



46606

ASYNCHRONOUS/SYNCHRONOUS MULTI-PORT X.25 INTERFACE EDITOR

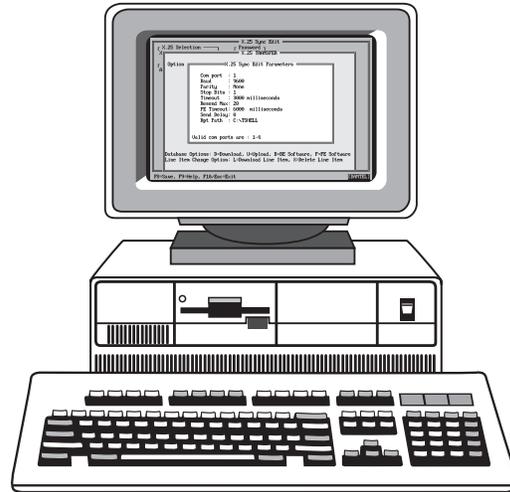


Table of Contents

Installation	2
Ordering Information	2
Standards	3
Getting Started	6
X.25 System Definition	9
X.25 Parameters	50
Terminal Emulation	51
Printer Syntax	61
Virtual Access/Alarm Messages	76
Glossary	114
Warranty	118

About this Practice:

This practice has been reissued to:

- Update **Ordering Information** section.

Reissued Practices: Updated and new content can be identified by a banner in the right margin.

Issue date: February 2000

UPDATED

CAUTION

- Install or remove modules from the shelf only when the power is off. If you install a module in the shelf with the power on, the internal circuitry may suffer damage and the product warranty will be void.
- Remove and install circuit boards only in a static-safe environment (use antistatic wrist straps, smocks, footwear, etc.).
- Keep circuit boards in their antistatic bags when they are not in use.
- Do not ship or store circuit boards near strong electrostatic, electromagnetic, magnetic, or radioactive fields.
- For more complete information on electrostatic discharge safety precautions, refer to Bellcore™ Technical Reference # TR-NWT-000870.

ORDERING INFORMATION

UPDATED

NOTE: This section lists the different options available for this product. To order any of the available options, contact Dantel Inside Sales through our toll-free number, **1-800-432-6835**.

OPTION NUMBER	FEATURES
C22-46606-02	T/Shell Editor for LinkMaster

INSTALLATION

The T/Shell program can be installed on an IBM™-compatible computer equipped with the following:

- ◆ 640K of memory
- ◆ CGA/EGA/VGA color (recommended), monochrome, or LCD monitor
- ◆ One serial port
- ◆ One 3.5" diskette drive
- ◆ One hard disk drive
- ◆ DOS version 3.0 or later

This chapter explains how.

To install the software program on your computer:

1. Turn on the power to the computer and monitor. Wait for the DOS (Disk Operating System) prompt to appear.
2. Insert the 46606 software disk from Dantel into the diskette drive.
3. Select the hard disk drive (normally C) where the program is to be installed. At the prompt type **MD TSHELL** to make a directory called TSHELL. Press Enter.
4. At the prompt type **CD TSHELL**. Press Enter.

The following T/Shell programs, and all earlier versions of these programs, are copy-protected. Current versions are not copy-protected. Do *not* copy any T/Shell program with a version later than those listed here, into a directory that has T/Shell programs with these versions or lower.

Status Monitor GPP Editor	A22-46502-XX, Version 2.0
TL1 GPP Editor	B22-46504-XX, Version 2.2
40 MAP Editor	A22-46508-XX, Version 1.3
41 MAP Editor	A22-46512-XX, Version 1.1
X.25 Sync Editor	A22-46513-XX, Version 2.1
X.25 Cascade Editor	A22-46516-XX, Version 1.0
TL1/NMA Converter Editor	A22-46521-XX, Version 1.0
X.25 Cascade Editor	A22-46522-XX, Version 1.0
Status Monitor GPP Loader	A22-46703-XX, Version 1.0

WARNING:

Do not copy this software into any directory where a copy-protected version of T/Shell already exists. Refer to step 4 of **"To install the software program in your computer"** for a list of copy-protected versions.

CONTINUED . . .

INSTALLATION

If you do not know the version number of a T/Shell program that is already installed on your computer, go to the first screen of the program. Press the F1 (Info) key to display the version number.

5. Type **COPY A:*. *** This assumes that the disk is in drive A. If it is in a different drive, type the letter of that drive.
6. Press Enter to copy all the files into your TSHELL directory from the disk in your diskette drive.
7. After the software has been copied into the TSHELL directory, store the disk in a safe place.

STANDARDS

This section describes those commands, key, and standards common to all Dantel software packages.

SOFTWARE STANDARDS

HIGHLIGHT

A highlighted option in a menu is the currently selected option. To activate an option, do either of the following:

1. Press Enter if the option is highlighted.
2. Type the letter of the hot key. A hot key is a specific key that can open an option. With a color monitor, a hot key is indicated by a yellow letter. With a monochrome monitor, a hot key is indicated by a capital letter. In the Master Menu, the hot keys are the option numbers. When you use the hot key method, the option does not have to be highlighted.

F3

Opens the Terminal Emulation mode in most cases.

F8

Saves the entries that you make to the database configuration. If there is more than one entry field on a line, the cursor must be in the first field in order to save the information. See rule 1 of **F10 & Esc**.

F9

Activates on-line help.

STANDARDS

F10 & Esc

In most cases the F10 and Esc keys work interchangeably. The following rules apply to these keys:

1. When editing a group of fields, returns the cursor to the first field. When editing the first field, they exit that window.
2. When at a submenu, they return cursor to the previous menu.
3. When at the Master Menu, they exit the program.

Up Arrow

The up arrow usually does one of the following two things:

1. Selects the preceding option from a menu.
2. Selects the previous field within an option.

Dn Arrow

The down arrow usually does one of the following two things:

1. Selects the next option from a menu.
2. Selects the next field within an option.

FIELD EDITING STANDARDS

The software program checks each field for the correct type of entry. If a valid entry for a certain field is alphabetic and a numeric key is pressed, the computer beeps.

When editing fields, the following keys are active:

KEY	FUNCTION
Enter	Accepts the field.
Ctrl-Z	Erases the current field.
Ctrl-R	Restores the default value.
Back Arrow	Deletes the previous character.
Ctrl-H	Lists the editing keys that are available.
Left Arrow	Moves the cursor <i>left</i> within the field.
Right Arrow	Moves the cursor <i>right</i> within the field.
Ctrl-Home	Moves the cursor to the <i>start</i> of the field.
Ctrl-End	Moves the cursor to the <i>end</i> of the field.
Del	Deletes the current character.
Ins	Toggles insert mode.
Ctrl-Left Arrow	Moves the cursor <i>left</i> to the previous word.
Ctrl-Right Arrow	Moves the cursor <i>right</i> to the previous word.
Ctrl-K or Alt-K	Deletes to the end of the field.
Ctrl-D	Calls up the Default Box if there is one.

STANDARDS

There may be times when the screen cannot display all the data. In such cases, use special keys to scroll different parts of the data onto the screen.

Usually these special keys are active only when the cursor is at the first item (far left) in a given line of data. The special keys and their functions are as follows:

KEY	FUNCTION
Up Arrow	Moves the cursor up one line. When the cursor is on the top line, the previous line scrolls into the window.
Down Arrow	Moves the cursor down one line. When the cursor is on the bottom line, the next line scrolls up into the window.
Home	Brings the first page of data into the window.
End	Brings the last page of data into the window.
PgUp	Brings the previous page of data into the window.
PgDn	Brings the next page of data into the window

DEFAULT BOX

When defining certain fields, a default box appears to aid in the selection process. The default box displays the valid selections for the current field that is being editing. Select from the default box or type the entry. To select from the default box, use the keys below, then press Enter.

KEY	FUNCTION
Tab	Moves the select bar down one selection.
Shift-Tab	Moves the select bar up one selection.

NOTE:

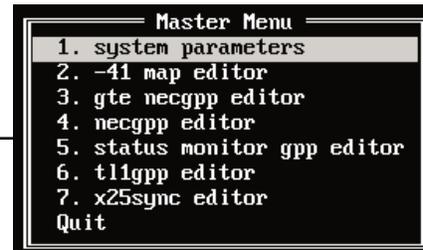
The arrow keys are not active in these default boxes. Choices can be made only with the TAB or SHIFT-TAB keys.

GETTING STARTED

The T/Shell software program with the 46606 Asynchronous/Synchronous Multi-Port X.25 Interface Editor enables the definition of how 46095 Multi-Port Processor X.25 Concentrator (46095 LinkMaster) modules will function.

