

LINCS



Configuration

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Where to go for the information you seek.

Several books make up the 1174, 9300 and LINC S library, and include information to install, customize, operate, and maintain the 1174 and 9300 products. Following is a list and description of these manuals.

1174 Hardware Reference

The 1174 Hardware Description manual provides a description of the hardware found in several of the 1174 hardware platforms. These include the 1174-10R, 1174-10L, 1174-15X, 1174-20R, 1174-25X, 1174-60R, 1174-60C, 1174-65R, 1174-90R, and 1174-90T models. This manual includes installation planning considerations and front panel operations.

1174 Hardware Reference - 1174-65S/90S Communications Servers

The 1174 Hardware Description manual provides a description of the hardware found in the 1174-65S and 1174-90S hardware platforms. This manual includes installation planning considerations and front panel operations.

9300 Hardware Description

The 1174 Hardware Description manual provides a description of the hardware found in the 1174 hardware platforms. This manual includes installation planning consideration and front panel operations.

LINC S Product Description

The LINC S Product Description manual gives a brief description of the LINC S communications software capabilities. A reasonably complete list of the functions supported by LINC S is included.

LINC S Features

The LINC S Feature manual provides a much more detailed description of many of the LINC S features. Among those features described in detail are APPN Network Node, SNA PU Gateway support, IPX Routing, Host Connectivity, 3270 Server capabilities (IPX and TN3270), CUT Device features including Windowing, Keystroke Record/Playback, Entry Assist and Calculator, IP routing, IP Channel Bridge, ASCII Device and ASCII Host support, and NetView features.

LINC S Configuration

A Description of the LINC S Configuration process, as well as details of the configuration panels used to customize the LINC S software can be found in this manual.

LINC S Central Control

This manual contains information about the online Central Control panels. The Central Control mode provides a means to manage the LINC S software and the 1174 and 9300 hardware. A detailed description of their use is included in the manual.

LINC S Problem Determination

The LINC S Problem Determination manual aids the LINC S administrator by providing useful information about error codes and how to interpret them. Information is also included for running offline utilities.

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1. Getting Started

This manual applies to members of the Visara Communications Servers family which includes models of the 1174 and SCON, running the LINCS communication server operating system. For simpler reading, the terms LINCS and LINCS platform will be used throughout this document to describe the LINCS OS and the 1174/SCON hardware.

Although LINCS has been pre-installed on the hard drive of your LINCS platform it must be configured for your environment before you can operate it for the first time. You can reconfigure LINCS anytime you like, from any display or workstation connected to LINCS. If you create a new configuration, it will be effective when you IML (Initial Microcode Load) the LINCS platform, which can be done immediately, or scheduled for a later time. The hardware manual appropriate for your 1174 or SCON LINCS platform describes attaching a display for configuring.

The initial configuration must be done from a directly connected device (ASCII, serial port or coax), or over a LAN connection using a TELNET client terminal. Although you may configure from any display port, only one operator may configure the LINCS platform at one time. If another operator attempts to enter the configuration program an error message appears and the attempt is prevented.

For security reasons, it is recommended that you configure a Supervisor Password initially to disallow unauthorized access to the configuration process.

This section explains some basic concepts about LINCS and Central Control mode that will help you in configuring a LINCS platform; how to use Central Control mode, how to identifying the boards in your LINCS platform and presents the Product Definition Panel.

Once you have completed a working configuration, it is important to back your configuration up for disaster recovery.

Configuring From a Coax Display

Attach a 3270 coax terminal to the LINCS platform by using RG62AU coaxial cable to any of the first 16 ports of the 1174-65S/90S or SCON-20L/22L, or to any of the coaxial ports of the 1174-25S or SCON-25L/28L. You may also use twisted pair cable along with appropriate baluns to connect the coax terminal and the LINCS platform.

Configuring From a Telnet Client

To configure LINCS from a Telnet client you must have a configured network interface. Configuring the Telnet interface can be accomplished within the configuration utility itself, or by creating a configuration for the interface within an ASCII text file (may be done to perform the initial configuration). To do the initial configuration through Telnet, you must first create a text file on a PC that will be loaded onto the SCON-2XL, to configure the IP interface. The name of the text file must be 'acc\$data.sys' in order to be loaded. The information

is contained in the file in the form of parameter equates. An example of the contents of such a file is shown below.

```
Lineid=fet1
Ip=198.14.23.192
Tcp=1083
Router=198.14.23.100
Subnet=255.255.255.0
Mac=0200268bce19
```

Not all parameters are required. You must however, include the LINEID, IP, and TCP parameters as a minimum. The LINEID parameter refers to the name of the network interface card used on the LINCS platform, and is typically 'FET1' unless more than one FET card is installed, and one of the FETs other than the first one is to provide the network access for Telnet. Refer to the appropriate Hardware Reference manual for the numbering of the interfaces if more than one FET card is installed. The IP parameter of course refers to the IP address that is being assigned to the network interface card. LINCS does not make use of DHCP, and must therefore be assigned a real IP address. The TCP parameter refers to the TCP port to be used for Telnet. Although you can use the default TCP port for Telnet (not recommended for security reasons), you must define which port you intend to use (port 23 is not assumed).

The router parameter is not needed if your client is to be located on the same subnet as the LINCS platform. You do not need the subnet parameter if subnet masking is not being used. You can omit the 'mac' parameter if the default (burned in hardware) MAC address is being used (recommended).

Furthermore, the order of the parameters is not important in the file. The file is not case sensitive. Parameters that are not used can be omitted. Do not leave any white space in the file (spaces or blank lines). White space will be interpreted as the end of the file.

The file should be placed on a floppy and inserted into the floppy drive, prior to booting LINCS.

Because the keys on a Telnet client are not the same as those on a 3270 terminal, some keyboard mapping is used by LINCS to provide the 3270 key functionality. Among the more commonly used key definitions supported by most Telnet terminal emulations are:

PF1-PF9 = <ESC><1> - <ESC><9>

PF10 = <ESC><0>

PF11 = <ESC> <->

PF12 = <ESC> <=>

Keyboard Reset = <CTRL><R>

Test Mode Toggle = <ESC> <t>

Toggle between status row and 24th row (for most Telnet emulations) = <ESC><?>

Using Central Control Mode

There are three types of panels you will see throughout Central Control. They are:

- Menu Panels - The menu and submenu panels allow you to select which options to customize, either by menu selection or direct path selection. Some menu selections may also accept an optional update parameter.

- **Data Entry Panels** - Data entry panels are used to select specific options. Some fields require you to enter data, while others allow you to press the Enter key to toggle forward through a set of choices, or to press Alt + Enter to toggle backward through the choices.
- **Information Panels** - Information panels display instructions, status information, or warnings. Messages about the status of the configuration, for example, are displayed on information panels.

You may use PF keys to move from panel to panel. To find out what the PF keys do, see the descriptions of PF keys for that series of panels (usually displayed in the 24th row of the display).

Please remember that this document often represent the panels as closely as possible. But the actual content of the panel and flow between panels is not always the same as the panels content and panel flow you would see during configuration, particularly if you are running a code version other than the one represented in the panel.

Menu selection

When any Central Control mode menu is displayed, enter the desired item number at the ‘Select item:’ prompt , then press the Enter key. If an item has input parameters (refer to individual item descriptions), these are entered following the item select character, using a comma to separate item parameters.

For example, entering `Select: 1,MCC1.002` selects Item 1 (Terminal test) with parameter of MCC1.002 (for Port 2 on MCC1). Entering this item selection executes the Terminal test for that port.

Direct Path Selection

Some items display submenus that provide further item selections. If submenu selections are known, direct pathing may be used to execute the item. All items are separated by a slash (/) with a comma following the final item selection to separate any input parameters. All item parameters are separated by commas.

For example, entering `Select Item: 4/2,MCC1.001` displays the Vital Product Data (Item 4 from the Main Central Control menu) on the attached port (Item 2 - Port VPD from the VPD menu) selected as Port 1 on board MCC1.

If the first character input at the Select Item prompt is a slash (/), input will be parsed as if the Main menu is being displayed. For example, if the Vital Product Data menu is being displayed on the screen, `/6/2` can be entered at the Select Item prompt (Select Item: `/6/2`) to select the Display Device Status item from the Main menu.

Optional Update Parameter

Some menu items allow an optional update, denoted by `,u` after the item number on the menu. Updates require the supervisory password, so after entering item, `u` , the password prompt (Enter Password:_) will be displayed above the Select Item: prompt. Entering the password and pressing Enter will execute the selected item.

For example from the Central Control menu, `4/2,u ,1` can be entered to update VPD for Port 1. If the test input is specified as `4/2,1` the password prompt will not be displayed and no update will be allowed.

If an incorrect password is entered, X-f is displayed in the input inhibit area of the status row. After pressing the Reset key, the password may be re-entered, a new menu item may be selected.

If no supervisory password was established during configuration, the password prompt will not be displayed. Updates may be performed without the password.

The supervisory password is defined and set on the General Options panel.

Boards in the System

LINCS supports a number of boards that provide host and client connections. Boards supported by LINCS are:

- **ESC** – ESCON Host Interface
- **ESX** – ESCON Host Interface (SCON-28L only)
- **FET** – Fast Ethernet 100/10 Mbps
- **TRC** – 16/4 Mbps Token Ring (available on a limited basis)
- **CDA** – Coax Device Adapter
- **MCC** – Multiplexed Coax
- **ADA** – Asynchronous Device Adapter
- **CHP** – Channel Processor, refers to CHP/CHC or CHS board set
- **ETH** – 10 Mbps Ethernet
- **SCC** – Low Speed Serial Communications Controller
- **HSC** – High Speed Serial Communications Controller

Board Number and Connector Numbering

Since it is possible to support multiple boards of the same type, and it is possible that there are multiple connectors on some of the boards, the following format was devised to identify specific connections to the LINCS platform:

brd#.con where:

brd represents the 3 character board mnemonic described above.

represents a number 1-9 or letters a-d, identifying the instance of the board that you are referring to.

A period (.) used as a separator.

con representing a three digit number representing the connector number on the board.

Examples:

ESC1	(first ESCON interface card)
MCC1.003	(port 3 on the first MCC board)
ADAA.007	(8 th ASCII port on 1 st Asynchronous Device Adapter)

Keys for Configuration

The following PF key descriptions apply to most of the Configuration panels. Some panels have special keys which will be described in the section for that panel.

- **PF1 - Menu** – This PF key moves configuration processing back to the previous menu. This key is available on all configuration panels, and may be used to back out.
- **PF7 - Back** – Pressing PF7 moves you to the previously displayed panel.
- **PF8 - Forw** – Pressing PF8 moves you to the next panel.
- **PF9 - Default** – Assign default values to the fields in the current panel.
- **PF10 - Done** – This signals the end of the configuration process. It will bring you to the Configuration Complete panel.
- **Enter** – These keys toggle through available options, when the cursor is on a field with multiple options.

Configuring LINCS for the First Time

Power on the LINCS platform with an appropriate user display attached for purposes of configuration. The following panel should appear.

Host Connection Menu Panel

Host Connection Menu

Item	Connection Type
1	3270
2	ASCII
3	TCP/IP
4	LAT Class
5	LAT Dynamic

Select Item:

PF:

From this initial panel, on a coax display press and hold the <Alt> key and press the <Test> key. The resulting panel should appear. If configuring from a Telnet Client connected through the network, once you have selected the proper emulation for your client the following panel should appear.

Main Menu Panel

```
Main Menu                                LINCS C8.2 Central Control

Item      Description
1         Customization Data Menu
2         Supervisor Functions Menu
3         Media Management Menu
4         Vital Product Data Menu
5         Network Management Menu
6         Device Menu
7         Event Log Menu
8         Communications Menu

Select Item:                            Depress Enter
```

The Main Menu panel is the first panel you will see when you enter Central Control Mode. From this panel you can follow the menu prompts to bring up any Central Control Mode panel that you need to.

At the “Select Item:” prompt, type the sequence “1/1,u” and press <Enter>. This will take you through the Customization Data Menu to select the “Display/Update Configuration” selection. The next panel to appear will look like this:

```
Configuration                            LINCS C8.2 Central Control

Customization Data Source:                Default

PF:  1-Menu                               10-Process
```

This panel allows you to select the source of the configuration that you wish to modify. For a first time configuration, the Customization Data Source is set to “Default”. Other options that may be selected are to read in a configuration file from “Drive A”, “Drive C”, or “Currently Loaded”. The “Currently Loaded” and “Drive C” would not be valid offerings on a unit that has never been configured before. Currently Loaded allows you to modify the configuration that is currently running (normally used after the first configuration is saved). Selecting “Default” will bring up the configuration based on the hardware installed in the unit, as if the unit has never been configured before.

Press <PF10> to continue into configuration. There are two versions of the resulting Configuration Menu (Submenu List), depending on whether you are configuring a SCON or an 1174. Both panels are shown below. Regardless of the model, select item 1 and press <Enter>. This should take you to the Product Definition panel.

Configuration Menu (Submenu_List) for SCON

Configuration Menu (Submenu_List) LINCS C8.2 Central Control

Item	Description
1	Configure All
2	General Options Menu
3	TELNET Host Menu
4	TCP Print Server Menu
5	Asynchronous Host Menu
6	3270 Host Menu
7	TN3270 Server Menu
8	Network Device Menu
9	Direct Device Menu

Select Item: 1 Depress Enter

PF: 1-Menu 3-Panel_List 10-Done

Configuration Menu (Submenu_List) for 1174

Configuration Menu (Submenu_List) LINCS C8.2 Central Control

Item	Description
1	Configure All
2	General Options Menu
3	APPN Menu
4	Gateway Menu
5	IPX Router Menu
6	LAT Host Menu
7	TELNET Host Menu
8	TCP Print Server Menu
9	Asynchronous Host Menu
10	3270 Host Menu
11	LU to PU Mapping Menu
12	IPX SNA Server Menu
13	TN3270 Server Menu
14	Network Device Menu
15	Direct Device Menu

Select Item: Depress Enter

PF: 1-Menu 3-Panel_List 10-Done

This panel allows you to select a submenu list from which you can configure just a specific feature. Selecting the first item in the list allows you to configure all configuration panels.

Product Definition

The Product Definition panel allows you to customize the hardware definition of the LINCS platform that is to be used by the software during the configuration process. Initially the panel contains a description of the hardware that is installed on your particular platform. The boards listed on this panel can vary from model to model (shown is a panel from one of the SCON models). It is possible to modify this hardware list, which will affect the number and types of panels that will be offered during the configuration process.

Caution should be taken when modifying the values on this panel since adding hardware values that do not actually exist on the platform will most certainly create a configuration that can not be booted on your unit.

SCON-2XL Product Definition Panel

SCON-2XL Product Definition	LINCS C8.2 Central Control			
Number of Coax Ports:	16			
Number of ESC Boards:	1			
Number of TRC Boards:	0			
Number of FET Boards:	1			
Feature Memory (megabytes):	1			
PF: 1-Menu	7-Back	8-Forw	9-Default	10-Done

Changes to this panel are made for primarily three reasons:

1. You are adding hardware to an existing platform, and you must identify the new hardware to the LINCS configuration process so that it may be configured.
2. You do not wish to make use of hardware that is already installed on your LINCS platform, and you wish to disable the hardware for the configuration process, to make your configuration simpler.
3. You are making a configuration for a physically different LINCS platform. Note that you may make configurations for only the same model with this utility. Use the Central Site Customization Utility to make and store configurations for other SCON and 1174 platforms.

All fields on the Product Definition panel are toggle fields. The panel may not be exited if an invalid board combination is selected. Appropriate messages will be displayed if errors are encountered.

If you decrease the number of boards, then the last line assigned for that board type is deleted. For example, if you reduce the number of FET boards from 2 to 1, FET2 will be deleted. You must then update all other panels which refer to the board/lines you just deleted.

If you make undesired changes to this panel, suspect that undesired changes have been made, or just wish to ensure that all installed hardware is correctly represented on this panel, press the PF9-Default key.

Configuration

There are two Configuration Main Menus:

- Configuration Menu (Submenu_List)
- Configuration Menu (Panel_List)

When you choose Configuration from the Customization menu, you will see the Submenu List. From there, you may choose to step through all configuration panels, or to configure a specific component.

An example consisting of a sample network diagram, a gateway circuits table, a 3270 host circuits table and example configuration panels is provided to help you understand LINC'S configuration.

All the fields in the Example Configuration panels are based upon our Sample Configuration.

Stepping through all configuration panels

To step through all of the configuration panels, select item 1 and press <ENTER>. This will advance the display to the first Configuration panel. Pressing PF8-Forw will then display all configuration panels which are valid for your model and current configuration. This is a good way to configure for the first time, or to review all of your configuration parameters.

Sometimes, it is necessary to locate a specific panel in the configuration. For example, if a particular panel has been pointed out as being in error on the Configuration Complete panel, then you may need to go directly to the panel in error. Pressing PF3-Panel_List displays the Panel List, which contains all the Configuration utilities. You may return to the configuration Main Menu (Submenu_List) by pressing PF3-Submenus.

Configuring a specific component

If you wish to configure a specific component, you should choose the specific item from the Configuration Main Menu. Selecting an item and pressing ENTER will display a menu listing the configuration utilities necessary for that component.

The advantage of selecting a particular component is that you can enter the configuration utility with the first item in the submenu and only the items appearing in the submenu will be displayed as you page through the configuration. This makes the configuration of a specific component more straightforward since panels which do not apply to the component will not be displayed.

Configuration Menu (Submenu_List)

Here you may step through all configuration panels, or configure a specific component. When you have stepped through all the configuration panels (by using the PF keys), you will see the Configuration complete panel.

Configuration Menu (Submenu_List)	LINCS C8.2 Central Control
Item Description	
1	Configure All
2	General Options Menu
3	APPN Menu
4	Gateway Menu
5	IPX Router Menu
6	LAT Host Menu
7	TELNET Host Menu
8	TCP Print Server Menu
9	Asynchronous Host Menu
10	3270 Host Menu
11	LU to PU Mapping Menu
12	IPX SNA Server Menu
13	TN3270 Server Menu
14	Network Device Menu
15	Direct Device Menu
Select Item:	
PF: 1-Menu	3-Panel_List
	Depress Enter
	10-Done

Configuration Menu (Panel_List)

The following panel shows all possible configuration utilities available by pressing PF3-Full_Menu from the initial Configuration Main Menu. Some of these utilities may not be displayed, depending on your model. When you have stepped through all the configuration panels (by using the PF keys), you will see the Configuration complete panel.

Configuration Menu (Panel_List)	LINCS C8.2 Central Control
Item Description	
1	Product Description
2	General Options
3	Line Options
4	TCP/IP Options
5	IPX Options
6	Link Profiles
7	Gateway Circuits
8	3270 Host Profiles
9	3270 Host Circuits
10	3270 Host Classes
11	LU to PU Mapping Profiles
12	SNA Options
13	APPN Dynamic Connections
14	APPN Predefined Circuits
15	APPN LEN LUs
16	ASCII Port Options
17	ASCII Host Options
18	ASCII Session Profiles
19	ASCII Host Classes
20	LAT Host Classes
21	IP Host Classes
22	TCP/IP LAN Print Server Classes
23	TN3270 Client Definitions
24	SMS Server Definitions
25	Network Device Definitions
26	Device Options
27	Coax Multiplexing
28	Device Profiles
29	Device Profile Assignments
30	Printer Assignments
31	Feature Memory
32	RPQs
Select Item:	
PF: 1-Menu	3-Submenu_List
	Depress Enter
	8-Forw
	10-Done

Configuration Submenus

This section shows the Configuration submenu panels, which are used when you need to add or update an individual configuration component. Each of the menu items in the submenus is also a menu item in the Configuration full menu. For more information on each of the submenu menu items, see the chapter for that item.

General Options Sub-Menu

The General Options submenu provides a quick way to change any of the options configured in LINCS. You can enter the General Options configuration process at any point you wish, which is good for updates. Or you can run through the complete process, by starting at Product Description, and PF8-Forwarding through all the panels necessary to tailor all the options shown in the submenu panel.

```

General Options Menu                                LINCS C8.2 Central Control
Item Description
  1      Product Description
  2      General Options
  3      TCP/IP Options
  4      Feature Memory
  5      RPQs

Select Item:                                Depress Enter
PF: 1-Menu  3-Panel_List                    10-Done

```

APPN (Sub-Menu List)

The APPN Sub-Menu is used when you only need to add or modify APPN configuration data. You can enter the APPN configuration process at any point you wish, which is good for updates. Or you can run through the complete process, by starting at Line Options, and PF8-Forwarding through all the panels necessary to add APPN to your existing configuration.

```

APPN Menu                                          LINCS C8.2 Central Control
Item      Description
  1      Line Options
  2      Link Profiles
  3      SNA Options
  4      APPN Dynamic Connections
  5      APPN Predefined Circuits
  6      APPN LEN LUs

Select Item:                                Depress Enter
PF: 1-Menu  3-Panel_List                    10-Done

```

Gateway Menu

The Gateway Sub-Menu is used when you only need to add or modify Gateway configuration data. You can enter the Gateway configuration process at any point you wish, which is good for updates. Or you can run through the complete process, by starting at Line Options, and PF8-Forwarding through all the panels necessary to add Gateway to your existing configuration.

```
Gateway Menu                                LINCS C8.2 Central Control
Item      Description
1         Line Options
2         Link Profiles
3         Gateway Circuits
Select Item:                                Depress Enter
PF: 1-Menu 3-Panel_List                      10-Done
```

IPX Router Menu

The IPX Router configuration submenu allows you to configure LINCS to be an IPX router. Either Ethernet and/or Token Ring lines are supported for IPX routing. Any combination of Ethernet and Token Ring lines carrying IPX traffic can be routed. The example panels used in this document shows you both a Token Ring and an Ethernet line, which LINCS will route IPX traffic between.

```
IPX Router                                LINCS C8.2 Central Control
Item      Description
1         Line Options
2         IPX Options
Select Item:                                Depress Enter
PF: 1-Menu 3-Panel_List                      10-Done
```

LAT Host Menu

The LAT Host menu allows you to define ASCII hosts running DECnet/LAT on an Ethernet LAN connected to LINCS. You can enter the LAT Host configuration process at any point you wish, which is good for updates. Or you can run through the complete process, by starting at Line Options, and PF8-Forwarding through all the panels necessary to add the LAT Host to your existing configuration.

```
LAT Host Menu                                LINCS C8.2 Central Control
Item      Description
1         Line Options
2         ASCII Host Options
3         ASCII Session Profiles
4         LAT Host Classes
Select Item:                                Depress Enter
PF: 1-Menu 3-Panel_List                      10-Done
```

TELNET Host Menu

A TELNET Host is a host acting as a TELNET server, and connected to LINCS by a line running TCP/IP. The TELNET Host menu allows you to define or modify TELNET hosts. You can enter the TELNET Host configuration process at any point you wish, which is good for updates. Or you can run through the complete process, by starting at Line Options, and PF8-Forwarding through all the panels necessary to add a TELNET Host to your existing configuration.

```

TELNET Host Menu                                LINCS C8.2 Central Control
Item      Description
1         Line Options
2         ASCII Host Options
3         ASCII Session Profiles
4         IP Host Classes
Select Item:                                Depress Enter
PF: 1-Menu  3-Panel_List                      10-Done

```

TCP Print Server Menu

The TCP Print Server Sub-Menu is used when you only need to add or modify TCP Print Server configuration data. You can enter the TCP Print Server configuration process at any point you wish, which is good for updates. Or you can run through the complete process, by starting at Line Options, and PF8-Forwarding through all the panels necessary to add a new TCP Print Server to your existing configuration.

The print server that sends print requests to the LPD or TCP printer can be a LINCS print server, or a print server on a host defined to LINCS.

The printers which service Print Server requests must be a directly attached LINCS system printer, or a HAP (3270 Host Addressable Print) printer. Only coax terminals' HAP sessions are eligible, not ASCII terminals.

```

TCP Print Server                                LINCS C8.2 Central Control
Item      Description
1         Line Options
2         TCP/IP LAN Print Server Classes
Select Item:                                Depress Enter
PF: 1-Menu  3-Panel_List                      10-Done

```

Asynchronous Host Menu

The Asynchronous Host Sub-Menu is used when you only need to add or modify your Asynchronous Host's configuration data. You can enter the Asynchronous Host configuration process at any point you wish, which is good for updates. Or you can run through the complete process, by starting at ASCII Port Options, and PF8-Forwarding through all the panels necessary to add APPN to your existing configuration.

Asynchronous Host Menu		LINCS C8.2 Central Control	
Item	Description		
1	ASCII Port Options		
2	ASCII Host Options		
3	ASCII Session Profiles		
4	ASCII Host Classes		
Select Item:		Depress Enter	
PF: 1-Menu	3-Panel_List		10-Done

3270 Host Menu

The 3270 Host Sub-Menu is used when you only need to add or modify your 3270 Host configuration data. You can enter the 3270 Host configuration process at any point you wish, which is good for updates. Or you can run through the complete process, by starting at General Options, and PF8-Forwarding through all the panels necessary to add a new 3270 Host to your existing configuration.

3270 Host Menu		LINCS C8.2 Central Control	
Item	Description		
1	Line Options		
2	Link Profiles		
3	3270 Host Profiles		
4	3270 Host Circuits		
5	3270 Host Classes		
6	SNA Options		
Select Item:		Depress Enter	
PF: 1-Menu	3-Panel_List		10-Done

LU to PU Mapping Menu

Host LU to LAN PU mapping redirects Host PUs (LINCS 3270 Host Circuits) to PUs on a LAN, which is also termed PU Concentration. LUs on the host are mapped to LUs on downstream PUs, but all the LUs appear to be on the same LINCS PU to the host. The LU to PU Mapping submenu is where you can add or modify the way LUs are mapped to LINCS PUs. You can enter the LU to PU Mapping configuration process at any point you wish. Or you can run through the complete process, by starting at General Options.

```

LU to PU Mapping Menu                                LINCS C8.2 Central Control
Item          Description
1             Line Options
2             Link Profiles
3             3270 Host Profiles
4             3270 Host Circuits
5             3270 Host Classes
6             LU to PU Mapping Profiles
Select Item:                                     Depress Enter
PF: 1-Menu   3-Panel_List                         10-Done

```

IPX SNA Server Menu

The IPX SNA Server menu allows you to define access to 3270 hosts for IPX clients on the LAN. You can enter the IPX SNA Server configuration process at any point you wish, which is good for updates. Or you can run through the complete process, by starting at General Options, and PF8-Forwarding through all the panels necessary to add the IPX SNA Server to your existing configuration.

```

IPX SNA Server Menu                                LINCS C8.2 Central Control
Item          Description
1             Line Options
2             IPX Options
3             Link Profiles
4             3270 Host Profiles
5             3270 Host Circuits
6             3270 Host Classes
Select Item:                                     Depress Enter
PF: 1-Menu   3-Panel_List                         10-Done

```

TN3270 Server Menu

The TN3270 Server submenu allows you to define 3270 Hosts, and define LUs on each host to which TN3270 clients on a LAN can connect to. You can enter the TN3270 Server configuration process at any point you wish, which is good for updates. Or you can run through the complete process, by starting at General Options, and PF8-Forwarding through all the panels necessary to add the TN3270 Server to your existing configuration.

TN3270 Client Menu		LINCS C8.2 Central Control
Item	Description	
1	Line Options	
2	TCP/IP Options	
3	Link Profiles	
4	3270 Host Profiles	
5	3270 Host Circuits	
6	3270 Host Classes	
7	TN3270 Client Definitions	
Select Item:		
PF: 1-Menu	3-Panel_List	10-Done

Network Device Menu

The Network Device menu allows you to define devices on a LAN line that is attached to LINCS. You can enter the Network Device configuration process at any point you wish, which is good for updates. Or you can run through the complete process, by starting at Line Options, and PF8-Forwarding through all the panels necessary to add a Network Device to your existing configuration.

Network Device Menu		LINCS C8.2 Central Control
Item	Description	
1	Line Options	
2	TCP/IP Options	
3	Network Device Definitions	
4	Device Options	
5	Device Profiles	
6	Device Profile Assignments	
7	Printer Assignments	
Select Item:		
PF: 1-Menu	3-Panel_List	Depress Enter 10-Done

Direct Device Menu

Here you can define the coax and asynchronous displays and printers that are directly attached to this LINCS node. The Direct Device Sub-Menu is used when you only need to add or modify a directly attached device's configuration data. You can enter the direct device configuration process at any point you wish, which is good for updates. Or you can run through the complete process, by starting at Device Options, and PF8-Forwarding through all the panels necessary to add APPN to your existing configuration.

```

Direct Device Menu                               LINCS C8.2 Central Control
Item      Description
1         Device Options
2         Coax Multiplexing
3         Device Profiles
4         Device Profile Assignments
5         Printer Assignments
Select Item:                                     Depress Enter
PF: 1-Menu   3-Panel_List                         10-Done

```

Profiles

Please note that you are required to create and use profiles to assign common configuration components.

- Profiles are used to simplify configuration of like-type configuration components. They contain link, host, or device parameters, which you can assign to host circuits, gateway circuits, LU to PU mapping, or devices. If you will be creating several components of the same type, profiles prevent you from having to repeatedly type the same parameters. Profiles also make it easier to manage groups of like-typed components.
- There are several types of profiles, for different components. When a profile is defined, it is assigned a decimal number, and you may assign it a name. Either the number or the name may be used during configuration to specify which profile you wish to use.
- Each type of profile has a Default Profile, which is used to fill in some of the new profile's fields. This saves you time when creating several profiles of the same type.

Default Profile

- Each type of profile has a Default Profile associated with it. When you create (add) a profile, some of the fields will automatically be filled in with the default profile's values. Pressing PF9 also changes the fields to the values from the default profile, at any time.
- The Default Profile appears the same as any other profile with the exception of the PF keys. To create or modify the Default Profile, press PF3-Def_Dflt (Define Default) while in a profile panel. For example, while displaying any 3270 Host Profile, pressing PF3 will display the Default 3270 Host Profile.

Other PF key definitions are show below:

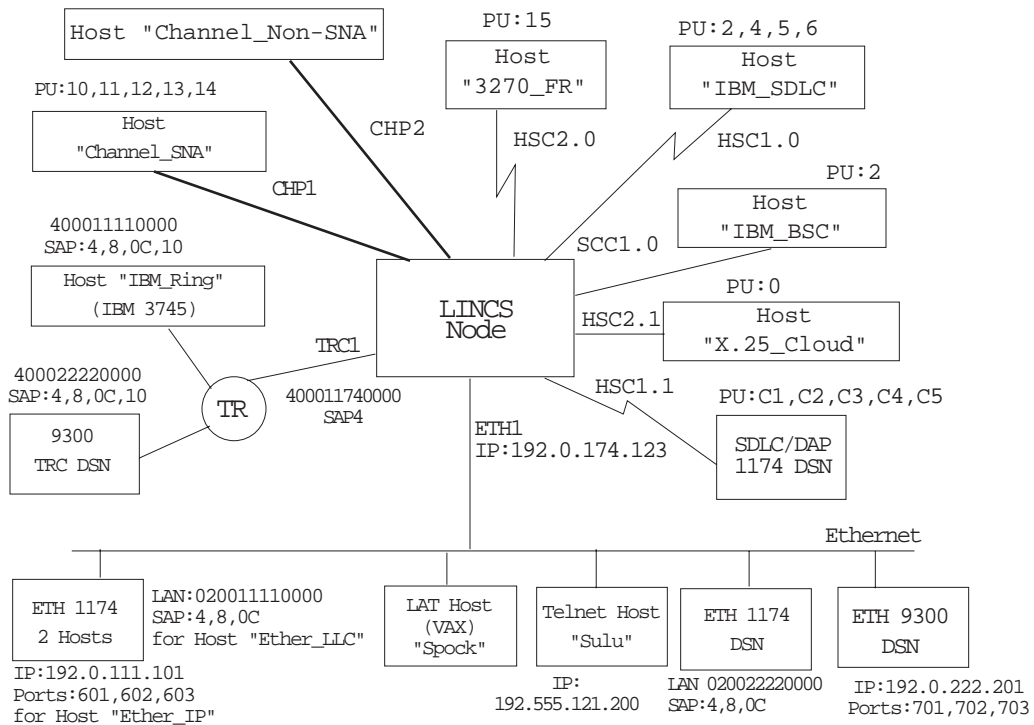
- PF4-Cpy_Prof - Copies the Default 3270 Host Profile to all other profiles of this type.
- PF5-Cpy_Fld - Copies the field occupied by the cursor to all other profiles of this type. This option is not available for the Central Site Control Facility.

Profile Types

Profile Type	Used in configuration of
3270 Link Profiles	Gateway Circuits LU to PU Mapped Gateway Circuits 3270 Host Circuits APPN Dynamic Connections APPN Predefined Circuits
3270 Host Profiles	3270 Hosts Circuits
LU to PU Mapping Profiles	LU to PU Mapped Gateway Circuits
ASCII Session Profiles	IP Hosts LAT Hosts ASCII Hosts
Device Profiles	devices

Sample Network for Configuration

This is the Sample Network, on which all example Configuration panels are based, excluding the APPN panels.



Gateway Circuits in the Sample Network

Gateway Circuit	Host Line	Host Address	Local SAP	DSN Line	DSN Address	Remote SAP
00	TRC1	LAN: 400011110000	04	HSC1.1	PU: C1	
01	TRC1	LAN: 400011110000	08	ETH1	LAN: 020022220000	04
02	TRC1	LAN: 400011110000	0C	ETH1	IP: 192.0.222.201	
03	CHP1	PU: 10		TRC1	LAN: 400022220000	04
04	CHP1	PU: 11		HSC1.1	PU: C2	
05	CHP1	PU: 12		ETH1	LAN: 020022220000	08
06	CHP1	PU: 13		ETH1	IP: 192.0.222.201	
07	HSC1.0	PU: 02		TRC1	LAN: 400022220000	08
08	HSC1.0	PU: 04		HSC1.1	PU: C3	
09	HSC1.0	PU: 05		ETH1	LAN: 020022220000	0C
10	HSC1.0	PU: 06		ETH1	IP: 192.0.222.201	
11	ETH1	LAN: 020011110000	04	TRC1	LAN: 400022220000	0C
12	ETH1	LAN: 020011110000	08	HSC1.1	PU: C4	
13	ETH1	IP: 192.0.111.101		TRC1	LAN: 400022220000	10
14	ETH1	IP: 192.0.111.101		HSC1.1	PU: C5	
15	HSC2.0	PU: 15	04	ETH1	LAN: 020022220000	04
16	HSC2.1	PU: 16		ETH1	LAN: 020022220000	04

Host Circuits in the Sample Network

Host	Host Name	Host Line	Host Address	Local SAP
A	IBM_RING	TRC1	LAN: 4000 1111 0000	10
B	CHANNEL_SNA	CHP1	PU: 14	
C	CHANNEL_NON_SNA	CHP2	LU: 20 - 3F	
D	IBM_SDLC	HSC1	PU: 06	
E	IBM_BSC	SCC1.1	PU: 02	
F	X.25_CLOUD	SCC2.0	PU: 00	
G	ETHER_LLC	ETH1	LAN: 0200 1111 0000	0C
H	ETHER_IP	ETH1	IP 192.0.111.101	
I	3270_FR	HSC2.0	PU: 15	

2. General Options

Proceeding forward through the configuration panels from the Product Description panels, you next encounter the General Options panels.

General Options Panel

General Options	LINCS C8.2 Central Control
Node Name:	_____
Product Assistance Data:	_____
Unique Machine Identifier:	_____
Supervisor Password:	PASSWORD
Machine Check Options:	Dump and IML
LCD Message when all Comm Links Okay:	1174-25S
3270 LU Number Display:	Hex
Central Site Customization:	Enable
PF: 1-Menu	7-Back 8-Forw 9-Default 10-Done

Node Name

This field defines a unique name for this LINCS node. It is used as the Host Name by the LPD protocol in a print request; it is the node requesting the print.

If Node Name is left blank, it will default to LINCS.

Product Assistance Data

This field may contain up to 48 characters. You can use it to record the name and telephone number of the person to contact for Customer Service.

Unique Machine Identifier

This field is used to identify the LINCS node to Netview via REQMS (Request Maintenance Statistics), Alert, and VPD (Vital Product Data). It is recommended that you use the hardware model's serial number as the unique machine identifier. If the serial number is not available or you prefer not to use it, you may enter your own unique 7 character machine identifier. Valid characters include A-Z, 0-9, or spaces.

Supervisor Password

This field contains up to eight alphanumeric characters. It is used for supervisor functions in LINCS Central Control, such as executing the Configuration Utility and performing Media Management functions.

When the LINCS has been IMLed with a default configuration (such as the first time the LINCS is IMLed, or if the Config key is pressed at state 500), there will not be a supervisor password defined. You may also choose not to define a password. If no password is in effect, ANY user may enter the password-protected utilities. Using a password is recommended.

If the Configuration utility is entered for display purposes only (i.e., not entered for update), then the supervisor password will not be displayed. If entered in update mode, then the password will be displayed, and can be updated.

Machine Check Options

This field determines what LINCS will do if a machine check condition occurs. Options are:

- Dump and No IML (default) - Dump data will be written to the disk, but LINCS will not re-IML
- Dump and IML - Dump data will be written to the disk, and then LINCS will re-IML
- No Dump and No IML - LINCS takes no action
- No Dump and IML - LINCS simply re-IMLs

The disk selected to dump to will be A, B, C, or D, whichever is found first. We recommend the hard disk be used for dumps instead of floppy, due to the size of the dump and speed of the hard drive. You can copy the dump file to diskette(s) using the Copy Data Objects utility on the Media Management menu in Central Control Mode.

LCD Message When All Comm Links Okay

This message displays when the SCON-2XL is powered up and all configured communications interfaces are communicating as they should. The default value is the model number.

3270 LU Number Display

This field has the following toggle options:

- Hex - This is the default option. If selected, 3270 LU numbers will be displayed in hexadecimal format throughout all Central Control Utilities.
- Decimal - 3270 LU numbers will be displayed in decimal format throughout all Central Control Utilities. This may be more convenient to use when comparing your configuration to the host gen.

Central Site Customization

Options are: Disable, Enable

Enabling this option allows you to use the Central Site Customization Utility to define library members. 512 KB of Feature memory is required for this feature.

If you plan to electronically distribute Library members using Central Site Change Management, then you must also select a host on the SNA Options panel.

Central Site Customization can also be used to configure and store multiple LINCS configurations for a single machine. This is useful when reconfiguring for new users or hardware.

Central Site Customization is always enabled when you IML with the Default Configuration (at state 500 on the LCD panel).

Language Options

Language Options		LINCS C8.2 Central Control
	PRIMARY	SECONDARY
Language:	(01) U.S. English	Disable
Translate Tables:		Default Default
Numeric Delimiter:	Period	Period
Country Extended Code Page:	Enable	
PF: 1-Menu	7-Back	8-Forw
		9-Default
		10-Done

This panel allows you to choose which languages and language formats you can assign in subsequent panels.

Language

The Primary and Secondary Language fields toggle through all the languages listed in the Languages Table. The default Primary Language is (01) US English. The default Secondary Language is Disabled.

To use a Secondary language, you should also:

- Use the 3270 Host Profile panels to select the Primary or Secondary language as the default language for each host.
- Use the Device Profile panel to select a default keyboard table language.
- Optionally use the Keyboard Definition Utility (KDU) or ASCII Definition Utility (ADU) to set up keys (in addition to ExSel + L) for selecting the Primary and Secondary languages, or for toggling between the languages. The KDU Key Acronyms table in the Central Control contains the codes for setting up these keys.

The Primary and Secondary languages can be configured to be the same language, enabling you to define twice the number of keys on the Keyboard Definition Utility (KDU) or ASCII Definition Utility (ADU) layouts. (The layouts can be modified as the Primary language, and also modified as the Secondary language.

See the following topics for more information on:

- ASCII considerations
- Software Requirements
- Languages Table
- Using Secondary Languages Translate Tables

Translate Tables

For the Primary and Secondary languages you specified, use this field to enter the name of the 3270 translate tables to be created via the Translate Tables Utility (TTU). The options are:

- Default - Standard translate table for the configured language will be used.

- User-Defined 1
- User-Defined 2

If your choice for Secondary Language was **Disabled**, the Translate Table option for Secondary Language must be **Default**.

Use of the Translate Table Utility to create user-defined tables may have an effect on the functioning of the ASCII Definition Utility and on ASCII character translation. If you plan to create User-Defined Translate Tables, and your network includes ASCII, refer to Effects on ASCII for additional information.

Numeric Delimiter

Toggle to select the numeric delimiter to be used in Numeric Lock field. The choices are: **PERIOD** or **COMMA**.

Country Extended Code Page (CECP)

Toggle to **Enable** or **Disable** Country Extended Code Page (CECP) support. A code page contains the graphic characters that support a language. The characters are assigned to code point positions on a country code page. Different languages use different characters, different numbers of characters, and different arrangements of code points on their country code page. Most country code pages contain unallocated code points.

A Country Extended Code Page uses these unallocated code points to provide additional characters. The unallocated code points are assigned characters from the CECP universal character set (Character Set 697), which contains 190 characters and a space.

Once CECP is enabled, you can use the Keyboard Definition Utility (KDU) to assign to your keyboards any character from this universal character set.

The CECP supported languages are marked in the Languages Table with a plus sign.

Unless you plan carefully, use of CECP can have unexpected effects on the data in your network. You should consider the following before choosing to enable CECP:

- Whether the devices in your network support CECP
- Whether your host's applications can process CECP data
- Whether filters in host applications could reject or erroneously translate CECP data
- Whether the host is using previously undefined code points from the original country code page

ASCII considerations

Certain languages (identified in the Languages Table) are available for use with ASCII hosts and devices. Devices that connect to an ASCII host use the language assigned to that host on the ASCII Session Profile panel.

The ADU contains Primary and Secondary language translate tables for ASCII devices and hosts if further definition is necessary.

Software Requirements

The following languages have their own character generators. To correctly display all the characters in a particular language, that language's character generator must be installed in the display station. Languages followed by an asterisk (*) are supported by both 3270 hosts and ASCII hosts. Languages that are not followed by an asterisk are supported only by 3270 hosts.

All other languages use the Base character generator. If two languages are configured that have different character generators, one of the languages may not display characters correctly. For example, if German and Icelandic are configured and the terminal has only a Base character generator, the Icelandic characters that differ from the characters on the Base character generator will not display correctly.

Languages Table

The Languages Table shows the options available for primary and secondary. There are special Latin options for Greek, Cyrillic, and Thai.

Language	Language Code	Language	Language Code
US English	01*+	French AZERTY (105-character)	30*+
US English (ASCII)	02	US ASCII International	33
Austrian/German	03*+	US ASCII-8	34
Belgian	04*	Cyrillic	35
Brazilian	05	Greek	36
French Canadian	06*	Icelandic	37
Danish	07*+	ROECE	38
Finnish	09*+	Turkish	39
International	14	Yugoslavic	40
Italian	15*+	New Swiss French	41*+
Japanese English	16	New Swiss German	42*+
Spanish	19*+	New Belgian	43+
Spanish Speaking	21*+	Thai	46
English (UK)	22*+	Netherlands	47*+
Norwegian	23*+	Belgian French	60+
Swedish	24*+	Latin/Cyrillic	61
EBCDIC (WT)	25	Latin/Greek	62
Portuguese	28+	Latin/Thai	63
Canadian (Bilingual)	29+	Old Portuguese	64

* ASCII version included for use with ASCII hosts and devices.

+ Country Extended Code Page (CECP) supported Greek, Cyrillic, and Thai

If you select Greek, Cyrillic, or Thai as either language during configuration, no language toggling is possible unless the Keyboard Definition Utility (KDU) is used during configuration to add a language toggle key.

If you select Greek as the primary language, you can select Latin/Greek as the secondary language. If you select Cyrillic as the primary language, you can select Latin/Cyrillic as the secondary language. If you select Thai as the primary language, you can select Latin/Thai as

the secondary language. Each of these secondary languages, Latin/Greek, Latin/Cyrillic, and Latin/Thai, is a special version of Latin that is specific to the primary language, Greek, Cyrillic, and Thai.

You do not have to select Latin as the secondary language for Greek, Cyrillic, or Thai. You can select any of the supported languages as a secondary language, or you can select no secondary language.

Using Secondary Languages

If you select a Secondary language, the ExSel + L key combination is enabled as the language toggle keys that let you switch between the two languages. If no secondary language is chosen, the key combination is inactive. You can also use the KDU or ADU to define other keys for switching between languages.

The status line displays PR for primary language or SE for secondary language at location 36. If the Dual Language feature has not been configured, PR or SE is not displayed.

See the following for additional information:

- Switching Sessions and Dual Languages
- Examples of Switching Sessions
- Printing and Languages

Switching Sessions and Dual Languages

To switch from one configured keyboard language to the other, you can either press the Language Toggle key (ExSel then L for either 3270 or ASCII displays or ESC then Control + F for ASCII displays only) or you can press the Primary key (to switch from the secondary language to the primary language) or the Secondary key (to switch from the primary language to the secondary language). If you press the Primary key from the primary language or the Secondary key from the secondary language, nothing happens. Each time you change languages, the keyboard layout switches from one configured language to the other. When the keyboard layout switches between Primary and Secondary languages, the ‘up’, ‘down’, and ‘alt shift’ states remain the same.

- **Primary Key** For ASCII keyboards, use the Escape, then Control + D key sequence for the Primary key.
- **Secondary Key** For ASCII keyboards, use the Escape, then Control + E key sequence for the Secondary key.
- **For coax keyboards**, use the Keyboard Definition Utility (KDU) to configure a Primary or Secondary key.

