multi-port SAM modules configured on all nodes being monitored.
- SDLC8:
Enter the number of SDLC8 modules configured on all nodes being monitored.
- SMDS AI:
Enter the number of SMDS AI modules configured on all of the nodes being monitored.
- SMDS GAR:
Enter the number of SMDS gar modules configured on all of the nodes being monitored.
- SMDS Trunk (ICI), SMDS Trunk (non-ICI), Trunk (non-SMDS) and Trunk (sess mtce):
Enter the number of SMDS trunks (ICI and non-ICI), non-SMDS trunks, and session maintenance trunks configured on all of the nodes being monitored. If session maintenance is enabled for any of these trunks, then they must also be included in the counts for session maintenance trunks.

- TSM8:
Enter the number of TSM8 modules configured on all of nodes being monitored.
- TSM-T1 module, TSM-T1 port and TSM-T1 channel:
Enter the number of TSMT1 modules, ports and channels configured on all of the nodes being monitored.
- X.25:
Enter the number of X.25 modules configured on all of nodes being monitored.
- X.25P:
Enter the number of X.25P modules configured on all of nodes being monitored.
- X.75:
Enter the number of X.75 modules configured on all of nodes being monitored.

System Output Reports

The three output reports are

- Memory Requirement Report
This report estimates the total amount of memory required based on the network configuration given. Information on the memory required for console and billing connections, and performance and administrative connections is listed separately.
- CPU Requirement Report
This report estimates the percentage of the CPU needed to handle all alarms, billing records, and performance measurements in the network. CPU usage is listed on an hourly basis.
- Disk Requirement Report
This report estimates the disk space needed for the given network.

Memory Requirement Report

This report (Screen A-18) displays the total amount of memory required to monitor the network in question. Memory required is broken down by processes that must reside on the system (that is, HP-UX Operating System, *StarKeeper* II NMS Core System, or *StarKeeper* II NMS Graphics System), as well as other processes, such as

- console connections
- billing connections
- performance connections
- administrative connections
- other systems (for example; *Datakit II VCS Network Interface*, remote *StarKeeper NMS*)
- machine connections (*StarKeeper II NMS Graphics Systems* and *StarKeeper II NMS Core Systems* connected to this machine).

The memory required depends on how the applications are used; therefore, certain assumptions must be made in calculating the amount of memory for each application:

- The amount of memory required for Network Monitor is equal to the amount of memory consumed by its background processes and the number of network maps and alarm lists invoked by the user.
- The amount of memory required for Performance Reporter is equal to the amount of memory consumed by its background processes and the number of report windows invoked by the user.
- The amount of memory required for Network Builder is equal to the amount of memory consumed by its background processes and the number of input form windows invoked by the user.

Configurator for StarKeeper® II NMS R10.0

Memory Requirement Report

Core	Memory	Applications	Memory
SK II	13.000	Graphics System	10.230
Console Conn	0.621	Network Monitor	7.050
Billing Conn	0.478	Network Builder	8.700
Perf Conn	0.869	Perf Reporter	3.480
Admin Conn	0.868	SNMP Proxy Agent	0.000
Other System Conn	0.313		
Core Users	7.040		
Subtotal	23.189	Appl. Subtotal	29.460
Unix	36.000 (See NOTE in Help Text)		
Core/Appl. Conn	0.546		
		Grand Total	89.195

Total Connections 393

Screen A-18. Sample Configurator Memory Requirement Report

Memory needed is shown in units of megabytes (1048576 bytes). The minimum memory is 64-MB for all Hewlett-Packard 715/33, 715/64, 715/75, and 715/100 systems. The minimum memory is 128 MB and the maximum is 1.5 GB for Hewlett-Packard C200 systems. The Hewlett-Packard 715/33 can be upgraded to 192 MB. The Hewlett-Packard 715/64, 715/75, and 715/100 systems can be upgraded to 256 MB. If the memory required exceeds the memory installed on the desired processor, system integrity can be compromised, and system performance could be adversely affected.

If available memory is exceeded, try the following:

- Reduce the number of alarm, performance, and/or billing connections by
 - splitting the alarm and billing connections among more than one *StarKeeper II NMS Core System*, or
 - putting the alarm and the performance connections on a different *StarKeeper II NMS Core Systems*.
- Reduce the number of users and windows per graphics application or move the application to another machine.

If the console connection exists, the corresponding administrative connection is automatically assumed.

On all HP machines, HP-UX system memory usage is affected by several factors: System memory is calculated based on the amount of installed memory, the maximum number of available connections, and the size of the disk buffer cache on your machine (this cache is used to buffer disk I/O and is calculated as 20% of installed memory). The Configurator Tool automatically calculates for the increased memory in its "Grand Total" output. For 715s, memory is assumed to be installed in 16 MB increments (for example, if determined memory size is 113 MB, the Configurator Tool will base HP-UX on 128 MB of installed memory), although 32 and 64 MB increments are available. For C200s, memory is assumed to be installed in 128 MB increments, although 256 MB increments are available.

The total number of connections required for your network is displayed at the bottom of the Memory Requirement Report. A single *StarKeeper II NMS* can support up to 508 connections; the Configurator Tool will display an error message if your network configuration exceeds the limit.

CPU Requirement Report

This report (Screen A-19) shows the percentage of time that the CPU is busy on an hourly basis for the *StarKeeper II NMS Core System*. CPU usage is calculated based on the information provided from input screens. CPU usage is broken down by alarms, billing, performance measurements, machine overhead, and cleanup.

Configurator for StarKeeper® II NMS R10.0

CPU Requirement Report

Hourly Percent(%) Busy

Hours	Alarm	Billing	Perf Report	Clean-up	Machine Overhead	Percent Total
00:00	13.076		42.696	43.384	0.844	100.000
01:00	13.076		42.696	43.384	0.844	100.000
02:00	13.076		42.696	43.384	0.844	100.000
03:00	13.076		42.696	21.099	0.844	77.715
04:00	13.076	0.019	42.696		0.844	56.635
05:00	13.076	0.019	42.696		0.844	56.635
06:00	13.076	0.526	42.696		0.844	57.142
07:00	13.076	0.526	42.696		0.844	57.142
08:00	13.076	0.541	42.696		0.844	57.157
09:00	13.076	0.541	42.696		0.844	57.157
10:00	13.076	0.541	42.696		0.844	57.157
11:00	13.076	0.541	42.696		0.844	57.157
12:00	13.076	0.541	42.696		0.844	57.157
13:00	13.076	0.541	42.696		0.844	57.157
14:00	13.076	0.541	42.696		0.844	57.157
15:00	13.076	0.541	42.696		0.844	57.157
16:00	13.076	0.541	42.696		0.844	57.157
17:00	13.076	0.541	42.696		0.844	57.157
18:00	13.076	0.019	42.696		0.844	56.635
19:00	13.076	0.019	42.696		0.844	56.635
20:00	13.076		42.696		0.844	56.616
21:00	13.076		42.696		0.844	56.616
22:00	13.076		42.696		0.844	56.616
23:00	13.076		42.696		0.844	56.616

Screen A-19. Sample Configurator CPU Requirement Report

StarKeeper II NMS does its cleanup via a cron job which starts at 12:30 a.m. each day. This job begins by cleaning up and summarizing alarms; it proceeds by deleting old billing records, and cleaning up and summarizing performance data. The CLEAN-UP column shows the CPU time needed for all cleanup efforts within the hour.

