LBI-39171

Installation Manual

EDACS® NETWORK MANAGEMENT

ERICSSON

NOTICE!

This manual covers Ericsson and General Electric products manufactured and sold by **Ericsson Inc**.

NOTICE!

This product may only be used for the functions described in this manual. Use of the product for other purposes shall constitute a violation of the license. Moreover, any addition of non-Ericsson approved hardware and software may cause the product to malfunction.

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1. PREFACE

This is one of four manuals for the EDACS® Network Manager. This manual provides instructions for installing and configuring the Network Manager station and associated equipment.

Additional documentation for the Network Manager is available in the following publications:

- *EDACS Network Management System Manual* (LBI-39215):
  This manual provides a system level overview of Network Management.
- *EDACS Network Management Enterprise Management Information Base (MIB) Reference Manual* (LBI-39170):
  This manual contains the EDACS common MIB files and defines each item identified within the file groups.
- *EDACS Network Manager User's Guide* (LBI-39169):
  This manual contains information for using the Network Management system.

1.1 MANUAL ORGANIZATION

The manual is divided into the following sections:

Section 1	**Preface** - The preface section identifies the other manuals in the Network Manager manual set and introduces the reader to the organization of this manual.
Section 2	**Introduction** - The Introduction section explains how to use this manual and annotation conventions used in this manual.
Section 3	**Documentation** - This section provides a list of Ericsson documents for the associated EDACS elements which might interface with the Network Manager. It also provides a list of manual and documents which may be obtained (or are provided) by vendors and outside sources.
Section 4	**Network Manager Installation** - This section provides an overview of the installation process.
Section 5	**Site Preparation** - This section describes some of the issues concerning the physical site where the Network Manager equipment will be located..
Section 6	**Hardware Installation** - This section provides instructions for unpacking and interconnecting the Network Manager hardware.
Section 7	**Initial Software Installation** - This section provides the sequence of steps required to initially install the software.
Section 8	**Customizing The Network Manager Software** - This section provides step-by-step instructions for setting up the Network Manager software to meet a customer's specific needs.
Section 9	**On-Site Configuration** - This section provides instructions for configuring other network elements, including the System Manager, Jessica, BCU/CAL, EDG, and IMC for operating with the Network Manager.
Section 9	**Optional On-Site Customization** - This section provides instructions for performing on-site customizing of the Network Manager to meet the customer's specific requirements.
Section 11	**License Utilities and Operations** - This section provides procedures for installing, upgrading and monitoring the various licenses.
Section 12	**System Maintenance** - This section contains instructions for performing recurring system maintenance tasks.
Section 13	**Remote Access** - This section provides background information and additional configuration information for using modems to remotely access to the Network Manager.

2. INTRODUCTION

This manual contains installation instructions, physical and functional descriptions, specifications, and initial setup instructions for the Enhanced Digital Access Communications System (EDACS®) Network Manager. The manual serves a guide for persons responsible for installing, maintaining, or performing administrative tasks. It assumes these individuals are familiar with the operating procedures for the various support software applications and the Network Management application software.

2.1 HOW TO USE THIS MANUAL

This manual describes the tasks associated with planning a Network Management system, installing the system, configuring the system to the customers needs, and maintaining the system at the Administrator level.

To locate a specific task refer to the *Table of Contents* or the *Index*.

2.2 CONVENTIONS USED IN THIS MANUAL

This manual uses the following typographic conventions:

`Boldface Courier Font`	Used to denote UNIX commands entered via the keyboard. These commands are case sensitive and must include all spaces and periods.
`Courier Text`	Normal text in the courier font represents text displayed
Boldface Italics	Used to denote file names and paths when identified in the text.
Italics	Manual Titles, emphasized words, and UNIX command parameters supplied by the user. For example, an term *IP Address* would be replaced by a specific address such as 192.168.201.0.
<***ENTER***>	This indicates pressing the RETURN or ENTER key to activate a command.
“Double Quotes”	Indicates titles of sections, within a manual, **SAM** windows, and **SAM** menu bar menus
->	Denotes stepping from one menu bar item to a submenu item, such as File -> Exit.

3. DOCUMENTATION

In may be necessary to consult one or more of the following documents when installing or maintaining the Network Management system. These manuals will also provide additional guidance if you encounter technical difficulties during the installation or configuration process.

3.1 HEWLETT-PACKARD DOCUMENTATION

The following Hewlett-Packard (HP) manuals provide additional information on the HP products used with the Network Manager:

- HP 9000 Series Owner's Guide
- B1171-90079 HP Visual User Environment User's Guide
- J2316-90001 HP OpenView Network Node Manager User's Guide
- J2316-90000 HP OpenView Windows User's Guide
- J2310-90002 HP OpenView Windows Application Design and Style Guide
- J2311-90001 HP OpenView SNMP Programmer's Guide and Reference
- J2311-90004 HP OpenView SNMP Management Platform Performance and Configuration Guide with HP Network Node Manager Examples for Release 3.3
- J2319-90002 HP OpenView Programmer's Guide
- J2319-90009 HP OpenView Programmer's Reference
- B2355-90037 HP Remote Access Manual

3.2 RELATED ERICSSON PUBLICATIONS

The following Ericsson publications provide additional information on EDACS elements which interface directly or indirectly with Network Management System:

Console Electronics Controller (CEC) and Integrated MultiSite and Console Controller (IMC) Documentation:

LBI-38662 - EDACS Console Electronics Controller (CEC) and Integrated MultiSite and Console Controller (IMC) Digital Audio Switch

LBI-38939 - CEC/IMC Customer-Specific System Documentation Overview

LBI-39031 - EDACS StarGate Controller Digital Audio Switch Maintenance Manual

LBI-39041 - EDACS CEC/IMC Digital Dispatch DVIU Equipment Maintenance Manual

LBI-39062 - EDACS C3 Maestro Console System Maintenance Manual

LBI-39100 - EDACS C3 Maestro Console System with Enhanced Audio Enclosure

LBI-39124 - EDACS CEC Manager operations Guide, V4.0l

LBI-39224 - CEC/IMC Manager for Windows NT

System Manager Documentation:

LBI-38703 - EDACS VAX/VMS System Manager Installation, Setup, and Troubleshooting Technical Reference Manual

LBI-38984 - EDACS VAX/VMS System Manager User's Guide

AE/LZT 123 1908/1 - Keyboard Mapping Template.

Billing Correlation Unit (BCU) and Centralized Activity Logger (CAL) Documentation:

LBI-38965 - EDACS BCU/CAL System and Installation Manual

LBI-38967 - EDACS Billing Correlation Unit/Centralized Activity Logger (BCU/CAL) User Interface Manual

Data Gateway Documentation:

LBI-38961 - EDACS Data Gateway Technical Description

LBI-38962 - EDACS Data Gateway Installation and Maintenance Manual

LBI-38963 - EDACS Data Gateway User's Reference Manual

LBI-38964 - EDACS Data Gateway Configuration Reference Manual

Jessica PBX Gateway Documentation:

LBI-39000 - EDACS Jessica PBX Gateway Systems Manual

LBI-39001 - EDACS Jessica PBX Gateway Operator's Manual

LBI-39039 - EDACS Jessica PBX Gateway MD110 Configuration Manual

LBI-39040 - EDACS Jessica PBX Gateway PI User's Manual

LBI-39080 - EDACS Jessica PBX Gateway Operator's Manual (Pocket Guide)

Miscellaneous Ericsson Documents:

ECR-1895 - Glossary of Mobile Radio Terms including Acronyms and Abbreviations.

Protocol Standards:

rfc-1213 - Management Information Base for Network Management of TCP/IP-Based internets: MIB-II.

4. SITE PREPARATION

Before you begin unpacking the Network Manager equipment, it may be necessary to prepare the operating location for the system installation.

4.1 EQUIPMENT LOCATION

The type and extent of site preparation depends on the user's specific needs. When installing the Network Manager system, please observe the following conditions:

- ❑ Install the Network Manager system in a securable location. This will discourage unauthorized access to the system and ensure the system is not accidentally turned off.
- ❑ Ensure the location has enough electrical outlets for all of the Network Manager equipment, including the Workstation or Server, Console Terminals, and external peripheral equipment, such as CD-ROM, tape drives, printers, etc.
- ❑ Locate the AC outlets near the Network manager equipment. The AC power cord is the main disconnect device and must be accessible at all times.
- ❑ Provide a separate outlet for the Network Manager equipment. Refer to the section on Electrical Power.
- ❑ Allow at least 12-inches of ventilation space behind the Network Manager equipment.
- ❑ Provide a storage cabinet for computer supplies (tapes, disks, printer supplies, etc.)
- ❑ Provide dedicated telephone outlets close to the Network Manager equipment for possible data communication (modem) and voice communication (in case assistance is needed).
- ❑ Ensure site is well ventilated and adequate lighting is available.
- ❑ Route all peripheral cables so they are not in traffic areas where they can cause injury or can be kicked loose.
- ❑ Plan peripheral installation to account for cable lengths.
- ❑ DO NOT use extension cords, or a multiple outlet power strip, to provide electrical power to the Network Manager equipment or peripherals.
- ❑ DO NOT install Network Manager equipment near open windows, where the equipment might be exposed to uncontrolled environmental conditions.
- ❑ DO NOT install the Network Manager equipment near doorways where heavy traffic is likely.
- ❑ DO NOT plug the Network Manager equipment or peripherals into power outlets controlled by a switch.
- ❑ DO NOT plug non-office type equipment into the same outlet as the Network Manager equipment. This includes items such as coffee pots, heaters, fans, radios, or televisions.
- ❑ DO NOT use the Network Manager equipment as a plant stand, or a resting place for anything.

4.2 EQUIPMENT ROOM GROUNDING

Ensure all equipment and facilities meet the requirements for grounding and lightning protection.

Ericsson manual LBI-39067 – *Standard For Site Grounding And Protection* provides instructions for proper grounding of sites and radio equipment. These procedures should be observed in order to protect the equipment and service personnel from lightning and other sources of electrical surges. This manual is not included, but is available on request from Ericsson Inc.

4.3 OPERATING ENVIRONMENT

The room where the Network Manager equipment is located must meet the environmental conditions listed in the Specifications section.

Although the temperature requirements for individual pieces of equipment may be broader, when several units are assembled together more heat is generated. Because of this condition, the ambient room temperature outside the cabinet must be lowered to ensure the temperature inside the units does not exceed the limits for the equipment.

4.4 ELECTRICAL POWER

All equipment used for the Network Manager system require 115 or 230 Vac (47 to 63 Hz) power sources. The equipment power supplies auto select the applied power, so no adjustments or switches need to be changed. As a minimum, each power outlet should be circuit breaker protected according to local building codes.

Uninterrruptible Power Supply (UPS) protection is optional. Maximum required UPS wattage rating for the Network Manager equipment should be based on the sums of the Workstation or Server (per manufacturers specifications), video monitor (per manufacturers specifications), and peripherals (per manufacturers specifications).

The HP9000-800 Business Server may also be ordered with an optional HP rechargeable battery back-up system which provides power to the server if the AC power fails.

5. HARDWARE INSTALLATION

The installation of the Network Manager involves unpacking the equipment and cabling up the system for use. The unpacking procedure applies to all system configurations and cabling up the equipment, which is configuration dependent.

5.1 UNPACKING EQUIPMENT

When unpacking the Network Manager equipment always exercise care and use common sense. If it looks heavy, it probably is.

CAUTION

The Network Manager computer equipment contains components which are vulnerable to Electrostatic Discharge (ESD) damage. Observe all precautions for handling the equipment as described in Ericsson's publication, LBI-38737, and precautionary information provided in the accompanying User's Guides.

Carefully unpack the Network Manager equipment by performing the following steps.

- ❑ Verify all cartons listed on the Bill of Lading have been received. If any cartons are missing, notify the carrier immediately and note the shortages on the Bill of Lading.
- ❑ Before unpacking, carefully examine each carton for obvious damage. If any damage is detected, note the damage on the Bill of Lading and notify the carrier. An inspector will usually be sent to your location to verify the damage.
- ❑ Move the cartons as close as possible to where the equipment will be used. A hand truck or pallet jack may be required.

CAUTION

DO NOT lift the Network Manager server (NM1 or NM2 configuration) out of the box. It is heavy, 50 kg (110 lbs). Follow the instructions on the shipping container for turning the carton on its side and "walking" the server out of the box.

- ❑ Remove packing material.
- ❑ Carefully remove equipment from cartons. Observe all safety precautions printed on the cartons.
- ❑ Inventory the equipment. While inventorying the equipment check for any damage and the equipment supplied matches the packing lists and equipment checklist included in this manual. If any damage or discrepancies are noted, contact your Ericsson representative and the carrier.
- ❑ Position the Network Manager equipment for use and assemble the peripheral equipment and accessories.
- ❑ Using the proper configuration procedure, setup and interconnect the Network Manager equipment components.

5.2 NM0 CONFIGURATION

The NM0 system is the base configuration for systems with up to two users and up to 100 network elements.

5.2.1 Basic NM0 Configuration Hardware

The following hardware components are included with the basic NM0 package:

Table 1 - Basic NM0 Configuration Hardware

	HP PART NUMBER	OPTION	DESCRIPTION
❑	A4023A		HP9000 - 700 Series Workstation, Model 712/60 SPU includes the following:
		ANE	64 megabytes Ram
		AQ5	17" Color Monitor - high resolution includes cable
		AT6	Internal Hard Disk - 2 gigabytes SE SCSI-2
	B3883AA	005	300 megabyte Swap size.
❑	C1521B		4mm DDS Tape Drive (stand-alone) - 4 gigabyte with data compression
❑	C2943A		External CD-ROM Drive (stand-alone) - 600 megabytes
❑	C2908A		SCSI Cable, 1m (3.2 feet) long, 50 pin high-density to 50 pin high-density. Connects workstation to CD-ROM.
❑	K2296		SCSI Cable, 1m (3.2 feet) long, 50 pin high-density to 50 pin low-density. Connects between CD-ROM (high-density) and DDS Tape Drive (low-density).
❑	K2291		SE SCSI-2 Terminator for low-density connector. Connects to tape drive.
❑	A4030B		PC-AT/Mini DIN connector with local kit including PC/AT PS/2 keyboard, 3 button mouse, localized manual set, and power cord.

5.2.2 NM0 Upgrade Options

The NM0 configuration can be enhanced by adding an additional 64 megabytes of RAM and further performance improvement can be achieved by upgrading the 712/60 processor to the 712/100 processor. Installing these options will permit the NM0 configuration to support additional managed network elements (appr. 2500).

Table 2 - NM0 Hardware Upgrade Options

	HP PART NUMBER	OPTION	DESCRIPTION
❑	A4221A		712/60 to 712/100 Upgrade Kit
❑	A2827B		64 megabytes RAM

5.2.3 Rear Panel Connectors

Figure 1 shows the locations of the connectors on the Network Manager Workstation rear panel. The following paragraphs describe the purpose of the connectors used by a typical Network Manager workstation. For a detailed description of all connections on the rear panel, refer to the accompanying HP User's Guides.

- **Power Cord Connector** Plug the workstation's power cord into the power cord connector to provide AC power to the system.
- **802.3 Network Connectors** The **ThickNet LAN AUI** or **LAN-TP** (twisted pair) connector is used to connect the workstation to an 802.3 (Ethernet) network. Workstations connecting to a ThinLAN network require an external transceiver.
- **SCSI Connector** The SCSI connector is used to connect to the workstation peripherals such as the CD-ROM and DDS Tape Drive.

NOTE

When attaching external SCSI devices, be sure to terminate the last device on the external SCSI bus. If no devices are attached, the SCSI connector does not require a terminator.

- **PS2 Connectors** The PS2 connectors provide an interface for the workstations keyboard and mouse.
- **Monitor Connector** The Monitor video cable connects the monitor to the workstation.
- **Modem (RS-232)** Connects an external modem to the Network Manager.

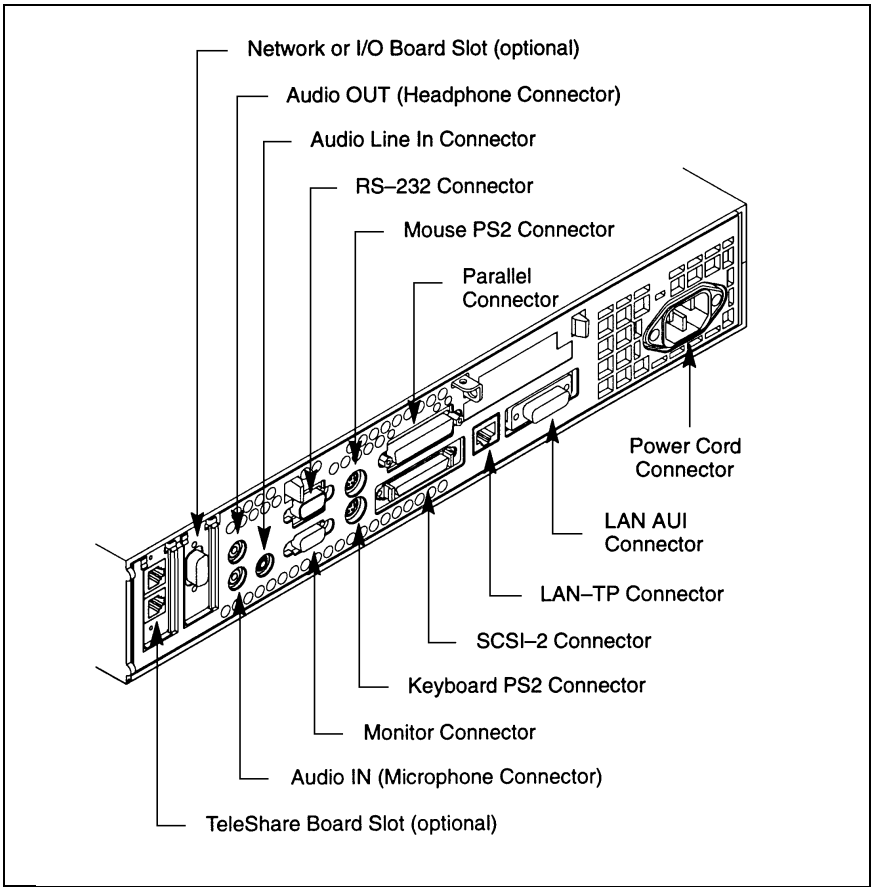


Figure 1 - HP 9000 - 700 Series Workstation Rear Panel Connectors

5.2.4 NM0 System Cabling

Cable up the NM0 Network Manager as follows:

1. Hook- up the Workstation using the cabling diagram shown in Figure 2.

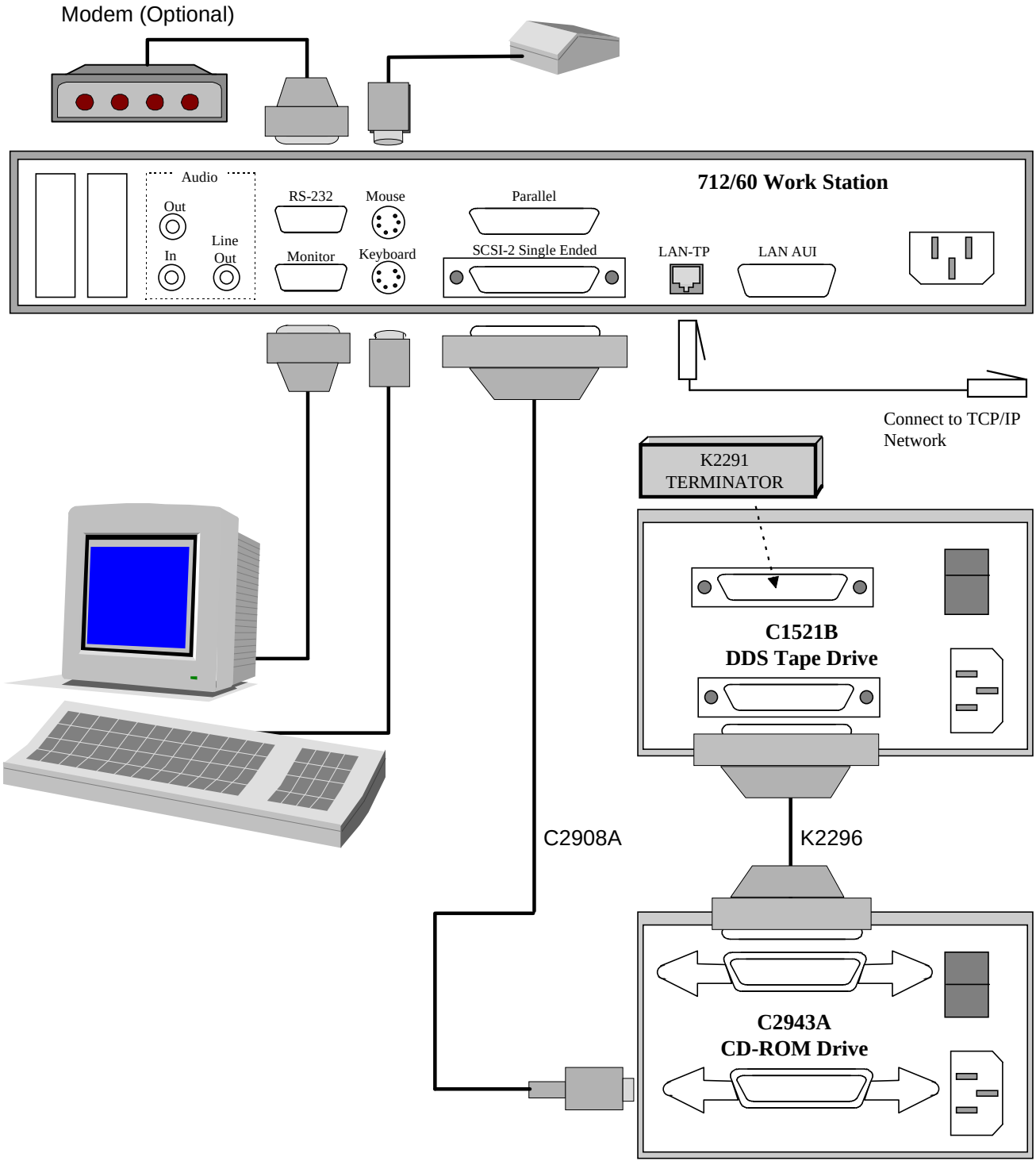


Figure 2 - 712/60 Interconnect Diagram

5.3 NM1 CONFIGURATION

The NM1 system is the base configuration for systems with three (3) users and up to 2000 network elements or five (5) users and 1000 or less network elements. The NM1 configuration may be expanded to manage up to three (3) users with 10,000 network elements or five (5) users and 5,000 network elements.

5.3.1 Basic NM1 Configuration Hardware

The following hardware components are included with the basic NM1 package:

Table 3 - Basic NM1 Configuration Hardware

	HP PART NUMBER	OPTION	DESCRIPTION
❑	A2429A		HP9000 - 800 Series Business Server, Model G60 includes the following:
	A2980A		G60 - 96 MHz CPU with 2 megabyte cache
	C1064WZ	ABA	C1064W 700/96 Console with white screen
	A2516AZ	ODU	128 megabytes RAM
	A2441A	ODS	LAN Personality card for base system I/O, includes 2 serial ports, single-ended SCSI-2 interface, and pre-configured 802.3 ThinLAN.
	A3087A	ODZ	Two (2) Internal Hard Disk Drives - 2 gigabytes SE SCSI-2
	A3183A	ODZ	4mm DDS Internal Tape Drive - 4 gigabyte with data compression
	A3184A	ODZ	Internal CD-ROM Drive - 650 megabytes

5.3.2 NM1 Upgrade Options

The NM1 configuration can be enhanced by adding additional RAM in 128 megabyte segments to a maximum RAM size of 784 megabytes. Upgrading to the G70 Business server will permit the NM1 configuration to support up to 25 users with 2500 managed network elements.