Examples of Switching Sessions

When you switch between sessions, the keyboard layout will change to the layout for the language of the new session. The code page used for the new session always corresponds to the default language for the host. The following two examples illustrate what happens when you switch sessions.

Example 1: Switching Sessions, Keyboard Layouts, and Code Pages

1. German is the current keyboard layout.
2. You switch to Session 2. The host for Session 2 has Spanish as the default language.
3. The new code page and keyboard layout are Spanish.

Example 2: Switching Sessions and Code Pages, but not Keyboard Layouts

1. Session 1 is active and its host is configured for German as the default language. Spanish is the current keyboard layout.
2. You switch to Session 2. The host for Session 2 has Spanish as the default language.
3. The new code page is Spanish and the keyboard layout remains Spanish.

Printing and Languages

There are two types of prints, LU1 (SCS) prints and LU3 prints. When an LU3 print is sent to a printer, the printer uses the code page corresponding to the default language for the host associated with the current printer session. An LU1 (SCS) print is not affected by the Dual Language feature because the printer performs the translation for this type of print. Local prints from a DFT are LU1 prints. The following languages have their own character generators, and to correctly print all the characters in the language, you must install the character generator for the language. Languages followed by an asterisk (*) are supported by both 3270 hosts and ASCII hosts. Languages that are not followed by an asterisk are supported only by 3270 hosts:

Cyrillic	Greek
Icelandic	ROECE Latin
Spanish*	Thai
Turkish	Yugoslav

All other languages use the Base character generator.

TTU effects on ASCII

Because translate tables present during configuration are referenced by the ASCII Definition Utility, use of the Translate Table Utility may have effects on the ASCII Definition Utility and on ASCII character translation. If you are using both utilities, it is important to follow this sequence to avoid unexpected results:

1. Use the Language Options panel to select the Primary and Secondary languages, and to specify the translate tables that will be used with each language.
2. Use the Translate Table Utility.
3. Use the ASCII Definition Utility. The ADU will check the Translate Tables selection from the General Options panel and will use the appropriate tables.

Note: If the Translate Table Utility and the ASCII Definition Utility are used, and then the primary and/or secondary languages are changed, it will be necessary to redo the ADU for the changed languages.

3. Line Options

A Line Options panel is displayed for each communication board assigned on the Product Description panel. Each board supports different protocols. During configuration, you select the protocol for each line on a particular board. The board types and the protocols they support are listed below:

- **ESC** - ESCON/SNA, ESCON/CTC, and ESCON/Non-SNA
- **CHP** - Channel/SNA, Channel/CTC, and Channel/Non-SNA
- **FET** - LLC, TCP/IP, IPX, IP/Bridge, LAT or Coax Ethernet Bridge
- **ETH** - LLC, TCP/IP, IPX, IP/Bridge, LAT or Coax Ethernet Bridge
- **HSC** - SDLC, SDLC/DAP, Frame Relay, X.25
- **SCC** - SDLC, SDLC/DAP, BSC, X.25
- **TRC** - LLC, TCP/IP or IPX

As you define lines, keep in mind that there are Maximum Connection Limitations for LINC/S. If the number of assigned communication boards is decreased in Product Description, then the last line previously assigned for that board type is deleted. You must update all other panels that reference the deleted line.

Maximum Connection Limitations

While defining Line Options, you should keep the following connection limitations in mind. A warning message will be displayed if these limitations are exceeded.

Max Connections Per Board Type

CONNECTION TYPE	ESC	ESX	CHP	FET	ETH	HSC	SCC	TRC	Max Total
Gateway Circuits (including LU to PU mapped)	256	256	256	250	250	250	140 (1)	250	1024
Host Circuits	16	64	16	16	16	16	16	16	16/128(4)
APPN Circuits	256	256	256	250	250	250	0	250	1024
LAT & TELNET Host Connections	NA	NA	NA	256(3)	128(3)	NA	NA	128(3)	256
TCP Print Server; LPD Connections	NA	NA	NA	32(3)	32(3)	NA	NA	32(3)	256
Network Devices (LAT/TELNET/LANSYS/LPR/TCP Printers)	NA	NA	NA	128	32	NA	NA	32	256
TN3270 Client Support	NA	NA	NA	1024	250	NA	NA	250	4048
Max Total Connections Per Board	256	256	256	1024(2)	250(2)	250	156	250(2)	

(1) A maximum of 16 DAP gateway circuits are supported by the SCC board. All 16 may be configured on one line, or they can be distributed in any manner among both lines.

(2) Note that when determining the total connections on a board, the Network Device connections are multiplied by a factor of 6. For example, if you have 20 gateway circuits and 32 incoming connections, this would be treated as a total of $20+(32*6)=148$ total connections. The factor is used because Network Device connections take more processing power than the other types of connections.

(3) The maximum connections per board value includes connections for TCP Print Server, LPD, LAT Host and TELNET Host connections combined is 128.

Line Options/ESC (or ESX)

The Line Options panel for the ESC and ESX card is used to define one CU that will be used to communicate to a host CPU. Each CU defined, must have a corresponding CNTLUNIT definition in the host gen. By default, one Line Options panel (one CU) is offered for each ESC/ESX card installed. Depending on the hardware model (and the number of Extended CU FADs installed on the platform), additional CUs may be defined to share the same ESC interface. Additional Line Options panels may be created by pressing the PF4 key. Depending on the model, up to 16 Line Options panels may be defined for each ESC card, and up to 64 Line Options panels may be defined for each ESX card. If a Line Options panel is created by mistake, you can use the PF5 key to delete it or set the Protocol option to 'None'. Protocols can be mixed or matched on individual ESC cards, as long as they all use the Channel Path Filter, or all do not use the Channel Path Filter.

The Line Protocol field on the ESC line panel toggles between None, SNA, SNA with Channel Path Filter, Non-SNA, Non-SNA with Channel Path Filter, CNC, or CNC with Channel Path Filter. When used in the SCON products, the protocol options are more limited. If 'None' is selected, the CU defined by this Line Options panel will not be used by LINCS.

Examples of the Line Options panels, set for various protocols follow:

SNA

```
Line Options/ESC1                                LINC8 C8.2 Central Control
  CU Index (CUADD):                               0
  Protocol:                                        SNA
  Device Low (Lowest IODEVICE UNITADD):          00
  Device High (Highest IODEVICE UNITADD):        00

  Attention Delay:                                10

PF: 1-Menu          4-Add 5-Delete    7-Back 8-Forw 9-Default 10-Done
```

SNA with Channel Path Filter

```

Line Options/ESCL                               LINCS C8.2 Central Control

  CU Index:                                     0
  Protocol:                                     SNA with Channel Path Filter
  Device Low (Lowest IODEVICE UNITADD):        00
  Device High (Highest IODEVICE UNITADD):      05

CHANNEL PATH FILTER
  LPAR Number (Partition Number):             1
  Source Link Address:                         FF
  CU Number (CUADD):                           0

Attention Delay:                               10

PF: 1-Menu          4-Add 5-Delete    7-Back 8-Forw 9-Default 10-Done

```

Non-SNA

```

Line Options/ESCL                               LINCS C8.2 Central Control

  CU Index (CUADD):                             0
  Protocol:                                     Non-SNA
  Device Low (Lowest IODEVICE UNITADD):        00
  Device High (Highest IODEVICE UNITADD):      1F

      (Hot Session 00 corresponds           0       1       2       3
        to Device Low) —> 01234567890123456789012345678901
                               _____

Hot Sessions MOD Size (0=Disabled):            00000000000000000000000000000000
Shared Sessions:                              00000000000000000000000000000000

PF: 1-Menu          4-Add 5-Delete    7-Back 8-Forw 9-Default 10-Done

```

Non-SNA with Channel Path Filter

Line Options/ESC1 LINCS C8.2 Central Control

CU Index: 0
Protocol: Non-SNA with Channel Path Filter

Device Low (Lowest IODEVICE UNITADD): 00
Device High (Highest IODEVICE UNITADD): 0F

CHANNEL PATH FILTER

LPAR Number (Partition Number): 6
Source Link Address: FF
CU Number (CUADD): 0

HOT SESSION SELECTION MATRIX

(Hot Session 00 corresponds to Device Low) —> 0 1 2 3
0123456789012345678901

Hot Sessions MOD Size (0=Disabled): 00000000000000000000000000000000
Shared Sessions: 00
PF: 1-Menu 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done

CNC

Line Options/ESC1 LINCS C8.2 Central Control

CU Index (CUADD): 0
Protocol: CNC
Device Low (Lowest IODEVICE UNITADD): 00
Device High (Highest IODEVICE UNITADD): 01

Blocking Delay(msec): 40
Response Length: 0500

PF: 1-Menu 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done

CNC with Channel Path Filter

```

Line Options/ESC1                                LINCS C8.2 Central Control

CU Index:                                         0

Protocol:                                         CNC with Channel Path Filter

Device Low (Lowest IODEVICE UNITADD):           00
Device High (Highest IODEVICE UNITADD):         05
CHANNEL PATH FILTER
  LPAR Number (Partition Number):               3
  Source Link Address:                           FF
  CU Number (CUADD):                             0

Blocking Delay(msec):                            40
Response Length:                                 0500

PF: 1-Menu          4-Add 5-Delete    7-Back 8-Forw 9-Default 10-Done

```

CU Index

The CU Index is a number used internally by LINCS to reference this CU definition. Each CU Index will be a unique number among the CU definitions for each ESC card. If (CUADD) is indicated, then the number selected on this panel must also correspond to the CUADD value found in the CNTLUNIT macro associated with this CU in the host gen. When the protocol selected does not include the Channel Path Filter, each CU defined must have a unique CUADD value in the host gen (duplicates are not allowed). It is generally recommended that protocols that include the Channel Path Filter be used.

Device Low (Channel Address)

For SNA and SNA with Channel Path Filter:

Starting Channel address LINCS will occupy on the channel for this CU.

The address can be any hexadecimal number from **x'00'** to **x'FF'**. You should obtain the appropriate value from your system programmer.

For CNC:

This is the first address of one or more address pairs that correspond to the LAN adapters configured for the IP Channel Bridge feature. Each LAN adapter that is to be used with the IP Channel Bridge feature requires one consecutive pair of addresses. The Lower Limit Channel Address must be an even address when configuring CNC.

For Non-SNA:

The channel address corresponds to the first physical session address for a non-SNA session configured with LINCS. Valid values are any hexadecimal number **x'00'** through **x'FF'**.

Device High (Channel Address)

For SNA:

This is the last channel address LINCS will occupy on the channel for this CU.

The **Device High** must be a value such that (Device Low + Number of Host Circuits + Number of Gateway Circuits - 1) is less than or equal to hexadecimal **x'FF'**, which is the highest channel address available on the channel.

You should make a record of the channel addresses allocated on the **Channel/SNA** panel. They will be used again to specify which channel addresses will be assigned to which host circuits and gateway circuits on the **3270 Host Circuits and Gateway Circuits** panels.

For CNC:

This is the last channel address LINCS will occupy on the channel through this CU. Since each LAN adapter associated with the IP Channel Bridge feature requires a single consecutive pair of addresses, the Device High should be an odd-valued number (01, 03, 05, etc.).

For Non-SNA:

The Device High corresponds to the last device session channel address. (Device High – Device Low + 1) must be less than or equal to **x'20'** hex (32 decimal or 20 hex is the maximum number of non-SNA device sessions that can be configured, per CU).

The Device High must also be less than or equal to **x'FF'**. If more than 32 non-SNA device sessions are required, an additional CU must be defined for each group of 32 non-SNA device sessions.

LPAR Number

This is the number assigned to the LPAR that would be found in the RESOURCE macro of the host gen.

Source Link Address

This value corresponds to the port number on the ESCON switch that connects back to the host CPU, when an ESCON switch is being used. If no ESCON switch is being used, then this value should be left as 'FF' or can be set to '01' (either value should work).

CU Number

This is the CUADD value that has been defined in the host gen, in the CNTLUNIT macro corresponding to this CU.

Attention Delay

The Attention Delay is an SNA option that allows the control unit to queue inbound data for a specified period of time before presenting an attention status to request a read channel program. The option gives the control unit the capability of queuing several read requests during the delay period and then request one read channel program to transfer all the data, thereby reducing the number of unsolicited attention status's presented to the host.

Attention Delay times are in the range of **10** to **99** milliseconds. The default delay time is **10** milliseconds.

This function is supported only for SNA Host Circuit PUs. It is not supported for Gateway Circuit PUs.

Hot Sessions Mod Size

This option determines whether the defined session is to function as a console that always appears to the host to be powered on (console function will never roll to an alternate). Only sessions defined to be Non-SNA consoles should be considered for this option. VTAM devices, should always be defined with this option disabled. This feature is displayed in the form of a matrix, with each entry corresponding to a Non-SNA console session. This option always displays 32 sessions, regardless of the number of sessions defined by the Device Low and Device High parameters. Entries corresponding to sessions not defined will be ignored. Numeric values allowed are:

- 0 = Hot Session is disabled
- 1 = Mod 2 with EAB support
- 2 = Mod 2 with EAB support
- 3 = Mod 3 with EAB support
- 4 = Mod 4 with EAB support
- 5 = Mod 5 with EAB support
- 6 = Mod 2 with no EAB support
- 7 = Mod 3 with no EAB support
- 8 = Mod 4 with no EAB support
- 9 = Mod 2 with EAB support

Shared Sessions

Like the previous option, this one applies only to sessions defined to be Non-SNA consoles, and should never be enabled for VTAM sessions. When defined as shared, a session may be used by multiple TN3270 Users, with each User able to enter commands into the console session. The information entered on the command line is visible to only the user entering the command, but the rest of the screen including the response to an entered command will be made visible to all Users sharing the session. Entering a value of 1 into the matrix enables that session to be shared. Leaving the value set to 0, disables session sharing for that particular session. This feature applies only to TN3270 users.

Blocking Delay(msec)

The Blocking Delay is the maximum period of time that LINCS will wait, once it has received inbound traffic, before it will send all data inbound. During this time interval, LINCS will collect inbound traffic and buffer it until one of two things occurs: 1) the Blocking Delay timer expires, 2) 32 KB of data has been accumulated (the maximum amount of data that can be sent inbound at one time). The default value that LINCS uses is 40 msec.

Maximum Response Length Bytes

The value of this parameter determines how LINCS will handle inbound frames. Frames smaller than the indicated value will be forwarded to the host immediately, while larger frames will be queued and sent according to the rules for the Blocking Delay. The default value used by LINCS is 500 bytes.

Line Options/CHP

The Line Protocol field on a CHP line panel toggles between None, Channel/SNA , Channel/CTC, and Channel/Non-SNA. If None is selected, the board will not be used by LINCS. You can either remove the board, or leave it in the machine.

Important: For channel lines, be sure to read the UCW/IOCP Definitions information.

Examples of SNA, CTC, and Non-SNA panels follow:

SNA

```

Line Options/CHP1                                     LINCS C8.2 Central Control
Line Protocol:                                       Channel/SNA
Lower Limit Channel Address:                         10
Upper Limit Channel Address:                         14
Command Retry Support:                               Disable
Data Transfer Mode:                                 High-Speed Transfer
Channel Burst Size:                                  32
Attention Delay (msec):                              10
PF: 1-Menu                                           7-Back    8-Forw   9-Default 10-Done
    
```

CTC

```

Line Options/CHP2                                     LINCS C8.2 Central Control
Line Protocol:                                       Channel/CTC
Lower Limit Channel Address:                         00
Upper Limit Channel Address:                         01
Data Transfer Mode:                                  Data Streaming
Blocking Delay(msec):                                32
Maximum Response Length Bytes:                       500
PF: 1-Menu                                           7-Back    8-Forw   9-Default 10-Done
    
```

Non-SNA

Line Options/CHP2	LINCS C8.2 Central Control		
Line Protocol:	Channel/Non-SNA		
Lower Limit Channel Address:	20		
Upper Limit Channel Address:	3F		
Command Retry Support:	Disable		
Data Transfer Mode:	High-Speed Transfer		
Channel Burst Size:	32		
PF: 1-Menu	7-Back	8-Forw	9-Default 10-Done

Lower Limit Channel Address

For SNA:

Starting Channel address LINCS will occupy on the channel.

The address can be any hexadecimal number from **x'00'** to **x'FF'**. You should obtain the appropriate value from your system programmer.

For CTC:

This is the first address of one or more address pairs that correspond to the LAN adapters configured for the IP Channel Bridge feature. Each LAN adapter that is to be used with the IP Channel Bridge feature requires one consecutive pair of addresses. The Lower Limit Channel Address must be an even address when configuring CTC.

For Non-SNA:

The channel address corresponds to the first physical session address for a non-SNA session configured with LINCS. Valid values are any hexadecimal number **x'00'** through **x'FF'**.

Upper Limit Channel Address

For SNA:

This is the last channel address LINCS will occupy on the channel.

The **Upper Limit Channel Address** must be a value such that (Lower Limit Channel Address + Number of Host Circuits + Number of Gateway Circuits - 1) is less than or equal to hexadecimal **x'FF'**, which is the highest channel address available on the channel.

You should make a record of the channel addresses allocated on the **Channel/SNA** panel. They will be used again to specify which channel addresses will be assigned to which host circuits and gateway circuits on the **3270 Host Circuits and Gateway Circuits** panels.

For CTC:

This is the last channel address LINCS will occupy on the channel through this channel interface. Since each LAN adapter associated with the IP Channel Bridge feature requires a single consecutive pair of addresses, the Upper Limit Channel Address should be an odd-valued number (01, 03, 05, etc.).

For Non-SNA:

The Upper Limit Channel Address corresponds to the last device session channel address. (Upper Limit Channel Address - Lower Limit Channel Address + 1) must be less than or equal to **x'80'** hex (128 decimal or 80 hex is the maximum number of non-SNA device sessions that can be configured).

The Upper Limit Channel Address must also be less than or equal to **x'FF'**. If more than 32 non-SNA device sessions are configured, an Extended Non-SNA Device FAD must be enabled for each group of 32 non-SNA device sessions above the base 32 device sessions.

Command Retry Support

Allows LINCS to request the channel to retry a command when certain error conditions (outbound data parity errors or datastreaming errors) are detected on the channel. The option should be enabled only if the host can support it (the host system programmer can give you this information), and it must be enabled if Data Streaming is enabled. All block MUX channels support command retry, but some byte MUX channels do not.

Toggle to **ENABLE** or **DISABLE** (default) this feature.

Data Transfer Mode

The host system programmer can tell you which Data Transfer mode to use. Toggle to select one of the following:

- High Speed Transfer
- Normal Data Transfer (Interlocked Single Tag)
- Data Streaming (Channel/SNA only)

Data Streaming is for Channel/SNA and Channel/CTC only. It offers higher data transfer rate that is independent of channel cable length, and that can operate over a channel cable length of up to 400 feet (122m). Data Streaming requires:

- The LINCS node be connected to a channel that supports it.
- Command Retry Support must be enabled (on this panel).

Channel Burst Size

Burst size refers to the number of data bytes that are transferred on a byte multiplexer channel in a single burst. Press the **Enter** key to toggle among the following options: **2, 4, 8, 16, 32 (default), 64, 256, and 512** bytes per burst.

Channel Burst size selections are **not** applicable when operating on a **block multiplexer channel**.

Attention Delay

The Attention Delay is a Channel/SNA option that allows the control unit to queue inbound data for a specified period of time before presenting an attention status to request a read channel program. The option gives the control unit the capability of queuing several read requests during the delay period and then request one read channel program to transfer all the data, thereby reducing the number of unsolicited attention status's presented to the host.

Attention Delay times are in the range of **10** to **99** milliseconds. The default delay time is **10** milliseconds.

This function is supported only for SNA Host Circuit PUs. It is not supported for Gateway Circuit PUs.

Blocking Delay(msec)

The Blocking Delay is the maximum period of time that LINCS will wait, once it has received inbound traffic, before it will send all data inbound. During this time interval, LINCS will collect inbound traffic and buffer it until one of two things occurs: 1) the Blocking Delay timer expires, 2) 32 KB of data has been accumulated (the maximum amount of data that can be sent inbound at one time). The default value that LINCS uses is 40 msec.

Maximum Response Length Bytes

The value of this parameter determines how LINCS will handle inbound frames. Frames smaller than the indicated value will be forwarded to the host immediately, while larger frames will be queued and sent according to the rules for the Blocking Delay. The default value used by LINCS is 500 bytes.

IMPORTANT - UCW/IOCP Definitions

To implement Local Channel Communications in the network, you need to set up Unit Control Word (UCW)/Input Output Control Program (IOCP) definitions at the host. The recommended definitions are the following:

No. Of Configured Channel Addresses	Channel Type	370 Mode	370 XA Mode
One Channel Address	Byte	Non-Shared UCW	Non-shared UCWIOCP Shared = N
	Block	Non-shared UCW	Non-shared UCWIOCP shared = N
Two or more Channel addresses	Byte	Shared UCW	Non-shared UCWIOCP shared = N
	Block	Shared UCW	Shared UCWIOCP shared = YB

Where a Shared UCW is recommended, an Unshared UCW will work, but performance on the channel will be degraded. IOCP limits the number of channel addresses that can be defined as Shared to 128 in a single CNTLUNIT macro (therefore requiring selection of Unshared for certain configurations).

For more information, see *Steps in defining UCW/IOCP definitions*.

Steps in defining UCW/IOCP Definitions

When you set up the UCP/IOCP definition for a Local connection, you should specify only one UCW/IOCP definition for each channel interface. For example, if you are installing LINCS with multiple channel addresses configured, do not define a separate UCW/IOCP definition for each channel address; specify only one definition per channel interface. Two UCW/IOCP definitions would be required for a dual channel LINCS node; one per channel interface. Specifying multiple UCW/IOCP definitions for a single channel interface will cause X-CLOCK hangs.

The only exception to the above statement is when configuring for Extended Non-SNA support. With Extended Non-SNA, a separate UCW/IOCP definition must be defined for each group of 32 addresses. The first UCW/IOCP definition must be defined to handle the first 32 addresses. A subsequent UCW/IOCP definition must be defined for each additional group of 32 addresses.

For example, if configuring 80 non-SNA device sessions, the first 32 addresses must always be defined on the first UCW/IOCP definition, second 32 in the second definition, and the last 16 in the third definition.

Care should be taken to insure that all addresses defined within the LINCS configuration, that will have real devices associated with them, also have a corresponding definition within the host gen. Failure to do so, may result in LINCS generating an Asynchronous Status for a device address not defined within the host gen. This may cause errors and poor response times.

It is also not a good idea to have addresses defined in the host gen, that do not have corresponding configuration on the LINCS platform. When the host attempts to activate the non-existent device session, an error will be reported back to the host.

Line Options/HSC

Valid protocol selections for HSC lines are:

- None (default), which disables that line.
- SDLC - half- and full-duplex
- SDLC/DAP - half- and full-duplex
- Frame Relay
- X.25

The HSC boards have up to four available lines per board. They require communication cables, consisting of an HSC Adapter cable and PLIM.

HSC Cabling

PLIM stands for Physical Layer Interface Module. It is the part of the cabling for the HSC board that determines what type of connectors are available (RS 232/V.35 or X.21), and whether the connector will act as a DTE or a DCE.

The HSC board assembly includes an HSC Adapter Cable (HAC). One end of the HAC

attaches to the HSC board. The other end splits into four connectors. Each connector is capable of operating at full-duplex speeds of up to 8 Mbps. Each connector supports any of the following four physical layer interfaces:

- RS232
- V.35
- X.21

The physical layer interface type is selected via a combination of one of two available PLIMs (physical layer interface modules) and one of eight available HSC communication cables. The PLIM choices are:

- PLIM1 - Supports either RS232 or V.35 physical layers.
- PLIM2 - Supports X.21 physical layers.

The HSC comm cable choices are:

- RS232 DTE
- RS232 DCE
- V.35 DTE
- V.35 DCE
- X.21 DTE
- X.21 DCE

The DCE cables allow the HSC to be connected directly to DTE devices. No modem or modem eliminator is required. When a DCE interface is selected, the HSC board should be configured to generate the transmit clock. Baud rates up to 1 Mbps are supported and are configured on the HSC line panels. All four connectors on the board may be connected using the same type of PLIM and comm cable or any combination.

Frame Relay Line Options (HSC)

```

Line Options/HSC1.0                               LINCS C8.2 Central Control
Line Protocol:                                   Frame Relay
802.2 LLC:                                       Enable
TCP/IP:                                          Enable
NRZ/NRZI:                                       NRZ
Transmit Clock:                                  External
Max Transmit Frame Size:                        4119
Default Committed Information Rate (CIR):       0512000 bps
Dynamic PVCs:                                   Enable

                                         LMI OPTIONS

Role:                                           User
Type:                                           ANSI T1.617 Annex D
Link Verification Timer - T391 (sec):          10
Full Status Polling Cycles - N391:            006
Error Threshold - N392:                        03
Monitored Events Count - N393:                 04
PF: 1-Menu          7-Back          8-Forw          9-Default 10-Done
    
```

If you choose Frame Relay for the HSC line protocol, you will see this panel.

There are three different options for Role field of LMI Options, which result in slightly different LMI Options sections in the panel:

- User - shown above in the example panel
- Network (Switch)
- Disabled

The Line Options panel for Frame Relay is followed by a panel for LLC Options on this Frame Relay line.

LMI Options for Network (Switch) Role

```
Line Options/HSC1.0                               LINCS C8.2 Central Control
.
.
.
                                     LMI OPTIONS
Role:                                         Network (Switch)
Type:                                         ANSI T1.617 Annex D
Polling Verification Timer - T392 (sec):      15
Error Threshold - N392:                      03
Monitored Events Count - N393:              04
PF: 1-Menu                                   7-Back   8-Forw   9-Default 10-Done
```

This shows the LMI Options portion of the Frame Relay Line Options panel when the LMI Role has been toggled to Network (Switch). The only field different from the User Role is that Link Verification Timer becomes Polling Verification Timer.

LMI Options for Disabled LMI Role

```
Line Options/HSC1.0                               LINCS C8.2 Central Control
.
.
.
                                     LMI OPTIONS
Role:                                         Disabled
PF: 1-Menu                                   7-Back   8-Forw   9-Default 10-Done
```

This shows the LMI Options portion of the Frame Relay Line Options panel when the LMI Role has been toggled to Disable.

Default Committed Information Rate (CIR)

The CIR field is a decimal data entry field that defines the default normal information transfer rate in bits per second. The entered CIR will be used for all PVCs on this line which are not specified on a PVC definition panel. Valid entries range from 0 to 8,000,000. The default is 64,000. The CIR should be less than or equal to the line speed (transmit clock rate).

Dynamic PVCs

The Dynamic PVCs field toggles to ENABLE or DISABLE the use of dynamic PVCs.

If dynamic PVCs are DISABLED, LINCS will utilize only those DLCIs specified on the PVC definition panels and on the LLC circuit panels. This setting may be desirable for security reasons. Dynamic PVCs must be disabled for lines that do not have the LMI role set to User.

If dynamic PVCs are ENABLED, LINCS will communicate over all new PVCs reported by LMI up to the 256 PVC board maximum. The default is ENABLE.

Error Threshold

The Error Threshold (N392) data entry field determines the number of errors that can occur during a given measurement interval before a PVC is considered inactive.

Valid entries range from 1 to 10. The default is 3.

Full Status Polling Cycles

The Full Status Polling Cycles (N391) field tells LINCS how often to request a full status report (every N391 polling cycles).

Valid entries for this data entry field range from 1 to 255. The default is 6.

Link Verification Timer

The Link Verification Time (T391) field toggles to define the frequency with which LMI Status Enquiry messages are sent to the Frame Relay switch. This timer should be set to a value less than the T392 timer configured on the switch.

Toggle choices are: 5, 10 (default), 15, 20, 25 and 30.

LMI Role

The Role field toggles to determine the LINCS LMI role. This field should be set to:

- User - (the default) if LINCS is connected to a switch with LMI enabled.
- Network (Switch) - if LINCS will emulate a switch over a connection to another user device (FRTE).
- Disable - to disable the LMI feature.

Max Transmit Frame Size Field

Max Transmit Frame Size is a data entry field that determines the maximum size of the Frame Relay frame to be transmitted by this line. This value includes all fields between the opening and closing flags of a frame. LLC frames to be transmitted will be fragmented (as defined by RFC1490) if necessary to conform to this value.

Valid entries range from 279 to 4119.

If this field is set to the maximum value (4119), no fragmentation will occur at the Frame Relay layer and frame size will be determined by the value entered in the link profile.

SNA over frame relay also has special considerations for frame size.

Frame Relay Frame Size and Fragmentation

The maximum reassembled received SNA frame size is 4105 (including TH, RH, and RU).

Maximum SNA frame sizes prior to fragmentation may be configured via the link profile associated with the given host, gateway, or APPN circuit. SNA data will be segmented according to the size specified in the link profile.

If transmit fragmentation is not desired, the max frame size configured in the link profile should be set to a value at least 14 bytes (the size of Frame Relay header, LLC header and FCS) less than the maximum Frame Relay transmit size configured on the line panel. Maximum performance is achieved by configuring frame sizes such that fragmentation and segmentation are not required.

The following table lists the LLC max frame size (configured on the link profile panel) and the Frame Relay frame size (configured on the Frame Relay line panel) required to transport common SNA RU sizes without Frame Relay fragmentation or SNA segmentation:

SNA RU Size	LLC Max Transmit Frame Size	Frame Relay Max Transmit Frame Size
256	265	79
512	521	35
768	777	91
1024	1033	1047
1536	1545	1559
2048	2057	2071

Monitored Events Count

The Monitored Events Count (N393) data entry field determines the size of the measurement interval used by N392.

Valid entries range from 1 to 10. The default is 4.

LINCS will verify that N393 is greater than or equal to N392.

Polling Verification Time

The Polling Verification Timer (T392) toggle field defines the expected frequency with which LMI Status Enquiry messages are received. This timer should be set to a value greater than the T391 timer configured on the user FRTE.

Toggle choices are 5, 10, 15, 20, 25 and 30. The default is 15 seconds.

Type of LMI

The Type field toggles to define the type of LMI used to manage the Frame Relay link.

Toggle choices are:

- ANSI T1.617 Annex D (default)
- LMI Rev 1
- CCITT Q.933 Annex A
- Stratacom LMI

LLC Options for Frame Relay

This panel comes up any time that you select 802.2 LLC protocol on the Line Options panel for Frame Relay on the HSC card.

```

Line Options/HSC1.0                               LINCS C8.2 Central Control
LLC OPTIONS
Response Timer - T1 (sec):                        3
Inactivity Timer - TI (sec):                      030
Retry Count - N2:                                 07
Link Subsystem Name:                             VISARALAN
LU to PU Mapping Circuits:                        000
LU to PU Mapping Local SAP:                       —
PF: 1-Menu           7-Back   8-Forw   9-Default 10-Done

```

The Line Options for Frame Relay will always be followed by this LLC Options panel.

Response Timer

This field indicates the minimum amount of time in seconds the HSC line will wait for an acknowledgment before polling the remote station after transmitting a LLC frame. This field toggles the following time selections:

1.00, 1.68, 2.00, 3.00, 4.00, 5.00, 6.96, 10.44, 13.92, 17.40

Select a time greater than the expected delay of the network in order to avoid unnecessary polls. The default for Frame Relay lines is 3.00 seconds.

Inactivity Timer

The Inactivity Timer field is used to determine how often a poll frame is sent for inactive links.

Valid entries range from 10 to 255 seconds. The default is 30 seconds.

Retry Count - N2 on Frame Relay LLC Options panel

This number specifies the number of times the software will retransmit a frame, after not receiving an acknowledgment. LINCS will wait the amount of time specified in the Response Timer field before retrying the transmit. The value range is 1 to 99, and the default is 10.

Link Subsystem Name on Frame Relay LLC Options

The field allows you to assign a name to identify the subsystem in alerts that are sent to the host (for example, SNA alerts). You can use the default value VISARALAN or assign a 6-digit alphanumeric non-blank name.

LU to PU Mapped Circuits

LU to PU Mapping is not supported over Frame Relay, so this field must be set to 0 for HSC LLC links. The field is still shown, because the LLC Options panel is shared with other line types by the configuration software.

TCP/IP Options (HSC)

This panel will appear if TCP/IP is enabled on the HSC Line panel.

```

Line Options/HSC1.0                                     LINCS C8.2 Central Control
TCP/IP OPTIONS
IP Address:      ___ ___ ___ ___
Subnet Mask:    ___ ___ ___ ___
TELNET Host Connections: 20
TN3270 Client Connections: 40
IP Router:      Enable
BSD 4.2 IP Broadcast: Disable
Expanded IP Addressing: Disable
TCP Quiet Time (sec): 0000
Default Router Address: ___ ___ ___ ___
DNS Primary Name Server: ___ ___ ___ ___
DNS Secondary Name Server: ___ ___ ___ ___
DNS/Ping Response Time: 0000
DNS Default Domain:

SNMP Trap IP Address: ___ ___ ___ ___
SNMP Read Authentication String: _____
SNMP Write Authentication String: _____
PF: 1-Menu      7-Back   8-Forw  9-Default 10-Done
    
```

Frame Relay PVCs

Frame Relay PVCs LINCS Control			LINCS C8.2 Central Control		
DLCI	Line	CIR (bps)	DLCI	Line	CIR (bps)
123	HSC2.0	0064000	663	HSC2.0	0064000
124	HSC2.0	0064000	664	HSC2.0	0032000
050	HSC2.0	0512000	___	HSC2.0	0064000
___	HSC2.0	0002400	665	HSC2.0	0128000
___	HSC2.0	0064000	___	HSC2.0	0064000
.					
.					
___	HSC2.0	0064000	___	HSC2.0	0064000
PF: 1-Menu	4-Add	5-Delete	7-Back	8-Forw	9-Default 10-Done

The PVC definition panels are used when:

- You need to configure the CIR for any PVC that cannot use the default CIR (which was configured on the line panel). DLCI addresses specified elsewhere in configuration (such as on the host circuit, gateway circuit, or APPN circuit panels) do not have to be defined on a PVC definition panel, if these PVCs can use the default CIR.
- A PVC has not been specified on an LLC circuit panel, and that PVC will be used on a line that has LMI disabled. For example, if dynamic Frame Relay circuits have been specified on an APPN Dynamic Circuit panel for a line with LMI disabled, each DLCI which may be used for dynamic APPN circuits on that line must be defined on a PVC definition panel.

No PVC definitions are required if all PVCs may use the default CIR and LMI is enabled.

DLCI on Frame Relay PVCs panel

DLCI is a decimal data entry field that specifies the DLCI address of this PVC.

Valid entries range from 16 to 991, with no default.

A blank or 0 (zero) DLCI may be used to indicate a blank PVC entry.

Line

Line ID toggles through valid Frame Relay lines to specify the line associated with this PVC. The default is the first Frame Relay line.

The combination of line ID and DLCI must be unique throughout all of the PVC definition panels:

- DLCIs specified elsewhere in configuration which are not listed on a PVC definition panel will use the default CIR configured on the line panel.
- DLCIs specified on a PVC definition panel but not referenced elsewhere in configuration may be used for dynamic connections such as APPN dynamic circuits.

Committed Information Rate

This is the CIR for this DLCI on the specified line.

PF Keys on Frame Relay PVCs panel

The PF4 key is used to add another page of PVC definitions when additional entries are required.

The PF5 key is used to delete a page of existing PVC definitions.

Up to 32 entries may be specified per panel. Up to 8 panels may be displayed for a total maximum of 256 entries.

HSC X.25 Line Options

```

Line Options/HSC2.1                               LINCS C8.2 Central Control
Line Protocol:                                   X.25
Local DTE Address:                               _____
X.25 Network Type:                               CCITT/NET 2
Transmit Clock:                                  External
Link Layer Cmd/Rsp Role:                         DTE
Link Layer Window Size:                          2
Response Timer - T1 (.1 sec):                    0100
Retry Count - N2:                                10
Receive Timer - T2 (.1 sec):                     1
Lowest PVC:                                       _____
Highest PVC:                                       _____
Lowest Incoming SVC:                              _____
Highest Incoming SVC:                             _____
Lowest Two-Way SVC:                               _____
Highest Two-Way SVC:                              _____
Lowest Outgoing SVC:                              _____
Highest Outgoing SVC:                             _____
PF: 1-Menu                                       7-Back   8-Forw   9-Default 10-Done
  
```

Line Options/SCC

Valid protocol selections for SCC lines are:

- None (default), which disables that line.
- SDLC - half- and full-duplex
- SDLC/DAP - half- and full-duplex
- BSC
- X.25

A maximum of 2 lines may be configured for each SCC board, based on the selected line protocol of the first line. Full-duplex SDLC, full-duplex SDLC/DAP, and X.25 are only supported on the first line. If you select one of these protocols for the first line, the other line cannot be used. If you configure half-duplex SDLC (or SDLC/DAP) and BSC on the same SCC board, half-duplex SDLC must be selected for the first line and BSC for other line. If you do not configure the first line, you will not be able to use the second line.

When the line protocol is toggled, different fields may be displayed on the current panel based on the selected line protocol.

SDLC on SCC or HSC Line

```

Line Options/SCC1.0                                LINC8 C8.2 Central Control
Line Protocol:                                     SDLC
Duplex:                                             Half
Request to Send - RTS:                             Controlled (Multipoint)
NRZ/NRZI:                                           NRZ
Transmit Clock:                                     External
Secondary Group Poll Address (00=Disabled):        00
PF: 1-Menu                                         7-Back    8-Forw   9-Default 10-Done

```

Duplex

Options are: HALF, FULL Full Duplex is only available for the first connector on SCC boards.

Request to Send - RTS

- Controlled (Multipoint) - Used when RTS is switched.
- Permanent (Point-to-Point) - Used when RTS is left up constantly. This option should not be selected if other nodes share the same multidrop line.

NRZ/NRZI

You should match this parameter to the modems and the host line gen. Specify one of the following:

- NRZ (Non-Return to Zero)
- NRZI (Non-Return to Zero Inverted)

Secondary Group Poll Address

This item allows you to enable the Group Poll feature by entering any hexadecimal number 01 through FE. You should obtain this value from your organization's systems programmer.

00 is the default value; it indicates that Group Poll is disabled. This feature requires front end processor support.

Transmit Clock

This field determines whether the board or an external device (such as a modem) will supply the transmit clock for this connector. For the HSC board, a DCE-HSC Communications cable must be installed if the Transmit Clock is configured for anything besides External. The DTE-HSC cable must be used if the Transmit Clock is set for External.

On the SCC board, SDLC or X.25 can run at full or half duplex at 256Kbps on one connector. If both connectors are used, 64Kbps is the maximum supported speed. The HSC board has no such restrictions.

NOTE: "EXTERNAL" is the only choice available for SCC boards.

Toggle options are:

External (default), 1200, 2400, 4800, 9600, 14.4 Kbps, 19.2 Kbs, 38.4 Kbs, 48 Kbs, 57.6 Kbs, 64 Kbs, 128 Kbs, 256 Kbs, 512 Kbs, 1 Mbps.

SDLC/DAP

The SDLC Distribution Access Point (SDLC Concentration) feature enables LINCS to emulate a front end processor's ability to poll remote PU 2.0 devices over SDLC links. LINCS using this feature can attach to a variety of high-speed host connections, including multiple host connections, which can be any or all of the following:

- SNA Channel
- SDLC (using an HSC board)
- Any SNA protocol on Token Ring (LLC or TCP/IP where LINCS is a DSPU)
- Any SNA protocol on Ethernet (LLC or TCP/IP where LINCS is a DSPU)

Visara terms this polling capability Distribution Access Point (DAP). The DAP software (SDLC primary) runs on standard SCC or HSC cards in place of the traditional (SDLC secondary) software.

For additional information, see:

- Example of a SDLC/DAP line options panel
- SDLC/DAP Hardware Requirements
- SDLC/DAP Software Requirements
- How SDLC/DAP works
- NCP Parameter Definitions
- Final Considerations

SDLC DAP Line Options

```
Line Options/SCC1.0                                LINCS C8.2 Central Control
Line Protocol:                                     SDLC/DAP
Duplex:                                             Half
Request to Send - RTS:                             Permanent (Point-to-Point)
NRZ/NRZI:                                           NRZ
Transmit Clock:                                     External
Give Priority to PUs with Data - HDXSP:            Enable
Reply Timeout - REPLYTO (.1 sec):                 10
Max Retries - RETRIES:                             10
Min Time Between Polls - PAUSE (.1 sec):          02
XID Polling Interval for Inactive PUs:            30
Max RNR Responses - RNRLIMIT:                     100
PF: 1-Menu                                         7-Back 8-Forw 9-Default 10-Done
```

This panel is an example of a Line Options panel for the SCC card, when SDLC/DAP is the selected Line Protocol. This is downstream connection from the LINCS node for DAP.

SDLC/DAP Hardware Requirements

SDLC/DAP is supported on the SCC and HSC card for downstream connections. With the SCC card, group polling is only supported when LINCS is attached to an FEP (LINCS is a secondary station). With the HSC, LINCS supports group polling as a primary or secondary station. Primary stations require configuring each downstream (secondary) connection on the Gateway Circuit panels.

The number of remote lines that are supported by the SDLC/DAP feature is dependent upon the following:

- Model of the 1174/9300 (see the Hardware Reference manual for your model)
- Number of physical host connections (see the Maximum Connections Limitations table)
- Whether lines are run half duplex or full duplex
- Which board is used: SCC or HSC

SDLC/DAP Software Requirements

Since support for DSPUs on an SDLC line is a gateway function, feature memory is required to support SDLC/DAP.

See *Feature Memory Allocation* for more details on Feature memory.

The DAP Feature Activation Disk is required to run SDLC/DAP on some LINCS nodes.

How SDLC/DAP works

LINCS maintains the host sessions to the DSPU devices in much the same way that it supports token ring DSPUs on the channel, by acting as a PU gateway. When the LINCS node is channel attached, or attached via an HSC card, all DSPUs existing on the remote SDLC lines appear as channel attached PUs to the host. In a similar fashion, if the DAP LINCS node is LAN attached, the DAP LINCS node and all of its DSPUs appear as DSPUs to the gateway (FEP TIC or channel attached control unit gateway).

When the host link is to be LAN attached to a FEP, the PUID for the downstream device must to match the IDNUM in the VTAM Switched Major Node definition for the device. The PUID can be configured in the downstream device, or configured on the Gateway Circuit for each downstream PU, by specifying PUID Override (see Gateway Circuit 04 for an explanation of PUID Override). This PUID (XID) is sent upstream by LINCS over the token ring or Ethernet host link. The FEP will use this value to match the device to a VTAM definition. If there is no match, there will be no connection. If another type of gateway exists upstream, such as another LINCS node, this XID will not be used (unless the upstream gateway is a LINCS node and the LU to PU mapping feature is present).

PUID Override is also used to gateway to downstream nodes that don't support Test or XID frames.

LINCS with the SDLC DAP feature will maintain all PU sessions with the host as if it were the box that the host is attempting to contact (spoofing). It will keep inbound and outbound queues for all DSPU devices that it supports. By conducting itself in this manner, DSPUs will

not time out on the upstream link. LINCS will perform SNA segmentation as needed, both downstream and upstream.

The SDLC DAP feature is responsible for maintaining the SDLC link, including error recovery.

Note: If the upstream connection is Channel, and the downstream (DAP) uses an SCC, LINCS will perform outbound segmentation, but not inbound segmentation. LINCS supports both inbound and outbound segmentation if an HSC board is used for downstream (DAP) connections.

When supporting DAP, (the number of host buffers) x (the host buffer size) must be large enough to handle the maximum SDLC frame size supported by DAP (521 + secondary to primary link header size). These parameters are defined by MAXBFRU and IOBUF in the VTAM gen.

NCP Parameter Definitions

The DAP software in LINCS permits the configuration of several NCP-equivalent parameters. Those NCP parameters are listed below, along with some configuration pointers:

- NRZ/NRZI
- RTS
- ADDRESS
- REPLYTO
- RETRIES
- PAUSE
- HDXSP
- RNRLIMIT
- XID Polling Interval for Inactive Pus
- MAXDATA (This parameter is also a NCP parameter, but is found on the Link Profile panel for SDLC/DAP)

NRZ/NRZI

This line options parameter must be defined the same as the DSPU devices defined on the other end of the Gateway Circuit line.

RTS

This parameter indicates whether RTS will be non-switched, or switched.

PERMANENT should be selected unless the modem cannot operate with RTS held high. This is true whether Options are: PERMANENT or CONTROLLED

ADDRESS

This parameter indicates whether LINCS is to poll/send data to one PU while receiving data from another. FULL is the normal configuration for a multidrop line. This parameter is called Duplex on the SDLC/DAP Line Options panel.

Options are: FULL or HALF duplex

REPLYTO

This indicates the length of time that LINCS will wait for a reply before it logs a timeout for the device. IT should be at least the time required to read the maximum frame size at the operational baud rate. One second (default) is sufficient for 4800 baud or faster for 521 byte frames, or 9600 baud or faster for 265 byte frames. Enter a value from 1 to 99 in tenths of a second (10 is default.)

RETRIES

This indicates the number of retry attempts before the link is disconnected.

Enter a value from 0 to 99, where 0 means poll indefinitely. The default number of retries is 10.

PAUSE

This is a timer that initiates a trip through the poll list when there is no outbound traffic queued. If the entire poll list has been polled before the PAUSE timer has expired, the DAP feature will wait until expiration before commencing the poll list again.

Enter a value from 0 to 99, in tenths of a second, where 0 means no pause. The default for this parameter is 2 tenths of a second.

