

COMPAQ

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SCO UNIX in an SNA Environment Using CLEO DataTalker U/X

Compaq TechNote

Includes information on:

- Installation procedures
- Configuration parameters

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SCO UNIX in an SNA Environment Using CLEO DataTalker U/X

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Chapter 1

Overview

This TechNote describes the integration of the COMPAQ SYSTEMPRO Personal Computer System running the SCO UNIX system into a Systems Network Architecture (SNA) environment using the CLEO DataTalker 3270 U/X System. Included are the installation procedures, configuration parameters, and operational characteristics required for an integrated SNA/UNIX solution.

The SNA/UNIX model presented includes the COMPAQ SYSTEMPRO configured in accordance with the *COMPAQ and SCO Multiuser ToolKit* as a multiuser host system capable of supporting 64 concurrent users. The model also includes the addition of Ethernet TCP/IP network support. This TechNote does not provide instructions for installing and configuring the SCO UNIX operating system or any of the other subsystems used within the SNA/UNIX model.

Technical Description

The SNA protocol provides a framework for communications between IBM and non-IBM devices. SNA is a communication protocol model comprised of seven distinct functional layers similar to those of the OSI model.

In the SNA environment, networks are limited to 255 nodes. A node can be a host, such as a mainframe computer or a communications controller. Attached to the communication controllers are peripheral devices, such as cluster controllers. Attached to these peripheral devices are terminals and printers. In the SNA/UNIX model presented in this TechNote, the COMPAQ SYSTEMPRO running SCO UNIX performs in the SNA network as a cluster controller.

There are several methods of connecting cluster controllers to SNA nodes. The most popular and widely used are SDLC, X.25, and TIC. The access method employed in the SNA/UNIX model is SDLC.

Advanced Program-to-Program Communications (APPC) is an application program interface (API) standard for SNA environments. APPC is the mechanism that allows programs to communicate as peers within an SNA network.

In SNA, terminals, printers and application programs are referred to as Logical Units (LUs). When LUs communicate across the network, SNA assigns different numbers to different session types. For example, LU6.2 identifies a session between applications programs using APPC. UNIX-based APPC programming libraries are available for use under SCO UNIX and can be used with programming languages such as 'C' to provide a development environment for distributed applications within an SNA network.

Organizations that have existing SNA environments can integrate the COMPAQ SYSTEMPRO running SCO UNIX into these environments by using the CLEO DataTalker 3270 U/X System. This system is made up of the DataTalker 3270 PC/XL Adapter and DataTalker 3270 U/X SNA/SDLC Communications Manager software. The DataTalker 3270 U/X System provides the following functionality:

- 3274 Cluster Controller emulation
 - 3278 Terminal emulation
 - 3286 or 3287 Printer emulation (LU Type 1 - SNA Character Stream or LU Type 3 - Data Stream Compatible)
 - Up to 32 concurrent host sessions
 - Multiple sessions per user
 - File transfer using IND\$FILE
 - UNIX spooling of host-addressable printers
 - On-board processing of all 3270 communications
 - IBM HLLAPI-compatible 'C' language library
-

SNA/UNIX Model

This section defines the hardware and software components that make up the SNA/UNIX model presented in this TechNote.

COMPAQ Hardware

COMPAQ SYSTEMPRO Model 486-840 with:

- one additional 486/33 System Processor (for a total of two System Processors)
- two additional 420-Megabyte Drive Array Pairs (for a total of four 420-Megabyte Drive Array Pairs or approximately 1.7 Gigabytes)
- three additional 8-Megabyte Single-Socket Memory Modules (for a total of 32 Megabytes)
- COMPAQ 5 1/4-Inch 1.2-Megabyte Diskette Drive
- COMPAQ 150-/250-Megabyte Tape Drive and Controller

Non-COMPAQ Hardware

- DigiBoard DigiCHANNEL C/X EISA System (includes one EISA Host Adapter and four DigiCHANNEL C/Con-16 Concentrators for a total of 64 asynchronous ports)
- Western Digital 8003EB 8-bit Ethernet Adapter
- LIBERTY 120 Terminals
- NEC Pinwriter P5300 132-Column Printer
- HAYES Smartmodem 9600 V.32 Modem