Table 4 - NM1 Hardware Upgrade Options

	PART NUMBER	OPTION	DESCRIPTION
❑	A2516A	ODZ	128 megabyte memory module
❑	A2977	875	G70 Dual processor upgrade

5.3.3 NM1 System Cabling

Cable up the NM1 Network Manager as follows:

1. Connect power cord and Ethernet cable to server.

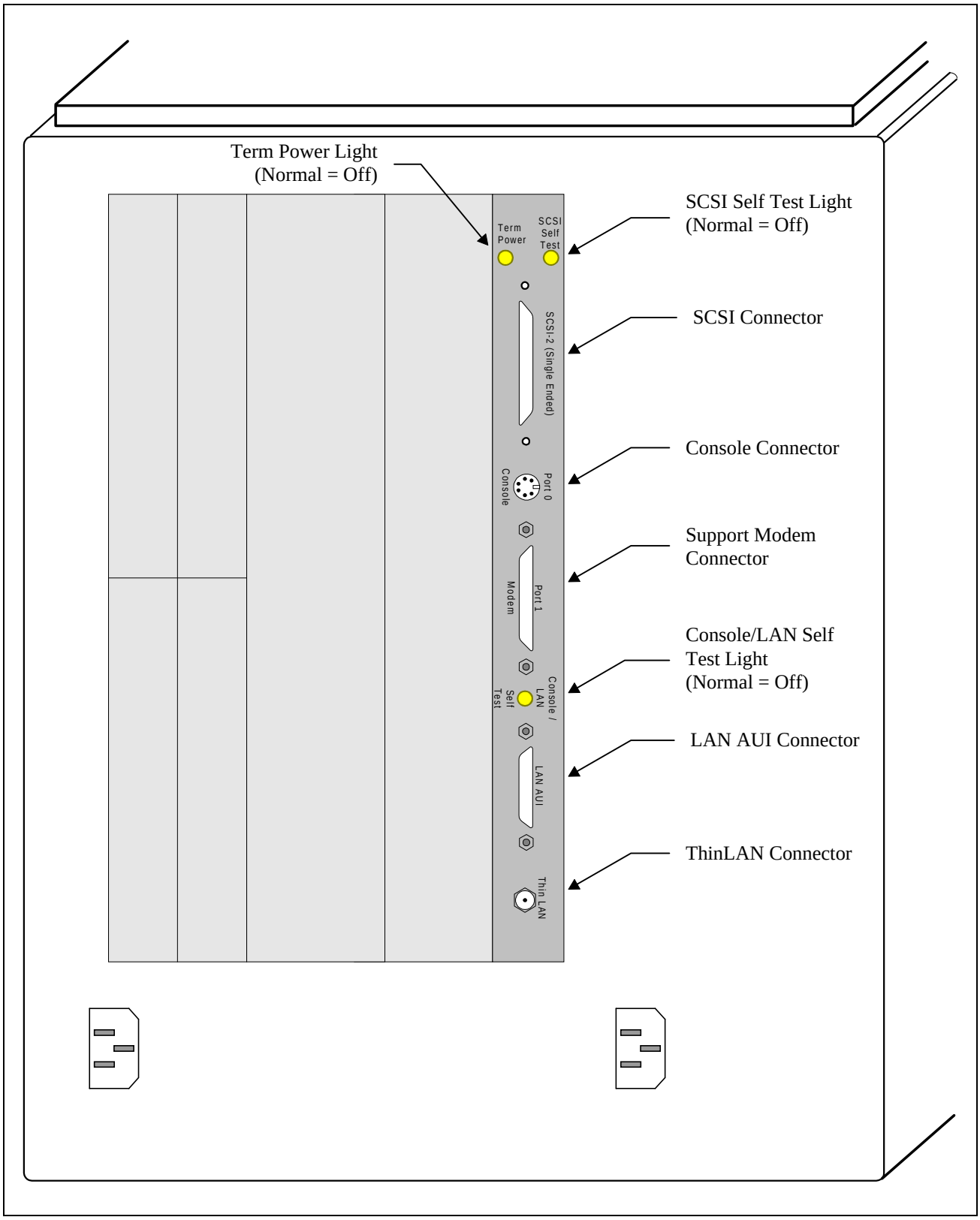


Figure 3 - HP 9000 - 800 Series Model G, Business Server Rear Panel Connectors

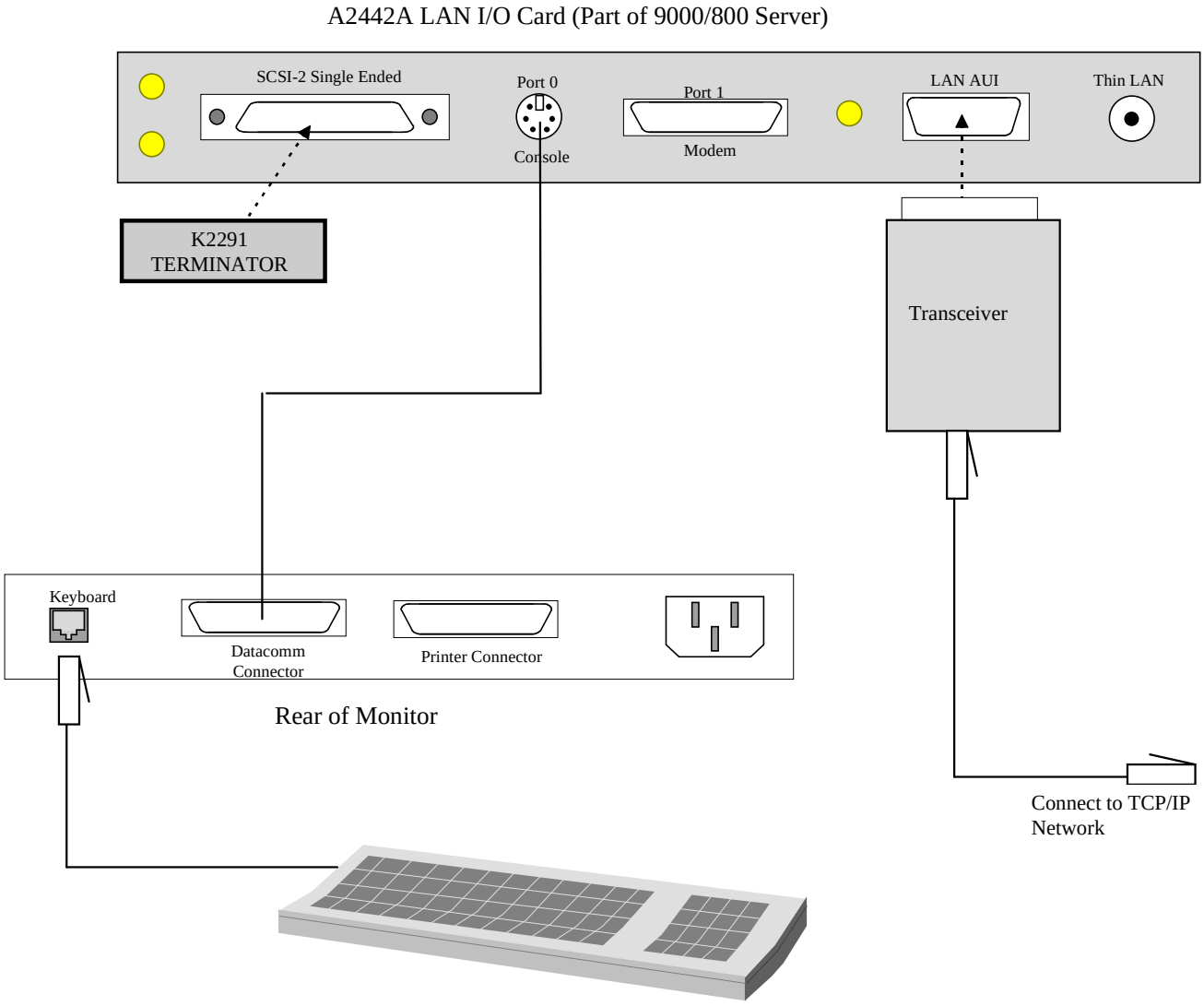


Figure 4 - HP 9000/800, Model G, Business Server Interconnect Diagram

5.4 NM2 CONFIGURATION

The NM2 system is the base configuration for systems with five (5) users and up to 10,000 network elements or ten (10) users and 5,000 or less network elements. The NM2 configuration may be expanded to manage up to 25 users and 1,000 network elements.

5.4.1 Basic NM2 Configuration Hardware

The following hardware components are included with the basic NM2 package:

Table 5 - Basic NM1 Configuration Hardware

	HP PART NUMBER	OPTION	DESCRIPTION
❑	A2429A		HP9000 - 800 Series Business Server, Model G60 includes the following:
	A2980A		G60 - 96 MHz CPU with 2 megabyte cache
	C1064WZ	ABA	C1064W 700/96 Console with white screen
	A2516AZ	ODU	128 megabytes RAM (qty: 4; 512 MB total RAM)
	A2441A	ODS	LAN Personality card for base system I/O, includes 2 serial ports, single-ended SCSI-2 interface, and pre-configured 802.3 ThinLAN.
	A3087A	ODZ	Two (2) Internal Hard Disk Drives - 2 gigabytes SE SCSI-2
	A3183A	ODZ	4mm DDS Internal Tape Drive - 4 gigabyte with data compression
	A3184A	ODZ	Internal CD-ROM Drive - 650 megabytes

5.4.2 NM2 Upgrade Options

The NM2 configuration can be enhanced by adding additional RAM in 128 megabyte segments to a maximum RAM size of 784 megabytes. Upgrading to the G70 Business server will permit the NM2 configuration to support up to 25 users with 2500 managed network elements.

Table 6 - NM1 Hardware Upgrade Options

	HP PART NUMBER	OPTION	DESCRIPTION
❑	A2516A	ODZ	128 megabyte memory module
❑	A2977	875	G70 Dual processor upgrade

5.4.3 NM2 System Cabling

1. Interconnecting cables for the NM2 system is the same as the NM1. Refer to the NM1 cabling instructions contained in paragraph 5.3.3.

5.5 REMOTE X-STATIONS

At least one (1) HP "X" Station is required when using an HP Server setup. However multiple X-Stations will permit remotely executing OpenView sessions on the Network Manager. The Network Manager requires one copy of the HP Enware X Station software (ver. 3.5 or later) to be resident for support of one or more "X" Stations.

5.5.1 HP "X" Station Hardware

The following hardware components are included with the HP "X" Station package:

Table 7 - HP "X" Station Hardware

	HP PART NUMBER	OPTION	DESCRIPTION
❑	C3253A	171	ENVIZEX "I" series 7Hz X Station with 17-inch color monitor (1024 x 768 resolution).
❑	C2737A	ABA	ENVIZEX PC101/102 Keyboard kit with PS2 Interface (A2840-60201) and two (2) power cords (8120-1378).
❑	C2747A	OD1	X-Station 16 megabyte memory module.

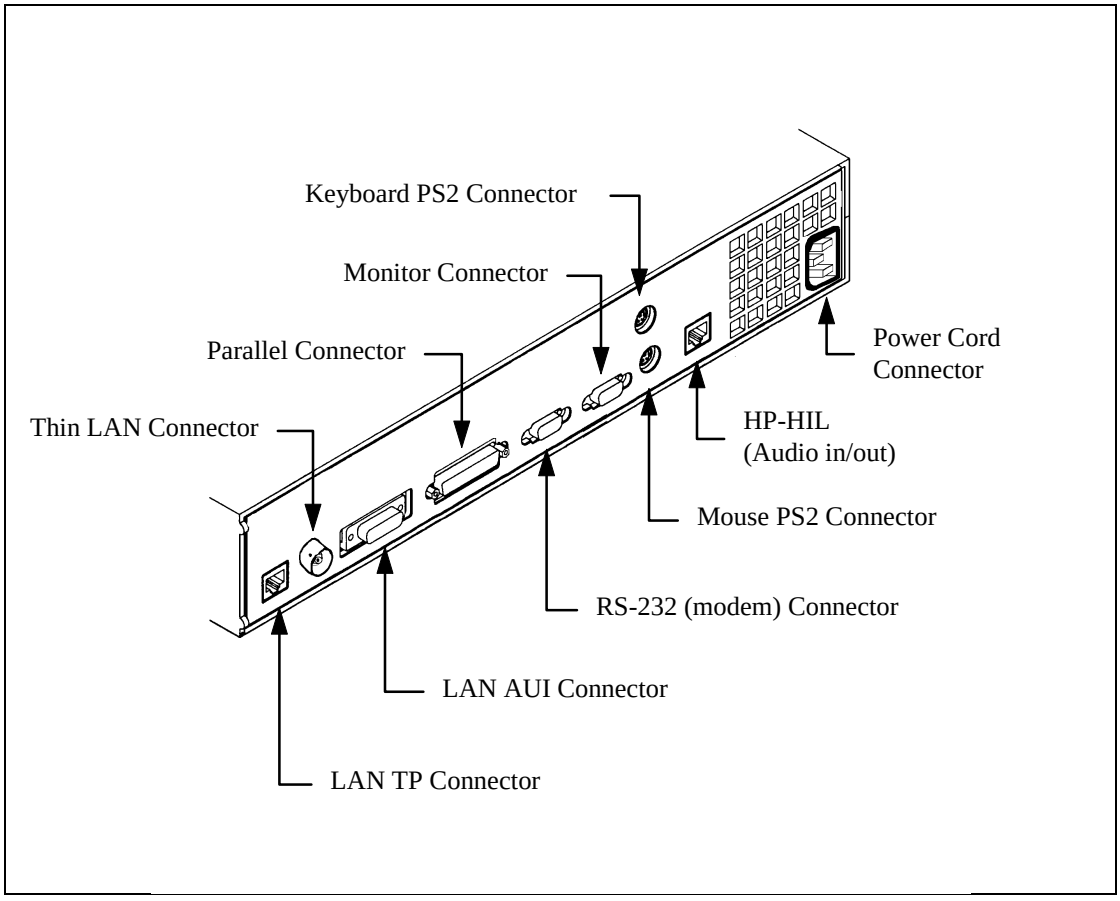


Figure 5 - ENVIZEX X-Station Rear Panel Connectors

5.5.2 X-Station Cabling

1. Cable the X-Station into the system according to diagram shown in Figure 6.

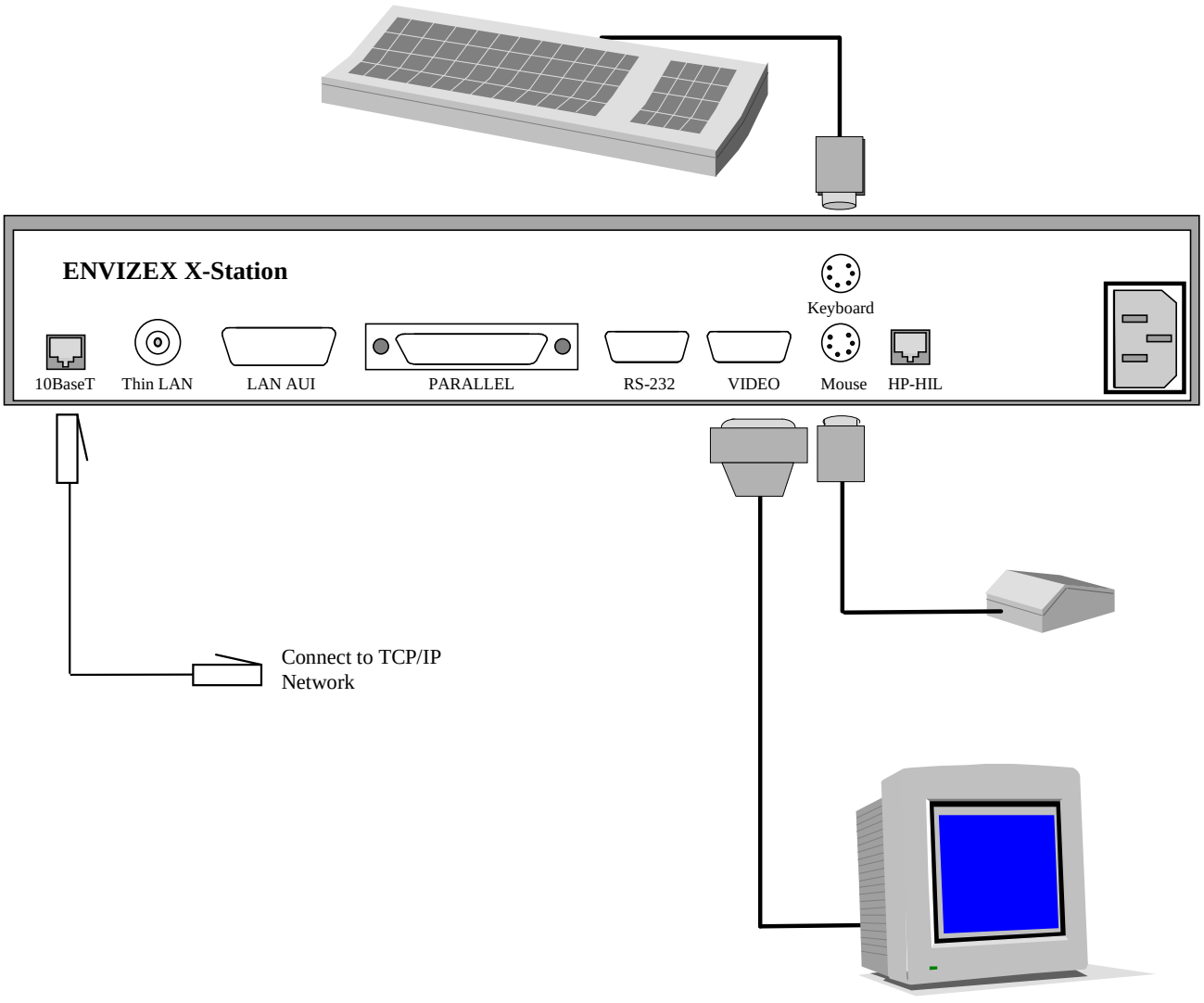


Figure 6 - 712/60 Interconnect Diagram

6. INITIAL SOFTWARE INSTALLATION

Under normal circumstances all necessary software is preloaded and the system setup prior to installation at the customer's site. After which the Ericsson System Engineer and the customer need only customize the system to the customer's specific requirements.

However, if the factory is unable to preload all the required software, or if only the application package is purchased, then it may be necessary to perform the initial installation tasks. The following procedures provide step-by-step instructions for installing the system software in the field.

NOTE

Several components of the EDACS Network Manager requires licenses for proper operation. OpenView requires a license from HP before it can be loaded. The EDACS Network Manager application can be loaded without the licenses but is not operational. Permanent licenses are obtained from Ericsson. TSSterm can be loaded with a temporary license good for 10 minute sessions. Permanent licenses are obtainable from Thursby Software Systems.

To obtain the TSSterm license, FAX the completed Registration form contained in the software box to the Thursby Software Systems. This form requires the software package serial number and the Machine Identification Number returned from "**`uname -i`**".

To obtain the EDACS licenses, retrieve the target ID as specified by the procedure in this manual. FAX this information on the form included with this manual.

To obtain the OpenView license, FAX the form located in the shipping box for OpenView. It requires the host name and IP address.

NOTE

Observe the following path and device names when referring to the Tape drive and the CD-ROM:

Tape Drive:	**`/dev/rmt/0m`**
NM0 CD-ROM:	**`/dev/dsk/c201d2s0`**
NM1 and NM2 CD-ROM:	**`/dev/dsk/c2d0s2`**

6.1 STEP 1 -LOAD THE HP ENWARE X-STATION SOFTWARE (NM1 AND NM2 HP SERVERS ONLY)

Use the following procedure when an X-Station is provided with the HP Server. If EDACS Network Manager is being installed on an HP Workstation, skip to "Step 3 - Install OpenView Network Node Manager." Prior to loading the Enware software, only the dumb terminal is operational.

Ensure the HP Enware X-Station Software is Version 5.3 or later. To load the HP Enware X-Station Software, perform the following:

1. Apply power to the Network Manager system.

2. Load the Enware software according to the instructions provided by the vendor.

6.2 STEP 2 - SETUP X-STATION TERMINAL (NM1 AND NM2 HP SERVER ONLY)

Configure the X-Station for use with the Network Manager Server.

1. Reboot the X-Station Terminal.
2. While the terminal is rebooting, press and hold **F12** until the configuration screen is displayed.
3. Select the Terminal screen and set the Monitor field to match the monitor model number printed on the lower left corner of the monitor.
4. Set the Keyboard Layout field to PC.
5. Select the Network -> General screen and set the following parameters:
   - Set Network Parameters field to "**From Fields Below**".
   - Set File Server field to the ***IP Address*** of the Host server.
   - After the File Server *IP Address*, set the TFTP/NFS button to "**TFTP"**.
6. Select the Network -> Ethernet screen. Setup the Ethernet parameters for this X-Station Terminal.
   - Set the IP Address to the ***IP Address*** for this terminal.
   - Set Subnet Mask to the ***Subnet Mask*** for this terminal.
   - Set the Terminal Name to the ***Terminal Name*** for this terminal.
7. Select the Server screen:
   - Set Login field to "**XDMCP Direct**"
   - Set Login Host field to the ***IP Address*** of the Host server.
8. Click on the **OK** button. The terminal will indicate it must reboot before the changes will go into effect. Click on the **REBOOT** button if changes were made or click on the **OK** button to continue without making changes.
9. The X-Station is now operational and should be used for the remainder of the installation process.

6.3 STEP 3 - INSTALL OPENVIEW NETWORK NODE MANAGER(NM0, NM1 AND NM2)

Use the following procedure to install the OpenView **N**etwork **N**ode **M**anager (NNM). Refer to the HP OpenView Network Node Manager Products Installation Guide for additional details.

NOTE: You must have an OpenView License prior to starting this procedure.

1. Log in as *root*.
2. Verify you have sufficient disk space by entering the following command:

   > **bdf** <***ENTER***>

   The hard disk must have at least 65 MB available for the NNM and 17 MB for the EDACS Application.
3. Insert the HP Network Node Manager CD-ROM (J2317A) into the CD-ROM drive.

4. Load the HP OpenView Installation utility fileset, ***OVIC***, onto the disk drive by entering the following command:

   NM0 Workstation:

   > **`/etc/update -s /dev/dsk/c201d2s0 OVIC`** <***ENTER***>

   NM1 or NM2 Server:

   > **`/etc/update -s /dev/dsk/c2d0s2 OVIC`** <***ENTER***>

   NOTE: If the command errors out, the CD-ROM may be incorrectly added in the ***/etc/checklist*** file. If the CD-ROM is listed in ***/etc/checklist*** an attempt is made to mount it automatically on reboot. Delete the CD-ROM from the ***/etc/checklist*** file and execute ***/etc/update*** again.

5. Check for errors by entering:

   > **`more /tmp/update.log`** <***ENTER***>

6. Enter the following to set PATH to include ***/usr/OV/bin***.

   > **`echo $SHELL`** <***ENTER***>

   - If the display responds with **sh** or **ksh**, then enter the following commands:

     > **`PATH=$PATH:/usr/OV/bin`** <***ENTER***>

     > **`export PATH`** <***ENTER***>

   - If the display responds with **csh**, then enter the following command:

     > **`set path=($path /usr/OV/bin)`** <***ENTER***>

7. Enter the following command and install the Activation Key.

   > **`/usr/OV/bin/ovkey`** <***ENTER***>

   If the key is valid, ***ovkey*** will install the key and display a message indicating you have a valid activation key. In case of difficulty, refer to the HP OpenView NNM Installation Guide.

8. Install NNM and the SNMP Management Platform (must load these in order):

   > **`/usr/OV/bin/ovinstall -p SNMPRUN -- -s /dev/dsk/c201d2s0`** <***ENTER***>

   > **`/usr/OV/bin/ovinstall -p NNMGR -- -s /dev/dsk/c201d2s0`** <***ENTER***>

9. Check for errors by entering:

   > **`more /tmp/update.log`** <***ENTER***>

   Resolve any errors before proceeding.

10. From the user login, run OpenView.

    > **`ovw &`** <***ENTER***>

11. Verify OpenView is running.

12. Select File->Exit and close OpenView.

6.4 STEP 4 - INSTALL EDACS NETWORK MANAGER APPLICATION

The EDACS Network Manager Application is distributed on a 90M DDS tape in **tar** (Tape Archive Recovery) file format. The NM application requires 17 Mbytes of disk space on the hard drive. To load the application, perform the following procedure:

NOTE: You must be logged in as *root* to execute this procedure.

1. Insert the Network Manager Application data tape (350A1900, tape 1 of 2) into the tape drive.

2. Copy the tar file from the tape to the disk by entering the following command:

   > **`cp -p /dev/rmt/0m /tmp/nm105.tar`** <***ENTER***>

   NOTE: This takes a few minutes, the tape drive LED should be flashing green.

3. Extract the Network Manager application from the tar file by executing the following command:

   > **`tar -xvf /tmp/nm105.tar`** <***ENTER***>

   NOTE: The file names being extracted will be echoed to the screen.

4. Verify the EDACS directory now exists by entering the following:

   > **`ls /usr/EDACS`** <***ENTER***>

   NOTE: Several directories should be listed on the screen.

6.5 STEP 5 - INSTALL LICENSING RUN TIME KIT

Perform the following steps to install the **iFOR/LS** Administrator Runtime Kit (ARK). The ARK is a component part of the **Network License System** (NetLS).

NOTE

a) The Runtime Kit may be installed before the EDACS licenses are obtained, but they must be added per item 14 before the Network Manager Application software is accessible.

b) Licensing software requires an active LAN interface for proper operation.

c) iFOR/LS is a commonly used licensing engine. The steps described in this procedure require halting the licensing engine and should be executed by a trained System Administrator.

d) This procedure assumes the **/usr/EDACS** directory has been installed on the hard drive.

1. Log into the HP-UX workstation where iFOR/LS ARK needs to be installed as **root.**
2. Verify the appropriate files are present by executing the following UNIX commands:

   > **`cd /usr/EDACS/netls`** <***ENTER***>

   > **`ls`** <***ENTER***>

   The directory listing should show two (2) tar files named: **file1, file2**.

3. Extract the install script:

   > **`tar -xvf file1`** <***ENTER***>

   The directory listing should show five (5) files named: **file1, file2, Copyright, README,** and **install**.

4. Verify that there are no users logged into the workstation using tools that require iFOR/LS licenses.

   > **users** <***ENTER***>

5. Determine the process ID for any currently executing iFOR/LS license database processes.

   > **ps -ef | more** <***ENTER***>

   Search for Local Location Broker Daemon, **llbd**, the Global Location Broker Daemon, **glbd**, the iFOR/LS License Server Daemon, **netlsd,** and the non-replicatable Global Location Broker Daemon, **nrglbd** processes.