HDXSP

This gives outbound data traffic priority over polling. Polling will occur every (value of PAUSE) seconds. Normally this should be set to Enable. With this feature enabled, PUs with data pending will have that data sent to them before PUs with no data are polled. If there is only one PU on the line, this parameter will have no effect. This feature is always enabled by LINCS when the line is configured for Full Duplex on the Line Options panel.

Options are: ENABLE (default) or, DISABLE

RNRLIMIT

This is the number of times a device may send consecutive RNR (send a Receiver Not Ready) before it is considered broken and disconnected.

Enter a value from 0-999, where 0 represents no limit. Default is 100.

MAXDATA

This parameter defines the maximum frame size that can be sent by LINCS to the remote device. IBM 3174 generation devices usually support a value of 521, while older SNA products such as 3274 and 3276 type devices support a value of 265.

Enter a value from 265 (default) to 1033.

XID Polling Interval for Inactive PUs

The value of this parameter represents how often an XID is sent to downstream inactive PUs on the SDLC link by the DAP feature. A response to the XID by the downstream PU informs LINCS that the device is available for communication. Note that no activity is initiated by LINCS on the upstream side for the downstream PU until the downstream device responds to the XID.

When PUID Override is enabled on the Gateway Circuits panel for a downstream PU, this parameter indicates how often a SNA SNRM will be sent to an inactive PU.

Enter a value from 1-99 seconds, with a default of 30.

Final Considerations

Upstream LAN connections must be either configured in the host, or configured in the gateway, if the upstream node is a gateway (such as another LINCS node). The upstream LAN address corresponds to the gateway address, upstream from the DAP LINCS node. That is, the address and GW SAP is where LINCS is to send data traffic from this particular DSPU when sending data inbound.

The downstream connection addresses correspond to the addresses that must be configured in the downstream devices. In most cases, you should set the TX Size parameter over an SDLC link to 521. Note that 265 is the default (just like the NCP equivalent parameter of MAXDATA). Increasing the value to 521 usually enhances the performance of the PU. Note that 3274 and 3276 devices support a maximum of 256.

BSC Line Options

Line Options/SCC1.0	LINCS C8.2 Central Control			
Line Protocol:	BSC			
Request to Send - RTS:	Controlled			
BSC Line Code:	EBCDIC			
BSC DFT Response:	WACK			
SYNC Characters:	2			
PF: 1-Menu	7-Back	8-Forw	9-Default	10-Done

The BSC Line panel allows you to select parameters specific to this protocol.

Request to Send (RTS)

This field allows you to specify the configuration of the Request to Send (RTS) signal. Toggle to select one of these options:

- Controlled (Multipoint 2-wire) - Used when RTS is switched.
- Permanent (Point-to-Point 2-wire) - Used when RTS is held high. This option should not be used when other LINCS nodes physically share the same line.
- BSC Special (Multipoint 4-wire) - RTS is held high while this LINCS node is selected.

BSC Line Code

This field lets you determine the character set for the BSC line. Two toggle options are available:

- EBCDIC (Default)
- ASCII - The ASCII line code uses 7 bits with odd parity checking.

BSC DFT Response

The option selected for this item is important only if DFTs are to be attached to the LINCS node. You should obtain the appropriate value from the system programmer at your host site.

Toggle to select: ACK - positive acknowledgment, WACK- wait for acknowledgment

ACK

If the BSC DFT response is configured for ACK, LINCS will wait until the DFT has completed processing the data before responding to the host. If the received data did not contain any errors, LINCS will respond with a positive acknowledgment (ACK). If errors were detected, LINCS will respond with an EOT. The host can then poll LINCS to determine the error status.

ACK is supported by systems using IMS/VS with BTAM, TCAM, or ACF/TCAM with IBM's Communication Controller's Emulation Program (EP).

WACK

If the response to this configuration question is WACK (wait for acknowledgment), LINCS will immediately respond to the host data with a WACK. The data transfer status will be sent to the host in response to the first poll after the DFT has processed the data.

WACK is supported by systems using enhanced 3270 BSC protocols. IBM programs that support BSC WACK are the following:

- ACF/NCP Version 1, Release 2 or higher (CICS/VS and IMS/VS using VTAM or TCAM and ACF/NCP are supported.)
- ACF/VTAM with Communication Adapter Support (4331, 4361, 9370)
- CICS/VS Version 1, Release 6 and higher
- SP, Release 3 and higher

Number of SYNC Characters

This feature allows you to configure the number of SYNC characters inserted by LINCS at the start of each transmission to the host. Toggle to select one of the following:

2 (default), 3, 4, 5, 6, or 7.

SCC X.25 Line Options

```

Line Options/SCC1.0                               LINCS C8.2 Central Control
Line Protocol:                                   X.25
Local DTE Address:                               _____
X.25 Network Type:                               CCITT/NET 2
Transmit Clock:                                  External
Link Layer Cmd/Rsp Role:                         DTE
Link Layer Window Size:                          2
Response Timer - T1 (.1 sec):                    0100
Retry Count - N2:                                10
Receive Timer - T2 (.1 sec):                     1
Lowest PVC:                                       _____
Highest PVC:                                      _____
Lowest Incoming SVC:                             _____
Highest Incoming SVC:                            _____
Lowest Two-Way SVC:                              _____
Highest Two-Way SVC:                             _____
Lowest Outgoing SVC:                             _____
Highest Outgoing SVC:                            _____
PF: 1-Menu                                       7-Back   8-Forw   9-Default 10-Done
  
```

Local DTE Address

Enter the local DTE address for this LINCS node (up to 15 digits). The number should be consistent with the network subscription number.

X.25 Network Type

Options are:

- CCITT/NET 2
- DATANET1
- TELENET or UKPSS
- GOSIP
- CCITT/CTS-WAN

Transmit Clock

This field toggles to:

External (default), 1200, 2400, 4800, 7200, 9600, 14.4 Kbps, 19.2 Kbps, 38.4 Kbps, 48 Kbps, 57.6 Kbps, 64 Kbps, 128 Kbps, 256 Kbps, 512 Kbps, 1 Mbps.

External means that an external device, for example a modem, is supplying transmit clock to the HSC. All other choices indicate transmit clock speeds supplied by the HSC.

External also implies that this connector is providing a DTE interface, so a DTE HSC comm cable must be installed. All other choices indicate the this connector is providing a DCE interface and therefore require a DCE HSC comm cable.

Link Layer Cmd/Rsp Role:

This field determines whether this LINCS platform is to provide the link layer clocking. When set to DCE, LINCS will provide the transmit and receive clocks allowing direct attachment to another X.25 platform without use of modems. When set to DTE, a modem is required to provide clocks.

Link Layer Window Size

Select the link level window size that is consistent with the network subscription value. Values are 1 - 7, the default is 2.

Response Timer

This number specifies the time in increments of .1 seconds that the X.25 software will wait to receive a response, after transmitting a frame. The range is 1 to 9999.

Retry Count

This number specifies the number of times the X.25 software will retransmit a frame, after not receiving an acknowledgment. LINCS will wait the amount of time specified in the Response Timer field before retrying the transmit. The value range is 1 to 99, and the default is 10.

Receive Timer

The Receive Timer indicates the amount of time a link level acknowledgment will be delayed to allow the packet layer (and above) to process the received frame and generate an information frame as a response. This can improve link utilization. This decimal field accepts values from 0 to 2. The default is 1 tenth of a second. A value of 0 indicates that the option is disabled.

Logical Channel Numbering

The following fields describe the logical channel numbering for your network subscription. The fields indicate the valid ranges for all incoming and outgoing calls.

- Lowest PVC - Specify lowest channel number of permanent virtual circuits
- Highest PVC - Specify highest channel number of permanent virtual circuits
- Lowest Incoming SVC - Specify lowest channel number of incoming calls
- Highest Incoming SVC - Specify highest channel number of incoming calls
- Lowest Two Way SVC - Specify lowest channel number of two-way calls
- Highest Two Way SVC - Specify highest channel number of two-way calls
- Lowest Outgoing SVC - Specify lowest channel number of outgoing calls
- Highest Outgoing SVC - Specify highest channel number of outgoing calls

All ranges must be in ascending order with no overlapping values. Only specify ranges for the circuit types you are using. The total number of channels which are configured cannot exceed 255. These fields accept values from 0 to 4095.

Line Options/FET

The Line Options/FET panel is used to define which protocols are to be supported by the 10/100 Mbps Ethernet card supported by LINCS, and what hardware or MAC address is to be used. An example of the panel is shown below.

```
Line Options/FET1                                     LINCS C8.2 Central Control

LAN Address:                                         0000 0000 0000

Media Type:                                         Auto Negotiate
Duplex Mode:                                         Auto

802.2 LLC:                                          Disable
TCP/IP:                                             Enable
IPX:                                                Disable
IP/Bridge:                                          Disable
Coax Ethernet Bridge:                              Disable

PF: 1-Menu                                           7-Back 8-Forw 9-Default 10-Done
```

Line Options/ETH

The Line Options/ETH panel is used to define which protocols are to be supported by the older 10 Mbps Ethernet card supported by LINCS, and what hardware or MAC address is to be used. An example of the panel is shown below.

```
Line Options/ETH1                                     LINCS C8.2 Central Control

LAN Address:                                         0200 1174 0000
802.2 LLC:                                          Enable
TCP/IP:                                             Enable
IPX:                                                Disable
IP/Bridge:                                          Disable
LAT:                                                Enable
Coax Ethernet Bridge:                              Disable
PF: 1-Menu    7-Back                                8-Forw    9-Default    10-Done
```

Because of the similarities of options supported by the FET and ETH cards, the configuration options will be described together, with differences between the two cards being noted.

Pressing PF8 may cause additional line panels to be displayed based on the protocol selections. They are:

- LLC Options
- TCP/IP Options
- IPX Options
- LAT Options (ETH only)
- LAN Address

This field contains the Ethernet node address of the LINCOS node. It is a 12-character hexadecimal address, and can be any hex value you wish.

Within the most significant byte, the lowest bit specifies a group address and the next bit specifies a locally administered address. Ethernet addresses configured by LINCOS must be arranged in IEEE format where the most significant bit is on the right of each byte.

802.2 LLC

This toggle field must be enabled to configure any connections or circuits with LLC link levels (including LANSYS connections, LU to PU mapped circuits, LLC gateway circuits and LLC host circuits).

Note: This option should not be used to enable 802.2 on IPX. Use the IPX Options panel (reached from the Line Options panel if IPX has been enabled on any line).

Options are: DISABLE or ENABLE

TCP/IP

This toggle field must be enabled to configure any connections or circuits with TCP/IP link levels (TELNET connections, gateway circuits, and 3270 host circuits).

Options are: DISABLE or ENABLE

IPX

This toggle field is used to enable IPX protocol support. For example, IPX must be enabled to support IPX SNA Server or IPX Router through this board.

Options are: DISABLE or ENABLE

IP/Bridge

This toggle field is used to dedicate this adapter to the IP Channel Bridge feature. When enabled, no other protocol listed on this panel is allowed except the Coax/Ethernet bridge. A channel interface must also be installed on this panel in order for this selection to be valid.

Options are: DISABLE or ENABLE

LAT (ETH Only)

This toggle field is used to enable LAT protocol support.

Options are: DISABLE or ENABLE

Coax Ethernet Bridge

This toggle field is used to designate this adapter to handle data traffic to and from Network Computing Terminals attached to coax adapters within the 1174.

Options are: DISABLE or ENABLE

LLC Options (ETH)

If LLC is enabled for ETH (Ethernet), this LLC Options panel is displayed.

Line Options/FET1	LINCS C8.2 Central Control
LLC OPTIONS	
Frame Format:	802.3
Response Timer - T1 (sec):	1.68
Inactivity Timer - TI (sec):	30
Retry Count - N2:	07
Link Subsystem Name:	VISARALAN
LU to PU Mapping Circuits:	016
LU to PU Mapping Local SAP:	04
PF: 1-Menu 7-Back	8-Forw 9-Default 10-Done

MAC Layer Frame Format (LLC)

This toggle field determines the interpretation of the two byte field which follows the source address in a frame. In an IEEE 802.3 frame, this field is interpreted as the length of the frame. In an Ethernet Version 2.0 frame, this field is interpreted as the frame type and is followed by another three byte field of which the first two bytes contain the length and the third byte is reserved. The LINCS uses a frame type of hex 80D5 for Ethernet Version 2.0 frames. The gateway and the DSN controllers must be configured to use the same frame format.

Ethernet V2.0

Starting Delimiter	Access Control	Frame Control	Destination Address	Source Address	Data Length	Data Field	CRC
1 byte	1 byte	1 byte	6 bytes	6 bytes	2 bytes	1500 bytes	4 bytes

IEEE 802.3

Starting Delimiter	Access Control	Frame Control	Destination Address	Source Address	Frame Type	Data Length	Data Field	CRC
1 byte	1 byte	1 byte	6 bytes	6 bytes	2 bytes	3 bytes	1497 bytes	4 bytes

TCP/IP Options (ETH)

These fields are the same as the fields for the TCP/IP Options on a TRC line.

```

Line Options/FET1                                LINCS C8.2 Central Control
          TCP/IP OPTIONS
IP Address:                                     192 000 174 122
Subnet Mask:                                   255 255 255 000
TELNET Host Connections:                       45
TN3270 Client Connections:                     15
IP Router:                                     Static Routing Only
BSD 4.2 IP Broadcast:                          Disable
Expanded IP Addressing:                        Disable
TCP Quiet Time (sec):                          0000
Default Router Address:                        ___ ___ ___ ___
DNS Primary Name Server:                       ___ ___ ___ ___
DNS Secondary Name Server:                     ___ ___ ___ ___
DNS/Ping Response Time:                        0000
DNS Default Domain:

SNMP Trap IP Address:                          ___ ___ ___ ___
SNMP Read Authentication String:                _____
SNMP Write Authentication String:               _____
PF: 1-Menu      7-Back      8-Forw      9-Default      10-Done

```

IPX Options (ETH)

This IPX Options panel is displayed if IPX is enabled on an Ethernet line.

```

Line Options/FET1                                LINCS C8.2 Central Control
          IPX OPTIONS
Frame      Network
Format  Options  Number  RIP and SAP Options  RIP  SAP
802.2    Enable  5362E001  Broadcast Timer (30 sec): 0002 0002
          Aging Timer (30 sec): 0006 0006
          Broadcast RIP/SAP Entries: 0050 0007
SNAP     Disable  _____  Broadcast Timer (30 sec): 0002 0002
          Aging Timer (30 sec): 0006 0006
          Broadcast RIP/SAP Entries: 0050 0007
802.3    Enable  5362E003  Broadcast Timer (30 sec): 0002 0002
          Aging Timer (30 sec): 0006 0006
          Broadcast RIP/SAP Entries: 0050 0007
V2       Disable  _____  Broadcast Timer (30 sec): 0002 0002
          Aging Timer (30 sec): 0006 0006
          Broadcast RIP/SAP Entries: 0050 0007
PF: 1-Menu      7-Back      8-Forw      9-Default      10-Done

```

MAC Layer Frame Format (IPX)

This field indicates which MAC layer Frame Formats which are supported via the Ethernet LAN adapter for IPX on Ethernet.

Note: Any or all of these frame formats can operate at the same time, and enabling more than one implies that LINCS will do routing. The network numbers must match those of the other servers on the LAN per frame type.

Toggle to select:

Ethernet SNAP

			XaA	xAA	x03	000000	x8317			
Preamble	Destination	Source	Data Length	DSAP	SSAP	Control	Organization	Type	Data	CRC
8 bytes	6 bytes	6 bytes	2 bytes	1 byte	1byte	1 byte	3 bytes	2 bytes	variable	4 bytes

Ethernet 802.2

			xE0	xE0	x03			
Preamble	Destination	Source	Data Length	DSAP	SSAP	Control	Data	CRC
8 bytes	6 bytes	6 bytes	2 bytes	1 byte	1byte	1 byte	variable	4 bytes

Ethernet 802.3

Preamble	Destination Address	Source Address	Length	Data Field	CRC	8 bytes	6 bytes	6 bytes
2 bytes	1500 bytes	4 bytes						

Ethernet Version 2

			x8137		
Preamble	Destination Address	Source Address	Type Field	Data Field	CRC
8 bytes	6 bytes	6 bytes	2 bytes	1500 bytes	4 bytes

LAT Options

A LAT Options panel is displayed if LAT Connections are enabled on the previous ETH panel.

```

Line Options/ETH1                                     LINCS C8.2 Central Control
                LAT OPTIONS
Node Name: _____
Node Identification: _____
Solicitation Agent: Disable
LAT Host Connections: 32
Retransmit Count: 008
Keepalive Timer (sec): 020
Multicast Timer (sec): 060
Circuit Timer (msec): 80
PF: 1-Menu      7-Back      8-Forw      9-Default      10-Done
    
```

Node Name

Use this 16-character field to specify LINC'S LAT node name. Valid characters are alphanumeric, dollar sign, period, hyphen, and underscore. The name must be unique on the LAT network. If the field is left blank, LINC'S constructs a Node Name using the letters VISARA followed by the LAN address.

Node Identification

Use this optional 16-character field to provide additional node identification information. Valid characters are alphanumeric, dollar sign, period, hyphen, underscore, and spaces.

Solicitation Agent

Toggle to enable or disable the use of the LAT version 5.2 solicitation agent, which responds to service information requests on behalf of version 5.1 host server nodes.

LAT Host Connections

A valid number of connections is 0 to 128.

LAT Host Connections enable devices attached to LINC'S (direct or LAN attached) to communicate with Ethernet-attached ASCII Host computers. This field indicates the number of sessions which may be concurrently connected to an ASCII Host running LAT.

Retransmit Count

Use this field to specify the number of times a LAT frame may be retransmitted.

The range is from 1 to 255. The default value is 8.

Keepalive Timer

Use this field to select an interval used to detect lost connections. Choose the number of seconds desired.

Multicast Timer

This field determines how frequently the service announcement messages are sent out.

Valid range is 10 to 255 seconds. The default is 60 seconds.

Circuit Timer

Use this field to specify the frequency for frames sent from terminal servers to host service nodes. Toggle choices for the field are: 40, 80, 120, 160, and 200 msec. The default value is 80 msec.

IP Routing Configuration

The following Static IP Routing panel appears if Routing has been selected on the Line Options / TCP/IP Options panel.

Line Options/TRC

Line Options/TRC1	LINCS C8.2 Central Control
LAN Address:	4000 1174 0000
Token Ring Speed:	16 Mbps without Early Token Release
Source Routing:	Enable With All Routes Broadcast
802.2 LLC:	Enable
TCP/IP:	Disable
IPX:	Disable
PF: 1-Menu	7-Back 8-Forw 9-Default 10-Done

When paging forward, additional TRC line options panels may be displayed based on the selections made on this panel. They are:

- LLC Options
- TCP/IP Options
- IPX Options

Source Routing

This toggle field is used to enable communications through source routing bridges for all Token Ring protocols. Options are:

- Enable With All Routes Broadcast
- Enable With Single Route Broadcast
- Disable

802.2 LLC (TRC)

Options are: DISABLE or ENABLE

This toggle field must be enabled to configure any connections or circuits with LLC link levels, for example, LANSYS connections, LU to PU mapped circuits, LLC gateway circuits and LLC hosts circuits.

Note: This option should not be used to enable 802.2 frame types on IPX. Use the IPX Options panel for that, which is displayed if IPX is enabled on this line.

TCP/IP

Options are: DISABLE or ENABLE

This toggle field must be enabled to configure any connections or circuits with TCP/IP link levels, such as TELNET connections, IP gateway circuits, or IP host circuits.

IPX

Options are: DISABLE or ENABLE

This toggle field is used to enable IPX protocol support. For example, IPX must be enabled to support IPX SNA Server or IPX Router through this board.

LAN Address-TRC

This field contains the Token Ring node address of the adapter. It is a 12-character hexadecimal address that can be locally or universally administered. Local administration permits you to assign the Token Ring address. Universal administration permits the assignment of unique addresses by a standards organization. The universally assigned address for each unit is contained in hardware on the Token Ring adapter (TRC) board.

If the address is to be locally administered, use this format to assign the address: 4XXX XXXX XXXX where X can be any hexadecimal value.

If you wish to use universal administration of the address, enter: 0000 0000 0000

Because the universally administered address is contained on the TRC board, the Token Ring address will change if you are using universal addressing and a different adapter board is installed.

Token Ring Speed

This field allows you to specify the speed of the Token Ring adapter. The field also allows you to enable the Early Token Release feature which provides maximum performance by permitting the existence of multiple frames on the ring at the same time. Toggle to select from the following options:

- 4 Mbps
- 16 Mbps without Early Token Release
- 16 Mbps with Early Token Release

LLC Options (TRC)

If LLC is enabled on the TRC line, then this LLC Options panel is displayed.

Line Options/TRC1	LINCS C8.2 Central Control
	LLC OPTIONS
Response Timer - T1 (sec):	1.68
Inactivity Timer - TI (sec):	30
Retry Count - N2:	07
Link Subsystem Name:	VISARALAN
LU to PU Mapping Circuits:	016
LU to PU Mapping Local SAP:	04
PF: 1-Menu	7-Back 8-Forw 9-Default 10-Done

TCP/IP Options (TRC)

This panel will appear if TCP/IP is enabled on the TRC Line panel.

Line Options/TRC1	LINCS C8.2 Central Control
	TCP/IP OPTIONS
IP Address:	___ ___ ___ ___
Subnet Mask:	___ ___ ___ ___
TELNET Host Connections:	20
TN3270 Client Connections:	40
IP Router:	Enable
BSD 4.2 IP Broadcast:	Disable
Expanded IP Addressing:	Disable
TCP Quiet Time (sec):	0000
Default Router Address:	___ ___ ___ ___
DNS Primary Name Server:	___ ___ ___ ___
DNS Secondary Name Server:	___ ___ ___ ___
DNS/Ping Response Time:	0000
DNS Default Domain:	
<hr/>	
SNMP Trap IP Address:	___ ___ ___ ___
SNMP Read Authentication String:	_____
SNMP Write Authentication String:	_____
PF: 1-Menu	7-Back 8-Forw 9-Default 10-Done

IPX Options (TRC)

This panel will appear if IPX is enabled on the TRC line panel.

Line Options/TRC1	LINCS C8.2 Central Control
	IPX OPTIONS
Frame	Network
Format Options	Number RIP and SAP Options RIP SAP
802.2 Enable	53620001 Broadcast Timer (30 sec): 0002 0002
	Aging Timer (30 sec): 0006 0006
	Broadcast RIP/SAP Entries: 0050 0007
SNAP Disable	_____ Broadcast Timer (30 sec): 0002 0002
	Aging Timer (30 sec): 0006 0006
	Broadcast RIP/SAP Entries: 0050 0007
PF: 1-Menu	7-Back 8-Forw 9-Default 10-Done

Response Timer-LLC Options

This field indicates the minimum amount of time in seconds the LAN adapter will wait for an acknowledgment after transmitting a LLC frame before polling the remote station. This field toggles the following time selections:

1.00, 1.68, 2.00, 3.00, 4.00, 5.00, 6.96, 10.44, 13.92, 17.40

Select a time greater than the expected delay of the network in order to avoid unnecessary polls. The default is 1.68 seconds.

Inactivity Timer - LLC Options

The Inactivity Timer field is used to determine how often a poll frame is sent for inactive links. Valid entries range from 10 to 255 seconds. The default is 30 seconds.

Retry Count- LLC

This field indicates the maximum number of times the LAN adapter transmits a checkpointing poll following the T1 response time expiration. Valid counts range from 01-99. The default is 7.

Link Subsystem Name

The field allows you to assign a name to identify the subsystem in alerts that are sent to the host (for example, SNA alerts). You can use the default value VISARALAN or assign a 6-digit alphanumeric non-blank name.

LU to PU Mapping Circuits

This decimal number indicates the number of LU to PU mapped LLC circuits supported on this line. In addition, 3270 Host Circuits must be configured to use this option.

LU to PU Mapping Local SAP

Enter a two digit number that is a multiple of 4, ranging from 4 to EC (hex). If LANSYS connections are enabled on this line, SAP 98 (hex) is not valid for this field. If IPX is enabled on this line, SAP E0 (hex) is not valid for this field.

The value entered in this field may not match any of the local SAPs configured on the APPN link stations for this line.

This field will be ignored if no LU to PU Mapping circuits have been configured.

IP Address

This is the IP address for the line. It should follow the rules for IP addresses, which your system administrator can give you. If this address is connected to the Internet as controlled by the NIC, bear in mind that users can connect to LINC'S by the IP address you give it. Design your host's connection to the Internet with this in mind.

Subnet Mask

This is the subnet mask that LINC'S will use for the IP address entered. If no subnet mask is entered, but a default router is defined, LINC'S will automatically obtain the subnet mask from the router. If no subnet mask and no default router are defined, LINC'S will assume the default subnet mask based on the class of the IP address being used.

TELNET Host Connections

A valid number of host connections is 0 to 128.

TELNET Host Connections enable attached devices (direct or LAN attached) to communicate with LAN-attached ASCII Host computers. This field indicates the number of sessions which may be concurrently connected to an ASCII Hosts running TELNET.

TN3270 Client Connections

A valid number of host connections is 0 to 250.

TN3270 Client Connections allows Network Devices running TELNET client software to receive 3270 data. LINCS acts as a TN3270 server for the TN3270 clients (Network Devices). Additional configuration options are on the TN3270 Client Definition panel, accessible from the Configuration full menu.

TN3270 Client Connections requires the TN3270 Server Feature to be installed. You must also enable 3270 Host Circuits on the General Options panel, so you can configure a 3270 host for the client to connect to.

IP Router

When enabled, LINCS will provide IP routing through this interface. Routing choices include:

- **Static Routing Only** - All routing table entries must be made statically.
- **Static and Dynamic Routing** - LINCS will add entries into the routing table based on RIP V1 and RIP V2 broadcasts that have been received, but LINCS will not broadcast the contents of the routing table to other routers.
- **RIP Version 1** - LINCS will add entries into the routing table based on received RIP V1 and RIP V2 broadcasts, and will broadcast the contents of the routing table using RIP V1.
- **Rip Version 2** - LINCS will add entries into the routing table based on received RIP V1 and RIP V2 broadcasts, and will broadcast the contents of the routing table using RIP V2.

BSD 4.2 IP Broadcast

If this option is enabled, LINCS will send two broadcasts. One is 4.2 compatible, and the other is the standard broadcast address.

Note: BSD 4.2 broadcasts use all 0s as the destination address. Other implementations as well as BSD 4.3 use all 1s as the destination address. If this option is disabled, LINCS will send the standard broadcast address only.

Expanded IP Addressing

This is a special customer request feature that allows using IP addresses that are illegal for the worldwide Internet.

For example, 192.000.000.xxx would normally be reserved, but with this field enabled, an address of that type can be entered.

TCP Quiet Time

TCP requires 4.5 minutes of recovery time after a device crashes or for a reboot, but LINCS' IML time varies according to configuration and hardware installed. This field allows you to define extra time beyond the normal boot time before TCP connections can be attempted. Default value is 0. (As soon as LINCS has IMLed, TCP can attempt connections.)

Default Router Address

Enter the address of the router on the network. Obtain this value from the system administrator. This router address must be on the same physical subnet as the IP address assigned to this interface.

DNS Primary Name Server

The Domain Name System requires at least one name server address. The name server resolves the address of the remote machine, by using its domain name database, and the databases on other name servers. Entering an address enables the Domain Name System feature that lets a TCP/IP user enter a DNS name for the TCP/IP host instead of the IP address. Enter zeros in this field to disable the feature. To complete information about the Domain Name system, you must also assign Dynamic IP Host Class Access in the Resource Authorization Matrix of the Device Profile Panel for displays.

DNS Secondary Name Server

Enter a value if you want to enable a secondary domain name server to function as a backup to the primary domain name server. If the user makes two queries to the primary server and they are not answered, LINCS will direct up to two queries to the secondary domain name server.

DNS/Ping Response Time

This timer, given in tenths of seconds, determines the amount of time that is allowed for a DNS or a Ping request to be answered before determining that a timeout has occurred.

DNS Default Domain

Use this field to specify an optional default Domain Name system label. The label must not exceed 63 characters. The starting and end characters must be alphanumeric, and the remaining characters must be alphanumeric characters or hyphens.

The default domain will be appended to any queries that are not fully expressed. For example, sulu is translated to sulu.visara.com, if visara.com is the default domain.

SNMP Trap IP Address

This Destination IP Address defines where to send SNMP traps generated by LINCS. If the IP Address is undefined, or defined as all 0's, traps are not generated. If non-zero, traps are generated for link up, link down, cold start, and authentication errors.

SNMP Read Authentication String

This 16-character string is required by the Network Management Station (the SNMP client) to access MIB variables in LINCS.

SNMP Write Authentication String

This 16-character string is required by the Network Management Station (the SNMP client) to modify MIB variables in LINCS. If left blank, LINCS will default the string to PUBLIC.

MAC Layer Frame Format

This is a Display Only field which indicates the MAC layer Frame Formats (protocols) which are supported via the Token Ring LAN adapter. Current Token Ring MAC layer Frame Formats (protocols) supported are 802.2 and SNAP.

Token Ring 802.2

Preamble	Destination	Source	Optional Routing Info	DSAP	SSAP	Control	Data	CRC
3 bytes	6 bytes	6 bytes	0 or 2 to 18 bytes	1 byte	1byte	1 byte	variable	

Token Ring SNAP

Preamble	Destination	Source	Optional Routing Info	DSAP	SSAP	Control	Organization	Type	Data	CRC
3 bytes	6 bytes	6 bytes	0 or 2 to 18 bytes	1 byte	1byte	1 byte	3 bytes	2 bytes	variable	

Option

This is a toggle field which allows the user to either ENABLE or DISABLE support for the indicated frame format. At least one Frame Format must be enabled on this panel.

Network Number

This is a 8 digit hexadecimal field which allows the user to specify the network number which will be assigned to the network segment which the LAN adapter will be attached to.

To be valid, this number may not be:

- the same number assigned to an internal IPX network segment
- the same number assigned to any directly connected or remote network segments accessible via another LAN adapter on this LINCS node
- 00000000 or FFFFFFFF
- the same number assigned to another frame format on the same network segment

RIP and SAP Broadcast Timer

These fields allow the user to independently configure the time interval between RIP Routing Information and SAP Service Information broadcasts on the network. The configured values are 2 to 4095 thirty second intervals, where 2 (one minute) is the default value.

RIP and SAP Aging Timer

These fields allow the user to independently configure the amount of time that RIP and SAP will keep a RIP Routing Information entry or SAP Service Information entry in their respective databases if a Broadcast packet has not been received, which indicates that a Route or Service is still available. The configured values are 4 to 4095 thirty-second intervals, where 6 is the default value. This value should be two or more times greater than the Broadcast interval to avoid prematurely Aging an entry, in the event that an IPX router or server is temporarily unable to send a broadcast packet due to low buffers, or if a broadcast packet gets lost.

RIP and SAP Broadcast Entries

These fields allow the user to independently configure the number of RIP and SAP broadcast entries which may be included in a broadcast packet. Configurable ranges for RIP are 50 to 133 where 50 is the default. Configurable ranges for SAP are 7 to 16 where 7 is the default.

The number of entries is also subject to limitations based on the configured Packet Size, defined on the IPX Options panel. Use the following calculations to determine the maximum number of broadcast entries that may be included in a broadcast packet:

Number of RIP Broadcast Entries:

$$\frac{\text{Packet Length} - \text{IPX and RIP Header Size (32 bytes)}}{\text{RIP Broadcast Entry (8 bytes)}}$$

Example:

$$\frac{\text{Packet Length of 618 bytes} - \text{IPX and RIP Header Size (32 bytes)}}{\text{RIP Broadcast Entry (8 bytes)}} = 74 \text{ (round up to whole number)}$$

Number of SAP Broadcast Entries:

$$\frac{\text{Packet Length} - \text{IPX and SAP Header Size (32 bytes)}}{\text{SAP Broadcast Entry (64 bytes)}}$$

Example:

$$\frac{\text{Packet Length of 618 bytes} - \text{IPX and SAP Header Size (32 bytes)}}{\text{SAP Broadcast Entry (64 bytes)}} = 10 \text{ (round up to whole number)}$$

It is recommended that the default values be used, unless all IPX Routers and Servers on the same network support larger RIP and SAP Broadcast entries. Some older IPX Routers and Servers do not, and they may discard the packet or not process it completely.

PF9-Default

The PF9-Default key adds routes to each of the LINC'S LAN cards that are configured for IP Routing as default entries into the routing table. These default routes do not time out.

TCP/IP Options

```

TCP/IP Options                                     LINC'S C8.2 Central Control

LPD Printer Username _____
LPD Server/Printers Drive:  None
                               SNMP OPTIONS
System Location: _____
                               _____
System Contact: _____
System Name: _____
                               TN3270 SERVER OPTIONS
TN3270E:      Enable           ATTN Key:  Disable
SYSREQ Key:   Disable          3270 Translate:  Disable
Keepalive/Timeout Method:  Keepalive using Telnet NOP
Keepalive/Inactivity Timer (min): 05 Disconnect on UNBIND:  Disable

TELNET Disconnect on UNBIND:  Disable

                               SESSION MANAGEMENT SYSTEM
SMS Server:   None             SMS Client:   Disable
Poll Rate (secs): 00005
Domain Name: _____

PF: 1-Menu                                     7-Back 8-Forw 9-Default 10-Done

```

These parameters apply to all TCP/IP lines. The Miscellaneous LAN Options panel is displayed if there is at least one LAN line configured with TCP/IP.

The next panel in the forward series is IPX Options.

LPD Printer Username

The LPD Printer Username is used to identify the user who requested an LPD print in LPD print requests sent to an LPD Print Server, and may be printed on the banner page.

If left blank, it will default to LINC'S.

LPD Server/Printers Drive

This field allows you to toggle through the choices of none and all of the hard drives that are installed, to indicate whether you wish to assign a hard drive as a location to temporarily store LPD print jobs when LINC'S is configured as a LPD Print Server or when supporting LPD LAN printers.

SNMP System Location

This 64-character field describes the physical location of the LINCS node.

Valid characters are: alphanumeric, space, dollar, period, hyphen, and underscore.

SNMP System Contact

This 48-character field defines the name of the individual who is the contact person for this LINCS node. Valid characters are: alphanumeric, space, dollar, period, hyphen, and underscore

SNMP System Name

This 48-character field defines the administratively-assigned name for this managed LINCS node. By convention, the System Name is the fully qualified domain name. Valid characters are: alphanumeric, space, dollar, period, hyphen, and underscore.

TN3270E

This TN3270 Server Option indicates whether you wish for LINCS to attempt to connect TN3270 clients as TN3270E clients at Telnet negotiation time. If LINCS can not successfully connect the client as a TN3270E client, LINCS will drop back to a standard TN3270 connection attempt.

ATTN and SYSREQ

The TN3270 Current Practices RFC recommends using the following keys and/or Telnet commands to communicate SYSREQ and ATTN keystrokes:

- Telnet Interrupt Process command ->; SYSREQ
- Telnet Break command ->; ATTN

The TN3270 Enhancements Draft recommends the following :

- Telnet Abort Output command ->; SYSREQ
- Telnet Interrupt Process command ->; ATTN

ATTN key toggles between Telnet Break (default) or Telnet Interrupt Process.

SYSREQ key toggles between Telnet Interrupt Process (default) or Telnet Abort Output.

3270 Translate

Some clients require 3270 local/remote command translation. If a command does not exist in the configured format, then LINCS will not translate it.

3270 translate toggles to Disabled (default), Remote to Local, or Local to Remote.

Keep Alive Method

The configurable keep-alive mechanism periodically tests the TCP connection to the TN3270 client. Typically, a Telnet NOP command or Telnet DO TIMING-MARK option is sent by the client or the server. LINCS is currently able to handle either one coming from the client.

An NOP only requires a TCP ACK response while a DO TIMING-MARK requires a WILL or WON'T Telnet response. If the server were to send Keep Alive commands, a timeout by the client would end the session (see Session Termination). Keep Alive is typically used in an environment where LUs are pooled for use by many users. The purpose of the Keep Alive is to detect users that have terminated the connection without actually requesting a disconnect (such as powering down their PC). Once there is no-response detected, LINC S will disconnect the session and make the resource available to others.

Keep Alive Method applies when LINC S is a TN3270 Server to LAN attached devices, but is ignored when LINC S is acting as a TN3270 Client for directly attached devices.

KeepAlive Method toggles to NOP (default) or DO TIMING-MARK.

Keep Alive Timer

KeepAlive Timer is the interval in minutes between Keep Alive tests. The range is 1 to 99, and the default is 5.

Disconnect on UNBIND

This option, when enabled, will cause the TN3270 client to be disconnected whenever an UNBIND is received for their session. This is typically used for pooled sessions, where it is important to release the session resource back to the pool to make it available for others to use. The UNBIND may occur if the user logs off from the application or if the application times the user out for inactivity.

Telnet Disconnect on UNBIND

This option, when enabled, will cause a Telnet client to be disconnected whenever an UNBIND is received for their session. This is typically used for pooled sessions, where it is important to release the session resource back to the pool to make it available for others to use. The UNBIND may occur if the user logs off from the application or if the application times the user out for inactivity.

SMS Server

The SMS Server field toggles to enable the SMS Server, and select which line will provide SMS service. Available lines are LAN lines which have TCP/IP enabled.

SMS Poll Rate

The SMS poll rate determines how fast the servers will be polled for the session and connection availability data. The poll rate is 5 to 65535 seconds.

SMS Domain Name

The SMS domain name defines the top level domain name node, in the zone of authority of the SMS domain name server. The domain name may be 64 characters in length.

IPX General Options

This panel will appear after the Line Options panels if IPX has been enabled on any line.

```

IPX General Options                                LINCS C8.2 Central Control

                                                    IPX/SPX Options
IPX Packet Size:                                4202
IPX Routing:                                    Enable
SPX Verify Timeout (sec):                       06
SPX Listen Timeout (sec):                       012
SPX Abort Timeout (sec):                        060
SPX Retry Count:                                010

                                                    IPX SNA Server Options
IPX Internal Network Number:                    5362FF01
IPX SNA Server Name:                            CORP_SYSTEMS
IPX SNA Server LUs:                             0064
PF: 1-Menu                                     7-Back   8-Forw   9-Default 10-Done
    
```

In addition to the above IPX/SPX options, there are several RPQs related to the IPX feature. These are located on the RPQ panel, that can be accessed from the Configuration Menu (Panel_List) as Item 32. Among the RPQs are:

- Filter IPX Packet Type 20
- Map “ANY” LUs to “PUBLIC” LUs
- IPX SAP Filter

IPX Packet Size

This field allows the user to configure the maximum packet size supported by any direct connect or internal IPX network segment. Configurable ranges for Ethernet are 618 to 1514 bytes, and for Token Ring are 618 to 4202 bytes. The default is 4202.

The maximum packet length applies to all Ethernet and Token Ring lines with IPX enabled. If the configured IPX packet size is greater than 1514, and IPX is enabled on an Ethernet adapter, then 1514 will be used for the Ethernet adapter, but the configured packet size will be used for any Token Ring adapter.

IPX Routing

IPX routing is enabled by default. That is, if you have two or more LAN cards configured for IPX protocol or if you have two or more frame types enabled for IPX protocol, then LINCS will route between these cards or frame types. If you toggle this field to Disable, then LINCS will no longer route IPX traffic between LAN adapters. This permits LINCS to act as the SNA gateway for multiple LANs without compromising security between two or more LANs.

IPX SNA Server Name

The Server Name uniquely identifies this IPX SNA Server to the network, and is a maximum of 16 characters. Valid characters are upper and lower case alphanumeric, hyphen, and underline. There is no default value.

Note that this name is case sensitive, and that client and server names must match exactly.

IPX SNA Server LUs

LUs is the maximum number of LUs available to IPX SNA Clients, and applies to all lines with IPX enabled. This number also must not exceed the number of IPX SNA Clients enabled by the installed FAD(s).

- Min=0
- Max=40481024
- Default=0 LUs

A warning is displayed if a non-zero value is specified and IPX has not been enabled on any LAN board.

SPX Verify Timeout

The frequency at which LINCS sends a packet to the other side of a connection to inform it that this side is still alive, in seconds:

- Min=1
- Max=30
- Default=6

SPX Listen Timeout

The number of seconds LINCS will wait without receiving a packet from the other side of the connection before it starts sending packets to the other side asking for verification that the connection still exists.

- Min=1
- Max=360
- Default=12

SPX Abort Timeout

The number of seconds LINCS will wait without receiving any response from the other side of the connection before it terminates the session.

- Min=60
- Max=600
- Default=60

SPX Retry Count

Number of times LINCS resends an SPX data packet.

- Min=1
- Max=255
- Default=10

IPX Internal Net

A logical network number, internal to LINCS, for the configured server. The number must be a maximum of eight hexadecimal characters, and unique throughout the IPX network.

To be valid, this number may not be:

- the same number assigned to an internal IPX network segment
- the same number assigned to any directly connected or remote network segments accessible via another LAN adapter on this LINCS node
- 00000000 or FFFFFFFF
- the same number assigned to another frame format on the same network segment

4. Link Profiles

The Link Profile panels will be displayed if Gateway or 3270 Host circuits have been enabled on the General Options panel. Link Profiles contain link level information required when assigning gateway circuits, LU to PU mapped circuits, 3270 host circuits, and APPN Link Stations. These profiles can be used for the upstream and/or the downstream connections of the gateway circuits. Note that on the SCON platforms, the Link Profile is always predefined as ESCON/Non-SNA and cannot be changed, so the Link Profile panel is not displayed.

A Link Profile may be shared by gateway, LU to PU Mapping profiles, and 3270 host circuits with the same link level. Link Profiles may be created for the following:

- ESCON/SNA, ESCON/CNC, ESCON/Non-SNA
- Channel/SNA, Channel/CTC, Channel/Non-SNA
- BSC
- SDLC and SDLC/DAP
- X.25
- LLC
- TCP/IP
- IP/Bridge

Note that you may enter a parameter when accessing this panel, to specify which profile you wish to access. The parameter can be the name of the profile, or the number of the profile.

The first time you configure LINC S, LINC S will create one default link profile for each valid protocol enabled on the Line Options panels. If more than one link profile is desired for a particular protocol, it is necessary to press the PF4-Add function on one of the Link Profile panels.

ESCON/SNA Link Profile

This profile is used to support all channel SNA connections including host circuits, SNA gateway circuits, and APPN ESCON circuits.

```
Link Profile 00                                LINC S C8.2 Central Control

Profile Name:                                SNAHOST
Link Type:                                    ESCON/SNA

APPN HPR:                                     Disable

                                APPN TRANSMISSION GROUP CHARACTERISTICS:

Effective Capacity:   Minimum                Security:
Propagation Delay:   Minimum                User Defined 1:      000
Cost/Connect:        000                   User Defined 2:      000
Cost/Byte:           000                   User Defined 3:      000

PF: 1-Menu           4-Add 5-Delete       7-Back 8-Forw 9-Default 10-Done
```

ESCON/CNC Link Profile

This profile is used when the IP Channel Bridge feature is being configured.

```

Link Profile 00                                     LINCS C8.2 Central Control

Profile Name:                                     CNCHOST
Link Type:                                       ESCON/CNC

PF: 1-Menu           4-Add 5-Delete   7-Back 8-Forw 9-Default 10-Done
    
```

ESCON/Non-SNA Link Profile

This link profile is used when Non-SNA 3270 connections are being used over the ESCON interface.

```

Link Profile 03                                     LINCS C8.2 Central Control
Profile Name:
Link Type:                                       Channel/Non-SNA

PF: 1-Menu   4-Add   5-Delete   7-Back   8-Forw   9-Default   10-Done
    
```

Channel/SNA Link Profile

This profile is used to support all channel SNA connections including host circuits, SNA gateway circuits, and APPN channel circuits.

```

Link Profile 01                                     LINCS C8.2 Central Control

Profile Name:
Link Type:                                       Channel/SNA
APPN HPR:                                       Disable

                APPN TRANSMISSION GROUP CHARACTERISTICS
Effective Capacity:  Maximum           Security:           Securecnd
Propagation Delay:  Minimum           User-Defined 1:    000
Cost/Connect:      000                User-Defined 2:    000
Cost/Byte:         000                User-Defined 3:    000

PF: 1-Menu           4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done
    
```

Channel/CTC Link Profile

This profile is used when the IP Channel Bridge feature is being configured.

```

Link Profile 02                                     LINCS C8.2 Central Control

Profile Name:
Link Type:                                       Channel/CTC

PF: 1-Menu           4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done
    
```

Channel/Non-SNA Link Profile

This link profile is used when Non-SNA 3270 connections are being used over the channel interface.

```
Link Profile 03                                     LINCS C8.2 Central Control
Profile Name:
Link Type:                                     Channel/Non-SNA
PF:  1-Menu          4-Add  5-Delete 7-Back 8-Forw 9-Default 10-Done
```

BSC Link Profile

The BSC Link Profile is used with remote BSC (host) connections only. For local channel interfaces, a Channel/Non-SNA Link Profile is required.

```
Link Profile 04                                     LINCS C8.2 Central Control
Profile Name:
Link Type:                                     BSC
Max Transmit Frame Size: 256
PF:  1-Menu          4-Add  5-Delete 7-Back 8-Forw 9-Default 10-Done
```

SDLC Link Profile

This Link Profile is used for SDLC host connections. Use the SDLC/DAP Link Profile for downstream SDLC connections to other controllers.

```
Link Profile 05                                     LINCS C8.2 Central Control
Profile Name:
Link Type:                                     SDLC
Max Transmit Frame Size: 512
APPN HPR:                                     Disable
APPN TRANSMISSION GROUP CHARACTERISTICS
Effective Capacity:      56K          Security:      Pubswtnet
Propagation Delay:      Telephone    User-Defined 1: 000
Cost/Connect:          000          User-Defined 2: 000
Cost/Byte:             000          User-Defined 3: 000
PF:  1-Menu          4-Add  5-Delete 7-Back 8-Forw 9-Default 10-Done
```

SDLC/DAP Link Profile

The SDLC/DAP Link Profile is required when supporting downstream PU stations over an SDLC link. Use the SDLC Link Profile for links associated with host connections over SDLC.

```

Link Profile 06                                     LINCS C8.2 Central Control
Profile Name:
Link Type:                _____
                        SDLC/DAP
Max Transmit Frame Size: 265
APPN HPR:                 Disable

                        APPN TRANSMISSION GROUP CHARACTERISTICS

Effective Capacity:      56K           Security:           Pubswtnet
Propagation Delay:      Telephone     User-Defined 1: 000
Cost/Connect:          000           User-Defined 2: 000
Cost/Byte:             000           User-Defined 3: 000
PF: 1-Menu             4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done
  
```

X.25 Link Profile

The X.25 Link Profile is 2 panels long.