SNA Communication Hardware

- CLEO DataTalker 3270 PC/XL Adapter

Operating System Software

- SCO UNIX System V/386 Release 3.2 Operating System Version 2.0f
- SCO COMPAQ Supplement 1.4
- SCO MPX Multiprocessor Extension Release 1.1.0d
- SCO TCP/IP 1.1.3f

Optional Software

- DigiWARE for EISA C/X System 4.6.0

SNA Communications Software

- CLEO DataTalker 3270 U/X Driver Install 4.2
- CLEO DataTalker 3270 U/X SNA/SDLC and BISYNC/BSC Communications Manager 4.2
- CLEO DataTalker 3270 U/X File Transfer Utility 4.2

Topology

The SNA/UNIX model includes a COMPAQ SYSTEMPRO configured as a multiuser host with Ethernet network support and IBM 3274 Cluster Controller emulation. The CLEO 3270 U/X System emulated the IBM 3274 Cluster Controller, 3278 series terminals, and 3287 series printers. The model included various terminal and printer sessions attachments, with each accessing the IBM 9370 mainframe running Virtual Machine (VM) Operating System over a 9.6 Kbyte per second dial-up link.

The following connection schemes were used to emulate the 3270 series terminal sessions with the mainframe:

- COMPAQ SYSTEMPRO system console emulating an ANSI terminal
- Asynchronously attached COMPAQ DESKPRO Personal Computer emulating a Wyse-60 via the DigiCHANNEL C/X System
- Asynchronously attached LIBERTY terminal emulating a Wyse-60 via the DigiCHANNEL C/X System
- Directly attached LIBERTY terminal emulating a Wyse-60 via the COMPAQ SYSTEMPRO asynchronous communications port
- Network attached COMPAQ DESKPRO Personal Computer emulating a DEC VT220 terminal via the Western Digital Ethernet adapter

IBM 3287 print stream data was routed to the UNIX system print spooler. The print spooler sent the 3270 data to an NEC printer connected to the COMPAQ SYSTEMPRO parallel port. IND\$FILE File Transfers were used to send and receive data from the mainframe.