To start the T/Shell program:

1. Change directories to the TSHELL directory.
2. Type **TSHELL**.
3. Press Enter. The Dantel logo appears, followed a few moments later by the Master Menu. Here is an example of the Master Menu:

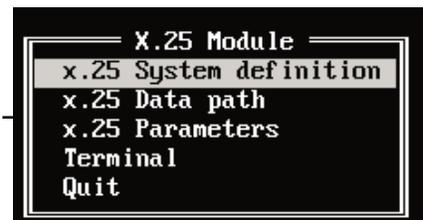


WARNING: Always exit the program cleanly. Select the *Quit* option from the Master Menu whenever exiting the T/Shell program. NEVER turn off the computer without properly exiting the program. Doing so could corrupt the data files.

4. To change the system parameters, highlight *System Parameters* and press Enter.

The System Parameters window appears. Available choices are LCD or color mode, menu verification, and pulse or tone dialing. Refer to the **System Parameters** section of this chapter. When finished, the Master Menu appears.

5. At the Master Menu, highlight the *X25sync Editor* option.
6. Press Enter. The X.25 Module menu appears:



CONTINUED . . .

GETTING STARTED

This menu allows full interaction with the T/Shell software. (A brief description of each option on the X.25 Module menu appears below.)

7. Highlight an option.
8. Press Enter.
9. Go to the chapter that explains the option selected.

X.25 System Definition - Configures T/Shell databases that define how 46095 LinkMasters will operate. Upload and download database configurations between the computer and 46095 LinkMasters and generate reports that show how databases are configured.

X.25 Data Path - Sets the DOS path where T/Shell database files created by the program will be stored.

X.25 Parameters - Sets the communications parameters for uploading and downloading T/Shell database configurations between the computer and 46095 LinkMasters. Specify where to store reports on database configurations on the computer.

Terminal - Allows the computer to use a terminal emulator program to communicate with devices, such as the 46095 LinkMaster, that have a terminal interface.

Quit - Returns to the T/Shell Master Menu.

F1 Command Key - Displays the product name, version, and product number of the software.

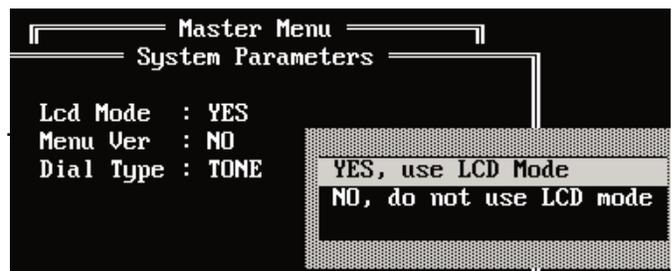
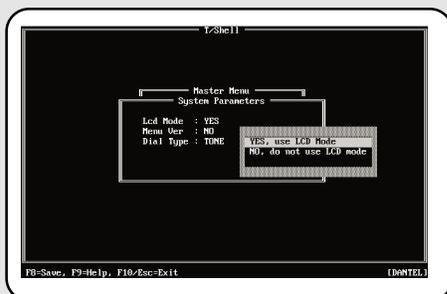
F2 Command Key - Allows communications with 46095 LinkMasters using Printer Syntax. Refer to the *Printer Syntax* chapter for more information.

SYSTEM PARAMETERS

After selecting the System Parameters option from the Master Menu, the System Parameters window appears. Configures the system for the following:

- ◆ LCD or color mode
- ◆ Menu verification
- ◆ Pulse or tone dialing

Here is the System Parameters window:



GETTING STARTED

To change the parameters:

1. Use the Tab key to select the desired value.
2. Press Enter.

If no change is needed to a value in a particular field, press Enter to advance to the next field.

If some fields are changed and all the remaining fields are acceptable, press F8 to save the changes.

At the last field (Dial Type), if changing the value, press Enter to save all changes to the system parameters. If no change is made to the value of the dial type, press Enter or F8 to save any other changes to the system parameters.

NOTE: *After changing the LCD mode, exit the program to DOS and restart the T/Shell program.*

Here are descriptions of the System Parameters options:

LCD Mode - If using a monochrome monitor or a laptop computer with a monochrome LCD display, select *YES, use LCD mode*. If using a color monitor, select *NO, do not use LCD mode*. This field defaults to *NO, do not use LCD mode*.

Menu Ver - Menu Verification. When off, ("N"), pressing the activating key of a menu option will execute that option at once. When on, ("Y"), pressing the activating key of a menu option will move the highlight bar to that option. Press ENTER to execute that option.

Dial Type - The type of dialing that will be used when making a modem connection from the Transfer screen.

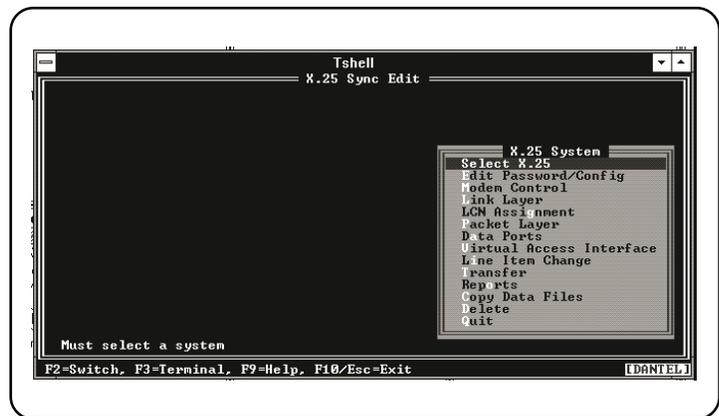
X.25 SYSTEM DEFINITION

Use the X.25 System Definition option of the X.25 Module menu to:

- ◆ Configure T/Shell databases that define how 46095 LinkMasters will operate.
- ◆ Upload and download database configurations and download the 46606 operating software to 46095 LinkMasters. The 46606 software is a separate program from the T/Shell software. The operating software provides the basic operating instructions for the 46095 LinkMaster.
- ◆ Generate reports that show how the ports of 46095 LinkMasters are configured.

Each configuration has its own system name.

Here is the X.25 Sync Edit screen with the X.25 System menu:



To select an option:

1. Highlight the desired option. A brief explanation of each option appears in the next section, **Menu Overview**.

NOTE: Choose Select X.25 first before accessing the X.25 System menu from the X.25 Module menu.

2. Press Enter.
3. Go to the section of this chapter that explains the option selected.
4. End of this procedure.

X.25 SYSTEM DEFINITION

MENU OVERVIEW

Here are brief descriptions of each option in the X.25 System menu:

Select X.25

Creates a new database configuration or selects an existing one.

Edit Password/Config

Allows editing of the following:

- ◆ The address of the 46095 LinkMaster to which the selected database configuration will be downloaded or from which a file will be uploaded.
- ◆ The password to access the selected database configuration.
- ◆ A description to identify the selected database configuration.

Modem Control

Defines the handshaking mode between the computer and a modem.

Link Layer

Allows editing of the X.25 link layer parameters.

LCN Assignment

Defines the LCN (Logical Channel Number) assignments.

Packet Layer

Enables optional parameters that can be used with the packet layer.

Data Ports

Allows definitions of protocols, LCNs and all attributes.

Internal Ports Config

Configures a virtual TL1 port that allows the following:

- ◆ Issue commands to check the module's status.
- ◆ Receive alarms if any of the data ports fail to operate.
- ◆ Receive an alarm if the buffer memory dedicated to forwarding messages is in a critical state.
- ◆ Configure module remotely using TL1 commands.

X.25 SYSTEM DEFINITION

Line Item Change

Changes any information in the LCN Assignment and/or Data Ports portions of the 46095 LinkMaster's configuration. Use this option when the 46095 LinkMaster is operating and it is necessary to modify its configuration. The changes are downloaded to the module without interfering with its operation.

Transfer

Provides utilities for the following:

- ◆ Downloading the 46606 operating software to a 46095 LinkMaster.
- ◆ Downloading the selected database configuration to the same 46095 LinkMaster.
- ◆ Downloading line item changes to the database in a 46095 LinkMaster.
- ◆ Uploading a database configuration from a 46095 LinkMaster.

Reports

Generates reports on how the ports of the 46095 LinkMaster are configured.

Copy Data Files

Copies the files associated with the selected database configuration for the following purposes:

- ◆ To back up the files.
- ◆ To transfer the files to another computer.
- ◆ To use the files as the basis for creating a new database configuration.

Delete

Deletes the selected database configuration from the computer.

Quit

Exits the X.25 System menu and returns to the X.25 Module menu.