X.25 Link Profile Panel 1

```

Link Profile 07                                     LINCS C8.2 Central Control
Profile Name:
Link Type:                _____
                        X.25
Circuit Type:            Two-Way Call (SVC)
Logical Link Control:    QLLC
Throughput Class Negotiation (bps): 4800
Non-Negotiated Packet Size: 128
Negotiated Packet Size: 128
Non-Negotiated Window Size: 2
Negotiated Window Size: 2
Closed User Group:      _____
Recognized Private Operating Agency: _____

                        APPN TRANSMISSION GROUP CHARACTERISTICS

Effective Capacity:      56K           Security:           Pubswtnet
Propagation Delay:      Telephone     User-Defined 1: 000
Cost/Connect:          000           User-Defined 2: 000
Cost/Byte:             000           User-Defined 3: 000
PF: 1-Menu             4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done
  
```

X.25 Link Profile Panel 2

```

Link Profile 07                                     LINCS C8.2 Central Control

                X.25 INCOMING CALL OPTIONS

Negotiate Window Size Facility:                    Disable
Negotiate Throughput Class:                        Disable
Validate Connection Identifier:                    Disable
Validate Host DTE Address:                         Disable
Reverse-Charge Facility:                           Do Not Accept Facility

                X.25 OUTGOING CALL OPTIONS

Negotiate Packet Size Facility:                    Disable
Negotiate Window Size Facility:                    Disable
Throughput Class Facility:                         Disable
Connection Identifier:                             Disable
Local DTE Address:                                 Disable
Reverse-Charge Facility:                           Do Not Include Facility

PF:  1-Menu          4-Add  5-Delete  7-Back  8-Forw  9-Default  10-Done

```

LLC Link Profile

The LLC Link Profile is used with Token Ring, Ethernet, and Frame Relay interfaces used with SNA protocol.

```

Link Profile 08                                     LINCS C8.2 Central Control

Profile Name:          LLC_LINK
Link Type:             LLC
Max Transmit Frame Size: 521
Transmit Window Size:  2
Receive Window Size:   1
APPN HPR:              Disable

                APPN TRANSMISSION GROUP CHARACTERISTICS

Effective Capacity:    4M          Security:          Pubswtnet
Propagation Delay:     LAN          User-Defined 1:    000
Cost/Connect:          000          User-Defined 2:    000
Cost/Byte:             000          User-Defined 3:    000

PF:  1-Menu          4-Add  5-Delete  7-Back  8-Forw  9-Default  10-Done

```

TCP/IP Link Profile

The TCP/IP Link Profile is used only when moving SNA data within IP packets (IP Encapsulation of SNA). This profile is not required for Telnet, TN3270, LAN printing, or Print Server features.

```

Link Profile 09                                     LINCS C8.2 Central Control

Profile Name:          IP521
Link Type:             TCP/IP
Max Transmit Frame Size: 521

PF:  1-Menu          4-Add  5-Delete  7-Back  8-Forw  9-Default  10-Done

```

IP/Bridge Link Profile

The IP/Bridge Link Profile is used with any LAN card that has been configured with IP/Bridge as the protocol to be used, and is associated with the IP Channel Bridge feature of LINCS.

```
Link Profile 10                                LINCS C8.2 Central Control
Profile Name:                                BRIDGE
Link Type:                                    IP/Bridge
PF:  1-Menu      4-Add  5-Delete 7-Back 8-Forw  9-Default  10-Done
```

Field Definitions

Circuit Type

Options for circuit type are:

- Permanent Virtual Circuit (PVC)
- Incoming Call Only (SVC)
- Outgoing Call Only (SVC)
- Two-Way Call (SVC)
- Auto Outgoing Call (SVC)

Closed User Group

This field defines the Closed User Group number of the remote host, if the host belongs to any such group. If the host does not belong to any such group, the field should be left blank. The number 00 is a valid number and is not a correct entry if the remote host does not belong to any closed user group.

Enter a numeric value from 00 to 99.

Link Type of Link Profile

This toggle field indicates the type of link of the circuits using this profile. The value displayed here determines which additional fields will be displayed on this panel. As you toggle the link type, the appropriate fields are displayed for the selected type. Options are:

- ESCON/SNA
- ESCON/CNC
- ESCON/Non-SNA
- Channel/SNA
- Channel/CTC
- Channel/Non-SNA
- SDLC
- SDLC/DAP

- BSC
- LLC
- TCP/IP
- IP/Bridge

Logical Link Control

Choose one:

- QLLC - Qualified Logical Link Control
- PSH - Physical Service Header

Note: PSH is only valid for downstream connections.

Max Transmit Frame Size

Options vary by protocol and board:

LLC on TRC:	265 to 4105	default is 521
LLC on ETH:	265 to 1490	default is 521
LLC on HSC	265 to 4105	default is 521
TCP/IP on ETH:	265 to 1460	default is 521
TCP/IP on TRC:	265 to 4016	default is 521
SDLC and SDLC/DAP:	265 to 521 SCC	default is 265 *
HSC	265 to 4105	default is 265
BSC:	256 to 512	default is 256

* The recommended SDLC setting for LINCS is 512, when using the SCC card. The recommended setting for LINCS when using the HSC card is 521 or higher. If there is to be a large amount of file transfers occurring, larger values are recommended.

This field will be verified on the assignment panels which specify this Link Profile number.

For SNA frames over a Frame Relay line using LLC, see special considerations about Frame Relay Frame Size and Fragmentation in the Line Options section for Frame Relay on an HSC.

Non Negotiated Default Packet Size

This field defines the default packet size that the X.25 protocol uses in the absence of any negotiation. This should be consistent with the network subscription value.

Toggle to select one of these values (in bytes):

64	128	256	512
----	-----	-----	-----

Negotiated Packet Size

This field defines the packet size that LINCS will try to negotiate when either requesting a call or accepting an incoming call. It is recommended that this field be set to 512 for the most efficient data transmission. This field has no meaning for a PVC, or if packet size negotiation is not available for an SVC.

Toggle to select one of these values:

64	128	256	512
----	-----	-----	-----

Non Negotiated Default Window Size

This toggle field defines the default window size that the X.25 protocol uses in the absence of any negotiation. This should be consistent with the network subscription value.

Select a value from 1 to 7.

The default value is 2.

Negotiated Window Size

This toggle field defines the window size that LINCS will try to negotiate when either requesting a call or accepting an incoming call. This field has no meaning for a PVC circuit or if window size negotiation is not available for a SVC.

Select a value from 1 to 7.

The default value is 2.

Profile Name

This name is used to identify the profile. It consists of up to 8 alphanumeric characters plus the characters “_” (underscore) and “.” (period).

It may be entered here, or given as a parameter to the command used to enter this panel.

Recognized Private Operating Agency

This field defines the recognized private operating agency when requesting a call to a remote host. If not needed, leave this field blank (not zeroes).

Allowable values are 0 to 9999.

Receive Window Size

Options are: 1(default), 2, 3, 4, 5, 6, 7

This field defines the maximum number of I-frames that this link can receive without transmitting a response. The value should be less than or equal to the transmit window size of the link partner.

Throughput Class Negotiation

This field defines the throughput class that the X.25 protocol tries to negotiate when either requesting a call or accepting an incoming call. This field has no meaning for a PVC or if packet negotiation is not available for a SVC.

Toggle to select one of these values (bps):

75	150
300	600
1200	2400
4800 (default)	9600
19200	48000

Transmit Window Size

Options are: 1, 2(default), 3, 4, 5, 6, 7

This field defines the maximum number of I-frames that this link can transmit before an acknowledgment is required. This value is typically set to a value greater than the Receive Window Size of the station acting as its session partner, may be set to equal to the Receive Window Size, but should never be set to a value less than the Receive Window Size.

X.25 Incoming Call Options

Negotiate Packet Size Facility	Disable	Enable
Negotiate Window Size Facility	Disable	Enable
Negotiate Throughput Class	Disable	Enable
Validate Connection Identifier	Disable	Enable
Validate Host DTE Address	Disable	Enable
Reverse Charge Facility	Do Not Accept Facility	Accept Reverse-Charge
	Accept No Reverse-Charge	Accept Either Option in Facility

X.25 Outgoing Call Options

Negotiate Packet Size Facility	Disable	Enable	
Negotiate Window Size Facility	Disable	Enable	
Throughput Class Facility	Disable	Enable	
Connection Identifier	Disable	Enable	
Local DTE Address	Disable	Enable	
Reverse Charge Facility	Do Not Include Facility	Request Reverse-Charge	Request No Reverse-Charge

APPN HPR

On all SNA Link Profiles, the APPN HPR option is available to be enabled or disabled. It should only be enabled if APPN is to be used over this link, and High Performance Routing will be used.

APPN Transmission Group Characteristics

APPN TG Characteristics are used by the APPN network when choosing a route from one node to another. The route selection criteria are defined in the Class of Service (COS) definitions. There are five standard COSs: #BATCH, #BATCHSC (BATCH Secure), #INTER, #INTERSC (INTER Secure), and BLANK. Some important things to consider about how a COS uses the TG Characteristics are:

#BATCH considers all Effective Capacities of 56K and above to be the same, unless the Cost/Connect or Cost/Byte is not zero, in which case Effective Capacities of 19.2K and above are considered to be the same. For example, if a 16Mbit token ring line uses an APPN TG with the Cost/Connect is set to 10, then that line will be considered the same as a 19.2Kb SDLC line with a Cost/Connect of 00.

#INTER considers all Effective Capacities of 4M and above the same, unless the Cost/Connect or the Cost/Byte are not zero, in which case 56K and above are considered the same.

Neither of the secure COSs will use a line that has the Security set as Nonsecure.

None of the Default COSs use the User-Def fields. To use these, new COSs must be defined that assign weight ranges to the User-Def fields.

#BATCH does not use the Propagation Delay field, but for #INTER it's very important. For example, if #INTER is used, and the Propagation Delay is not set to LAN, then all of the LAN speeds will be downgraded to 56Kb or lower.

Effective Capacity

This field toggles to specify the band width in Bits/Second of the line using this Link Profile. Possible values are Minimum, 1.2K, 2.4K, 4.8K, 7.2K, 9.6K, 14.4K, 19.2K, 38.4K, 48K, 56K, 57.6K, 64K, 128K, 256K, 512K, 1M, 2M, 4M, 8M, 10M, 16M, and Maximum.

4M is the default for Frame Relay. Frame relay users should ensure that the Effective Capacity matches their line speed.

Propagation Delay

This field toggles to Minimum, LAN, Telephone, Pktswnet (packet switched), Satellite, and Maximum.

LAN is the default for Frame Relay. Frame relay users should ensure that the Propagation Delay is appropriate for their Frame Relay line.

Cost/Connect

This data entry field specifies Cost per connection in the range of 0-255.

Cost/Byte

This data entry field specifies Cost per byte in the range of 0-255.

Security

This field toggles to Nonsecure, Pubswtnet (public switched), Undrgrdcb (underground cable), Securecnd (secured conduit), Guardcnd (guarded conduit), Encrypted, Guardrad (guarded radiation) or Maximum.

Pubswtnet is the default for Frame Relay. Frame relay users should ensure that is the appropriate Security for their Frame Relay line.

User-Defined

The User-Defined 1, User-Defined 2, and User-Defined 3 data entry fields specify the User defined parameters in the range of 0-255.

PF Key Definitions

PF4-Add - If this function is selected while defining Link Profiles, another Link Profile panel will be added.

PF5 - Delete - Pressing this function key (twice) removes the Link Profile currently displayed.

PF9-Default - Assigns LINCS defined values to the fields on the panel. These default values are typical for the type of LINCS interface being configured.

5. Gateway Circuits

When entering the Gateway Circuits panel from the Configuration Menu, a gateway circuit number may be entered as a parameter. Entering a specific circuit number as a parameter will advance the display directly to that gateway circuit. This is useful if many gateway circuits are defined and you wish to change a particular circuit.

Note that if gateway circuits are configured for a given line, and the line is taken away using the Product Description Panel, then the Gateway Circuit panels must be updated to remove all references to the deleted line.

The Gateway Circuit utility is only displayed if two or more valid lines are configured, and at least one valid Link Profile is defined.

Gateway Concepts

The gateway function allows LINCS to act as a link between downstream devices and upstream hosts. A gateway circuit defines a data path through the LINCS node. Each gateway circuit represents a logical connection from one SNA PU address or LAN line (upstream connection) to one downstream SNA PU. Gateway circuits are also used to define an upstream IP channel connection to a LAN card dedicated for downstream IP connections, when the IP Channel Bridge feature is installed.

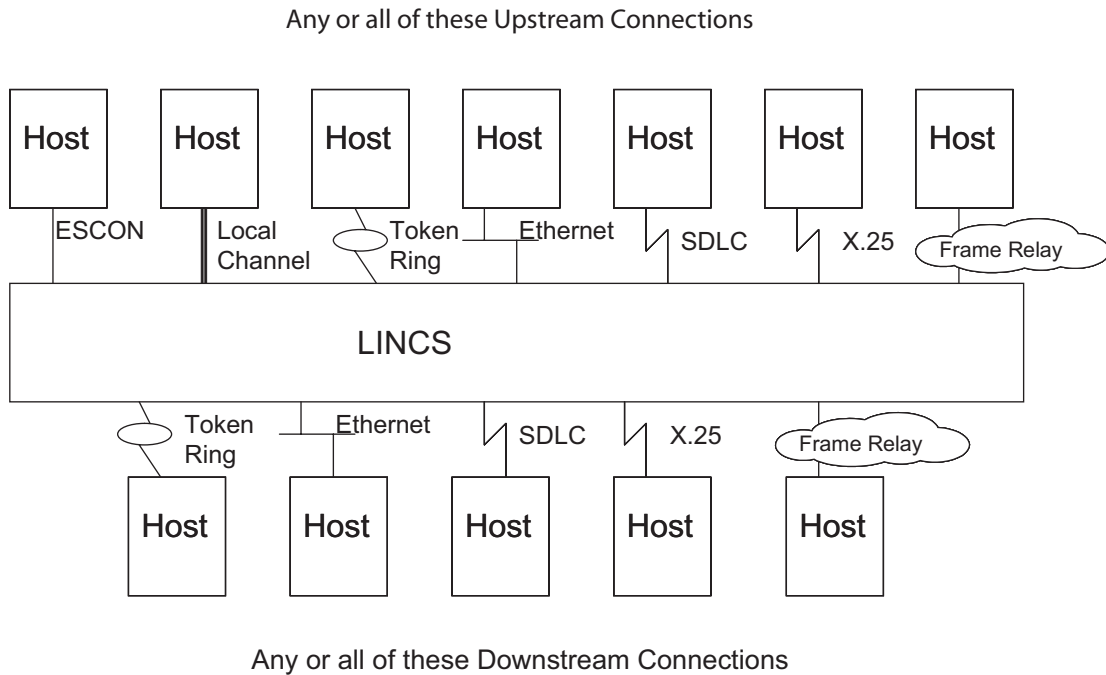
A gateway circuit cannot have the upstream and downstream connection through the same physical interface. If that were the case, the DSPU should access the host directly. For example, if a host is connected by Token Ring to a gateway LINCS node and another PU, define that PU as directly connected to the host. One exception to this is if LU to PU Mapping is being used to communicate with the downstream device.

While defining gateway circuits, you should keep the connection limitations in mind. Refer to the table Maximum Connection Limitations for a list of these limitations.

The Gateway Circuit diagram indicates the upstream SNA hosts that can be accessed by a downstream SNA node (DSN) using a gateway circuit.

Gateway Circuit Diagram

This diagram shows the upstream hosts that can be accessed by a downstream node (DSN) using a Gateway Circuit. Note that all Token Ring and Ethernet connections can be either LLC or TCP/IP.



Gateway Circuits Example - Lines and Address Table

Gateway Circuit	Host Line	Host Address	Local SAP	DSN Line	DSN Address	Remote SAP
000	TRC1	LAN: 400011110000	04	HSC1.1	PU: C1	
001	TRC1	LAN: 400011110000	08	FET1	LAN: 40022220000	04
002	TRC1	LAN: 400011110000	0C	FET1	IP: 192.0222.201	
003	CHP1	PU: 10		TRC1	LAN: 400022220000	04
004	CHP1	PU: 11		HSC1.1	PU: C2	
005	CHP1	PU: 12		FET1	LAN: 020022220000	08
006	CHP1	PU: 13		FET1	IP: 192.0.222.201	
007	HSC1.0	PU: 02		TRC1	LAN: 400022220000	08
008	HSC1.0	PU: 04		HSC1.1	PU: C3	
009	HSC1.0	PU: 05		FET1	LAN: 020022220000	0C
010	HSC1.0	PU: 06		FET1	IP: 192.0.222.201	
011	FET1	LAN: 020011110000	04	TRC1	LAN: 400022220000	0C
012	FET1	LAN: 020011110000	08	HSC1.1	PU: C4	
013	FET1	IP: 192.0.111.101		TRC1	LAN: 400022220000	10
014	FET1	IP: 192.0.111.101		HSC1.1	PU: C5	
015	HSC2.0	DLCI: 021	04	FET1	LAN: 020022220000	10
016	HSC2.1	PU: 01		FET1	LAN: 020022220000	14
017	CHP2	TCP/IP on Host	N/A	FET2	IP Network	N/A
018	ESC1	PU: 00		FET1	020022220000	18
019	ESC1	PU: 01		TRC1	400011740001	14
020	ESC1	PU: 02		HSC1.1	PU: C6	
021	ESC1	PU: 03		HSC1.2	020033330001	04
022	ESC1	PU: 04		FET1	192.0.222.201	
023	ESC1	TCP/IP on Host	N/A	FET3	IP Network	N/A

Gateway Circuits Example - Upstream/Downstream Protocol Table

Please note that upstream and downstream are from the point of view of the LINCS node.

Gateway Circuit	Upstream Protocol	Downstream Protocol
00	TRC/LLC	SDLC/DAP
01	TRC/LLC	ETH/LLC
02	TRC/LLC	ETH/IP
03	Channel/SNA	TRC/LLC
04	Channel/SNA	SDLC/DAP
05	Channel/SNA	ETH/LLC
06	Channel/SNA	ETH/IP
07	SDLC	TRC/LLC
08	SDLC	SDLC/DAP
09	SDLC	ETH/LLC
10	SDLC	ETH/IP
11	ETH/LLC	TRC/LLC
12	ETH/LLC	SDLC/DAP
13	ETH/IP	TRC/LLC
14	ETH/IP	SDLC/DAP
15	Frame Relay/LLC	ETH/LLC
16	X.25	ETH/LLC
17	Channel/IP	ETH/IP

Sample Gateway Circuit Panels

Gateway Circuit 000

```

Gateway Circuit 000                                     LINCS C8.2 Central Control
UPSTREAM CONNECTION - USC
Line:                                     TRC1
Link Profile:                             08 (LLC)
Local SAP:                                 04
Remote LAN Address:                       4000 1111 0000
Remote SAP:                                 04
DOWNSTREAM CONNECTION - DSC
Line:                                     HSC1.1
Link Profile:                             06 (SDLC/DAP)
PU Address:                               C1
Primary Group Addr:                       E0
PUID Override:                             _____
PF:  1-Menu 3-Def_Dflt 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done
    
```

Gateway Circuit 001 (Token Ring - LLC to Ethernet - LLC)

```

Gateway Circuit 001                                LINCS C8.2 Central Control
UPSTREAM CONNECTION
Line:                                             TRC1
Link Profile:                                   08 (LLC)
Local SAP:                                     08
Remote LAN Address:                             4000 1111 0000
Remote SAP:                                     04
DOWNSTREAM CONNECTION
Line:                                             FET1
Link Profile:                                   08 (LLC)
Local SAP:                                     04
Remote LAN Address:                             0200 2222 0000
Remote SAP::                                   04
PF: 1-Menu   3-Def_Dflt 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done

```

Gateway Circuit 002 (Token Ring to LLC to Ethernet - IP)

```

Gateway Circuit 002                                LINCS C8.2 Central Control
UPSTREAM CONNECTION
Line:                                             TRC1
Link Profile:                                   07 (LLC)
Local SAP:                                     0C
Remote LAN Address:                             4000 1111 0000
Remote SAP:                                     04
DOWNSTREAM CONNECTION
Line:                                             FET1
Link Profile:                                   09 (TCP/IP)
Remote IP Address:                             192 000 222 201
Remote Data Link ID:                           4000 2222 0002 04
PF: 1-Menu   3-Def_Dflt 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done

```

Gateway Circuit 003 (Channel to Token Ring - LLC)

```

Gateway Circuit 003                                LINCS C8.2 Central Control
UPSTREAM CONNECTION
Line:                                             CHP1
Link Profile:                                   01 (Channel/SNA)
PU Address:                                     10
DOWNSTREAM CONNECTION
Line:                                             TRC1
Link Profile:                                   08 (LLC)
Local SAP:                                     04
Remote LAN Address:                             4000 2222 0000
Remote SAP::                                   04
PF: 1-Menu   3-Def_Dflt 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done

```

Gateway Circuit 004 (Channel to SDLC DAP)

```
Gateway Circuit 004                                LINCS C8.2 Central Control
UPSTREAM CONNECTION
Line:                                             CHP1
Link Profile:                                   01 (Channel/SNA)
PU Address:                                     11
DOWNSTREAM CONNECTION
Line:                                             HSC1.1
Link Profile:                                   06 (SDLC/DAP)
PU Address:                                     C2
Primary Group Addr:                             E0
PUID Override:                                  _____
PF: 1-Menu 3-Def_Dflt 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done
```

Gateway Circuit 005 (Channel to Ethernet - LLC)

```
Gateway Circuit 005                                LINCS C8.2 Central Control
UPSTREAM CONNECTION
Line:                                             CHP1
Link Profile:                                   01 (Channel/SNA)
PU Address:                                     12
DOWNSTREAM CONNECTION
Line:                                             FET1
Link Profile:                                   08 (LLC)
Local SAP:                                     04
Remote LAN Address:                             0200 2222 0000
Remote SAP::                                   08
PF: 1-Menu 3-Def_Dflt 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done
```

Gateway Circuit 006 (Channel to Ethernet - IP)

```
Gateway Circuit 006                                LINCS C8.2 Central Control
UPSTREAM CONNECTION
Line:                                             CHP1
Link Profile:                                   01 (Channel/SNA)
PU Address:                                     13
DOWNSTREAM CONNECTION
Line:                                             FET1
Link Profile:                                   09 (TCP/IP)
Data Link ID:                                   4000 1174 0001 04
Remote IP Address:                             192 000 222 201
Remote Data Link ID:                           4000 2222 0002 08
PF: 1-Menu 3-Def_Dflt 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done
```

Gateway Circuit 007 (SDLC to Token Ring - LLC)

```

Gateway Circuit 007                                LINCS C8.2 Central Control
UPSTREAM CONNECTION
Line:                                             HSC1.0
Link Profile:                                   05 (SDLC)
PU Address:                                     02
DOWNSTREAM CONNECTION
Line:                                             TRC1
Link Profile:                                   08 (LLC)
Local SAP:                                      04
Remote LAN Address:                             4000 2222 0000
Remote SAP::                                    08
PF: 1-Menu  3-Def_Dflt  4-Add  5-Delete  7-Back  8-Forw  9-Default  10-Done

```

Gateway Circuit 008 (SDLC to SDLC DAP)

```

Gateway Circuit 008                                LINCS C8.2 Central Control
UPSTREAM CONNECTION
Line:                                             HSC1.0
Link Profile:                                   05 (SDLC)
PU Address:                                     04
DOWNSTREAM CONNECTION
Line:                                             HSC1.1
Link Profile:                                   06 (SDLC/DAP)
PU Address:                                     C3
Primary Group Addr:                             E0
PUID Override:                                  _____
PF: 1-Menu  3-Def_Dflt  4-Add  5-Delete  7-Back  8-Forw  9-Default  10-Done

```

Gateway Circuit 009 (SDLC to Ethernet - LLC)

```

Gateway Circuit 009                                LINCS C8.2 Central Control
UPSTREAM CONNECTION
Line:                                             HSC1.0
Link Profile:                                   05 (SDLC)
PU Address:                                     04
DOWNSTREAM CONNECTION
Line:                                             FET1
Link Profile:                                   08 (LLC)
Local SAP:                                      04
Remote LAN Address:                             0200 2222 0000
Remote SAP::                                    0C
PF: 1-Menu  3-Def_Dflt  4-Add  5-Delete  7-Back  8-Forw  9-Default  10-Done

```

Gateway Circuit 010 (SDLC to Ethernet - IP)

```
Gateway Circuit 010                                LINCS C8.2 Central Control
UPSTREAM CONNECTION
Line:                                             HSC1.0
Link Profile:                                   04 (SDLC)
PU Address:                                     05
DOWNSTREAM CONNECTION
Line:                                             FET1
Link Profile:                                   08 (TCP/IP)
Data Link ID:                                   4000 1174 0001 04
Remote IP Address:                             192 000 222 201
Remote Data Link ID:                           4000 2222 0002 0C
PF: 1-Menu 3-Def_Dflt 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done
```

Gateway Circuit 011 (Ethernet - LLC to Token Ring)

```
Gateway Circuit 011                                LINCS C8.2 Central Control
UPSTREAM CONNECTION
Line:                                             FET1
Link Profile:                                   08 (LLC)
Local SAP:                                      04
Remote LAN Address:                             0200 1111 0000
Remote SAP:                                      04
DOWNSTREAM CONNECTION
Line:                                             TRC1
Link Profile:                                   08 (LLC)
Local SAP:                                      04
Remote LAN Address:                             4000 2222 0000
Remote SAP::                                    0C
PF: 1-Menu 3-Def_Dflt 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done
```

Gateway Circuit 012 (Ethernet - LLC to SDLC DAP)

```
Gateway Circuit 012                                LINCS C8.2 Central Control
UPSTREAM CONNECTION
Line:                                             FET1
Link Profile:                                   08 (LLC)
Local SAP:                                      04
Remote LAN Address:                             0200 1111 0000
Remote SAP:                                      08
DOWNSTREAM CONNECTION
Line:                                             HSC1.1
Link Profile:                                   06 (SDLC/DAP)
PU Address:                                     C4
Primary Group Addr:                             E0
PUIID Override:                                _____
PF: 1-Menu 3-Def_Dflt 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done
```

Gateway Circuit 013 (Ethernet - IP to Token Ring - LLC)

```

Gateway Circuit 013                                     LINCS C8.2 Central Control
UPSTREAM CONNECTION
Line:                                                    FET1
Link Profile:                                           09 (TCP/IP)
Data Link ID:                                           4000 1174 0001 04
Remote IP Address:                                     192 000 111 101
Remote Data Link ID:                                   4000 1111 0003 04
DOWNSTREAM CONNECTION
Line:                                                    TRC1
Link Profile:                                           08 (LLC)
Local SAP:                                             04
Remote LAN Address:                                    4000 2222 0000
Remote SAP::                                           10
PF: 1-Menu 3-Def_Dflt 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done

```

Gateway Circuit 014 (Ethernet - LLC to SDLC DAP)

```

Gateway Circuit 014                                     LINCS C8.2 Central Control
UPSTREAM CONNECTION
Line:                                                    FET1
Link Profile:                                           09 (TCP/IP)
Data Link ID:                                           4000 1174 0001 04
Remote IP Address:                                     192 000 111 101
Remote Data Link ID:                                   4000 1111 0003 08
DOWNSTREAM CONNECTION
Line:                                                    HSC1.1
Link Profile:                                           06 (SDLC/DAP)
PU Address:                                            C5
Primary Group Addr:                                    E0
PUID Override:                                         _____
PF: 1-Menu 3-Def_Dflt 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done

```

Gateway Circuit 015 (Frame Relay - LLC to Ethernet - LLC)

```
Gateway Circuit 015                                LINCS C8.2 Central Control
UPSTREAM CONNECTION
Line:                                             HSC2.0
Link Profile:                                   08 (LLC_LINK)
Local SAP:                                       04
DLCI:                                           021
Remote SAP:                                      04
DOWNSTREAM CONNECTION
Line:                                             FET1
Link Profile:                                   08 (LLC_LINK)
Local SAP:                                       04
Remote LAN Address:                             0200 2222 0000
Remote SAP::                                    04
PF: 1-Menu  3-Def_Dflt  4-Add  5-Delete 7-Back  8-Forw  9-Default 10-Done
```

This gateway circuit allows LUs attached to the DSPU labeled 1174 in the sample network to connect to the upstream Frame Relay host.

Gateway Circuit 016 (X.25 to Ethernet - LLC)

```
Gateway Circuit 016                                LINCS C8.2 Central Control
UPSTREAM CONNECTION
Line:                                             HSC2.1
Link Profile:                                   07 (X25_LINK)
Secondary Station Address:                       01
Host DTE Address:                               _____
Connection ID Password:                        _____
DOWNSTREAM CONNECTION
Line:                                             FET1
Link Profile:                                   08 (LLC_LINK)
Local SAP:                                       04
Remote LAN Address:                             0200 2222 0000
Remote SAP:                                      04
PF: 1-Menu  3-Def_Dflt  4-Add  5-Delete 7-Back  8-Forw  9-Default 10-Done
```

Gateway Circuit 017 (IP Channel to Ethernet - IP)

When you create one Channel/CTC gateway circuit with an even address, a second gateway circuit with the next incremental address will be automatically generated by LINCS.

```

Gateway Circuit 017                                     LINCS C8.2 Central Control
UPSTREAM CONNECTION - USC
Line:                CHP2
Link Profile:        02 (Channel/CTC)
PU Address           00
DOWNSTREAM CONNECTION - DSC
Line:                ETH2
Link Profile:        10 (IP/Bridge)
ARP Filter (IP Address): 196 121 211 001
PF: 1-Menu  3-Def_Dflt  4-Add  5-Delete 7-Back  8-Forw  9-Default 10-Done

```

Gateway Circuit 018 (ESCON to Ethernet - LLC)

```

Gateway Circuit 018                                     LINCS C8.2 Central Control
UPSTREAM CONNECTION - USC
Line:                ESC1
Link Profile:        SNAHOST (ESCON/SNA)
CU Index:           00
PU Address:          00
DOWNSTREAM CONNECTION - DSC
Line:                FET1
Link Profile:        08 (LLC)
Local SAP:           04
Remote LAN Address: 0200 2222 0000
Remote SAP:          18
PF: 1-Menu  3-Def_Dflt  4-Add 5-Delete  7-Back 8-Forw 9-Default 10-Done

```

Gateway Circuit 019 (ESCON to Token Ring - LLC)

Gateway Circuit 019 LINCS C8.2 Central Control

UPSTREAM CONNECTION - USC

Line: ESC1
Link Profile: SNAHOST (ESCON/SNA)
CU Index: 00
PU Address: 01

DOWNSTREAM CONNECTION - DSC

Line: TRC1
Link Profile: 08 (LLC)
Local SAP: 04
Remote LAN Address: 4000 2222 0000
Remote SAP: 14

PF: 1-Menu 3-Def_Dflt 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done

Gateway Circuit 020 (ESCON to SDLC DAP)

Gateway Circuit 020 LINCS C8.2 Central Control

UPSTREAM CONNECTION - USC

Line: ESC1
Link Profile: SNAHOST (ESCON/SNA)
CU Index: 00
PU Address: 02

DOWNSTREAM CONNECTION

Line: HSC1.1
Link Profile: 06 (SDLC/DAP)
PU Address: C6
Primary Group Addr: E0
PUID Override: _____

PF: 1-Menu 3-Def_Dflt 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done

Gateway Circuit 021 (ESCON to Frame Relay - LLC)

Gateway Circuit 021 LINCS C8.2 Central Control

UPSTREAM CONNECTION - USC

Line: ESC1
 Link Profile: SNAHOST (ESCON/SNA)
 CU Index: 00
 PU Address: 03

DOWNSTREAM CONNECTION - DSC

Line: HSC1.2
 Link Profile: 01 (LLC)
 Local SAP: 04
 DLCI: 016
 Remote SAP: 04

PF: 1-Menu 3-Def_Dflt 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done

Gateway Circuit 022 (ESCON to Ethernet – IP Encapsulation)

Gateway Circuit 022 LINCS C8.2 Central Control

UPSTREAM CONNECTION - USC

Line: ESC1
 Link Profile: SNAHOST (ESCON/SNA)
 CU Index: 00
 PU Address: 04

DOWNSTREAM CONNECTION - DSC

Line: FET1
 Link Profile: 09 (TCP/IP)
 Remote IP Address: 192 000 222 201
 Remote Data Link ID: 4000 2222 0002 0C

PF: 1-Menu 3-Def_Dflt 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done

Gateway Circuit 023 (ESCON CNC to IP/Bridge)

```

Gateway Circuit 023                                     LINCS C8.2 Central Control

UPSTREAM CONNECTION - USC

Line:                ESC1
Link Profile:        02 (ESCON/CNC)
CU Index:           01
Subchannel Address: 00

DOWNSTREAM CONNECTION - DSC

Line:                FET2
Link Profile:        03 (IP/Bridge)

ARP Filter (IP Address):  ___ ___ ___ ___

PF: 1-Menu  3-Def_Dflt  4-Add 5-Delete  7-Back 8-Forw 9-Default 10-Done
    
```

The Default Gateway Circuit

```

Default Gateway Circuit                               LINCS C8.2 Central Control

UPSTREAM CONNECTION

Line:                FET1
Link Profile:        08 (TCP/IP)
(additional fields based on Link Profile type)

DOWNSTREAM CONNECTION

Line:                TRC1
Link Profile:        07 (LLC)
(additional fields based on Link Profile type)

PF: 1-Menu  3-Return  4-Cpy-GW  5-Cpy_Fld  7-Back 8-Forw 9-Default 10-Done
    
```

Function Keys

If PF3-Def_Dflt is selected while defining gateway circuits, a panel similar to this is displayed. This panel allows you to define a Default Gateway Circuit. When a gateway circuit is added or defaulted, it will assume the values defined in the default circuit. The panel looks the same as the gateway circuit panels described in the previous sections, except for the PF key directives:

- PF3-Return - Returns to the display to the previously displayed gateway circuits panel
- PF4-Cpy_GW - Copies the Default Gateway Circuit's values to all the defined gateway circuits.
- PF5-Cpy_Fld - Copies the field the cursor is on to all other gateway circuits. This option is not available for Central Site Change Facility.
- PF9-Default - Default to LINCS assigned values.

Upstream Connection

The upstream connection indicates in the direction of the host.

Connection ID Password

Some X.25 connections require a password. The password can be up to eight hexadecimal digits, with embedded spaces allowed.

DLCI

The Data Link Connection Identifier (DLCI) is the address of the PVC used to connect this LINCS node to the Frame Relay network. It should be provided by your Frame Relay service provider when you arrange for your connection.

This field also appears for downstream connections, when the downstream PUs are on the other side of a Frame Relay network.

Host DTE Address

Enter up to 15 decimal digits for the DTE address of this X.25 host (for an upstream connection), or the X.25 attached downstream node. X.25 is allowed for either upstream or downstream connections.

Before allowing incoming calls, the Host DTE address is checked for a match with a circuit. If a circuit is found with the DTE address, then the Connection ID Password is checked. If there is a match, then incoming call is accepted. LINCS then sends a QXID to the station, and uses the response to determine if the call should be allowed or dropped.

Line for Upstream Connection

Toggle to the desired host line on which the data for this gateway circuit originates.

Link Profile for Upstream Connection

Toggle to the desired Link Profile number. The specified profile indicates the link type of the upstream connection of this circuit.

Local SAP

Enter a 2-digit hex SAP address. This is the SAP address of LINCS node for this gateway circuit. Valid SAP addresses are multiples of 4, ranging from 4 to EC (hex). If Incoming LANSYS Connections are enabled on this line, SAP 98 (hex) is reserved, and must not be used for gateway circuits. SAP E0 (hex) is reserved for IPX, and must not be used for gateway circuits.

PU Address

Enter a 2-digit hex number for the PU address of this LINCS node for this Gateway Circuit, ensuring that the address you enter is unique for this line. The systems programmer at the host site will supply the necessary address from the host or FEP gen.

For Channel/SNA, the PU address must fall within the Lower Limit and Upper Limit Channel Address range specified on the Channel/SNA Line Options panel. For Channel/CTC, the address entered implies the first of a consecutive two-address pair, and must be an even address. Both the selected address and implied address must fall within the Lower Limit and Upper Limit Channel Address range specified on the Channel/SNA Line Options panel.

Remote LAN Address

This is the LAN address of the upstream node. Remote is always from the viewpoint of the LINCS node.

Enter a 12-digit hex number for the LAN address. Make sure that the LAN address and SAP combination you enter is unique for this line.

Remote SAP

Enter a 2-digit hex SAP address for the upstream node of this circuit. Valid SAP addresses are multiples of 4, ranging from 4 to EC (hex).

Remote IP Address

Enter a 12-digit decimal number for the IP address of the remote host. The IP address should be a uniquely assigned value given to the remote device by the network administrator. It needs to follow the guidelines of any IP address assignment.

Secondary Station Address

Enter a 2-digit hex number, provided by the host systems programmer. The secondary station address is the X.25 term for SNA PU address, as configured at the SNA host. Make sure that the PU address you enter is unique for this line.

X.25 can also be used to gateway to downstream nodes, so secondary station address also appears when X.25 is used for the downstream connection.

Downstream Connection (DSC)

Remote Data Link ID

A Remote Data Link ID field is used in conjunction with the IP Address field to uniquely identify incoming TCP/IP frames from other host circuits or gateway circuits. This address combination must be unique throughout the network.

The data link ID fields must be entered in the canonical format for Token Ring, and non-canonical format for Ethernet, of a LAN Address and SAP.

If the downstream connection is configured for LLC, the Data Link ID will be taken from the downstream's Remote LAN Address and SAP fields. If the downstream connection is configured for TCP/IP, the Data Link ID will be taken from the downstream's Remote Data Link ID.

The Remote IP address indicates the remote device, and the Remote Data Link ID identifies the specific circuit on the remote device. The Remote Data Link ID defined on the upstream gateway connection must match the Remote Data Link ID defined on the downstream connection of the corresponding upstream node's gateway circuit.

Line for Downstream Connection

Toggle to the desired Downstream Node line that will carry the data for this circuit.

Link Profile for Downstream Connection

Toggle to the desired Link Profile number to indicate the link type of the downstream connection of this circuit.

Local SAP

Enter a 2-digit hex SAP address. This is the SAP address of LINC'S node for this gateway circuit. Valid SAP addresses are multiples of 4, ranging from 4 to EC (hex). If Incoming LANSYS Connections are enabled on this line, SAP 98 (hex) is reserved. SAP E0 (hex) is reserved for IPX.

PU Address

Enter a 2-digit hex number that matches the downstream node's PU address. Make sure that the address you enter is unique for this line.

PUID Override

PUID Override is used if the downstream (DAP) PU does not support the XID command. LINC'S will use the number you put here for XID exchanges with the SNA host.

If the downstream PU does support XIDs, then this field should be left blank.

Data Link ID

The Data Link ID fields are used in conjunction with the IP Address field to uniquely identify this gateway circuit. These fields uniquely identify incoming TCP/IP frames from other host or gateway circuits. This address combination must be unique throughout the network.

The data link ID fields require data to be entered in the canonical format for Token Ring, and non-canonical format for Ethernet, of a LAN Address and a SAP.

The Data Link ID will be taken from the upstream's Remote LAN Address and Remote SAP fields if the upstream connection is configured for LLC. If the upstream connection is configured for TCP/IP, the Data Link ID will be taken from the upstream's Remote Data Link ID field. In these cases, the remote addresses used to define the upstream gateway connection must match the Remote Data Link ID of the corresponding host circuit defined on the downstream node. Otherwise, the Data Link ID field defined on the downstream connection of this gateway circuit must match the Remote Data Link ID of the corresponding downstream node's host circuit.

The Remote IP address indicates the remote device, and the Remote Data Link ID identifies the specific circuit on the remote device. The Remote Data Link ID defined in this downstream connection of the gateway circuit must match the Data Link ID field of the corresponding downstream node's host circuit.

Primary Group Address

Enter a two digit hexadecimal PU address that will serve as the group polling address for this downstream PU. LINCS uses this address for the primary (DAP) group poll feature. Multiple DAP downstream connections on the same board should be assigned the same group poll address if they share membership in a group. The group poll address can not be the same as any individual PU address defined on this line.

Enter 00 if group polling is not used on this line or if this PU is not a member of any group.

NOTE: The primary group address must be set to zero for SCC lines.

Remote IP Address

Enter a 12-digit decimal number for the IP address of the remote downstream node. The IP address should be a uniquely assigned value given to the remote device by the network administrator. It needs to follow the guidelines of any IP address assignment.

Remote LAN Address

Enter a 12-digit hex number for the LAN address of the downstream node. Make sure that the LAN address and SAP combination you enter is unique for this line.

Remote SAP

Enter a 2-digit hex SAP address. This is the SAP address of the downstream node (DSN) for this gateway circuit. Valid SAP addresses are multiples of 4, ranging from 4 to EC (hex).

ARP Filter

Enter the IP address used by the host into this field to inform LINCS to implement the ARP filter and pass only ARPs destined for the configured address. This filter reduces the overall number of packets being passed to the host. If this field is left blank, the ARP filter is turned off, and all ARPs will be passed to the host.

6. 3270 Host Profiles

The 3270 Host Profile panels are displayed if 3270 at least one valid line and link profile is configured for a 3270 protocol.

3270 Host Profiles are used to configure parameters for 3270 host circuits. These host profiles are assigned to host circuits on the 3270 Host Circuits panel. 3270 Host Profiles may be shared by all host circuits, regardless of the host type. Fields which do not apply to a specific host accessing the profile will be ignored.

Host Profile Example

```
3270 Host Profile 00                                LINCS C8.2 Central Control
Profile Name:
Translate Tables:                                Primary
Dual Function Clear Key:                        Forces Default Screen Size
Unsupported Control Codes:                      Reject with PROG 402

                                SNA OPTIONS
Deferred Keystroking:                          Disable
Between Bracket Printer Sharing:              Disable
SNA Alert:                                    Disable
Local Format Storage (kilobytes):              64
Clear Aid Suppression:                        Disable
Restrict Connection to Active LUs:             Disable

                                X.25 OPTIONS
Autocall/Autodisconnect:                      No LU-Based Automatic Control
Dial Screen and DISC Key:                     With Supervisor Authority
LOCAL and COMM Keys:                          With Supervisor Authority
Disconnect/Local Mode Operations:              Pressing Key Twice Initiates Operation
Dial Screen Display:                           Display All Fields
PF: 1-Menu 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done
```

Profile Name

The profile name is a user-defined field used to identify this Host Profile from other Host Profiles when filling in subsequent panels. The name is an eight character field allowing alphanumeric, "." and "_".

Translate Tables

This field lets you specify whether the language for this host is the PRIMARY or SECONDARY language. You specify the primary and secondary language on the Language Options panel.

Toggle to select Primary or Secondary. If you choose Secondary, and a Secondary language was not specified on the Language Options panel, a warning message will appear.

Dual Function Clear Key

This field lets you specify whether pressing the Clear key will reset the display screen to its default size. Two choices are possible:

- Forces default screen size
- NO change in screen size

Unsupported Control Codes

This item allows you to specify how LINCS will handle unsupported control codes that it receives. Two options are available:

- Reject with PROG 402
- Translate to Hyphen (-)

Deferred Keystroking

Enabling this item allows the operator to type, while in segment, up to 32 keystrokes that are queued by LINCS for processing when the in segment condition ends. If the option is disabled, keystrokes that occur while in segment are discarded and an input inhibited condition will occur.

Toggle to **ENABLE** or **DISABLE**.

See Deferred Keystroking vs Typeahead for more information on which method to use for keystroke buffering. Typeahead is specified on the Device Profile/Display panel.

Deferred Keystroking vs Typeahead

Both Deferred Keystroking and Typeahead allow for the storing and subsequent processing of keystrokes entered while LINCS awaits a response from the host. Use the table below to determine which feature is best for your operation.

	Deferred Keystrokes	Typeahead
Function	Allows operator to type on keyboard while in segment. Keystrokes are processed when between segments.	Allows operator to type up to 64 keystrokes while waiting for a host response (XCLOCK , XSYSTEM or printer busy condition).
Protocol	SNA only	All
Devices that can use	Any session with an SNA host that has deferred keystroking enabled.	Any CUT display station assigned to a device profile with typeahead enabled.

	Deferred Keystrokes	Typeahead
Function	Allows operator to type on keyboard while in segment. Keystrokes are processed when between segments.	Allows operator to type up to 64 keystrokes while waiting for a host response (XCLOCK , XSYSTEM or printer busy condition).
Protocol	SNA only	All
Devices that can use	Any session with an SNA host that has deferred keystroking enabled.	Any CUT display station assigned to a device profile with typeahead enabled.