The CPU time required for cleanup jobs is calculated so the CPU uses only whatever time is available after alarm, billing, machine overhead, and performance processes have been completed for that hour. If alarm, billing, machine overhead, and performance processes for a particular hour have consumed 100 percent (or over 100 percent) of CPU time, and cleanup jobs were scheduled during the same hour, the CPU time needed to do the cleanup is not shown for that hour.

It is shown for the next hour, providing CPU time remains to process the cleanup job. *StarKeeper II* NMS cleanup jobs do not interfere with processing alarms, billing records, or performance measurements. All cleanup jobs must be finished by the end of the day (23:00), so cleanup jobs that are to commence for the next day are not affected. However, it is highly recommended that cleanup not extend into normal working hours.

⇒ NOTE:

The CPU requirement report shows an average CPU usage over the hour. Actual CPU usage will vary between zero to 100% over any given hour.

While the HP system can accommodate CPU utilization at 100% for short periods of time, it should not be designed to be working at 100% for long periods or at a constant state.

It is recommended that an average of 10-20% of idle CPU utilization be reserved for other interactive user activities being performed on the *StarKeeper II* NMS.

Disk Requirement Report

This report (Screen A-20) estimates the disk space required for the network in megabytes (1,048,576). The disk space needed is calculated based on the alarm arrival rate, billing arrival rate, the amount of performance measurements generated by the network and the number of retention days in which data is retained in the database, and which graphics applications are installed.

Configurator for StarKeeper® II NMS R10.0

Disk Requirement Report

Function	Disk 1	Disk 2
Unix (Operating System)	270.000	
Unix (Swap Space)	200.000	200.000
Core System		59.425
Appl. (NM/PR/NB/SNMP)		34.218
Up/Download Files		389.090
Alarm DB		157.777
SVC Billing DB		14.468
PVC Billing DB		0.082
Configuration DB		21.320
Performance Day DB		32.961
Performance week/month DB		98.883
Total Required (MBytes)	470.000	1008.224

Temp space for database utilities (MBytes) ==> 220.825

Screen A-20. Sample Configurator Disk Requirement Report

The HP-UX operating system resides on disk 1 and the applications reside on disk 2. The *StarKeeper II NMS* Core System, the database, and the up/download files reside on disk 2.

The HP-UX operating system also requires some space on the second disk of the Hewlett Packard systems and is reported in the "UNIX (swap space)" entry under the Disk 2 column (except for the C200; swap space for the C200 is entirely on Disk 1).

Hewlett-Packard 715 systems must have a minimum of two 2-GB hard disk drives; *StarKeeper II NMS* requires a minimum disk storage capacity of 4-GB. The C200 is staged with two 4-GB drives.

The RSPACE utility, which is used to regain unused space in the database tables, requires a variable amount of temporary disk space based on the size of the largest table in the database. At the end of the disk requirement report an estimate of the amount of temporary space required to run RSPACE for your configuration is displayed. This temporary space can be reserved on any disk, including an external disk; it is *not* specifically reserved on either disk 1 or disk 2. The system administrator must ensure that the free disk space is available on one of the disks when RSPACE is run.

Printing Screens

All input and output screens may be printed by selecting the `Print` option from the `File` menu at the top of the screen. To select the printer and specify printer options, select the `Printer Setup` option from the `File` menu. Individual input screens can be printed by selecting the `PRINT` button.

Exiting the Configurator Tool

The Configurator Tool can be closed in one of the following ways:

- From the `File` menu, choose `Exit`.
- From the `Control Menu`, choose `Close`.
- Double click the `Control-menu` box.
- Press `Alt` F4.

Choose `No` when asked if you want to save the changes in `CFGTOOL.BWB`. If you choose `Yes` at this prompt, the default data for the Configurator Tool is overwritten. If this happens, you can do the following to recover:

- Start the Configurator Tool
- Select `File|New`. This will load the default data from the `DEFAULT.BDT` file.
- Select `File|Exit`. When asked if you want to save the changes in `CFGTOOL.BWB`, choose `Yes`. This will rewrite `CFGTOOL.BWB` with the default data.

An alternate way to recover is to reinstall the Configurator Tool.

Ordering Additional Copies

To order additional copies of the *StarKeeper II NMS Planning Guide* and the included Configurator Tool, call the Customer Information Center (CIC) at 1-888-LUCENT8, Option 2, and order select code 255-114-760.

StarKeeper II NMS Configurator
Tool Worksheets

B

This appendix contains worksheets that can be used to collect input for the *StarKeeper II NMS Configurator Tool* and to record its results for later configuration.

Table B-2. Connections to *StarKeeper* NMS (pre-R3.0) or Other Network Elements

Connections to <i>StarKeeper</i> NMS (pre-R3.0) or Other Network Elements			
System Name	Connection Type		Alarm Rate
	Console	Alarms	
SK1			

Table B-3. Connections to *StarKeeper* II NMS (R3.0 or Later)

Connections to <i>StarKeeper</i> II NMS (R3.0 or Later)	
SK II Name	Connection Type
	SKII
SKII1	

Table B-4. User Environment

Number of Active Core System Users	Number of Active Graphics System Users (0 - 8)	Number of Active Network Monitor Users (0 - 8)	Number of Maps Per Network Monitor User (default 1)	Number of Alarm Lists Per Network Monitor User (default 2)

Number of Active Network Builder Users (0 - 8)	Number of Forms Per Network Builder User (default 2)	Number of Active Performance Reporter Users (0 - 8)	Number of Forms Per Performance Reporter User (default 2)	Number of SK II Core and/or WS Connections (0 - 15)

Glossary

The definitions in this section appear in alphabetical order. Cross references in the entries are printed in **bold** type.

A

aau *command parameter*. An abbreviation for alarm activator unit.

absolute pathname. The pathname used to specify a command or program from the *root* directory.

access. To connect with and use a software package or hardware device.

ACE. An abbreviation for Automated Cable Expertise (OS).

ACF. An abbreviation for Access control field (SMDS).

adapter. 1. An auxiliary device or unit used to extend the operation of another system. 2. An electronic part used to connect two dissimilar parts or machines.

address. An identifying name or code for a network element or a service that end users can **access**. Addresses reflect a network hierarchy of four level mnemonic addressing: **network/area/exchange/local service address** or the X.121 scheme of: **DNIC/SR/SA/EPN**.

administration connection. A connection in which the transfer of node data to *StarKeeper II* NMS databases using *StarKeeper II* NMS Network Builder, the **skload** and **cfg_sync** commands, and the Session Maintenance **smverify** and **smstat** commands used to monitor Session Maintenance trunks is permitted.

AI. An abbreviation for Alarm indication signal (SMDS).

AIM. An abbreviation for Asynchronous Interface Module (ISN).

AIM8. An abbreviation for Asynchronous Interface Module 8-port (ISN).

alarms connection. A connection type in which alarms from external system elements other than BNS-2000 or BNS-2000 VCS nodes are collected.

alias. An alternative (usually shortened) **area** or **exchange** name for a **node**.

American Standard Code for Information Interchange (ASCII). ASCII represents characters, numbers, punctuation marks, or signals in seven on-off bits plus a **parity** bit.

AMUX. An abbreviation for Asynchronous Multiplexer.

anchor. A method, used in *StarKeeper II* NMS network addressing, to limit the matching criteria when searching for specified records in the database. *Compare wild card*.

ANSI. An abbreviation for American National Standards Institute.

application. A program that performs a specific task, such as displaying network alarms or running diagnostics.

area. Part of the destination code used in addressing; similar to a telephone area code. Each area may include multiple exchanges and each **exchange** may include multiple **local service addresses**.

