COMPAQ

· ·

SCO UNIX in an SNA Environment Using Computone LYNX

Compaq TechNote

Includes information on:

- Installation procedures

- Configuration parameters

. . . .

NOTICE

The information in this publication is subject to change without notice.

COMPAQ COMPUTER CORPORATION SHALL NOT BE LIABLE FOR TECHNICAL OR EDITORIAL ERRORS OR OMISSIONS CONTAINED HEREIN, NOR FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE FURNISHING, PERFORMANCE, OR USE OF THIS MATERIAL.

This publication contains information protected by copyright. No part of this publication may be photocopied or reproduced in any form without prior written consent from Compaq Computer Corporation.

The software described in this guide is furnished under a license agreement or non disclosure agreement. The software may be used or copied only in accordance with the terms of the agreement.

This publication does not constitute an endorsement of the product or products that were tested. The configuration or configurations tested or described may or may not be the only available solution. This test is not a determination of product quality or correctness, nor does it ensure compliance with any federal, state, or local requirements. Compaq does not warrant products other than its own strictly as stated in Compaq product warranties.

Product names mentioned herein may be trademarks and/or registered trademarks of their respective companies.

SCO UNIX in an SNA Environment Using Computone LYNX

Contents

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 Computone LYNX SDLC Gateway, LYNX 3270, and the SDLC adapter from IBM. 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. Refer to the *COMPAQ and SCO Multiuser ToolKit* for instructions on 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 methods are DFT (coax), SDLC, X.25, and Token Ring Interface Card (TIC). The access method utilized 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 environments, 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 application programs using APPC. You can use UNIX-based APPC programming libraries, such as Computone's C language LYNX APPC Development System to provide a development environment for distributed applications within an SNA network.

Organizations with existing SNA environments can integrate the COMPAQ SYSTEMPRO running SCO UNIX into this environment by using the Computone LYNX SDLC gateway software, an IBM SDLC adapter, and LYNX 3270 terminal and printer emulation software. Computone LYNXWARE provides the following functionality:

■ Physical Unit (PU) Type 2 node emulation (2.1 optional)

■ Logical Unit (LU) Type 1, 2, and 3 support (6.2 optional)

■ 3174, 3274, and 3276 Controller emulation

■ 3278 and 3279 Terminal emulation (LU Type 2)

■ 3287-1 (LU Type 1 - SNA Character Stream) and 3287-3 (LU Type 3 - Data Stream Compatible) Printer emulation

■ Up to 255 concurrent host sessions

■   File Transfer using IND$FILE

■   UNIX spooling of host-addressable printers

■   NetView network management Response Time Monitor (RTM) and
     SNA alerts support for:

     ❏   -   Physical unit management services network management
          vector transport (PUMS NMVT) send/receive

     ❏   -   PUMS RTM

     ❏   -   PUMS Alert

■   On-board processing of all 3270 communications

■   Keyboard re-mapping facility

■   8-bit National Language Support

LYNX 3270 also includes an IBM-compatible 'C' high level language
application program interface (HLLAPI) library. This library allows a user-
written application to interact with one or more LYNX 3270 terminal
emulation sessions simulating the actions of a human operator. For example, a
user application might use HLLAPI calls to do the following:

■   Examine, extract, or enter keystrokes on the contents of a 3270 screen

■   Customize 3270 screens for particular users

■   Automate repetitious procedures such as batch file transfers

Optional enhancement products include:

■   LYNX APPC Development System

■   LYNX LU 6.2/PU 2.1 Gateway Upgrade

SNA/UNIX Model

The hardware and software components that were used for the SNA/UNIX model presented in this TechNote are in the following table. For the minimum system configuration required for Computone LYNX products, refer to the *LYNXWARE Products Administrator Guide*.