Between Bracket Printer Sharing

This option determines whether a printer that has been identified to be shared between local and system printing, will be available for local printing when “between brackets”. Host SNA print jobs are typically sent within SNA brackets. That is, the beginning of a print job starts with a Begin Bracket indicator set, and finishes with an End Bracket indicator set. When Between Bracket Printer Sharing is enabled, then whenever a printer is not within brackets, it will be available to do local printing. If disabled, then a printer is only available for local prints when it is not bound within an SNA host session

This item applies to printers directly attached to the LINCS node, and display attached printers, both for local prints and system prints. **ENABLE** allows printing between brackets. **DISABLE** allows printing only between sessions.

If a printer has multiple host sessions, it is available for access by another host at the same times it is available for local prints.

Toggle between **DISABLE** and **ENABLE**

Note: for display attached printers, this is field is only valid if the device profile defines the Printer Mode as shared

SNA Alert

The Alert function allows the control unit or operator to send problem determination information to the host CPU for further processing. Your host CPU must have the appropriate application program for this program to work properly. You can choose one of four options for SNA Alert:

- Disable
- Without Operator Messages
- Operator Messages From All Sessions
- Operator Messages w/Supervisor Authority

Operator Messages with Supervisor Authority allows LINCS-initiated alert messages and allows devices with Supervisor Authority to generate alert messages. Devices are given Supervisor Authority on the Device Profile/Display panel.

To send an Operator Initiated Alert, choose the Network Management Menu from the Central Control Main Menu.

Local Format Storage

This field indicates whether or not Local Format Storage is enabled. The option chosen determines the amount of feature memory which will be available for loading formats for each host assigned to this profile.

The options are: Disable, 32K, 64K, 128K, 256K, 512K, 1024K, 1536K

The following chart documents the amount of memory required for loading formats for a single host.

number groups to be loaded * 44	_____
+ number formats to be loaded * 48	_____
+ length of format 1 (bytes)	_____
+ length of format 2	_____
+ ...	_____
+ length of format n	_____
Total bytes for format data	= _____
Divide by 1024 (1K)	= _____ K

In addition to the amount of memory allocated to each host, some overhead memory is required for the Local Format Storage feature. This overhead is automatically added to the total amount of memory required on the Feature Memory Allocation panel. Refer to the section titled Feature Memory Allocation, available from the main menu, for further details.

Clear Aid Suppression

If this field is enabled, then a Clear Attention ID will NOT be sent to the host when the Clear key is pressed in a session connected to this host. This feature is useful in conjunction with the Local Format Storage feature in that a user can assure that his/her screen is clear prior to requesting a format.

Autocall/Autodisconnect

Autocall/Autodisconnect allows X.25 CALL and CLEAR packets to be sent to the host, based upon LU activity. Autocall will send the CALL packet when any LU on the host powers on (including LU to PU mapped LUs), if the SVC is not already connected to the host. Autodisconnect will send a CLEAR packet when all LUs on the host circuits are powered off.

Options are:

- No LU-Based Automatic Control
- Autocall When an LU Powers On
- Autodisconnect When Last LU Powers Off
- Autocall and Autodisconnect

Dial Screen and DISC Key

Options are:

- Disable
- On All Sessions
- With Supervisor Authority

Dial Screen and DISC Key can be made available to everyone or limited to users with Supervisor Authority, or no one. Supervisor authority is granted in the Device Profiles/Display panel.

LOCAL and COMM Keys

Options are:

- Disable
- On All Sessions
- With Supervisor Authority

The LOCAL and COMM keys can be available to everyone, or limited to users with Supervisor Authority, or no one. Supervisor authority is granted in the Device Profiles/Display panel.

Disconnect/Local Mode Operations

This field determines how operators will disconnect the X.25 connection or enter Local mode.

TWICE is the default value. It requires that the Disconnect or Local key be pressed twice, if the PU is active, before the link disconnects or enters Local mode. This pause protects against inadvertently disconnecting all users since one operator's action affects all operators using the X.25 link. If the PU is not active, the Disconnect or Local mode operation takes effect after the operator presses the key the first time.

ONCE activates the Disconnect or Local mode operation when an operator presses the key a single time, and it takes effect regardless of whether the PU is busy or not.

Toggle between:

- Pressing Key Twice Initiates Disconnect or Local
- Pressing Key Once Initiates Disconnect or Local

Dial Screen Display

Your entry here will determine whether your dial screen will show all fields (default) or will only show the Host DTE address field. Showing all of the fields allows the changing of some call options on a call-by-call basis.

Options are:

- Display Host DTE Address Field Only
- Display All Fields

Restrict Connection to Active LUs

When enabled, only LUs which have been activated by the host. (i.e. ACTLU has been received from the host for the LU), will be given out in response to a request for a session on a Host Circuit that is using this Host Profile. If no available LUs have been activated, the connection will fail.

Note that when DDDL (Dynamic Definition of Dependent LUs) is enabled for a host, connection will always occur to any available LU regardless of whether or not the "Restrict Connection to Active LUs" option is enabled or not. With DDDL, the LU will be defined to the host upon connection and the host should activate the LU at that point.

Enabling this option does not prevent Host Connection for Devices which have been assigned to preconnect to a LU or class on the Device Profile Assignments panel. This option only applies to these Network and Direct Devices when they are connecting dynamically using the 3270 Host Connect panel. Other devices which connect to 3270 LUs (such as IPX clients, TN3270 clients, and LU to PU mapped DSNs) will honor this new option anytime a connection attempt is made.

Host Profile with RTM Support

This panel is the second panel associated with the 3270 Host Profile and is used to define RTM options used with NetView's Response Time Monitor feature.

```
3270 Host Profile 00/RTM                                LINCS C8.2 Central Control

RTM Support:                                           Disable
Measurement:                                          First Character

Boundary 1:                                           00 : 01 . 0
Boundary 2:                                           00 : 02 . 0
Boundary 3:                                           00 : 05 . 0
Boundary 4:                                           00 : 10 . 0

                                SNA RTM OPTIONS

Host Support:                                          Disable
Timer Status At IML:                                  Disable Until Host Enables
Unbind Option:                                         No Log On Unbind
Counter Overflow:                                     No Log On Overflow
Alert Option:                                          Disable

                                AUTOMATIC FAILOVER

Failover role:                                         None

Reminder: Press PF4 for an additional 3270 Host Profile
PF: 1-Menu 3-Def_Dflt 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done
```

RTM Support

Options are:

- Disable
- With No Display
- Display On All Sessions
- Display With Supervisor Authority

If you select Display With Supervisor Authority for a Non-SNA host or without enabling host support, you will not have any access to the RTM information.

RTM can be limited to devices with Supervisor Authority. Devices are given Supervisor Authority on the Device Profile/Display panel.

Measurement

This item allows you to select the parameter RTM will use to end its measurement of a response time. All response time measurements begin with the depression of a host attention key. Choose one of four options:

- **First Character Choosing:** this parameter ends an RTM measurement when the first character is displayed on the screen after a host attention key is pressed.
- **Keyboard Unlocked Choosing:** this parameter ends an RTM measurement when the keyboard is reset for use after a host attention key is pressed.
- **Change Direction/End Bracket (CD/EB):** In SNA operations, choosing this parameter ends an RTM measurement when a Change Direction (CD) or End Bracket (EB) is received.
- **Last Character Choosing:** this parameter enables an RTM measurement from the pressing of a host attention key to the receipt of the last character prior to the next pressing of a host attention key. This measurement is not supported on DFT devices. If this option is selected during configuration or by an RTM host request, RTM support is disabled for the DFT.

The Change Direction/End Bracket option will function as Keyboard Unlocked if this profile is assigned to a Non-SNA host on the 3270 Host Circuits panel.

RTM Boundaries

The four boundary items allow you to establish four boundary times for the RTM. The RTM uses these boundaries to establish four categories for measurement of response time. Each category is bounded by the times configured in this step. When a response time is measured, its time is compared to the configured boundaries and a counter is incremented to indicate a response time detected in the range of the matching category.

Rules for setting RTM boundaries are:

- Boundary values must be entered in ascending order
- Entries are made in minutes, seconds, and tenths of seconds. The maximum boundary value is 27:18.3 (27 minutes, 18.3 seconds).
- If any boundary other than boundary four is configured as the maximum value, the boundaries that follow must be configured to 00:00.0
- At least one boundary must be defined.
- If fewer than four boundaries are defined, the entries must begin with Boundary 1 and continue without skipping through the last entry.

Host Support

This toggle field indicates if the RTM Support is with or without Host Support. The host must have Netview or compatible network management software installed.

Timer Status At IML

This field allows you to specify who will start the timer, that is used by the Response Time Monitor.

Toggle between:

- Disable Until Host Enables
- Enable

Unbind Option

Enabling this function causes LINCS to transmit RTM logs whenever an SNA session is unbound. Choose one of the following options:

- No Log on Unbind
- Log on Unbind

Counter Overflow

Enabling this function causes the RTM feature to transmit RTM logs whenever an RTM counter overflows. Choose one of two options:

- No Log on Overflow
- Log on Overflow

Alert Option

Enabling this function causes an alert message to be transmitted when an RTM counter overflows. Two options are available in this field:

- Disable
- Send Alert if Counter Overflows

Automatic Failover

The Automatic Failover feature allows two LINCS platforms to monitor each other, with the plan that if one platform fails, the other platform will attempt to bring up additional Host Circuits to compensate for the failed unit. When failover is being used, Host Circuits are assigned to have either a Primary or a Backup role. Primary Host Circuits come up initially at power up time, while Backup Host Circuits do not attempt to come up, unless the corresponding Primary Host Circuit has gone down. The Automatic Failover feature is designed to work with LLC as the upstream host connection, and TN3270 as the client type. The Failover Role option can be set to:

- None
- Primary
- Backup

Default Host Profile

```

Default 3270 Host Profile                               LINC8 C8.2 Central Control
                (see Host Profile Example for fields)
PF:  1-Menu3-Return 4-Cpy_Prof  5-Cpy_Fld 7-Back 8-Forw 9-Default 10-Done

```

The following PF keys apply to the Default 3270 Host Profile:

- **PF3-Return** - Pressing this key returns you to the Host Profile panel that was displayed prior to entering the Default panel.
- **PF4-Cpy_Prof** - Copies the Default 3270 Host Profile to all other 3270 Host Profiles.
- **PF5-Cpy_Fld** - Copies the field occupied by the cursor to all other Host profiles. This option is not available for the Central Site Change Facility.

3270 Host Circuits

The 3270 Host Circuit panels are displayed if at least one line and Link Profile are configured.

When entering the Host Circuit panel from the Configuration Main Menu, a host circuit letter or host Identifier may be entered as a parameter. Entering a specific host as a parameter will advance the display directly to that host circuit.

Note that if host circuits are configured for a given line, and that line is taken away using the Product Description Panel, the Host Circuit panels must be updated to remove all references to the deleted line.

See the following topics for Host Circuit examples and information:

- 3270 Host Circuit Information
- Ethernet (LLC) Host Circuit
- SDLC Host Circuit
- Frame Relay (LLC) Host Circuit
- DLUR Host Circuit
- Token Ring (LLC) Host Circuit
- TCP/IP Host Circuit
- Channel/SNA Host Circuit
- BSC Host Circuit
- Channel/Non-SNA Host Circuit
- X.25 Host Circuit
- Default 3270 Host Circuit
- ESCON SNA Host Circuit
- ESCON Non-SNA Host Circuit

The 3270 Host Circuit panels are displayed if at least one line and Link Profile are configured.

When entering the Host Circuit panel from the Configuration Main Menu, a host circuit letter or host Identifier may be entered as a parameter. Entering a specific host as a parameter will advance the display directly to that host circuit.

Note that if host circuits are configured for a given line, and that line is taken away using the Product Description Panel, the Host Circuit panels must be updated to remove all references to the deleted line.

3270 Host Circuit Information

A host circuit is a logical host connection on the physical line. Each physical unit (PU) address on a line corresponds to one host circuit. You must define a host circuit for every PU that is not gatewayed.

Note that:

- TRC and ETH lines must have 802.2 LLC or TCP/IP enabled on the Line Options panel in order to configure a host circuit.
- Only one host circuit may be assigned to each Channel/Non-SNA line.
- SDLC/DAP lines cannot be configured as host circuits. DAP lines never connect to a host, they always connect to downstream PUs.

The following special PF keys are defined for Host Circuit panels:

- PF3-Def_Dflt (Define Default) Pressing this key allows you to define a default host circuit. When a host circuit is added (PF4) or defaulted (PF9), it will assume the values defined in the default circuit. Refer to Default 3270 Host Circuit for additional information.
- PF4-Add (Add Host Circuit) - Pressing this key allows you to add a host circuit. When you press PF4, the new circuit will be displayed with the values defined in the default profile.
- Note that one host circuit is initially defined when you page to this utility for the first time.
- PF5-Delete (Delete Host Circuit) Deletes the displayed host circuit and pages forward. You can also use this function key to delete the last Gateway Circuit or APPN Predefined Circuit.
- PF9-Default This function defaults the current circuit to the values assigned in the Default 3270 Host Circuit.

LLC (TRC) Host Circuit

```

3270 Host Circuit 00                                LINCS C8.2 Central Control
Line:                                             TRC1
Link Profile:                                    07 (LLC)
3270 Host Profile:                               00
Host Identifier:                                 IBM_RING
PUID:                                            00003
Local SAP:                                       10
Remote LAN Address:                             4000 1111 0000
Remote SAP:                                      04
PF: 1-Menu 3-Def_Dflt 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done

```

LLC (ETH) Host Circuit

```

3270 Host Circuit 06                                LINCS C8.2 Central Control
Line:                                             ETH1
Link Profile:                                    07 (LLC)
3270 Host Profile:                               00
Host Identifier:                                 ETHER_LLC
PUID:                                            00003
Local SAP:                                       0C
Remote LAN Address:                             0200 1111 0000
Remote SAP:                                      04
PF: 1-Menu 3-Def_Dflt 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done

```

Channel/SNA Host Circuit

```

3270 Host Circuit 01                                LINCS C8.2 Central Control
Line:                                             CHP1
Link Profile:                                    01 (Channel/SNA)
3270 Host Profile:                               00
Host Identifier:                                 CHANNEL_SNA
PUID:                                            00001
PU Address:                                     14
PF: 1-Menu 3-Def_Dflt 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done

```

Channel/Non-SNA Host Circuit

```

3270 Host Circuit 02                                LINCS C8.2 Central Control
Line:                                             CHP2
Link Profile:                                    02 (Channel/Non-SNA)
3270 Host Profile:                               00
Host Identifier:                                 CHANNEL_NON_SNA
PF: 1-Menu 3-Def_Dflt 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done

```

Only one host circuit may be assigned to a Bus and Tag Channel/Non-SNA line.

SDLC Host Circuit

```
3270 Host Circuit 09                                LINCS C8.2 Central
Control

Line:                HSC1.0
Link Profile:        04 (SDLC)
3270 Host Profile:   00

Host Identifier:     IBM_SDLC

PUID:                00002
PU Address:          06

PF:  1-Menu  3-Def_Dflt  4-Add  5-Delete  7-Back  8-Forw  9-Default  10-Done
```

BSC Host Circuit

```
3270 Host Circuit 04                                LINCS C8.2 Central
Control

Line:                SCC1.0
Link Profile:        03 (BSC)
3270 Host Profile:   00

Host Identifier:     IBM_BSC

PU Address:          02

PF:  1-Menu  3-Def_Dflt  4-Add  5-Delete  7-Back  8-Forw  9-Default  10-Done
```

X.25 Host Circuit

```
3270 Host Circuit 05                                LINCS C8.2 Central
Control

Line:                HSC2.1
Link Profile:        06 (X.25)
3270 Host Profile:   00

Host Identifier:     X.25_CLOUD

Exchange ID (XID):   01700000
Secondary Station Address: 00
Host DTE Address:    _____
Connection ID Password: _____

PF:  1-Menu  3-Def_Dflt  4-Add  5-Delete  7-Back  8-Forw  9-Default  10-Done
```

Note that you must not use a link profile using PSH when configuring an X.25 host circuit. Only QLLC headers are supported.

TCP/IP Host Circuit

```

3270 Host Circuit 07                                LINCS C8.2 Central Control
Line:                                             ETH1
Link Profile:                                    08 (TCP/IP)
3270 Host Profile:                               00
Host Identifier:                                 ETHER_IP
PUID:                                           00004
Data Link ID:                                   4000 1174 0001 04
Remote IP Address:                              192 000 111 101
Remote Data Link ID:                            4000 1111 0003 0C
PF: 1-Menu 3-Def_Dflt 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done

```

LLC (for Frame Relay) Host Circuit

```

3270 Host Circuit 08                                LINCS C8.2 Central Control
Line:                                             HSC2.0
Link Profile:                                    07 (LLC_LINK)
3270 Host Profile:                               01
Host Identifier:                                 3270_FR_____
PUID:                                           15
Local SAP:                                       04
DLCI:                                           020
Remote SAP:                                      04
PF: 1-Menu 3-Def_Dflt 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done

```

DLUR Host Circuit

```

3270 Host Circuit 0A                                LINCS C8.2 Central Control
Line:                                             DLUR
Link Profile:                                    DLUR
3270 Host Profile:                               00
Host Identifier:                                 _____
PUID:                                           11174
PF: 1-Menu 3-Def_Dflt 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done

```

If APPN will be used to route data to dependent LUs associated with a PU on the LINCS node, then a DLUR Host Circuit must be defined. A DLUR Host Circuit is defined by toggling the Line and Link Profile field on a Host Circuit panel to DLUR.

Note that this host circuit is not represented in the sample network. It is show here to explain the DLUR Line and Link Profile fields.

ESCON (SNA) Host Circuit

```
3270 Host Circuit 0B                                LINCS C8.2 Central Control

Line:                                             ESC1
Link Profile:                                    SNAHOST (ESCON/SNA)
3270 Host Profile:                               SNA

Host Identifier:                                  VTAM_DIGS_____

PUID:                                             00000
CU Index:                                         00
PU Address:                                       07

PF: 1-Menu  3-Def_Dflt  4-Add 5-Delete  7-Back 8-Forw 9-Default 10-Done
```

ESCON (Non-SNA) Host Circuit

```
3270 Host Circuit 0B                                LINCS C8.2 Central Control

Line:                                             ESC1
Link Profile:                                    NSNAHOST (ESCON/Non SNA)
3270 Host Profile:                               NONSNA

Host Identifier:                                  CONSOLES_____

CU Index:                                         05

PF: 1-Menu  3-Def_Dflt  4-Add 5-Delete  7-Back 8-Forw 9-Default 10-Done
```

Default 3270 Host Circuit

```
Default 3270 Host Circuit                            LINCS C8.2 Central Control

Line:                                             ETH1
Link Profile:                                    08 (TCP/IP)
3270 Host Profile:                               00

(other fields based on selected Link Profile type)

PF: 1-Menu  3-Def_Dflt  4-Add 5-Delete  7-Back 8-Forw  9-Default 10-Done
```

If the PF3-Def_Dflt function is selected while defining host circuits, a panel similar to this is displayed. This panel allows you to define a Default 3270 Host Circuit. When a host circuit is added or defaulted, it will assume the values defined in the default circuit. The panel looks the same as the host circuit panels described in the previous sections, except for the PF key directives.

- PF3-Return - Pressing this key returns you to the Host Circuit panel that was displayed prior to entering the Default panel.
- PF4-Cpy_Prof - Copies the Default 3270 Host Circuit to all other circuits.
- PF5-Cpy_Fld - Copies the field occupied by the cursor to all other Host circuits. This option is not available for the Central Site Change Facility.

Field Definitions for Host Circuit Panels

Note: All fields do not appear on all panels.

3270 Host Profile

Toggle to the desired 3270 host profile.

Connection ID Password

The password can be up to eight hexadecimal digits, with embedded spaces allowed.

Data Link ID

The Data Link ID fields are used in conjunction with the IP Address field to uniquely identify a TCP/IP Host Circuit. These fields uniquely identify incoming TCP/IP frames from other host or gateway circuits. This address combination must be unique throughout the network.

The data link ID fields require data to be entered in the canonical format for Token Ring, and the non-canonical format for Ethernet, of a LAN Address and a SAP.

The Data Link ID field of this host circuit must match the Remote Data Link ID defined in the downstream connection of the corresponding gateway circuit on the gateway controller.

The Remote IP Address indicates the remote device, and the Remote Data Link ID identifies the specific circuit on the remote device. If the upstream connection of the corresponding upstream node's gateway circuit is LLC, the Remote LAN Address and the Remote SAP used to define the upstream gateway connection must match the Remote Data Link ID of this host circuit. If the upstream connection of the corresponding gateway circuit is TCP/IP, the Remote Data Link ID used to define the upstream gateway connection must match the Remote Data Link ID of this host circuit. Otherwise, the Data Link ID field defined on the downstream connection of the corresponding upstream node's gateway circuit must match the Remote Data Link ID of this host circuit.

DLCI on Frame Relay Host Circuit

The DLCI is the address of the Frame Relay PVC that will be used to connect to this host (circuit). The valid range for DLCIs is from 16 to 991 (decimal), with no default.

The combination of local SAP, remote SAP, and DLCI must be unique for all circuits defined on a Frame Relay line.

Host DTE Address

Enter up to 15 decimal digits for the DTE address of this host.

Host Identifier

This is an optional 16 byte field which is used to identify the host circuit. If defined, it may be used to identify a host when attempting a connection to a specific host circuit. This name will also appear on Configuration panels (and any other LINCS Central Control panels) which display host circuits. It is also the identifier that is displayed on the status line of devices that use a device profile with the status line field enabled.

If no Host Identifier is defined, the host circuit letter (A-P) will appear on the panels which display host circuits.

Valid characters are alphanumeric, . (period), - (dash), and _ (underscore).

Note that Host Names are case sensitive, and that workstations or PCs that will connect to this host must match the name exactly.

Line

Toggle to the desired host line.

Link Profile

Toggle to the desired Link Profile.

If you toggle to DLUR, data to this PU will be routed from a DLUS using APPN. You will be issued a warning if you toggle to DLUR, and have not enabled APPN. Note that you do not have to manually create a DLUR Link Profile; it is internally defined.

Local SAP

This is the SAP address of the LINCS node for this host circuit. Enter a 2-digit hex SAP address. Valid SAP addresses are multiples of 4, ranging from 4 to EC (hex).

If Incoming LANSYS Connections are enabled on this line, SAP 98 (hex) is disallowed on this line. SAP E0 (hex) is reserved for IPX.

PUID

Enter a 5-digit hex number for PUID for this LINCS node. The PUID is used in the XID (Exchange IDs) response and in reporting maintenance statistics. The network systems programmer will provide the number. The default is 00000.

For connections to an SNA switched major node over token ring or Ethernet, the PUID together with the BLKID must match the values in the VTAM PU definition. The PUID must match the NUMID macro, and the built-in BLKID of x'017' must be used in the BLKID macro.

CU Index

This is the CU Index as defined on the ESCON Line Options panels. Each CU Index corresponds to a CNTLUNIT macro on the host CPU(s). The CU Index itself is a LINCS-assigned value, to give each defined CU a unique assignment.

PU Address

Enter a 2-digit hex number that matches the downstream node's PU address. Make sure that the address you enter is unique for this line.

Remote IP Address

Enter a 12-digit decimal number for the IP address of the remote host. The IP address should be a uniquely assigned value given to the remote device by the network administrator. It needs to follow the guidelines of any IP address assignment.

Remote SAP

Enter a 2-digit hex SAP address for the host node of this circuit. Valid SAP addresses are multiples of 4, ranging from 4 to EC (hex).

Remote LAN Address

This is the LAN address of the host node. Local and Remote is always from the viewpoint of the LINC S node.

Enter a 12-digit hex number for the LAN address. Make sure that the LAN address and SAP combination you enter is unique for this line.

Secondary Station Address

Enter a 2-digit hex number, provided by the host systems programmer. It is the X.25 term for SNA PU address, as seen at the SNA host. Make sure that the PU address you enter is unique for this line.

XID

For X.25 lines, enter an 8-digit hexadecimal number, which identifies this control unit to the (SNA) host. It is used for XID response and in reporting maintenance statistics. Your system programmer should supply you with the value. The default is 01700000.

3270 Host Classes

3270 Host Classes		LINC S C8.2 Central Control						
		Hex LU Ranges						
Class	Host	Lo	Hi	Lo	Hi	Lo	Hi	Class Name
01	IBM_RING	02	03	05	12	14	33	MOD2
02	CHANNEL_SNA	02	02	04	1F			MOD5
03	IBM_BSC	00	1F					FINANCE
04	CHANNEL_SNA	20	8F					SPECIFIC_TN_LUS
05	None							
.								
16	None							
PF:	1-Menu	4-Add	5-Delete	7-Back	8-Forw	9-Default	10-Done	

When displaying the 3270 Host Classes panel, PF-4 Add allows defining 16 additional Host Classes. LINC S supports a total of sixty-four 3270 Host Classes. PF-5 deletes the 16 Host Classes of the displayed panel; i.e. if PF-5 is pressed while host classes 1-16 are displayed they will be deleted, classes 17-32 will remain. This panel will be displayed if any 3270 Host Circuits have been configured.

Class

This is a protected field which assigns a class number. This number is used on the Device Profile Assignments panel in order to preconnect to a specific 3270 Host Class.

Host

This is a toggle field indicating which 3270 host is assigned to the class. To disable a class, toggle to NONE.

The 2-digit Host Circuit number (00 through 7F) will be shown if you have not specified a Host Identifier on the Host Circuit panel for that host.

LU Ranges

You may specify either a single LU, by entering an address in only the LO column, or a range. Obtain the LU values from your systems programmer.

The range for:

- SNA is 02 to FE (hex)
- BSC is 00 to 1F (hex)
- Non-SNA is 00 to 7F (hex)
- Non-SNA ESCON is 00 to 1F (hex)

Note that whether LU numbers are entered in hex or decimal is set in the General Options panel.

Class Name

This field allows one to define a 16 character name to the class. This name may be used to connect to the class on the 3270 Connect Screen, and will appear as a toggle option for the Host Assignments at Power On field on the Device Profile/Host Assignments panel.

Note that Class Names are always saved as uppercase. Workstations and PCs that will refer to the Class Name must match exactly.

LU to PU Mapping Profiles

```

LU to PU Mapping Profile 000                                LINCS C8.2 Central Control
UPSTREAM HOST CONNECTION
3270 Class:MOD2                Number of LUs:      ____
3270 Host:  IBM_RING           Lower LU (hex):    002   Upper LU (hex):  027
3270 Host:  CHANNEL_SNA       Lower LU (hex):    010   Upper LU (hex):  014
3270 Host:  CHANNEL_NON_SNA   Lower LU (hex):    010   Upper LU (hex):  00F
3270 Host:  IBM_SDLC          Lower LU (hex):    016   Upper LU (hex):  018
Disable                        _____
Disable                        _____
Disable                        _____
DOWNSTREAM CONNECTION
Link Profile:                  08 - LLC
PUID:                          _____
Remote LAN Address:           0200 2222 0000
PF: 1-Menu 3-Def_Dflt 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done
    
```

This panel will be displayed if LU to PU Mapping Circuits are configured on the LLC Options page of a Line Options panel and an LLC link profile has been defined.

When entering the LPM Utility from the Configuration Main Menu, a LPM profile number may be entered as a parameter. Entering a specific profile number as a parameter will advance the display directly to that profile.

PF3_Def_Dflt brings up the Default LU to PU Mapping Profile, where you can define default values for new LU to PU Mapping profiles.

Upstream Host Connection

Each upstream host connection allows you to specify LU ranges or classes of LUs. The connection is defined by 3 fields. The first field is a toggle field which identifies the host resource. The second and third fields are data entry fields. These values vary depending upon the host resource which is selected.

3270 Host

This identifies a 3270 SNA Host Circuit. Additional fields allow you to define one or more LUs to be redirected to a Down Stream Node. Valid LUs range from 02 to 254 decimal (or 02-FE hex).

Whether the LUs are displayed in decimal or hex is configured on the General Options panel.

3270 Class

Identifies a 3270 Host Class. The number of LUs is optional, the default is 1.

Disable

No upstream connection.

Downstream Connection

This is the line that connects the downstream PU to the LINCS node.

Either PUID and/or Remote LAN must be entered on DOWNSTREAM CONNECTION. Mapping is done based on the PUID, Remote LAN address, or both.

Link Profile

Toggle to the desired Link Profile. Only LLC-type Link Profiles are supported.

PUID

Enter a 5-digit hex number for PUID. The network systems programmer will provide the number.

This number is the PUID of the DSN, and is used by the LU to PU Mapping feature to select which LU to PU Mapping Profile to use. If no LAN address is configured, any DSN reporting this PUID to LINCS will use this LU to PU Mapping Profile. Profiles are searched in order for a PUID/LAN address match.

Remote LAN Address

An optional 12-digit hex number may be entered for the LAN address. If specified, the DSN must have the specified LAN Address to access this profile. Each LAN address entered in a LU to PU Mapping Profile must be unique.

Default LU to PU Mapping Profile

```
Default LU to PU Mapping Profile                LINCS C8.2 Central Control
UPSTREAM HOST CONNECTION

DOWNSTREAM CONNECTION
PF:  1-Menu   3-Return  4-Cpy_Prof  5-Cpy_Fld  9-Default  10-Done
```

If the PF3-Def_Dflt function is selected while defining LU to PU Mapping Profiles, a panel similar to this one is displayed. This panel allows you to define a Default LU to PU Mapping Profile. When a LPM profile is added or defaulted, it will assume the values defined in the default profile. This panel looks the same as the LPM profile panels described in the previous sections, except for the PF key directives:

- PF3-Return - Pressing this key returns you to the LU to PU Mapping Profile panel that was displayed prior to entering the Default panel.
- PF4-Cpy_Prof - Copies the Default 3270 LU to PU Mapping Profile to all other profiles.
- PF5-Cpy_Fld - Copies the field occupied by the cursor to all other LU to PU Mapping profiles. This option is not available for the Central Site Change Facility.

7. SNA Options

```
SNA Options                                LINC8 C8.2 Central Control
Network ID:                                NETID

                                APPN OPTIONS
APPN CP Name:                              LINCSCP
APPN PUID:                                  00000
APPN Max Intermediate Sessions: 256
DLUS Host Name:                            THISNTWK . _____
Backup DLUS Host Name:                     THISNTWRK. _____
APPN Tracing:                              Disable

                                CENTRAL SITE OPTIONS
CSCM Host:                                  None
CSCM LU Name:                               _____
CSCF Password Suppression:                 Disable

PF: 1-Menu      7-Back      8-Forw      9-Default      10-Done
```

This panel allows you to configure SNA related features, such as the Central Site Control Facility (CSCF), Central Site Change Management (CSCM), and APPN features.

Network ID

The Network ID is the name used in an SNA network that is using the SNA Network Interconnection function. The ID must be the same network ID used in the VTAM NETID start option. The same network ID must be used for every LINC8 node in a given network.

The network ID can be up to eight alphanumeric characters, starting with an alphabetic character, with no blanks between characters.

Note: This field is required when LINC8 is configured for APPN or Central Site Change Management.

APPN CP Name

Entering a CP name in this field defines the Control Point (CP) name of this APPN node, and enables APPN to be configured.

The name can be up to 8 alphanumeric characters with no embedded spaces.

APPN PUID

This five hexadecimal digit field is used to form a unique Node Identifier. Some APPN nodes use this as a security measure to allow connection, particularly SNA Switched Major Nodes like the 37xx/VTAM composite APPN node. LINC8 exchanges this identifier with adjacent nodes, but does not use it to authorize connections.

The default value for this field is X'00000'. The fixed value of X'017' precedes it in the XID. In the VTAM PU definition, the X'017' corresponds to the BLKID parameter in the PUm macro, and the five configurable digits correspond to the NUMID parameter in the RUm macro.

APPN Max Intermediate Sessions

This field defines the maximum number of intermediate sessions which will be supported on this APPN node. The default is 256. Other options are 512, 1024, 1536, 2048, 4096, and Maximum.

If Maximum is selected, then sessions will be allowed as long as memory is available.

CSCM Host

Toggle to select which 3270 Host will support Central Site Change Management. If CSCM is enabled, Netview/DM can be used to electronically distribute LINCS data objects. Toggling to None disables the CSCM feature.

If this node will act as a Central Site, then Central Site Customization must be enabled on the General Options panel. A Central Site node is capable of retrieving Library members which have been saved using the Central Site Customization Utility.

If this node will act as a Network Site, then Central Site Customization need not be enabled. A Network Site can send and receive any distributable data object except those residing on a Library disk. The distinction is made since the Central Site Customization feature requires a significant amount of feature memory.

CSCF Password Suppression

Options are:

- ENABLE
- DISABLE

If suppression is Disabled, Netview operators will be required to enter a supervisor password for all password protected Central Site functions (those marked with ,u next to the menu item).

DLUS Host Name

The DLUS Host Name is the fully qualified name (Network ID.Host Name) of the Dependent LU Server (DLUS) that, along with the DLUR host and gateway circuits, provides support for dependent LUs. Both the Netid and Host names can be up to eight alphanumeric characters, with no embedded spaces, and the first character must be alphabetic. If the Netid is left blank, it will default to the Network ID of this APPN node (also defined on this panel).

The DLUS name should be left blank if the DLUS will be responsible for activating the link.

Backup DLUS Host Name

The Backup DLUS Host Name specifies the fully qualified name (Network ID.Host Name) of the Backup DLUS, that along with the DLUR circuits provides support for dependent LUs. This DLUS will be used if there is no response from the primary DLUS. It's use is optional.

APPN Tracing

At IML the configured value will determine whether Tracing is Enabled or not. A dump at crash time will contain the Sigtrace info only if Tracing is Enabled. (Customer would have to reconfigure to Enabled and IML to capture the failure with Sigtrace info included in the dump.) The tracing can be Disabled/Enabled from the APPN Menu “Item 12 APPN Tracing” Panel if the FE or Engineering switch is ON (Menu Items 12 - 15 do not appear if neither switch is ON).

APPN Dynamic Connections

```

APPN Dynamic Connection 00                                LINC8 C8.2 Central Control
Line:                                                    TRC1
Link Profile:                                           02 (LLC)
Local SAP:                                              04
Dynamic Circuits:                                       032
Virtual Routing Node Name: THISNWK . _____ (netid.cpname)
PF1: 1-Menu   4-Add   5-Delete   7-Back   8-Forw   9-Default   10-Done

```

The APPN Dynamic Connection panel(s) will be displayed following the SNA Options panel if the following conditions are met.

- APPN is enabled by defining an APPN CP Name on the SNA Options panel.
- A line and link profile for a dynamic APPN protocol have been defined.

The first panel displayed will default to the first line and first link profile with a dynamic APPN protocol enabled. You can change the line and link profiles, or page forward to the next line. If all APPN connections in your network will be predefined, fields on this panel may be left at their default settings.

Line

Toggle to select the line for which the APPN Dynamic Connection options will be defined.

Link Profile

This Link Profile will be used for the Dynamic Circuits and/or Virtual Routing Node. The link profile contains the Transmission Group Characteristics which are used in route selection.

Local SAP

The local SAP is the SAP used to communicate with this APPN node. Note that the local LAN address is defined on the Line options panel.

The Local SAP is a 2 digit hex value, which defaults to X'04'. Valid SAP addresses are multiples of 4, ranging from 4 to EC (hex). If LANSYS connections are enabled on this line, SAP 98 (hex) is not valid. If IPX is enabled on this line, SAP E0 (hex) is not valid. If Dynamic Circuits are defined, and LU to PU Mapped Circuits are configured on this line, then this Local SAP cannot match the LU to PU Mapped Local SAP.

Dynamic Circuits

This field defines the number of adjacent PU 2.1 nodes that can establish dynamic connections with this APPN node, using this APPN line and protocol. By default, CP-CP sessions will be supported for any dynamic connection to a Network or End Node.

The number of Dynamic Circuits should include both the number of adjacent nodes that will dynamically connect (because this is their network node server), and an allowance for dynamic connections from the connection network. For example:

ENa——NNa

|

ENb——NNb

|

ENc

The top four nodes are on the same token ring, and are all part of a connection network. If ENa wants a session with ENc, NNa would tell ENa to use a direct path to NNb in order to reach ENc. This requires a dynamic connection with NNb, even though NNa is ENa's network node where the CP-CP sessions are maintained.

The default is 0, which means no dynamic connections will be established using this APPN line.

Virtual Routing Node Name

This optional field allows this node to participate in an APPN Connection Network. All nodes using the same Virtual Routing Node name will be on the same Connection Network. There can be more than one Connection Network on the same LAN.

Connection Networks allow End Nodes on the same or different Connection Networks to communicate directly, instead of routing through the Network Node. The Network Node directs the End Node to End Node communication, but does not need to be a part of the Connection Network. LEN nodes cannot be part of a connection network, because their limited APPN capabilities.

If the media and protocol that the nodes are using allows them ALL to communicate directly with each other (including bridging), then this medium is called a Shared Access Transport Facility (SATF). Token Ring and Ethernet LLC are currently the only SATF that APPN recognizes. Network Nodes direct other nodes to talk to each other directly by passing them the necessary MAC/SAP information.

Since each line can be connected to a different LAN, each panel can have a different Virtual Routing Node name. If the same name is used on two different panels, the lines should be attached to the same LAN.

Note: This field will not appear for HSC lines, since connection networks are not supported with Frame Relay, and this field has not been defined by IBM for X.25 APPN circuits.

Adding and Deleting Dynamic Connection Lines

If APPN Dynamic Connections are required on more than one line,

- PF4-Add_Conn adds up to 16 Dynamic Connection panels. Refer to the description of the Virtual Routing Node to see why you may need more than one line for Dynamic Connections.
- PF5-Del_Conn deletes a Dynamic Connection panel.

APPN Predefined Circuits

Links to Adjacent Nodes which will connect to this APPN Network Node can be pre-defined on the APPN Predefined Circuits panel.

Circuits must be predefined for:

- LEN End Nodes which will use this APPN Network Node as their Network Node Server, since these nodes cannot be located dynamically.
- ESCON/SNA, Channel/SNA, SDLC, and SDLC/DAP links.

LLC links to adjacent Network Nodes and End Nodes may optionally be predefined. It is only necessary to define these links at one side of the link since the other side can learn about adjacent nodes dynamically. See the Dynamic Circuits field on the APPN Dynamic Connections panel for more information on Dynamic Circuits.

The number of APPN Circuits which may be defined varies depending upon the selected line. Keep in mind that while counting APPN Circuits, the number of Dynamic Circuits defined on the APPN Dynamic Connections panel(s) will be added in.

Examples are given for a Channel/SNA line, Frame Relay, Token Ring (LLC), and X.25.

APPN Predefined Circuits example panels

ESCON/SNA

```

APPN Predefined Circuit 0000                                LINCS C8.2 Central Control

Line:                                                       ESC1
Link Profile:                                               NSNAHOST (ESCON/SNA)

Adjacent CP Name:                                          NETID      . _____
Adjacent Node Type:                                       Learn
CP-CP Session Support:                                    Enable

CU Index:                                                 0
PU Address:                                               01

PF: 1-Menu          4-Add 5-Delete   7-Back 8-Forw 9-Default 10-Done

```

Channel/SNA

APPN Predefined Circuit 0001 LINCS C8.2 Central Control

Line: CHP1

Link Profile: 00 (Channel/SNA)

Adjacent CP Name: THISNTWK . _____ (netid.cpname)

Adjacent Node Type: LEN

CP-CP Session Support: Disable

PU Address: C0

PF: 1-Menu 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done

Token Ring (LLC)

APPN Predefined Circuit 0002 LINCS C8.2 Central Control

Line: TRC1

Link Profile: 01 (LLC)

Adjacent CP Name: THISNTWK . _____ (netid.cpname)

Adjacent Node Type: LEN

CP-CP Session Support: Disable

Local SAP: 04

Adjacent Node LAN Address: 4000 9300 0001

Adjacent Node SAP Address: 04

PF: 1-Menu 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done

Frame Relay

APPN Predefined Circuit 0003 LINCS C8.2 Central Control

Line: HSC2.0

Link Profile: 07 (LLC_LINK)

Adjacent CP Name: THISNTWK . _____ (netid.cpname)

Adjacent Node Type: LEN

CP-CP Session Support: Disable

Local SAP: 04

DLCI: 123

Adjacent Node SAP: 04

PF: 1-Menu 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done

X.25

```

APPN Predefined Circuit 0004                                LINC8 C8.2 Central
Control
Line:                                                       HSC2.1
Link Profile:                                               06 (X25_LINK)
Adjacent CP Name:     THISNTWK . _____ (netid.cpname)
Adjacent Node Type:   LEN
CP-CP Session Support: Disable
Secondary Station Address: 02
Remote DTE Address:   _____
Connection ID Password: _____
PF: 1-Menu    4-Add    5-Delete    7-Back    8-Forw    9-Default    10-Done

```

Adjacent CP Name

This field defines the fully qualified CP name which will be used to identify the Adjacent Node. It is required for LEN End Nodes, and may be left blank for other nodes, allowing any CP to communicate over the indicated LAN/SAP or PU address.

If desired, a CP Name may be duplicated on multiple circuits to allow for multiple links to a given adjacent node.

Adjacent Node LAN/SAP Address

These fields are displayed when the selected Link Profile is configured for LLC. It allows for the definition of the Adjacent Nodes PU 2.1 LAN/SAP address.

Adjacent Node Type

This toggle field specifies the node type of the adjacent node. Valid options are Learn (Default), LEN, Network, and End.

If LEARN is specified, this APPN node will dynamically learn the node type of any adjacent CP which communicates over the indicated LAN/SAP or PU address.

DLCI

The Data Link Connection Identifier (DLCI) is the address of the PVC used to connect this LINC8 node to the Frame Relay network. It should be provided by your Frame Relay service provider when you arrange for your connection.

Connection ID Password

For X.25 APPN Predefined Circuits:

The Connection ID Password is up to eight hexadecimal digits with embedded spaces allowed.

Before allowing incoming calls, the Host DTE address is checked for a match with a circuit. If a circuit is found with the DTE address, then the Connection ID Password is checked. If there is a match, then incoming call is accepted. LINC8 then sends a QXID to the station, and uses the response to determine if the call should be allowed/dropped.

CP-CP Session Support

This field toggles to Disable or Enable to indicate whether or not CP-CP sessions are supported on this circuit.

Note that CP-CP sessions are not supported for LEN End Nodes.

If CP-CP sessions are supported for adjacent Network Nodes, the link will automatically be restarted if it is stopped using the Circuit Status utility on the APPN menu.

Remote DTE Address

Used for X.25 APPN Predefined circuits, the Remote DTE Address is up to fifteen decimal digits.

Line

The Line toggle field will allow for selection of the Line ID for the current APPN circuit. Lines which are allowed are those configured with the following protocols:

- ESCON/SNA
- Channel/SNA
- SDLC (only on HSC boards)
- SDLC/DAP (only on HSC boards)
- LLC

Link Profile

A Link Profile must be specified to define the link characteristics for this circuit. Keep in mind that the TG Characteristics to be associated with this circuit are defined in the Link Profile.

CU Index

The CU Index refers back to the ESCON CU index that the APPN definition is using for this connection. The CU referred to must be using 'SNA' or 'SNA with Channel Path Filter' as its protocol.

PU Address

This field will be displayed when the selected Link Profile is configured for Channel/SNA, SDLC or SDLC/DAP. It allows for the definition of the PU 2.1 PU Address for this circuit.

Local SAP

This field is displayed when the selected Link Profile is configured for LLC. It allows for the definition of the local SAP used to communicate with this APPN circuit.

Note that the local LAN address is defined on the Line options panel.

Secondary Station Address

Used for X.25 circuits, the Secondary Station Address is a two digit hex number, provided by the host systems programmer. It is the X.25 term for SNA PU address, as seen at the SNA host. Make sure that the PU address you enter is unique for this line.

APPN LEN LUs

An APPN LEN LUs panel is displayed for each Adjacent LEN node which has been defined on an APPN Predefined Circuits panel. Here you can predefine LUs residing in these LEN nodes, since these LUs cannot be located dynamically. One LEN node can be designated as the Wildcard Node, if desired.

Note that if no LEN nodes have been defined, this panel will not be displayed.

APPN LEN LUs

```

APPN LEN LUs                                     LINC8 C8.2 Central Control
LEN node CP Name:                               THISNTWK.LEN1
Wildcard Support:                               Disable

LU Names:
LEN1LU1_ LEN1LU2_ LEN1LU3_ LEN1LU4_          LEN1LU5_ LEN1LU6_ LEN1LU7_
LEN1LU8_
CICS* _____
_____
_____
.
.
_____
_____
PF: 1-Menu   4-Add   5-Delete   7-Back   8-Forw   9-Default   10-Done

```

LEN Node CP Name

This protected field displays the CP Name of the Adjacent LEN node that LUs defined on the current panel will be assigned to.

Wildcard Support

This field enables a particular LEN node to act as a Wildcard node. When this Network Node cannot locate a resource in the network, the locate request is routed to the LEN node providing Wildcard support. Wildcard Support should only be enabled for one LEN node in the Network, and is typically assigned to VTAM.

LU Names

These fields define LUs on the CP specified in the CP Name field. Press PF4-Add_LUs to define up to 120 LUs on a given CP. Up to 480 LEN LUs may be predefined in all.

LU Names can be up to eight alphanumeric characters, with no embedded spaces, and the first character must be alphabetic. You may define generic LU names, for example CICS* (from the example panel), which would match all LU names beginning with "CICS".