1-6 Overview

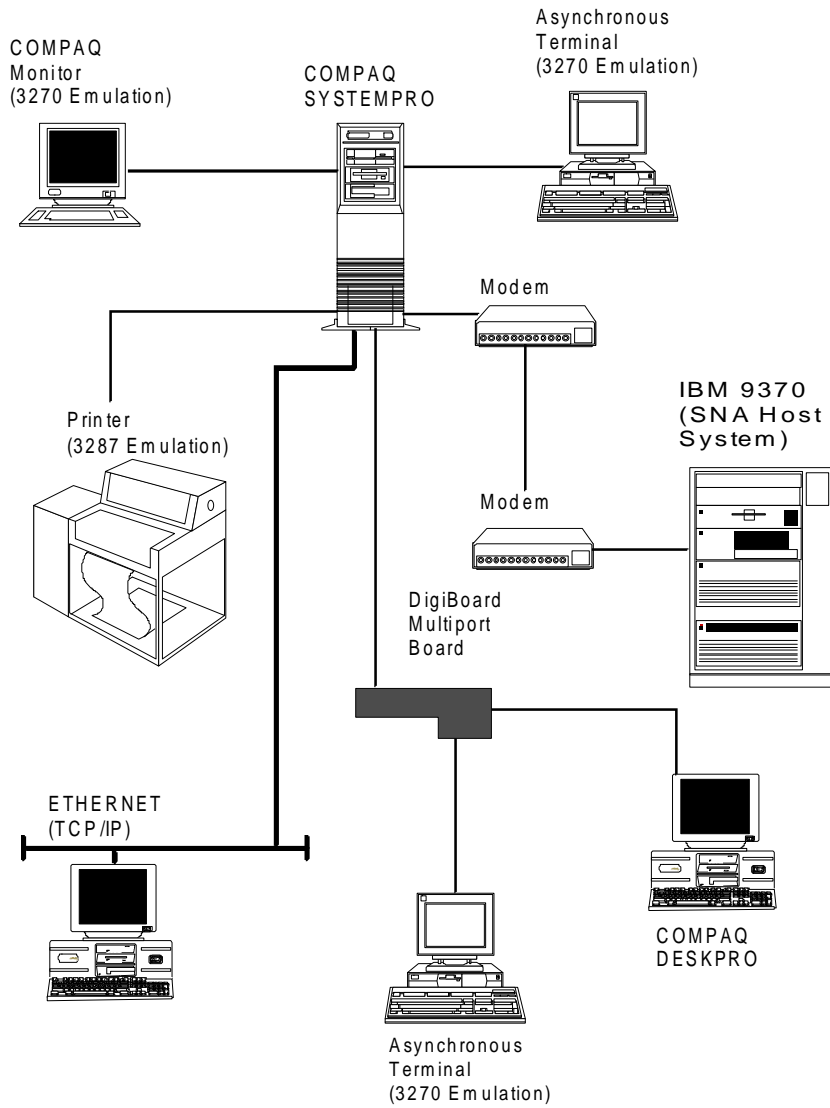


Figure 1-1. Product configuration

Chapter 2

Installation of the CLEO 3270 U/X System

This section describes the installation procedures for the CLEO 3270 U/X System that is comprised of:

- DataTalker 3270 PC/XL Adapter
- DataTalker 3270 U/X Driver
- DataTalker 3270 U/X SNA/SDLC and BISYNC/BSC Communications Manager software
- DataTalker 3270 U/X File Transfer Utility

The information in this section addresses only the requirements relevant to the SNA/UNIX model presented in this TechNote. If you need additional information beyond that presented in this section, refer to the *CLEO DataTalker 3270 U/X User's Guide*.

Hardware Considerations

Before you install the DataTalker PC/XL Adapter, be certain that you have the following required items:

- The Compaq System Configuration diskette Version 2.06 (supplied with your COMPAQ SYSTEMPRO).
- A synchronous modem for communicating to the host through either a dial-up or leased line. Optionally, you can use a modem eliminator cable.
- A RS-232-C shielded synchronous cable to connect the modem to the PC/XL Adapter. This cable requires straight-through connections on pins 2 through 8, 15, 17, and 20.
- An I/O address space between 0x200 to 0x3EF, a 16-Kbyte memory segment below 1 megabyte, and an optional IRQ in the range of 2-7. The default factory settings are 0x200, software configurable, and 5, respectively. The setting used for the SNA/UNIX model are 0x200, 0xD4000, and 2, respectively. If you are installing more than one PC/XL Adapter, they must all share the same IRQ.

Installing the DataTalker Adapter

To install the DataTalker PC/XL Adapter into the COMPAQ SYSTEMPRO, perform the following procedure:

The first 12 steps of the installation procedure determine an available I/O address space, a 16-Kbyte memory segment below 1 megabyte, and an IRQ vector.

1. Place the Compaq System Configuration diskette in drive A and power on the system.
2. When the Compaq logo screen appears, press **ENTER**.
3. When the System Configuration Welcome screen appears, press **ENTER**.
4. When the main menu displays on the screen, select the option:
Configure Computer.
5. Select *Step 3: View or edit details.*
6. Press **F7**.

The Advanced menu displays on the screen.

7. Select the option: *View additional system information menu.*

The View Additional System Information menu displays on the screen.

8. Select the option: *Available resources.*

The Available Resources screen displays on the screen.

9. Select an available IRQ vector, an available ISA I/O Port address in the range of 200h-3EFh, and an available memory segment below 1 megabyte that is at least 16 Kbytes in size.

The SNA/UNIX model used the following values:

IRQ: 2

I/O Port: 200h

Memory Segment: D400h

Make a written note of the values you select; you need them in the next steps and again during the software installation procedure.

10. Press **ESC** five times to back out of the EISA Configuration Utility.
11. When the System Configuration main menu displays on the screen, select the option: *Exit from this utility*.
The Exit screen appears.
12. Press **ENTER** to exit the EISA Configuration Utility *without saving* any changes.

Configuring the DataTalker Adapter

The next two steps configure the DataTalker PC/XL Adapter using the values obtained in step 9, above.