ASCII. An abbreviation for American Standard Code for Information Interchange.

Async. An abbreviation for asynchronous communication/protocol. *See Bisync*.

asynchronous. Transmission in which the time intervals between data characters can be of unequal length, controlled by start and stop bits at the beginning and end of each character. *Compare synchronous.*

Asynchronous Interface Module 8-port (AIM8). An eight-port module for placement in a bridging concentrator.

Asynchronous Multiplexer (AMUX). A concentrator that provides either 32, 64, or 504 asynchronous ports. *See also Synchronous/Asynchronous Multiplexer.*

B

background processing. The automatic execution of a job, to be run in the background, while the user continues to perform other tasks.

backplane. The bus in a node to which all control and interface modules connect.

backup. A spare copy of data or software kept in case the original is damaged or lost.

bad track. A part of the hard disk which is not usable.

billing. A service that allows the network administrator to track the date and connection time of asynchronous, multiplexed host, synchronous, and X.25 calls through the network on a per-port basis and assign a charge for the service.

billing connection. A connection type used to capture billing data. There must be a billing connection to *StarKeeper II* NMS from each node reporting billing data.

BISYNC. A Binary Synchronous Communication, link-layered, character oriented IBM protocol used in synchronized transmission of binary coded data.

BNS-2000. A cell relay switch that offers connection-oriented service and connectionless, high-speed service using broadband technology.

board. A rectangular piece of fiberglass that has pins on one side and electronic parts on the other; also called a card, PC board, or PCB (printed circuit board). The system is always supplied with a system board. Other boards can include a video adapter board, a disk controller board, a network communication board, memory boards, multiplexed host interface boards, and multifunction boards.

bps. An abbreviation for bits per second.

bridge modules. Interface modules residing in a bridging concentrator.

BSC3270. *See* SYNC8.

buffer. A temporary storage location for information being sent or received. It is usually located between two different devices that have different abilities concerning speeds for handling the data.

bus. The parallel wiring through which bits of data travel to and from the parts of a computer.

C

CAC. An abbreviation for Customer Assistance Center (Lucent Technologies).

call hold. A feature that allows a user to have more than one call active at any time.

call setup. The node activity that establishes a virtual circuit connection across the network.

CCS. An abbreviation for Customer Control System (*StarKeeper II* NMS).

central office (CO). An operating telephone company location where call switching is done.

central office local area network (CO LAN). A data communications network switched through a **central office**.

central processing unit (CPU). A component of the **control computer**.

channel. A transmission path or link.

CIC. An abbreviation for Customer Information Center (Lucent Technologies).

CNM. An abbreviation for Customer network management (SMDS).

CO. An abbreviation for Central office.

CO-LAN. An abbreviation for Central office local area network.

command partitioning. A *StarKeeper II* NMS security feature that allows certain users access only to specified commands.

Computer Port Module-High-speed (CPM-HS). A multiplexed optical fiber interface.

Computer Port Module-Multiple Link (CPM-ML). The CPMML can be located in nodes and Multipurpose Concentrators to provide up to eight wire connections to LAN servers that use a version of BNS-2000 VCS Host Interface Software for multiplexed communications with the network. It supports speeds up to 64 Kbps over RS-232-C or V.35 interfaces.

concentrator. A communications device that can connect many devices of differing speeds to the **node**.

config. An abbreviation for configuration.

configuration. 1. The hardware and software components of a system that determine its capacity and performance. 2. The task of populating databases with information to identify the components with which they communicate.

connector. A device allowing the connection of various electrical elements.

console. A video display terminal with **keyboard** used as an interface to the node or network management system.

console security. A password optionally required for administrative access to a node or network management system.

contention. A condition where several systems are vying for access to a line and only one can establish a connection. When a connection cannot be established, it is said that this device is lost in contention.

control computer (CC). The modules making up node intelligence.

controller. *See control computer.*

Core System. Core *StarKeeper II* NMS processor. A processor equipped with *StarKeeper II* NMS Core processes. This processor does not contain any Graphics System software.

Co-resident System. A *StarKeeper II* NMS processor equipped with *StarKeeper II* NMS Core and Graphics processes.

CPE. An abbreviation for Customer premises equipment.

CPM. An abbreviation for Computer Port Module.

CPM-HS. An abbreviation for Computer Port Module-High Speed.

CPMML. An abbreviation for Computer Port Module Multiple Link.

CPU. An abbreviation for Central processing unit.

CRC. An abbreviation for Cyclic redundancy check.

cron. An abbreviation for chronological.

critical modules. The Clock, Eswitch/Switch, and Repeater modules; if these modules fail, the **node** fails.

crons. *StarKeeper* II NMS processes that run automatically at specified times, usually to clean up old files. *Cron* is an abbreviated form of the word *chronological*.

crontab. A *StarKeeper* II NMS criteria listing that allows crons to be automatically run at specified times. *Crontab* is an abbreviated form of the words *chronological table*.

cursor. 1. In computer graphics, a movable marker used to indicate position on a display. 2. A displayed symbol that acts as a marker to help the user locate a point in text, in a system command, or in storage. 3. A movable spot of light on the screen of a display device, usually indicating where the next character is to be entered, replaced, or deleted.

Cut-Through Application. A Graphics System application that allows simultaneous access to several different computers from a single workstation. Direct access to a host by way of a terminal emulation program in *StarKeeper* II NMS.

Cyclic Redundancy Check (CRC). A common method of establishing that data was correctly received in data communications. A check performed on data to determine if an error has occurred in the transmitting, reading, or writing of the data.

D

database. A collection of data that can be immediately accessed and operated upon by a data processing system for a specific purpose.

database conversion. Upgrading a machine running a previous release of *StarKeeper* II NMS to the latest release of *StarKeeper* II NMS.

Datakit Applications Processor (DKAP). A programmable module for customized applications.

Datakit II VCS Host Interface Software. Multiplexed host software that enables a host connection to the node's Computer Port Module (CPM).

Datakit II Virtual Circuit Switch (VCS). A multiple feature data switch that provides high-speed data communication between different networks and various computer equipment. The switch can connect **local area networks** to **wide area networks**, and can be used in a single building or an environment with multiple buildings such as a college campus; it can also connect multiple campuses or businesses nationwide. Each *Datakit* II VCS switch is called a **node**.

DCE. An abbreviation for Data Communication Equipment. Usually a **modem**.

DDS. An abbreviation for Digital Data System (ACCUNET[®] DATAPHONE[®] Data Service).

diagnostic. Pertaining to the detection and isolation of a malfunction or mistake.

Digital Data Service (DDS). A Lucent Technologies digital transmission carrier service.

direct connection. A connection in which a *StarKeeper* II NMS host computer is cabled directly to a remote element with RS-232-C (port B on a BNS-2000 or BNS-2000 VCS node).

Disk Cleaner Administration Application. A feature that allows a Workstation Administrator to monitor disk storage space and remove directories/files.

disk crash. A malfunction that may result in loss of data or an inoperable system due to unreadable sectors.

DKAP. An abbreviation for *Datakit Applications Processor*.

DLCI. An abbreviation for Data link connection identifier (frame relay).

DN. An abbreviation for Distinguished name (SMDS); Data Networking.

DNIC. An abbreviation for Data Network Identification Code as used in **X.121** addressing.

download. From the viewpoint of the reference computer or node, the act of receiving data from another computer. Choosing the *download* option in some communications programs automatically erases a file of the same name that was meant for transmission. *See upload.*

DTE. An abbreviation for Data Terminating Equipment. Usually a terminal or computer.