F2 (Switch) Command Key

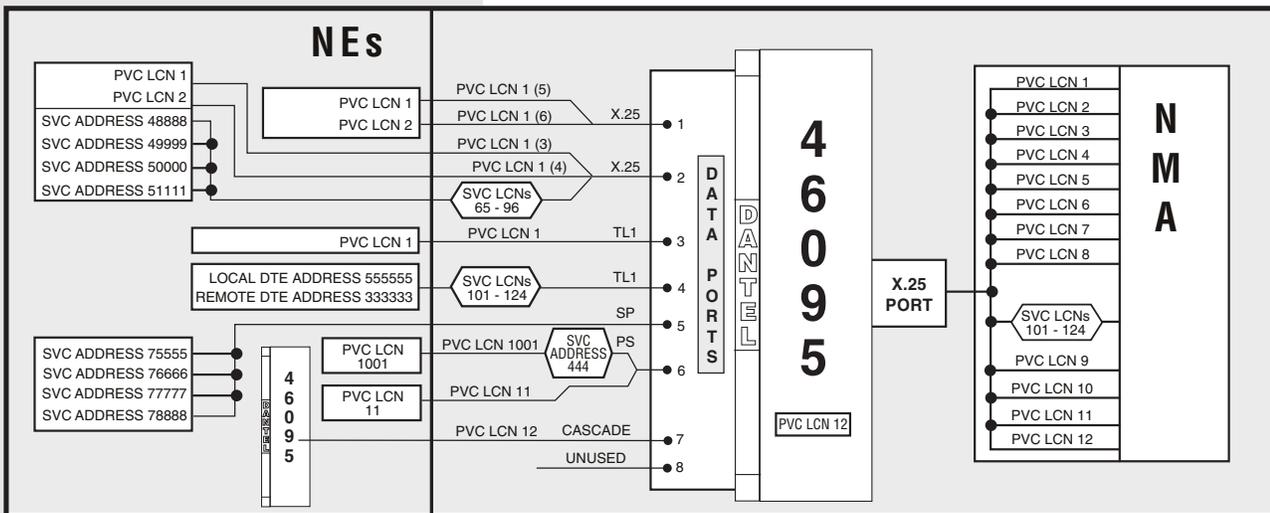
For those LinkMaster units with Printer ports configured for DCPF, allows communications with those LinkMasters using Printer Syntax. Refer to the *Printer Syntax* chapter for more information.

X.25 SYSTEM DEFINITION

CONFIGURATION EXAMPLE

Fig. 1 shows an example of a configuration showing how a 46095 LinkMaster might be connected to an NMA center and network elements (NEs). This chapter includes more references to the configuration example to aid in understanding how to make data entries in the fields on the screen.

FIG. 1 - 46095 LINKMASTER CONNECTION TO AN NMA CENTER AND NETWORK ELEMENTS

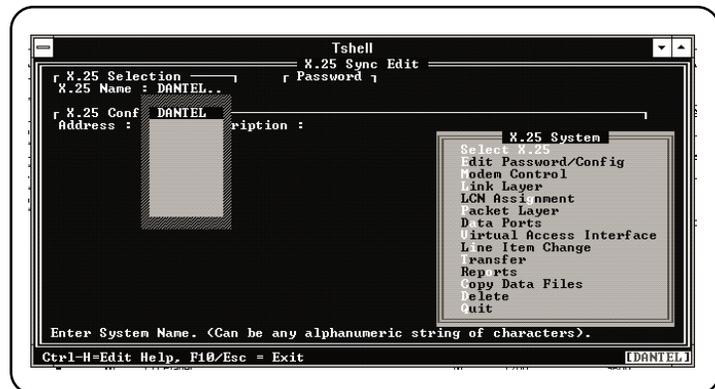


SELECT X.25

The Select X.25 option allows the creation of a T/Shell database configuration or to choose an existing one for editing.

A database configuration must be created before any further options can be selected from the X.25 System menu.

Here is the X.25 Sync Edit screen with the X.25 selection fields:



X.25 SYSTEM DEFINITION

Instructions for entering a system name appear below.

X.25 NAME

A T/Shell database configuration must be given a system name. If configurations already have been created, a default box appears with their names.

To select an existing name:

1. Use the Tab key to highlight your choice.
2. Press Enter.
3. If there is a password defined for the database configuration, type it and press Enter. If there is no password, just press Enter. To define a password or to change an existing one, refer to the next section on ***Edit Password/Config***.

To create a new system name:

1. Enter a name.

The name must be made up of characters (maximum of eight) that form a valid DOS file name. This is because the computer uses the name for making data files associated with that name.

Use:

All alphabetic and numeric characters.

Most other special ASCII characters

Do not use:

Characters reserved by DOS, such as period and space.

2. Press Enter.
3. The following question appears at the bottom left corner of the screen:

Not there. Wish to add (Y/N)?

Type **Y** to add the new name. Type **N** to discard the name and select another name.

WARNING: *Refer to the Copy Data Files section of this chapter for information on copying database configurations. Do not use the DOS copy function.*

4. End of this procedure.

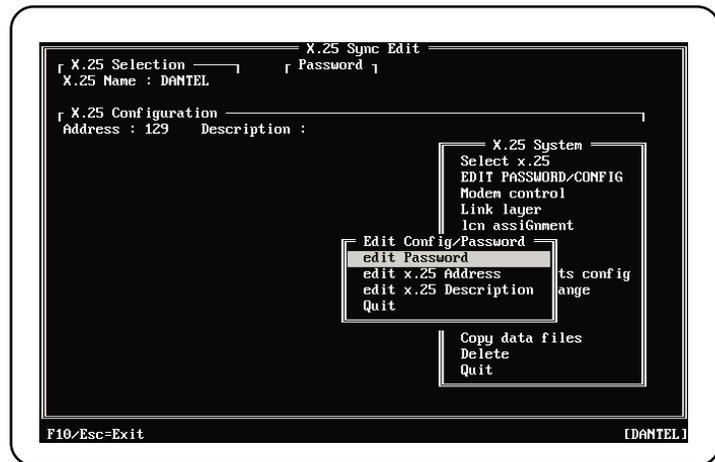
X.25 SYSTEM DEFINITION

EDIT PASSWORD/CONFIG

Use the Edit Password/Config option to define or change the following:

- ◆ A password to access the selected database configuration.
- ◆ The address of the 46095 LinkMaster.
- ◆ A description to identify the selected database configuration.

Here is the X.25 Sync Edit screen with the Edit Config/Password menu:



Instructions for entering a password, X.25 module address, and configuration description appear below.

EDIT PASSWORD

Use this option to define or change a password that will be required to access the database configuration.

To define or change a password:

1. Highlight *Edit Password*.
2. Press Enter.
3. Enter up to eight characters.
4. Press Enter.
5. Retype the password. This is a safety feature to insure that the password is enter correctly.
6. Press Enter. End of proceure.

X.25 SYSTEM DEFINITION

EDIT X.25 ADDRESS

This is the address of the 46095 LinkMaster as set by switches S2-1 through S2-6 on the module. This is the module with which the computer will communicate to upload or download a data-base configuration. The default address is 129.

To change the address:

1. Highlight *Edit X.25 Address*.
2. Press Enter.
3. Enter the address. Acceptable values are 129 - 192.
4. Press Enter.

EDIT X.25 DESCRIPTION

Entering text in this field is optional. Text can be entered to remind yourself about the purpose or function of the configuration.

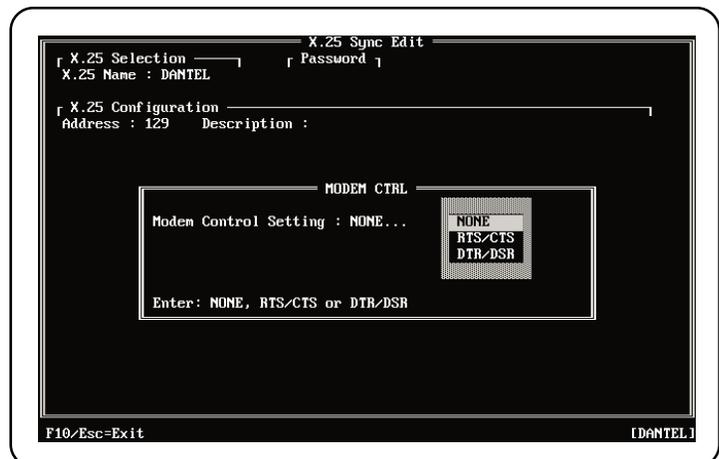
To enter or change a description:

1. Highlight *Edit X.25 Description*.
2. Press Enter.
3. Enter a description.
4. Press Enter.

MODEM CONTROL

Defines the handshaking mode between the computer and the modem when downloading or uploading a configuration using a modem connection.

Here is the X.25 Sync Edit screen with the Modem Ctrl window:



X.25 SYSTEM DEFINITION

To select the handshaking mode:

1. Use the Tab key to highlight the desired option in the default box.
2. Press Enter.

Here are descriptions of the Modem Control options:

None - This is the default setting and is used when a modem is not connected to the 46095 LinkMaster.

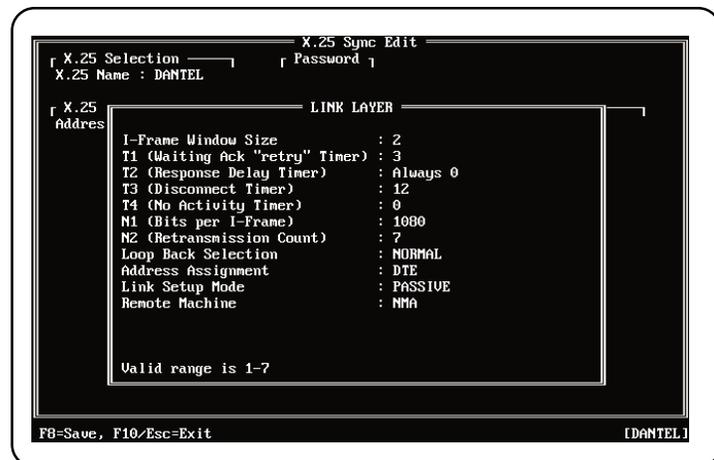
RTS/CTS - Select this setting when the modem uses Request-To-Send/Clear-To-Send handshaking.