6. Write down the process ID for each active process found.

7. Terminate each active process found by executing:

   > **kill -9** *processID* <***ENTER***>

8. Repeat step 5 and verify the four processes are no longer active.

9. Install the iFOR/LS ARK by executing the following from the **/usr/EDACS/netls** directory:

   > **./install -d /usr/EDACS/netls** <***ENTER***>

   Executing this file will initiate the following script. Respond to all prompts according to system requirements:

   ```
   The NetLS Server Kit product consists of one component:
            NetLS Administrator Runtime Kit (ARK)

   The complete NetLS product places all its trees into the /usr/lib
   directory by default.  Symbolic links are then used to point to the
   parts of the product that are required in standard locations (for
   example, include files in /usr/include and manpages in /usr/local/man).

   New top level [/usr/lib]:   <ENTER>

   Do you want see a commentary as NetLS_ARK is installing [n]?  "n"

   Do you want to use the NetLSd from HP [default no]?  "no"

   This may take some time please be patient

   Do you want netlsd started automatically when the machine boots [n]? "y"

   HP NetLS already installed.  Do you want to use NetLS from HP [No]? "No"

   NCS must be properly configured and initialized for NetLS to function
   properly.


   Checking cell name configurations. Please wait.......
   ```

A NCS location broker configuration ordinarily contains one or more Global Location Broker daemons belonging to one GLB cell, known as the default cell. Most configurations use the default cell.

For some sites, it is desirable to assign some machines to an alternate cell, where the GLB object has a different identification.

There are already existing GLB cells on this network: You may choose to join one of them, or you may create a new one for this machine.

You must choose which cell you wish this system to belong to.

Press enter for a list of available cells.

The following GLB servers were found in alternate cells:

Svr_Name Type of Server Cell_Name Uuid

You have four options:
1) Continue with installation without choosing a Cell_Name.
2) Use the default for the system Cell Name.
3) Create a new alternate cell for the system Cell Name.
4) Choose an existing alternate cell for the system Cell Name.

WARNING:
If you continue[1] the install without choosing a Cell Name then NetLS will not function. If you do not understand these options input [1] to continue and consult your system administrator or the documentation Managing NCS Software

Please indicate your choice [1,2,3,4]: “**3**”

Will create new alternate GLB cell for this system.
Continuing setup...

After this installation has been done, you must run the /usr/lib/netls/conf/netls_first_time shell script. It contain the commands needed to initialize NCS and to start up the NCS and NetLS daemons the first time. After that, the daemons will start automatically whenever the system is booted. The llbd daemon will be started after running /usr/lib/netls/conf/netls_first_time.

The glbd daemon will be started after running /usr/lib/netls/conf/netls_first_time.

The netlsd daemon will be started after running /usr/lib/netls/conf/netls_first_time.

The NCS setup completed successfully

Install of NetLS_ARK finished

```
     Done.

If you want to remove this installation, you should run the
/usr/lib/netls/conf/remove.sh

The installation of NetLS completed successfully
```

7. Change directory:

   > **cd /usr/lib/netls/conf** <***ENTER***>

8. Verify directory:

   > **ls** <***ENTER***>

   Directory listing should include a file named ***netls_first_time***.

9. Execute **netls_first_time** to start iFOR/LS licensing daemons.

   > **./netls_first_time** <***ENTER***>

10. Verify that **llbd**, **glbd**, and **netlsd** processes are active on the system.

    > **ps -ef | more** <***ENTER***>

    The **llbd** and **glbd** processes originate from ***/etc/ncs*** or ***/usr/etc/ncs***. The **netlsd** process originates from ***/usr/lib/netls/bin***.

11. Change directory:

    > **cd /usr/lib/netls/bin** <***ENTER***>

12. Verify directory:

    > **ls** <***ENTER***>

    Directory listing should include the **ls_tv** executable.

13. Test iFOR/LS licensing application by requesting a license.

    > **./ls_tv** <***ENTER***>

14. Verify output to screen includes Gradient, not HP, version information. Verify that Network Manager Station is among the active server list.

15. Now licenses can be added to the database for the Network Manager Station using the **ls_admin** (network license server administration) utility found in directory ***/usr/lib/netls/bin***. Refer to section 10.2, ***INSTALLING THE LICENSE PASSWORD*** and the **./ls_admin** information on the License PAK.

6.6 STEP 6 - RELOCATE EDACS FILES

Perform the following to move the various EDACS files to their proper directories.

1. Ensure you are in the ***/usr/EDACS/bin*** directory.

   > **cd /usr/EDACS/bin** <***ENTER***>

2. Enter the following command to move all files to their appropriate directory.

   > **`./edacsInstall`** *<ENTER>*

   The display will respond "Installing EDACS from /usr/EDACS."

6.7 STEP 7 - INSTALL TSSTERM SOFTWARE

Use the following procedure to install the TSSterm software. TSSterm provides the terminal emulation into the System Manager platform.

1. Fill out the Registration card and FAX to designated address for a permanent key (the temporary key is good for only 10 minutes).

2. Enter the following as *root* and verify responses:

   > **`/etc/update -s /dev/rmt/0m TSSTERM`**

   a) Display shows the TSSterm copyright notice.

   b) Press <**Return**> to continue.

   c) The display shows the following:

      TSSterm License Manager Customization
      This procedure will tailor the your node to run the TSSterm License Manager.
      Do you want to configure TSSTERM License Manager?

   d) Enter "**YES**"

   e) Before continuing, please be ready to answer the following questions:

      Autostart at boot:.....[Y]
      License manager key file:.....[/etc/tss_license]
      License manager log file: .....[/tmp/tss_lmgr.log]
      Verbose environment variable: .....[0]

   f) Press <**Return**> to continue.

   g) The display provides instructions on requesting permanent key (1-800-283-5070).

   h) Autostart at boot time:..... **YES**

   i) Key file (return = /etc/tss_license): ..... **<Return>**

   j) Log file (return = /tmp/tss_lmgr.log):..... **<Return>**

   k) Verbose (return = 0):..... **<Return>**

   l) Verify inputs. Is this correct? ..... **YES**

   m) Installation complete.
      Press RETURN to continue. **<Return>**

3. Enter the following to check for errors:

   > **`more /tmp/update.log`** *<ENTER>*

   If any errors are detected, refer to the Troubleshooting Section in the TSSterm manual.

4. Modify run level (***inittab*** file) for TSSterm as follows:

   > **`chmod 644 /etc/inittab`** <***ENTER***>

5. Invoke vue pad by entering **`/usr/vue/bin/vuepad /etc/inittab`**, vue pad is similar to notepad on a PC. Edit the **`/etc/inittab`** file by;

   - Find the line: **tlmg:2:once /etc/rc.lmgr #Start tsslmgr daemons**
   - Change the line to read: **tlmg:4:once /etc/rc.lmgr #Start tsslmgr daemons**

   > **`chmod 444 /etc/inittab`** <***ENTER***>

6.8 STEP 8 - CONFIGURE X-STATION (IF PRESENT) TO USE TSSTERM

1. Execute **/usr/EDACS/bin/termInstall** to convert TSSterm to X-station font format.

   > **`cd /usr/EDACS/bin`** <***ENTER***>

   > **`terminstall`** <***ENTER***>

2. At each X-Terminal set up the font server by entering the configuration screen (press and hold F12 if the X-Terminal is booted and your logged into HP-Vue).

3. Select the "**Server**" option. You should see the Font Path options list similar to that shown below. (It is likely several fonts will be explicitly listed).

   - **`/fonts/iso_8859.1/75dpi/`**
   - **`/fonts/iso_8859.1/100dpi/`**
   - **`/fonts/misc/`**

   `/rom/fonts/default/`

4. At the end of the "***./fonts/misc/*"** line, press the **<*ENTER*>** key to start a new line. Add the following TSSterm fonts to the font path window:

   - **`/fonts/tssterm/75dpi/`**
   - **`/fonts/tssterm/100dpi/`**

5. Click on the **OK** button. The terminal will indicate it must be rebooted for the changes to take effect. Click on the **REBOOT** button to reboot the X-Station and load the new fonts.

6. Repeat items 2 thru 5 for each X-Station connected to the system.

6.9 STEP 9 - INSTALL TSSTERM LICENSE

Perform the following procedures to install the TSSterm license. To install a temporary license, start with item 1. To install a permanent license, skip to item 6..

1. Install the temporary license (key) by entering the following command: (**NOTE:** If installing a permanent license, skip to item 6.)

   > **cp /etc/tss_license.tmp /etc/tss_license** <***ENTER***>

2. Verify TSSterm will execute.

   > **tssterm** <***ENTER***>

3. Answer "**CONTINUE**" to license warning popup.

4. Select File->Exit

5. Skip to Item 8.

6. Using the HP Vue Editor (described in the Editor Options section), edit the ***tss_license*** file to include the permanent license number from the FAX. Remember, spaces and capital letters are significant.

7. Verify TSSterm will execute.

   > **tssterm** <***ENTER***>

   TSSterm should execute without license warning.

8. Reboot by entering the following:

   > **/etc/shutdown -r now** <***ENTER***>

9. Verify TSSterm license manager is started at boot by entering:

   > **ps -ef | grep lmgr** <***ENTER***>

   Display responds with: **includes /etc/tsslmgr process**

6.10 STEP 10 - CONFIGURE NETWORK MANAGER STATION FONT SERVER

If you plan to use a PC to access the Network Manager system, then the Network Manager Font Server containing the fonts added by TSSterm must be properly configured.

To setup and use the Font Server on HP-UX 9.0 execute the following procedure:

1. Login as *root.*

2. Ensure the X11 font server exists on the HP machine by looking for the font and font server directories.

   > **cd /usr/lib/X11** <***ENTER***>

   > **ls** <***ENTER***>

   Verify that the fs and fonts directories are available.

3. Change to the font server directory:

   > **cd fs** <***ENTER***>

4. Set the file permissions for editing:

   > **chmod 644 config** <***ENTER***>

5. Using the HP Vue Editor (refer to the HP VUE User's Guide), edit the "catalogue" line in the font server configuration file ***/usr/lib/X11/fs/config*** by removing any fonts you DO NOT have and adding any fonts you DO have. The default catalogue line in the configuration file reads:

   catalogue = /usr/lib/X11/fonts/type1.st,/usr/lib/X11/fonts/ifo.st,/usr/lib/X11/fonts/hp_roman8/75dpi/,/usr/lib/X11/fonts/iso_8859.1/75dpi/,/usr/lib/X11/fonts/iso_8859.1/100dpi/,/usr/lib/X11/fonts/misc/,/usr/lib/X11/fonts/hp_kana8/,/usr/lib/X11/fonts/hp_japanese/75dpi/,/usr/lib/X11/fonts/hp_korean/75dpi/,/usr/lib/X11/fonts/hp_chinese_s/75dpi/,/usr/lib/X11/fonts/hp_chinese_t/75dpi/

   Modify the catalogue file as shown below and add any other fonts found in the ***/usr/lib/X11/fonts*** directory:

   catalogue = /usr/lib/X11/fonts/type1.st,/usr/lib/X11/fonts/ifo.st,/usr/lib/X11/fonts/hp_roman8/75dpi/,/usr/lib/X11/fonts/iso_8859.1/75dpi/,/usr/lib/X11/fonts/iso_8859.1/100dpi/,/usr/lib/X11/fonts/misc/,/usr/lib/X11/fonts/hp_kana8/,/usr/lib/X11/fonts/tssterm/75dpi,/usr/lib/X11/fonts/tssterm/100dpi

3. Reset the permissions

   > **chmod 444 config** <***ENTER***>

4. Change directory to:

   > **cd /etc** <***ENTER***>

5. Set file permissions for editing

   > **chmod 644 inittab** <***ENTER***>

6. Edit the ***/etc/inittab*** file by adding the following line:

   fs :2345:respawn:/usr/bin/X11/fs

   This will run the font server at all typical system run levels.

7. Reset the permissions

   > **chmod 444 inittab** <***ENTER***>

8. Execute the following command to re-read the inittab file.

   > **/etc/init q** <***ENTER***>

   If you do a **ps -ef | grep fs** you should see the **fs** process running.

6.11 STEP 11 - INSTALL PC-XWARE HOST SOFTWARE (XREMOTE)

This procedure installs the PC-Xware software from the 350A1900 tape 2 of 2. This software provides access to the Network Manager application from a remote location for the purpose of troubleshooting, configuring , and interfacing with the Network Manager even if the LAN is inoperative.

The following instructions will configure the Network Manager station. See the Remote Access section for instructions on configuring PCs and Modems.

1. Insert data tape 350A1900 tape 2 of 2 into the tape drive.

2. Ensure you are logged in as ROOT. (Password required.)

   > su <***ENTER***>

3. Copy the PC-Xware tar file from the tape using the following command:

   > **cp -p /dev/rmt/0m /tmp/pcxware.tar** <***ENTER***>

4. Extract the PC-Xware host software using the following command:

   > **tar -xvf /tmp/pcxware.tar /usr/pcxware** <***ENTER***>

5. Verify that there is now a /usr/pcxware directory that contains the following subdirectories and files:

   /application - xinitremote, Xremote, (already extracted from hpux10.tar)

   /manpages - Xremote.1, xinitremote.1 (already extracted from manpages.tar)

   /manual - *.ps files (postscript format)

   /user_setup - .cshrc (example user .cshrc file)

   /utilities - x* executables (already extracted from hp.tar)

6. Install the PC-Xware host software, use the following command:

   > **/usr/pcxware/user_setup/pcxwareInstall** <***ENTER***>

7. Remove the temporary PC-Xware tar file using the following command:

   > **rm /tmp/pcxware.tar** <***ENTER***>

6.11.1 HP Workstation Configuration

HP's standard configuration for serial port communication is set up as follows:

- 9600 baud rate
- 7 data bits
- 1 stop bit
- EVEN parity
- XON/XOFF flow control

This configuration must be modified for use with PC-Xware to the following:

- 19200 baud rate, if using an HP Workstation (9600 for an HP Server)
- 8 data bits
- 1 stop bit
- NO parity
- NO flow control (preferred for efficiency, but may be necessary due to heavy line noise.)

The UNIX command "stty" allows a user to view or set the options for a terminal port. This command can be used as a tool to aid in troubleshooting modem configuration problems. A sample stty output might look like this:

```
zappa:/> stty -a

speed 19200 baud; line = 0; susp = ^Z; dsusp <undef>
rows = 0; columns = 0
intr = ^C; quit = ^\; erase = ^H; kill = ^U; swtch = ^@
eof = ^D; eol = ^@; min = 4; time = 0; stop = ^S; start = ^Q
-parenb -parodd cs8 -cstopb hupcl cread -clocal -loblk -crts
-ignbrk brkint ignpar -parmrk -inpck istrip -inlcr -igncr icrnl -iuclc
ixon ixany ixoff -rtsxoff -ctsxon -ienqak
isig icanon iexten -xcase echo echoe echok -echonl -noflsh
opost -olcuc onlcr -ocrnl -onocr -onlret -ofill -ofdel tostop
```

The instructions to configure an HP-700 series workstation, running HP-UX 9.x, are detailed in the following list. NOTE: Superuser privilege is required to perform these instructions!

1. Connect the modem into the serial port on the back of the CPU case. Verify that the AC power cable is connected. Verify that the phone line goes into the modem. Verify that the serial communication cable connects the modem to one of the HP's serial ports. Verify that the modem is powered ON.

2. Login and run the **SAM** utility. To add a modem to the known devices, go to the Peripheral Devices->Terminals and Modems->Actions->Add Modem... screen. Press OK to a popup about no terminals or modems found, if applicable. Press OK on the popup window about port availability. Configure the following:

Modem Configuration Parameter	Recommended Value (Defaults in BOLD)
Mux/Serial Card	Choose one from the list given or take default.
Port Number	Choose one from the list given or take default.
Speed (baud rate)	19200
Use Device for Calling Out	NO
Receive In-coming Calls (start getty process)	**YES**
CCITT Modem (used for international calling)	**NO**

Press OK to add the modem. Another popup should appear, stating that a new device file was created. Press OK and exit **SAM**. Verify that a new getty process has been started for the modem by executing this command (a sample output has also been provided):

```
> ps -ef | grep getty
    root   1359   28831   1   14:15:10   ttyp2   0:00      grep getty
    root   245    1       0   May 7               console   0:00   /etc/getty -h console console
    root   1068   1       0   14:12:44   ?       0:00      /etc/getty -h ttyd00 19200
```

NOTE: ttyd00 is the device file name given by SAM. 19200 is the stated baud rate.

3. Verify that the following line has been put into the /etc/inittab file. If not seen, put it there.

a0:4:respawn: **`/etc/getty -h ttyd00 19200`**

where ttyd00 is the device file name given in SAM, and 19200 is the desired baud rate.

If the inittab file was modified, execute this command for the changes to take effect:

```
> init q
```

4. Next, the gettydefs file must be modified to the desired port configurations. Execute the following commands:

   > **cd /etc**

   > **cp -f gettydefs gettydefs.sav**

   > **chmod 777 gettydefs**

   Edit the 19200 setup in the gettydefs file from this:

```
19200   # B19200 HUPCL IGNPAR PARENB ICRNL IXON OPOST ONLCR CS7 CREAD
                ISIG ICANON ECHO ECHOK PARENB ISTRIP IXANY TAB3
        # B19200      SANE CS7 PARENB ISTRIP IXANY TAB3 HUPCL
        #login: #19200
```

   to this:

```
19200   # B19200 HUPCL IGNPAR ICRNL OPOST ONLCR CS8 CREAD
                ISIG ICANON ECHO ECHOK ISTRIP IXANY TAB3
        # B19200      SANE CS8 ISTRIP IXANY TAB3 HUPCL
        #login: #19200
```

   and the 9600 setup entry to this:

```
9600   # B9600 HUPCL IGNPAR ICRNL OPOST ONLCR CS8 CREAD
                ISIG ICANON ECHO ECHOK ISTRIP IXANY TAB3
        # B9600      SANE CS8 ISTRIP IXANY TAB3 HUPCL
        #login: #9600
```

5. Save gettydefs file.

   > **chmod 444 gettydefs**
   > **ps -ef | grep getty** (to get the PID of the current getty process)
   > **kill <PID>** (where <PID> is PID found above)
   > **ps -ef | grep getty** (verify getty has a new PID number)

6.11.2 HP Server Configuration (NM1 and NM2)

In order to configure an HP server for modem support, perform the following instructions (These instructions assume that the modem will be connected into the Support Link Modem port.) :

1. From the console terminal, do the following:

   - At the login prompt, press the **<Control-B>** key combination. This executes the CM (Configuration Menu) utility.
   - From the CM prompt, type the following commands:

     > **help** This provides a listing of the CM commands.

     > **ca** This is used to configure the modem port.

     Enter: Baud rate = 9600
     Protocol = Bell
     System Identification =

     > **ur** This is used to unlock the remote access port.

     > **co** Quit CM. Return to login prompt.

2. Execute all the instructions listed in the HP Workstation Configuration section.

   NOTE: The Support Link Modem port has a maximum baud rate of 9600. Use a baud rate of 9600, instead of 19200, when executing the HP Workstation Configuration instructions.

6.12 STEP 12 - INSTALL CEC/IMC MANAGER HP-UX CLIENT SOFTWARE

This procedure installs the CEC/IMC Manager HP-UX Client Software from the 350A2001 data tape into the Network Manager. The CEC/IMC Manager HP-UX client application allows the Network Manager user to remotely access the CEC/IMC Manager. This application requires approximately 21 Mbytes of disk space on the hard drive.

1. Insert data tape 350A2001 into the tape drive.

2. Ensure you are logged in as ROOT. (Password required.)

   > su <***ENTER***>

3. Copy the CEC/IMC Manager HP-UX client tar file from tape to the hard disk by entering the following:

   > **cp -p /dev/rmt/0m /tmp/imcmgr_hp.tar** <***ENTER***>

4. Extract the CEC/IMC Manager HP-UX client software from the tar file /tmp/imcmgr_hp.tar by entering

   > **tar -xvf /tmp/imcmgr_hp.tar /usr/IMC_EDACS** <***ENTER***>

5. Change directory to:

   > **cd /usr/IMC_EDACS/bin** <***ENTER***>

6. Enter the following command:

   > **./edacsInstallIMC** <***ENTER***>

   This establishes the necessary ***soft links*** pointing to the right executables and/or scripts to run your application. **NOTE:** If you *reinstall* or *upgrade* the EDACS Network Manager application software, you must also repeat this step before successful invocation of CEC/IMC Manager HP-UX client application.

7. Remove the temporary CEC/IMC Manager HP-UX client software tar file by entering:

   > **rm /tmp/imcmgr_hp.tar** <***ENTER***>

8. Verify the file permissions for file /dev/lan0 are set to mode 755 by entering the following command:

   > **chmod 755 /dev/lan0** <***ENTER***>

   This ensures the CEC/IMC Manager HP-UX client (an HP DCE - Distributed Computing Environment client) can communicate with the server residing on the Windows NT platform.

6.13 STEP 13 - PERFORM FULL SYSTEM IMAGE BACKUP

At this point all software has been loaded and the system is ready for customization. However, we strongly recommend you make a full system image backup tape before proceeding with the customization.

Perform a full System Image Backup using the following procedure:

1. As *root* user: Use console login.

   > /etc/shutdown now <***ENTER***>

   System will shutdown and come back up in single-user mode. If asked what terminal type, press **<Enter>**

2. Insert the System Image Backup Tape into the tape drive (assume device name = /dev/rmt/**0**m).

3. Enter the following commands:

   > **cd /** <***ENTER***>

> **tar -cvf /dev/rmt/0m .** <***ENTER***>

NOTE

One 90mm tape should handle the entire backup and the backup process will take approximately one hour to complete.

When the backup is complete, carefully label all System Image backup tapes as "Sys*ddmmmyyyy* Vol # *(number of this tape)* of # *(total number of tapes it took to complete the backup)*".

For example: Sys12DEC1994 Vol 1 of 4.

3. Enter the following command to reboot the workstation.

> **/etc/shutdown -r now** <***ENTER***>

6.14 STEP 14 - COMPLETING THE SOFTWARE INSTALLATION PROCESS

1. Gather the following software packages and tapes and package them together for shipment with the equipment. The customer, upon receipt, should store the software in an environmentally safe and secure location.
   - EDACS Network Manager Application Software (2 tapes).
   - CEC/IMC Manager HP-UX Client software (1 tape).
   - TSSterm Software.
   - HP X-Station Enware software.
   - OpenView Network Node Manager Software.
   - Unix Media Software.
   - System Image Backup Tape.
2. Proceed to the "CUSTOMIZING THE NETWORK MANAGER SOFTWARE" section and configure the Network Manager according to the Network Manager Survey.

7. CUSTOMIZING THE NETWORK MANAGER SOFTWARE

The following procedures will allow the installer to customize the Network Manager to meet the customer's specific configuration as described in the completed Network Manager Survey.

NOTE

The following procedures can only be completed after the *Network Manager Survey* has been properly annotated with the customer's specific configuration data.

When creating user accounts keep the following conventions in mind:

a. The default group name is "**users**."

b. If a subset of users will have write access to OpenView, then the default group name for that subset is "**nmwrite**".

c. If a subset of users will have reduced menu set, then the default group name for that subset is "**redmenu users**".

d. If the user is designated to have write access and a reduced menu set, then the default group name is "**nmwrite**".

7.1 STEP 1 - CREATE USER ACCOUNTS

Perform the following procedure for each **User Account** identified in the NM Survey.

NOTE: The environmental variables setup in this procedure are vital to the *successful operation of the Network Manager.*

1. Using the Password Utility, change the root password to the Network Manager default password "**NETMGR**".
2. Execute the **SAM** (system administration) utility while in root.
3. Highlight "User and Groups" and click the **OPEN** button.
4. Highlight "Users" and click the **OPEN** button.
5. From the Users menu, select Actions -> Add. The **SAM** will display the "Add User Account" Dialog box. Use this screen to setup any user accounts specified in the NM Survey.
6. Fill in the "Add User Account" window fields using the user data obtained from the NM survey.
7. For each account, change the "Startup Program" to C Shell (**csh)**.
8. After entering the applicable user data, click on the **APPLY** button.
9. Repeat 6 thru 8 for each user account identified in the Network Manager Survey (including the Support Account).
10. After all users have been added, click on the **OK** button.

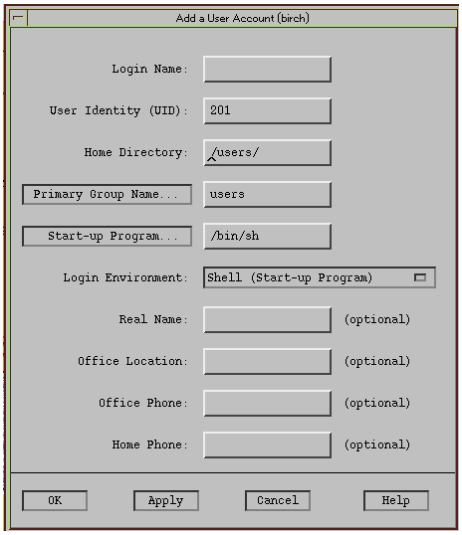


Figure 7 - Add A User Account Dialog Box

11. Select **EXIT** to return to the functional area.

7.2 STEP 2 - SETUP USER ACCOUNT PROFILE

The following procedure configures the user accounts. It may save time, if both Step 2 - Setup User Account Profile and Step 3 - Setup User Account Login Environment are performed for each user account before selecting the next account.