DTF. An abbreviation for Digital transmission facility (DS1/DS3).

DXI. An abbreviation for Data Exchange Interface (SMDS).

DXI/SNI. An abbreviation for Data Exchange Interface/Subscriber Network Interface (SMDS).

E

EBIM. An abbreviation for Ethernet Bridge Interface Module.

EGA. An abbreviation for Enhanced graphics adapter.

EISA. An abbreviation for Extended Industry Standard Architecture.

Element Management System (EMS). A system designed to manage a specific

element or group of elements in a network, other than BNS-2000 or BNS-2000 VCS nodes. An EMS sends alarms to a user's workstation that is logically connected to *StarKeeper II* NMS via the Uniform Alarm Interface (UAI).

EMS. An abbreviation for Element Management System.

end user. Designates a terminal user in the network or, the user who is operating one of the optional graphics-based applications.

envelope. A 10-bit value containing a data or **control byte**, a control bit, and a parity bit.

EPN. An abbreviation for endpoint number, which is part of the **X.121** addressing scheme.

error message. A response from a program indicating that a problem has arisen or something unexpected has happened, requiring attention.

ESQL/C. An abbreviation for Embedded SQL and Tools for C.

Ethernet Bridge Interface Module (EBIM). An interface module that supports **LAN bridging** for Ethernet environments.

exchange. Part of the node destination code used in the addressing scheme. *See also network, area, and local service address.*

exit. To leave the operations of a program or a routine of a program.

F

factory default. Parameters defined and set prior to shipment that may or may not be changed or customized.

FCC. An abbreviation for Federal Communications Commission.

FEP. An abbreviation for Front-end processor.

female connector. A cable connector in which the conducting elements are embedded in recessed sockets designed to receive complementary male parts such as a pin or prong.

First-in, First-out (FIFO). A queue that interprets and processes messages, one by one, in the order in which they arrive.

floppy disk drive. A device that reads and writes information on a floppy diskette.

format. 1. To prepare a new floppy diskette or hard disk for use with the computer. 2. The way data is displayed. Pertains to the way data appears on the screen or on printed copy.

Frame Relay. A data service incorporating basic aspects of CCITT's LAPD protocol. It is used as one means of providing LAN interconnect service over packet switching networks.

Frame Relay Module (FRM). A node module providing a standard-based multiplexed interface to routers and gateways from other FRMs resident on the network.

FRM. An abbreviation for Frame Relay Module.

front end processor (FEP). A computer under the control of another, larger computer in a communications network. The FEP performs basic housekeeping operations on data streams as they arrive to be processed by the larger computer.

function keys. Numbered keys (F1, F2, and so forth) located on the side or across the top of a keyboard, programmed to perform specific commands with a single keystroke.

G

gateway. A conceptual or logical network station that serves to interconnect two otherwise incompatible networks, nodes, subnetworks, or devices; performs a protocol-conversion operation across a wide spectrum of communications functions, or layers.

GB. An abbreviation for "gigabyte." A gigabyte equals 1000 megabytes.

Graphics System. A separate processor that contains graphics capabilities to run application packages.

Graphics System Platform. A base software package on which all graphics-based *StarKeeper II* NMS application packages are installed.

group. A database component identifying a set of ports or channels that are considered a unit. There are two kinds of groups: local (can include any module except a trunk) and trunk (can include only trunk modules).

group name. An identifying label for a database element consisting of a set of ports.

GUI. An abbreviation for Graphical user interface.

H

hardcopy. Printed characters on paper. Any off-line documentation.

HDLC. An abbreviation for High Level Data Link Control.

help. A *StarKeeper II* NMS interface that provides on-screen assistance. Each application supplies help for its own application functions and elements.

High Level Data Link Control. A link-layer, bit-oriented synchronous data communi-

cations protocol included in the X.25 packet-switching protocol.

High-speed Trunk (HS-TRUNK). A high-speed **trunk** module in the **node** or in a SAM64/504.

hop. The logical distance between one node and an adjacent node, at the routing layer.

hop count. The number of nodes a call setup attempt traverses.

host computer. A computer attached to a network that provides services such as computation, database access, or special programs system languages.

host connection. A connection in which a *StarKeeper II* NMS host computer is connected to a node by a fiber optic cable.

Host Interface Software, *Datakit II* VCS. Multiplexed host software that enables the host connection to a node's Computer Port Module (CPM).

HP. An abbreviation for Hewlett-Packard.

HP-UX system. A general purpose, multi-user, interactive, time-sharing operating system used with your computer.

HS (High Speed). *See* **Trunk-HS**.

HS-TRK. An abbreviation for High Speed-Trunk (link) module (in SAM64/504).

hub node. The network node to which the *StarKeeper II* NMS host computer is connected.

hunt group. The association of a list of receiving devices with a single **service address**.

Hz. An abbreviation for Hertz.

I

ICI. An abbreviation for Inter-Carrier Interface.

ID. An abbreviation for identification.

init. An abbreviation for initialize.

interactive. The ability to interact with a computer, or to be in a conversational mode with a computer. Interactive processing is time dependent, since a user is waiting for the computer to ask questions and the user responds to the questions.

Inter-Carrier Interface (ICI) The Inter-Carrier Interface is a network-to-network interface. XA-SMDS and intercompany serving arrangements are available via the ICI. Since the ICI is an open interface, networks can interconnect with other vendors' SMDS networks, provided those networks comply with the proper requirements.

interface. The relationship between communicating modules, usually in the same node; between different computers; and also the method of access between a program and an end user.

interface module. A printed-circuit board providing network access for a specific type of end device.

interrupt. A suspension of a process, such as the execution of a computer program, caused by an event external to that process and performed in such a way that the process can be resumed.

ISDN. *CCITT Recommendation.* An abbreviation for Integrated Services Digital Network.

J

jumper block. An electrical connector designed to form a connection, or jumper, between corresponding pins on a **jumper strip**.

jumper strip. A component on a printed circuit board that contains pairs of pins

that can receive **jumper blocks** to set hardware options for the board.

K

KB. An abbreviation for kilobytes.

Kbps. An abbreviation for Kilobits per second.

keyboard. Commonly used input device.

L

LAN. An abbreviation for Local area network.

LCS. An abbreviation for LAN Communication System(s).

legend. A set of symbols a user selects and places on network maps to represent network equipment.

LIM. An abbreviation for Link Interface Module.

link interface module (LIM). A **trunk** module (SFT or SWT) that connects **concentrators** to the node.

listener address. The address recognized by a *StarKeeper* II NMS Core System's listener process. This address must be entered into the database of the node(s) that provides *Datakit* II VCS Host Interface Access to the Core System.

local area network (LAN). A data network with communicating devices and connection media that occupy a single geographic location.

local listener address. The address that the listener process on the local machine responds to when a remote *StarKeeper* II NMS attempts to establish a connection to the local machine. The local listener address must be fully qualified and entered as a service address in the

BNS-2000 VCS node that provides network connectivity to the local machine.

local machine ID. An integer between 1 and 100, inclusive, and unique among other *StarKeeper* II NMS machines within the *StarKeeper* II NMS network. The assignment of the local machine ID must be made with consideration of the machine IDs assigned to the other *StarKeeper* II NMS machines that comprise the network.

local service address. Part of the BNS-2000 VCS (R2.0 and later) addressing scheme that refers to endpoints or a host on a network that receive calls. *See addressing.* *Also see network, area, and exchange.*

LPM. An abbreviation for LAN Protocol Module.