Table 1-1
SNA/UNIX Platform Components

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 (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 Communications Hardware
IBM SDLC Adapter

SNA/UNIX Platform Components *continued*
Operating System Software
SCO UNIX System V/386 Release 3.2 Operating System Version 2.0f
Compaq Supplement 1.4 for SCO UNIX Systems V/386 Release 3.2
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
Computone LYNX 3270 Release 2.3.2 for UNIX
Computone LYNX SDLC Gateway Release 2.3.2 for UNIX

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 LYNX SDLC Gateway software and LYNX 3270 system software provide emulation of the IBM 3274 Cluster Controller, 3278 and 3279 series terminals, and 3287 series printers as well as Logical Unit (LU) pooling. The model includes various terminal and printer sessions attachments, 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 3270 terminal sessions with the mainframe:

- COMPAQ SYSTEMPRO system console emulating an ANSI terminal.

- Asynchronously-connected COMPAQ DESKPRO Personal Computer emulating a Wyse-60 via the DigiCHANNEL C/X System.

- Asynchonously-connected Liberty terminal emulating a Wyse-60 via the DigiCHANNEL C/X System.

- Network-connected COMPAQ DESKPRO Personal Computer emulating a DEC VT220 terminal via the Western Digital Ethernet adapter.

IBM 3287 print stream data is routed by LYNX 3270 to the UNIX system print spooler. The print spooler sends the 3287 data to the NEC printer connected to the COMPAQ SYSTEMPRO parallel port. IND$FILE File Transfers are used to send and receive data from a Time-Sharing Option (TSO) application running on the IBM SNA host.

The following figure illustrates the product configuration used to validate the functionality of the LYNX product.
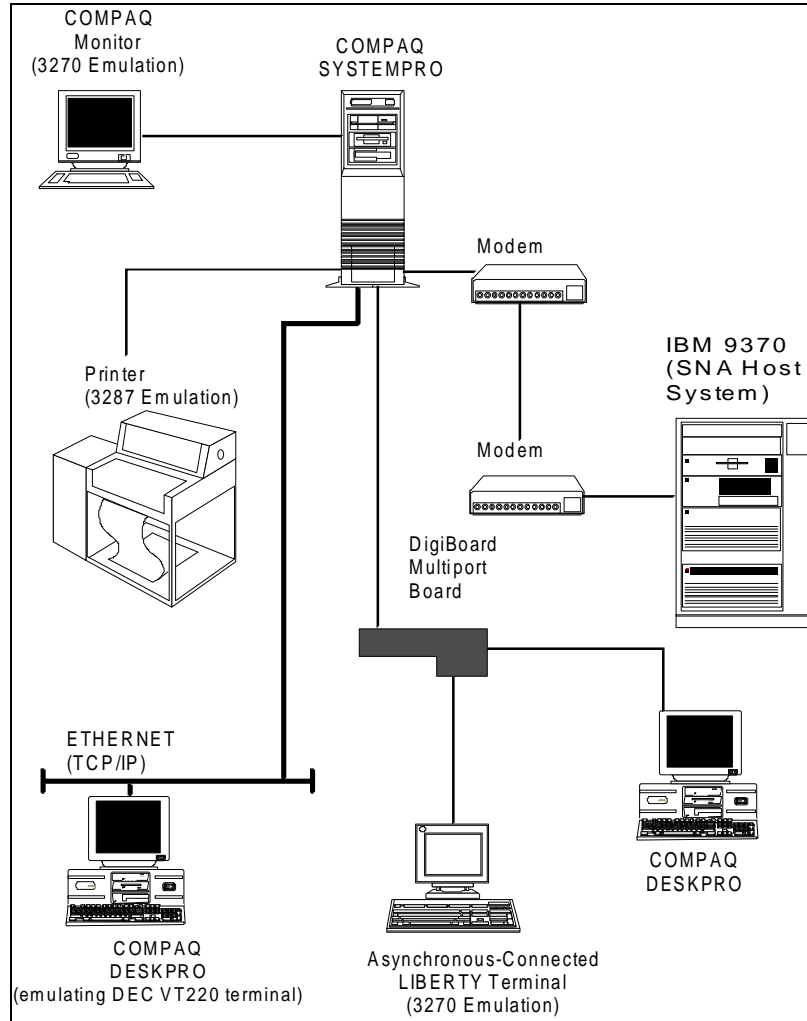