DTR/DSR - Select this setting when the modem uses Data-Terminal-Ready/Data-Set-Ready handshaking.

LINK LAYER

The Link Layer option allows you to edit the X.25 link layer parameters.

Here is the Link Layer window:



NOTE: *The parameters in the Link Layer window must match those same parameters at the receiving end. The Printer Port will output a "Receiving Short Packets" message if any values are not the same.*

To change the options:

1. Enter the desired value.
2. Press Enter.

If no change is needed to a value at a particular field, press Enter to advance to the next field.

If some fields have been changed and all the remaining fields are acceptable, press F8 to save the changes and return to the X.25 System menu.

CONTINUED . . .

X.25 SYSTEM DEFINITION

At the last field (Remote Machine), if the value is changed, press Enter to save all changes to the parameters. If no change is needed to the value in the last field, press Enter or F8 to save any other changes to the parameters and return to the X.25 System menu.

Here are descriptions of the Link Layer parameters:

I-Frame Window Size - This is the number of frames the 46095 LinkMaster can transmit before getting an acknowledgment from the receiving end. The number of frames that can be sent must match the value set by the other end for receiving frames. No more frames can be transmitted until the receiving end acknowledges receipt of all the frames sent. If the receiving end does not get all the data, it requests that the missing data be resent. Acceptable values are 1-7. The default is 2.

T1 (Waiting Ack "retry" Timer) - When the 46095 LinkMaster sends information, it must get an acknowledgment from the receiving end that the data was received. The value of the T1 timer determines how long the 46095 LinkMaster waits for this acknowledgment before resending the data. Acceptable values are 2-20 seconds. The default is 3.

T2 (Response Delay Timer) - This timer tells the X.25 network how long to wait for an acknowledgment that the 46095 LinkMaster received a message. The module sends a response immediately and the time is permanently set at zero seconds.

T3 (Disconnect Timer) - This timer tells the X.25 network how long to wait before disconnecting the 46095 LinkMaster from the network. If the module stops communicating with the network, the network disconnects the module at the end of the time period unless communications are re-established. Acceptable values are 4-32 seconds. The default is 12.

T4 (No Activity Timer) - If there is no activity between the 46095 LinkMaster and the network for the time period set by the timer, the network disconnects the link. Acceptable values are 0 (zero) (no timeout) and 1-120 seconds. The default is 0 (zero).

N1 (Bits per I-Frame) - This is the number of bits in an information frame (I-frame). It consists of the number of bytes of data in a packet plus seven bytes for overhead information. The number of bytes is multiplied by eight to get the number of bits. For example, if the packet size is 128, add 7 for overhead for a total of 135 bytes. Multiply by 8 to get 1,080 bits. Acceptable values are 1080-4152 bits in increments of 8. The default is 1080.

N2 (Retransmission Count) - This value determines how many times the 46095 LinkMaster resends data if an acknowledgment is not received. Acceptable values are 2-16. The default is 7.

Loop Back Selection - Acceptable values are NORMAL, SIMPLE, CLOCKLESS, SILENT, SILENT CLOCKLESS. The default is NORMAL.

X.25 SYSTEM DEFINITION

Address Assignment - This value determines whether the 46095 LinkMaster is Data Terminal Equipment (DTE) or Data Circuit-terminating Equipment (DCE). When the 46095 LinkMaster is communicating with the X.25 network, the network is the DCE and the module is the DTE. When the 46095 LinkMaster communicates directly with another 46095 LinkMaster, one module is the DCE and the other module is the DTE. Acceptable values are DTE, DCE. The default is DTE.

Link Setup Mode - There are two types of X.25 link setup modes: active and passive. When the 46095 LinkMaster is in the active mode, it initiates communications to establish a link with the X.25 network. When it is in the passive mode, the module waits to be contacted by the network. Acceptable values are ACTIVE and PASSIVE. The default is PASSIVE.

Remote Machine - This field defines the equipment on the other side of the network with which the 46095 LinkMaster communicates. Acceptable values are NMA, STANDARD, and PAD. The default is NMA. Select *NMA* for communication to an NMA Alarm Center. Select *STANDARD* for communication to any other network device. Select *PAD* for communication to a PAD device.

LCN ASSIGNMENT

The LCN Assignment option lets you define up to 256 Logical Channel Numbers (LCNs).

Here is an example of the LCN Assignment screen:

The screenshot shows a terminal window titled "X.25 Sync Edit". It contains the following text and table:

```
X.25 Selection [ ] Password [ ]
X.25 Name : DANTEL

X.25 Configuration [ ]
Address : 129 Description :
```

Entry	LCN	Type	CT	Transmit Size	Udu	Receive Size	Udu	Thr
1	1001	PUC	BOTH	128	2	128	2	1200
2	1	PUC	BOTH	128	2	128	2	1200
3	2	PUC	BOTH	128	2	128	2	1200
4	3	PUC	BOTH	128	2	128	2	1200
5	4	PUC	BOTH	128	2	128	2	1200
6	101	SUC	BOTH	128	2	128	2	1200
7	102	SUC	BOTH	128	2	128	2	1200
8	103	SUC	BOTH	128	2	128	2	1200

Valid Range is 1-4096
F3=Blank, F8=Save, F10/Esc=Exit (No Save) [DANTEL]

X.25 SYSTEM DEFINITION

To define LCNs:

1. At each field enter the desired value.
2. Press Enter, which advances you to the next field.
When the cursor is in the LCN field, press F3 (Blank) to delete all values on that line to the right of the cursor.
3. When you finish defining the LCNs, verify that the cursor is in the first field (LCN). Press F8 to save.

Here are explanations of the LCN Assignment fields:

LCN - Logical Channel Number. Assign an LCN for each permanent virtual circuit (PVC) or switched virtual circuit (SVC) that will be used. Up to 256 LCNs can be assigned. Acceptable values are 1-4096.

In the Configuration Example, PVC LCNs 1-11 and 1001 are entered, as well as SVC LCNs 101-124 (not all of them can be shown on the screen).

Type - Define for either Switched Virtual Circuit (SVC) or Permanent Virtual Circuit (PVC).

Circuits that are held permanently by the X.25 network are called Permanent Virtual Circuits, which is analogous to leased lines in the telephone industry.

Circuits that are held for the duration of the call are called Switched Virtual Circuits, which is analogous to dial-up lines in the telephone industry.

Acceptable values are SVC, and PVC. The default is SVC.

Circuit Type (CT) - The Circuit Type determines whether communications will be incoming only, outgoing only, or both. Acceptable values are BOTH, IN, and OUT. The default is BOTH.

Transmit Size - This is the packet size that will be transmitted. Acceptable values are 128, 256 and 512 bytes. The default is 128.

CAUTION: *If the packet size is changed, verify that the N1 value in the Link Layer window is large enough to handle the packet size. Refer to the Link Layer section of this chapter. The N1 value also appears in the X25 Attributes Screen 2. Refer to the Data Port Parameters section of this chapter.*

Transmit Window (Wdw) - This is how many packets will be sent. Before sending any more packets, the 46095 LinkMaster waits for an acknowledgment that the transmitted packets were received. Acceptable values are 1-7. The default is 2.

Receive Size - This is the packet size that will be received. Acceptable values are 128, 256 and 512 bytes. The default is 128.

CONTINUED . . .

X.25 SYSTEM DEFINITION

CAUTION: *If the packet size is changed, verify that the N1 value in the Link Layer window is large enough to handle the packet size. Refer to the Link Layer section of this chapter. The N1 value also appears in the X25 Attributes Screen 2. Refer to the Data Port Parameters section of this chapter.*

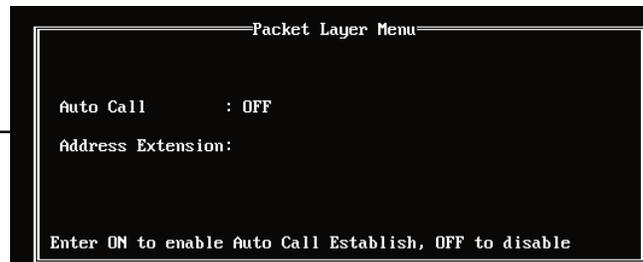
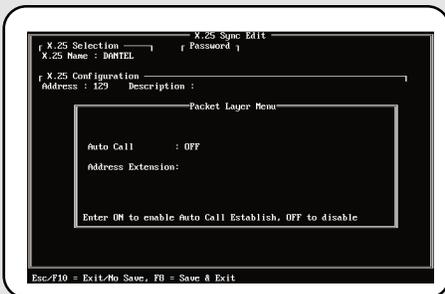
Receive Window (Wdw) - This is how many packets will be received. When they are received, the 46095 LinkMaster sends an acknowledgment to the sender. Acceptable values are 1-7. The default is 2.