M

MAC protocol. An abbreviation for Media Access Control (IEEE 802); Master Alarm Collector (*StarKeeper* II NMS).

machine. A generic term for a computer or workstation.

machine ID. *See local machine ID.*

Maintenance and Redundancy Control Module (MRCM). An (optional) intelligent module that monitors the operational state of the control computers in a node; a multiport administrative interface that gives enhanced maintenance and automatic recovery capabilities to a node.

male connector. A cable connector in which the connections are made with pins or prongs that fit into complementary receptacles in a **female connector**.

Master Alarm Collector (MAC). A *StarKeeper* II NMS configured to receive and collect alarm messages from other net-

work and element management systems.

MB. An abbreviation for megabyte(s).

Mbps. An abbreviation for megabits per second.

message of the day. A node feature that allows the network administrator to send up to three lines of text to terminal users when they connect to the network.

meta-characters. Special keyboard characters used in *StarKeeper II NMS* for searches (patterns matching) and substitutions.

message units. Can be either **packets** or **segments**; depends on the type of node from which this data was collected.

modem (modulator-demodulator). A device pair that allows a terminal user to communicate with network services over telephone lines.

M1. Series M1 shelf (BNS-2000).

monitor. 1. A device for visual presentation of information as temporary images. A video display. 2. *Syn:* cathode ray tube display.

MPC. An abbreviation for **Multipurpose Concentrator**.

MRCM. An abbreviation for Maintenance and Redundancy Control Module.

MRCM connection. A connection type in which a connection is made to the MRCM module.

MS-DOS. An abbreviation for Microsoft Disk Operating System.

multiplexer. A device that allows multiple devices to communicate with **hosts**, public data networks, or a data switch.

Multipurpose Concentrator. A **concentrator** consisting of a **modular cabinet** without a **Control Computer**. Connects to the **node** via optical fiber or wire

trunk, and has interface slots for **TY12**, **BA12**, **TSM8**, **CPM-HS**, **CPM-422B**, **Sync8**, and **X.25** modules. Two types of Multipurpose Concentrators are available: 7-slot and 15-slot.

MUX. An abbreviation for multiplexer.

N

NAC. An abbreviation for Network Access Controller (Network Access Control System).

NB. An abbreviation for Network Builder (*StarKeeper II NMS*).

network. 1. The interconnection of a number of points (nodes, computers, terminals, and so forth) by communications facilities. 2. Part of the BNS-2000 VCS addressing scheme that is equivalent to the overall network name. *See* **addressing**. *Also see* **area**; **exchange**; **service address**.

network address. A *StarKeeper II NMS* representation, input by keyboard characters, of a specified **network element**. The network address positively identifies the component. Often abbreviated *netaddr*.

network administrator. Individual responsible for the operation, administration, and maintenance of a network.

Network Builder. *StarKeeper II NMS* Graphics application used for configuration management and analysis. The application provides a Forms Interface to configure network elements.

network connection. A connection in which a *StarKeeper II NMS* host computer is cabled to a TY port on a node and uses the node to connect to a remote element.

network elements. The equipment and services that comprise a data communications network.

Network Management System (NMS). A centralized system used to operate, administer, and maintain an entire data communications network.

Network Monitor. *StarKeeper II* NMS Graphics application used for fault management by providing alarms and diagnostics capabilities on geographic network maps. The application provides an easy-to-use map editor and can generate maps automatically.

NM. An abbreviation for Network management; network manager; Network Monitor (*StarKeeper II* NMS).

NMS. An abbreviation for Network Management System.

node. 1. One or more BNS-2000 or BNS-2000 VCS cabinets containing a **Control Computer**, one **Clock module**, and one **Switch module**. 2. All backplanes sharing a transmit and a receive bus, connected by **Repeater modules**.

non-staged installation. A *StarKeeper II* NMS system being installed for the first time by non-Lucent Technologies personnel.

O

operating system. The software that controls and allocates the resources, such as memory, disk storage and the screen display for the computer.

option. An addition to a command to improve or provide an extra enhancement to the command. The option is usually depicted with a minus (-) sign in front of it.

originating group. The type of **group** assigned to devices, such as data termi-

nals, that can initiate calls to other devices.

OS. An abbreviation for operating system.

overhead. All information, such as control, routing, and error-checking characters, that is in addition to user-transmitted data; includes information that carries network status or operational instructions, network routing information, as well as retransmissions of user-data messages.

P

packet. A unit of data transmitted through a network.

packet assembler/disassembler (PAD). A device that disassembles data for transmission and assembles it at data reception. A node performs PAD functions to connect the node to a **PDN** or **X.25 host**.

PAD. An abbreviation for Packet assembler/disassembler.

paddle board. The input/output distribution board at the rear of the node or concentrator cabinet that provides external connections to the interface modules.

parameter. 1. A variable that is given a constant value for a specified application and that may denote the application. 2. A name in a procedure that is used to refer to an argument passed to that procedure.

parity. Addition of non-information bits to data, making the number of ones in each grouping of bits either always odd (for odd parity), or always even (for even parity). This permits detection of a single-bit error in each transmitted or stored character.

parity bit. An extra bit added to a byte, character, or word to ensure that there is always either an even or odd number of

bits according to the logic of the system. If, through a hardware failure, a bit should be lost in transmission, its loss can be detected by checking the parity. The same bit pattern remains as long as the contents of the byte, character, or word remain unchanged.

parity error (PE). A signal that flags a parity bit error.

partition. A section of the hard disk used to store an operating system and data files or programs. By dividing the disk into partitions, the space allocated can be used in a more efficient and organized manner.

partitioned user. A *StarKeeper II* NMS user with a login on the system and access the commands specified by the network administrator.

PC. An abbreviation for Personal computer.

PDN. An abbreviation for Public Data Network.

PE. An abbreviation for Parity error.

performance connection. A connection in which performance measurement data is collected from nodes.

Performance Reporter. *StarKeeper II* NMS Graphics application used for routine assurance and long term engineering. Error counts, indicators, and thresholding are provided, as well as performance reports for trunk utilization and connections.

pipelining. The transmission of synchronous data as it arrives at the network interface, without waiting until a frame is filled.

port. An access point for data entry or exit.

PQ (Priority Queuing). See **Trunk-PQ**.

PR. An abbreviation for Performance Reporter.

predefined destination (PDD). An administered association of a fixed network destination with an originating end device, resulting in an automatic **call setup** request as soon as the originating device comes on-line. Compare **virtual circuit**.

printer sharing. An arrangement in which two or more Systems share the use of a printer by sending files through the wide area network to the **spooling host** that has a direct connection to the printer.

program. See *application*.

Programmer's Interface. A *StarKeeper II* NMS feature that allows the development of custom application programs through the use of scripting tools.

protocol. A formal set of rules governing message exchange between two communicating devices.

PVC. An abbreviation for Permanent virtual circuit.

Q

query. A request for information (displayed on the terminal screen) from the system that requires a response from the user.

queue. A line or list formed by items in a system waiting for service.

R

RAM. An abbreviation for Random access memory.

reboot. To reinitialize the operating system and *StarKeeper II* NMS.

receiving group. The type of group assigned to devices, such as host computers, that can receive calls from other devices connected to the **node**.

remote *StarKeeper* NMS. 1. A pre-R3.0 version acting as a subordinate to a Master Alarm Collector. **2.** In a distributed *StarKeeper* II NMS environment, the machine you are administering is viewed as the local machine and any other machine is a remote *StarKeeper* II NMS.

reverse video. A form of highlighting a character, field, or cursor by reversing the color of the character, field, or cursor with its background; for example, changing a red character on a black background to a black character on a red background.

root. The superuser login ID. You must log in as **root** to install software or to perform system administration tasks.