Pressing **PF5-Del_LUs** will delete all the LUs defined on the current panel.

8. ASCII Port Options

ASCII Port Options				LINCS C8.2 Central Control		
Port Number	Port Type	Baud Rate	Line Type	Flow Control	Stop Bits	Data Bits & Parity
ADAA.000	None	19200	Non-Switched	XON/XOFF	1.5	7, Even, NC
ADAA.001	Host	9600	Direct	XON/XOFF	1	8, None
ADAA.002	Host	9600	Direct	XON/XOFF	1	8, None
ADAA.003	Display	9600	Direct	XON/XOFF	1	8, None
ADAA.004	Display	9600	Direct	XON/XOFF	1	8, None
ADAA.005	Display	9600	Direct	XON/XOFF	1	8, None
ADAA.006	Printer	9600	Direct	XON/XOFF	1	8, None
ADAA.007	Printer	9600	Direct	XON/XOFF	1	8, None

PF: 1-Menu 7-Back 8-Forw 9-Default 10-Done

An ASCII Port Options panel appears for each set of eight ASCII ports. It enables you to configure the port type (host, display, or printer) and some other communications parameters for the port.

Port Number

This is the board and connector, referred to as ASCII port number. In this example, ADA board A (first one).

Port Type

Choose the type of ASCII host or device attached to each port. Options are:

- Host
- Display
- Printer
- None

Baud Rate

Check one of the following baud rates for each port:

- 300
- 600
- 1200
- 2400
- 4800
- 9600 (default)
- 19200
- AUTO (for display stations only)

The auto baud/auto parity (AUTO) option allows LINCS to recognize the ASCII display station's baud rate and parity, using key input from the user.

Line Type

Check a line type value for each port:

- 3-wire - Data leads only.
- Direct - Use this setting if the port is attached to a null modem, (default).
- Switched - Use this setting if the port is attached to a standard telephone line through a modem.
- Non-switched - Use this setting if the port is attached to a leased or privately owned line through a modem.

Flow Control

Choose a flow control setting for each port:

- XON/XOFF - (default) This setting is required for SWITCHED lines. It may be used for 3-WIRE lines, NON-SWITCHED lines, or DIRECT lines.
- NONE
- DTR/DSR - This setting may be used for NON-SWITCHED lines only.
- RTS/CTS - This setting may be used for DIRECT lines only.

Stop Bits

Check one of these stop bit settings for each port:

- 1 stop bit (default)
- 2 stop bits
- 1.5 stop bits

Data Bits & Parity

Unless you've chosen auto baud/auto parity (display station only), select one of these settings for each port:

7 bits	No parity	
	Even Parity	Even Parity - no check
	Odd Parity	Odd Parity - no check
	Mark Parity	
	Space Parity	
8 bits	No parity	
	Even Parity	Even Parity - no check
	Odd Parity	Odd Parity - no check

If you chose auto baud/auto parity, do not select a data bits and parity option for this port. Any choice you indicate is ignored by LINCS. 8 bits, no parity is the default.

ASCII Host Options

```

ASCII Host Options                                LINC8 C8.2 Central Control
ASCII Concurrent Print (ACP):                    Disable
ACP Inactivity Timer (seconds):                 00
ASCII Session Profile Assignment:               Last Used
Setup Mode Access:                             Any Session

                                ASYNCHRONOUS HOST OPTIONS
Disconnect Security Timer:                      Disable
PF: 1-Menu          7-Back  8-Forw  9-Default  10-Done

```

This panel displays options which apply to all ASCII Hosts (Hosts with Asynchronous, TELNET or LAT connections).

ASCII Concurrent Print (ACP)

Use this field to enable the ASCII Concurrent Print (ACP) feature that allows the transmission of data from an ASCII host to a display station and printer simultaneously. The display station may be a coax Control Unit Terminal (CUT) or ASCII display station. The printer must be a coax printer that supports SNA Character String (SCS) printing, or any ASCII printer.

Press the Enter key to toggle between ENABLED or DISABLED (default).

These additional steps should be performed before you use ASCII Concurrent Print:

- For CUT keyboards, define a hot key (mnemonic TCP [Toggle ASCII Concurrent Print]) that turns the feature on and off.
- For ASCII keyboards, set emulation on (EML ON) on the ASCII Host Setup panel. In this case, ASCII Concurrent Print must be initiated by the host because no hot key can be defined for ASCII keyboards during passthrough mode.

ASCII Session Profile Assignment

Options are:

- Last Used - If Last Used is selected, then after a disconnect of any ASCII type session, the previously used profile number will appear in the profile field on the connect screen. A subsequent connect will use the last used profile, unless the Profile field is overwritten.
- Default - After a disconnect of any ASCII type session, the profile field will be blank. A subsequent connect to a class will use the profile assigned to that class in configuration.

In either case, subsequent class connects will always use the profile shown in the profile field on the connect panel. This configuration item determines the default value for this profile field, which may be overwritten as desired.

ACP Inactivity Timer

Use this field to specify the length of time you wish to wait when no data comes from the host before deactivating the ASCII Concurrent Print feature. The default value is 0, the maximum is 95. If no timer interval is configured, the user or an escape sequence must deactivate the ACP before the print is terminated and the printer freed for other users.

Setup Mode Access

This field allows you to limit access to the ASCII Setup mode, which permits the user to change setup parameters for ASCII host ports.

Available options are:

- Disable
- With Supervisor Authority (Async Setup Only)
- Any Session

If desired, Setup Mode may only be accessed by devices with Supervisor Authority. Devices are given Supervisor Authority on the Device Profile/Display panel.

Disconnect Security Timer

This feature provides a 1-minute delay from the time that a user disconnects from an ASCII host port until the next user can connect to that port. Press the Enter key to toggle between the following options:

- Enabled - (default, for Async Connections Only)
- Disabled - No delay between disconnection and the next connection.

ASCII Session Profiles

The ASCII Session Profiles panels are used to configure options for ASCII Host, IP Host, LAN Print Server and LAT Host sessions. ASCII Session Profiles are assigned to Host Classes on the ASCII, IP, and LAT Host Classes panels and on the TCP/IP LAN Print Server Classes panel. When a session connects to an ASCII host using ASCII, IP or LAT the Profile assigned to the class connected to will be used. Alternately, you can change the ASCII Session profile on the Connection panel.

For an example panel, see ASCII Session Profile Example.

If:	These panels will be shown:
Any outgoing Telnet lines are specified:	2nd ASCII Session Profile Screen
Any ASCII Hosts are specified:	ASCII Host Classes
Any outgoing Telnet lines are required:	IP Host Classes
Any TCP/IP Printers are required	TCP/IP Print Server Classes
LAT is specified on any line:	LAT Host Classes and LAT Groups
Any TN3270 Clients are required	TN3270 Client Definitions

ASCII Session Profile 01

```

ASCII Session Profile 01                                LINCS C8.2 Central Control
Profile Name: _____
Answer Back Sequence: _____
Disconnect Sequence: _____
Terminal Emulation:  DEC VT2xx      Timer Disc:    0000
Translate Tables:    Primary        Bold: Normal
Character Set:       NRC VT2xx      Controls: 7 bit
Tab Motion:          Direct          Auto Wrap:    Disable
Newline:             Disable        Cursor Keys:  Normal
Keypad Mode:         Numeric        Numeric Keypad: Decimal
Cursor:              Enable         Margin Bell:  Disable
Formfeed:            Linefeed       Column Change: Preserve
3101 Turnaround Char: CR 3101      CR Key:       CR
3101 Scroll:         Off
Break Time (msec):   300 Duplex:    Full
PF: 1-Menu  3-Def_Dflt 4-Add 5-Delete  7-Back 8-Forw 9-Default 10-Done

```

Profile Name

This is the name used as the host identifier for the ASCII session when using this profile.

Answer Back Sequence

Type up to 30 characters that will be used as an answerback sequence for CTRL break.

The Answerback and Disconnect Rules follow:

- To generate control characters within the string, enter a two-character sequence like those shown in the table Answerback and Disconnect Chars.
- The caret (^) initiates a control character sequence and the character immediately following the caret defines the control character.
- If the ^ (caret) character is followed by a character not in the table, then the character is copied to the ASCII string.
- Caret ^^ (caret) generates a single ^ (caret) character.
- Characters entered after ^ (caret) must be uppercase.
- A single ^ (caret) at the end of the string is converted intact.

Example: To put a carriage return/newline sequence in an ASCII disconnect string, type ^M^J (Control-M, Control-J) after the data that is to be transmitted to the host.

Note: ^ (caret) may appear as ¬ (logical not) on some 3270 displays.

Answerback and Disconnect Chars

String	Hex	Char		String	Hex	Char
^A	1	SOH		^Q	11	DC1
^B	2	STX		^R	12	DC2
^C	3	ETX		^S	13	DC3
^D	4	EOT		^T	14	DC4
^E	5	ENQ (1)		^U	15	NAK
^F	6	ACK		^V	16	SYN
^G	7	BEL		^W	17	ETB
^H	8	BS		^X	18	CAN
^I	9	HT		^Y	19	EM
^J	A	NL		^Z	1A	SUB
^K	B	VT		^[1B	ESC
^L	C	NP		^\	1C	FS
^M	D	CR		^]	1D	GS
^N	E	SO		^~	1E	RS
^O	F	SI		^?	1F	US
^P	10	DLE		^^	5E	^

(1) Answerback only: if the Attached Processor Feature is enabled, this will generate the device port number as a three digit ASCII character string.

Disconnect Sequence

Enter this field and set up a character sequence, for example, LOGOFF(CR or ^M), that is sent to the host before disconnecting an ASCII host session. You can enter up to 30 characters.

See Answerback Sequence for more information on the legal string characters.

Duplex

Options are: HALF and FULL

Translate Tables

Toggle to select Primary or Secondary.

This field lets you specify whether the language for this host is the Primary or Secondary language. Primary and Secondary Languages are specified on the Language Options panel.

Each time an end-user connects to an ASCII host using this profile, both the Translate Tables and Keyboard Tables will be set according to the configured value. When a secondary language has been configured, a user may press Exsel-L while in an ASCII session to toggle both the Translate Tables and Keyboard Tables to the other language.

Terminal Emulation

This field defines the type of ASCII terminal to be emulated on a 3270 terminal, so the 3270 terminal can have a session with an ASCII host. Choose one of the following:

- DEC VT52
- DEC VT1XX

- DEC VT2XX 7 bit
- DEC VT2XX 8 bit
- DG210
- DG410
- IBM 3101
- Printer

Timer Disc

This field specifies the number of minutes that a host can be inactive before the session times out and automatically disconnects. Enter the number of minutes to wait before inactivating a session, from 0 to 1440.

Bold

Because a CUT mode terminal cannot support the bold attribute the same way an ASCII terminal does, this field lets you select an EAB attribute that can be used in place of bold. Toggle among the choices to select one of the following options:

- Normal (normal video default)
- Reverse video
- Underline
- Blinking
- White
- Red
- Blue
- Yellow
- Turquoise
- Pink

Character Set

To enable the use of multiple languages, LINCS supports Multinational Character Set (MCS) inbound data (keys) and outbound data (displayable characters) and the National Replacement Character Set (NRC) inbound and outbound data. Each device can use one character set at a time.

- MCS - An ASCII character set that includes all 8-bit characters 00-FF hex. The MCS can support all foreign languages without modification.
- NRC - The NRC is an ASCII character set that includes only 7-bit characters 00-7F hex. To support foreign languages, the NRC is modified by replacing certain displayable characters with those required by the foreign language.

The NRC tables are automatically modified for the language configured. The ASCII Definition Utility (ADU), gives instructions for making custom modifications to the NRC or MCS tables.

For a list of supported languages, see the table Languages Supported.

VT2xx Controls

Options are: 7 BIT or 8 BIT control characters. This field is ignored if terminal emulation is not DEC VT2xx.

Tab Motion

Options are DIRECT or SPACE FILLED tabs. SPACE FILLED causes tab characters to be executed as though they consisted of the appropriate number of space characters.

Auto Wrap

Options are:

- ENABLE causes the cursor to move to the first position of the next line when a character is entered in the last position of a line.
- DISABLE allows a character to be entered on the last position of a line, at which point the cursor will stop. The user must then manually move the cursor to the next line, in order to continue entering characters.

Newline

Options are:

- DISABLE allows carriage return and line feed characters be processed independently.
- ENABLE causes a carriage return or a line feed to be interpreted as a carriage return followed by a line feed.

Cursor Keys

Options are:

- NORMAL causes the cursor keys to generate standard ANSI control codes that correspond to Cursor Up, Cursor Down, Cursor Left and Cursor Right.
- APPLICATION causes the cursor keys to generate escape sequences defined by the application mode. See ASCII Keyboard Codes for more information about escape sequences.

Keypad Mode

Options are:

- NUMERIC is the default, where the numeric keypad keys generates ASCII characters that match the numeric characters, comma, period and minus sign keys. Control functions are generated by the PF1 through PF4 keys.
- APPLICATION causes the keypad to generate the escape sequences defined by the application mode. See “VT1xx/VT2xx ANSI Mode Control Sequences”.

Numeric Keypad

Options are DECIMAL and HEX. The option chosen here is ignored if Keypad Mode is chosen as APPLICATION.

- DECIMAL causes the keypad to operate like a numeric keypad.
- HEX causes the keypad to generate hexadecimal codes for the following keys:

102 and 122 key keyboard	26-29,33, and 39
88 key keyboard	1-4,12 and 13

Cursor

Toggle to ENABLE or DISABLE the cursor. Default is ENABLE, so you can see where the cursor is on the screen.

Margin Bell

Toggle to ENABLE or DISABLE the right margin bell.

Formfeed

Options are:

- LINEFEED causes a single linefeed to be processed when a formfeed is received.
- HOME AND CLEAR causes the screen to blank and the cursor to move to the Home position when a linefeed is received.

Column Change

Options are:

- PRESERVE the screen information or
- CLEAR and HOME Clear the screen and put the cursor on home

...when changing screen size from 80 to 132 columns or back.

3101 Turnaround Character

This field determines the character that is sent following Escape sequences to notify the host to change the direction of the datastream. You can select this parameter now for future 3101 Emulation sessions, even if you are not currently configuring the port for 3101 emulation.

3101 CR Key

Options are:

- CR transmits CR when the Newline key is pressed.
- CRLF transmits a Carriage Return and Line Feed when the Newline key is pressed.

3101 Scroll

Turn screen scrolling ON or OFF.

Break Time

LINCS sends a spacing character at the interval specified here. The value ranges from 50 to 500 milliseconds in increments of 50, and the default is 300 msec.

For coax keyboards use the keyboard to send a spacing character:

- 88 key - Hold down the ALT key and press the Up Arrow Key
- 102, 104 and 102 key - Press PF5

Second ASCII Session Profile Screen

```

ASCII Session Profile 01                               LINCS C8.2 Central Control

                                TELNET OPTIONS
Interrupt Process:      00                Abort Output:      00
Break Character:       00                Are You There:     00
Erase Character:       00                Erase Line:        00

Echo:                  Disable          Binary:            Disable
Timing Mark:          Disable          Status:           Disable
Terminal Type:        Disable          End of Record:    Disable
TCP Port:             00000            TCP Port Action:   None
TN3270 Session:       Enable           TN3270E Support:  Enable
ATTN Key:             Telnet Break
SYSREQ Key:          Telnet Interrupt Process
PF: 1-Menu  3-Def_Dflt  4-Add 5-Delete  7-Back 8-Forw 9-Default 10-Done
    
```

The second of the two ASCII Session Profile panels will only be displayed if there are outgoing TELNET Host connections configured on one of the Line Options panels.

ASCII Session parameters will be saved through this utility only. Any modifications made using the ASCII Setup utilities will be temporary and will not affect any saved parameters.

Interrupt Process

This field lets you define the ASCII character that will generate the Interrupt Process character for TELNET.

The valid range is 00 to 31 decimal. 00 is the default and disables the option.

Abort Output

Defines the ASCII character that will generate the Abort Output Character for TELNET.

The valid range is 00 to 31 decimal. 00 is the default and disables the option.

Break Character

Defines the ASCII character that generates the Break Character for TELNET.

The valid range is 00 to 31 decimal. 00 is the default, and disables the option.

Are You There

Defines the ASCII character that will generate the Are You There character for TELNET.

The valid range is 00 to 31 decimal. 00 is the default and disables the option.

Erase Character

Defines the ASCII character that will generate the Erase Character for TELNET.

The valid range is 00 to 31 decimal. 00 is the default and disables the option.

Erase Line

Defines the ASCII character that will generate the Erase Line Character for TELNET.

The valid range is 00 to 31. 00 is the default and disables the option.

Echo

Enabling this option will cause all characters sent to the host to be echoed to the screen. See RFC 857 for more detail.

Binary

Enabling this option allows binary communication upon receipt of standard codes. See RFC 856 for more detail.

Timing Mark

Enabling this option provides a mechanism for ensuring that transmitted data has been properly processed. See RFC 860 for more detail.

Status

Enabling this option allows the user to verify the current Telnet options. See RFC 859 for more detail.

Terminal Type

Enabling this option allows the Telnet server to determine the type of terminal connected to it. See RFC 930 for more detail.

End of Record

Enabling this option causes the session to use the End-of-record character sequence as detailed in RFC 885.

TCP Port

This identifies the TCP Port that is used to connect to an IP host, by a device using this profile.

The valid range is 00000 through 65535. 00000 is the default, which means the TCP Port is not considered for IP host connections.

TCP Port Action

This field identifies how the TCP Port value is used. Options are:

- None (default) - the TCP Port will be used as defined in the TCP Port field.
- Incremental - the TCP Port field will be a base value, to which is added the port number of the device that is connecting. The easiest way to see which TCP Port value will be used by each port, is to go to the Device Profile Assignments panel, and look at the devices using this ASCII Session profile. The first such device uses the TCP Port, the next uses TCP Port plus one, and so on.

TN3270 Session

TN3270 Session toggles between Enable and Disable (default).

Enable indicates that the session will attempt to negotiate the Telnet options for a TN3270 session. If Enable is chosen the Binary, Terminal Type, and End of Record toggle fields must also be enabled. If not, LINCS will issue an error message, and you will not be able to leave this panel until these options are selected, or the TN3270 Session field is returned to Disable.

TN3270E Support

TN3270 Support toggles between Enable and Disable (default). When enabled, the client will negotiate TN3270E options with the upstream TN3270 server. Additionally, you can define text strings to be sent to the TN3270 server at negotiation time, to request a specific session from that server. These text strings are defined in the nickname file.

ATTN Key

Options are:

- Telnet Break command (default and TN3270 Current Practices RFC recommendation)
- Telnet Interrupt Process command (TN3270 Enhancements Draft recommendation)
- None

The selected option must be coordinated with the TN3270 Server's expectations.

SYSREQ Key

Options are:

- Telnet Interrupt Process command (default and TN3270 Current Practices RFC recommendation)
- Telnet Abort Output command (TN3270 Enhancements Draft recommendation)
- None

The selected option must be coordinated with the TN3270 Server's expectations.

ASCII Host Classes

ASCII Host Classes					LINCS C8.2 Central Control	
Class	ADAA	ADAB	ADAC	ADAD	ASCII Session	
	01234567	01234567	01234567	01234567	Profile	Class Name
01	10000000	00000000	00000000	00000000	01	ENGR_VAX
02	01000000	00000000	00000000	00000000	01	_____
03	00100000	00000000	00000000	00000000	01	_____
04	00010000	00000000	00000000	00000000	01	_____
05	00001000	00000000	00000000	00000000	01	_____
06	00000100	00000000	00000000	00000000	01	_____
07	00000010	00000000	00000000	00000000	01	_____
08	00000001	11111111	11111111	11111111	01	_____
.						
16	00000000	00000000	00000000	00000000	__	_____
PF: 1-Menu	7-Back	8-Forw	9-Default	10-Done		

This panel is displayed if any ASCII Hosts are configured on the ASCII Port Options panel. The column ADAA, ADAB, etc. is the board number, and the numbers below are the port numbers for that board. A 1 in a port column makes that port a member of this ASCII Host class.

Class

This field shows class numbers. A class is a unique group of one or more ASCII hosts and the devices that have access to these hosts. There can be up to 16 classes; the numbers are 1 through 16 and are predefined.

ASCII Session Profile

This is the number of the ASCII Session Profile created in the previous panel/step. It is the default profile for this class, which can be overridden on the end user's connect panel. The range is from 0 to 15.

Class Name

This field, which lets you specify a name for the class, must be filled in if any ASCII hosts are defined. The name could indicate the ASCII host to which the ports in that class are connected or could identify the host application that is accessible via the host ports. Since there can be up to 16 classes, each class name must be unique. Class names cannot exceed 16 alphanumeric characters (including hyphen, period and underscore), and are required.

After configuration, this class name is used on the ASCII Host Connection panel.

9. IP Host Classes

IP Host Classes			LINCS C8.2 Central Control	
Class	Line	IP Address or Name	ASCII Ses Profile	Class Name
-----	----	-----	-----	-----
01	FET1	192.155.21.200	01	sulu-telnet
02	FET1	winner.lincs.visara.com	02	sweepstakes
03	None	_____	---	_____
04	None	_____	---	_____
. . .				
15	None	_____	---	_____
16	None	_____	---	_____

PF: 1-Menu 7-Back 8-Forw 9-Default 10-Done

The IP Host Classes panel will be displayed if TELNET Host Connections are enabled for any line.

Class

This field shows class numbers. A class is a unique group of one or more IP hosts and the devices that have access to these hosts. There can be up to 16 classes; the numbers are 1 through 16 and are predefined.

Line to IP Host

Enter the line which will be used to connect to the IP Host(s) in this IP Host Class.

IP Address or Name

Enter a four-octet decimal number for the IP address of the remote IP Host or enter the Domain Name of the remote IP host. The IP address should be a uniquely assigned value given to the remote device by the network administrator. It needs to follow the guidelines of any IP address assignment, four octets separated by dots. If a Domain Name is used, you should have an address configured in the TCP/IP Options (Line Options panel) for the DNS Server in order for LINCS to get the Domain Name resolved.

ASCII Session Profile

This is the number of the ASCII Session Profile created in the previous panel/step. The range is from 0 to 15.

Class Name

This field, which lets you specify a name for the class, must be filled in if any IP hosts are defined. The name could indicate the IP host to which the ports in that class are connected or could identify the host application that is accessible via the host ports. Since there can be up to 16 classes, each class name must be unique. Class names cannot exceed 16 alphanumeric characters (including hyphen, period and underscore), and are required.

After configuration, this class name is used on the IP Host Connection panel.

This panel will be displayed if LAT connections are configured for any Ethernet board. The Identifier Control List refers to outgoing connections. The Access Control List refers to incoming LAT connections. The purpose of the Control List is to indicate access authorization. For example, if a server indicates access authorization of 12 is required, only LAT clients configured with an authorization level of 12 will have access to that server resource. If LAT Groups are not being used on the network, then a default Group 00 is assumed. The default setting for LINCS for both the Identifier and Access groups has Group 00 turned on for this reason.

Identifier Control List

The Identifier Control List identifies which LAT Groups, coax users on the 1174 will have access to on the network.

Access Control List

The Access Control List identifies which LAT Groups LINCS will require LAT clients to be part of. A minimum configuration of Group 00 is required.

11. TN3270 Client Definitions

The TN3270 Client Definition panel is used to map LINCS 3270 host resources to TN3270 clients. Through configuration of this panel, it is possible to assign specific LUs to a client, or give LUs from a pool (3270 Host Class). It is also possible to determine whether a password is required by a client to gain access.

Not all TN3270 emulators are capable of handling the command chaining used by console devices. Most should work however as VTAM devices.

Specific LUs can be assigned using four different methods:

1. You can have a separate entry on this panel for each client, using the client's IP address to determine which resource is assigned to them. (This of course will not work in DHCP environments.)
2. You can use a different TCP port for each client, so that depending on which port is used to connect to the 2XL, only a specific LU is given out.
3. The client can request the 2XL resource at connection time using the format "00,06" to request session "06" on host circuit "00" (or "a,02" to request session "02" on host "a" on older code versions) from the 2XL. This method can be prohibited by enabling one of the RPQ options.
4. A nickname file can be set up to associate a requested resource name to a specific 2XL resource.

TN3287 clients typically request their own LU at connection time as an extension of the Device Type field. As an example, the client would request the following device type IBM-3287-1@01,16 where the device type is IBM-3287-1 and the extension @01,16 indicates that host circuit 01, LU 16 (hex) is desired. When requesting specific LUs in this fashion, no specific entry in the TN3270 Client Definition Panel is required. The LU requested, however should be defined as part of a 3270 Host Class, set aside for specific LUs that will be requested by TN3270 clients.

If a client requests a specific LU at connection time, the request takes precedence over what is configured, unless one of the RPQ options is enabled to limit connections to those configured, or to ignore all LU requests.

Requests that include invalid information such as a host or class that does not exist will result in a failed connection attempt.

When attempting to match a resource to a client connection request, the 2XL will search the configured options based on the order in which they are defined on this panel. Therefore, if the first entry for a user connecting on port 23 happens to be to get a session from a pool, then it does not matter that a specific LU assignment was defined further down the panel, they would get the pooled session instead. For this reason, it is good practice to define specific LU assignments earlier in the table than pooled resource assignments.

Likewise, when using a nickname file to assign resources the nickname file is searched from the beginning until the first match is found.

The TN3270 Client Definition Panel is displayed if TN3270 Client Connections are configured

on the TCP/IP Options panel for one or more network interfaces.

Note that you can have more TN3270 Client Definitions than the number of TN3270 Sessions specified on the TCP/IP Line Options panel for a specific network interface. The number configured for a specific line however, will limit the number of concurrent connections.

TN3270 Client Definition Panel

TN3270 Client Definition Panel 000										LINCS C8.2 Central Control	
Line	Port	IP Address				Type	3270 Host			LU	
FET1	00983	207	015	182	113	VisaraNCT PW	OS390_prod4			06	
FET1	01067	207	015	182	117	VisaraNCT ID	VMESA_prod3			06	
FET1	01187	207	015	182	119	Client PW	OS390_prod4			07	
FET1	00224	___	___	___	___	VisaraNCT	3270 Class: TN3270E_CLIENTS			___	
FET1	00225	207	016	182	000	Subnet	3270 Class: TN3270E_TEST			___	
FET1	00227	207	015	182	121	VisaraNCT PW	Disable			___	
FET1	01191	___	___	___	___	Client ID	3270 Class: ZOS_PROGRAMMERS			___	
FET1	02120	___	___	___	___	Client+CC PW	OS390_prod4			03	
FET1	02121	___	___	___	___	Client+CC ID	OS390_prod4			04	
FET1	02122	207	015	182	137	Client+CC	VMESA_prod3			02	
FET1	___	___	___	___	___	Client	Disable			___	
FET1	___	___	___	___	___	Client	Disable			___	
FET1	___	___	___	___	___	Client	Disable			___	
FET1	___	___	___	___	___	Client	Disable			___	
FET1	___	___	___	___	___	Client	Disable			___	
FET1	___	___	___	___	___	Client	Disable			___	

PF: 1-Menu 3-Auto 4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done

A summary of the options for the above panel can be found below. Afterwards there is a discussion of the specific example shown.

Line

This field toggles through all Ethernet boards that have TCP/IP enabled and TN3270 Clients defined.

Port

This is a five digit decimal number that defines the TCP Port that the server will listen on for a TN3270 connection. This number must not be the same as one used for a Telnet display in the Network Device Definition panel, LPD print server, or TCP print server.

IP Address

The IP address field is optional. If an address is entered, a TN3270 client connecting on that TCP Port must reside at that IP address. If another entry contains the same resource, such as in a 3270 Host Class, and a user requests a session from that class, the LU will be given out to the requester.

Type

This field determines how the IP address is to be interpreted, whether passwords are required, and what type of client is allowed to connect. The options are

- **Client:** A TN3270, TN3270E, or TN3287 client may attempt to connect. If an address has been configured, only a client using that address will be allowed the connection. LINCS handles any command chaining data streams for the client.
- **Client PW:** This is handled the same as a client request, except that the client will be challenged for a password. Do not use this definition for a TN3287 client.
- **VisaraNCT:** This definition is only to be used with Visara 1783 and 1683 clients running IL47 microcode or higher, or Visara 1883 clients. The TN3270 client function of a downstream LINCS platform also uses this definition. No other device will successfully negotiate the special command chaining option that this definition implies.
- **VisaraNCT PW:** This is handled the same as a console request, except that the client will be challenged for a password.
- **Subnet:** When set for “Subnet” the address configured for this entry will be treated as a subnet address, and only users connecting from that subnet will be permitted a connection. If no address is configured, the entry will be ignored.
- **Client ID:** This entry requires the user to provide a User ID and Password to make the connection. The User ID and Passwords are defined in the ‘nickname.sys’ file described later. LINCS provides all Command Chaining sequence handling for the client, when the session is a console session.
- **Client+CC:** This configuration requires the client to provide its own Command Chaining datastream handling.
- **Client+CC PW:** Configuring this option requires the client to provide its own Command Chaining datastream handling, and challenges the client for the configured Telnet password (as configured in the LINCS configuration).
- **Client+CC ID:** When this entry is used, the client must provide its own Command Chaining datastream handling, and the user must provide a valid User ID and password, as described in the following section on the ‘nickname.sys’ file.
- **VisaraNCT ID:** This definition is restricted to TN3270 clients running on Visara NCTs and other LINCS platforms. In this instance, the user must provide a valid User ID and password when establishing their connection.

3270 Host

This optional field toggles to DISABLE and through all 3270 Hosts and 3270 Host Classes. If this field is set to DISABLE and a TCP port number has been defined for this entry, the user will be prompted at connect time for a host or host class using Telnet NVT ASCII data. A menu of all available configured host class resources will be painted on the client’s screen.

LU

The 3270 LU field is required if the 3270 Host field contains a 3270 Host entry. If the 3270 Host field is DISABLE, then this field is ignored.

Example Entries (from previous panel)

Entry 1

Line	Port	IP Address	Type	3270 Host	LU
FET1	00983	207 015 182 113	VisaraNCT PW	OS390_prod4	06

This entry provides a session (address 06 for host “OS390_prod4” to a 1683/1783/1883 device or LINCS platform (SCON-25L or 1174) with an address of 207.15.182.113 only. The client must connect to the 2XL on incoming port 983. The client will be challenged for the password.

Entry 2

Line	Port	IP Address	Type	3270 Host	LU
FET1	01067	207 015 182 117	VisaraNCT PW	VMESA_prod3	06

This entry provides a session (address 06 for host “VMESA_prod3” to a 1683/1783/1883 or LINCS device with an address of 207.15.182.117 only. The client must connect to the 2XL on incoming port 1067. The client will be challenged for the password.

Entry 3

Line	Port	IP Address	Type	3270 Host	LU
FET1	01187	207 015 182 119	Client PW	OS390_prod4	07

This entry provides address 07 on host circuit “OS390_prod4” to an incoming client that has IP address 207.15.182.119. The client is a PC, and the session is either a VTAM session or the client will be required to handle the command chaining operations. The client will be challenged for a password when connecting.

Entry 4

Line	Port	IP Address	Type	3270 Host	LU
FET1	00224	___ ___ ___ ___	VisaraNCT PW	3270	Class:
		TN3270E_CLIENTS			

The fourth entry is for a 1783/1683/1883 or LINCS type of device connecting in on port 224. Since no IP address is specified, any user connecting to port 224 will be accepted. The user will be given a session out of the 3270 Host Class “TN3270E_CLIENTS”.

Entry 5

Line	Port	IP Address	Type	3270 Host	LU
FET1	00225	207 016 182 000	Subnet	3270 Class: TN3270E_TEST	

The fifth entry allows any user located on subnet 207.16.182.0, and connecting in on port 225 to get a session out of the 3270 Host Class “TN3270E_TEST”. There will be no challenge for a password, and the clients will be required to handle command chaining if GEN’ed to be a console. This type of entry might be used for VTAM users.

Entry 6

Line	Port	IP Address	Type	3270 Host	LU
FET1	00227	207 015 182 121	VisaraNCT PW	Disable	

This entry allows a 1783/1683/1883 or LINCS user, connecting to port 227 to get a menu of selections. The user must be connecting from the IP address 207.15.182.121 and will be challenged for a password when they connect.

Entry 7

Line	Port	IP Address	Type	3270 Host	LU
FET1	01191	_____	Client ID	3270	Class:
		ZOS_PROGRAMMERS			

This entry requires the user connecting in on port 1191 to enter a valid User ID and password. If a valid User ID and password is given, then a session from the 3270 Host Class called 'ZOS_PROGRAMMERS' will be given. Multiple users can connect through this same definition, each using the same or different User ID and passwords, as long as they are valid.

Entry 8

Line	Port	IP Address	Type	3270 Host	LU
FET1	02120	_____	Client+CC PW	OS390_prod4	03

This entry supports only TN3270 clients that provide their own handling of Command Chaining sequences, if this entry is to connect the user to a console session. The user will be challenged for the configured LINC S Telnet password when they connect to port 2120.

Entry 9

Line	Port	IP Address	Type	3270 Host	LU
FET1	02121	_____	Client+CC ID	OS390_prod4	04

This entry also supports only TN3270 clients that provide their own handling of Command Chaining sequences for console sessions. In this case the user must provide a valid User ID and password and connect to port 2121.

Entry 10

Line	Port	IP Address	Type	3270 Host	LU
FET1	02122	_____	Client+CC	VMESA_prod3	02

Similar to the previous two entries, only TN3270 clients that provide their own handling of Command Chaining sequences for console sessions should attempt to use this entry. In this case the user must connect to port 2122, and must be using the configured IP address of 207.15.182.137.

The Nickname File

Optionally, a nickname file may be used to assign sessions to users and to help provide password security. Differently formatted entries may be used to provide resource assignment, User ID/password security, and resource security.

The nickname file (nickname.sys) is an ASCII text file, and can be created on a PC using any text editor. The Visara eManager product also may be used to create, manage, and distribute the nickname.sys file. The name of the file must be nickname.sys, and no other file name will be recognized by LINC S. The file must be present in the system directory on the LINC S hard drive, or on a floppy present in the floppy drive at boot time. The file is read only at boot time, or when the utility /3/5 is run. Note that you can only run the /3/5 utility if the file already exists, and the new file should not exceed the original file size (read at boot time) by more than 20%.

File entries may be of the following types:

Name=resource

Where the name can be any alphanumeric name, 12 characters or less, and the resource is a LINCS resource. LINCS resources that are valid include the name of a 3270 Host Class, or a host designator followed by a comma and the two hex character address of the desired session. Here is an example:

Console003=05,03

In this example, the resource name 'console003' would be configured in the TN3270E client (LU Name field), and would be requested by the client emulator at connection time. The resource that the 2XL will give to the client is session 03 from Host Circuit 05.

Name=resource password

This entry is exactly the same as the previous entry except that a password is added to the end of the entry, separated from the rest of the entry with a space. In this instance, to receive the requested resource, the user must enter the correct password. A corresponding example is shown below:

Console003=05,03 pituitary

The password can be a combination of alphanumeric characters.

UserID-password

This type of entry is used to validate a user at connect time. It is used with all client types defined on the TN3270 Client Definition panel that have the letters 'ID' included ('Client ID', 'VisaraNCT ID', 'Client+CC ID'). These client types will prompt the user for a User ID, and if a valid User ID is given as found in the nickname.sys list, then the corresponding password must be given to establish the connection. An example entry might appear like this:

Virgil-Bonita671

Notes:

1. No white space is permitted between the name, the equal sign, and the resource, nor within the resource notation itself, except to permit the inclusion of a password.
2. Even though a Host ID may have been assigned to the Host Circuit, the only notation that may be used in this definition can be the character representing the Host Circuit (00-7F or A-Z, 1-6 for older code versions).
3. The address portion of the notation is a two digit hex value, and is offset from 00, regardless of what the actual addresses are, being used on the channel. (For example if the address range of A0-A7 is being defined on the host, the 2XL will refer to the range as 00-07 when assigning resources.)
4. The resource listed can be the name of a 3270 Host Class.
5. Entries are separated by a CR/NL in the file. A blank line will be interpreted as the end of the file.
6. At least one valid port must be defined for use on the TN3270 client definition panel. LINCS will only listen on TCP ports defined on the TN3270 Client Definition panel for connecting TN3270 clients.

7. The nickname file is not associated with any particular network adapter. This can simplify the configuration when using the SMS feature to balance user connections across multiple network interfaces.
8. By including the line 'sensitive=yes' as the first line of the nickname file, the remaining entries are treated as case sensitive.

12. Network Device Definitions

The Network Device Definitions panels are displayed if a line which supports a Network Device has been configured.

Network Device Definitions define the Network Devices that will connect to this LINC node. Up to 128 concurrent connections are allowed per FET board. Up to 32 concurrent connections are allowed on the TRC and ETH boards. The Network Devices will have access to any of the features available to CUT mode devices. On the Network Device Definition panel, you define which device types will use the LAN connections, and assign Port Ids to the Network Device Connections. The Port Ids are used to identify the LAN Connections on the Device Profile Assignments panel.

Devices attempting connection compete for ports that are enabled for that device type. You can also restrict a port to a single device (LAN address), for special devices or applications.

The supported device types are:

- LANSYS Display
- LAT Display
- TELNET Display
- TCP Printer
- LPD

Network Device Definition - LANSYS

```
Network Device Definition 000                                LINC C8.2 Central Control
LAN Line:                ETH1
Device Type:             LANSYS
                        0          1          2          3
                        01234567890123456789012345678901
                        _____
Ports:                   11111111111111110000000000000000
Ports in other LDDs:    00000000000000001111111111111111
LSPool:                 _____
PF: 1-Menu    4-Add    5-Delete    7-Back    8-Forw    9-Default    10-Done
```

Here is an example of the fields you will see if you toggle the Device Type to LANSYS Display.

Line ID

Toggle to the desired line.

Device Type

Toggle to the desired device type. Valid devices for the chosen line are determined by which protocols were enabled on the Line Options panel for the chosen line.

Ports

Each column position corresponds to a Network Device port for the indicated line. To enable a particular port for this Network Device definition, put a 1 in the column for that port. For example, a 1 in the first column (00) corresponds to ETH1.000.

Ports in other LDDs

Each column position corresponds to a Network Device port for the indicated line. These fields are protected, they show you which ports on this line are already assigned to another Network Device Definition.

Note: You can define the same port to multiple Network Device Definitions only if the Device Type is the same.

LSPool

LANSYS devices can request a connection to a single port, or any one of a pool of ports. You can pool all the ports defined in this Network Device Definition by entering a name in the LSPool field. Then LANSYS devices can request a LANSYS connection without worrying about which port, if they create a matching LSPool DOS environment variable on their PCs. They also must have the latest version of 1472/PC including the patches (dated at least 5-20-94) in order to use LSPool.

By default, the LANSYS PC software will request connection to the LSPOOL named LANSYS. A DOS environment variable does not need to be set up for that name.

If the LSPOOL name is left undefined, then the LANSYS workstations must request connection to individual ports by name. This is done with the DOS environment variable LSPORT. For example, the DOS command SET LSPORT=ETH1.008 would request connection to device port ETH1.008, which it would get if the port is not already in use. The LSPORT variable can be used to select a specific port, even if a pool is defined.

These variables are also used by the diagnostic PC program CHKLNK.EXE, which displays which resource is being requested, and whether the connection can be made.

The LSPool name can be up to 8 alphanumeric characters, including period and underscore.

Network Device Definition - LAT

```

Network Device Definition 001                                LINCS C8.2 Central Control
LAN Line:                                                    ETH1
Device Type:                                                LAT Display
0      1      2      3
01234567890123456789012345678901
-----
Ports:                                                       00000000000000001111111100000000
Ports in other LDDs:                                       1111111111111111100000000111111111
Service Name:                                              _____
Service ID:                                                _____
PF: 1-Menu    4-Add    5-Delete    7-Back    8-Forw    9-Default    10-Done

```

This panel is an example of what you will see if you toggle to LAT Display in the Device Type field.

LAT Service Name

This is a 16 byte alphanumeric field which defines the name of the LAT Display Service which will be offered to the ports enabled in this Network Device Definition. Valid characters are alphanumeric, the dollar sign, period, hyphen, and underscore.

LAT displays can connect to one of these ports by specifying the port id and Service Name, or just the service name.

LAT Service ID

This is an optional field. If defined, this information will be broadcast along with the Service Name. Up to 16 alphanumeric characters with embedded spaces.

Network Device Definition - TELNET Display

```

Network Device Definition 002                                LINCS C8.2 Central Control
Line ID:                                                    ETH1
Device Type:                                               TELNET Display
                                                           0      1      2      3
                                                           01234567890123456789012345678901
                                                           _____
Ports:                                                     00000000000000000000000011111111
Ports in other LDDs:                                       11111111111111111111111110000000
TCP Port:                                                  00023
IP Address or Name:                                       _____
PF: 1-Menu      4-Add   5-Delete  7-Back   8-Forw   9-Default 10-Done

```

This panel is an example of what you will see if you toggle to TELNET Display in the Device Type field.

TCP Port

This field defines the TCP Port which TELNET displays will use to connect to port(s) specified in the LDD (Network Device Definition). If multiple ports are enabled in an LDD, a TELNET display attempting connection will be assigned the first available LAN port in an LDD that has a TCP Port matching the requested TCP Port.

IP Address or Name

This field is optional. Use it if you wish to reserve a LAN port for a particular TELNET Display. This IP Address is the IP Address of that Telnet display. Optionally a Domain Name can be configured in this field.

Network Device Definition - LPD Printer

```
Network Device Definition 004                                LINCS C8.2 Central Control
Line ID:                                                    ETH1
Device Type:                                               LPD
                                                           0          1          2          3
                                                           01234567890123456789012345678901
Ports:                                                     00000001100000000000000000000000
Ports in other LDDs:                                       11111100111111111111111111111111
IP Address or Name:                                        193.251.083.203
Queue Name:                                                LASER
Limit Source TCP Port:                                     Enable
Print Banner:                                             Disable
Retry Count:                                               005
Retry Interval (sec):                                     060
Feature Memory (K):                                       Disk
Print Failure Action:                                     Delete Print Job
PF: 1-Menu          4-Add  5-Delete          7-Back 8-Forw 9-Default 10-Done
```

This panel is an example of what you will see if you toggle to LPD in the Device Type field.

Line ID

This field toggles through all LAN lines. Select the line to which the LPD printer is attached.

IP Address or Name

This field contains the IP address of the host computer where the LPD print server resides, to which LINCS will be directing prints to. Optionally, you may code in a Domain Name instead of an IP address. When using a Domain Name, make sure that you have configured an IP address for the Domain Name Server, on the Line Options - TCP/IP Options panel.

Queue Name

This queue is where print files will be queued that are destined for the LPD printer. The queue can reside on a host or a LINCS LPD print server. The queue name can be up to 16 alphanumeric characters.

Limit Source TCP Port

The Limit Source TCP Port field limits the range of source TCP ports that may be used for LPD print jobs.

ENABLE limits the range of available TCP ports to 721 through 731, as required by some LPD servers. If there are eleven active LPR sessions using all the TCP ports between 721 and 731, then any new print requests on a LPD device will be refused.

If this field is set to DISABLE, then the source TCP port can be any unused TCP port.

Print Banner

ENABLE causes LPR to insert the print banner command in the control file of each print job. DISABLE causes LPR to omit the print banner.

Retry Count

This field determines the number of times LINCOS will try to send a print job to an LPD server. If all retry attempts fail, then the print job will be deleted, and event number 245_61 will be logged.

Retry Interval

This field specifies the number of seconds LINCOS will wait before retrying to send a print job to an LPD server.

Feature Memory

The Feature Memory (K) field defines the amount of Feature Memory to allocate for each printer defined in this Network Device Definition. Memory is required to buffer a print job before it is sent to the LPD server.

This field toggles between a “Disk” option and incrementing values of memory, up to the amount of memory defined on the Product Description panel. Normally the value of “Disk” is the desired value for this option. The LPD Server/Printers Drive field must be configured on the TCP/IP Options panel in order for the “Disk” option to be available. If memory options are selected, the value should be set to the approximate number of ASCII characters in the largest print job expected to be processed by a printer in this Network Device Definition.

The total amount of memory required for all LPD printers will be calculated and displayed for informational purposes on the Feature Memory Allocation panel.

Print Failure Action

This field determines how a failure to send a print job to a LPD printer is to be handled. Choices are to Delete Print Job (default selection) and to Hold Print Job (recommended). If the Hold Print Job option is taken, it is possible to attempt the job again after the problem has been corrected with a utility in Central Control Mode. You may also choose to delete the print job from the same utility. If you select to Delete Print Job, the job will be deleted and no further notification to the host or user initiating the print will be given.

Network Device Definition - TCP Printer

```
Network Device Definition 003                                LINCS C8.2 Central Control
Line ID:                ETH1
Device Type:            TCP Printer
                        0          1          2          3
                        01234567890123456789012345678901
                        -----
Ports:                  00000001100000000000000000000000000000
Ports in other LDDs:   1111110011111111111111111111111111111111
IP Address or Name:    199.082.250.202
TCP Port:              09100
IPDS Support:         Disable
PF: 1-Menu      4-Add  5-Delete  7-Back  8-Forw  9-Default  10-Done
```

This panel is an example of what you will see if you toggle to TCP Printer in the Device Type field.

IP Address or Name

This is the IP address of the system where the TCP Print Server resides to which LINCS will be directing print jobs. Optionally, you may code in a Domain Name instead of an IP address. When using a Domain Name, make sure that you have configured an IP address for the Domain Name Server, on the Line Options - TCP/IP Options panel.