Figure 1-1. Product configuration

Chapter 2
The LYNX Products and IBM Adapter

This section describes how to install the Computone LYNX SDLC Gateway, LYNX 3270, and the IBM SDLC Adapter. Installation instructions apply only to the SNA/UNIX model described in this TechNote. For additional information, refer to the following publications provided with the Computone LYNX products:

■ *LYNX 3270 User Guide*

■ *LYNX HLLAPI Programmer Guide*

■ *LYNX Products Administrator Guide*

■ *LYNX Menus User Guide*

Hardware Considerations

The IBM SDLC Adapter is a single-port synchronous communications device. It is capable of sustained 9600-baud throughput and can install in any ISA or EISA expansion slot. The SDLC can be used to access a remote SNA host over a dial-up or leased telephone line direct connect.

■ IRQ Requirements: The adapter uses the following two interrupt request vectors:

❏ IRQ 3, which maps to the COMPAQ SYSTEMPRO "COM 2" port

❏ IRQ 4, which maps to the COMPAQ SYSTEMPRO "COM 1" port

■ DMA Channel Use: The board uses DMA Channel 1, which is also the default DMA channel for some cartridge tape devices. If a DMA conflict exists with another device, check the channel assignment and, if necessary, reassign the conflicting device. Refer to the *COMPAQ SYSTEMPRO User Guide* for more information on device assignments and DMA selection.

Before you install the IBM SDLC Adapter, be certain you have the following required items:

■　The COMPAQ System Configuration diskette Version 2.06, or later (supplied with your COMPAQ SYSTEMPRO).

■　A synchronous modem for communications to the host through either a dial-up or leased line. Optionally, you can use a modem eliminator cable to connect directly if the distance is less than 50 feet and there is no modem.

■　An RS-232C shielded synchronous cable to connect the modem to the SDLC board. This cable requires straight-through connections on pins 1 through 8, 15, 17, and 20.

Installing the IBM SDLC Adapter

To install the IBM SDLC Adapter, you must first configure the COMPAQ SYSTEMPRO so the required IRQs and DMA are available. Perform the following steps:

1.　the COMPAQ System Configuration diskette in drive 0 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.　Move the cursor so it is positioned on COM1 under the category Integrated Interfaces. Press **ENTER** and select Disabled from the pop-up menu.

7.　Move the cursor so it is positioned on COM2 under the category Integrated Interfaces. Press **ENTER** and select Disabled from the pop-up menu.

8. Press **F7**.

   The Advanced menu displays on the screen.

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

   The View Additional System Information menu displays on the screen.

10. Select the option: *Available resources*.

    The Available Resource screen displays on the screen.

11. Make sure that IRQ 3, IRQ 4, and DMA Channel 1 are available for use by the IBM SDLC Aapter. If a conflict exists, you must reassign the conflicting devices, as described in the COMPAQ SYSTEMPRO User Guide.

12. Press **ESCAPE** three times to back out of the COMPAQ EISA Configuration Utility.

13. When the Steps in Configuring Your Computer menu appears, select the option: *Step 5: Save and exit*.

14. Select the option: *Save the configuration and restart the computer*.

    The Reboot screen displays on the screen.

15. Remove the Compaq System Configuration diskette from the drive and press **ENTER**.

    The COMPAQ SYSTEMPRO reboots, and the new configuration is in effect.

Installing the IBM SDLC Adapter in the COMPAQ SYSTEMPRO

The next step is to install the IBM SDLC Adapter into the COMPAQ SYSTEMPRO.

1. Disconnect the COMPAQ SYSTEMPRO from the power source.

2. Remove the cover to the COMPAQ SYSTEMPRO, install the IBM SDLC Adapter into an empty expansion slot, and secure it with the attachment screw.

3. Replace the cover on the COMPAQ SYSTEMPRO.

4. Using the RS-232C shielded synchronous cable, connect the adapter to the modem and fasten it securely with the attachment screws.