RS-232-C. An EIA standard for data communications, describing the electrical, mechanical, and functional characteristics of the connections between devices exchanging data in serial binary form. RS-232-C connections are those cables and connectors conforming to this standard.

S

SA. An abbreviation for Source address (SMDS); Service Area (X.121).

SAM. An abbreviation for Synchronous/Asynchronous Multiplexer.

SAMML. A Synchronous/Asynchronous Multiplexer Multiport Link.

SAM Multiport Link. An interface module in a node providing connection to up to 8 **SAMs**.

SAMSL. A Synchronous/Asynchronous Multiplexer Single Link.

SAM16. An abbreviation for Synchronous/Asynchronous Multiplexer 16-port.

SAM64. An abbreviation for Synchronous/Asynchronous Multiplexer 64-port.

screen blanking. A feature that causes a screen to go blank if no keyboard or **mouse** input occurs within a specified number of minutes.

SCP. An abbreviation for Seamless Communication Platform.

SCSI. See **Small Computer System Interface**.

SDLC. See **Synchronous Data Link Control**.

SDLC8. See **Synchronous Data Link Control Module, 8-port**.

SDS. An abbreviation for Software Disk Stripping.

SFT. An abbreviation for Standard Fiber Trunk (interface module).

segment. A protocol data unit of 53 octets.

select. To choose an object or objects on the screen for which an action is intended.

server. A machine in a network that provides a particular service to other machines; for example, a database server manages a large database.

service address. An administered identifier for a destination in the BNS-2000 VCS network.

Session Maintenance. A feature that provides data transport reliability over inter-nodal trunks between ECPU Systems in BNS-2000 and BNS-2000 VCS networks.

setup. 1. In a computer that consists of an assembly of individual computing units, the arrangement of interconnections between the units, and the adjustments needed for the computer to operate. 2. The preparation of the system for normal operation.

shelf. A carrier inside a cabinet that contains a **backplane** and other hardware. It supports the insertion of modules into the backplane.

SIG. An abbreviation for SMDS Interest Group.

Small Computer Systems Interface (SCSI). Pertaining to the ANSI-defined standard for attaching intelligent peripherals to computers.

SMDS. An abbreviation for Switched Multi-megabit Data Service.

SNA. An abbreviation for System Network Architecture.

SNI. An abbreviation for Subscriber Network Interface.

SNMP. An abbreviation for Simple Network Management Protocol (Internet/TCP/IP standard).

Software Package System. *StarKeeper II* NMS software that is sent to the customer, who installs it on his or her own hardware.

SP. An abbreviation for Software Package.

speedcall. An administered shortened name or short code for a network destination **address**.

spooling host. The computer with a **direct connection** to the printer when two or more systems share the same printer. In a client-server model, the spooling host is a print server.

SQL. An abbreviation for Structured Query Language.

SR. An abbreviation for Special report (SMDS); Service Region (X.121).

SS. An abbreviation for Staged System.

Staged System. A *StarKeeper II* NMS system shipped from the factory equipped with specified software and host connection hardware.

Standard Fiber Trunk (SFT). An **interface module** for an optical fiber connection between two **nodes**, a node and an **MPC**.

Standard Wire Trunk (SWT). An **interface module** for a wire connection between two **nodes** or a node and a **concentrator**.

StarGROUP®. Lucent Technologies trade name for a star network configuration that connects Local Area Networks.

StarGROUP Interface Module–Bridge (SLIM-B). An **interface module** that supports LAN bridging.

StarGROUP Software VCS Access Program. Asynchronous gateway server.

StarKeeper® II Network Management System (NMS). A centralized system used to view an entire network and monitor, control, configure, and diagnose any **node** in the network.

StarKeeper II NMS connection. A connection type in which the transfer of configuration information between StarKeeper II NMS machines is permitted.

Subscriber Network Interface (SNI) The SNI is the interface between a carrier's SMDS network and the subscriber-owned, Customer Premises Equipment (CPE). At this interface, the CPE attaches to an access facility—such as a DS1 digital transmission facility (DTF)—that connects it via a dedicated path to the AI module.

superuser. A user with OS administrative privileges.

supported applications. Applications for which Lucent Technologies provides telephone hot line assistance and client-site software support.

SVC. An abbreviation for Switched virtual circuit; service connection(s).

SWT. An abbreviation for Standard Wire Trunk (interface module).

Switched Multimegabit Data Service (SMDS) A high-speed, connectionless, public packet-switched service. SMDS can interconnect local area networks (LANs) through a wide area network (WAN) or across a metropolitan area to form a *metropolitan area network* (MAN) using a network-to-network interface called an Intercarrier Interface (ICI). When using SMDS across a wide area network, multiple carriers and multiple networks are interconnected.

synchronous. Transmission in which the data characters and bits are sent at a fixed rate with the transmitter and receiver synchronized. *Compare asynchronous.*

Synchronous Data Link Control (SDLC). A link-layer, bit oriented protocol, similar to HDLC, used primarily by IBM devices.

Synchronous Data Link Control Module, 8-port (SDLC8). An interface module for SNA/SDLC hosts to the network, used in conjunction with the LAN Communications System (LCS100 Network Gateway). Multiple LCSs can originate and receive circuit calls through a CPMML to a single SDLC8 port.

syntax. The format of a command line.

T

terminal emulator. An application that makes the host terminal appear to be another type of terminal; this change of appearance is for the benefit of the connecting device, which recognizes the terminal being emulated.

text field. An area in a **window** where text is entered from the keyboard.

toggle. 1. The name given to a switch that changes for every input pulse or, any

simple two-position switch. 2. The action of going back and forth between two conditions.

T1. A digital carrier (wire transmission) facility providing 1.544 Mbps of bandwidth (2 Mbps. internationally).

T1 Trunk. A module in the SAM64, SAM504, or VDM-SAM504 that is a counterpart to the **TRUNK-T1** module in the **node**.

Transparent Synchronous Module (TSM8). A transparent synchronous 8-port interface module that supports synchronous or asynchronous communication.

TRK. An abbreviation, on a screen, for trunk.

trm. An abbreviation for terminal emulation software (*StarKeeper II NMS*).

troubleshooting. The process of finding the cause of a problem in a system and taking actions to fix the problem.

trunk. A **facility** connecting two nodes.

TRKE3S. A Trunk-E3 SMDS interface module to a T1 transmission facility between two nodes.

TRKT3. A Trunk-T3 interface module that supports connection-oriented (CONS) and connectionless traffic between nodes at transmission speeds up to T3.

TRKT3I. A Trunk-T3 Interchange connection-oriented and connectionless ICI interface module.

TRKT3. A Trunk-T3 Screening connection-oriented and connectionless SMDS interface module.

TRK64. A wire interface module that provides communications between nodes over a Digital Data Service (DDS) line, using one of two I/O boards (AWJ9, AWJ11).

Trunk-DDS. A Digital Data Service (DDS) trunk module consisting of a single-board processor (MC5P033A1) and an SC/DK1 interface board (UN221). The SC/DK1 board is on the left side of the module and contains the module switches and LEDs.

Trunk-HS. A High Speed (HS) fiber interface module that uses the AWJ2 I/O board to provide connections between nodes as well as connections between nodes and SAM504 and SAM64 modules. The counterpart for the Trunk-HS in the SAMs is the HS-Trunk module. Refer to the Synchronous/Asynchronous Multiplexer Reference for a description of the HS-Trunk module.