Throughput (Thr) - Throughput is the amount of data that can be transferred through the system without problems. It is important that the throughput setting allows the maximum data transfer. Throughput is affected by variables such as hardware speed tolerances and the number of ports assigned. The 1200 baud default setting provides proper throughput in most conditions. Acceptable values are 1200-56000. The default is 1200.

PACKET LAYER

The Packet Layer menu allows you to choose the auto call and address extension options.

Here is the Packet Layer Menu:



To select an option:

1. The default for each option is OFF. To change an option, type **ON**.
2. Press Enter to advance to the next option. Press F8 to save the changes and return to the X.25 System menu.

Here are explanations of the two options:

Auto Call - If a call is in progress on an SVC on a TL1 port and the line drops from service, Auto Call attempts to re-establish the call.

Address Extension - This option allows the 46095 LinkMaster to interpret address extensions in the Local DTE Addresses and the Remote DTE Addresses screens. (Asynchronous TL1 ports only.)

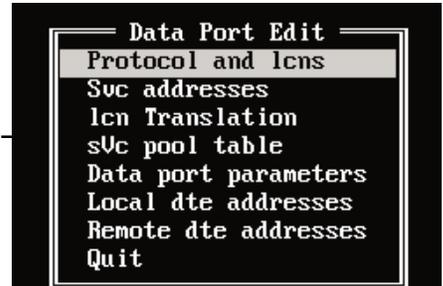
3. End of this procedure.

X.25 SYSTEM DEFINITION

DATA PORTS

Use the Data Ports option to define the parameters for establishing communications between the eight data ports of the 46095 LinkMaster and the external equipment connected to them.

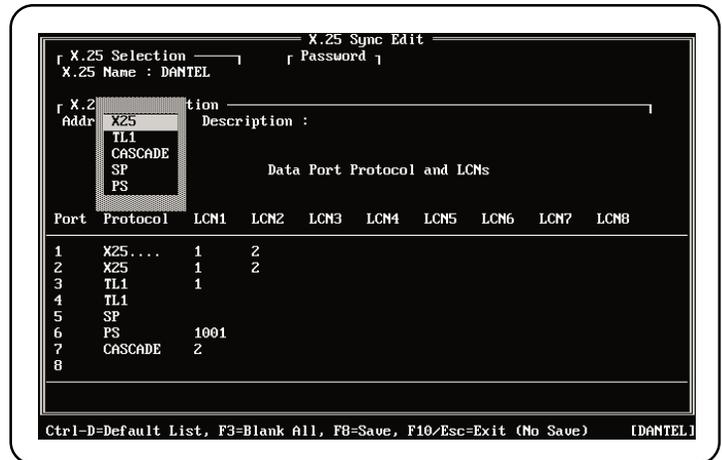
Here is the Data Port Edit menu:



PROTOCOL AND LCNs

The Protocol and LCNs option lets you define the protocols and PVC LCNs for each of the eight data ports.

Here is an example of the Data Port Protocol and LCNs screen:



X.25 SYSTEM DEFINITION

1. At each field enter the desired value.
2. Press Enter, which advances you to the next field.

When the cursor is in the Protocol field, press F3 (Blank All) to delete all LCNs on that line and return the protocol to TL1.

When the cursor is on an LCN field, press F3 (Blank to end of line) to blank out the LCN at the cursor location as well as all LCNs to the right. The cursor advances to the next line. This is a convenient shortcut that allows you to proceed to the next port without having to press the Enter key multiple times for blank LCN entries.

3. When the protocols and LCNs have all been defined, verify that the cursor is in the first field (Protocol). Press F8 to save.

Here are descriptions of the Data Port Protocol and LCNs fields:

Protocol - This is the protocol that will be used on the port. Acceptable values are X25, TL1, Cascade, PS, and SP. The default is TL1.

You can use the Cascade protocol only if the port is connected to Port 0 of another 46095 X.25 module running the cascade software.

The SP protocol stands for SVC/PVC translation. Select this protocol when the eight-port side of the 46095 LinkMaster uses an SVC and the X.25 side of the module uses a PVC.

The PS protocol stands for PVC/SVC translation. Select this protocol when the eight-port side of the 46095 LinkMaster uses a PVC and the X.25 side of the module uses an SVC.

LCN1 through LCN32 - Only PVC LCNs can be entered in this table.

To enter the PVC LCNs in the table, define them first in the LCN Assignment screen. The LCNs are listed in the default box.

For SP protocol, you cannot enter an LCN because the port does not use a PVC.

For TL1 protocol, only the LCN1 column is available to assign an LCN. If you enter an LCN, it is assumed to be a PVC LCN. If you enter Blank, it is assumed to be an SVC LCN.

For Cascade protocol, you must enter a PVC LCN in the LCN1 column. You can enter up to seven additional PVC LCNs.

For X.25 protocol, you can enter up to 32 PVC LCNs. Blanks also can be entered. A "blank" entry can be defined later for an SVC LCN. You can use PVC LCNs more than once as long as they are on different ports.

For PS protocol, you can enter up to four PVC LCNs.

TIP:

When you finish entering data on the last line (8), press F3, not F10, to return to the first field.

X.25 SYSTEM DEFINITION

In the Configuration Example, PVC LCN 1 is used on port 3 and PVC LCN 2 is used on port 7. They cannot be used on any other port with TL1, SP, or Cascade protocol. LCNs 1 and 2, however, can be duplicated on X.25 and PS ports, but must be translated in the LCN Translation table.

SVC ADDRESSES

The SVC Addresses option lets you define the SVC addresses for the data ports. Only ports defined in the Data Port Protocol and LCNs screen with X.25, PS or SP protocols appear on the screen.

Here is an example of the Data Port SVCs screen:

Port	SUC 1	SUC 2	SUC 3	SUC 4
1	*****	*****		
2	*****	*****	48888	49999
5	75555	76666	77777	78888
6	444.....			

To define SVC addresses:

1. Enter the address.
2. Press Enter to advance to the next field.

When the cursor is in the first field in which an SVC address can be entered, press F3 (Blank All) to delete all SVCs on that line and advance to the next line.

When the cursor is in a field other than the first field in which an SVC address can be entered, press F3 (Blank to end of line) to blank out the SVC address at the cursor location as well as all SVC addresses to the right. The cursor advances to the next line. Use this method to proceed to the next port without having to press the Enter key multiple times on blank SVC entries.

3. When all the data port SVCs have been defined, verify that the cursor is in the first field. Press F8 to save.

Here are descriptions of the Data Port SVCs fields:

Port - These are the ports that are defined with X.25, SP, or PS protocol on the Data Port Protocol and LCNs screen.

CONTINUED . . .

X.25 SYSTEM DEFINITION

SVC 1 through SVC 32 - These are the SVC addresses of the network elements connected to the data ports of the 46095 LinkMaster.

Up to 32 SVC addresses are possible for X.25 protocol.

Four addresses can be entered for SP protocol depending on the number of LCNs defined in the LCN translation screen.

Four addresses can be entered for PS protocol, depending upon the number of PVC LCNs defined in the Data Port Protocol and LCNs screen.

Acceptable range is 1-9999999999999999.

NOTE: *The asterisks in the fields with X.25 protocol are place holders for PVC LCN values that have been defined in the Data Port Protocol and LCNs screen. They cannot be typed over.*

For the PS protocol, asterisks also appear. They disappear when the cursor is placed at a port with PS protocol.

In the Configuration Example, the SVC addresses of the network elements connected to ports 2, 5, and 6 are entered in the table.

NOTE: *SVC addresses can be duplicated within each synchronous port to allow multiple calls over a single address. An address on one port may not, however, be duplicated over other synchronous or asynchronous ports.*

LCN TRANSLATION

The LCN Translation option allows translation of PVC LCN channel assignments when identical PVC LCNs have been defined in the Data Port Protocol and LCNs screen.

Here is an example of the Data Port LCNs Translation screen:

Port	Protocol	LCN1	LCN2	LCN3	LCN4	LCN5	LCN6	LCN7	LCN8
1	X25	3..	2	****	****	****	****	****	****
2	X25	4	1001	****	****	****	****	****	****
5	SP	1	****	****	****	****	****	****	****
6	PS	****	****	****	****	****	****	****	****

X.25 SYSTEM DEFINITION

To define data port LCN translations:

1. At each field enter the desired value.
2. Press Enter, which advances you to the next field.

When the cursor is in the first LCN field, press F3 (Blank All) to delete all LCNs on that line.

When the cursor is on any other LCN field, press F3 (Blank to end of line) to blank out the LCN at the cursor location as well as all LCNs to the right. The cursor advances to the next line. Use this method to proceed to the next port without having to press the Enter key multiple times on blank LCN entries.