Installing the Software

You must install the LYNXWARE LYNX SDLC gateway before any LYNXWARE applications (LYNX 3270, LYNX APPC, and/or LYNX LU 6.2). The following procedures describe the installation of these products:

- LYNX SDLC Gateway

- LYNX 3270

Ensure that the diskette drive you are using for LYNXWARE product installation is linked properly by performing one of the following commands:

To link to 3.5" HD diskette #0, use the command:

```
ln /dev/rdsk/f0q18d /dev/rdsk/f0
```

To link to 3.5" HD diskette drive #1, use the command:

```
ln /dev/rdsk/f1q18d /dev/rdsk/f1
```

To link to 5.25" HD diskette drive #0, use the command:

```
ln /dev/rdsk/f0q15d /dev/rdsk/f0
```

To link to 5.25" HD diskette drive #1, use the command:

```
ln /dev/rdsk/f1q15d /dev/rdsk/f1
```

Entering SNA Host Configuration Information

Before you install the LYNXWARE products, obtain SNA-related Physical Unit (PU) and Logical Unit (LU) configuration information from your SNA host system administrator. After you install the LYNXWARE products, you enter the SNA host configuration information using the menu-driven LYNXMenus Facility. The following two tables list the required fields (optional fields are not listed).

NOTE: A template for obtaining this configuration information is included in the appendix of the *LYNXMenus User Guide.*

Table 2-1
Data Link Parameters

Parameter	Description
Port Number	The port number of the SDLC board. For the IBM SDLC Adapter, this field should always be set to "1."
	Valid Values = 0, 1
	Default = 1
Baud Rate	The baud rate between the IBM SDLC board and the SNA host. For the IBM SDLC Adapter, you can select a maximum baud rate of 9600.
	Valid Values: 300, 600, 1200, 1800, 2000, 2400, 4800, 9600, 19600
	Default = 1200
Address	The data link's Station Address at the host (the host "VTAM PU ADDR").
	Valid Values = 01 - FEh
	Default = 01
Link Role	The role of the communications link.
	Valid Values = PRIMARY, SECONDARY
	Default = SECONDARY (typical)
Transmission Signaling Mode	The type of data encoding to be used.
	Valid Values = NRZ, NRZI
	Default = NRZ
Request to Sent (RTS)	The RTS mode to be used on the communications link.
	Default = WITH DATA

Table 2-2
SNA Physical Unit (PU) Parameters

Parameter	Description
Physical Unit Type	This is the role that your COMPAQ SYSTEMPRO assumes when communicating with the SNA host. Unless you install the LYNX LU6.2 product, this should be set to "PU 2.0." Valid Values = PU 2.0, PU 2.1 Default = PU 2.0
Host Name	A logical name that identifies the SNA host (for example, "Our9370"). Default = DEFAULT
Controller Model	Maps to a two-digit hexadecimal host VTAM PU IDBLK value that is used in the host SNA exchange identifier (XID) command response. Valid Values: 3274-21C Controller --> PU IDBLK = 0x17 3274-31C Controller --> PU IDBLK = 0x17 3274-51C Controller --> PU IDBLK = 0x17 3274-61C Controller --> PU IDBLK = 0x17 3276-12 Controller --> PU IDBLK = 0x18 System/36 --> PU IDBLK = 0x3E Displaywriter --> PU IDBLK = 0x3A Default = 3274-21C (PU IDBLK = 0x17)
Physical Unit ID Number	A number used when replying to an SNA exchange ID (XID) command, also referred to as the VTAM PU IDNUM. This is required only if a switched line is being used to communicate with the host. Valid Values = <1-5 hex digits> Default = 00000

Each terminal or printer that communicates with the SNA host must have an
assigned LU number and an LU type. You can assign LUs to LU "pools,"
allowing more flexible and optimal use of LUs on a first-come, first-served
basis.

Table 2-3
Logical Unit (LU) Assignments

Assignment	Description
LU Number	A decimal number that serves as the local address of the LU. The first LU is numbered 2, and each subsequent LU is assigned the next available number.
	Valid Values = 2-254 <decimal>
	Default = 2
LU Type	Identifies the LU for use by a terminal (display) or printer.
	Valid Values = Display, Printer
	Default = Display
Pool Name	A logical name that identifies a "pool" of LUs.
	Valid Values = 1-8 chars <first char must be alpha>
	Default = None

Installing the LYNX Gateway and 3270 Software

This section details the installation procedures for the LYNX SDLC Gateway and LYNX 3270 software.