Trunk-PQ. A Priority Queuing (PQ) single port wire interface module that provides fair queuing and enhanced buffering for multi-protocol traffic, and enforcement of Committed Information Rate (CIR) for frame relay traffic at up to T1/E1 rates. The AWJ24 I/O board provides a V.35 DTE connection to the external device.

Trunk-SFT. A Standard Fiber Trunk interface module that links nodes over fiber optic cable to other nodes and to MPCs. The maximum cable length for fiber trunks is 2.91 km.

Trunk-SWT. A Standard Wire Trunk interface module for wire trunks between nodes and from nodes to MPCs. A variety of connections can be made by selecting the appropriate I/O board. For more detail, refer to the BNS-2000 VCS Trunk Module Reference Trunk Module Installation.

Trunk-T1. An interface module for wire trunks that provide long-distance, high-speed point-to-point communication over a T1 digital transmission facility between nodes. The Trunk-T1 module is used with an AWJ4 I/O board that provides

TSM8. See **Transparent Synchronous Module (TSM8)**.

TSM-T1. A transparent synchronous T1 interface module.

two-way (2-way) group. The type of **group** assigned to devices that can originate and receive calls to and from a node.

turnkey shutdown. The capability to automatically log off of application programs on system shutdown.

TY12. A 12-port asynchronous **interface module**.

U

UAI. An abbreviation for Uniform Alarm Interface (*StarKeeper* II NMS).

UART. An abbreviation for Universal asynchronous receiver/transmitter (integrated circuit).

uname. (unique name); the local HP-UX machine name.

UNIX system. A general-purpose, multi-user, interactive, time-sharing operating system used with your computer.

unsupported applications. Applications that Lucent Technologies offers for demonstration and experimentation purposes only.

upgrade. The latest release of *StarKeeper* II NMS to be installed on a system running an earlier release.

upload. From the viewpoint of the reference computer or node, the act of sending data to another computer or storage device. See **download**.

utilities. A group of programs combined into a package that represent a specific application available with your computer.

USART. An abbreviation for universal synchronous/asynchronous receiver/terminal.

V

validation. The application's verification that the contents of a text field are appropriate to the function.

virtual circuit. A connection between a source and destination in a network that is realized by network addressing through switching elements, as opposed to a direct hardwired connection.

voice/data multiplexer (VDM). A device that allows the sending and receiving of simultaneous voice and data transmissions through existing telephone lines.

W

wide area network (WAN). A communications network that can cover an area with a radius of greater than 3km.

wild card. A method, used in *StarKeeper II* NMS network addressing, to expand the matching criteria when searching for specified records in the database. (*Compare anchor*).

Workstation Administration Application. A Graphics System application that allows a Workstation Administrator to oversee administrative tasks.

X

X.25. An interface module that supplies X.25 services, allowing X.28 hosts and asynchronous terminals to connect to a public data network (PDN) or other X.28 hosts.

X.75. An interface module that supplies X.75 services.

X.121. A CCITT recommendation for an addressing scheme in Public Data Networks. (Part of the **X.25** protocol.)

X station. A supported device, on a Local Area Network, that supports *StarKeeper II* NMS graphics application packages.

Index

A

Administration
 connection type, 3-11
 node connection, 3-1
Administrator
 network, xi
Alarm connection, A-1
Alarm data, 3-5
Alarms, 3-2
 connection type, 3-11
Altitude
 operating, 4-1
 storage, 4-1
Application packages
 and Core System, 1-2
 graphics, 1-4, 2-7
 multiple user, 2-7
 supported, 1-2
Applications
 optional, 1-3
Architecture
 modular, 1-2

B

Backup
 dial, 3-11
Billing
 connection type, 3-11
 data, 3-5, 3-6, 3-9
 periodic, A-21
 switched calls, A-21
 parameters, 3-11
Billing connections, A-1, A-26
Billing node connection, 3-1
Bisynchronous modules, A-23
Bulletin Board, 1-4
Business Broadband Networks, 1-7

C

CAC. *See* Customer Assistance Center (CAC).
Central Processing Unit (CPU), 3-9
 requirement report, 3-8
 space, 1-8
Clean-up, 3-8
CNM. *See* Customer Network Management (CNM).

Computing environment
 preparing the, 4-1
Concentrators, A-23
configtool.exe, A-3
Configuration data worksheet
 instructions, 3-10
Configuration(s), 1-2
 hardware, 2-1, 2-4
 HP 715/64 or 715/100, 2-3
 network, 3-8
 new systems, 2-2–2-9
 software, 2-1, 2-5
Configurator Tool, 1-7, 1-7, 1-7, 3-3, 3-8
 adjusting, 3-8, 3-9
 and Lotus 1-2-3, A-1, A-2
 and minimum PC memory, A-2
 and MS-DOS, A-2
 and other *StarKeeper* NMS releases, A-2
 computational output, A-1
 CPU requirement report, A-25, A-27, A-29
 disk requirement report, A-25, A-29
 environment, A-2
 function, 1-7
 hardware requirements, A-2
 help screens, A-8
 installation, A-3
 memory requirement report, A-25
 Node Group Characteristics screen, A-10, A-16
 on-line help, A-8
 Operating Environment screen, A-10, A-12
 ordering copies of, A-31
 Other System Characteristics screen, A-10, A-18
 Permanent Virtual Circuit (PVC) billing screen, A-10, A-20
 running requirements, A-2
 Switch Virtual Circuit (SVC) (Billing only) screen, A-10, A-19
 use of, A-1
 worksheet program, A-2
Connection
 administration, 3-1, A-25
 alarm, A-1
 billing, 3-1, A-1, A-25
 console, 3-1, A-25
 machine, A-25
 nodes, 3-1
 other systems, A-25
 performance, 3-1, A-1, A-25
 to other systems, A-1
 types of, 3-1, 3-10
Connections worksheets, 3-9
console command, 3-11
Console connection, A-25, A-26
Console node connection, 3-1
Core System, 3-10
 and flexible growth, 1-5
 and optional application packages, 1-2
 backup, 3-6

- division of labor, 1-3
- function, 1-2, 1-3
- multiple systems, 1-2, 1-3
- on HP Model 715/64, 2-2
- single system, 1-2
- software configurations, 2-5
- strategies, 3-6
- workload, 1-3

Co-resident System, 1-5, 1-8, 3-6

- functions, 1-5

CPM modules, A-23

CPU, A-29

CPU requirement report from Configurator Tool, A-25, A-27, A-29

Customer Assistance Center (CAC), 1-7

Customer Network Management (CNM), 1-3

Cut-Through Application, 1-4

D

Data

- collection, 3-5
- evaluating, 3-5

Data Retention Periods, 3-7

Dial backup, 2-3

- connection type, 3-11

Disk requirement report, 3-8

- from Configurator Tool, A-25, A-29

Disk space, 1-8, A-29

Documentation

- core staged systems, 2-6
- Hewlett-Packard*, xv
- INFORMIX, xv
- StarKeeper II NMS*, xv

E

EISA Datakit Software, 2-5

Environmental requirements, 4-1

Ethernet, 1-1

Ethernet Local Area Network (LAN), 1-5

F

Features

- new, 1-6

Frame relay modules, A-24

Frame relay ports, A-24

G

Graphics applications package, 1-4, 2-7

- and Core System, 1-2
- single user, 2-7
- software components, 2-7
- supported, 1-2