3. When finished defining the LCN translations, verify that the cursor is in the first field (LCN1). Press F8 to save.

Here are descriptions of the Data Port LCNs Translation fields:

Port - These are the ports that are defined with X.25, SP and PS protocols on the Data Port Protocol and LCNs screen.

Protocol - These are the X.25, SP and PS protocols that are defined on the Data Port Protocol and LCNs screen.

LCN 1 through LCN 32 - These are the channels that will be translated. The LCNs are listed in the default box.

Up to 32 translations can be entered for X.25 protocol.

Four translations can be entered for SP and PS protocols.

Acceptable range is 1-4096.

In the Configuration Example, LCN 1 is assigned to port 3 and LCN 2 is assigned to port 7. Therefore, LCNs 1 and 2 on port 1 are reassigned LCNs 5 and 6. LCNs 1 and 2 on port 2 are reassigned LCNs 3 and 4. Port 5 can communicate with up to four PVC LCNs, which are defined as 7-10. LCNs 7-10 are connected to the X.25 port of the 46095 LinkMaster.

The PS protocol can also define straight-through PVCs. In the Configuration Example, PVC LCN 2 is assigned to port 6. Instead of entering an SVC address at the SVC addresses screen, enter an available LCN (on the network port side) to the LCN Translations table. PVC LCN 11 is the straight-through PVC. PVC LCN 1002 connects through PVC LCN 11 while LCN 1001 continues to communicate with SVC address 444.

NOTE: *The asterisks seen in the LCN fields for X.25 protocol indicate fields that were left blank in the Data Port Protocol and LCNs screen. No entries can be made in these fields.*

Since no entries were made in the Data Port Protocol and LCNs screen for SP protocol, all the fields have asterisks. Entries can be made to overwrite the asterisks in the first four LCN fields.

X.25 SYSTEM DEFINITION

SVC POOL TABLE

Use the SVC Pool Table option to define the SVC channels that can be used on the data ports. The SVC Pool is used only on ports with X.25 protocol. Here is an example of the Data Port SVC Pool Table screen:

The screenshot shows a terminal window titled "X.25 Sync Edit". At the top, there are fields for "X.25 Selection" and "Password". Below that, "X.25 Name : DANTEL" is displayed. Further down, there is a section for "X.25 Configuration" with fields for "Address : 129" and "Description :". The main part of the screen is a table titled "Data Port SVC POOL Table".

Port	Protocol	LCN1	LCN2	LCN3	LCN4	LCN5	LCN6	LCN7	LCN8
1	X25	...							
2	X25	65	66	67	68	69	70	71	72

At the bottom of the screen, it says "SVC Pool Number range is 1 - 4096" and "F3=Blank All, F8=Save, F10/Esc=Exit (No Save)". The name "DANTEL" is in the bottom right corner.

To define the SVC pool table:

1. At each field enter the desired value.
2. Press Enter to advance to the next field.

When the cursor is on the first LCN field, press F3 (Blank All) to delete all entries on that line.

When the cursor is on an LCN field other than the first one, press F3 (Blank to end of line) to blank out the entry at the cursor location as well as all entries to the right. The cursor advances to the next line. Use this method to proceed to the next port without having to press the Enter key multiple times on blank entries.

3. When the SVC pool table has been defined, verify that the cursor is in the first field (LCN1). Press F8 to save.

Here are descriptions of the Data Port SVC Pool Table fields:

Port - These are the ports that are defined with X.25 protocol on the Data Port Protocol and LCNs screen.

Protocol - This is the X.25 protocol that was defined on the Data Port Protocol and LCNs screen.

LCN 1 through LCN 32 - These are the SVCs that are assigned to the ports. Acceptable values are 1 - 4096.

In the Configuration Example, port 2 uses SVCs to communicate with four channels of the network element. SVCs 65-96 are assigned to the network elements.

4. End of this procedure.

X.25 SYSTEM DEFINITION

DATA PORT PARAMETERS

Use the Data Port Parameters option to set the communications parameters for the data ports.

TL1 OR CASCADE PARAMETERS

Use the TL1 or Cascade option to set the communications parameters for data ports using TL1 or Cascade protocols.

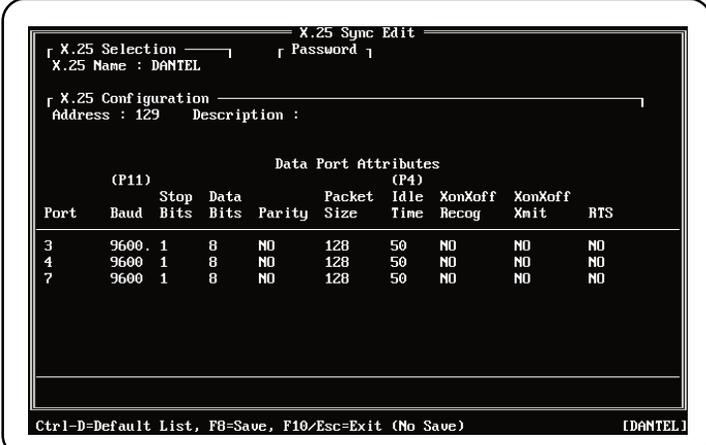
To select the TL1 or Cascade option:

1. Highlight *TL1 or Cascade* in the Data Port Parameters menu.
2. Press Enter.

To define the parameters:

1. Highlight *Parameters* in the TL1 menu.
2. Press Enter.

The Data Port Attributes screen appears. It shows those ports with TL1 or Cascade protocols.



The screenshot shows a terminal window titled "X.25 Sync Edit". It displays the following information:

```
X.25 Selection [ ] Password [ ]
X.25 Name : DANTEL
X.25 Configuration [ ]
Address : 129 Description :
```

Below this is a table titled "Data Port Attributes" with columns for (P11) and (P4) parameters.

Port	(P11)					(P4)			
	Baud	Stop Bits	Data Bits	Parity	Packet Size	Idle Time	XonXoff Recog	XonXoff Xmit	RTS
3	9600	1	8	NO	128	50	NO	NO	NO
4	9600	1	8	NO	128	50	NO	NO	NO
7	9600	1	8	NO	128	50	NO	NO	NO

At the bottom of the screen, it says "Ctrl-D=Default List, F8-Save, F10/Esc=Exit (No Save)" and "[DANTEL]" in the bottom right corner.

3. At each field enter the desired value.
4. Press Enter to advance to the next field.
5. When all the attributes have been defined, verify that the cursor is in the first field (Baud). Press F8 to save.

X.25 SYSTEM DEFINITION

Here are descriptions of the Data Port Attributes fields:

Baud - Sets the baud rate. Acceptable baud rates are 50, 75, 134, 150, 200, 300, 600, 1200, 1800, 2400, 4800, 9600, 19200. The default is 9600.

Stop Bits - Sets the number of stop bits. Acceptable values are 1 and 2. The default is 1.

Data Bits - Sets the number of bits in a data word. Acceptable data bits values are 7 bits and 8 bits. The default is 8.

Parity - Sets the parity. Acceptable parity values are Even, Odd and None. The default is None.

Packet Size - Sets the size of the packet of data that will be transmitted. Acceptable values are 128, 256 and 512 bytes. The default is 128.

CAUTION: *If the packet size is changed, verify that the N1 value in the Link Layer window is large enough to handle the packet size. Refer to the Link Layer section of this chapter.*

Idle Time - Sets the idle time threshold. When the time has expired, data will be sent. Acceptable values are 0 - 12750 milliseconds (in increments of 50 milliseconds). The default is 50 milliseconds.

XonXoff Recog - Tells the software whether to recognize handshaking flow control. Acceptable values are No and Yes. The default is No.

XonXoff Xmit - Tells the software whether to transmit handshaking flow control. Acceptable values are No and Yes. The default is No.

RTS (Request To Send) - Tells the software whether to use the RTS handshaking flow control signal. Acceptable values are No and Yes. The default is No.

X.25 SYSTEM DEFINITION

To define the data characters:

1. Highlight *Data Characters* in the TL1 menu.
2. Press Enter.

The Data Port Attributes (Data Characters) screen appears. It shows those ports with TL1 or Cascade protocols.

The screenshot shows a terminal window titled "X.25 Sync Edit". At the top, it displays "X.25 Selection" and "X.25 Name : DANTEL". Below that, it shows "X.25 Configuration" with "Address : 129" and "Description :". The main section is titled "Data Port Attributes (Data Characters)" and contains a table with four columns: "Port", "Data Char 1", "Data Char 2", "Data Char 3", and "Data Char 4". The table has three rows of data. At the bottom of the screen, there is a note: "Valid range for data forwarding character is 0-255" and a legend: "F1=CHAR, Up Arrow=previous field, F8=Save, F9=Help, F10/Esc=First Field".

Port	Data Char 1	Data Char 2	Data Char 3	Data Char 4
3	59 [;]	0 []	0 []	0 []
4	59 [;]	0 []	0 []	0 []
7	59 [;]	0 []	0 []	0 []

The data characters entered here are used as the end-of-data character in X.25 data transmission. Non-printable characters do not display on the screen. The packet is sent when the end-of-data character is received.