Disabling the COM Ports

The first steps of the installation procedure disable the COM1 and COM2 ports so that IRQ 3 and 4 are available for the SDLC adapter and software.

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

    ```
    Type CNTL-D to proceed with normal startup
    (or give root password for system maintenance):
    ```

2. Enter the root password.

3. Edit the */etc/conf/sdevice.d/sio* file, by changing the value in the second column to **N**.

4. To rebuild the kernel and incorporate the changes, type

    /etc/conf/cf.d/link_unix

5. After *each* of the following prompts appear, enter **y**:

    "Do you want the kernel to boot by default?"

    "Do you want the kernel environment rebuilt?"

6. At the "#" prompt, enter

    reboot

    This causes the COMPAQ SYSTEMPRO to reboot and start the new UNIX kernel.

Installing the LYNX Gateway Software

The next steps of the installation procedure install the LYNX SDLC Gateway software.

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

Type CNTL-D to proceed with normal startup
(or give root password for system maintenance):

---

2. Enter the root password.

3. At the "#" prompt, enter

    installpkg

4. A prompt asks you which diskette drive ("0" or "1") that you are using to install LYNX SDLC.

    Enter the appropriate number.

5. Insert the *LYNX SDLC* diskette in the drive and press **ENTER**. The screen displays several informational and status messages as installation proceeds.

    When **installpkg** attempts to determine the appropriate device format, the following messages might appear:

"WARNING: error on dev floppy....."

"fixperm: missing data field....."

"sed: command garbled....."

    These are normal status messages; ignore them.

6. A prompt asks you to indicate the type of board that you are using.

    To specify the IBM SDLC, enter

    1

7. The installation program then checks for any interrupt request vector (IRQ) conflicts or DMA channel conflicts.

   NOTES: If the installation program detects an IRQ conflict, a prompt asks if you wish to disable the conflicting device. (You can assign a different IRQ to the conflicting device using the COMPAQ EISA Configuration Utility.)

   If the installation program detects a DMA Channel conflict (the IBM SDLC Adapter uses DMA Channel 1), the program displays the conflict on the screen. Possible conflicts include tape drives, which often use DMA Channel 1 by default.

   You can assign a new DMA channel:

   - For EISA cards by using the COMPAQ EISA Configuration Utility.

   - For ISA cards by changing the physical jumper settings.

8. After EACH of the following prompts appear, enter **y**:

   "Do you wish to create a new kernel now?"

   "Do you want the kernel to boot by default?"

   "Do you want the kernel environment rebuilt?"

9. When the "# prompt appears, the installation process is complete. Enter

   reboot

   The COMPAQ SYSTEMPRO reboots and starts the UNIX kernel containing the LYNX SDLC Gateway software.

Installing the LYNX 3270 Software

The next steps of the installation procedure install the LYNX 3270 software.

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

Type CNTL-D to proceed with normal startup
(or give root password for system maintenance):

---

2. Enter the root password.

3. At the "#" prompt, type

    installpkg

4. A prompt asks you to indicate the diskette drive ("0" or "1") you are using to install LYNX 3270.

    Enter the appropriate number.

5. Insert the *LYNX 3270* diskette in the diskette drive and press **ENTER**.

6. The screen displays several informational and status messages as installation proceeds. When **installpkg** attempts to determine the appropriate device (floppy) format, the following messages might appear:

"WARNING: error on dev floppy....."

"fixperm: missing data field....."

"sed: command garbled....."

    These are normal status messages; ignore them.

7. When the installation process is complete, an appropriate message appears.

> ! **IMPORTANT:** Before you attempt to establish communications with a remote host, ensure that the host administrator entered the correct SYSGEN parameters for your host connection. The following sample SYSGEN Mode Table includes 3270 Extended Data Stream definitions, which are required for IND$FILE File Transfers. (Refer to the *LYNX 3270 User Guide* for more information on IND$FILE File Transfer.)