Graphics System, 1-3, 3-10

- software package, 1-2, 2-2
- support, 1-2
- workstation, 1-3

Graphics System Platform, xi, 1-2, 1-4

- capabilities, 1-4

H

hard disk drives, A-30

Hardware

- configurations, 2-1, 3-3
 - Core system, 2-4
 - Co-resident systems, 2-4
 - Graphics system, 2-4
- HP installation, 1-6
- summary, 3-8

Help screens for Configurator Tool, A-8

Hewlett-Packard (HP) 2-User Composite Software Tape, 2-5

Hewlett-Packard (HP) Apollo 9000 Series, 2-7

Hewlett-Packard (HP) GlancePlus software, 2-5

Hewlett-Packard (HP) software configuration, 2-7

Hewlett-Packard 700 Series

- requirements for, 4-1

HP, 3-1

HP-UX operating system, A-30

I

INFORMIX® documentation, xv

Installation of Configurator Tool, A-3

Installation services, 1-6

Installation tape

- single, 2-5
- staged systems, 2-5

K

K shell, 2-17

L

LAN ports, A-24
Licensing, 2-2
 applications, xii
Limits, system, 2-16
Local Area Network Netstations, xii
LocalTalk, 1-1
Lotus 1-2-3, A-1
 and Configurator Tool, A-2
 installation, A-3
LPM modules, A-24

M

M port, 3-11
M1 shelves, A-24
Machine connections, A-26
Maintenance and Redundancy Control Module (MRCM)
 connection type, 3-11
Measurements
 module/port level, 3-9
 performance, 3-9
 trunk, 3-9
Memory
 core, co-resident, and graphics systems, 3-1
 HP 715 workstations, 3-2
 HP C200, 3-1
 space, 1-8
 usage, 3-8
Memory requirement report, 3-8
 from Configurator Tool, A-25
Module/port level measurements, 3-9
Modules
 BSC3270, 3-9
 Frame Relay, 3-9
 SAMs, 3-9
 SMDS, 3-9
 TSM8, 3-9
Monitoring
 servers, 1-1
MRCM. *See* Maintenance and Redundancy Control Module (MRCM).
MS-DOS, A-2
 and Configurator Tool, A-2, A-3

N

Netstation, 1-2, 2-15, 3-5, 3-7
 connection to host machine, xii
 functions, 1-5

Network, 1-4
Network Access Control (NAC) System, 1-1
Network Builder, 1-2, 1-4
Network configuration
 determining, 3-5
 modifying, 3-8
Network Monitor, 1-2, 1-4
 geographic network maps, 1-4
Node
 characteristics, 3-7
 connections, 3-1, 3-6
 administration, 3-1
 billing, 3-1
 console, 3-1
 monitored, 1-1
 relocations, 3-7
 splitting for Core System, 3-6
Node Group Characteristics screen for Configurator Tool, A-10, A-16

O

Operating Environment screen for Configurator Tool, A-10, A-12
Operating Humidity, 4-1
Operating Temperature, 4-1
Operating/user environment characteristics, 3-7
Optional core applications, 1-3
OSF/Motif, 1-4
Other System Characteristics screen for Configurator Tool, A-10, A-18

P

Performance connections, 3-1, A-1, A-26
Performance data, 3-5, A-22
Performance measurements, 3-7, 3-9, A-22
Performance Reporter, 1-2, 1-5
Permanent Virtual Circuit (PVC)
 billing, 3-7
 billing screen for, A-10, A-20
Ports, A-23
PRINT option, A-31
Printer(s), 2-15
Product information, 1-6
PVC. *See* Permanent Virtual Circuit (PVC).

R

Receiving groups, A-22, A-24

Reports from Configurator Tool

- CPU requirement, A-25, A-27, A-29
- disk requirement, A-25, A-29
- memory requirement, A-25

Requirements

- environmental, 4-1
 - site, 4-1
 - RS-232 ports, 3-2
-

S

- SAM modules, A-24
 - multi-port, A-24

- SDLC8 modules, A-24

- Server monitoring, 1-1

- Service and support, 1-6

Service(s)

- Customer Assistance Center (CAC), 1-7
 - hardware installation, 1-6
 - product information, 1-6
 - software installation, 1-6

- Simple Network Management Protocol (SNMP), 1-2, 1-3, 3-2

- Site requirements, 4-1

Sizing

- CPU, 1-8

- sk_sync command, 3-11

- skload command, 3-11

- SMDS AI modules, A-24

- smstat command, 3-11

- smverify command, 3-11

- SNMP. *See* Simple Network Management Protocol (SNMP).

Software

- configurations, 2-1
- EISA Datakit, 2-5
- HP GlancePlus, 2-5
- upgrade package, 2-1
 - options, 2-2

- Staged system, 2-1

- options, 2-2

Staging tape

- Core System, 2-5

- StarKeeper* II NMS Network Builder, 1-2

- StarKeeper* II NMS Network Monitor, 1-2

- StarKeeper* II NMS Performance Reporter, 1-2

- StarKeeper* II NMS SNMP Proxy Agent for SMDS, 1-3

- Start-up Service, 1-6

- Storage Temperature, 4-1

- Supported products, 1-1

- swap space, A-30

- Switched Virtual Circuit (SVC), 3-7

- Switched Virtual Circuit (SVC) (Billing only) screen for Configurator Tool, A-10, A-19

- System, 2-7
 - limits, 2-16
-

T

- Terminals, A-23

- supported, 2-15

- Trunk measurements, 3-9
-

U

- Uploaded/downloaded data, 3-5
-

V

- Visual User Environment, 1-4
-

W

Worksheet

- installation configuration data, 3-10

- Workstation Administration, 1-4

Workstation(s)

- and flexible growth, 1-5
-

Y

- Year 2000 compliance, xiii

Feedback Form

Please fill in the title of your specific document:

Document Title: StarKeeper® II NMS

Issue Number: _____ Release Number: _____

Lucent Technologies welcomes your feedback on this document. Your comments can be of great value in helping us improve our documentation.

1. Please rate the effectiveness of this document by checking the appropriate columns:

	Excellent	Good	Adequate	Fair	Poor	Not Applicable
Ease of Use						
Accuracy						
Clarity						
Completeness						
Organization						
Appearance						
Examples						
Illustrations						
Overall Satisfaction						

2. Please check the ways you feel we could improve this document:

- | | |
|---|---|
| <input type="checkbox"/> Include more figures | <input type="checkbox"/> Add more troubleshooting information |
| <input type="checkbox"/> Add more examples | <input type="checkbox"/> Add more/better quick reference |
| <input type="checkbox"/> Add more detail | <input type="checkbox"/> Add more step-by-step procedures/tutorials |
| <input type="checkbox"/> Improve the index | <input type="checkbox"/> Improve the overview/introduction |
| <input type="checkbox"/> Improve the organization | <input type="checkbox"/> Improve the table of contents |
| <input type="checkbox"/> Make it less technical | <input type="checkbox"/> Make it more concise/brief |

3. Feel free to write any comments below or on an attached sheet. _____

If we may contact you concerning your comments, please complete the following:

Name: _____

Company/Organization: _____

Address: _____

Telephone Number: (____) _____ Email: _____ Date: _____

Please fax this form to 1-732-224-3177 Attn: Documentation Coordinator, or place in envelope and return to address on back.

RETURN TO:

Lucent Technologies
Tri-Parkway Corporate Park
200 Schulz Drive
Red Bank, New Jersey 07701

Attention: Documentation Coordinator