1. Set the IRQ on the DataTalker PC/XL Adapter using the factory-provided jumper.
2. Set the I/O Port address.

The DataTalker PC/XL Adapters that ship from the factory have the default address chosen for the SNA/UNIX model (Dip Switches 1-2=On and 3=Off). You need not modify them. However, if you require an I/O address *different* from the factory default, refer to the *DataTalker 3270 U/X User's Guide* for proper Dip Switch settings.

Installing the DataTalker Adapter in the COMPAQ SYSTEMPRO

The final steps install the DataTalker PC/XL Adapter into the COMPAQ SYSTEMPRO.

1. Disconnect the COMPAQ SYSTEMPRO from the power source.
2. Remove the cover to the COMPAQ SYSTEMPRO and insert the DataTalker PC/XL Adapter into an empty expansion slot. Secure the adapter with the attachment screw.
3. Replace the cover on the COMPAQ SYSTEMPRO.
4. Using the RS-232-C shielded synchronous cable, connect the adapter to the modem and fasten it securely with the attachment screws.

Installing the Software

Before you install the software, be certain you have the following required items:

- The following software on diskettes:
 - CLEO DataTalker 3270 U/X Driver Install 4.2
 - CLEO DataTalker 3270 U/X SNA/SDLC and BISYNC/BSC Communications Manager 4.2
 - CLEO DataTalker 3270 U/X File Transfer Utility 4.2
 - The following information from your SNA host System Administrator:
 - Physical Unit(PU) and Logical Unit (LU) configuration information
 - SDLC Address: ID which identifies your location to the SNA host
 - XID: 3270 Exchange Station Identification ID
 - A decision on using a leased or switched (direct-connect or dial-up) communications line to the SNA host
-

Installing the DataTalker Driver and Communications Manager

The first 13 steps of the installation procedure install the DataTalker 3270 U/X Driver and DataTalker 3270 Communications Manager.

1. Boot the COMPAQ SYSTEMPRO in the normal UNIX-boot procedure to the following prompt:

Type CNTL-D to proceed with normal startup or enter root password to enter system maintenance mode:

2. Enter the root password.
3. Insert the CLEO DataTalker 3270 U/X Driver diskette in the appropriate diskette drive.
4. At the "#" prompt, enter
installpkg
A prompt asks you to specify the diskette drive containing the driver diskette.
5. Select the diskette drive you chose in step 3.
A prompt displays, asking you to verify that the operating system is either AT&T or SCO UNIX.
6. Enter
y
7. A prompt asks you to specify the board type you are installing.
To specify the CLEO DataTalker PC/XL, enter
1
8. A prompt asks for the I/O addresses.
To specify the 0x200 (factory setting), enter
4

NOTE: You determined this value in step 9 of the "Hardware Installation Procedures". This value might not be appropriate for your configuration.

9. A prompt asks you to enter the RAM addresses.

To specify 0xD4000, enter

14

NOTE: You determined this value in step 9 of the "Hardware Installation Procedures". This value might not be appropriate for your configuration.

10. A prompt asks you for the Interrupt Jumper setting.

Enter

3

NOTE: You determined this value in step 9 of the "Hardware Installation Procedures". This value might not be appropriate for your configuration.

11. A prompt asks you for the Language Selection.

To select *English (USA)*, enter

1

12. When you see the prompt: "Enter a descriptive Keyword...." enter

pcxl0

NOTE: You also have the option of choosing your own keyword. If you do so, you must then modify the */usr/lib/3270/host.cfg0* file accordingly.

This keyword signifies that the adapter is a PC/XL Adapter and is the first (0) PC/XL Adapter in the system.

13. A prompt asks you to verify the above entry.

Enter

y

Installing the DataTalker SDLC and Communications Manager

The next seven steps of the installation procedure install the DataTalker 3270 U/X SNA SDLC and BISYNC/BSC Communications Manager.

1. At the prompt, remove the CLEO DataTalker 3270 U/X Driver diskette and insert the CLEO DataTalker 3270 U/X SNA/SDLC and BISYNC/BSC Communications Manager diskette.