1. Log into one of the user accounts added in Step 1 - Create User Accounts.

2. Copy the **/usr/pcxware/user_setup** template files for **.login** and **.xinitremoterc** into each remote user's home directory.

3. Modify the user's Shell environment according to the instructions provided in section 7.2.1 for the C SHELL User Environment or section 7.2.2 for the KORN Shell User Environment.

4. Edit the shell environment (.cshrc) as specified below:

```
if ( ! $?DISPLAY ) exit    # Exit if DISPLAY variable is NOT set
# All that follows will NOT be executed for rlogins!
/usr/bin/X11/xrdb -merge /usr/EDACS/app_defaults/TSSterm
/usr/bin/X11/xrdb -merge /usr/EDACS/config/C/XNm_add
```

5. Repeat items 1 thru 4 for each user account created in Step 1 - Create User Accounts.

7.2.1 C SHELL User Environment

NOTE: In the instructions below, a **"."** character indicates "this directory" and is significant in command executions.

For each user created, perform the following:

1. If **C Shell** is being used, either copy **/usr/EDACS/config/C/.cshrc** to the user's home directory or edit the user account ***.cshrc*** file as follows:

   - **Coping the */usr/EDACS/config/C/.cshrc* file to the user's home directory:**

     > **`cp /usr/EDACS/config/C/.cshrc $HOME/.`**

     OR

   - **Editing the user account:**

     Add the following statements to the ***.cshrc*** file:

     > **`unset autologout`** (to turn off disappearing windows)

     > **`/usr/OV/bin`** (Added to the user's path for easier invocation of OpenView. All newly created windows will have a new path.)

     > **`/usr/lib/netls/bin`** (Added in the user's path for ease in using the IFOR/LS license utilities.)

     > **`setenv LANG C`** (Added for internationalized text string to work.)

     > **`setenv XAPPLRESDIR /usr/EDACS /app_defaults`** (Added for MultiSite and Site Monitor to function properly.)

2. Ensure the current window reflects the changes by execute the following command:

> **source cshrc** *<ENTER>*

7.2.2 KORN Shell User Environment

If Korn Shell is being used, edit the user environment **.profile** file as follows:

> **/usr/OV/bin** (Added in the user's path for easier invocation of OpenView. All newly created windows will have a new path

> **LANG="C"** (Added for internationalized text string to work.)

> **export $LANG** (Added for internationalized text string to work.)

> **XAPPLRESDIR="/usr/EDACS /app_defaults"** (Added and for MultiSite and Site Monitor to function properly.)

> **export $XAPPLRESDIR** (Added and for MultiSite and Site Monitor to function properly.)

7.3 STEP 3 - SETUP USER ACCOUNT LOGIN ENVIRONMENT

The Network Manager platform can be customized to provide an EDACS icon on the HP VUE Front Panel which will bring up a read-only version of OpenView by double clicking on the icon. The Network Manager can also be configured to automatically bring down the OpenView and performance applications when the VUE front panel **EXIT** is selected.

Refer to the Login Environment section of the Network Manager Survey to determine the need to setup the VUE front panel icon and configure the EXIT button.

7.3.1 Setting Up The VUE Format Panel Icon

Setup VUE front panel icon for each user account created using one of the following methods. This procedure sets up an icon which will invoke a read-only copy of OpenView

METHOD 1:

1. Copy the EDACS bitmap images from ***/usr/EDACS/bitmaps/C*** to the user's home directory using the following command:

   > **cp /usr/EDACS/config/C/vuewmrc $HOME/.vue/vuewmrc** *<ENTER>*

2. Depress the right mouse button in open workspace and select **Restart Workspace Manager** to have changes take effect.

METHOD 2:

1. Use this procedure to modify or create a ***$HOME/.vue/vuewmrc*** file in the users home directory. On line help from Vue for this procedure is found under **Front Panel and Workspace Manager -> Configure the Front Panel -> Modify the Top or Bottom Row -> To add or delete a control from the top or bottom row**. In summary, select the **Toolboxes ->General Toolbox->System Admin->EditVuewmrc** action. You are now editing the ***vuewmrc*** file as follows:

   - add CONTROL EDACS in the BOX Top {} portion of the file as shown in the example:

```
BOX Top
{
      TYPE          primary
      CONTROL       Clock
      CONTROL       Date
      CONTROL       Load
      CONTROL       Style
      CONTROL       EDACS
      CONTROL       Help
      SWITCH        Switch
      CONTROL       Printer
```

```
        CONTROL         Mail
        CONTROL         Home
        CONTROL         Toolboxes
        CONTROL         Trash
        HELP_TOPIC      FPTop
}
```

- add the following lines after the BOX Bottom{} statement of the file as shown in the example. This will cause a read-only copy of OpenView to be invoked with output put to a window titled OpenView Output with a scroll bar.

```
#
#  Regular Session:  Top Row Controls
#
###

CONTROL EDACS
{
  TYPE                  button
  PUSH_ACTION           f.exec "/usr/bin/X11/xterm -sb -title 'OpenView Output' -e /usr/OV/bin/ovw -ro &"
  IMAGE                 EDACS
  HELP_STRING           "Invoke OpenView"
}
```

2. Click on the File->Save menu options to save changes

3. Click on the and File->Exit menu option to quit the edit session.

4. Depress the right mouse button in open workspace and select **Restart Workspace Manager** to have changes take effect.

7.3.2 Set Up Home Session

The following procedure configures the HP VUE Style Manager to automatically start with the standard Network Manager style parameters and not those deliberately or accidentally changed during a previous operating session.

NOTE

DO NOT have any applications open when performing this procedure.

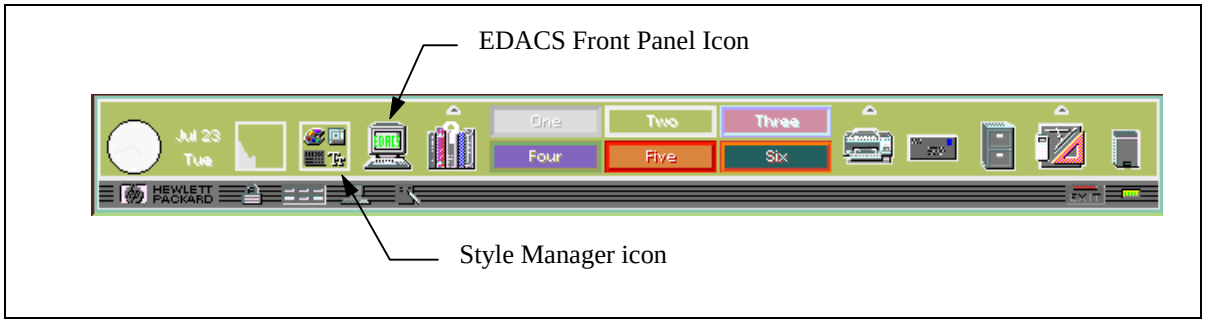


Figure 8 - OpenView Front Panel

Use the following procedure to start the user's Home Session at login.

1. From the OpenView front panel, select the Style Manager button on the Front Panel.
2. Choose the Style Manager's Startup button to display the Startup dialog box..
3. Select the "Return to Home Session" and ensure the Logout Confirmation Dialog is set "On."
4. Select "Set Home Session..."
5. Click on OK to return to the Style Manager.
6. Select File->Exit to return to OpenView.

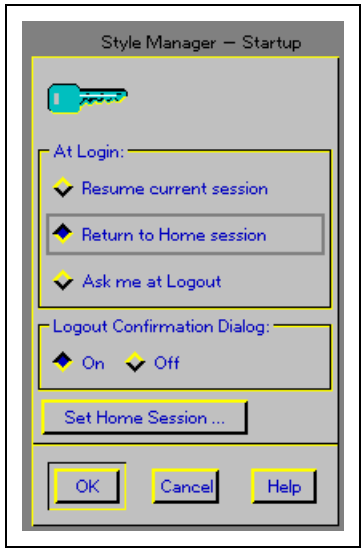


Figure 9 - Style Manager Startup Panel

7.3.3 User Setup for PC-Xware

The xinitremote file is the first file activated during an X session. It is responsible for executing the main XRemote file. The X processes look for a user-defined list of X applications to start. These applications are specified in the .xinitremoterc file, located in the user's home directory. A sample .xinitremoterc file is shown below. Note that only the last file should be run in the foreground. Create this file for each user. We recommended putting an xterm session as the last X application to start. When the xterm is closed, all the other applications will also close.

```
> more .xinitremoterc
    #!/bin/csh
    # Run initial applications in the background.
    xclock -display $DISPLAY &
    # Last application must run in the foreground.
    xterm -display $DISPLAY -ls
```

NOTE: The command **`ovw -ro &`** could be added to the initial application section if you desire to have the OpenView startup immediately.

Be aware that the X session display is identified by a display number appended to the HP host name, such as 192.168.201.2:d.0. Where "192.168.201.2" is the default Network Manager IP address and "d" is the display number. (For d = 0, the display is the local host terminal.) The display number will change between sessions.

7.3.4 Complete User Setup

1. Verify the EDACS icon is displayed in the VUE Front Panel.
2. Repeat the entire Step 3 - Setup User Account Login Environment for each User Account listed in the Network Manager Survey.
3. After all User Accounts created in Step 1 - Create User Accounts have been setup, proceed with the next step.

7.4 STEP 4 -SET UP VUE EXIT CONDITION

If specified in the Network Manager Survey, setup the VUE EXIT condition using the following procedure: When the VUE **EXIT** button is selected, OpenView will automatically clean up Network Manager processes before exiting.

1. Login as *root*.
2. Save the current ***Xreset*** file to a temporary location using the following command:

   > **`cp /usr/vue/config/Xreset /usr/vue/config/Xreset.org`**

1. Copy the ***cleanexit*** file to the user configuration directory using the following command:

   > **`cp /usr/EDACS/bin/cleanexit  /usr/vue/config/Xreset`**

7.5 STEP 5 - SETUP HOST NAME TABLE

Users may prefer to see the host names of remote devices instead of their IP Addresses. By setting up a Host Name Table, the Network Manager can associate the host name with the IP Address and display the devices host name when menu items are invoked. The following procedure allows you to set up the Host Name Table using data obtained from the Network Manager Survey.

1. Login as *root*.
2. Run **SAM** (If the system is running HP VUE, you can run **SAM** using the action the action in the System_Admin subdirectory of the General Toolbox.)
3. In **SAM**, open:
   - **Networking and Communications -> System-to-System Connectivity ->Internet Connectivity**
4. Choose **ADD** from the Actions menu.

- **Items 5 through 8 are to be performed for each remote device.**

5. Enter the IP Address in the "Internet Address" field.
6. Enter the Host Name in the "Remote System Name" field.
7. Enter comments, as required, in the "Comments" field.

8. Click on the **APPLY** button to add the data to the Host Name Table. **NOTE: Do not** click the **OK** button, clicking on the **OK** button will exit the process.

9. Repeat items 5 through 8 for each remote device.

10. After the last device is entered, click on the **CANCEL** button to view to the finished table. Review the table entries and verify that they are correct.

11. When complete, select **EXIT** from the File menu.

7.6 STEP 6 - CUSTOMIZING HP OPENVIEW NETWORK NODE MANAGER

Use the following procedure to configure the HP OpenView Network Node Manager:

NOTE: Be sure to log into an user account with read/write privileges.

1. Logout of *root by entering* "`exit`", and login as *user*.

2. From the user login, run OpenView:

   ```
   > ovw &
   ```

3. Verify OpenView comes up with the EDACS Menu item present on the main menu bar and that it indicates this is a read/write version ("Read/Write" is displayed in the lower left corner of the display).

   If the EDACS Menu item is not present there was a serious problem with the EDACS Application installation. Refer to the Troubleshooting section for additional information.

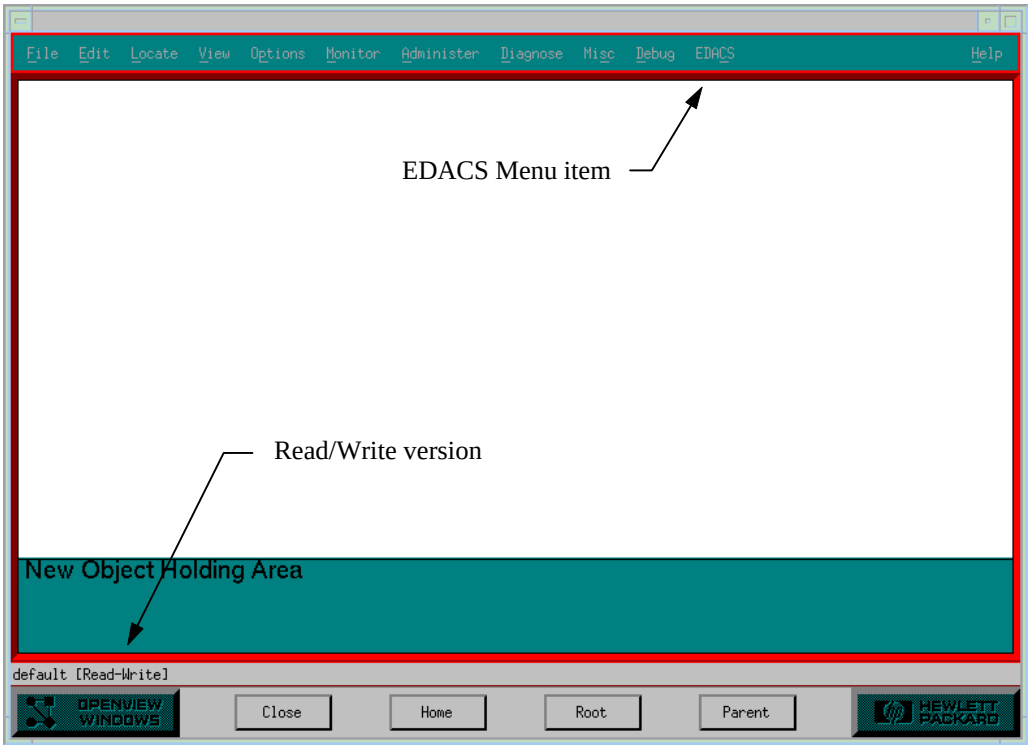


Figure 10 - OpenView Window

7.6.1 Community Names

The OpenView Network Node Manager (NNM) must be setup with the same community names for accessing the EDACS elements as the EDACS elements have programmed in them. A community name is similar to a password and both sides need to expect or use the same password.

1. Select "Options->SNMP Configuration" from the OpenView main menu bar. This will open up the "SNMP Configuration" window.
2. Select Default "Global Default" with left mouse button to populate OpenView SNMP Parameters.
3. For each device listed in the CEC/IMC/RCEC section of the Network Manager Survey, enter the following data:
   - In the "Target" field, enter the device's *IP Address*.
   - In the "Community" and the "Set Community" fields, enter the Community Name that will be programmed into the remote element. **NOTE:** We recommend using "**edacs**" as the default Community Name.
4. Click on the **ADD** button to add the data.
5. Click on the **APPLY** button to save changes. The specific Nodes Section of the window should display the information just added
6. Repeat items 3 through 5 for each remote device listed in the Network Manager Survey.
7. Click on **CANCEL** to exit the SNMP Configuration window.

7.6.2 Fault Propagation

In addition, propagation of faults are customizable.

1. Select **File->Describe/Modify Map** from the OpenView main menu bar. This will popup the map description window.
2. Select "Propagate Most Critical" and press the OK button. This will propagate the most severe status up to parent icons.

7.6.3 Disable IP Map Polling

1. Select **Options->Topology/Status Polling: IP...**
2. Turn off - Polling Master Switch, display responds: OK.
3. Select **File->Exit** to close OpenView.

7.6.4 Event Configuration

The OV_Set_Status_Color must be set to "Don't Log or Display." This will reduce the chance of over filling the Event Log under heavy loading conditions (large number of elements) and improves the system performance.

1. From the OpenView Menu bar, select **Options->Event Configuration: SNMP**. OpenView will display the Event Configuration window.
2. In the Enterprise Identification box, select the "**OpenView**" enterprise. The window will display the events associated with this selection.
3. In the Event Identification box, select the "**OV_Set_Status_Color**" event.

4. Click on the **Modify** button. OpenView will display the Modify Event window.

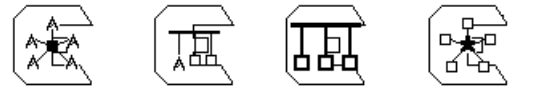
5. From the Event Category pulldown menu, select "**Don't log or display**" and click on the **OK** button.

6. Click on the **Apply** button to save the changes and **OK** to exit the function.

7.7 STEP 7 - MAP GENERATION

The EDACS Network Manager Map Generation application assists in the generation of maps to pictorially represent the actual EDACS Network. The NM survey contains the information required to properly set up the EDACS Maps.

The following icons represent EDACS Nodes: IMC Node, CEC Node, RCEC Node, and StarGate.



Customize the Network Manager Application using the following procedures.

7.7.1 Configuration Rules

The following configuration rules apply to the application. Violations of these rules will result in unmanaged elements, however the icons will be allowed. For on-line help information, select the Help->Index->Tasks OpenView menu item. Open the EDACS Map generation Topic.

- Each IMC/CEC/RCEC can have 32 consoles on it.
- A remote CEC may have 0 sites.
- A CEC may connect to 1 site.
- An IMC may connect to 1 to 32 sites.
- A StarGate may connect to zero (0) sites.
- Icons and connections will be drawn automatically for the number of channels indicated for each site.
- Icons and connections will be drawn automatically for each console marked as present.
- Add connections for icons manually added.

When certain EDACS icons are added to a map, the EDACS Map Generation application appears in the Attributes section of the OpenView Add Object popup. The EDACS icons with associated EDACS Map Generation Actions are listed below.

- **IMC Node Add** -- This operation displays a popup window asking how many channels to add on which sites and which consoles are present. It creates an IMC Node submap with Site icons connected to a Switching Center icon. It creates a Switching Center submap with Consoles connected to an IMC. It creates Site submaps with a Site Controller, ACU, PMU, TU, and the number of channels indicated in the popup.
- **CEC Node Add** -- This operation displays a popup window asking how many channels to add on which sites and which consoles are present. Note that a CEC supports one Site. It creates a CEC Node submap with Site icons connected to a CEC icon. It creates a Site submap with a Site Controller, ACU, PMU, TU, and the number of channels indicated in the popup.

- **Site Add** -- This operation displays a popup window asking how many channels to add on this Site. It creates a Site submap with a Site Controller, ACU, PMU, TU, and the number of channels indicated in the popup.

- **Switching Center Add** -- This operation displays a popup window asking which consoles are present. It creates a Switching Center submap with Console icons connected to an IMC.

- **EDACS Top Add** -- This operation displays a popup asking for the EDACS device polling interval and the EDACS clock synchronization polling interval.

- **Directly Connected EDACS Element Add** -- When an EDACS icon is manually added for a directly connected EDACS element, the Selection Name must equal the IP Address of the element or the host name as specified in /etc/hosts. The following are directly connected EDACS elements: **PI, BCU/CAL, CEC/IMC Manager, and System Manager**. The Selection Name ties the EDACS icon with the EDACS capabilities to the object created by the OpenView IPMAP application, the HP application which finds devices supporting SNMP on the LAN. It is also possible that directly connected elements may be added prior to their discovery by the IPMAP application. Care must be taken to ensure that the object we create is also used by IPMAP. Not only must the Selection Name equal the IP Address, but the IP Host Name must equal the actual Host Name that IPMAP will find.

  NOTE: By associating the EDACS icon with the same object defined by the IPMAP application, the directly connected element will have a child submap containing icons representing the interfaces defined in MIB-II. (For example, the IP interface group will have an associated icon.) The parent of this child submap is in the IPMAP submaps not the EDACS submaps. This feature can aid in network connection debugging. Namely, to see where this element is in the overall network, go into the Directly Connected Device's child map and select the "parent" button.

Furthermore, the EDACS Network Manager must uniquely identify the device in the EDACS network. The EDACS Network Manager classifies three types of devices: Node, Subnode, and Subsite.

The list below shows the breakdown of EDACS devices.

- Node devices are IMC, StarGate, CEC, CEC/IMC Manager, BCU/CAL, and System Manager.

- Subnode devices are Console, Site Controller, ELI, PI, ACU, PMU, and TU.

- Subsite devices are GETCs and Base stations.

After an icon has been added, the describe operation listed in the User's Manual may be used to display the Identifiers used by alarm processing and performance graph invocation.

The following naming conventions regarding the selection name field are recommended, but not required. The selection name used for each symbol added must be unique except for the directly connected EDACS elements. Refer to the *Procedure to Add Symbols* if necessary.

For Devices:

net x, node y, subnode z device name, where: x, y, z are replaced by the actual net#, node #, and subnode # respectively.

For Connections:

net x, node y, subnode z device A to device B.

NOTE: The Selection Name for directly connected elements must equal the *IP Address* or the *Host Name* if the host name is setup in ***/etc/hosts***. The ***/etc/hosts*** file provides a table which maps the IP Addresses to the Host Names. Refer to Step 5 - Setup Host Name Table procedure.

7.7.2 Generate EDACS Maps

Use the following recommended procedure to generate EDACS maps. The procedure uses information from the Network Manager section of the **Network Manager Survey**.

NOTE

a. The EDACS Network Manager application places no restrictions on the manual placement of icons on maps.

b. By default, Polling is turned off. **Do not** turn polling on until the physical devices are connected. Polling will try to talk to devices and will turn icons RED when it cannot access them.

c. With Network Manager polling disabled, the icon will be **GREEN** if properly added to the database, **BLUE** if improperly added or there is a duplicate (icon added last is GREEN, duplicates are BLUE). **BROWN** icons indicate device is not licensed. There must be a licensed IMC/CEC/RCEC/SG with the same network number and node number as this device.

d. Container icons (Site, Sw Ctr, Region, EDACS TOP) will be BLUE if there are no managed icons on its submap or if the devices on the submap are restricted.

1. Add the EDACS Top level icon to the open map and enter the customer's name or "EDACS" in the label field.. This icon will automatically create an empty submap and thus will be blue.

   NOTE: Do not modify the Polling intervals or set the map generation attributes at this time. The Polling intervals will be disabled by default (default value = 0). If the top-level EDACS icon parameters for polling interval and clock synchronization are never set, no popups are generated because the fields are never actually written to the database. Once polling is enabled, then a popup will occur when OpenView is invoked informing the user of the current polling intervals and clock synchronization source.

2. Double-click on EDACS Top level icon to access the EDACS Top level submap.

3. Add the Region icons corresponding to the Region Names listed in the Network Manager Survey.

4. Organize the site pages per associated IMC.

5. Add an IMC Node icon for each IMC on the specified Region submap or the EDACS Top submap if no Regions are specified.

7.7.2.1 IMC NODE ADD

1. Enter the Node Name in the label field and a description as documented on the Network Manager Survey.

2. Select the EDACS Map Generation and then Object Attributes.

3. Enter the following data in the EDACS Identifiers dialog box.

   - Set the Network Number to 1 (use same Network number for all of this customer's devices).
   - Set Node Number as specified in the NM survey.
   - Set NIM number as specified in survey (Adding NIM Number will add column to MSM.)

4. Select the Sites as specified in the Network Manager Survey.

   NOTE: Even if channels are skipped, pick the highest numbered channel. Site Controller, PMU, TU, and ACU will be automatically added. If the customer does not have a particular channel or a particular site equipment, then delete the item from the Site submap after the map has been generated

5. Select the consoles as specified in the Survey.

6. Click on **VERIFY** and **OK** to add the specified Submaps and icons. Icons will all turn GREEN when the operation is complete.

   NOTE: This may take a few minutes to complete.

7. For each site delete ACU, PMU, TU if they are not present on the site. If channel numbers are not sequential, delete unused channels.

8. Using the information from each site's listed in the Network Manager Survey, make the following entries:

   - Add the site's description, if provided.
   - Change the Site Label to reflect the Site's Name.

     Refer to the modifying labels procedure found in the User's Guide, LBI-39169.

9. On Switching Center submap, add BCU/CAL, PI, EDG, System Manager, IMC Manager as specified in the Network Manager Survey. Add descriptions to the icons specified in the Network Manager Survey. If necessary, refer to the Add Descriptions to Objects section in the User's Guide, LBI-39169.

NOTE

The selection name must equal the IP address or the host name that has been added to the **/etc/hosts** file.

10. Add descriptions to the icons specified in the Network Manager Survey using the procedure in the Add Descriptions to Objects section in the User's Guide, LBI-39169.

11. Add connections linking devices to their associated Switching Center.

12. Return to the EDACS Top level submap and repeat items 1 thru 11 for each CEC Node, IMC Node, or Remote CEC Node specified in the survey.

7.7.2.2 STARGATE ADD

1. Add the StarGate (if applicable) at the region level (if present) or at the node level.
2. Add the StarGate Manager on the same submap as the StarGate.

7.7.2.3 VERIFICATION

1. Enter each submap created and move all icons from holding area to map area. Verify all icons are green.
   - A blue icon indicates the item was not properly added to the OpenView database.
   - A brown icon indicates the item is not licensed.