Table 2-4
Sample SYSGEN Mode Table

```
*******  MODETABLE FOR 327x Model 2 WITH EXTENDED DATA STREAM SUPPORT  *******
        S2AQ87C7   MODEENT LLOGMODE=S2AQ87C7
        FMPROF=X'03',TSPROF=X'03',PRIPROT=X'B1',
        SECPROT=X'90',COMPROT=X'3080',    RUSIZES=X'87C7',
        PSERVIC=X'028000000000185018500200'
**********MODETABLE FOR LU TYPE 1 PRINTER **********
        SCS1MODEENT LOGMODE=SCS1, SDLC 3274 IN SCS MODE
             2K  BUFFERS
        FMPROF=X'03', TSPROF=X'03', PRIPROT=X'B1',
        SECPROT=X'90',COMPROT=X'3080', RUSIZES=X'C6C6',
        PSERVIC=X'01000000E100000000000000',
        PSNDPAC=X'01', SRCVPAC=X'01'
**********  MODETABLE FOR LU TYPE 3 PRINTER  **********
        DSC    MODEENT LOGMODE=DSC
        FMPROF=X'03', TSPROF=X'03', PRIPORT=X'B1'
        SECPORT=X'90', COMPORT=X'3080', RUSIZES=X'87C6'
        PSERVIC=X'030000000000000000000200'
```

Creating the Host Configuration Files

After you install your LYNXWARE gateway and LYNX 3270, you use the
LYNXMenus Facility to create one or more Host Configuration Files
(described in the *LYNXMenus User Guide)*.

You must run LYNXMenus from the system console or a VT100-compatible
terminal. Follow the procedure below.

1. To activate LYNXMenus, log on as *root* and enter the following
    commands:

        cd /etc/sna

        ./lynxmenu

    The LYNXMenus Main Menu displays on the screen.

2. You must first create a Host Configuration file that describes the
    communications link being used.

    From the Main Menu, use the arrow keys to pull down the Host
    Configurations Menu and select the option: *CREATE*.

    Use the information you obtained earlier from your SNA host
    administrator to create one or more Host Configuration files. (You
    might want to create more than one configuration file. For example,
    you might create one file to describe a host in Houston and another to
    describe a host in Chicago.)

3. Startup Scripts are used to automatically activate one or more Host
    Configuration files. These scripts can also activate background SNA
    printer emulation sessions and HLLAPI LUs.

    To create a Startup Script, go to the Main Menu and use the arrow keys
    to pull down the Startup Scripts Menu and select the option: *CREATE*.

4. Enter the desired filename or select from the list of available Host
    Configuration files.

When you select multiple Host Configuration files to include in the same Startup Script, the Host Configurations must not conflict with one another. For example, no two Host Configurations in a given Startup Script can use the same *Host Name* or *Port Number.*

5.   To define how the LUs of an individual Host Configuration are activated, highlight any Host Configuration file and press

    D

This setup allows you to activate each LU as any of the following:

UNSPECIFIED (makes the LU available to all users on a first-come, first-served basis)

PRINTER (reserves the LU for 3287 printer emulation and prompts you for the desired spooler destination)

HLLAPI (reserves the LU for use by a HLLAPI application).

6.   To Add Printer Spooler Strings (optional), use the arrow keys to pull down the Print Screen Spooler Menu at the Main Menu and specify where a 3270 host screen should be routed when the **PRT SCRN** key is pressed from a LYNX 3270 terminal emulation session.

If you define multiple print spooler strings, you can review and select a print spooler destination from a LYNX 3270 session by pressing the **SEL PRT Q** key. (Key mappings are described in the *LYNX 3270 User Guide.*)

7.   To execute the Startup Script, go to the Main Menu and use the arrow keys to pull down the Startup Scripts Menu. Select the option: *EXECUTE* ; then select the Startup Script that you wish to activate.

8.   To stop the Startup Script, go to the Main Menu and use the arrow keys to pull down the Startup Scripts Menu; then select the option: *SHUTDOWN.*

Verifying a LYNX SDLC Host Connection

To verify that a host connection was successfully established, enter the command at the "#" prompt:

/etc/sna/mpastat

This command produces a variety of information, including the following:

Table 2-5
Successful Host Connection Information

Field	Values
Frames Received/Sent	Should contain non-zero values
Receive State	Should indicate *Normal Response Mode*
Link Station Address/Data Format	Should contain Host Configuration information

Key Mappings

Before you start a 3270 session, consult Appendix C of the *LYNX 3270 User Guide* for the default keyboard mappings that apply to your terminal type (for example, ANSI, VT100, VT220, Wyse-50, Wyse-60, Wyse-60PF).