2. A prompt asks you to enter the diskette device name.

Enter

/dev/rfd196ds15

NOTE: The diskette device name on your system might be different, depending on your configuration. If it is different, enter the appropriate device name.

3. When you see the prompt: "Install SNA or BISYNC(BSC) ..." enter

s

4. A prompt asks you to remove the diskette.

Remove the CLEO DataTalker 3270 U/X SNA/SDLC and BISYNC/BSC Communications Manager diskette.

5. At the prompt: "Do you want this kernel to boot ..." enter

y

6. At the prompt: "Do you want the kernel environment ..." enter

y

7. The remaining portion of the CLEO installation script displays information messages. Press **ENTER** to each of these until you see the operating system prompt "#".

Installing the DataTalker File Transfer Utility

The next four steps of the installation procedure install the DataTalker 3270 U/X File Transfer Utility.

1. Insert the CLEO DataTalker 3270 U/X File Transfer Utility diskette in the appropriate diskette drive.
2. At the "#" prompt, enter
 custom
3. Choose, in sequence: *Install A New Product Entire Product*.
4. Exit from the **custom** utility.

Rebooting the System

The final two steps of the installation procedures reboot the system and verify that the installation was successful.

1. At the "#" prompt, enter
 reboot
2. This reboots the COMPAQ SYSTEMPRO and starts the new UNIX kernel that contains the DataTalker 3270 U/X device driver.
3. As the system reboots, the following message appears, indicating that the installation was successful:

DataTalker 3270 Communications Driver, Ver: Coproc/3.2a

Configuring the System

This section describes the procedures required to configure the DataTalker 3270 U/X System. These procedures encompass the following items:

- Modifying the search path of each user account who will access the 3270 U/X System
- Modifying the default CLEO Host Configuration File to permit proper interaction between the SNA host and the UNIX-based COMPAQ SYSTEMPRO
- Downloading portions of the CLEO software to the DataTalker PC/XL Adapter and testing the configuration
- Setting up the UNIX system to have portions of the CLEO software automatically downloaded to the DataTalker PC/XL Adapter as part of normal system startup

Modifying the Search Path

The first step of the configuration procedure modifies the search path of each user account that will access the DataTalker 3270 U/X System. The software installation process automatically created and populated the directory containing the the executable files associated with the CLEO software.

Add the directory `/usr/bin` to each user's search path. The search path is usually defined in the file `$HOME/.profile` located in the user's home directory.

Modifying the CLEO Host Configuration File

The next step of the configuration process modifies the CLEO Host Configuration File. The CLEO software installation created a default file and partially updated it with information obtained during the installation.

You must modify this file according to the requirements of your SNA host computer. You previously determined the required values in the section, "Installing the Software".

The following is a listing of the */usr/lib/3270/host.cfg0* file used in the SNA/UNIX model. The modified fields are in bold print and underlined:

```
# SNA/SDLC Configuration File
#
# SCCS ID: 91/04/30 2.5 /u/ux/3270/sccs/release/files/s.SNA.cfg
#
# SYSTEM: Enter a descriptive name of up to 64 characters
SYSTEM = SNAHOSTDIAL
# SYNCPORT: Enter the names of the physical devices which can be
# used to access the system. The name is the same as the first
# field in /usr/lib/3270/syncports.
SYNCPORT = pcx10
# EXEC_TYPE: SNA (for Bisync see template file BSC.cfg)
# DO NOT CHANGE
EXEC_TYPE = SNA
```

.....

```
# SDLC_ADDR: Enter the SDLC Station Address which identifies your location
# to the host. The number is a DECIMAL value. This is a REQUIRED field.
# (Example: 193 = C1 Hex) Valid range is 1 - 254
```

SDLC_ADDR = 193

```
# XID: Enter the 3270 Exchange Station Identification string which is
# expected by your host. This string is in hex.
# This is a REQUIRED field. (The value may not be significant when
# a direct connection is employed)
# XID = 01700000
```

XID = 017A9F67

```
# Device configuration: Devices may be any of the following types.
```

```
#
```

```
# LU Type 2 Displays:
```

```
#     CRT24_80
```

```
#
```

```
# LU Type 3 Printers: Specify columns
```

```
#     DPRT80
```

```
#     DPRT132
```

```
#
```

```
# LU Type 1 Printers: Specify columns
```

```
#     SPRT80
```

```
#     SPRT132
```

```
#
```

```
# The specified configuration MUST conform with that expected by the host.
```

```
# ALL expected devices MUST be specified.
```