7.8 STEP 8 - ASSIGN THE OPENVIEW REDUCED MENU SET

If the Network Manager Survey specifies using the reduced menu bar set, perform the following procedure:

The "**`ls -l`**" command will display the file permissions for these three levels. The "**`chown`**" command is used to change the file owner. The "**`chgrp`**" command changes the group of a file, and the "**`chmod`**" command changes the permissions to any or all levels.

NOTE

The full OpenView menu set may be assigned to the owner or a group, but not both.

OWNER Example:

In the following example, the full menu bar set will be assigned to the user known as "tester3." All others will have a reduced menu bar set.

At the UNIX prompt, as root, enter:

> **`cd /usr/OV/registration/C`** *<ENTER>*
> **`ls -l`** *<ENTER>*
> **`cd ovsnmp`** *<ENTER>*
> **`chown tester3 *`** *<ENTER>*
> **`chmod 400 *`** *<ENTER>* (restricts file access to owner)
> **`chmod 444 xnmevents`** *<ENTER>*
> **`cd . .`** *<ENTER>*
> **`chmod 400 nmpolling`** *<ENTER>*
> **`chown tester3 nmpolling`** *<ENTER>*
> **`chmod 400 terminal`** *<ENTER>*
> **`chown tester3 terminal`** *<ENTER>*
> **`chmod 400 demandpoll`** *<ENTER>*
> **`chown tester3 demandpoll`** *<ENTER>*
> **`cd ovhpux . .`** *<ENTER>*
> **`chmod 400 *`** *<ENTER>*
> **`chown tester3 *`** *<ENTER>*

GROUP Example:

Since reduction is based on file permissions, a group rather than owners can be assigned a full menu bar if desired. In the following example, the full menu bar will be available to all members of the group designated "redmenu." All others will have a reduced menu bar.

At the UNIX prompt, as root, enter:

> **cd /usr/OV/registration/C** *<ENTER>*

> **ls -l** *<ENTER>*

> **cd ovsnmp** *<ENTER>*

> **chgrp redmenu *** *<ENTER>*

> **chmod 040 *** *<ENTER>* (restricts file access to group)

> **chmod 444 xnmevents** *<ENTER>*

> **cd . .** *<ENTER>*

> **chmod 040 nmpolling** *<ENTER>* (Changes group on all levels to ?)

> **chgrp redmenu nmpolling** *<ENTER>*

> **chmod 040 terminal** *<ENTER>*

> **chgrp redmenu terminal** *<ENTER>*

> **chmod 040 demandpoll** *<ENTER>*

> **chgrp redmenu demandpoll** *<ENTER>*

> **cd ovhpux . .** *<ENTER>*

> **chmod 040 *** *<ENTER>*

> **chgrp redmenu *** *<ENTER>*

7.9 STEP 9 - ASSIGN THE EDACS REDUCED MENU SET

The Network Manager system administrator can also restrict access to certain critical EDACS functions by assigning user's the restricted menu set contained in the "***ovedacsres.reg"*** file. In the following example, "adm" is given read permissions to the "***ovedacs.reg"*** which contains the full menu set, while all other users are given read permissions to the restricted menu set contained in the "***ovedacsres.reg"*** file.

NOTE

The full EDACS menu set may be assigned to the owner or a group, but not both. Remember to insert a space between "**ovedacsres.reg"** and the second argument " **.** ".

In the following example, "**adm**" is designated as the owner of the file ovedacs.reg and will be the only account with access to all EDACS functions. All other user's will see a the restricted menu set.

OWNER Example:

At the UNIX prompt, as root, enter:

> **cd /usr/OV/registration/C** *<ENTER>*

> **cp /usr/EDACS/registration/C/ovedacsres.reg .** *<ENTER>*

> **chown adm ovedacs.reg ovedacsres.reg** *<ENTER>*

> **chmod 400 ovedacs.reg** <***ENTER***>

> **chmod 044 ovedacsres.reg** <***ENTER***>

> **ls -l** <***ENTER***> (Note: Permissions are opposite each other).

Although the previous example restricts the full EDACS menu to "adm", it could also be restricted to a group, as shown below. It is vital, however, that the ***ovedacs.reg*** and ***ovedacsres.reg files*** have some owner and opposite permissions.

GROUP Example:

At the UNIX prompt, as root, enter:

> **cd /usr/OV/registration/C** <***ENTER***>

> **cp /usr/EDACS/registration/C/ovedacsres.reg . ** <***ENTER***>

> **chgrp netman ovedacs.reg ovedacsres.reg** <***ENTER***>

> **chmod 040 ovedacs.reg** <***ENTER***>

> **chmod 404 ovedacsres.reg** <***ENTER***>

> **ls -l** <***ENTER***> (Note: Permissions are opposite each other).

NOTE: The restricted EDACS menu set sent with the Network Manager has the Reboot, Restart, and Shutdown menu items removed and the Configure menu item grayed out. If an alternate menu set is required, contact Ericsson Technical Assistance Center for help.

7.10 STEP 10 - RESTRICT ACCESS TO OPENVIEW NETWORK NODE MANAGER

If the Network Manager Survey specifies restricting OpenView access, then execute the following procedure

OpenView will only permit one read/write copy to be operating at a time. All other simultaneous sessions will be read only.

NOTE: The read version of OpenView will see icon status updates.

The following operations are still valid:

- Event Configuration
- IPMAP polling
- Application Builder
- MIB Browser
- MIB loading/unloading.

The following example assigns write permission to the "adm" account. (Note: Another user account name may be substituted in the following instructions.) The write copy could be restricted to another user or to a group.

File permissions are used to reduce the menu items seen when OpenView is invoked. In UNIX, there are three permission levels

- Owner
- Group
- Other

1. Login as *root* by entering the following command and entering the proper password

   > **su** <***ENTER***>.

2. Display the current users by entering the following command:

   > **cd /usr/OV/bin** <***ENTER***>

   > **./ovwls** <***ENTER***>

3. As *root*, enter the following command

   > **./ovwchmod -a -G 644** <***ENTER***> (restricts write copy to owner)

   OR

   > **./ovwchmod -a -G 464** <***ENTER***> (restricts write copy to a group)

   This will restrict the write copy of ***ovw*** to the owner.

4. Execute the following command to make the user "**adm**" (or group "nmwrite") the owner of the write version:

   > **./ovwchown -a -G adm** <***ENTER***> (makes "adm" owner of write version)

   OR

   > **./ovwchgrp -a -G nmwrite** <***ENTER***> (makes group "nmwrite" owner of write version)

The commands used to the previous example are similar to the UNIX equivalents and are listed in Appendix A.

7.11 STEP 11 - CONFIGURE PRINTERS

If specified in the NM survey, setup a printers at this time. The printer may be connected in any of the following configurations:

- A local printer, that is a printer connected to the Workstation or Server via a serial or parallel port.
- A Remote Printer, this is a printer connected to another UNIX device.
- A Network Printer, printers connected to the TCP/IP LAN.

After determining the type or types of printers attached to the system, refer to the instructions contained in the "Printer Setup and Configuration" section (paragraph 11.6) and complete the printer setup and configuration.

7.12 STEP 12 - PERFORM FULL SYSTEM IMAGE BACKUP

Perform a full System Image Backup using the following procedure:

1. As *root* user: Use console login.

   > /etc/shutdown now <***ENTER***>

   System will shutdown and come back up in single-user mode. If asked what terminal type, press <**Enter**>

2. Insert the System Image Backup Tape into the tape drive (assume device name = /dev/rmt/**0**m).

3. Enter the following commands:

   > **cd /** <***ENTER***>

   > **tar -cvf /dev/rmt/0m .** <***ENTER***>

NOTE

One 90mm tape should handle the entire backup and the backup process will take approximately one hour to complete.

When the backup is complete, carefully label all System Image backup tapes as "Sys*ddmmmyyyy* Vol # *(number of this tape)* of # *(total number of tapes it took to complete the backup)*".

For example: Sys12DEC1994 Vol 1 of 4.

3. Enter the following command to reboot the workstation.

   > **`/etc/shutdown -r now`** <***ENTER***>

4. Store the tape in an environmentally safe and secure location.

5. This completes the Network Manager factory customization process. To complete the installation proceed to the "On-Site Configuration" section and ensure all associated elements are properly configured for use with the Network Manager.

8. ON-SITE CONFIGURATION

This section presents configuration information for the IMC, PI, BCU/CAL, and System Manager. The information herein is not intended to cover the complete platform-specific installations, but to provide particular settings necessary for functioning with the Network Manager. Please refer to the subject LBIs for the most current information on installation and setup for the platforms.

8.1 CEC/IMC MANAGER FOR NT SETUP

NOTE: These instructions assume the CEC/IMC Manager and CEC/IMC Manager SNMP Agent software have been installed.

The following setup should be performed to ensure that the Network Manager receives traps from the CEC/IMC Manager For NT and to ensure that the IMC Manager applications are synchronized after making changes in the SNMP services (adding/deleting IP addresses and community names to receive traps).

To confirm or set trap destination IP addresses and the community name, perform the following steps at the CEC/IMC Manager For NT:

1. The community name for the CEC/IMC Manager For NT machine running SNMP services can be seen or set as follows:

   Main->Control Panel->Network->SNMP services

   Double click on SNMP services. The monitor will display the SNMP Services Configuration window. Click on "Security". This brings up the "SNMP Security Configuration" window. Set the community name to "edacs" and the IP Address to the address of the Network Manager station.

2. For IMC-specific traps, go to DOS and check to determine if **C:\winmon\trapdest.txt** exists.

   - **If the file exists**, add the IP address of the NM Station with the community name "edacs". IMC-specific traps will be sent to this address.
   - **If the file does <u>not</u> exist**, edit the file so that each line has the community name "edacs" as the first field and the IP address of the Network Manager Station as the second field, e.g., edacs x.x.x.x. The IMC-specific traps will then be sent to the IP addresses specified in this file.

3. Once the IP addresses and community names are entered, reboot the IMC Manager For NT for these changes to be effective. This can be done by going into Program Manager->File->Shutdown.

4. Traps from the same CEC/IMC Manager can be sent to multiple Network Manager stations by performing steps 1 through 3 for each trap destination.

NOTE

The Network Manager and the CEC/IMC Manager For NT must have the same community name or the CEC/IMC Manager will generate Authentication Traps. At the Network Manager, choose options->SNMP Configuration to verify the community name set there.

Potentially, more than one Network Manager may have the same IMC Manager listed in their respective "SNMP Configuration" window with proper community name. If for any reason, someone chooses to change the community name at the IMC Manager For NT, and the change is not made at all Network Managers; Network Manager stations which are listed as destination for receiving Generic traps, will receive **IM_Authentication_failure** traps at the frequency of polling interval of Network Manager which still has not corrected its community name.

8.2 JESSICA PI SETUP

Ensure that the Jessica PBX Interface (PI) contains the following settings for Network Manager connectivity.

NOTE

Read the procedure before proceeding. Several of the steps are dependent on functionality purchased and require rebooting or cycling power on and off. The rebooting and power cycling can be combined.

1. Log into the PI under the *root* account.

   Login: *root*
   Password:

2. Execute the ***config*** command to obtain the current NODE_ID and SITE_ID.

   pSH+> **`config`**

3. Execute the following command and set the number in the configuration parameter "NODE_ID" to match the number of the IMC Node connected to the PI.

   pSH+> **`config -s NODE_ID 33`**

   pSH+> **`savecfg`** (This permanently stores the NODE_ID in the PI.)

4. Enable the Ethernet Interface by setting up the **IP.DAT** file. The procedure for setting up this file may be found in the *IP.DAT Parameters (Remote Access Setup)* section of LBI-39040.

   NOTE: If IP.DAT has been changed, then a reboot is required. Check feature licenses before rebooting. Also if "Jessica Performance Source upgrade" was purchased to provide RTM (Real-Time Monitoring) data, then power off the PI and check the jumpers for proper placement.

5. Enter the following:

   pSH+> **`product -l`**

   Ensure that the Multisite Monitor (MSM) and EZ Access licenses are enabled if the PI is providing Multisite Monitor/Site Monitor information. The MSM license is only required if the PI will be providing RTM data for the Network Manager. The EZ Access license is always required.

6. If the "Jessica Performance Source upgrade" was purchased, the PI is sourcing real-time data and has a link to the IMC CAM card.

7. Power down the PI and ensure that port 1 on the fv5310 WANServer/Mezzanine Card is configured for DTE. All four jumpers should be installed on the port 1 header. (Refer to the WANServer board diagrams in LBI-39000.)

8. Connect the RS-422 Control Cable (part number: 2203710G1) between the PI and the CAM according to procedures contained in the Installation section of LBI-39000.

9. Reapply power to the PI.

10. If the IP.DAT has been changed, reboot the system, if not done already. A reboot is required to see any license change.

11. Execute the ***trap*** command to define which Network Manager Station will receive traps sent by the PI.

For example: pSH+> **`trap -a -i`** *IP Address*

12. Enter the ***comm*** command to define which Network Manager Station may read or write to this platform.

    For example: pSH+> **`comm -a -i`** *IP Address* **`-c edacs -v write`**

13. Enter the following information at the prompt:

    pSH+> **`bcs`**

    BCS> **`show system`**

    BCS> **`set system/PIM = 16`** (This is the SITE_ID, which ranges from 1 to 32. The default is 16.)

    BCS> **`set system/NIM = 32`** (This is the NIM Number of the IMC. This number ranges from 1 to 32.)

    BCS> **`set system/node = 33`** (This is the node number of the connected IMC.)

    BCS> **`exit`**

14. Execute the ***traf*** command to verify that the CAM link is up. (Check the last line of information on the screen for the CAM status of either "on line" or "off line.")

    For example: pSH+> **`traf -i`**

8.3 BCU/CAL SETUP

Ensure that the BCU/CAL contains the following settings for Network Manager connectivity.

1. Log into the BCU/CAL under the *root* account.

   Login: root
   Password:

2. Enable the Ethernet Interface by setting up the IP.DAT configuration file. The procedure for setting up this file may be found in the *IP.DAT Configuration File* procedure in the Installation section of LBI-38965.

3. Enter the following information at the prompts:

   pSH+> **`bcs`**

   BCS> **`show system`**

   BCS> **`set system/PIM = 16`** (This is the SITE_ID of the PI on this node, which ranges from 1 to 32. The default is 16.)

   BCS> **`set system/NIM = 32`** (This is the NIM Number of the IMC. This number ranges from 1 to 32.)

   BCS> **`set system/node = 33`** (This is the node number of the connected IMC.)

   BCS> **`exit`**

   pSH+> **`product -l`** (Ensure that the Multisite Monitor (MSM) license is enabled if the BCU/CAL is providing Multisite Monitor/Site Monitor information. Note: A reboot is required to see any license change. If the MSM is not licensed, a feature encryption diskette is required.)

3. Execute the ***trap*** command to define to which Network Manager Station the traps are sent.

   For example: pSH+> **`trap -a -i`** *IP Address of NM*

4. Enter the ***comm*** command to define which Network Manager Station may read or write to this platform.

   For example: pSH+> **`comm -a -i`** *IP Address of NM* **`-c edacs -v write`**

5. Execute the ***stat*** command to verify that the CAM link is up. (Check the last line of information on the screen for the CAM status of either "on line" or "off line.")

   For example: pSH+> **`stat -i`**

8.4 EDG SETUP

Ensure that the EDG contains the following settings for Network Manager connectivity.

1. Log into the EDG under the *root* account.

   Login: root
   Password:

2. Change directories by entering

   > **`cd`** ***`cnfg`*** **<*ENTER*>**

3. Edit the ***SYSTEM.TXT*** file and add the following in IP section **[IP]** of the file: (**NOTE:** There is no local editor.)

   `CAP_Ext_Address` *`IP Address`*

4. Reboot EDG.

   NOTE: The subnet mask depends on the class of the IP address and is not changeable. Refer to LBI-38964, EDACS Data Gateway Configuration Reference manual for additional details.

8.5 SYSTEM MANAGER SETUP

NOTE

NOTE: The System Manager's Network Manager interface requires a System Manager software version Group 6 (or later) and MultiNet software. Before proceeding with this procedure, locate the licenses for these software packages. The information found on these licenses will be used during setup.

8.5.1 Software Installation And Configuration

NOTE

A system disk image backup must be performed prior to S/W installation.

1. Perform a system disk backup prior to starting. (If necessary, refer to LBI-38703)

2. Install the EDACS System Manager group 6 software as described in the Software Release Notes.

3. Install and configure the MultiNet V3.5 software as follows:

NOTE

These procedures originated from the MultiNet Installation Guide provided by TGV. However, due to unnecessary complexity within that guide these procedures were developed to simplify the process.

a. Reserve sufficient disk space (~20,000 blocks are required).

b. Log into the system account.

c. Add the following lines to sys$system:modparams.dat
   - MIN_CHANNELCNT = 200
   - ADD_SPTREQ = 1700
   - ADD_GBLSECTIONS = 20
   - ADD_GBLPAGES = 340

d. Enter the following:

```
> @sys$update:autogen getdata reboot
```

e. Following the reboot, log into the TEST2 account.

f. Load the MultiNet Product Authorization Key (PAK) as follows:

   - Enter

     > **@sys$update:vmslicense**

     Choose [1] Register, and then enter the data from the PAK when prompted.

   - Enter "No" to the cluster member node restriction question.

NOTE

If the license is expired or is improperly installed, the System Manager application will not start when the VAX is rebooted.

g. Perform the actual MultiNet installation as follows:

NOTE

This procedure requires knowledge of the System Node Name (Host Name). Production systems, by default, have a Node Name of "**SYSMGR**". However, if this name has been changed due to network reconfiguration, the Node Name can be obtained by entering the following command:

> **mc ncp show exec** <***ENTER***>

   - Load the tape (labeled MultiNet V3.5).

     Note: The following line is for installation of V3.5. This will change with other versions of MultiNet.

   - Enter the following:

> **@sys$update:vmsinstal multinet035 mka500:** *<ENTER>*

- Ignore the file limit warning.
- Ignore the 'active processes' warning.
- Answer "yes" to the 'continue' question.
- Answer "yes" to the 'backup satisfaction' question.
- Verify the tape is mounted and enter "yes" when ready.
- If asked, answer "yes" to the 'purge' question.
- Answer "yes" to select the 'TCP/IP applications', and answer "no" in response to all other software applications, online documentation and library files.
- Answer "no" to the 'change selections' question.
- Answer "yes" to the 'add user commands in DCL tables' question.
- Answer "yes" to the 'purge' question.
- Answer "yes" to the 'configure TCP/IP' question.
- Enter the Host Name.
- Enter the IP Address of the Host.
- Enter **<*ENTER*>** to the 'Subnet Mask' question.
- Enter **<*ENTER*>** to the 'Default Route' question.
- Answer "no" to the 'Domain Name Service (DNS)' question.
- Answer "est" to the 'time zone' question.

8.5.2 Post-Installation Tasks:

1. Edit the file "**sys$manager:systartup_v5.com"** (refer to LBI-38703, *Editor Instructions*). Add the following new line just before the line "`$ Startup the System Manager Software Package`":

   `$ @sys$sysroot:[multinet]start_multinet.com`

2. Reboot the system.

NOTE

When System Manager is rebooted and the Network Manager has device polling enabled, all Network Manager icons representing its proxied devices turn red.

3. Log into the TEST2 account and enter the following:

   > **`Multi Config/menu`** *<ENTER>*

4. Select (using the arrow and return keys) the "Configure Multinet Server."
   a. Select "View/Modify an Existing Service."
   b. Select "SNMP."
   c. Select "Enable or Disable Service."

d. Set Service State to “Enabled.”

e. Exit back to the Main menu.

5. Select the “Configure SNMP Agent.”

a. Select the “Set SNMP Configuration Variables.”

b. Enter “EDACS VAX System Manager” into the *sysdescr* field,.

c. Enter into the *sysContact* field the name of the person responsible for the CPU.

d. Enter into the *sysLocation* field the physical location of the CPU.

e. Enter “**edacs**” into the *Read Community* field.

f. Enter “**edacs**” into the *Write Community* field.

g. Enter “**30033**” into the *Master Agent Port* field.

h. Enter “**64000**” into the *Master-Agent-maxmsg size* field.

i. Enter “**8192**” into the *SNMP-Agent-maxmsg size* field.

j. Enter “**Enabled**” into the *Authentication failure traps* field.

k. Enter “**edacs**” into the *Trap Community* field.

l. Enter into the *Trap Destination* field the IP address of the primary Network Manager station.

NOTE: Only one IP Address can be entered here since the TGV Master Agent only supports a single trap destination for cold start, warm start, and Authentication Failure Traps.

m. Exit to the previous screen and select “Save and Reload Configuration.”

n. Exit back to the Main menu.

o. Exit the “Multinet Configuration” utility completely.

6. If you are using the Multinet V3.5, it will be necessary to install an ECO (patch) which corrects numerous problems within the SNMP Master Agent. If you are using a version of Multinet later than V3.5, skip to the next step.

a. Insert the ECO tape into the tape drive (labeled Multinet SNMP Master Agent Patch).

b. Enter the following:

> **mount mka500: snmp** <***ENTER***>

c. Enter

> **copy mka500:dpc_snmp_agent035.a []** <***ENTER***>

d. Enter

> **@sys$update:vmsinstal dpc_snmp_agent dka300:[TEST2]** <***ENTER***>

- Ignore the ‘file limit’ warning
- Ignore the ‘active processes’ warning
- Answer “yes” to the ‘continue’ question
- Answer “yes” to the ‘backup satisfaction’ question
- Answer “yes” to the ‘purge’ question

7. Edit the file "**smdat:ip_addresses.dat**" (refer to LBI-38703, Editor Instructions) and place all Network Manager IP Addresses in this file in a single column format (i.e., each address starts on a new line).

8. Upon completion, Log out of the TEST2 Account.
9. Log into the EGESYSMGR account.
10. From the User Menu option 10 (external device definition) screen 4:4, for each Site Controller, enter a valid IMC number in the node number field at the bottom.
11. Log out of the EGESYSMGR account.
12. Sub-Agent and Trap Handler Initialization

    NOTE: This procedure requires the EDACS Network Manager Feature License.

    a. Log into the sminstall account

    ```
    Username = sminstall
    Password = sminstall
    ```

    b. Enter "no" to the new release question.

    c. Select Option 17.

    d. When instructed, enter the EDACS Network Manager Feature license password.

13. Upon completion, reboot the system.

8.6 POLLING SETUP

Once EDACS devices are configured, turn on the Device Polling Interval. The Network Manager application will talk to the remote devices and verify their status.

The EDACS Network Manager Application may be initialized for the interval between polls for missed events detection and for the Node to which the EDACS Network Manager application should synchronize the clock.

The device polling interval is defined as the time (in seconds) between polls of each device. A device is considered to be any of the following:

- Integrated Multisite and Console Controller (IMC)
- Console Electronics Controller (CEC)
- StarGate Controller
- IMC Manager
- System Manager
- Console
- Jessica PBX Interface (PI)
- Billing Correlation Unit/ Centralized Activity Logger (BCU/CAL)

NOTE: The site devices are not included in this list. Their status is obtained through the System Manager Proxy Agent.

8.6.1 Device Polling Interval

The number of polls per device varies depending upon the device. In addition, some devices have summary status capability. If the summary indicates an active trap, further polling is enacted to determine which conditions are active.

To determine the frequency by which an individual device is polled, one must multiply the interval by the number of polled devices in the EDACS network.

The following equation may be used to determine the time between successive polls of the same device:

$$\frac{\text{Device Polling Interval(s)}}{\text{Device}} \times \text{Devices} = \text{Time between Device Successive Poll(s)}$$

By default, status polling is disabled. The device polling interval is associated with the EDACS top container icon.

NOTE

a. By default, Polling is turned off. **Do not** turn polling on until the devices are physically connected. Polling will try to talk to devices and will turn icons RED if it cannot access them.

b. With Network Manager polling disabled, the icon will be **GREEN** if properly added to the database, **BLUE** if improperly added or there is a duplicate (icon added last is GREEN, duplicates are BLUE). **BROWN** icons indicate device is not licensed. There must be a licensed IMC/CEC/RCEC/SG with the same network number and node number as this device.

Polling parameters associated with EDACS Top level Icon (looks like a world globe) can be modified on icon add or modified using procedure in the "Setup" section below.

NOTE

We strongly recommend setting the polling interval to a value of 30 seconds or more. If the interval level is set below this value, and multiple Network Manager stations are polling the System Manager, there may be an increase in the number of SNMP "sets" failures. This results from the frequency of polling requests exceeding the System Manager's response time.

8.6.2 Clock Synchronization Node

The Node Number of the CEC/IMC Manager is set to act as clock synchronization source. The default is that the Network Manager will not synchronize to any Node.

8.6.3 Clock Polling Interval

The clock polling interval is defined as the time (in minutes) between successive polls.

8.6.4 Setup

To view/modify the EDACS polling attributes, perform the following:

1. Select the top-level icon using the left mouse button, and then select the **Monitor ->Description->Selected Object** menu item from the OpenView main menu bar.