The *Data Char 1* field defaults to 59 [;]. Change the default by entering a new value.

3. Enter the desired value at each field. Do this in either of two ways:

If the cursor is positioned to the left of the brackets, enter the decimal value of the ASCII character you desire. Acceptable values are 0 - 255. (Refer to a standard ASCII character chart for decimal values.) Press Enter and the character appears inside the brackets. No character appears if there is no ASCII code for the entry.

Press F1 to position the cursor inside the brackets. Type the character you desire. Press Enter and the decimal value appears to the left of the brackets.

4. When the data characters have all been defined, verify that the cursor is in the first field (Data Char 1). Press F8 to save.
5. End of this procedure.

X.25 SYSTEM DEFINITION

X.25, SP, OR PS PARAMETERS

The X.25, SP, or PS option sets the communications parameters for data ports using X.25, SP, or PS protocols.

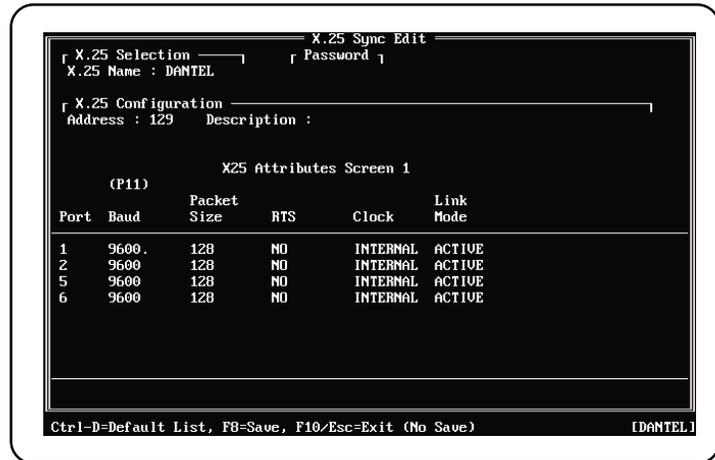
To select the X.25, SP, or PS option:

1. Highlight *X25, SP or PS* in the Data Port Parameters menu.
2. Press Enter.

To define the parameters:

1. Highlight *Parameters* in the X25 menu.
2. Press Enter.

The X25 Attributes Screen 1 appears. It shows those ports with X.25, SP, or PS protocols.



3. At each field enter the desired value.
4. Press Enter to advance to the next field.
5. When all the attributes have been defined, verify that the cursor is in the first field (Baud). Press F8 to save.

Here are descriptions of the X.25 Attributes Screen 1 fields:

Baud - Sets the baud rate. Acceptable baud rates are 50, 75, 134, 150, 200, 300, 600, 1200, 1800, 2400, 4800, 9600, 19200. The default is 9600.

Packet Size - Sets the size of the packet of data that will be transmitted. Acceptable values are 128, 256 and 512 bytes. The default is 128.

CONTINUED . . .

X.25 SYSTEM DEFINITION

CAUTION: *If the packet size has been changed, verify that the N1 value in the Link Layer window is large enough to handle the packet size. Refer to the Link Layer section of this chapter. The N1 value also appears in the X25 Attributes Screen 2. Refer to the next page.*

RTS (Request To Send) - Tells the software whether to use the RTS handshaking flow control signal. Acceptable values are Yes and No. The default is No.

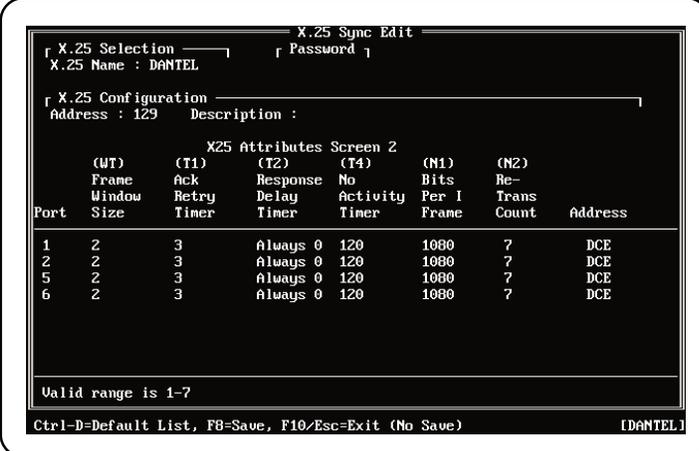
Clock - Determines if the clock will be provided internally or externally from some other network element. Acceptable values are Internal and External. The default is Internal.

Link Mode - Determines whether the link mode will be active or passive. Select Active to have the 46095 LinkMaster initiate the link with the X.25 network elements. Select Passive to have the X.25 network element initiates the link with the 46095 LinkMaster. The default is Active.

To define the attributes:

1. Highlight *Attributes* in the X25 menu.
2. Press Enter.

The X25 Attributes Screen 2 appears. It shows those ports with X.25, SP, or PS protocols.



The screenshot shows a terminal window titled "X.25 Sync Edit" with the following content:

```
X.25 Selection [ ] Password [ ]
X.25 Name : DANTEL

X.25 Configuration
Address : 129 Description :
```

X25 Attributes Screen 2							
Port	(W1) Frame Window Size	(T1) Ack Retry Timer	(T2) Response Delay Timer	(T4) No Activity Timer	(N1) Bits Per I Frame	(N2) Re- Trans Count	Address
1	2	3	Always 0	120	1000	7	DCE
2	2	3	Always 0	120	1000	7	DCE
5	2	3	Always 0	120	1000	7	DCE
6	2	3	Always 0	120	1000	7	DCE

Valid range is 1-7

Ctrl-D=Default List, F8=Save, F10/Esc=Exit (No Save) [DANTEL]

3. At each field enter the desired value.
4. Press Enter to advance to the next field.
5. When all the attributes have been defined, verify that the cursor is in the first field (Frame Window Size). Press F8 to save.

X.25 SYSTEM DEFINITION

Here are descriptions of the X.25 Attributes Screen 2 fields:

Frame Window Size (WT) - This is the number of frames the 46095 LinkMaster can transmit to the X.25 network element before getting an acknowledgment from the receiving end. The number of frames that can be sent must match the value set by the other end for receiving frames. No more frames can be transmitted until the receiving end acknowledges receipt of all the frames sent. If the receiving end does not get all the data, it requests that the missing data be resent. Acceptable values are 1-7. The default is 2.

Ack Retry Timer (T1) - When the 46095 LinkMaster sends information, it must get an acknowledgment from the receiving end that the data was received. The value of the T1 timer determines how long the 46095 LinkMaster waits for this acknowledgment before resending the data. Acceptable values are 2-20 seconds. The default is 3.

Response Delay Timer (T2) - This timer tells the X.25 network how long to wait for an acknowledgment that the 46095 LinkMaster received a message. The module sends a response immediately and the time is permanently set at 0 (zero) seconds.

NOTE: *The cursor skips this field.*

No Activity Timer (T4) - If there is no activity between the 46095 LinkMaster and the network for the time period set by the timer, the network disconnects the link. Acceptable values are 0-120 seconds. The default is 120.

Bits Per I Frame (N1) - This is the number of bits in an information frame (I-frame). It consists of the number of bytes of data in a packet plus seven bytes for overhead information. The number of bytes is multiplied by eight to get the number of bits. For example, if the packet size is 128, add 7 for overhead for a total of 135 bytes. Multiply by 8 to get 1,080 bits. Acceptable values are 1080-4152 bits in increments of 8. The default is 1080.

Re-Trans Count (N2) - This Retransmission Count value determines how many times the 46095 LinkMaster resends data if an acknowledgment is not received. Acceptable values are 2-16. The default is 7.

Address - This value determines whether the 46095 LinkMaster is Data Terminal Equipment (DTE) or Data Circuit-terminating Equipment (DCE). When the 46095 LinkMaster is communicating with a network element, the network element is the DTE and the module is the DCE. Acceptable values are DTE, DCE. The default is DCE.

X.25 SYSTEM DEFINITION

LOCAL DTE ADDRESSES

The Local DTE Addresses option lets you assign local addresses to equipment connected to TL1 ports that use SVC LCNs.

The local address is the address the equipment uses to identify itself when it transmits data. In the Configuration Example, the equipment on port 4 has a local address of 555555.

Here is an example of the Local DTE Addresses screen. It shows those ports with TL1 protocol that use SVC LCNs.

```
X.25 Sync Edit
┌ X.25 Selection ────┐ ┌ Password ─┐
X.25 Name : DANTEL

┌ X.25 Configuration ───────────┐
Address : 129  Description :

Local DTE Addresses

Port  Local Address  Local Extension
-----
4     555555         .....

Enter local extension address

Up Arrow=Previous Field, F10/Esc=First Field  [DANTEL]
```

To define local DTE addresses:

1. At each field enter the address.
2. Press Enter, which advances you to the next field.

NOTE: *The Address Extension option in the Packet Layer menu must be ON for the addresses entered in the Local Extension field to be recognized.*

When the cursor is in the *Local Address* field, press F3 (Blank) to delete all addresses on the line.