TCP Port

This is the TCP Port that the TCP Print Server will listen to for print requests destined for this TCP Printer. There is no industry standard port that is used for this purpose, but port 9100 is used by several vendors. Check your vendor's documentation for the port used.

IPDS Support

When enabled, this parameter will cause LINCS to pass IPDS (mainframe graphics) to the LAN printer. The printer must be capable of supporting IPDS natively, such as the Genicom 5038 printer. (LINCS does not perform protocol conversion to other printer protocols such as Postscript or PCL5.)

TCP/IP LAN Print Server Classes

TCP/IP LAN Print Server Classes				LINCS C8.2 Central Control				
Class	Type	Line	Queue Name	TCP Port	Max Conn	Implied CR	Form Feed	Pro
01	LPD	TRC1	LQPRINT	00000	8	Enable	After	00
02	LPD	TRC2	LINEPRINT	00000	4	Disable	After	00
03	TCP	ETH1	SAMSPRINT	01024	0	Disable	After	00
04	TCP	ETH2	BETTYSRINT	01025	0	Disable	After	00
05	None	None		00000	0	Disable	After	00
...						
16	None	None		00000	0	Disable	After	00

PF: 1-Menu 7-Back 8-Forw 9-Default 10-Done

This panel is shown if TCP/IP is enabled on any LAN line. Here you define LPD and TCP/IP Print Servers. Printer sessions are assigned to LPD and TCP Printers on the Device Profile Assignments panel, denoted by an S in the session field.

For additional information about LPD Printers, TCP/IP Printers, LPD Print Servers, and TCP Print Servers, see the TCP/IP Printer sub menu.

LAN Print Server Class

A LAN Print Server Class is used to identify a LAN Print Server when you assign it to a printer (print device session) on the Device Profile Assignment panel. See the Device Profile Assignments panel for more information.

LAN Print Server Type

The LAN Print Server Type field is used to define the type of print server to be defined. Options are TCP or LPD, to select either an LPD Server or a TCP Print Server.

LAN Print Server Line

The Line field is used to select which LAN line will be serviced by the print server. This field toggles to the LAN lines that have TCP/IP Protocol enabled on.

LAN Print Server Queue Name

The Queue Name field assigns a name to a print queue in the print server. It is required for LPD and TCP server types, and must be a unique string of 16 or less characters.

This print queue is associated with a printer or a group of printers by assigning its LAN Print Server Class to print device sessions in the Device Profile Assignment panel.

The LPD protocol uses this print queue name to select which printer to use to print a document. If a group of printers have been assigned to this print queue name, then the first available printer of the group is reserved when the LPD server receives a receive job command. However, the data will not be printed until a complete print job is received and there is a TCP disconnect.

LAN Print Server TCP Port

This field identifies which TCP port the TCP print server will listen for TCP connections. The TCP port is associated with a printer or group of printers by assigning its LAN Printer Server Class to print device sessions in the Device Profile Assignment panel. When a TCP connection is made on this port, the TCP print server will reserve the associated printer session (if it is available). If a group of printer sessions have been assigned, then the first available printer will be reserved. Data will then be printed as it is received.

The TCP Port field is required only for TCP print server types.

LAN Print Server Max Connections

The Max Connections for each line limits the total number of LPD connections that may exist concurrently on each line. Any connection attempts exceeding this limit will be refused.

Note that the value for Max Connections is limited by LINCS maximum of 250 LAN connections per line. This limit also includes the TCP Print servers configured. See the Maximum Connections Table for additional information.

The Max Connections field toggles from 0 to 32 in increments of four.

The Max Connections field is valid only for the LPD server type. It is not valid for TCP server types, because each TCP server may have only one client at a time.

Implied CR

By default, LPD does not send carriage returns at the end of lines. Some printers also require a carriage return to cause the printer to return to the beginning of the next line (eject).

The Implied CR field allows you to customize the operation of the print on a per queue basis. When enabled, a single linefeed character will be converted to a carriage return and a linefeed.

We suggest this option be enabled for coax printers that have LPD server sessions.

ASYNCR printers may require enabling this option as well when printing text data. However if control characters are embedded in the data stream that is directed to an ASYNCR printer, then the option should be disabled to prevent corruption of the data stream.

Form Feed

Two choices for Form Feed are offered by this option. A Form Feed after the print job is sent is the default for this feature. The other choice is no Form Feed at all.

Profile Assignment

The Pro field allows you to assign an ASCII session profile to the print server class. In this way you can assign MCS/NRC (8-bit/7-bit) Character set or primary/secondary language to a print server.

13. Device Options

The Device Options panels will appear if any of the following devices have been configured (LAN or direct attached):

- Network Devices, defined on a Network Device Definition panel
- Coax ports, defined on the Product Definition panel
- ASCII displays or printers, defined on the ASCII Port Options panel

There are several types of Device Options, see the following topics for more information about:

- Device Options/General
- Device Options/Keyboard
- Device Options/DFT
- Extended Vital Product Data

Device Options/General

```
Device Options/General                                LINC8 C8.2 Central Control
Time of Day:                                         Disable
Null/Space Conversion:                             Off at Control Unit IML
Delayed Power On Notify:                           Disable

                PASSWORD OPTIONS (must use PF4 to save date changes)
ASCII/TELNET Password:                             _____
Number of days password is valid:                   000
Password Beginning Date:                           __ __ ____
Password expires on:                               __ __ ____

                RECORD PLAYBACK OPTIONS
Length of Each Global Sequences (K):00
Length of Device Sequences (K):    00
PF: 1-Menu    4-Update Password 7-Back    8-Forw    9-Default 10-Done
```

Time of Day

This feature displays the current time of day on the status line. The status line clock displays hours and minutes in the following format: HH:MM, where HH is the hours field, and MM is the minutes field. You can select 24-hour format (1:00 PM is displayed as 13:00), or 12-hour format (1:00 PM is displayed as 1:00). Note that the Time of Day clock will not display in the status line of coax devices that are in File Transfer mode (represented by the characters 'FX' in the status line).

Null/Space Conversion

Toggle to ENABLE or DISABLE. This feature substitutes spaces for leading and embedded nulls when updates are sent to the host, if enabled.

Delayed Power On Notify

Toggle to ENABLE or DISABLE. This feature limits the number of sessions notifying the host at power-on, in order to alleviate excessive line traffic. LINCS does this by delaying the Power On Notify sent to the host for background sessions until the end user toggles sessions. It should be noted that this feature should be disabled for Non-SNA operations where consoles are in use. If a coax terminal has multiple console sessions and the feature is enabled, then only the first console session will come active. Background console sessions will appear to be powered off, and the console function will roll to an alternate.

Type of Device	Power-On Notify Procedure
Display Station	After power-on reset, power-on notify (PON) is sent for the foreground session. background sessions send PONs when they are selected.
Distributed Function Terminal (DFTs)	After POR, notification is sent for all sessions.
Printer attached to a display	PON sent for the printer and the display when the display PORs.

ASCII/TELNET Password

This option applies to ASCII displays defined to have a switched Line Type on the ASCII Port Options panel for this line, and to Telnet displays. This password may also apply to TN3270 clients defined on the TN3270 Client Definition panel that include a 'PW' in the client type description.

The password can be up to eight alphanumeric characters, and is case sensitive. If a user with an ASCII display calls the modem attached to the switched ASCII line, this password must be entered to allow access to the LINCS node.

Number of Days Password is Valid

The value entered into this field indicates how long the password is to be valid. A value of '000' is interpreted as indefinitely. When the password expires, the user will be prompted to enter the Supervisor Password (as configured on the General Options panel). When within a week of the passwords expiration, a message will be displayed at password prompt time to indicate how much longer the password is good for. You must press the PF4 key (twice) to update the password information, prior to leaving this panel.

Password Beginning Date

This field is updated by LINCS when a PF4 has been entered twice on this panel with a non-zero value in the 'Number of Days Password is Valid' field. The current date is entered into to this field by LINCS at update time.

Password Expires On

This field is updated by LINCOS when a PF4 has been entered twice on this panel with a non-zero value in the 'Number of Days Password is Valid' field. LINCOS calculates the expiration date based on the 'Number of Days Password is Valid' field value.

Length of Each Global Sequences

This field indicates the maximum length that a single global sequence can be. Feature Memory is used to contain these global sequences. Since there are 24 global sequences, the amount of memory required to support these sequences will be approximately 24 times the amount indicated. Refer to the Feature Memory panel for further details on the Record Playback feature memory requirements.

A global sequence is a keystroke sequence that all devices can play back.

Length of Device Sequences

This field defaults to 0 indicating that Record/Playback is disabled. If this field is non-zero, then the indicated amount of memory will be set aside for each device authorized to record RPB strings. Refer to the Feature Memory panel for further details on the Record Playback feature memory requirements.

Device Options/Keyboard

Device Options/Keyboard	LINCOS C8.2 Central Control
Key Clicker:	Off at Display Power On
Magnetic Character Set:	None
Modifiable Keypad:	National Language Numeric Keypad
Attribute Select Keyboard:	Attribute Select Without Num Lock
Typewriter Selection:	Standard 88-key Typewriter
Tripad Keyboard Selection:	Standard C3 Layout
88-key APL Keyboard:	Standard APL Layout
PF: 1-Menu	7-Back 8-Forw 9-Default 10-Done

Magnetic Character Set

The choices in this field allow you to select the Magnetic Character Set you wish LINCOS to use. Toggle among the following four options:

- None (default)
- Numeric
- Alphanumeric (auto entry for secure data only)
- Alphanumeric (auto entry for all data)

Key Clicker

The choices in this field determine whether a coax display station's keyboard clicker is on or off when the device is powered on. Toggle between the following two options:

- ON at Display Power On
- OFF at Display Power On (default)

Modifiable Keypad

In this field, toggle to select the layout you would like for the rightmost numeric keypad of native 102-key and 122-key keyboards:

- National Language NUMERIC keypad (default)
- Data Entry Keypad
- Program Function (PF) Keypad

Attribute Select Keyboard

Choose whether your attribute select keypad functions with or without numeric lock. Toggle between these options:

- Attribute Select w/NUM Lock
- Attribute Select WITHOUT NUM Lock (default)

Typewriter Selection

Toggle to select one of the following layouts:

- Standard 88-key Typewriter (default)
- C4 layout IBM RPQ-8K0932
- Model 808 IBM RPQ-8K0808

Tripad Keyboard Selection

Toggle among four options to choose the 88-key layout to be used with keyboards having the tripad ID switch setting:

- Standard C3 Layout (default)
- C3 w/NUM Lock
- International C8 WITHOUT NUM Lock
- International C8 w/NUM Lock

88-key APL Keyboard

The choices in this field allow the selection of either the standard APL layout or the special (C3) APL layout with and without numeric lock for APL keyboards. Toggle among the following three options:

- Standard APL Layout (default)
- C3-APL WITHOUT NUM Lock IBM RPQ-8K1158
- C3-APL w/NUM Lock IBM RPQ-8K1158

Device Options/DFT

```

Device Options/DFT                                LINC8 C8.2 Central Control
DFT Local Copy Format:      Do Not Send Format Controls
DFT Local Copy Form Feed:  No Form Feeds
3290 Field Intensity:      Underscore
3290 Update Panel:         Process Host Data Before Displaying Panel
3290 DFT Password:         _____
PF: 1-Menu          7-Back 8-Forw 9-Default 10-Done

```

The Device Options/DFT panel will be displayed if coax devices are configured.

Note: For information on 3290 configuration options, refer to the IBM document 3290 Information Panel: Description and Reference, GA 23-0021.

DFT Local Copy Format

The choices in this field allow the enabling or disabling of local copy format controls that in shared mode (when the printer lacks Save/Restore capability) could interfere with format controls set up by the host application. Toggle between two options:

- Do NOT Send Format Controls - Choose this option if the host does not reset format controls with each Begin Bracket (SNA only)
- Format Controls Enabled - Choose this option if the host does reset format controls with each Begin Bracket, or where the printers are not operated in shared mode

DFT Local Copy Form Feed

The choices in this field allow local copy form feed to occur in one of four modes:

- No Form Feeds
- Form Feed AFTER Local Copy ONLY
- Form Feed BEFORE Local Copy ONLY
- Form Feed BEFORE and AFTER Local Copy

3290 Field Intensity

The choices in this field allow one of three intensity options for use in place of brightness on DFT/DSL devices that don't support brightness:

- Underscore
- Reverse Video
- None

3290 Update Panel

The choices in this field are:

- Process host data BEFORE displaying panel Use this option to maximize performance. During high data rate transmissions, however, host messages could be overwritten.
- Display panel BEFORE allowing new host data Use this option in environments where 3290s are system consoles and/or all host messages must be seen.

3290 DFT Password

Enter the 6-digit hex password to be used by the DFT devices. For information on 3290 setup conditions requiring the use of the password, refer to the IBM document 3290 Information Panel: Description and Reference, GA23-0021.

Extended Vital Product Data

```

Extended Vital Product Data                                LINCS C8.2 Central Control
Extended VPD labels:  1. _____
                      2. _____
                      3. _____
                      4. _____
                      5. _____
                      6. _____
                      7. _____
                      8. _____

PF: 1-Menu          7-Back      8-Forw      9-Default      10-Done
    
```

The Extended Vital Product Data panel will be displayed anytime coax or LANSYS devices are configured. Extended Vital Product Data (Extended VPD) is information consisting of label and data fields. This information can be about any subject, such as building location and department number. The label fields are entered and saved during configuration. The data fields are entered by the user and are saved in that display along with the corresponding labels.

Coax Multiplexing

```

Coax Multiplexing                                LINCS C8.2 Central Control
Method of Connection on  MCC1:      32 Port Coax Multiplexor
                        MCC2:      32 Port Coax Multiplexor
                        MCC3:      Standard
                        MCC4:      Standard

Dynamic Multiplexing:  Disable
Coax Poll Rate:       Enhanced
Automatic Coax Recovery: Disable

PF: 1-Menu          7-Back      8-Forw      9-Default      10-Done
    
```

This panel will be displayed if any MCCs are configured on the Product Description panel.

The next panel in the series will be Dynamic Multiplexing Assignments if enabled, or Device Profiles, if dynamic multiplexing is disabled.

Method of Connection

Each MCC may have a different method for connecting devices. The toggle field choices for each MCC are as follows:

- Standard - Devices will be connected using one of the following standard methods:
 - direct connect each device to CDA ports
 - direct connect device to MCC ports
 - 8 port multiplexer connected to MCC port
 - TWA on 1174-25X only
- 32 Port Coax Multiplexer – connected to port 0 (other ports inactive)
- 32 Port Fiber Optic Multiplexer – connected to port 0 (other ports inactive)
- 32 Port Twisted Wiring Adapter (1174-15X only) – connected to port 0 (other ports inactive)
- 16 Port MUX on Port 0 & Port 16 – ports 8 and 24 are inactive
- 16 Port MUX on Port 0 – ports 16 and 24 are active for 8-port mux or direct attach device
- 16 Port MUX on Port 16 – ports 0 and 8 are active for 8-port mux or direct attach device

Dynamic Multiplexing Option

The Dynamic Multiplexing field should be enabled if you wish to attach a multiplexer to a CDA port. Enabling this option will also result in an additional next panel, Dynamic Multiplexing Assignments.

Dynamic Multiplexing Assignments

Dynamic Multiplexing Assignments		LINCS C8.2 Central Control				
Connector	Logical					
00	00	—	—	—	—	—
01	01	—	—	—	—	—
02	02	—	—	—	—	—
.						
14	14	—	—	—	—	—
15	15	—	—	—	—	—
PF: 1-Menu		7-Back	8-Forw	9-Default	10-Done	

The Dynamic Multiplexing Assignments panels are displayed if Dynamic Multiplexing is enabled on the Coax Multiplexing panel. This feature applies only to models that have a CDA installed on them, and only applies to the first 32 ports. This feature turns any of the first 32 CDA ports into a port that can support a multiplexer. Any of the first 32 physical ports can be mapped onto the multiplexer that is to be attached to a port performing dynamic multiplexing

(up to eight devices per mux). Assigning fewer than 8 devices to a mux, allows you to distribute your physical devices across more than the standard of 4, 8-port muxes providing more flexibility than a standard configuration.

Device Profiles

The Device Profiles panel will be displayed if any cut devices are configured (LAN, coax or ASCII). A given Device Profile contains customization parameters for all displays or printers using it. The first panel of the profile allows one to specify the device type (display or printer). A Device Profile may be shared by any or all devices of the same type.

A given device profile contains parameters for all types of device protocols. This allows the profiles to be shared by all types of devices, regardless of the type of connection. If there are fields in the profile which do not apply to a specific device using that profile, those fields will be ignored.

See the following topics for more information:

- Host Assignments
- Display
- ASCII Display
- Printer
- Default

Host Assignments

```
Device Profile 01/Host Assignments                LINCS C8.2 Central Control
Profile Name:
Device Type:                Display
Power Off Action:          None

  Session                Default Host Assignments
  ----                -
  A                    3270 Host Class: MOD2
  B                    3270 Host: IBM_RING
  C                    IP Host Class: SULU-TELNET
  D                    LAT Host Class: SPOCK
  E                    Connect Menu
  F                    ASCII Host
  G                    ASCII Class: ENGR_VAX
  H                    Connect menu: 3270
  I                    Disable
  J                    Disable

PF: 1-Menu  3-Def_Dflt  4-Add 5-Delete  7-Back 8-Forw 9-Default 10-Done
```

This panel is an example of the first panel of a Device Profile.

Device Type

This field indicates whether devices that use the profile will be displays or printers. The value chosen here determines the parameters that will be displayed on subsequent panels in the profile. Storage Tek LMUs should use a profile defined as a display.

Power Off Action

This is a toggle field that defines what will happen to sessions connected to a host when the device powers off. The following are the options.

- None - The session state will remain intact when the device powers off.
- Unbind SNA Sessions - All sessions connected to an SNA host will be unbound when the display powers off. Selecting this option will provide some security if a device is to be shared by multiple users.
- Disconnect all Sessions - All sessions connected to a host will be disconnected when the device powers off. This frees up the host resources for connection by other devices.

Session

This is a protected field which identifies the 10 sessions which are available on each CUT device. It is used in conjunction with the Default Host Assignments field to uniquely identify each session.

Default Host Assignments

These fields are used to assign hosts to device sessions. The host assignments defined in the Device Profile serve as the default host assignments for all devices which are assigned that profile, if LINCS is prompted to assign the defaults. It is not required to fill in this portion of the profile in order to make assignments later.

Each session (A-J) has a field which can be used to make a default host assignment. This field toggles to all available hosts, classes, connect menus, and disable.

All default host assignments may be overridden on the Device Profile Assignments panel.

3270 Host Class

On this example, MOD2 identifies a 3270 Host Class for the session. All 3270 classes that have been defined are displayed as toggle choices.

3270 Host

All 3270 hosts that have been defined are displayed as toggle choices. Once a selection is chosen, a specific LU assignment can be made on the Device Profile Assignments panel, either by manually entering the LU number, or by using the PF3-Asn_Dflt_LUs key.

In this example, IBM_RING identifies a 3270 Host Circuit. If no host ID is defined, the host letter is displayed.

3270 Host Class Connection Menu

The 3270 Host Class Connection menu allows the user to select a 3270 Host Class from a menu of available host classes. The user may also specify a specific 3270 Host session from this menu, if configured to allow it.

ASCII Host

You should choose this if you will be assigning a specific ASCII host (i.e., A0 - D7) on the Device Profile Assignments panel. If any ASCII hosts have been defined, this selection is displayed.

ASCII Class

All ASCII classes that have been defined are displayed as toggle choices. In this example, ENGR_VAX identifies an ASCII Host Class.

ASCII Host Class Connection Menu

All ASCII Host classes that have been defined may be displayed as a menu, allowing the user to select the ASCII Host Class to which they want to connect.

IP Host Class

In this example, SULU-TELNET identifies an IP Host Class. All IP classes that have been defined are displayed as toggle choices.

IP Host Class Connection Menu

A menu of all configured IP Host Classes can be displayed for the user to choose a connection from. They may also be able to specify a connection dynamically by identifying the IP address and port to which they want to connect to (if enabled in the in the profile).

LAT Host Class

In the example, SPOCK identifies a LAT Host Class. All LAT classes that have been defined are displayed as toggle choices.

LAT Host Class Connection Menu

A menu of all configured LAT Host Classes can be displayed for the user to choose a connection from.

Connect Menu

This toggle choice is always available. It should be selected if the session is to be powered on with the Host Connect menu displayed. The Host Connect menu provides a list of Host Connection Types (such as 3270 Host Connections, or IP Host Connections). By selecting a menu item, another connection panel specific to the selected host type is displayed, from which the user can select the actual connection from.

Disable Session

Select this toggle choice if the session will be unavailable to devices using the Device Profile.

In this example, sessions I and J are disabled.

Windowing

The Windowing feature enables you to create up to five windows on a CUT mode display station. These windows can simultaneously display five of the concurrent logical sessions that are possible with the Multiple Logical Sessions (MLS) feature. You can size, move, add, delete, and zoom the windows, and you can copy data from one window to another. In addition, you can set up windowing screen profiles that contain different arrangements of windows.

Calculator

LINCS provides a four-function nonscientific calculator accessible from a CUT mode display station. The calculator allows you to perform quick and accurate calculations without exiting your host session. The calculator performs operations in decimal (base 10), hexadecimal (base 16), or octal (base 8) mode.

The calculator uses Feature Memory from the Presentation Space Storage.

Typeahead

With the Typeahead feature, you can continue to type data after the 3270 protocol locks the keyboard or during a printer busy condition. The keystrokes are queued and processed when the input inhibit is cleared. The feature permits the queuing and subsequent processing of up to 64 keystrokes.

Refer to the panel Deferred Keystroking vs. Typeahead for a comparison of these two methods of buffering keystrokes. Deferred Keystroking is enabled on the 3270 Host Profile section.

RPB Record Function

This field determines whether or not devices assigned to the profile have the capability to “record” using the Record/Playback feature. Devices which are not allowed to record may be allowed to playback any sequences which have been defined as global sequences, if authorized in the Resource Authorization Matrix.

Display Host ID

If this option is ENABLED, the Host Identifier will be displayed on the status line of sessions connected to a host. The host identifier is displayed as follows.

- 3270 Host : If a session is connected to a 3270 Host, then the Host Identifier will be displayed, along the the LU number. Whether the LU number is displayed in hex or decimal is set in the General Options panel.
- ASCII Host : If a session is connected to an ASCII Host Class, then the Class Name is the Host Identifier. If the session is connected to a specific ASCII Port (A0-D7), then the Host Identifier is Host_XX where XX represents the ASCII host which the session is connected to (A0-D7).
- IP Host : If a session is connected to an IP Host Class, then the Class Name is the Host Identifier. Otherwise, the data entered at the “Connect To” prompt on the TCP/IP Connection panel will be displayed as the Host Identifier.

- For example, if a DNS name was entered at the “Connect To” prompt to connect to a TCP/IP host, then the DNS name (truncated to 16 characters) will be displayed as the Host Identifier.
- LAT Host : The Host Identifier is the LAT Service name to which the session is connected.

Session Auto Swap

When this option is Enabled, LINCS will automatically swap a user to their next available session, when a communications reminder appears in the foreground session status line (and the predefined amount of time has expired, as determined by an RPQ setting). For this feature to work as intended, at least two sessions should be configured for the device.

Keyboard Tables

Toggle to select:

- Host Language (default) - Sets the keyboard table language to the language of the host that the session is connected to. The host language is configured in the 3270 Host Profile and/or ASCII Session Profile, depending upon the type of host session. The language will be set to the host language upon POR of the device, when connecting to a host, and when swapping sessions. If a session is not connected to a host upon POR, the keyboard tables language will be set to the primary language until the session connects.
- Primary - The keyboard table language will be set to the primary language upon POR of the device.
- Secondary - The keyboard table language will be set to the secondary language upon POR of the device.

Connecting to a 3270 host does NOT affect the keyboard language when Primary or Secondary is chosen.

When connecting to an ASCII host via LAT, TELNET, or ASYNC, the keyboard table language and host translate table language will ALWAYS be the same. Both languages will be set to the language specified in the ASCII Session profile. When pressing Exsel-L to toggle the keyboard language, both languages will be set to the alternate language.

PC File Transfer

Options are: ENABLE or DISABLE

This configuration option determines the status of File Transfer after IML. If an attached device is powered off and on, File Transfer is not affected.

PC File Transfer and Windowing cannot be used concurrently. For this reason, a hot key is available (Alt X) to allow for quick entry or exit to File Transfer mode. If you wish to use Windowing on a PC configured for file transfer, you must disable File Transfer by pressing this key prior to selecting a windowing profile other than profile 0. To perform a File Transfer operation, you must go back to profile 0 and reenable File Transfer by pressing the key again.

The Time of Day clock display is also not compatible with the PC File Transfer display. When PC File Transfer is enabled, the Time of Day clock will not be displayed even if enabled.

Note: Due to the extra coax processing required, performance degradation occurs if you've enabled PC File Transfer on ports that will not be performing file transfers, for example, CUT devices, printers, and DFTs.

Note: When defining a profile to be used with Storage Tek LMUs, the PC File Transfer option should be enabled.

SNA Data Display

This is a toggle field which applies only to SNA sessions on the display. It determines when SNA data will be presented to a display. The choices are as follows.

- After Chain (default) - SNA data will be presented to the display only after a complete chain has been received.
- After Frame - SNA data will be presented to the display as each SNA frame is received.
- After Segment - SNA data will be presented to the display after each complete SNA Segment is received.

HAP Session

This field is valid for displays which support the Host Addressable Print (HAP) feature. It indicates which one of the display's sessions will be used by the HAP printer which is attached to the display. By default, the HAP session is the last defined session on the display. This may be overridden by toggling the field to the desired session.

Note: The HAP session cannot be session A, it must be sessions B through J.

HAP Status at IML

For devices which support the HAP feature, this field indicates the status of the HAP session after IML. HAP is not affected by powering the device on and off. By default, HAP is ENABLED on some displays.

When HAP is enabled, the HAP session is used for the printer and will not be available to the display station. If HAP is DISABLED, the HAP session will be available to the display when the display powers on.

Note that the HAP session status can be changed using the Display/Update HAP Session Status on the Device Menu choice of the main Central Control menu.

HAP Profile

For displays which support HAP, this field indicates which printer profile will be used to define customization parameters for the attached printer. Note that the first panel of a Printer Device Profile will be ignored for the HAP printer, since the Display Device Profile already defined the Host Assignments. The subsequent panels of the indicated Printer Device Profile will be used to define characteristics of the HAP session.

This field is required for HAP.

Auto Coax Recovery

Auto Coax Recovery is a feature that will allow you to move a powered on display from one coax connection to another without having to power cycle the display to bring it active again. Enabling this option will cause LINCS to send a Reset poll to a device that has stopped responding to the normal poll in such a way that the device appears to have been powered down. When a device is connected to the port and receives a Reset poll, it should give a POR response and come active through a normal exchange.

Resource Authorization Matrix

The Resource Authorization Matrix is used to give devices using this profile access to LINCS resources. The individual resources are listed under the RESOURCE DEFINITION column.

The unprotected portion of the matrix is headed by column numbers 01-32. These numbers represent something different depending upon the resource definition. Setting the value to 1 under a particular column allows devices assigned to the profile to have access to that subset of the resource.

For example, there are 64 available classes for a 3270 Host, arranged in two rows of 32. A device using this Display Profile will be able to access any host resource defined by the Host Classes that are enabled. If no Host Classes are enabled for this profile, then the device will not be able to connect or disconnect to any host resource.

Even if you have not allowed any access on the Resource Authorization Matrix, and no Dynamic Access, you can still configure a device using this profile to preconnect to any host, host class, or LU, on the Device Profile/Host Assignments panel. That method of granting host access means that the display will connect to the LU when powered on, but cannot connect to any other session.

Enabling DYNAMIC ACCESS allows devices using this profile to access resources beyond those defined in the host classes. For example, if a device is given Dynamic Access to 3270 Hosts, then a session may connect to any 3270 LU, even if that LU is not defined in a host class. Even if you enable no classes, Dynamic Access allows the user to connect to any LU the user knows about, as long as it is not already in use by someone else.

3270 Host Class Access

The matrix columns represent the sixty-four 3270 Host Classes. Setting the value to 1 under column X allows devices in the profile to have access to 3270 Class X.

Setting the value to 1 under the Dynamic Access column allows devices with this profile to connect to a specific 3270 LU (i.e., Host and LU can be entered on the 3270 connect panel to connect to a specific 3270 LU).

ASCII Host Class Access

The matrix columns represent the sixteen ASCII Host Classes. Setting the value to 1 under column X allows devices in the profile to have access to ASCII Class X.

Setting the value to 1 under the Dynamic Access column allows devices in the profile to connect to a specific ASCII Host (i.e., an ASCII host A0-D7 can be entered on the ASCII connect panel to connect to a specific ASCII Host).

IP Host Class Access

The matrix columns represent the sixteen IP Host Classes. Setting the value to 1 under column X allows devices in the profile to have access to IP Class X.

Setting the value to 1 under the Dynamic Access column allows devices in the profile to dynamically connect to IP Host Classes by entering an IP address or DNS name on the TCP/IP connect panel. Optionally the desired TCP port and even the LINCS network adapter that the user wants to connect through can be specified at connect time.

LAT Host Class Access

The matrix columns represent the sixteen LAT Host Classes. Setting the value to 1 under column X allows devices in the profile to have access to LAT Class X.

Setting the value to 1 under the Dynamic Access column allows devices in the profile to dynamically connect to a LAT service on the LAT Dynamic connect panel.

Printer Class Access

The matrix columns represent the sixteen Printer Classes. Setting the value to 1 under column X allows displays in the profile to have access to Printer Class X. Printers are assigned to Printer Classes on the Printer Device Profile panel.

Setting the value to 1 under the Dynamic Access column allows devices in the profile to print to any printer, instead of only printers authorized by the chosen printer class(es).

Users can specify a local print to go to a printer class, or a specific printer. This is accomplished by entering the printer port number in printer ident mode. For example, one would go into printer ident mode and enter MCC1.004 to print to the printer attached to coax port 4 on the first MCC.

Global Sequence Access

The authorization matrix columns represent the 24 PF keys. Setting the value to 1 under column X allows devices in the profile to have access to the global sequence defined by PFX.

Dynamic Access does not apply here.

Global Sequences are defined, deleted, and copied from local sequences on the Playback Sequences menu accessible from the Customization Data menu.

Dynamic Access

The meaning for Dynamic access varies by the resource it is associated with. Please select the resource you are interested in to see the Dynamic Access description.

ASCII Display

```

Device Profile 01/ASCII Display                               LINCS C8.2 Central Control
Display Emulation:           Prompt
Keypad Mode:                 Application Mode
Inactivity Timeout:         0000
Synchronous Presentation:   Enable
E/W Presentation Option:    Disable
PF: 1-Menu   3-Def_Dflt 4-Add  5-Delete 7-Back 8-Forw 9-Default 10-Done

```

This is an example of the third page of a Display Device Profile. It is used to configure ASCII display options. These options are used for direct connect ASCII displays and LAN displays running TELNET or LAT.

Display Emulation

This field defines the type of 3270 terminal to be emulated on an ASCII terminal, so the ASCII terminal can have a session with a 3270 host. Choose one of the following:

ADDS Viewpoint A2	ADDS Viewpoint 78	
DEC VT52	DEC VT1xx	DEC VT2xx 7 bit
DEC VT2xx 8 bit	DEC VT320 8 bit	
Esprit Executive 10/78	Hazeltine 1500	Hewlett-Packard 2621B
IBM 3101	IBM 3151	IBM 3161 3162 and 3163
IBM 3164	IBM FTTERM Color	IBM FTTERM Monochrome
Lear Siegler ADM 3A	Lear Siegler ADM 5	Lear Siegler ADM 11
Lear Siegler ADM 12	Lear Siegler ADM 1178	
TeleVideo 912	TeleVideo 950	TeleVideo 970
VT3270/2	VT3270/3	VT3270/4
VT3270/5		
Wyse 50	Wyse 60	User Defined Display 1-7

Prompt (for Terminal Type) - When the display is powered on, a panel appears that lets the operator select the appropriate emulation. The Negotiate option will cause LINCS to attempt to negotiate the device type with the client. If the client does not support emulation negotiation, or if the client requests an emulation type not supported by LINCS, then the user will be prompted to select the terminal emulation to be used.

Keypad Mode

Toggle between APPLICATION MODE, which causes the numeric keypad to transmit codes for the Up Arrow, Insert, etc. keys.

Or NUMERIC MODE, which causes the numeric keypad to transmit codes for the numeric digits on the keys, as well as / (forward slash), * (asterisk), etc.

Inactivity Timeout

Allows you to specify the amount of inactive time allowed before the display is logically disconnected from LINCS.

Enter the number of minutes; allowable values are 0000 through 1440. 0000 indicates no timeout. LINCS warns the user by displaying a message on the status line one minute prior to disconnect.

Synchronous Presentation

For devices that are slow to update, LINCS will discard earlier screens, and draw the latest one. An example of this is if a user hits “next screen” fast 5 times. The user really wants to see the 5th screen, so LINCS won’t draw the intervening screens.

DISABLE will activate this software, to get the user to the latest of a series of screens faster.

ENABLE of this option defeats LINCS’ optimization of screen updates for a flow of fast screens. That is needed for instances where every screen buffer must be drawn fully, such as ASCII file transfer.

E/W Presentation Option

ENABLE of the Erase/Write Presentation Option will cause LINCS to ignore “clear screen” commands from the host. When LINCS draws the next screen buffer, it always only updates what has changed. With this option enabled, it ensures that is always the case. This option is especially useful in making ASCII terminals act more like 3270 terminals.

DISABLE passes the “clear screen” commands unaltered.

Device Profile - Printer

```
Device Profile 01/Printer                                LINC8 C8.2 Central Control
                                                         0          1
Printer Mode:      Shared                                1234567890123456
Print Buffering:   Disable    Printer Class Assignment:1000000000000000
                                                         ASCII PRINTER OPTIONS
Printer Emulation: Generic      Printer Buffer Size:   Mod 2
Form Feed Support: Disable     LU3 Null Suppression: Disable
Forms Width:      080          Printer Character Set: NRC
Forms Length:     066          Local Print Form Feed: Before & After
Count 2nd Transparent Order:  Disable
SCS Transparent Data Xlate:    Disable
LU1 Protocol Enveloping:      Disable
Enveloping Delay After CR:     000
Enveloping Delay After FF:     000
PF: 1-Menu 3-Def_Dflt4-Add 5-Delete 7-Back 8-Forw 9-Default 10-Done
```

The Device Profile/Printer panel is displayed as the second panel of the device profile if the Device Type on the first panel is chosen to be a printer.

Printer Mode

This is a toggle field with the following choices:

- System - Printers using the profile are available only to hosts. Local prints from displays may not be directed to the printer(s).
- Local (default) - Printers using the profile are available for local prints from displays. Hosts may not print to the printer(s).
- Shared - Printers using the profile may be shared by hosts and displays doing local prints. Local prints may be done as long as the printer is not busy doing a host print (refer to Between Bracket Printer Sharing question on the 3270 Host Profile panel).

Print Buffering

This is a Disable/Enable toggle field which indicates whether or not printers assigned to the profile will support print buffering. The print buffering feature allows a display's screen data to be saved in Presentation Space Storage if the printer is busy when the display attempts a local print to it. This allows the display user to continue data entry before the local print is initiated. If print buffering is not enabled, then a display station will remain inhibited with the printer busy symbol until the printer is free to do the local print.

Printer Class Assignment

The sixteen digits (0 or 1) in the Printer Class Assignment field represent the sixteen printer classes. Setting the value to 1 under column X means that printers assigned to the profile are a member of Printer Class X. A display is authorized to print to Printer Classes on the Device Profile/Display panel.

ASCII Printer Options

The ASCII Printer Options apply to ASCII printers which are directly connected to an ADA port, or to ASCII printers which are logically connected through an incoming LPD or TCP connection via the LAN.

Printer Emulation

GENERIC is currently the only option available.

Form Feed Support

ENABLE this option if your printer supports the form feed character.

DISABLE will cause line feeds to be sent to the printer instead of form feeds.

Forms Width

This value must be preset on the printer. Values range from 1 to 255.

Forms Length

This is a data entry field. Enter any value between 001 and 255 lines. The default value is 66 lines.

Printer Buffer Size

This field lets you select an ASCII printer buffer size for local prints, that corresponds with the mod size of the transmitting coax terminal. Toggle to select one of the following:

Mod 2, Mod 3, Mod 4, or Mod 5.

LU3 Null Suppression

This option suppresses any line that contains only null characters, eliminating an extra line return. Toggle to ENABLE or DISABLE the feature. The default setting is DISABLE.

Printer Character Set

To enable the use of multiple languages, LINCS supports the 8-bit Multinational Character Set (MCS) inbound data (keys) and outbound data (displayable characters) and the 7-bit National Replacement Character Set (NRC) inbound and outbound data. Each device can use one character set at a time.

Local Print Form Feed

Choose one of the following options:

- None - No automatic form feed will be performed
- Before - A form feed will be done before each local print
- After - A form feed will be done after each local print
- Before and After - A form feed will be done before and after each local print

Count 2nd Transparent Order

Setting this option to Enable causes the secondary transparency start order, stop order, and data within the order to be counted as positions on a row, which is desirable if the datastream uses Set Buffer address (SBA) orders, but it means that 80 columns (or 132) are not supported on the row using the order.

SCS Transparent Data Xlate

This option allows you to determine whether transparent data (control codes, escape codes, and other non-text related data) transmitted to the printer is converted to ASCII before transmission. Toggle to select one of the following:

- DISABLE (default) - Select this option if the data to be transmitted is valid ASCII data.
- ENABLE - Select this option if the transparent data must be converted from EBCDIC to ASCII before transmission.

LU1 Protocol Enveloping

Options are: ENABLE or DISABLE

LU1 Protocol Enveloping is a session protocol for IBM EBCDIC host to ASCII printer character translation that allows efficient processing. This option is compatible with the IBM 3708 printer's operation.

Enveloping Delay After CR

This is a data entry field which defines the number of DEL characters (X'7F') to be sent after carriage return (CR) or horizontal tab (HT) to allow the print head to be repositioned before sending more data. The value may range from 0 to 255.

Enveloping Delay After FF

This is a data entry field which defines the number of DEL characters (X'7F') to be sent after a formfeed (FF) or vertical tab (VT) to allow the print head to be repositioned before sending more data. The value may range from 0 to 255.

Default Device Profile

```

Default Device Profile                                LINC8 C8.2 Central Control
.
.
.
                panel will vary depending on which device panel you're in
PF: 1-Menu 3-Def_Dflt 4-Cpy_Prof 5-Cpy_Fld 7-Back 8-Forw 9-Default 10-Done

```

While displaying the Device Profiles, pressing PF3-Def_Dflt will display the Default Device Profile, which may be modified as desired. It can be applied to other Device Profiles in the following ways:

- While displaying the default profile, you may apply all fields of the profile to all other Device Profiles by pressing PF4-Cpy_Prof.
- While displaying the default profile, you may apply an individual field to all other Device Profiles by moving to the field and pressing PF5-Cpy_Fld.
- While displaying a Device Profile (other than the Default Device Profile), pressing PF9 will default the Device Profile to the values defined by the Default Device Profile.
- When using PF4 to add a new Device Profile, the new profile will be initialized to the values defined in the Default Device Profile.

Device Profile Assignments

The Device Profile Assignments panel allows you to assign your previously created device profiles to particular ports. Keep in mind that:

A maximum of 4048 3270 LUs may be defined per LINC8 node

It is not necessary to assign a device profile to ports which do not have a device attached. A device attached to a port that has no device profile assigned to it will be inoperable.

The first time you enter this panel, the host assignments will be based on Device Profile 0. You can overwrite these values, or use PF3 or PF9 to assign defaults.

Device Profile Assignments panel

Device Profile Assignments											LINCS C8.2 Central Control												
Port	Prof	A	B	C	D	E	F	G	H	I	J	Dev ----- Host Assignment At Power On (Decimal LUs) -----											
000	00	*_	=__	00	001	01	000	01	002	02	000	02	001	03	000	03	00C	0F	000	0F	001		
001	00	00	002	01	003	02	002	09	00F	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__
002	00	*_	=__	00	003	00	004	00	00A	00	00B												
003	00	00	008	*_	=__	*_	=__	0A	002	*_	=__	*_	=__	*_	=__	*_	=__	*_	=__	*_	=__	*_	=__
004	01	00	00F																				
005	01	01	00F																				
006	01	02	00E																				
007	02	02	006	01	001	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__
008	00	04	001	03	001	07	002	05	001	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__
009	00	04	002	03	002	07	003	05	002	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__
010	00	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__
011	00	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__
012	00	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__
013	00	0E	00D	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__
014	00	0E	00E	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__
015	00	0E	00F	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__	*	=__
(00 - 7F)3270 Host (=)3270 Class (>)TELNET (%)Print Q (+)LAT (&)ASCII																							
PF: 1-Menu 3-Asn_Dflt_LUs 7-Back 8-Forw 9-Default 10-Done																							

This panel will be displayed if there are any defined devices. Here you can assign device profiles and hosts to each port. The session will be connected to the indicated host resource when the device powers on. If the connection attempt fails, the session will power on with the Connect Panel.

The first field is an abbreviated version of the Default Host Assignment field on the Device Profile/Host Assignments panel, the second field's meaning varies. A blank field indicates a disabled session.

Port

A protected field which displays the 3 digit port number for the MCC (or FET or TRC or ETH, as identified in the panel title).

Device Profile

A data entry field used to assign a Device Profile number to the port. When initially displaying the panel, the first defined Device Profile will be assigned to all ports. Pressing PF9-Default will not change the value of this field.

Host Assignment At Power On A-J

These fields display the Host Assignments for the individual ports. You may modify the host assignment for any port if you wish.

Pressing PF9-Default will default the fields to the Host Assignments defined in each device's Device Profile, but not the value in the Device Profile column.

Note that a specific 3270 LU or Asynchronous ASCII Host may be assigned to multiple devices. This may be useful if a given user has two terminals (for example one at his/her desk and one in some other location) and needs the same Host Assignments at each location. By powering off the terminal in one location, the host resources will be made available for the terminal in the other location, assuming that the Power Off Action field in the Device Profile is set to Disconnect All Sessions.

3270 Host Class

If the first field is =, then the second field is a 3270 class number. When a device powers on which has a 3270 class assigned, it will gain access to a 3270 LU in the indicated class. If no 3270 LUs in that class are available, the 3270 connect panel will be displayed.

IP Host Class

If the first field is >, then the second field should contain a specific IP class number. When the device powers on, the session will be connected to the indicated class.

LAT Host Class

If the first field is +, then the second field should contain a specific LAT class number. When the device powers on, the session will be connected to the indicated class.

If the host is not available, the session will power on with the LAT connect panel displayed.

Some keyboards do not have an @ available for indicating LAT sessions. If you wish to override host assignments with LAT sessions, a z or Z may be typed in place of the @ to indicate LAT. For example, z in column 1 of the host assignment would indicate LAT Class, and a ZC or ZD in column 2 on the host assignment panel would indicate the LAT connect panels.

Connect Menu

The main Connect Menu will appear if an * is located in the first field.

3270 Host

00-7F

The characters represent a 3270 Host, as shown at the top of the 3270 Host Circuit panels.

PF3-Asn_Dflt_LUs can be used to assign LUs to all sessions with a 3270 host. Note that when PF3 is pressed, LUs are assigned for all devices, not just the devices currently being displayed. LUs numbers will be assigned sequentially, skipping over LU numbers that have already been assigned on other panels. Those panels are:

- 3270 Host Classes
- LU to PU Mapping
- TN3270 Client Definitions
- Local Format Storage, when the Multiple LFS LUs per Host RPQ is enabled

The second field of the Host Assignment for each session is one of two options:

- a blank: the device will POR with the 3270 Connect menu displayed.
- a number: you may input:
 - 02-255 (decimal) or 02-FF (hex) for SNA
 - 00-31 (decimal) or 00-1F (hex) for BSC or ESCON Non-SNA
 - 00-127 (decimal) or 00-7F (hex) for Bus and Tag Channel Non-SNA

ASCII Host or Class

The second field should contain a specific ASCII Host port number or an ASCII Class number.

ASCII Hosts are identified by the ADA board letter (A-D) plus the port number on the ADA (0-7). For example, ADAA.000 would be represented as A0.

ASCII Classes are identified by the class number; no letters. A session which powers on with an ASCII class assigned will gain access to an ASCII Host in the indicated class. If no ASCII hosts in that class are available, the ASCII Host connect panel will be displayed.

LAN Print Server Session Assignment

% denotes an LPD or TCP Print Server. The second field is the LAN Print Server Class, which you configured on the TCP/IP LAN Print Server Classes panel. Assigning a LAN Print Server Class to a port causes any print data received by the print server to print on that port. The device profile assigned to that port on this panel must be for a printer.

LAN Print Server sessions can be assigned to directly attached printers or coax host addressable printer (HAP) sessions, but not to LAN printer sessions, or ASCII host addressable (HAP) printer sessions.