2. Choose the EDACS Initization attributes. The polling attributes will be listed.

3. Press the View/Modify Object Attributes button.

OR

1. Select the top-level icon, depress and hold down the right mouse button.

2. Move the mouse to the Describe/Modify Object...menu option and release the mouse button.

3. Select the EDACS Initialization Object Attributes and press the View/Modify Object Attributes button.

8.7 UPGRADING EDACS NETWORK MANAGER APPLICATION SOFTWARE

Login and perform the following operations:

1. Change to *root* login:

   > **su** <***ENTER***>

2. Enter the following commands to stop all OpenView and EDACS NM processes:

   > **/usr/OV/bin/ovstop** <***ENTER***>

   > **/usr/EDACS/bin/ks** <***ENTER***>

3. Verify all EDACS NM processes are gone before continuing:

   > **ps -ef | grep edacs** <***ENTER***>

4. Remove the EDACS directory.

   NOTE: If there are any files in the EDACS directory that you wish to save, move them to another directory before executing the following command.

   > **rm -r /usr/EDACS** <***ENTER***>

5. Verify that the hard disk has sufficient disk space available (approximately 16.5MB) to perform the EDACS NM installation:

   > **bdf** <***ENTER***>

6. Insert the tape into the tape drive and copy the *tar* file from the tape to the disk.

   > **cp -p /dev/rmt/0m /tmp/nm105.tar** <***ENTER***>

7. Extract the NM application from the *tar* file.

   > **tar -xvf /tmp/nm105.tar /usr/EDACS** <***ENTER***>

8. Install the NM application. It is necessary to stop and start OpenView after performing the ***edacsInstall***. Do not reinstall IFOR/LS or TSSterm. User accounts will not be affected.

   > **/usr/OV/bin/ovstart** <***ENTER***>

   > **/usr/EDACS/bin/edacsInstall** <***ENTER***>

   > **/usr/OV/bin/ovstop** <***ENTER***>

   > **/usr/OV/bin/ovstart** <***ENTER***>

9. Remove the *tar* file from the hard disk.

   > **rm /tmp/nm105.tar** <***ENTER***>

10. Exit *root* login:

    > **exit** <***ENTER***>

11. Run the OpenView application to start EDACS polling again.

NOTE: **Do NOT** run OpenView while logged in as *root* user!!!

> **`ovw &`** ***<ENTER>***

8.8 PROCEDURE TO OBTAIN MAC ADDRESSES

8.8.1 System Manager

To obtain the MAC address on a VMS platform:

1. Log into a privileged account (test2 will do just fine)
2. Enter the following commands:
   > **`mc ncp sho exec stat`** ***<ENTER>***"
3. Review the displayed data, the "physical address" is the MAC address.
4. Log out

8.8.2 PI/BCU/CAL/EDG

The VME crate's IP address is obtainable via the "mac -d" command.

8.8.3 CAL Terminal Server

The CAL's Emulex terminal server's MAC address is provided on a label on the back side of the unit.

8.8.4 CEC/IMC Manager for NT

In order to view the MAC address on an NT MOMPC:

1. Execute REGEDT32.exe from the DOS prompt
2. From HKEY_LOCAL_MACHINE on Local Machine:
   - Software
   - Description
   - Microsoft
   - RPC
   - UUIDTemporary Data NetworkAddress:REG_BINARY: <MAC Address>

8.8.5 Network Manager

To view the MAC address on the Network Manager:

1. Log in as root and run **SAM**.
2. Select Networking/Communications -> Network Interface Cards.
3. The Station Address is the MAC address.

9. OPTIONAL ON-SITE CUSTOMIZATION

The following procedures will allow the installer to customize the Network Management System to meet the customer's specific site configuration requirements as described in the Network Manager Survey.

NOTE: These processes cannot be completed until the ***Network Manager Survey*** has been properly annotated with the customer's site specific configuration data.

9.1 CUSTOMIZE MSM/SM SITE/DEVICE LABELS

NOTE

Customizing the MSM/SM Site/Device labels will need to be repeated for each Network Manager application update.

Use the following procedure to customize the site or device labels.

1. As *root* user perform the following:

   > **`cd /usr/EDACS/nls/C`** <***ENTER***>

2. Edit the MSM message file, **/usr/EDACS/nls/C/msm_msg.msg** or the SM message file, **/usr/EDACS/nls/C/sm_msg.msg,** to reflect the new label(s).

   > **`chmod 777 /usr/EDACS/nls/C/msm_msg.msg`** <***ENTER***> (MSM message file)

   or

   > **`chmod 777 /usr/EDACS/nls/C/sm_msg.msg`** <***ENTER***> (SM message file)

3. Invoke the vuepad and edit the files as required. See the following examples.

   For example, if you want to change the label for site 1 from "Site 1" to "Candlers" change the line for site 1 as follows:

   As reads: **`25014 "Site 1" Site_1_label`**

   Change to read: **`25014 "Candlers" Site_1_label`**

NOTE

There is only one Site X label. Modification of the Site X label will be reflected in all nodes. Remember, Site labels may be up to eight (8) characters long and Device labels may be up to ten (10) characters long.

To change a device label for site 1 from "Device 33" to read "Dallas" change the line as follows:

As reads: **`15021 "Device 33" Device_33_label`**

Change to read: **`15021 "Dallas" Device_33_label`**

4. Enter the following command to restore permissions.

   > **`chmod 444 /usr/EDACS/nls/C/msm_msg.msg`** <***ENTER***> (MSM message file)

   or

   > **`chmod 444 /usr/EDACS/nls/C/sm_msg.msg`** <***ENTER***> (SM message file)

5. As the *root* user, generate new catalog files by executing the following :

```
> /usr/EDACS/bin/edacsMsgUpdate
```

6. Test changes by invoking MSM and SM.

9.2 CUSTOMIZE EVENT DESCRIPTION

NOTE

Customizing Event Descriptions will need to be repeated for each Network Manager application update.

The Event Descriptions show Node Numbers, Site Numbers, and ACU Lead Numbers. It may be desirable to add text describing the association, such as "Node 33 is the Dallas Switch."

Use the following procedure to Modifying Event Descriptions.

9.2.1 Modifying Event Descriptions

1. From the OpenView Menu bar, select Options->Event Configuration: SNMP.
2. Select the enterprise that sources the event. For example, System Manage, IMC Manager, PI, etc.
3. Select the event of interest.
4. Click on the Modify button.
5. Click on OK to save the changes.

9.3 CUSTOMIZING BACKGROUND GEOGRAPHICAL MAPS

HP OpenView Network Node Manager provides the capability to assign a CompuServe Graphic Interchange Format (GIF™) file or an X11 monochrome bitmap format (XBM) file as the background for network maps. OpenView Network Node Manager ships with the set of standard image files shown below. These outline images are the only maps that Ericsson provides. The installer is responsible for selecting the appropriate maps at installation time or purchasing any additional maps (in the form of GIF or XBM files) desired.

- all 50 U.S. states
- major Canadian provinces
- western hemisphere
- continents
- countries in Europe, Asia, and the Pacific

NOTE

Background graphics may no contain more than eight (8) colors.

The images that are provided are simple outlines located in ***/usr/OV/backgrounds***. To add a background map to a submap, perform the steps below.

1. Select **Edit -> Submap - > Description**

   The Submap Description dialog box appears.

2. In the "**Background Graphics Text**" field, enter the path and filename of the background graphic (for example, from root, ***/usr/OV/backgrounds/virginia.gif***).

3. Click on the OK button.

The background graphic appears in the submap window. Symbols in the submap appear over the background graphic file. Users and applications can specify a background graphic for each submap.

TROUBLESHOOTING

If the graphic file contents change but the name remains the same, OpenView will not reread the file. The background graphic will not change on the screen. Exit and re-invoke OpenView to see the changes.

If an incorrect path or filename is specified, the background graphic will not be loaded, and no error message will be displayed.

If more than eight (8) colors are used, the MSM/SM may be adversely affected. See the "Out Of Color map entries" problem described in the Troubleshooting section of this manual.

9.4 JESSICA PI OR BCU/CAL ALARM THRESHOLD MIBS (EDACS-102 MIB)

Setting Alarm Thresholds at a remote platform is an advanced feature which is useful when troubleshooting or system tuning. The following example demonstrates setting an absolute rising alarm generated at the PI or BCU/CAL which sources performance data when the number for queued calls on a node exceeds 100 in a 10-second interval. Note; a popup window could be associated with the PI_RisingAlarm or the BCU_RisingAlarm.

Use the following procedure to set up the Jessica PI or the BCU/CAL alarm thresholds.

9.4.1 Setting the Alarm Thresholds

NOTE: Refer to LBI-39170 for additional information on MIB objects. To use the MIB Browser, select Monitor -> MIB Value -> Browse MIB: SNMP.

1. Using the MIB Browser, view the variables under **private.enterprises.ericsson.edacs.system .alarm.alarmThreshold.alarmThreshTable.alarmThreshEntry**.

2. Select **alarmThreshIndex** and start a query to determine the next available index.

3. Create an **alarmThreshEntry** by highlighting the **alarmThreshStatus** variable, entering "3" (or the next available instance number) for the instance number, and setting its value to "**createRequest**".

4. Verify that a new entry was created by viewing the message area of the popup window for successful set completion..

5. Set the following alarm parameters to the values indicated and specify the same MIB instance for each parameter: (Be sure to watch the message area for successful completion messages for each set.)

   - **alarmThreshVariable** = .1.3.6.1.4.1.193.10.1.5.2.2.7
     This is the complete path to variable you want to monitor, in this case:
     private.enterprise.ericsson.edacs.system.node.nodePerformance.nodeTotal.nodeTotalQueued

   - **alarmThreshSampleType** = absoluteValue (To determine numeric path, select MIB Object of interest and perform the describe operation.

   - **alarmThreshInterval** = 1000 (This value is in hundredths of a second, therefore a value of 1000 = 10 seconds.)

   - **alarmThreshPermanence** = permanent

- **alarmThreshStartupAlarm** = risingAlarm
- **alarmThreshRisingThreshold** = 100 (An alarm occurs when the number of queues on this node increases from 99 to 100.)
- **alarmThreshFallingThreshold** = 0 (Must be zero alarmThreshStartupAlarm is defined as risingAlarm. Only valid if alarmThreshStartupAlarm is defined as a fallingAlarm or a risingOrFallingAlarm.)
- **alarmThreshNotifyThisNMS** = 0.0.0.0

6. In the entry you created, set **alarmThreshStatus** to "enabled".

9.4.2 Deleting the Alarm Thresholds

Use the following procedure to delete up the Jessica PI or the BCU/CAL alarm thresholds.

1. Using the Network Manager Browser, view the variables under **private.enterprises.ericsson.edacs.system .alarm.alarmThreshold.alarmThreshTable.alarmThreshEntry**.
2. Set the **alarmThreshStatus** to "disabled".
3. Set the **alarmThreshStatus** to "deleteRequest".

9.5 ICON MODIFICATIONS

The Network Manager comes standard with an icon editor which is accessible from the personal toolbox on the VUE bar. The bitmaps used in the EDACS icons are located in the /usr/OV/bitmaps/C directory. In general, the EDACS bitmaps are named ed_xxx.38.p and ed_xxx.38.m where xxx is the device type like IMC, the .p file is the pixels file, and .m is the mask file. The 38 represents the size of the bitmap. Bitmaps for size 20, 28, 32, and 38 are provided. Modifying the default bitmaps is discouraged and should only be attempted by trained personal. The default file may be restored from the /usr/EDACS/bitmaps/C directory.

10. LICENSE UTILITIES AND OPERATIONS

10.1 MONITORING LICENSE STATUS

This procedure must be run on the HP node having the licensed server.

1. > **`cd /usr/lib/netls/bin`** *<ENTER>*

2. > **`./ls_stat`** *<ENTER>* (to view network license server status)

   NOTE: If expiration date is before the start date, the license is good for 100 years.

10.2 INSTALLING THE LICENSE PASSWORD

NOTE

This procedure assumes that the script file automatically generated by the ls_pass utility has been modified to include a hard-coded directory path for the **ls_admin** utility. It also assumes that all non-UNIX command lines are commented out.

1. Log in as **ROOT**.

2. Change directory to where the password script file (named *script_filename*) is located.

3. Execute script: **`./script_filename`**

   NOTE: Vendor definition is repeated in every license and will get error on execution of scripts after the first.

4. To verify that the passwords are now installed,

   Change directory: **`cd /usr/lib/netls/bin`**

   Execute utility: **`./ls_admin`**

   Select the appropriate **Server**, **Vendor**, and **Product** for the license that was just added. Select **License** and verify that the new license is displayed on the screen. Press the **Exit** button in the upper left-hand corner to quit the ls_admin utility.

5. Log out of the **ROOT** account.

10.3 DELETING THE LICENSE PASSWORD

1. Log in as **ROOT**.

2. Run the ls_admin utility.

   Change directory:**cd /usr/lib/netls/bin**

   Execute utility: **./ls_admin**

   Select the appropriate **Server**, **Vendor**, **Product**, **License** for the license that must be deleted. Press the **Delete** button on the left-hand side. A delete confirmation window will appear and select **Delete** again. Verify that the license is no longer displayed on the screen. Press the **Exit** button in the upper left-hand corner to quit the ls_admin utility.

3. Log out of the **ROOT** account.

10.4 RETRIEVING THE LICENSE TARGET ID

1. Log-in. (ROOT is not required.)
2. Change directory:**/usr/lib/netls/bin** (or **/usr/etc/netls** (must be *root* to get here) if iFOR/LS ARK is not installed)
3. Execute **ls_targetid** utility.

   Execute utility: **./ls_targetid**
4. The output from this program will be as follows:

   Permanent Target ID: ######

   Note the Permanent Target ID given.
5. Log out.

10.5 IFOR/LS LICENSE MAINTENANCE PROCEDURE

10.5.1 Restoring License

Sometimes licenses may become stale - meaning that the IFOR/LS servers still see the license as IN USE, but the license is NOT being used. In order to restore these licenses to an available status, perform the following:

1. Login to the system. Be sure IFOR/LS servers are running.

   > ps -ef | grep netlsd

   > ps -ef | grep llbd

   > ps -ef | grep glbd
2. Run the ls_stat utility provided by IFOR/LS.

   > cd /usr/lib/netls/bin

   > ./ls_stat -I

10.5.2 Using IFOR/LS In Multiple Systems

When more than one system exists in an IFOR/LS license cell, some cell maintenance must be performed when systems are removed from the cell; otherwise, license activities may be less time-efficient and the ls_tv (IFOR/LS license test and verification utility) may exit abnormally with a segmentation fault and core dump.

Execute the following commands to maintain cell integrity:

1. Login as *root* to a system that still remains in the existing cell.
2. Run the **lb_admin** utility to clean the databases as follows:

NOTE

In the following sequences, after the machines are removed from the cell, an alternate method is to run **drm_admin** to purge all references to these machines from the name space. This eliminates the core dumping feature.

> cd /etc/ncs

> **./lb_admin**

lb_admin: use global

lb_admin: clean

Answer "**YES**" to questions of whether or not to delete servers that are not responding and are known to no longer exist in the cell.

lb_admin: use local

lb_admin: clean

Answer YES to questions of whether or not to delete servers that are not responding and are known to no longer exist in the cell.

lb_admin: exit

An example lb_admin clean-up session is recorded below:

```
moonunit:/etc/ncs> ./lb_admin
lb_admin: use global
lb_admin: clean

Data from GLB replica: ip:moonunit

working . . . . .
------------
object = 6cf7f30511f2.02.93.75.2a.cf.00.00.00
type = nls
interface = nls
"NLS @ ip:nanook" @ ip:nanook[1111] global

Server not responding - unable to contact remote site. [using short
timeouts] Delete? y
working .
------------
object = 6cf7f30511f2.02.93.75.2a.cf.00.00.00
type = 3bd624ea7000.0d.00.00.80.9c.00.00.00
interface = 3bd624ea7000.0d.00.00.80.9c.00.00.00
"NLS[2.0] @ ip:nanook" @ ip:nanook[1111] global

Server not responding - unable to contact remote site. [using short
timeouts] Delete? y
working .
------------
```

```
object = 6cf7f30511f2.02.93.75.2a.cf.00.00.00
type = 4ca0fd5cf000.0d.00.02.1a.9a.00.00.00
interface = 3bd624ea7000.0d.00.00.80.9c.00.00.00
"NLS[2.0]: Hewlett-Packard NetLS Test" @ ip:nanook[1111] global


Server not responding - unable to contact remote site. [using short timeouts] Delete? y
working .
------------
object = 6cf7f30511f2.02.93.75.2a.cf.00.00.00
type = 4ca0f7ea1000.0d.00.02.1a.9a.00.00.00
interface = 3bd624ea7000.0d.00.00.80.9c.00.00.00
"NLS[2.0]: Hewlett-Packard Netls" @ ip:nanook[1111] global


Server not responding - unable to contact remote site. [using short timeouts] Delete? y
working .
------------
object = 709fa69ceeb2.02.93.75.2a.cd.00.00.00
type = 705e6f3466f8.02.93.75.2a.cf.00.00.00
interface = 3bd624ea7000.0d.00.00.80.9c.00.00.00
"NLS[2.0]: Ericsson Inc." @ ip:dweezle[1290] global


Server not responding, but registered in remote llbd database. [using short timeouts] Delete? y
working . .
------------
object = 709f569c7bf6.02.93.75.2c.3f.00.00.00
type = 3bd624ea7000.0d.00.00.80.9c.00.00.00
interface = 3bd624ea7000.0d.00.00.80.9c.00.00.00
"NLS[2.0] @ ip:ringo" @ ip:ringo[1110] global


Server not responding - unable to contact remote site. [using short timeouts] Delete? y
working .
------------
object = 6cf7f30511f2.02.93.75.2a.cf.00.00.00
type = 705e6f3466f8.02.93.75.2a.cf.00.00.00
interface = 3bd624ea7000.0d.00.00.80.9c.00.00.00
"NLS[2.0]: Ericsson Inc." @ ip:nanook[1111] global
```

```
Server not responding - unable to contact remote site. [using short
timeouts] Delete? y

working .

------------

object = 7236729963fc.02.93.75.2a.d0.00.00.00

type = nls

interface = nls

"NLS @ ip:cypress" @ ip:cypress[1109] global


Server not responding, and is NOT registered with remote llbd. [using
short timeouts] Delete? y

working .

------------

object = 709fa69ceeb2.02.93.75.2a.cd.00.00.00

type = 3bd624ea7000.0d.00.00.80.9c.00.00.00

interface = 3bd624ea7000.0d.00.00.80.9c.00.00.00

"NLS[2.0] @ ip:dweezle" @ ip:dweezle[1290] global


Server not responding, but registered in remote llbd database. [using
short timeouts] Delete? y

working .

------------

object = 709fa69ceeb2.02.93.75.2a.cd.00.00.00

type = 4ca0fd5cf000.0d.00.02.1a.9a.00.00.00

interface = 3bd624ea7000.0d.00.00.80.9c.00.00.00

"NLS[2.0]: Hewlett-Packard NetLS Test" @ ip:dweezle[1290] global


Server not responding, but registered in remote llbd database. [using
short timeouts] Delete? y

working . . . . .

------------

object = 709f569c7bf6.02.93.75.2c.3f.00.00.00

type = 4ca0fd5cf000.0d.00.02.1a.9a.00.00.00

interface = 3bd624ea7000.0d.00.00.80.9c.00.00.00

"NLS[2.0]: Hewlett-Packard NetLS Test" @ ip:ringo[1110] global


Server not responding - unable to contact remote site. [using short
timeouts] Delete? y

working .
```

```
------------
object = 709f569c7bf6.02.93.75.2c.3f.00.00.00
type = 705e6f3466f8.02.93.75.2a.cf.00.00.00
interface = 3bd624ea7000.0d.00.00.80.9c.00.00.00
"NLS[2.0]: Ericsson Inc." @ ip:ringo[1110] global


Server not responding - unable to contact remote site. [using short
timeouts] Delete?
11 entries deleted of 21 entries processed lb_admin:
lb_admin: use global
lb_admin: clean


Data from GLB replica: ip:moonunit


working . . . . . .
------------
object = 709f569c7bf6.02.93.75.2c.3f.00.00.00
type = 705e6f3466f8.02.93.75.2a.cf.00.00.00
interface = 3bd624ea7000.0d.00.00.80.9c.00.00.00
"NLS[2.0]: Ericsson Inc." @ ip:ringo[1110] global


Server not responding - unable to contact remote site. [using short
timeouts] Delete? y


1 entries deleted of 10 entries processed lb_admin: use local
lb_admin: clean
working . . . . . .
working .
------------
object = *
type = *
interface = 526cb5cd4000.0d.00.01.32.6a.00.00.00
"aserver:0" @ ip:localhost[0]


Server not responding, but registered in remote llbd database. [using
short timeouts] Delete? y


1 entries deleted of 11 entries processed lb_admin:
```

11. SYSTEM MAINTENANCE

To optimize the Network Manager's performance it may be necessary to perform the following system maintenance tasks on a routine basis.

MAINTENANCE TASK	DAILY	WEEKLY	MONTHLY	AS REQUIRED
1. File Clean-up				X
2. Cleaning Tape Drive Heads				Every **25 hours** of tape drive use.

11.1 FILE CLEAN-UP

ovsuf

Delete unused entries from the **/usr/ov/conf/ovsuf** configuration file. The **ovsuf** file contains the configuration information that tells the start-up process what background processes to start.

You should not normally edit this file. Entries in the **ovsuf** file are added or deleted through the **ovaddobj** or **ovdelobj** commands. However, the **ovdelobj** command does not physically delete an entry in the **ovsuf** file; the entry is still in the file, but the entry has a special designation of "**1:**" at the beginning of the line. This tells the start-up process not to start this particular entry.

If you have repeatedly been running the **ovaddobj** or **ovdelobj** commands, the file may grow large and you may want to clean up the file. Cleaning up this file consists of deleting all lines that begin with "**1:**", which designates a deleted entry.

1:netmon:/usr/OV/bin/netmon:OVs_YES_START:ovtopmd,trapd,ovwdb:-P:OVs_WELL_BEHAVED:15:

0: ovtopmd:/usr/OV/bin/ovtopmd:OVs_YES_START:trapd,ovwdb:-O:OVs_WELL_BEHAVED:15:

0:ovwdb:/usr/OV/bin/ovwdb:OVs_YES_START: :-O:OVs_WELL_BEHAVED:15:

0:trapd:/usr/OV/bin/trapd:OVs_YES_START: : :OVs_WELL_BEHAVED: :

11.2 SETTING UP AUTOMATIC SNAPSHOTS

The HP OpenView Windows graphical user interface has a **file: Map Snapshot -> Create** menu item that enables you to take snapshots of your maps.

Alternatively, you can use the **ovmapsnap** command from a **crontab** entry to automatically take snapshots at regular intervals. For information about **crontab**.

Example:

The following crontab entry causes a snapshot, identified by the comment "Automap", to be taken at 1:00 am every Saturday.

0 1 * * 6 ovmapsnap -c -c "Automap" -m *mapname* | mailx -s"Auto Snapshot" *ovwuser*

This example would send ***ovwuser*** a mail reminder that a snapshot had been taken. The variable ***mapname*** is the name of the map. Since this process creates snapshots automatically, delete old snapshots periodically. See the section "11.3-Removing Old Snapshots"

NOTE

This operation will consume a considerable amount of memory.

11.3 REMOVING OLD SNAPSHOTS

The HP OpenView Windows graphical user interface has a **file: Map Snapshot -> Delete** menu item that enables you to remove old snapshots to free up memory and improve system performance.

Alternatively, you can remove snapshots through a terminal interface using commands. To do so, follow these steps:

1. Get a listing of all current maps by typing:

   ovmapdump -1

   This will produce a list similar to the following:

MAP	PERMS	CREATION TIME	COMMENTS
default	**R/W**	**Tue Apr 27 11:52:32 1993**	
Example Map 1	**R/O**	**Thr Apr 22 12:05:48 1993**	**example map**
Example Map 2	**None**	**Wed Apr 28 14:37:49 1993**	

2. List all available snapshots for a given map by using the following command:

   ovmapsnap -1 -m *mapname*

   where ***mapname*** is the name of the map. This will produce a list similar to the following:

NAME	CREATION TIME	COMMENTS
testing	**Fri Apr 23 12:05:48 1993**	**testing ovmapsnap**

3. Delete the given snapshot by using the following command:

   ovmapsnap -d -n Testing -m *mapname*

   If you want to automatically delete the oldest entry, set up a **crontab** entry using the following command:

   ovmapsnap -d -f -m *mapname*

   Note that this command automatically deletes the oldest entry and that may not be the entry you wanted to delete. Refer to the HP OpenView documents for additional details.

11.4 BACKING UP HP OPENVIEW LOGS

You should make a weekly backup of the HP OpenView databases and log files. You should always back up before any of the following situations:

- When Preparing to greatly expand the managed area of your network.
- When preparing to do extensive editing and customization of your network.
- After initial discovery or expansion of the discovery process when you feel you have a map that accurately reflects your network.

To back up HP OpenView databases and log files, follow these steps:

1. Exit any executing **ovw** sessions using the **file: Exit** menu item.

2. Stop the executing daemons (background programs or processes) by typing:

   /usr/OV/bin/ovstop

3. Use your preferred method to back up the HP OpenView databases and log files. To do this, you must know the file name of the device file that you are going to back up to.