If your key mappings do not seem to correlate to your terminal type, refer to the file */etc/sna/snatermk*; it contains default key maps. These key maps should correspond to the type definitions contained in */usr/lib/terminfo*. Chapter 3 of the *LYNXWARE Products Administrator Guide* describes terminal adaptation and key mappings.

Starting a 3270 Session

To start a 3270 terminal emulation session, enter the following command at the operating system shell prompt:

> **sna3270 -h** *hostname* **-l** *poolname* **-p -Q -s "***string***" -w** *password* **-8**

Where:

-**h** *hostname* Specifies the Host Configuration file to use. The default Host Configuration file is *DEFAULT*

-l *poolname* Indicates that you wish to use an LU from a specific LU pool.

-p Indicates that you wish to make the session a 3287 printer emulation session (this often used in conjunction with the **-l** *poolname* option).

-Q Indicates that you do not want the host to verify that the SNA "Query" bit was set in the SNA BIND before attempting an IND$FILE File Transfer.

-**s "***string***"**   Allows you to specify the destination print spooler for any
LYNX 3270 Print Screen operations. For example, sna3270 -h
HOUSTON -s "lpr -b". If you do not define a print spooler
destination in this manner, your Print Screen data will be routed
to either:

- The spooler defined via the UNIX "SPOOLER" environment
variable.

- The "lp" spooler, which is identified in the file */etc/sna/printers.*

-**w** *password* Allows you to specify the password that has been pre-defined
for a particular LU pool.

-**8**   Enables 8-bit National Language Support (NLS) for support of
international character sets.

Resolving Communications Problems

Occasionally, you might experience communications problems during a 3270
session. This is usually indicated by the appearance of a "504" or "517" error
on the 3270 Status Line at the bottom of the screen. If an error of this type
displays, do the following:

1. Use the *Log File Display* option on the LYNXMenus Startup Scripts
    menu to examine the status and error logs.

2. Check the cables to and from the modem and/or telephone jack for
    proper installation.

3. If a dial-up line is being used, re-dial the host.

4. Contact your host administrator to ensure that the host communications
    link is still active.

Terminating a 3270 Session

To end a 3270 session, press the **EXIT** key from within the session.

NOTE: When you terminate a 3270 session, SIGINT is used as the "exit trigger." For example, if you issue the **sna3270** command from a shell script, SIGINT is passed to the parent process. If this causes a problem, consider using the Bourne shell **TRAP** command to ignore SIGINT prior to issuing the **sna3270** command, then reset SIGINT after terminating the 3270 emulation session.

Removing the LYNX Products

The removal of the LYNX products is a two-step procedure. You must remove the 3270 emulation and the Gateway software and rebuild the kernel.

Removing the LYNX Emulation Software

The first steps of the removal procedure remove the LYNX 3270 emulation software:

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

```
Type CNTL-D to proceed with normal system startup
(or give root password for system maintenance):
```

2. Enter the root password.

3. At the "#" prompt, enter

        removepkg

4. Select: *LYNX 3270* and respond appropriately to the remaining prompts.

5. A message appears indicating that the removal process is complete.

Removing the LYNX Gateway Software

The following steps remove the LYNX SDLC Gateway software.

1. At the "#" prompt, enter

    removepkg

2. Select: *LYNX SDLC* and respond appropriately to the remaining prompts.

3. When each of the following prompts appears, enter **y**:

    "Do you wish to create a new kernel now?"

    "Do you want the kernel to boot by default?"

    "Do you want the kernel environment rebuilt?"

4. At the "#" prompt, enter

    reboot

    The COMPAQ SYSTEMPRO reboots and starts the new UNIX kernel.

Vendor Contact Information

The following information will assist you if you wish to contact the Computone Corporation:

Computone Corporation
1100 Northmeadow Pkwy
Suite 150
Roswell, GA 30076
(800) 241-3946