.....
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```
# Up to 32 devices may be specified. The range for each device is 2 - 255
# Example configuration:
# CRT24_80 = 2, 3, 4, 5, 6, 7, 8, 9
# DPRT80 = 10, 11, 12, 13
# SPRT80 = 14, 15, 16, 17
# Default configuration:
CRT24 80 = 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17
CRT24 80 = 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31
DPRT132 = 32
SPRT132 = 33
# LINE_MODE: Indicates HALF or FULL duplex line operation.
# This is an OPTIONAL field. The default is HALF.
LINE_MODE=HALF
# LINE_TYPE: Indicates SWITCHED or LEASED line operation.
# This is an OPTIONAL field. The default is LEASED.
LINE_TYPE=SWITCHED
# NRZ_CODE:
# This is an OPTIONAL field. The default is NRZ.
NRZ_CODE=NRZ
# CTS_DELAY: Indicates the transmit delay (milliseconds) before CTS is checked.
# This parm allows an increase in the effective CTS delay beyond what
# the modem is physically capable setting. The value establishes the
# minimum CTS delay. It is NOT in addition to the hardware CTS delay!
# This is an OPTIONAL parameter. If omitted the default is 0.
```

The range of values is 0 through 255.

CTS_DELAY=0

FRAME_DELAY: Indicates the transmit delay (milliseconds) between consecutively transmitted SDLC frames. This is an OPTIONAL parameter.

If omitted the default is 0. The range of values is 0 through 255.

FRAME_DELAY=0

POWER_CHG: Indicates whether Power ON/OFF Notification support is enabled.

This is an OPTIONAL field. The values are YES or NO. The default is NO.

POWER_CHG=NO

Downloading the CLEO Software

The next steps of the configuration procedure download portions of the CLEO software to the DataTalker PC/XL Adapter and test the configuration. This involves creating a binary file that encompasses the information from the *host.cfg0* file you modified in the previous step and downloading this to the adapter.

1. At the "#" prompt, enter

```
3270_cfg
```

NOTE: The directory */usr/bin* must be in your search path.

2. When you see the prompt, "Download this configuration ..." enter

```
y
```

This procedure takes several seconds; the software is downloaded and the board is tested extensively.

Configuring UNIX for Automatic Software Downloading

The following steps configure the UNIX operating system to have the DataTalker 3270 U/X software automatically download to the adapter during normal system startup.

This procedure is optional. You can manually download the software by entering the following command line at the "#" prompt while in the root account:

```
cd/usr/bin ; host_load 0
```

1. Create the file */etc/rc2.d/S98sna_term* containing the following:

```
#  
# This script will down-load the CLEO 3270 SNA adapter software  
#  
if [ -x /usr/bin/host_load ]  
then  
    (/usr/bin/host_load 0 >/dev/console 2>&1)  
fi
```

2. Modify the CLEO-supplied file */usr/sbin/host_load* according to the following portion that is in bold print and underlined:

```

: /bin/sh
# @(#)host_load.sh 1.1 1/3/89
usage='usage: host_load brdno - brdno is the board number'
if [ $# -ne 1 ]
then
    echo $usage
    exit 1
fi
case $1 in
    [0-9])
        /usr/sbin/load_bin /usr/lib/3270/host.bin$1 $1;;
        *)
            echo $usage
            exit 2;;
    esac

```

Configuring UNIX for Automatic Print Server Startup

The final step of the configuration procedure configures the UNIX operating system to start the CLEO Print Server daemon automatically during normal system startup. This procedure is optional. You can manually start the print daemon by entering the following command line at the "#" prompt while in the root account:

```
/usr/sbin/pr3270 -b0 -l-1 -ms -t60 -pprinter
```

To have CLE Print Server start automatically, create the file */etc/rc2.d/S99sna_print* containing the following:


```
#  
# This script will start the CLEO printer emulation daemon  
#  
if [ -x /usr/lbin/pe3270 ]  
then  
    (/usr/lbin/pe3270 -b0 -l-1 -ms -t60 -pprinter >/dev/console 2>&1)  
fi
```

Operation Procedures

This sections describes the required operation procedures for the Gateway, Terminal, and Printer portions of the CLEO DataTalker 3270 U/X System. Before you perform any of the following procedures, be certain that the directory */usr/lbin* is in your current search path.

Gateway

You can invoke the startup procedure for the CLEO SNA Gateway software either manually or automatically during normal system startup. The startup procedure involves downloading the software to the SDLC. Once you download the software, it thoroughly tests the adapter and notifies you of any anomalies before proceeding.

To manually download the Gateway software, enter the following command line at the "#" prompt while in the root account:

```
cd /usr/lbin ;host_load 0
```

To automate the Gateway software download procedures so they occur during normal system startup procedures, perform the following steps:

1. Create the file */etc/rc2.d/S98sna_term* containing the following:

```
#  
# This script will down-load the CLEO 3270 SNA adapter software  
#  
if [ -x /usr/lbin/host_load ]  
then  
    (/usr/lbin/host_load 0 >/dev/console 2>&1)  
fi
```

2. Modify the CLEO-supplied file `/usr/sbin/host_load` according to the following portion in bold print and underlined:

```

: /bin/sh
# @(#)host_load.sh 1.1 1/3/89
usage='usage: host_load brdno - brdno is the board number'
if [ $# -ne 1 ]
then
    echo $usage
    exit 1
fi
case $1 in
[0-9])
    /usr/sbin/load_bin /usr/lib/3270/host.bin$1 $1;;
*)
    echo $usage
    exit 2;;
esac

```

Terminal

You can start 3270 terminal sessions by entering the following command line at the operating system prompt:

```
/usr/sbin/te3270 -b0 -n-1 -q
```

For an explanation of these and other options, refer to the *CLEO DataTalker 3270 U/X User's Guide*.

Printer

You can invoke the startup procedures for the CLEO Print Server software either manually or automatically during normal system startup.

To start the software manually, enter the following command line at the "#" prompt while in the root account:

```
/usr/sbin/pe3270 -b0 -l-1 -ms -t60 -pprinter
```

To automate the software startup procedures so they occur during normal system startup procedures, create the file `/etc/rc2.d/S99sna_print` containing the following:

```
#
# This script will start the CLEO printer emulation daemon
#
if [ -x /usr/sbin/pe3270 ]
then
    (/usr/sbin/pe3270 -b0 -l-1 -ms -t60 -pprinter >/dev/console 2>&1)
fi
```

Removing the CLEO 3270 U/X System Software

The removal of the DataTalker 3270 U/X System software is a two-step procedure. You must remove both the File Transfer software and the 3270 and Device Driver software and then rebuild the UNIX kernel.

Removing the DataTalker File Transfer Utility

The first five steps of the removal procedure remove the DataTalker 3270 U/X File Transfer Utility.

1. Boot the COMPAQ SYSTEMPRO in the normal UNIX-boot procedure up to the prompt:

Type CNTL-D to proceed with normal startup or enter root password to enter system maintenance mode:

Enter the root password.

2. At the "#" prompt, enter
 custom
 3. From the menu bar, select: *Remove*.
 4. Highlight the CLEO 3270 File Transfer entry and respond appropriately to the remaining prompts.
 5. Exit from the **custom** utility.
-

Removing the DataTalker Driver and Communications Manager

The final steps of the removal procedure remove the DataTalker 3270 U/X Driver and DataTalker 3270 U/X SNA/SDLC Communications Manager software.

1. At the "#" prompt, enter

```
removepkg
```

2. Select *DataTalker 3270 U/X* ...and respond appropriately to the remaining prompts.

The CLEO remove script automatically rebuilds the kernel.

3. At the prompt, "Do you want this kernel to boot ..." enter

```
y
```

4. At the prompt, "Do you want the kernel environment ..." enter

```
y
```

5. At the "#" prompt, enter

```
sync;reboot
```

This reboots the COMPAQ SYSTEMPRO and starts the new UNIX kernel.