   EXAMPLE:

   cd /usr/OV

   tar -cvf *device_filename* databases log

   For example,

   tar -cvf /dev/rmt/0m

NOTE

Do not back up your system without executing **ovstop** first. Backing up an active database can result in a corrupt backup.

4. Restart the background processes by typing:

   ovstart

5. Restart **ovw**.

11.5 RESTORING HP OPENVIEW FROM A BACKUP

To restore HP OpenView databases and log files from a backup, perform the following steps:

NOTE

You will lose any discovered data and map customization changes since the backup was created.

1. Exit any executing **ovw** sessions using the **file: Exit** menu item.

2. Stop the executing daemons by typing:

   /usr/OV/bin/ovstop

3. Use your preferred method to restore the HP OpenView databases and log files. To do this, you must know the file name of the device file that you are restoring them from.

   EXAMPLE:

   cd /usr/OV

   tar -xvf *device_filename*

   For example,

   tar -xvf /dev/rmt/0m

NOTE

Do not restore your system without executing **ovstop** first. Restoring a backup onto an active database can result in a corrupt backup.

4. Restart the background processes by typing:

   ovstart

5. Restart **ovw**.

11.6 CLEANING TAPE DRIVE HEADS

You should clean the heads of your tape drive after every 25 hours of tape drive use or if the Media Wear (Caution) signal is displayed on the Tape Drive LED indicators:

NOTE

Only use HP Cleaning Cassettes (HP92283K) to clean the tape heads. Do not use cotton swabs or other means of cleaning the tape heads.

Perform the following procedure to clean the tape heads:

1. Insert the cleaning cassette into the tape drive. The tape automatically loads the cassette and cleans the heads. At the end of the cleaning cycle, the drive ejects the cassette.

2. Write the current date on the cleaning cassette label to track its usage. Discard the cleaning cassette after using it 25 times. For additional information on the use and care of the tape drive, refer to the Server or Workstation Owner's Guide.

11.7 PRINTER SETUP AND CONFIGURATION

Reference the HP Owner's manual for more detailed printer setup instructions.

11.7.1 Local Printer Configuration:

Connect the printer to the Network Manager workstation or server via either a parallel or serial port as directed in the manufacturer's instructions.

1. Login as *root* and run SAM.
   - > SAM
2. Choose:
   - Printers and Plotters -> Printers / Plotters -> Actions -> Add Local Printer ->
   - **If using a parallel port:** Add Parallel Printer / Plotter ->
     - ⇒ Select the parallel card from the list. Press OK.
     - ⇒ Select the parallel card from the list. Press OK.
   - **If using a serial port:** Add Serial (RS-232) Printer / Plotter ->
     - ⇒ Select the serial card from the list. Press OK.
3. Enter the following:
   - Printer Name
   - Printer Model / Interface...

- Printer Device File Name
- Printer Class
- Default Request Priority
- System Default Printer checkbox
- Press OK.

4. Do you want to add printer "x" to the "Printers" subpanel of the HP VUE Front Panel?
   - Press YES.
5. Restart Workspace Manager?
   - Press OK.
6. If print spooler is not running: Do you want to start the print spooler now?
   - Press YES.
7. If you have not already done so, connect the printer to the system, turn the power on and make sure the printer is on-line.
   - Press OK.

11.7.2 Remote Printer Configuration:

This option is available if one of the following conditions exist:

- Network access to another UNIX device with a local printer.
- Network access to a printer with software capable of processing print requests.

Before continuing with the setup, acquire the following information about the remote printer:

If UNIX device:

- Remote system name (i.e. hostname or IP address)
- Remote printer name
- BSD system?

If intelligent printer:

- Printer name or IP address
- Print queue name
- BSD system?

1. - Login as *root* and run SAM.
   - > SAM
2. Choose: Printers and Plotters -> Printers / Plotters -> Actions -> Add Remote Printer ->
3. Enter:
   - Printer Name
   - Remote System Name (or Printer name)
   - Remote Printer Name (or Print queue)

- Remote Cancel Model
- Remote Status Model
- System Default Printer checkbox
- Anyone Cancels Request checkbox
- Remote Printer on BSD System checkbox
- Press OK.

4. Do you want to add printer "x" to the "Printers" subpanel of the HP VUE Front Panel?
   - Press YES.
5. Restart Workspace Manager?
   - Press OK.
6. If print spooler is not running: Do you want to start the print spooler now?
   - Press YES.
7. Trouble-shooting NOTE.
   - Press OK.

11.7.3 Network Printer Configuration:

This option is available only if TCP-IP spooling software has been installed on the HP workstation or device! This software must be purchased for each device that runs a network printer configuration. (Sometimes this software is distributed with the purchase of a printer Ethernet card.) Recommended distributors are HP and Strategic Technologies.

We recommend configuring only one device (print server) as a network printer and configuring all other devices as remote printers, making use of the print server.

Before continuing with the setup, acquire the following information about the remote printer:

- Printer name
- Printer node name
- Printer model / interface

1. Login as *root* and run SAM. > SAM
2. Choose: Printers and Plotters -> Printers / Plotters -> Actions ->
   - Add Network Based Printer / Plotter -> Add TCP/IP Protocol Printer / Plotter ->
3. Enter the following:
   - Printer Name
   - Printer Node Name:
   - Printer Model / Interface...
   - Printer Class
   - Default Request Priority
   - System Default Printer checkbox

- Press OK.

4. Do you want to add printer "x" to the "Printers" subpanel of the HP VUE Front Panel?
   - Press YES.
5. Restart Workspace Manager?
   - Press OK.
6. If print spooler is not running: Do you want to start the print spooler now?
   - Press YES.
7. Trouble-shooting NOTE.
   - Press OK.

11.8 CHANGING NETWORK MANAGER IP ADDRESS

If it should become necessary to change the IP Address of the Network Manager station, you must reinstall the iFor/LS Administrator Runtime Kit. Install the runtime kit by performing the procedure contained in section 6.5, Step 5 - Install Licensing Run Time Kit, items 4 through 15.

12. REMOTE ACCESS

This section describes installing and configuring an optional Hayes modem which will allow remote access to the Network Manager.

12.1 OVERVIEW

An optional modem may be connected to the Network Manager in one of three ways:

1. Modem connected directly to the HP Workstation.
2. Modem connected to the HP Server.
3. Modem connected into a Terminal Server on the EDACS LAN.

12.1.1 Modem-HP Workstation Serial Port Connection

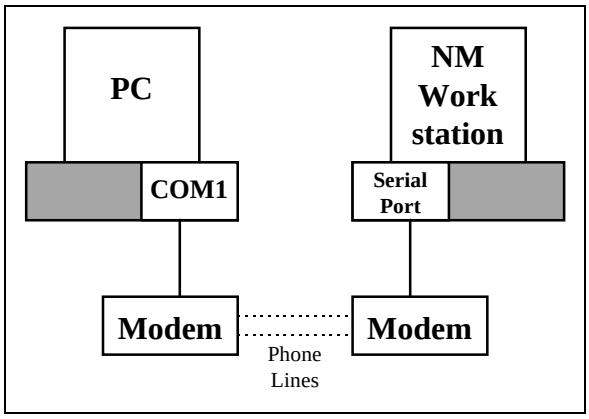


Figure 11 - Modem to HP Workstation Installation

This is the recommended EDACS Network Configuration for remote access. Its primary advantage is that remote access is still possible when the EDACS LAN is not operational. The maximum baud rate is limited to 19,200 bits/second by the serial port on the HP workstation.

NOTE

Neither of the modems in this configuration is the standard server HP Support Link Modem. The HP Support Link Modem is limited to a baud rate of 2400 bits/second.

12.1.2 Modem-HP Server Support Link Modem Port Connection

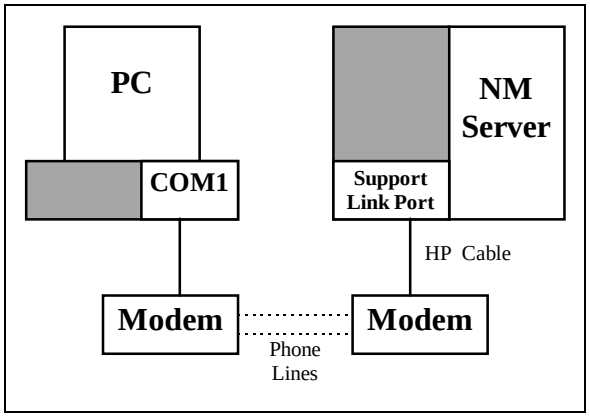


Figure 12 - Modem to HP Server Installation

This remote access configuration is capable of providing remote access when the EDACS LAN is not operational, but the maximum baud rate is limited to 9,600 bits/second by the Support Link Modem port on the HP server. The HP 40233A Modem Cable is required to connect the modem to the NM Server.

NOTE

Neither of the modems in this configuration is the standard server HP Support Link Modem. The HP Support Link Modem is limited to a baud rate of 2400 bits/second.

12.1.3 Modem-LAN Terminal Server Connection

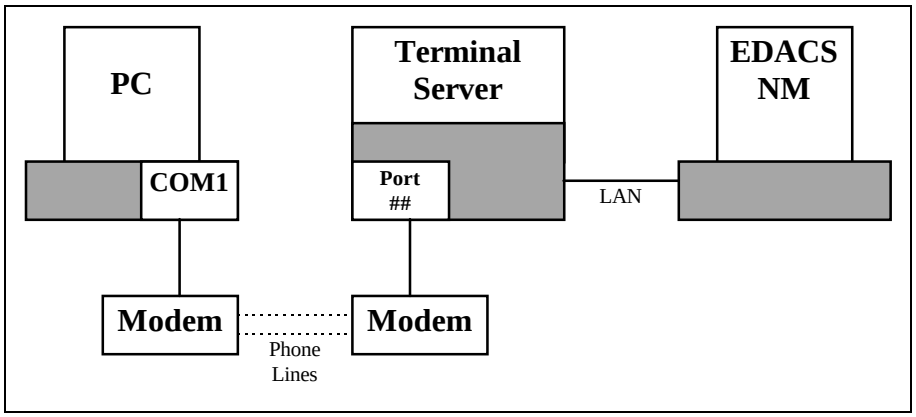


Figure 13 - Modem to LAN Terminal Server Installation

This remote access configuration is also a possible scenario, but it may be limited in efficiency due to heavy traffic on the EDACS LAN. Its primary disadvantage is that it can not provide remote access into the Network Management station when the EDACS LAN is not operational. Again, the maximum baud rate is limited to 19,200 bits/second on the HP workstation or 9,600 bits/second on the HP server.

NOTE

Neither of the modems in this configuration is the standard server HP Support Link Modem. The HP Support Link Modem is limited to a baud rate of 2400 bits/second.

12.2 CONFIGURATION

It is imperative that the hardware configurations be performed in sequential order for proper operation.

12.2.1 PC Configuration - VT100 Emulation

If a PC will be used to remotely access the Network Manager, it must be configured as follows:

- Install Microsoft Windows/Terminal software or an equivalent serial communications package, i.e. Reflection2. This can be used for modem configuration and for vt100-based telnet sessions into the Network Manager station.
- Install X-based software application, such as PC-Xware or ReflectionX. (ReflectionX also requires that Reflection2 be installed.) This can be used to login to the Network Manager station and run the OpenView application, the Multisite Monitor application, or the IMC Manager application.

  NOTE: PC-Xware host software is running on the Network Manager station and will do compression when PC-Xware is running on the PC.

- Be sure that there is a COM port available for the modem connection.

The instructions for the Terminal software configuration are as follows:

1. Double-click on the Terminal icon under the Window's Utility icon.
2. For the initial setup, enter File -> New to configure the communications session. (In all later uses, enter File -> Open to open the session created for NM remote access.)
3. Configure/save the communication session parameters for the Terminal software. Reference the table below.

Communication Session Parameter	Recommended Value	TERMINAL Setup Location
Phone number	xxxx or 9yyyxxxx (local) 81yyyxxxx (long dist)	Settings->Phone Number...
Connection Timeout (seconds)	60	Settings->Phone Number...
Redial after Timeout	no	Settings->Phone Number...
Signal when Connected	yes	Settings->Phone Number...
Terminal Emulation	DEC-VT100 (ANSI)	Settings->Terminal Emulation...
Terminal Modes	Line Wrap, Sound - No Local Echo	Settings->Terminal Preferences...
CR->CR/LF	off	Settings->Terminal Preferences...
Columns	80	Settings->Terminal Preferences...
Cursor	Block, Blink	Settings->Terminal Preferences...
Terminal Font	Fixedsys - 15	Settings->Terminal Preferences...
Translations	None	Settings->Terminal Preferences...
Scroll Bars	yes	Settings->Terminal Preferences...
Buffer Lines	25	Settings->Terminal Preferences...
Function, Arrow, Control Keys	yes	Settings->Terminal Preferences...
Baud Rate - Workstation (Server)	19200 (9600)	Settings->Communications...
Data Bits	8	Settings->Communications...
Stop Bits	1	Settings->Communications...
Parity	NONE	Settings->Communications...
Flow Control	NONE	Settings->Communications...
Connector	COM1	Settings->Communications...

Parity Check	no	Settings->Communications...
Carrier Detect	yes	Settings->Communications...
Dial - Prefix/Suffix	atdt/	Settings->Modem Commands...
Hangup - Prefix/Suffix	+++/ath	Settings->Modem Commands...
Originate	at&f&c1&d2s36=1&k0&q0	Settings->Modem Commands...
Modem Defaults	Hayes	Settings->Modem Commands...
Configuration session file	nm_modem.trm	File->Save As...

12.2.2 Modem Configuration

The AT (ATtention) command set is used to set modem parameters. These commands are explained in the Hayes modem User's Reference guide. After the modem has been put into the configuration mode (by typing +++), the user must use the AT command prefix to configure/view the modem's parameters. Each parameter is referenced via a letter(s) designation and an optional value field. The AT command set is not case sensitive. Multiple parameters may be set on the same AT command line, if preferred. AT commands execute and return successfully with an OK message. The +++ command will return successfully without the OK message and will reposition the cursor to the first character on the same line. Reference the Appendix for the common modem AT command set and register descriptions.

It is best to configure both modems from within the PC environment. The HP modem will be configured from the PC first, so that the PC modem can be configured last and remain physically connected. For simplicity, only the Terminal software instructions will be detailed.

Instructions to configure a modem using the Terminal application are as follows:

1. Connect the modem per the instructions in the owner's manual for the modem. Verify that the AC power cable is connected. Verify that the phone line goes into the modem. Verify that the serial communication cable connects the modem to one of the PC's COM ports. Verify that the modem is powered ON.
2. Start the Terminal software and open (File->Open) the nm_modem.trm settings file that was created earlier in the C Configuration section.
3. It should now be possible to communicate directly with the modem(s).

   Within the Terminal window, execute the modem commands in the following table in sequential order for the HP-side modem and then the PC-side modem. The commands in grey are different depending on whether the modem is being configured for the HP or the PC. In this case, execute only the command that is appropriate for the modem you are configuring. After the HP-modem has been configured, turn the modem off and replace it with the PC-modem. The HP-modem can now be physically connected to the HP workstation or server.

   If extra information is desired, reference the Appendix for the HP-specific modem instructions and detailed setup instructions.

Modem Commands	Parameter Description	Value Range/Description (Defaults in BOLD)
+++	Put the modem in configuration mode	None
at&f	Restore factory default settings	None
ate1	Echo keyboard characters while in command state	0 = Do not echo keyboard characters to screen 1 = Echo keyboard characters to screen
atv1	Result code format	0 = Display result codes as numbers **1 = Display result codes as words**
at&c1	Data carrier signal detection	0 = Assume carrier detect signal present **1 = Track carrier detect signal presence**
at&d2	Data terminal ready signal operation	**0 = Ignore status of DTR signal** 1 = On DTR transition, goto command

		state. On O command, enter online state. 2 = On DTR transition, hang up and enter command state. 3 = On DTR transition, hang up and reset.
ats0=1 (for HP modem) ats0=0 (for PC modem)	Set the modem to automatically answer the phone	**0 = Do not answer phone**. 1 = Answer phone on first ring. n = Answer phone on nth ring. (max = 255)
ats36=1	Protocall negotiation feedback - Action for modem to take if initial error-control negotiation fails.	0 = Hang up. 1 = Standard asynchronous connection. 3 = Asynch mode w/ auto speed buffering. 4 = V.42 protocol. On fail, hang up. 5 = V.42 protocol. On fail, asynch mode. **7 = V.42 protocol. On fail, asynch w/ auto speed buffering**.
ats48=7	Feature negotiation action	0 = Disable feature negotiation. Proceed with LAPM. **7 = Enable feature negotiation**. 128 = Disable feature negotiation. Use s36 options.
at&k0	Flow control	0 = Disable local flow control. **3 = Enable RTS/CTS flow control**. 4 = Enable XON/XOFF flow control.
at&q0	Operational mode control	0 = Communicate in asynchronous mode. **5 = Communicate in error-control mode**. 6 = Async mode w/ auto speed buffering. 8 = MNP error-control w/ 2:1 compression. 9 = V.42 bis/MNP2-4 error-control.
at&w0	Save parameters	0 = Profile 0 1 = Profile 1
at&v	View modem parameters	None = View profile 0. 0 = View profile 0. 1 = View profile 1.

NOTE #1: Here is an EXAMPLE with table information on one command line:

```
> +++
> ate1v1&f&c1&d2s0=1s36=1s48=7&k0&q0&w0&w1
> at&v
```

NOTE #2: Here is an EXAMPLE of the at&v output for a Hayes ACCURA 288 modem:

```
> at&v
ACTIVE PROFILE:
B1 E1 L3 M1 Q0 V1 W0 X4  &B1 &C1 &D2 &G0 &L0 &P0 &Q0 &R0 &S0 &X0 &Y0
%A013 %C1 %G1  \A3 \C0 \G0 \J1 \K5 \N1 \Q0 \T000 \V0 \X0  -J1 "H3 "O032
S00:001 S01:000 S02:043 S03:013 S04:010 S05:008 S06:002 S07:060 S08:002
S09:006 S10:014 S11:095 S12:050 S18:000 S25:005 S26:001 S37:000 S72:000

STORED PROFILE 0:
B1 E1 L3 M1 Q0 V1 W0 X4  &B1 &C1 &D2 &G0 &L0 &P0 &Q0 &R0 &S0 &X0
%A013 %C1 %G1  \A3 \C0 \G0 \J1 \K5 \N1 \Q0 \T000 \V0 \X0  -J1 "H3 "O032
S00:001 S02:043 S03:013 S04:010 S05:008 S06:002 S07:060 S08:002
S09:006 S10:014 S11:095 S12:050 S18:000 S25:005 S26:001 S37:000 S72:000

TELEPHONE NUMBERS:
&Z0=
&Z1=
&Z2=
```

&Z3=

OK

In this example, s00 will be 1 for the HP modem and 0 for the PC modem.

4. Visually check the modems for the following when the modem is operational:

LED	Description	Standby State	Runtime State
HS	High Speed (9600 and above)	ON	ON
AA	Auto answer	ON (HP) OFF (PC)	ON (HP) OFF (PC)
CD	Carrier Detect	ON	ON
OH	Off Hook	ON	ON
RD	Receive Data	Blink	Blink
SD	Send Data	Blink	Blink
TR	Terminal Ready	ON	ON
MR	Modem Ready	ON	ON

Trouble-shooting Notes:

- If the TR or MR lights are not ON when in the standby state, try the following:
- At the HP, kill the getty process and verify that a new getty process is automatically respawned. This procedure is detailed in the **HP Workstation Configuration** section.
- If the modem fails to return to the normal standby state after a call is dropped, cycle power on the modem(s).

5. Modems cannot be operationally tested until Network Manager station has been configured per the instructions in section **HP Workstation Configuration** or **HP Server Configuration**.

12.2.3 PC Configuration for X Terminal Emulation

This procedure sets up the font server for use with a PC running the PC-Xware Classic - X-terminal emulation software. This procedure assumes PC-Xware Classic has been configured to run Network Manager from your PC and only requires setting up the Font Server.

PC-Xware Classis software is not included with the Network Manager equipment ordered from Ericsson and must therefore be ordered separately from an authorized vendor. The following is the recommended vendor:

Spectrum Office Systems
1964 Gallows Road
Suite 300
Vienna, VA 22182

Contact: Barbara Dean
Phone Number: (703) 556-6511, ext. 204
email address: barbd@specnet.com

The following table is a list of instructions on configuring the communication parameters for a Network Manager remote access session:

COMMAND	EXPECTED RESULT

1. Double-click on the Xsession icon to start the PC-Xware application.	1. Verify that the PC-Xware application main window appears entitled PC-Xware.
2. Open the Edit folder. Perform these functions: Hosts: Add all known hosts to the host list. Applications: (optional) Defaults: path = /usr/bin/X11, port = 7000 Phone Book: Add NM modem phone to list. Modem: Add modem type - Hayes288 - to the list with Initialization = ATE1V1Q0 Dial Prefix = ATDT Hangup = +++ATH Scripts: (optional)	2. Verify that lists are updated on the screen with the input.
3. a. Invoke **PC-Xware**. b. From the PC-Xware screen, select the Configure tab. This will allow you to configure the PC-Xware Server. c. Select the Fonts Tab, the PC will display the Fonts dialog box showing the Font Path window. d. The Fonts Path window should contain the following entries: **tcp/*IP address*:7000** (Font Path) **75 dpi** (Font Directory) **100 dpi** (Font Directory) e. To add a Font Server, click on the "**Add Font Server**" button to display the Font Server dialog box. Enter the following: • Enter the **Host Address**. This is the IP address of your Network Manager station running the font server, for example: **147.117.44.63**. • Enter the **Protocol**. The protocol is **tcp**. • Enter the **Host Port**. The Host Port is **7000**. • Click on the **Insert before** button. f. At the bottom of the Fonts dialog box set **Font Substitution** to **Automatic**. g. Exit and re-enter PC-Xware for changes to take effect. XDM: no changes Terminal: Modify these parameters: Terminal Reported: VT100 (or VT220) Backspace Key: BS	3. Verify that the screen updates with the changes.

4. Open the Start folder. It is now time to create a user-defined session for NM remote access. Click on the Build box. Perform these functions: Description: Enter a title for this session, such as NMremote <hostname> Serial: Select the NM modem from phone list. Select login script from list. (optional) Select modem from modem type list. Select the serial port from the COM list. Press the Serial Port Setup box and set: Baud Rate = 19200 (9600 for Server) Parity = None Handshake = None Data Bits = 8 Stop Bits = 1 Press OK to exit Serial Port Setup box. Press OK to exit Build Session screen.	4. Verify that the list selections appear on the screen in the appropriate fields. Verify that the new session appears in the Available Connections list by the Description entered.
5. It is now time for an X-based operational test of the modems. Refer to section X Windows Application Test.	5.

12.3 REMOTE ACCESS OPERATIONAL TESTS

These tests assume that all the configuration instructions detailed in previous sections have been performed successfully. Be sure the modems are powered ON.

12.3.1 VT100 Standard Login Test

Terminal software instructions only will be provided here, but other software applications can be used, if desired.

The following table provides a sequential list of instructions / expected results for a VT100-based communications session between a PC and a Network Manager station via modems.

COMMAND	EXPECTED RESULT
1. Check the modem LEDs. Start the Terminal software on the PC and open the nm_modem.trm file.	1. Verify that the modem LEDs are appropriate as detailed in the Modem Configuration section. Verify the Terminal Settings are as configured in section C Configuration. Verify the getty process is running on the HP via the instructions given in section **HP Workstation Configuration** or **HP Server Configuration**.
2. On the PC, select Phone->Dial	2. Verify that the modem dials the number and connects to the Network Manager. Verify that a login prompt appears.
3. Enter your user name at the login prompt.	3. Verify that a password prompt appears.
4. Enter your password at the password prompt.	4. Verify that the typical HP login messaging appears on the screen, followed by a **TERM = (hp)** prompt.
5. At the **TERM = (hp)** prompt, type **vt100** (or vt220).	5. Verify that your typical UNIX prompt appears.
6. At the UNIX prompt, type **ll**.	6. Verify that a long listing of the user's home directory

COMMAND	EXPECTED RESULT
	appears and that the modem lights - RD,SD - blink during the transfer.
7. At the UNIX prompt, type **stty**.	7. Verify that the stty output shows that the port is setup as detailed in the **HP Workstation Configuration** or **HP Server Configuration** section.
8. At the Terminal menu, select Phone->Hangup.	8. Verify that the session is ended and the Terminal window returns to the modem configuration session. Verify that the modem lights are appropriate.

12.3.2 X Windows Application Test

PC-Xware software instructions only will be provided here, but the ReflectionX software application can also be used, if desired.

The following table provides a sequential list of instructions / expected results for an X-based communications session between a PC and a Network Manager station via modems.

NOTE: Any X-based application that is executed over a modem will be extremely slow during the initialization process. In order to minimize this delay, it is recommended that the user NOT perform ANY other operations on the PC until the X application is fully initialized. (i.e. OpenView - Wait until the home map is fully painted, the event window drawn, the trapd.log file(s) fully loaded, and any synchronization activities completed before moving the mouse or attempting any window operations.) After initialization is complete, the X application operations will be noticeably faster. Be aware that background maps increase the amount of X-traffic generated by OpenView. DO NOT exit the modem session before OpenView initialization is complete.