Assigning Default LUs

Two PF keys are available for defaulting the values on the Device Profile Assignments panel. They are useful if you change the Device Profile field on this panel, or if you change the host assignments in the Device Profile used on this panel. The default host assignments are the Host Assignments from the Device Profiles, and can be applied by pressing:

- PF9-Default changes the host assignments on this panel to the host assignments that are in the device profiles. No 3270 LUs are assigned; you must enter the second field of the Host-letter/LU pair.
- PF3-Asn_Dflt_LUs changes the host assignments for all ports (not just the ones being displayed) to the host assignments that are in the device profiles. In addition, LUs will be assigned to all 3270 Host sessions, but LUs which have been previously assigned will be skipped. Other LUs are assigned on panels:
 - 3270 Host Classes
 - LU to PU Mapping Profiles
 - Local Format Storage (only if the Multiple LFS LUs per Host RPQ is enabled)
 - TN3270 Client Definitions

Note that a specific 3270 LU or Asynchronous ASCII Host port may be assigned to multiple device ports. This may be useful if someone has two terminals (one at his/her desk and one somewhere else) and needs the same Host Assignments at each location. By powering off one terminal, the host resources will be made available for the other terminal, if the Power Off Action field in the Device Profile/Host Assignments panel is set to Disconnect All Sessions.

Printer Assignments Panel

Printer Assignments				LINCS C8.2 Central Control	
Display	Printer	Display	Printer	Display	Printer
MCC1.000	Class 01	MCC1.016	*	TRC1.003	TRC1.008
MCC1.001	Class 01	MCC1.017	MCC1.024	TRC1.004	TRC1.008
MCC1.002	MCC1.008	MCC1.018	MCC1.024	TRC1.005	TRC1.008
MCC1.003	MCC1.008	MCC1.019	MCC1.024	TRC1.006	TRC1.008
MCC1.004	MCC1.008	MCC1.020	MCC1.024	TRC1.007	TRC1.008
MCC1.005	MCC1.008	MCC1.021	MCC1.024	...	
MCC1.006	MCC1.008	MCC1.022	MCC1.032		
MCC1.007	MCC1.008	MCC1.023	MCC1.032		
MCC1.008	*	MCC1.024	*		
MCC1.009	MCC1.016	MCC1.025	MCC1.032		

* = device is a printer, or undefined

PF: 1-Menu 7-Forw 8-Back 9-Default 10-Done

The printer field defines which printers will be assigned to which displays. LINCS initially assigns None as the default. By pressing the Default key (PF9) new default values are defined based on your configuration, which you can change by redefining the Printer field. The printer assignment will take effect immediately (if specified when saving the configuration), and upon each IML of the LINCS node.

Note that any display which has printer class access, or dynamic access to printers can modify the display's printer assignment using Printer Ident Mode. New print ids will be maintained when a display powers on and off. When LINCS is IMLed, the printer assignments for all ports will be set to the configured values.

This panel will only be displayed if local or shared printers have been defined on the Device Profile Assignments panel.

Default Printer Assignments

The default printer for a given display is:

- The first printer class that the display is authorized to print to, if the device is authorized to print to any printer class.
- The display's printer port, if the display is not authorized to print to any class, HAP is enabled in the display's device profile, and the HAP profile indicates that the printer is local or shared.
- The first printer port which is configured as a local or shared printer, if HAP is not enabled, and the display is not authorized to print to any classes.

You can reset the printer assignments to the default values at any time by pressing PF9-Default.

Printer assignment field

You must enter text in the data field to assign a printer to a display. Options are:

- All printer classes which have been defined in printer Device Profiles. A class may be entered by typing C## (this is the same format as the printer ident field on the status line of the display), or Class ##, where ## is a printer class number from 01-16.
- All defined printer ports which have been defined as local printers, including display ports which have HAP configured.
- None, which indicates that the display will not be authorized to do local prints, unless the display user idents to an authorized class or printer.

Ports which have an asterisk (*) in this field are printers, and you can't assign a printer to a printer.

Feature Memory Allocation

Feature Memory Allocation		LINCS C8.2 Central Control		
Gateway:	0256			
APPN:	2048			
IPX:	0256			
IPX SNA Server:	0256			
Session Management System:	0000			
SCC	0000			
AIC:	0000			
Record Playback:	0175			
Attached Processor:	0000			
Extended (over 512) 3270 LUs:	0050			
5550 Printer Sharing:	0128			
LPD Printer:	1024			
LPD Print Server	0256			
Local Format Storage:	0072			
Central Site Customization:	0512			
Presentation Space Storage:	0137			
Total Required (K):	5120	Total Available (K):	5120	
PF: 1-Menu	7-Back	8-Forw	9-Default	10-Done

All features which require feature memory are shown on the panel. If a particular feature is not configured, then the amount of feature memory shown will be zero (0).

Presentation Space Storage refers to a collection of features that need memory, and are grouped together under that heading. These features all have to do with displays or printers (presentation), for which you must calculate storage needs. Select Calculating Presentation Space Storage Memory for more information on how Presentation Space uses your memory.

Total Feature Memory Required

The Total Required field indicates the amount of feature memory which is required by the configuration. The Total Available field reflects the amount entered on the Product Description panel. If the total required is more than the total available, then a warning message will be displayed when attempting to leave this panel. Configuration data may not be saved until this condition is resolved.

Total Feature Memory Available

The Total Available field indicates the amount of feature memory which is available for deployment through configuration. The Total Available field reflects the amount of common memory that is installed in the LINCOS platform, less 3 MB which is reserved by the LINCOS operating system. For example, if a LINCOS platform is ordered with 8 MB of memory, the amount of memory that is shown available will be 5 MB (5120).

Gateway

The amount of feature memory required is determined by the number of Gateway Circuits and the hardware model.

Feature Memory Required

Number of GWC	1174	93XX
$x \leq 70$	256k	0
$70 < x \leq 140$	512k	0
$140 < x \leq 280$	1024k	0
$280 < x \leq 512$	2048k	2048k
$512 < x \leq 1024$	3072k	3072k

LU to PU and PU to PU gateway circuits are added together to determine the amount of gateway feature memory required.

APPN

The amount of Feature Memory required for APPN is determined by the LINCOS administrator but should be a minimum of 2 MB. If DLUR is configured, an additional 256 KB is required. LINCOS will automatically select the minimum requirements but the administrator can select larger values based upon the APPN requirements.

IPX SNA Server

This is a protected field. This feature requires 256K of feature memory for each 1024 LUs configured on the IPX SNA Server Options panel.

IPX

This field is set to 256K if more than one IPX protocol has been selected. Multiple MAC Frame Formats can be selected on one line, or more than one line can have IPX enabled.

Central Site Customization Memory Requirements

This is a protected field. 512KB of memory is required if Central Site Customization is enabled on the General Options panel.

Local Format Storage Memory Needs

This is a protected field which represents the amount of feature memory which is set aside for loading formats. It is calculated by adding up the amount of Local Format Storage Memory (LFS) set aside for each 3270 Host Circuit which is configured for LFS. In addition, some overhead feature memory is added in, depending upon the configured amount for each host. The table below indicates how much system overhead is required for each host configured for LFS.

LFS memory configured for a single host	Overhead added in on the Feature Memory Allocation panel
32K	4K
64K	6K
128K	10K
<= 256K	18K

Refer to the Local Format Storage field on the 3270 Host Profiles panel for more details on LFS memory requirements for a single host.

Record Playback

This is a protected field. The memory requirements are determined based on the following formula.

number devices enabled to record
* (length of Device Sequences + 1K)
+ total number devices * 1/4K
+ max global sequence size (K) * 24
+ 16K

Session Management Feature Memory Requirements

The Session Management System (SMS) feature requires 64K of feature memory.

Attached Processor

This is a protected field which indicates the amount of feature memory required when the Attached Processor Feature is enabled on the RPQ panel. The AP Feature allows an application program running on an AP (an asynchronous host connected to an AT&T 6544 Controller) to control synchronous and asynchronous windows of AT&T's 6538 and 6539 displays. For more information, refer to the 6544 Controller AP Feature Technical Reference manual.

Extended (over 512) 3270 LUs Feature

LINCS requires 1K of Feature Memory for each LU after the first 512 LUs.

SCC Support

This field applies to all hardware models except the 1174-15X. 128K of feature memory is required for each SCC configured on these Hardware Platforms (SCCs are configured on the Product Description panel).

AIC

256K of feature memory is required if any ASCII ports are defined on the 1174-65X or SCON-22L models.

5550 Printer Sharing

This is a protected field. If the 5550 Printer Sharing RPQ is enabled, 128K of feature memory is required.

LPD Printer

This field displays the amount of feature LINCS will allocate for all LPD printers. You allocated Feature Memory for each LPD printer, when you defined them on the Network Device Definition panels. LPD printers require feature memory to buffer prints that LINCS receives as it sends the data to the LPD print server.

See Overview of LAN Printers for more information on LPD Printers.

LPD Print Servers

This is the amount of Feature memory allocated for buffering LPD print data destined to LINCS printers with Print Server classes assigned. All configured LPD queues share this pool. Toggle to select the amount of memory you wish to allocate for LPD Print Server memory pool.

Presentation Space Storage memory is also required to maintain the session and relevant print information. For each print LPD request, 1K of memory will be reserved from Presentation Space Storage until the print has been completed or aborted. If not enough memory is available in either memory location, then the print request will be negatively acknowledged and the TCP connection will be terminated. See Presentation Space Storage to calculate memory requirements for session and print information.

A 285__01 event will be logged if Presentation buffers were unavailable.

A 285__05 event will be logged if LPD Print Server memory was unavailable.

See Overview of LAN Printers for more information on LPD Print Servers.

Presentation Space Storage

This is a protected field which displays the memory available for Presentation Space Storage. The memory is used to maintain screen images for the following features. See Calculating

Presentation Space Storage for more information on the above features.

- MLS (Multiple Logical Sessions)
- Print Buffering
- Screen Preservation during ASCII Setup Mode
- ASCII Cut and Send
- Calculator Session
- LPD Server sessions

Calculating Presentation Space Storage

The following table documents the Presentation Space storage required for a single display session while using functions which require that a screen image be saved.

PS STORAGE REQUIREMENTS FOR A SINGLE SESSION

MOD SIZE	NO EAB	EAB
2 (24X80)	2K	4K
3 (32x80)	4K	8K
4 (43x80)	4K	8K
5 (27x132)	4K	8K

Extended Attribute Buffer (EAB) is used by devices for highlighting, such as reverse video, underline and blinking text.

The Feature Memory Allocation panel displays the amount of feature memory available for PS storage based upon the values defined in other fields. Any feature memory left over after all other feature memory has been defined will be allocated to PS Storage.

The following sections document the PS Storage memory requirements for various features. You should verify that your LINCS node has sufficient PS Storage memory to support these features:

- Multiple Logical Sessions (MLS)
- Print Buffering
- ASCII Setup
- ASCII Cut and Send
- LPD Server sessions

We also provide a Presentation Space Storage Memory Worksheet, which you can use to help calculate LINCS memory needs for Presentation Space.

Multiple Logical Sessions (MLS)

The memory required for MLS is used to maintain screen images and information for each configured session. The screen image memory required is determined based upon the mod size of the device as indicated in Calculating Presentation Storage Space. In addition to the screen image for each session, 1K of memory is required to maintain information about the session.

For each device attached to LINC/S, 8K of screen image memory and 1K of session information memory is allocated from base system memory. This allows devices to have a single session (and in some cases limited MLS) without requiring feature memory.

When a device PORs, the amount of PS Storage memory to allocate is determined based upon the Device Profile. The Device Profile indicates the number of sessions and whether or not windowing and calculator memory will be required. If Presentation Space memory is not available for all sessions, the Device will POR with as many sessions as available PS Storage memory will allow. A device will always be able to POR with at least one session (session A). If memory is not available to POR all sessions, a 285 error will be posted on the device's status line to indicate that some sessions are unavailable.

The following table lists the Presentation Space Memory requirements for MLS.

NUMBER OF HOST SESSIONS

MOD SIZE	EAB	1	2	3	4	5	6	7	8	9	10	NUMBER DISPLAYS	*	MEMORY REQUIRED	TOTAL
2 (24x80)	NO	0	1	2	3	6	9	12	15	18	21	_____	*	_____	=_____
3 (32x80)	NO														
4 (43x80)	NO	0	1	6	11	16	21	26	31	36	41	_____	*	_____	=_____
5 (27x132)	NO														
2 (24x80)	YES	0	1	6	11	16	21	26	31	36	41	_____	*	_____	=_____
3 (32x80)	YES														
4 (43x80)	YES	0	9	18	27	36	45	54	63	72	81	_____	*	_____	=_____
5 (27x132)	YES														
>4K BASE	YES	8	25	42	59	76	93	110	127	144	161	_____	*	_____	=_____
												TOTAL	MLS	MEMORY	=_____

To determine the amount of memory to allocate for MLS, count the number of displays matching the description in a given row from the table. Enter this in the NUMBER DISPLAYS column. Determine the average number of sessions configured on displays of this type. Take the amount of memory required for that number of sessions and enter it in the MEMORY REQUIRED column. Multiply the number of displays times the memory required to get the total memory required for a given display type. Add up the memory required for all types of displays and enter it in the Total MLS Memory Field. This determines the total amount of memory for MLS.

Print Buffering and Presentation Storage

Presentation Space Storage memory is used to buffer a print from a display station when the destination printer is busy at the time the print is initiated.

If Presentation Space memory is available when a display attempts a print, the display data will be buffered and printed when the printer becomes available. If no PS memory is available when a display attempts a print, the display will be inhibited (printer busy symbol will be displayed) until the printer becomes available.

Determine the maximum number of print jobs which may be buffered from displays at any point in time. Enter this number in the worksheet titled Presentation Space Storage Memory Worksheet.

ASCII Setup

Presentation Space Storage memory is used to save a session's screen image when the session enters ASCII Host Setup Mode. If no Presentation Space memory is available when an ASCII Host session enters Setup Mode, the session data will be lost. The screen will be blank when the session exits Setup Mode.

Determine the maximum number of sessions which may be in ASCII Host Setup Mode at any point in time. Enter this number in the worksheet titled Presentation Space Storage Memory Worksheet accessible from the previous topic.

ASCII Cut and Send

Presentation Space Storage memory is used to perform an ASCII Cut and Send Operation. If no Presentation Space memory is available when an ASCII Host session attempts a Cut and Send operation, the operation will result in an input inhibit condition.

Determine the maximum number of sessions which may be performing a Cut and Send operation at once. Enter this number in the worksheet titled Presentation Space Storage Memory Worksheet accessible from the previous topic.

LPD Server Presentation Memory Requirements

Presentation Space Storage memory is used to maintain LPD Server sessions until LPD prints are either completed or aborted. This memory should be available if an LPD Print Server Class is defined on the TCP/IP Print Server Classes panel.

If memory is not available when a print request is made, the print will be negatively acknowledged and the TCP connection will be terminated. A 285_01 event will be logged to indicate that Presentation Space buffers were unavailable.

To determine the amount of Presentation Space memory required, add up your total LPD connections from the TCP/IP LAN Print Server Classes panel, plus the number of LPD Server Sessions (designated by "S") on the Device Profile Assignments panel, plus the number of prints which could be queued. The number of prints which can be queued is the maximum number of outstanding LPD Server prints you wish to allow.

Enter this number on the Presentation Space Storage Memory Worksheet.

Presentation Space Storage Memory Worksheet

Use the following worksheet to determine the total amount of memory for Presentation Space Storage.

Presentation Space Storage Memory Worksheet

1	Enter MLS total from MLS panel		_____
	Enter number displays concurrently:		
2	buffering prints	_____	
3	entering ASCII Setup	+ _____	
4	performing Cut and Send	+ _____	
5	attached to a device profile configured for windowing or calc	+ _____	
6	Add rows 2-5	= _____	
7	Enter average PS buffer size	* _____	
8	Enter line 7 multiplied by line 6	= _____	
9	Transfer line 8 total to column 2		+ _____
10	Enter number displays attached to a device profile configured for Calc	_____	
	Multiplied by Calc Buffer size * 2		
11	Enter total Calc Buffer memory	= _____	
12	Transfer line 11 to column 2		+ _____
13	Enter number of concurrent LPD Server sessions required Multiply by LPD Session requirements	* 1	
14	Enter total LPD Server Session memory	=	
15	Transfer line 14 to column 2		+ _____
	TOTAL PS BUFFER MEMORY		= _____ K

14. RPQs

Many RPQs are proprietary features that have been developed based upon particular customer needs. Other RPQs are options that are not included on the standard configuration panels due to their sensitive nature. The RPQ Panel lists all RPQs available to all LINCS node users. For additional information see RPQs in the LINCS Features document.

RPQ Panel

There are three RPQ panels:

RPQs	LINCS C8.2 Central Control
DESCRIPTION	STATUS
Local SNA DE,UC Online Status Delay	Disable
Netview RPQ 1 - Machine Type	Disable
Netview RPQ 2 - Product Class	Disable
Multiple LFS LUs per Host	Disable
TAB/BACKTAB keys stop at colons and tabs	Disable
Use key scan code values in WSC mode	Disable
Upper Case Translate of all data keys	Disable
Device Based Shift Status:	Disable
Presentation Space Update in File Transfer Mode	Disable
Ignore DNS Cache	Disable
Maximize User Disk Space	Disable
UNBIND before NOTIFY power-off sequence	Disable
Disc TN3270 Clients that violate SNA protocol	Disable
Reset Session on NonSNA ESCON read timeout	Disable
Sungard ESCON Identification Scheme	Disable
Fujitsu special inbound UNBIND	Disable
PF: 1-Menu	7-Back 8-Forw 10-Done

RPQs	LINCS C8.2 Central Control
DESCRIPTION	STATUS
Use device model size to validate Bind	Disable
LANSYS Delay (msec)	00
5550 Printer Sharing	Disable
Coax Poll Rate	Enable
Do not map DFT LUs	Disable
Deferred Keyboard Restore	Disable
Attached Processor Feature	Disable
ASCII Display Time Clock	Disable
ASCII Backspace/Delete Key	Disable
ASCII Shift Lock	Disable
Filter IPX Packet Type 20	Disable
Map "ANY" LUs to "PUBLIC" LUs	Disable
Map "PUBLIC" LUs to "ANY" LUs	Disable
IPX SAP Filter (save comm server entries only)	Disable
Map LU 0FFh for all SNA Hosts (hex, disable=00)	00
DFT Frame Sequencing	Disable
PF: 1-Menu	7-Back 8-Forw 9-Default 10-Done

LINCS Configuration

RPQs	LINCS C8.2 Central Control
DESCRIPTION	STATUS
Pass Write Structured Fields to LU3 TN3287 Clients	Disable
Prevent TN3270 Connect Panel if Host is Disabled	Disable
Make Hard Disk priority higher	Disable
Restrict TN3270 LU requests to those configured	Disable
Use TERMINATE-SELF instead of Inbound UNBIND	Disable
Support Wollongong Pathway TN3270 Client	Disable
Channel Gateway support for early VTAM versions	Disable
Send BELL char(07) when ASCII display Input Inhibited	Disable
ESCON Loopback Mode	Disable
Discard UDP Packets to ports 2xxx for CEB	Disable
Convert Warm ACTPU to Cold ACTPU	Disable
Enhanced Supervisor Password Protection	Disable
Prevent print of LPD Banner Page	Disable
Update display while security keylock is locked	Disable
STK 4430 LMU Support	Disable
Auto Jump Session on 5xx Reminder(dec,disable=0)	00

PF: 1-Menu 7-Back 8-Forw 10-Done

RPQs	LINCS C8.2 Central Control
DESCRIPTION	STATUS
Ignore all LU requests from TN3270 clients	Disable
Only Supervisor Displays can enter Test Mode	Disable
Maximize TN3287 response timer	Disable
Do Not Disc ESCON SNA PU on CU Reset	Disable
Delay NSNA LAN print until FF sequence received (Must configure Disk Buffering)	Disable
Don't optimize outbound data to an ASCII Display	Disable
Don't send Restore Kybd to TN3270 Client for NonsNA end-of-chain	Disable
Don't send Restore Kybd to TN3270 Client for NonsNA Deselect	Disable
TN3270 clients MUST specify an LUNAME	Disable
Ignore ICMP Redirect	Disable
Allow a user to commandeer a 3270 session already in use	Disable
Assume all TN3270 clients support extended attributes	Disable
Immediately Disconnect NonsNA Client	Disable
Send TN3270 connection confirmation to device	Disable
Allow alphanumeric input on TN3270 Connect panel	Disable

PF: 1-Menu 7-Back 8-Forw 10-Done

Device Based Shift Status - The shift key status affects all sessions vs. only the foreground session.

Presentation Space Update in File Transfer mode - This RPQ, when enabled, will force the 1174 to rewrite the entire screen when an Erase/Write is received and the device is in File Transfer mode. Normal operation of the 1174, is to update the area of the screen beginning with the first character position on the screen that changed to the last character position on the screen that changed. Enabling this RPQ could cut into performance, but may be necessary with some file transfer programs.

Ignore DNS cache - DNS resolutions are not cached when this RPQ is enabled. This forces every request for use of a DNS name to go to the DNS name server.

Maximize User Disk Space - enabling this RPQ will cause LINCS to limit the amount of hard disk space set aside for the LINCS operating system to 15 MB, making available the other 5 MB for features such as LPD Print Serving and Central Site Customization. This RPQ is normally invoked on older LINCS platforms that have only a 20 MB hard drive installed.

UNBIND before NOTIFY power-off sequence - when a LAN-based client disconnects from LINCS, forcing an UNBIND and a NOTIFY to be sent, the UNBIND will be sent first if the RPQ is enabled, and NOTIFY will be sent first if the RPQ is disabled.

Disc TN3270 Clients that violate SNA protocol – This RPQ will cause LINCS to monitor for excessive inbound traffic from a TN3270 client that would indicate that it is not properly adhering to SNA change direction events. (If client is streaming Enter or other AID keys, this RPQ will disconnect the client.)

Reset Session on NonSNA ESCON Read Timeout - This RPQ should be enabled, any time that the SCON is supporting TN3270 clients. (Later versions of LINCS 7.1 and higher may not offer this RPQ option, it will automatically be enabled.) If set to ‘Disable’, and the host attempts to do a Read to one of the TN3270 clients, resulting in a timeout (TN3270 client takes 1 second or more to respond), the channel is taken offline.

If set to ‘Enable’, LINCS will generate a UC response with a Status of Resetting Event, that will normally result in the user’s screen being repainted. Resetting of the session will also result in the logging of an event 540-82 in the Event Log. The user may have to reenter the last command.

Sungard ESCON Identification Scheme - When enabled, information taken from the ‘Unique Machine Identifier’ field in configuration will be inserted into the Node Identifier frame that is exchanged during the link initialization process. This information can be displayed from the host side. If disabled, LINCS defaults the information in this field.

Fujitsu special inbound UNBIND - This RPQ provides the correct sequence of events to request an UNBIND in the fashion expected by a Fujitsu mainframe.

Use device model size to validate Bind - This RPQ allows the 1174 to ignore the information provided by the query reply of the Extended Function Feature’s capabilities and accept or reject the session BIND based on the identification provided by the device at POR time. This would apply only to devices that support partitioning.

LANSYS Delay in Milliseconds - This RPQ allows the customer to insert a delay for LANSYS to wait before sending a response to the client workstation. This delay is necessary for some Ethernet attached device platforms when configured with certain protocol stacks to allow the client workstations to work with these slower stacks. Otherwise the client workstation may not be ready for the response sent by the 1174. The symptom seen when this is a problem, is that the Ethernet client workstation can not establish a session with the 1174. This problem is normally associated with slower PCs and ODI protocol stacks.

5550 Printer Sharing - This RPQ allows IBM 5550 devices supporting the printer sharing function to route prints to other 5550 devices attached to the same 1174. IBM 5550 printer sharing is available in Japan only.

Coax Poll Rate - This RPQ increases the polling rate for active coax devices. That is, each active coax device will be polled more frequently than it would normally be polled. This RPQ is used to allow the 1174 to work with certain device types that will time out if they are not polled within a certain time limit. Enabling this RPQ may be necessary to allow some DFT devices to work. This RPQ should be enabled to support StorageTek LMUs. This RPQ is equivalent to the 'Enhanced Coax Polling' option in the regular configuration panels.

Do not map DFT LUs - The 1174 automatically maps LUs provided to coax DFTs beginning with LU 02 and incrementing for each LU supported by the DFT. The actual LU assigned to the DFT from the host may be different and is determined on the 1174 LU assignment panel. Enabling this RPQ will cause the 1174 to pass the host LU defined entry to the DFT device instead of causing the remapping. Note that the DFT device must be configured to use the LU numbers being passed by the 1174 or the sessions will not be established.

Deferred Keyboard Restore - Enables sessions connected to a 3270 host to remain inhibited (X clock) until an end bracket or change direction is received, even if a keyboard restore is received while in receive state.

Attached Processor Feature - This RPQ allows an ASCII host to send a command sequence that will initiate a Recorded RPB sequence the same as if the user had initiated the sequence from the keyboard. See Section 28 for more details on this feature.

ASCII Display Time Clock - Provides the time clock to display on ASCII displays. Allows ASCII displays attached to LINCS to operate similar to TWX type devices (as an IBM 3708 replacement).

ASCII Backspace/Delete Key - If enabled, the Backspace key routine bypasses the checks for DOC mode and INSERT mode and always does the backspace/delete. If the terminal emulation does not support the backspace/delete function the ADU can be used to define a key. Also a "fast delete" has been implemented to speed it up.

ASCII Shift Lock - Makes the Caps Lock key on an ASCII keyboard act as a Shift Lock function on a 3270 keyboard. Caps lock forces all alphabet characters to shift to upper case. Shift Lock forces all keys to use the shifted characters and symbols.

Filter IPX Packet Type 20 - Normally enabled, it is now possible to disable the propagation of IPX type 20 frames. Propagation of these frames can cause broadcast storms in some networks. This frame type is common in WindowsNT environments.

Map “Any” LUs to “Public” LUs - A request for “Any” LU from an IPX client is treated as a request for a “Public” LU. LUs will be pulled from a Host Class called “Public” if such a class is configured. If no class by that name is configured, then any unused available LU may be given to the client.

MAP “PUBLIC” LUs to “ANY” LUs - will treat an IPX 3270 request for a “PUBLIC” LU as if it were a request to receive any LU configured for the requested service name.

IPX SAP Filter(save comm server entries only) - allows LINCS to filter out all IPX SAP frames except for those received from a comm server, resulting in only comm server entries in the SAP table.

Map LU 0FFh for all SNA Hosts (hex, disable=00) - allows you to map LU ‘FF’ to a different LU as defined by the hex value entered. For example, if a hex value of ‘55’ is entered, then LU ‘FF’ in the data stream would be treated as LU ‘55’ in the LINCS configuration. A value of ‘00’ for this RPQ indicates that LU ‘FF’ will be treated as an invalid LU.

DFT Frame Sequencing - when enabled, this RPQ will disallow interspersing of frames from multiple LUs when communicating to a DFT. That is, all frames with the same sequence number (segmented frames) will be sent to the DFT before a frame for a different LU is sent. This RPQ is needed for certain Irma clients.

Pass Write Structured Fields to LU3 TN3287 Clients – This RPQ will allow Write Structured Fields to pass to a TN3287 client, even though it did not indicate support for them during negotiation.

Prevent TN3270 Connect Panel if Host is Disabled - Enabling this RPQ prevents LINCS from painting a Connect Panel of configured 3270 Host Classes when the TCP port is configured with a valid port number and the Host column indicates ‘Disabled’ on the TN3270 Client Definition Panel. Normally, defining a port number without enabling a Host setting will result in the 3270 Host Connection panel being presented.

Make Hard Disk priority higher – Enabling this RPQ raises the interrupt priority of the hard disk to that of communications, so that the LPD queue can not be overrun by print jobs being sent to it. This RPQ should be enabled for the Print Server feature, when LPD protocol is being used.

Restrict TN3270 LU Requests to Those Configured - With this option enabled, only clients that have an entry in the TN3270 Client Definition panel (IP Address is specified), will be matched to an entry and be allowed to connect.

Use TERMINATE-SELF instead of Inbound UNBIND – Using this RPQ causes LINCS to utilize a TERMINATE-SELF request instead of the typical UNBIND request to end a session.

Support Wollongong Pathway TN3270 Client – Enabling this RPQ allows LINCS to handle special packet sequencing idiosyncrasies of the Wollongong Pathway product.

Channel Gateway support for early VTAM versions – This RPQ modifies the way channel gateway circuits initiate their connection, to match the expectation of some earlier versions of VTAM.

Send BELL char (07) when ASCII display Input Inhibited – This RPQ causes a BELL character (hex 07) to be sent whenever the ASCII display experiences an Input Inhibited to alert the operator that the Input Inhibit has occurred. Many ASCII emulations do not support the necessary 25th line to allow viewing of all of the session data and the status line at the same time.

ESCON Loopback Mode - The use of this option is for diagnostic purposes only and requires the use of an ESCON loopback plug. With the plug in place, and the option enabled, a loopback test of the hardware will occur, and a failure of the hardware will result in an error event being logged.

Discard UDP Packets to ports 2xxx for CEB – Turning this RPQ on will cause UDP packets that are destined to Coax/Ethernet Bridge clients to be discarded if they are directed to ports in the 2xxx range.

Convert Warm ACTPU to Cold ACTPU – This RPQ will cause LINCOS to convert any Warm ACTPU into a Cold ACTPU before responding.

Enhanced Supervisor Password Protection - If this option has been enabled, the Supervisor Password will not be displayed during the configuration of the unit. Normally, the Supervisor Password is displayed during the configuration process, when viewing the General Options panel.

Prevent print of LPD Banner Page – When enabled, this RPQ will ignore requests from LPR clients to print an LPD Banner Page, and none will be printed.

Update Display While Security Keylock is Locked - Enabling this option, will result in LINCOS accepting writes to a coax display terminal that has the security keylock enabled.

When disabled, the status presented to the host will prevent the host writing to the screen. When used as a console, this option determines whether the console messages will be accepted by the display, or kept by the host (which may result in a large number of queued up console messages).

STK 4430 LMU Support - Enabling this option eliminates the logging of certain coax protocol violations that might otherwise flood the even log. The protocol violations have no real affect on the operation of the STK 4430 LMU itself.

Auto Jump Session on 5xx Reminder (dec,disable=0) – This RPQ will cause attached CUT devices to swap to their next configured session automatically when a 5xx communications reminder is posted for the amount of time indicated by the value configured. A value of 00 means that the RPQ is disabled, while any other value represents the amount of time that the communications reminder must be posted before the swap action is taken. If the communications reminder goes away before the time interval expires, no swap action is taken. Only devices that are configured in their Device Profile to do the Auto Swap are affected by this RPQ.

Auto Jump Session on 5xx Reminder (dec, disable = 0) - Setting a value greater than zero for this option will cause a ‘Swap Session’ function to be generated for each CUT display device automatically whenever a Communication Reminder is posted for the specified number of seconds. For CUT devices configured for more than one session, this will result in the terminal being swapped to the next session (for example the session will be swapped from Session A to Session B).

Ignore all LU requests from TN3270 clients - The normal value for this option ('Disabled'), results in LINCS attempt to honor any request for a specific host, address combination from the TN3270 client at connection time, as long as the format of the request is valid. This attempt overrides what has been configured for that device.

Enabling this option will cause LINCS to ignore all such requests from the clients and only permit what has been configured to be assigned.

Only Supervisor Displays can enter Test Mode - By enabling this option, only CUT devices assigned a user profile that includes an enabled 'Supervisor Authority' option, will be allowed to enter Test (Central Control) Mode.

Maximize TN3287 response timer – This RPQ increases by ten-fold the amount of time allowed a TN3287 printer to indicate that it has completed the print job. This was created to allow more time for someone to correct a paper out condition on printers that are not monitored very closely.

Do Not Disc ESCON SNA PU on CU Reset – Enabling this RPQ allows for SSCP Takeover to occur by not taking down the SNA PU when an ESCON DISCONNECT occurs. The PU can then accept a warm start from the new SSCP.

Delay NSNA LAN print until FF sequence received - Enabling this option will cause Non-SNA data streams directed to a printer to be queued to the hard drive of the SCON unit until a specific sequence of '%0C%' is received in the data stream. When the sequence is received, the entire queued print is forwarded to the LAN printer. This permits the host to select the printer device multiple times during the sending of a single print job.

When disabled, LINCS will treat each selection of the printer device as a separate print job.

Don't optimize outbound data to an ASCII display – LINCS normally optimizes outbound data to an ASCII display to make the interface more efficient, since an ASCII display over a serial link has a limited bandwidth to work with. For example LINCS will write only the parts of the screen that have changed as a result of a new data stream. Enabling this RPQ will cause LINCS to refresh the entire screen and not optimize the data stream.

Don't send Restore Kybd to TN3270 Client for NonSNA end-of-chain - Normally, LINCS restores the keyboard for TN3270 clients when a Non-SNA end-of-chain is received, because many of them do not restore their own keyboards automatically. This RPQ causes LINCS not to automatically restore the keyboard, forcing the client emulator to restore it.

Don't send Restore Kybd to TN3270 Client for NonSNA Deselect - Normally, LINCS restores the keyboard for TN3270 clients when a NonSNA Deselect occurs, because many of them do not restore their own keyboards automatically. This RPQ causes LINCS not to automatically restore the keyboard, forcing the client emulator to restore it.

TN3270 clients MUST specify an LUNAME - Only clients that negotiate an LUNAME, are allowed to connect, and only if there is a LINCS entry corresponding to that.

Ignore ICMP Redirect – When enabled, the internal routing table will not cache ICMP Redirect requests. This will cause LINCS to attempt to send packets through the configured default router each time.

Allow a user to commandeer a 3270 session already in use - When a user connects into the SCON, and is given a connect panel to request a session from, they have an additional option that allows them to take a session that is already assigned and in use by another user, by specifically requesting the session and performing the commandeer function. The person from which the session has been taken will be given a connect panel from which they can take their session back if needed.

Assume all TN3270 clients support extended attributes - When enabled, LINCSC will assume that the device supports Extended Attributes (such as IBM 3278-2E device type) even if the client negotiates a device type that implies that it does not support them (such as IBM 3278-2 device type). This is to accommodate some emulators that negotiate that they do not support Extended Attributes, but they really do.

Immediately Disconnect NonSNA Client When enabled, LINCSC sends to the host an Attention - Unit Check, when a client indicates power down. Normally LINCSC sends the Attention, and when the host attempts to select the device, LINCSC responds with Unit Check. This was required for some clients because the console function does not roll soon enough.

Send TN3270 connection confirmation to device - When enabled, LINCSC sends a NVT message to the client once they have successfully negotiated a TN3270 session with us, to acknowledge success. Not all clients are capable of displaying a NVT message once they have negotiated TN3270 options. In most cases the host will almost immediately write to the device, so the message normally will be display most briefly if at all. Only if the host does not write to the screen and if the device is capable of displaying NVT messages once in binary mode, does this RPQ provide useful information.

Allow alphanumeric input on TN3270 Connect panel - With this RPQ enabled, you can specify 3270 Host Class names, and specify a specific 'Host,Address' combination. Without the RQP enabled, you are limited to entering the Class Number of what you want to connect to.

Suppress the automatic CLEAR key when connecting to a Shared Session - Normally, a CLEAR key is automatically generated to refresh the console screen to a user when connecting to a Hot Session, but when the session is also to be shared this may not be desirable. This RPQ allows you to suppress the automatic CLEAR key.

During TN3270E negotiation, always tell client what LU was assigned - Normally, LINCSC only tells the client which resource was assigned, only if the client requests a specific resource. With this RPQ enabled, LINCSC will always tell the client which resource was assigned. (This is required to make the Passport client work correctly.)

15. Configuration Complete

While in the Configuration Utility, pressing PF10-Save on an any panel, takes you to the Configuration Complete panel and causes all Configuration data to be examined for inconsistencies. If any inconsistencies are present, a message will be displayed to direct you to the panel containing the error. Upon paging to the panel in error, the specific warning message will be displayed. Note that the error message on the panel in question will usually not be displayed until you attempt to leave that panel. Configuration data may NOT be saved as long as any configuration inconsistencies exist.

When configuring with the Central Site Facility, PF3-Return will be displayed instead of PF10-Save. PF3-Return returns you to the Central Site Library panel, so you can save or do whatever you like with the Working Copy just modified.

Once the Configuration Data has been validated and saved, the Apply Configuration Changes panel will be displayed.

Configuration Complete Panel

```
Configuration Complete                               LINCS C8.2 Central Control

Feature Activation is Required for: (*=not active on this 1174)
  IPX SNA/TN3270 Clients                               Incoming/Outgoing TELNET
  003 Extended ESCON CUs

HPP's Required:    1
If an extra HPP is available, it will be used for the Network Devices.

PF: 1-Menu                               7-Back    9-Default  10-Save
```

The Configuration Complete panel displays Feature Activation and HPP requirements based upon the values in the Configuration Data.

Once the Configuration Data has been validated and saved (pressing <PF10>), the Apply Configuration Changes panel will be displayed.

System Disk Drive

This is a toggle field which indicates which disk to write the Configuration data to. The initial value will be the drive which the data was read from. The field may be toggled to any drive which contains a System disk.

HPP Requirements

Whenever a non-zero value appears for the HPP requirement, this is an indication that additional processing power is required to support the configuration beyond the base processor. (This does not necessarily indicate whether that card is currently present or not, only that the card needs to be present when booting this configuration.) This processing power can be supplied by having the requested number of HPP cards installed on the platform at the time the saved configuration is booted. The HPP card has subsequently been replaced by a newer more

powerful card, the VHP. One VHP will normally supply all the processing requirement for any number of HPP cards that are indicated. The only exception is when the APPN feature has been enabled and the HPP requirement indicates a value of 2 or more. In this case only, a second VHP would be required. Note that several models of LINCS platforms come with a VHP included as part of the base hardware, thus providing all the processing support required unless APPN is enabled.

Feature activation is Required for:

The list of features that are listed in this section are features that require that a Feature Activation Disk (FAD) be installed to support this configuration. If the feature has an asterisk preceding it, then the required FAD is not present or for some features there are insufficient FADs installed to cover the quantity that has been configured (such as Extended ESCON CUs). If there is no asterisk preceding the feature, then LINCS has detected that sufficient FADs are installed on this hardware platform already to support the features configured. Attempting to reboot a LINCS platform that does not have all of the FADs required to support the configuration being booted will result in an IML error. See ‘What to do if Your Configuration Will Not Boot’ below.

Apply Configuration Changes Panel

```

Apply Configuration Changes                                LINCS C8.2 Central Control
IML Option:                                             None
Supervisor Password:                                   Immediate
Resource Authorization:                               After IML
Printer Assignment:                                   After IML
Static IP Routing:                                    After IML
TN3270 Client Definitions                             After IML
ASCII/TELNET Password                                After IML

PF: 1-Menu                                             10-Process
    
```

This panel selects when to IML, and when to apply your recently saved configuration changes. PF10-Process causes all Immediate changes to be applied. Once all immediate changes have been applied, the IML options field will be processed.

PF1-Menu will take you back to the Configuration Main Menu without invoking immediate changes or performing an IML.

IML Option

This field toggles to:

None (default)	No IML will be scheduled.
IML Now	IML will occur immediately from the drive which the configuration was saved to.
IML Later	The IML Time panel will be displayed once all immediate changes have been applied. The IML Time panel allows one to select the time at which he/she wishes to IML from the drive which the configuration was saved to.

Supervisor Password

This field specifies when the new supervisor password will take.

Options are After IML (default) and Immediate.

Resource Authorization Matrix on Apply Configuration Changes

If Immediate is chosen, the Resource Authorization Matrix from each Device Profile in the “working copy” will be copied to the corresponding Device Profile in the current configuration. Any resources which devices are currently using will not be taken away. The change will take effect the next time a device attempts to access a resource.

For example, assume a device is currently connected to 3270 Host Class 01 and the authorization to this class is taken away by applying a new Resource Authorization Matrix. The device will NOT be disconnected from his LU immediately, but subsequent attempts to connect to this class will fail.

Options are After IML (default) and Immediate.

Printer Assignments on Apply Configuration Changes

If Immediate is chosen, the printer assignments will be applied to all devices. This functions the same as if each device had performed a Printer Ident function to select the printer assignments, except that devices will ALWAYS be allowed to ident to their default printers, whether or not access is allowed in the Resource Authorization Matrix. In other words, the configured Printer Assignment is always authorized. Note that if you assign a new printer to a port, previously defined as a display port, and authorize other display ports to print to the new printer, the printer assignments can not take effect immediately, since you can not define a new printer port to take effect immediately.

Options are After IML (default) and Immediate.

Static IP Routing

If immediate is chosen, the new static routing changes will go into effect immediately, allowing new routing paths to be used, and eliminating routing entries that have been deleted. If After IML is selected, then the routing changes will take effect only after an IML.

Options are After IML (default) and Immediate.

TN3270 Client Definitions

Existing TN3270 Client Definitions configured on the TN3270 Client Definition panels can be changed in a limited fashion, and made to take affect immediately if desired. Two things that will not take affect immediately, additional entries added to the configuration, and assigning a new TCP port for LINCOS to listen on (listening ports are assigned at boot time). Changes such as assigning a user to a different LINCOS resource or adding/changing an IP address limitation are accepted. Note that this option does not affect TN3270 or Telnet entries within the nickname.sys definitions whatsoever. Nickname.sys files can be refreshed with utility 3/5.

Options are After IML (default) and Immediate.

ASCII/Telnet Password

Making a change to the Password that is used for access by ASCII or Telnet clients can be made to take affect Immediately, and when doing so, users that already connected will not be disconnected, but on subsequent attempts to connect will be required to provide the new password. Passwords used by Telnet and/or TN3270 clients that are defined in the nickname.sys file are not affected by this configuration. Nickname.sys files can be refreshed with utility 3/5.

Options are After IML (default) and Immediate.

What to do if Your Configuration Will Not Boot

If you configure optional features, for which you do not have proper licensing support (through the installation of Feature Activation Disks), the LINCS platform will not boot up on the new configuration that you have saved, during the next IML. The most common causes for this type of problem are:

- Changing the values on the Product Definition panel
- Configuring too many Host Circuits (more CUs than what you are licensed for)
- Configuring too many Network Devices (Telnet and LAN Printers)
- Configuring too many TN3270 clients

Most error codes caused by misconfiguration will fall into the following error code ranges:

- 9Fx
- B5x
- B6x
- B7x

A procedure to correct the problem is as follows.

Press the IML button on the front panel, to initiate a fresh IML. When the unit reaches IML state 500, a pause of about 5-10 seconds will occur. During this pause press the <Config> button on the front panel. This will cause LINCS to boot on the factory default configuration, based on the actual hardware installed in the unit. You should see the Configuration indicator on the front panel light when the IML continues beyond state 500, and remain on until the IML is complete. When fully booted, the LINCS will display the word 'CONFIGURATION' on the front panel LCD.

From a coax terminal (or other suitable CUT display device), go into Central Control Mode and into the customization utility. You have a couple of choices as you enter the utility. If you select to use the "Default" data source, you can configure LINCS from scratch, the same as when you first received it. You can also select "Drive C" as the configuration data source, which will bring up the last saved configuration (the one with the problem) and allow you to attempt to change the configuration to one that will work.

16. Configuration Backups

Once you have created a working configuration, you will probably want to back the configuration up for disaster recovery purposes. There are 4 ways that you can back up your configuration.

1. Create the backup from the configuration utility.
2. Copy the configuration data object using Media Management.
3. Copy the configuration files using FTP.
4. Retrieve a copy of the configuration with the Visara eManager product.

Creating a Backup Using the Configuration Utility

This procedure assumes that you have already booted onto the new configuration and verified that it works.

Enter the Configuration Utility (Utility 1/1,u) from Central Control Mode as described in Chapter 1. Select to use the 'Currently Loaded' version this time, and proceed forward into the configuration. From the Configuration Menu (Submenu_List) panel, press the <PF10> key to take you to the Configuration Complete panel. Toggle the 'System Disk Drive' option until it says 'Drive A'.

Insert an appropriate floppy disk into Drive A (as described below), and press the <PF10> key to save the configuration. The Configuration Utility should save the configuration onto the floppy drive. Remove the floppy disk and place it into a safe location.

The LINCS Configuration Utility expects to write the configuration file onto the System 1 diskette. You can use a real System 1 diskette that is at the same integration level as the LINCS operating system. If you do not have a real System 1 disk handy, you can use a blank formatted floppy with a volume label of '@@D@@@@@174'. When using a blank formatted floppy with the System 1 label on it, you will get an error message 'Disk Error 000A while Reading CAT\$SYS.LOA on drive A'. This is not a problem for backup purposes. You should however test the backup by going into configuration one more time, but use the backup (Drive A) as the source. If you can open the configuration file, it should be good.

Creating a Configuration Backup Using Media Management

You can use Media Management to back up your configuration, by using the Copy Data Object utility (3/3). For more complete detail on the Media Management utilities, refer to the LINCS Central Control Mode manual. In brief, you must toggle the fields (if necessary) until they indicate Disk Type: System, Source Disk Drive: Drive C, and Destination Disk Drive: Drive A. Next press <PF10>. From the resulting menu, select the MCUST data object that includes 'CFG' as part of the name, and proceed to make the copy.

Creating a Configuration Backup Using FTP

Using an FTP client of your choice, connect into the SCON through the FET interface (interface must be configured for network access of course) using the User ID of 'system', and give the configured Supervisor Password, for your password. Next copy off the following two files: FIG\$DATA.LOA and DOD\$CFG.LOA. Make sure that you transfer the files in binary mode (not text mode). These files make up and are equivalent to the Configuration Data Object. In order to read them into a SCON through the floppy drive, you must put them on a System 1 disk or at least a floppy with the volume label of '@@D@@@@@174'.

Creating a Configuration Backup Using eManager

If you have a copy of the Visara management software, eManager, you can make a backup of the configuration of your LINCS platform. Select the node corresponding to the LINCS platform that you wish to backup, right-mouse-click to bring up the menu, and select 'Backups/Create Backup'. Please reference the eManager documentation for more details on this procedure.