Rule of thumb: OpenView takes approximately 10 to 15 minutes (minimum) to initially come up.

COMMAND	EXPECTED RESULT
1. Select the NMremote session just created. Click on the Open box to start the X-session via modem.	1. Verify, via sound, that the modems are attempting to connect. Verify that a new window appears, titled by the session Description, that shows the modem AT commands configured in the modem setup screen. Verify that a CONNECT message appears when the modems connect. Verify that a Generic Login prompt appears.
2. Enter your HP user name.	2. Verify that a password prompt appears.
3. Enter your HP password.	3. Verify that the standard HP copyright blurb appears, followed by the TERM = (hp) prompt.
4. Enter vt100 (or vt220).	4. Verify that your UNIX command prompt appears next.
5. Enter xinitremote on the command line to start the XRemote session. NOTE: May be prompted for; Term = HP	5. Verify that the current window disappears. Verify that the modem RD-SD LEDs blink. Verify that the X applications specified in the .xinitremoterc file appear on the screen. There will be a noticeable delay in painting the screens, due to the modem speed.

COMMAND	EXPECTED RESULT
6. At the UNIX prompt in the xterm window, execute any X-based application. Be sure to run it in the background. Examples: > ovw -ro & > msm -t my_bcu -s1 -s2 -c5 & > imcmgr &	6. Verify that the application is eventually displayed on the screen. (OpenView may take 10-15 minutes, depending on the database size, background maps, and phone line noise.) Verify that the modems are communicating by watching the RD-SD lights blink. Verify that you can interface with the application once the initialization is complete.
7. Exit the application(s) manually started from the command line above.	7. Verify that the application(s) exits cleanly.
8. Exit from the last application specified in the .xinitremoterc file, probably the xterm session. Enter “Exit” at the Unix prompt.	8. Verify that the application exits cleanly. Verify that the NMremote session screen reappears. Ignore garbage characters on the screen.
9. Select File->Close Connection in the NMremote session window.	9. Verify the NMremote session window disappears. Visually verify the modems return to a standby state.
10. Exit the PC-Xware application.	10. Verify that the PC-Xware application exits.

12.4 SUPPLEMENTAL MODEM INFORMATION

12.4.1 Modem AT Command Descriptions

AT COMMAND	COMMAND DESCRIPTION
A	Answer Command
A/	Re-execute previous command line
B	Select Protocol Compatibility
D	Dial Telephone Number & Dial Modifiers
E	Echo Command Characters
H	Switch Hook Control
I	Identification Request
L	Speaker Volume
M	Speaker Control
N	Modulation Fallback Options
O	Return to Online mode
P	Set Pulse Dial Mode
Q	Enable/Disable Result Codes
Sr?	Current Value of Register
Sr=n	Writing to S-Registers
T	Set Tone Dial Mode
V	Select Result Code Format
W	Negotiation Progress Message Options
X	Select Extended Result Code Function
Z	Modem Reset
&B	Disable Automatic Retrain
&C	Data Carrier Detect
&D	Data Terminal Ready
&F	Factory Defaults
&G	Guard Tone
&K	Flow Control
&Q	Operational Mode Control
&S	Data Set Ready
&V	View Active Configuration
&W	Store User Profile
&Y	Select Stored Profile on Power-Up
&Zn=x	Store Telephone Numbers

12.4.2 Modem Register Descriptions

REGISTER	REGISTER DESCRIPTION
S0	Ring to Answer On
S1	Ring Count
S2	Escape Sequence Character
S3	Carriage Return Character
S4	Linefeed Character
S5	Backspace Character
S6	Wait Time before Blind Dialing
S7	Wait for Carrier After Dial
S8	Pause Time for Comma Dial Modifier

S9	Carrier Detect Response Time
S10	Lost Carrier to Hang-Up Delay
S11	DTMF Dialing Speed
S12	Escape Character Guard Time
S25	DTR Detection
S30	Inactivity Timer
S36	Protocol Negotiation Fallback
S37	Maximum DCE Speed
S48	Feature Negotiation Action

12.4.3 HP-800 Series Modem Cable Pinout

Note: The lines marked by ***** are typically required for modems.

This cable is non-symmetrical, and may not work if reversed.

CPU			Modem		
Gnd	**1**	----------	**1**	**Gnd**	*****
TD	**2**	<----------	**3**	**RD**	*****
RD	**3**	---------->	**2**	**TD**	*****
RTS	**4**	<----------	**8**	**DCD**	*****
DSR	**6**	---------->	**20**	**DTR**	*****
GND	**7**	<---------->	**7**	**GND**	*****
DCD	**8**	---------->	**4**	**RTS**	
CTS	**9**	<----------	**22**	**RI**	
DTR	**20**	<----------	**6**	**DSR**	
RI	**22**	<----------	**5**	**CTS**	

Figure 14 - 9000/800 Series Modem Cable (40233A)

12.4.4 Hayes Accura 28.8 Modem Configuration

****NOTE**** These register settings have ***NOT*** been tested by the Hewlett Packard Response Center and are ***NOT*** guaranteed to work. For specific modem support, please contact the modem manufacturer.

Since 28,800 baud is not a valid port speed, it is recommended that you first set the modem up as a 19,200 or 9600 baud to establish functionality.

Hayes Accura:

Modem should be configured with the following parameters:

	&F	-	Default factory settings
	&C1	-	DCD tracks state of date carrier from remote
	&D2	-	Enable hang-up on DTR transition
	E1	-	Echo characters from the keyboard in command state
	SO=1	-	Enable auto answer
	S36=1	-	LAPM or async
	S48=7	-	LAPM or async
	V1	-	Display result codes as words
**	**&KO**	-	Disable local flow control

** **&QO** - Communicate in asynchronous mode
&WO - Save changes to non-volatile memory

**** After successful operation of the modem is established, &K3, &Q5 and &Q6 can be experimented with:

&K3 - Enable RTS/CTS local flow control

This will require that the modem be connected to a computer port that supports RTS/CTS and that the feature be turned on in the port.

&Q5 - Communicate in error-control modem
&Q6 - Communicate in async mode with automatic speed buffering enable - for systems that require (or desire) constant speed between computer and modem.

Connect a terminal to the modem, use CU in direct connect mode or use KERMIT to communicate with modem directly.

Hit AT several times until it answers OK. (If you do not get OK, check your cable, and watch the TD & RD lights. They should flicker.)

Enter the "AT" commands like this:

AT &F &C1 &D2 SO=1 S36=1 &KO &QO &WO [return]
You can run all the commands together on one line, or
You can do them one at a time preceded by the AT command.
You can use upper or lower case. You can delete spaces between parameters.

It should answer OK each time.

Once you have entered all the parameters, do one last AT &WO &W1 [return] to save the parameters.

You can verify your command by entering a AT&V which will list the profiles stored in the modem.

To be safe, cycle power on the modem.

NOTE: Settings that enable flow control, and data compression can be changed after successful operation of the modem is established. At the outset, it is advisable to disable data compression and flow control. After successful operation is established, then flow control can be turned back on and experimented with.

NOTE: There is no register to set this modem to a constant DTE speed (constant DTE being a fixed speed between the modem and the computer no matter what speed the user calls in on). The Hayes Accura modem will retain the last connect speed between DTE and DCE. Since the DTE speed is fixed and if you call out from the computer, you MUST call out at the same speed that you set the getty for.

NOTE: Software flow control should ****NOT**** be used if you use or contemplate using UUCP as it will interfere with UUCP operation. Hardware flow control is supported only on certain HP-UX interfaces and requires a special device file setup.

12.4.5 HP-9000/800 Series Modem Setup

This procedure describes how to set up a Hayes Compatible modem on 9000/800 computers.

12.4.5.1 Resolution Text

1. Read "Remote Access User's Guide" manual for information on Devices, Modem Support, KERMIT, CU and UUCP.

2. Verify modem is Hayes compatible. Hayes compatibility is interpreted by some modem vendors to mean it uses the "AT" command set, not necessarily that a specific AT command is the same as used by Hayes. Therefore, any instructions that refer to specific AT commands may be different in your modem. Contact your modem vendor if you have problems or questions.

3. Verify you are connected to a port that supports modems. The panel into which you plug the cable from the modem should say "Full Modem".

   Note: The HP9000 Series 800 serial interface cards support modems on every port, modems on some ports or only hardwired devices depending on the card you have. The interface card in the computer is connected via a cable or cable pair to one or more panels. The panels are marked as "Full Modem" (all ports support modems) or, in the case of some older systems, ports that support modems on a mixed panel will show some ports as supporting modems if they are labeled 1M or 2M on the appropriate port. Panels that have "Direct Distribution Panel" or "DDP" do NOT support modems.

4. Verify the proper cable is being used to connect modem to the RS-232 port:

   9000 Series 800 Computers use 40233A cable. 92219Q cable may be used on SOME 800 series systems but 40233A will work on all.

   Note: Cable is NOT bi-directional. Do NOT connect it backwards. HP cable is marked as to which end connects to computer. If you have made your own per HP specifications, you will have to make sure you have it right. Strange problems can result from backwards cable.

5. Verify or create the correct modem device files:

   Creating device files is best done by using **SAM**. Make sure you know the select code for the device and the port number.

   If you don't know how to use **SAM** to add a modem, refer to the "Installing Peripherals" manual.

   Write down the device files **SAM** says it created.

   Note 1: At 8.0, if the port was previously set up for a direct connect terminal, you must remove the entry in /etc/inittab for that port or **SAM** will not create the modem port. At 9.0, SAM can remove the direct connect ports in use.

   Note 2: Do NOT use the CCITT option in North America.

   Note 3: **`/etc/1ssf`** should be used to verify device files

   Type: **`/etc/1ssf /dev/ttyd*XpY /dev/cu*XpY`**

   Where X and Y represent the appropriate numbers that **SAM** displayed for the device you created.

   The **`/etc/1ssf`** command should show the devices as follows:

   `/dev/ttydXpY` - should be a call-in device. CCITT should not be shown.

   `/dev/culXpY` - should be a call-out device

/dev/cuaXpY - should be a hardwired device

Verify that getty is running on port and that it is in a pending state, meaning there should be a ? mark in the tty field. If getty is not in a pending state, then hardware should be checked out per steps 6 and 7. Verification is done by using the following command:

```
ps -ef | grep ttydXpY
```

6. With modem disconnected from port and powered on, the DTR or TR light should be off. When modem is connected to port, DTR or TR light should come on. Therefore, port is setting DTR or TR., not the modem. If DTR or TR light remains on all the time, this indicates that the modem has DTR strapped high and setting should be changed. Check modem users manual for procedure on how to change strapping. For Hayes compatible modems that are NOT set up with switches, as a minimum, the following AT command AT&F&C1&D2S0=1&W MUST be set.

7. After modem is connect to port, perform another ps -ef | grep ttydXpY and verify that getty is still in a pending state. If getty has a port number in tty field instead of a question mark, then the modem has carrier detect (CD) strapped high. Check modem users manual or contact modem manufacturer for procedure on how to change strapping.

8. At this point modem is ready for call-in use.

9. To set modem up for call-out usage you must check entries in the following file:

   ```
   /usr/lib/uucp/Devices
   ```

   You should add the following two lines if they do not exist:

   ACU culXpY = 2400 hayes

   Direct culXpY - 2400 direct

   Note 1: If there are any lines that have ttydXpY instead of culXpY, remove them. Dialing devices should NEVER be used for dialout.

   Note 2: The 2400 is the baud rate. Use the appropriate baud rate for your modem.

10. To test call-out ability use the following cu command:

    ```
    cu -s2400 -1culXpY -m dir
    ```

    Note: The 2400 is the baud rate. Use the appropriate baud rate for your modem.

    After this is entered you should get a message indicating that you are connected. Entering “AT” and return should give you an OK back, but if it doesn’t this may be caused by the modem’s echo parameter being turned off. So enter “ATDTphone_number” and listen to modem to see if it dials. If modem doesn’t dial then have modem checked out. Type ~. to exit the cu (1) command.

11. Modem is now ready for call-out using cu -s2400 phone_number. Read the “Remote Access: User’s Guide” for more information.

NOTE

If you have problems getting a modem to work, please note the following from the “HP Remote Access: User’s Guide”:

12.4.5.2 Prerequisites and Conditions

Before starting, keep in mind that HP computers are not restricted to using only modems by Hewlett-Packard Company. If you have problems installing a non-HP modem, ensure that you installed the modem according to its documentation. If this does not solve the problem(s), consult the Sales Representative or an appropriate official at the company from which you obtained the modem.

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12.4.5.3 Unsupported Modems.

You can often use an unsupported modem with UUCP. In some cases, you can receive incoming calls on a modem that does not provide auto-dial functions. Just remember that the term, unsupported, means Hewlett-Packard Company does not guarantee correct operation.

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Most modem manufacturers have technical support numbers. Refer to your modem manual for these numbers or for assistance in configuring your modem.

13. APPENDIX A - OPENVIEW COMMANDS

13.1 MAP PERMISSIONS - OVWPERMS COMMAND

ovwperms - OpenView Windows (OVW) map permission listing and changing

SYNOPSIS

ovwperms [-a] [-G] [-l] [-m *mode*] [**-u** *user*] [**-g** *group*] [*map* ...]

ovwchown [-a] [-G] user [*map* ...]

ovwchgrp [-a] [-G] group [*map* ...]

ovwchmod [-a] [-G] mode [*map* ...]

ovwls [-a] [-G] [*map* ...]

DESCRIPTION

The *ovwperms* command is used to view and modify permission associated with OpenView Windows maps as created with ovw(1). Permissions are maintained similar to normal file system permissions, except that permissions are forced to be the same across all files associated with a given *map*, and are based on user ID and group ID of the executing ovw(1) process. The ***ovwchown***, ***ovwchgrp***, ***ovwchmod***, and ***ovwls*** commands are equivalent to using the **-u**, **-g**, **-m**, and **-l** options to **ovwperms**, respectively.

The change the permissions for a given map, you must be the owner of the map or the superuser. To see the current permissions use the **-l** option.

OPTIONS

The ovwperms command supports the following options:

-a	Apply the operation to all existing maps. Default if the **-l** option is used.
-g group	Change the group ID of the *maps* to *group*. The group can be either a decimal group ID or a group name found in the group file.
-G	Apply the operation to the global map permissions. The global map permissions control the ability to create new maps or delete existing ones.
-l	List the current permissions for the indicated *maps*.
-m mode	Change the permissions of the *maps* according to *mode*, which can be an absolute or symbolic value as accepted by *chmod*(1).
-u user	Changes the owner of the *maps* to *user*. The user can be either a decimal user ID or a login name found in the password file.

At least one of **-g**, **-l**, **-m**, or **-u** must be specified or implied by the invocation name of the command. If the **-l** option is not used, at least one of **-a**, **-G**, or a *map* must be specified.

EXAMPLES

The following command changes the owner of all maps to **ovwuser**, the group of all maps to **ovwgroup**, and sets permissions of all maps to remove write permission from others. The example assumes that a single user owns all maps, or that the command is run by the super-user.

ovwperms -a -u ovwuser -g ovwgroup

The following commands are equivalent, and change the owner of maps **MyMap1** and **MyMap2** to **ovwuser2**.

ovwperms -u ovwuser2 MyMap1 MyMap2

ovwchown ovwuser2 MyMap1 MyMap2

14. APPENDIX B - UNIX COMMANDS

This section provides a quick reference to some of the more commonly used UNIX commands.

FUNCTION	COMMAND, SYNTAX AND DESCRIPTION
Change File Owner or Group	Type: **`chown [-R]`** ***owner file...*** (changes the owner ID of one or more *files* to *owner*) **`chgrp [-R]`** ***group file...*** (changes the group ID of one or more *files* to *group*)
Change Password	Type **`passwd`**, followed by old password, and repeat new password.
Change Working Directory	Type: **`cd`** (to change directories to your home directory) **`cd`** ***directory-name*** (to change directories to another directory)
Changing Identities	Type: **`su`** [***username***]
Changing Permissions	Type: **`chmod nnn`** ***filename*** (**`chmod c=p...[,c=p...]`** ***filename***) **`n`**, a digit from 0 to 7, sets the access level for the user (owner), group, and others (public), respectively. **`c`** is one of: u-user, g-group, o-others, or a-all. **`p`** is one of: r-read access, w-write access, or x-execute access.
Copy Files	Type: **`cp`** ***source-filename destination-filename*** (To copy a file into another filename) **`cp`** ***source-filename destination-directory*** (To copy a file into another directory)
Create File	Type **`cat >`*****filename***, then text ending with **<ctrl> D**, or see Editing Files.
Date and Time	Type: **`date`** **`date -u`** for universal time (Greenwich Mean Time)
Extracting Archived Files	Type: **`tar -xv[f`** ***drive*****`]`*****file...***
Find Name of Current	Type **`pwd`**

FUNCTION	COMMAND, SYNTAX AND DESCRIPTION
Directory	
List Files and Directories	Type: **ls** (for listing of current directory) **ls** ***directory-name*** (for listing of another directory) **ls** ***filename*** (for listing of a single file) **ls -t** or **ls -t** ***directory-name*** or **ls -t** ***filename*** (for a listing reversed sorted by time of last modification) **ls -F** or **ls -F** ***directory-name*** (for a listing that marks directory names by appending a / character to them
List Hidden Files	Type: **ls -[l]a**
List users on the system	Type: **user -c** **c** lists the login names of all users in the cluster.
Log In	Type *username* to system login prompt. Type *password* to password prompt.
Log Out	Type **logout** or **<ctrl> D** depending on system setup.
Look at File	Type **cat** ***filename*** or **more** ***filename***
Make (or Create) Directory	Type **mkdir** ***directory-name.***
Making a Tape Archive	Type: **tar -cv[f** ***drive*]*file...***

FUNCTION	COMMAND, SYNTAX AND DESCRIPTION
Move (or Rename Files and Directories	Type: **mv** ***source-filename destination-filename*** (To rename a file) **mv** ***source-filename destination-directory*** (To move a file into another directory) **mv** ***source-directory-name destination-directory-name*** (To rename a directory or move it into another directory)
Print File	Type **lpr** ***filename***
Remove (or Delete) File	Type: **rm** ***filename*** (to remove a file) **rmdir** ***directory-name*** (to remove an empty directory) **rm -r** ***directory-name*** (to remove a directory and its contents)
Report Process Status	Type: **ps -[aux]** (prints certain information about active processes)
Search Files	Type: **grep** ***search-string filename*** (to type out lines containing the string in a specific file) **grep** ***search-string filename(s)*** (to type out lines containing the string in more than one file) **grep -v** ***search-string filename(s)*** (to type out lines that don't contain the string)
Seeing Permissions	Type: **ls -l** ***filename***
Setting Default Permissions	Type: **unmask ugo** **ugo** is a three digit number. Each digit restricts the default permissions for the user, group, and others, respectively.
Who is Logged In	Type: **who**

15. APPENDIX C - CONNECTOR DIAGRAMS

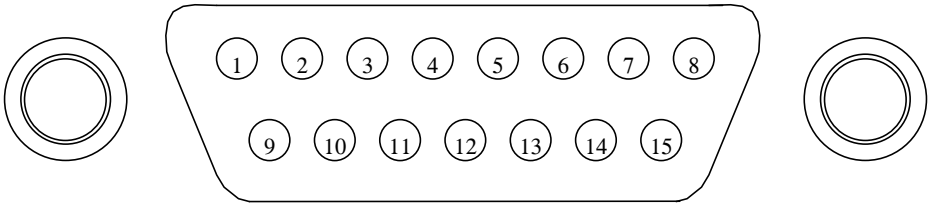

Table 8 - Graphics and LAN AUI Connector Pinout

Pin Number	Description		Pin Number	Description
1	GROUND		9	GROUND
2	GROUND		10	HSYNC
3	RED		11	GROUND
4	GROUND		12	GROUND
5	GREEN		13	NC
6	GROUND		14	GROUND
7	BLUE		15	HSYNC
8	GROUND			

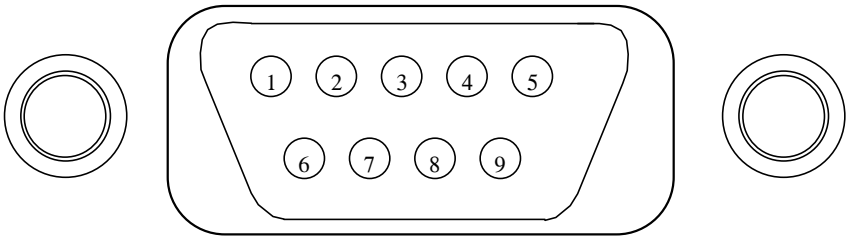

Table 9 - RS-232 Connector Pinout

Pin Number	Description		Pin Number	Description
1	DCD - Carrier Detect		6	DSR - Data Set Ready
2	RXD - Receive Data		7	RTS - Request to Send
3	TXD - Transmit Data		8	CTS - Clear To Send
4	DTR - Data Terminal Ready		9	RI - Ring Indicator
5	GROUND			

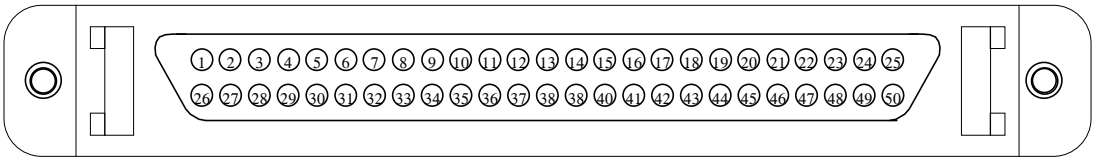

Table 10 - SCSI Connector Pinout

Pin Number	Description		Pin Number	Description
1	GROUND		26	D[0]
2	GROUND		27	D[1]
3	GROUND		28	D[2]
4	GROUND		29	D[3]
5	GROUND		30	D[4]
6	GROUND		31	D[5]
7	GROUND		32	D[6]
8	GROUND		33	D[7]
9	GROUND		34	Data Parity
10	GROUND		35	GROUND
11	GROUND		36	GROUND
12	GROUND		37	GROUND
13	NC		38	Term Power
14	GROUND		39	GROUND
15	GROUND		40	GROUND
16	GROUND		41	ATN
17	GROUND		42	GROUND
18	GROUND		43	BUSY
19	GROUND		44	ACK
20	GROUND		45	RST
21	GROUND		46	MSG
22	GROUND		47	SEL
23	GROUND		48	CD
24	GROUND		49	REQ
25	GROUND		50	IO

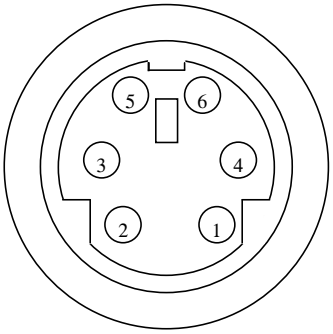

Table 11 - PS2 Connector Pinout

Pin Number	Description		Pin Number	Description
1	Data		4	+5 V
2	NC		5	Clock
3	GROUND		6	NC

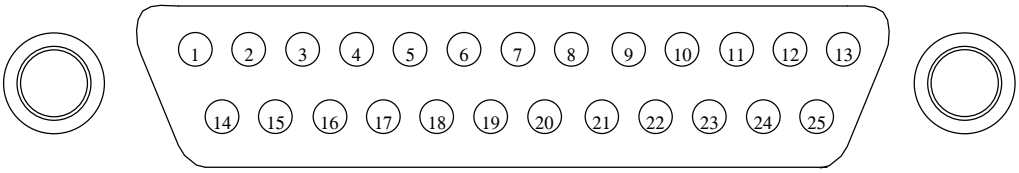

Table 12 - Parallel Connector Pinout

Pin Number	Description		Pin Number	Description
1	Strobe		14	AFD
2	D[0]		15	ERR
3	D[1]		16	INIT
4	D[2]		17	SLIN
5	D[3]		18	GROUND
6	D[4]		19	GROUND
7	D[5]		20	GROUND
8	D[6]		21	GROUND
9	D[7]		22	GROUND
10	ACK		23	GROUND
11	BUSY		24	GROUND
12	PE		25	GROUND
13	SLCT			

16. APPENDIX D - EDACS LICENSE REGISTRATION FAX FORM

ERICCSON

Software Services
Mountain View Road
Lynchburg, VA 24502

Phone: (804) 528-6610
FAX Number: (804) 592-5138

IMPORTANT: If you are using a temporary EDACS license, you must either mail or fax this form to Ericsson Software Services in order to receive your permanent license.

Name: Title:

Company Name:

Department Address:

Street Address:

City: State:

Country: Postal Code:

Daytime Phone Number: email:

FAX Number:

I have read and understand the terms and conditions as stated on the back of the Temporary license P.A.S.

Signature:

NETWORK MANAGER INFORMATION

Customer Order Number: _____ Temporary License Number: _____

Network Manager IP Address: _____ Network Manager Target ID: _____

License Requested:

Network Mgr. Application:_____ IMC Node (qty): _____ CEC Node (qty): _____

RCEC Node (qty): _____ StarGate (qty): _____ # Concurrent Users: _____

System Manager/Network Manager Interface: _____

NOTE: Attach (or FAX) a copy of the Temporary License P.A.S. with this application.

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