3. When all the local addresses have been defined, verify that the cursor is in the first field (Local Address). Press F8 to save.

Here are descriptions of the Local DTE Addresses screen fields:

Local Address - This is the local address of the equipment. It is used to identify itself when transmitting data. Acceptable values are 0-9999999999999999.

Local Extension - This is the local address extension. Acceptable values are 0-9999999999999999.

4. End of this procedure.

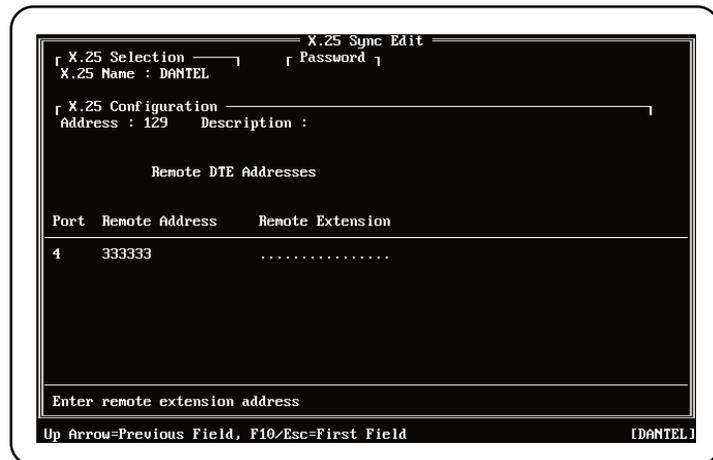
X.25 SYSTEM DEFINITION

REMOTE DTE ADDRESSES

Use the Remote DTE Addresses option to assign remote addresses to equipment connected to TL1 ports that use SVC LCNs.

The remote address is used when sending data to this piece of equipment. In the Configuration Example, the equipment on port 4 has a remote address of 333333.

Here is an example of the Remote DTE Addresses screen. It shows those ports with TL1 protocol that use SVC LCNs.



To define remote DTE addresses:

1. At each field enter the address.
2. Press Enter, which advances you to the next field.

NOTE: *The Address Extension option in the Packet Layer menu must be ON for the addresses entered in the Remote Extension field to be recognized.*

When the cursor is in the *Remote Address* field, press F3 (Blank) to delete all addresses on the line.

3. When all the remote addresses have been defined, verify that the cursor is in the first field (Remote Address). Press F8 to save.

Here are descriptions of the Remote DTE Addresses screen fields:

Remote Address - This is the address that is used when sending data to this piece of equipment. Acceptable values are 0-9999999999999999.

Remote Extension - This is the remote address extension. Acceptable values are 0-9999999999999999.

X.25 SYSTEM DEFINITION

VIRTUAL PORT CONFIGURATION

Use the Virtual Access Interface option to configure a virtual TL1 port for internal communications with the 46095 LinkMaster.

This configuration enables the following:

- ◆ Issue commands to check the module's status.
- ◆ Receive alarms if any of the data ports fail to operate.
- ◆ Receive an alarm if the buffer memory dedicated to forwarding messages is in a critical state.
- ◆ Configure and maintain LinkMaster module over the host network.

For information about issuing commands and receiving messages, refer to **Appendix C - TL1 Commands and Alarm Messages**.

Here is an example of the Virtual Access Interface Configuration screen:

```
X.25 Sync Edit
Virtual Access Interface Configuration

Virtual Port      PUC LCN      SUC Address1   SUC Address2
TL1 Port

SID:

SUC Calling Address:
Polling Frequency: 60
Enter SUC address for the port.

Up arrow=Previous, F3=Blank, F4=Alarms, F5=Poll, F10/Esc=First Field, F8=Save&Exit
```

NOTE: Provisioning over the Virtual Access Interface can be done on either the PVC or the SVC calling address entered here. SVC address 1 and SVC address 2 are reserved for outgoing alarm messages. The LCN used must be in the LCN Assignment Table.

To configure the internal port:

1. At each field enter the desired value.

NOTE: Entries in the PVC LCN, SVC Address 1, and SVC Address 2 fields are optional. Make entries in any or all of the fields.

Press F3 (Blank) to delete an entry in the field where the cursor is located.

2. Press Enter to advance to the next field.

CONTINUED . . .

X.25 SYSTEM DEFINITION

3. After the last field (Polling Frequency), the cursor returns to the *TL1 Port* field. Press F4. The Set Port Alarms window appears.
4. Type **ON** if you want the 46095 LinkMaster to report any failure of the data ports to operate.

NOTE: *The alarm feature functions with all protocols except Cascade.*

5. Press Enter to advance to the next port. If no changes are required to that port, press Enter.
6. Press F8 to save the changes and exit the window.
7. Press F5. The Set Port Polling window appears.
8. Type **ON** to begin polling the TL1 ports to see if they are operating.

NOTE: *The polling feature functions only if the protocol on the port is TL1. Polling is automatic for X.25, SP, or PS protocols.*

9. Press Enter to advance to the next port. If you do not want to change the status of a port, just press Enter.
10. Press F8 to save the changes and exit the window.
11. Press F8 to save the Virtual Access Interface Configuration and return to the X.25 System menu.

Here are descriptions of the Virtual Access Interface Configuration fields:

PVC LCN - Use this circuit to inquire about the status of the 46095 LinkMaster and to report alarm messages.

The PVC LCN must be defined in the LCN Assignment table and it must not be used anywhere else. The LCNs are listed in the default box.

When entering a PVC LCN, the following message might appear at the bottom of the screen: "That channel is currently being used." It means the PVC LCN selected is being used on another port.

SVC Address1 - This is the SVC address of a remote device that the 46095 LinkMaster will call to report alarm messages.

SVC Address2 - This is the SVC address of a second remote device that the 46095 LinkMaster will call to report alarm messages.

SID - This is the Source IDentification of the 46095 LinkMaster.

SVC Calling Address - This is the local address that identifies the 46095 LinkMaster when it transmits messages to SVC addresses 1 and 2 listed above. It also is the remote address that can be used to call the 46095 LinkMaster over an SVC to inquire about the module's status.

CONTINUED . . .

X.25 SYSTEM DEFINITION

Polling Frequency - This is how often (in minutes) that the 46095 LinkMaster will send a retrieve header command to the asynchronous TL1 ports to see if they are still operating. Polling will be done only if the polling feature is ON in the Set Port Polling window (press F5). If a port is not operating, an alarm will be sent if the alarm feature is ON in the Set Port Alarms window (press F4).

LINE ITEM CHANGE

Use the Line Item Change option to modify the LinkMaster's database. This option is used when the module is operating and it is necessary to add or change information in the module's database. The changes are downloaded to the module without interfering with its operation.

Example: A database has been configured and downloaded for five ports. A sixth port is now being added. It is inconvenient to configure the sixth port and halt the operation of the 46095 LinkMaster to download the configuration for all six ports. The Line Item Change option configures the database for the sixth port and downloads only that information on the sixth port to the module. The configuration for the five ports previously downloaded is not changed.

LCN ASSIGNMENT

The *Lcn Assignment* option of the X.25 Line Item Change menu allows the addition or change of information in the LCN Assignment table. Refer to the ***LCN Assignment*** section in this chapter for instructions and explanations about this table.

DATA PORTS

The *Data Ports* option of the Line Item Change menu allows the addition or change of information in the database for the eight data ports. Refer to the ***Data Ports*** section in this chapter for instructions and explanations.

DOWNLOADING LINE ITEM CHANGES

Only the line item changes that have been made will be downloaded to the 46095 LinkMaster.

To download a line item change:

1. In the X.25 System Menu, select *Transfer*.
2. Press Enter.
3. In the *Option* field of the X.25 Transfer window, type **L**.
4. Press Enter.

CONTINUED . . .

X.25 SYSTEM DEFINITION

5. If the 46095 LinkMaster has a password, type it and press Enter. If there is no password, just press Enter.
6. After line item changes are downloaded, save the changes to the Line Item Change database if the same download may be needed again. Delete the changes if they will not be needed again.

DELETING LINE ITEM CHANGES

To delete line item changes:

1. In the X.25 System Menu, select *Transfer*.
2. Press Enter.
3. In the *Option* field of the X.25 Transfer window, type **X**.
4. Press Enter.

NOTE: *This deletes only the Line Item Change database. It does not alter the database in the 46095 hardware module or other parts of the database configuration in the T/Shell program. Use the empty database to create a new line item change.*

CAUTION: *If line item changes are not deleted, the Line Item Change database accumulates all the line item changes made.*

TRANSFER

Use the Transfer option to do the following:

- ◆ Download the 46606 operating software to a 46095 LinkMaster.
- ◆ Download the selected database configuration to the same 46095 LinkMaster.
- ◆ Download line item changes to the database in a 46095 LinkMaster.
- ◆ Upload a T/Shell database configuration from a 46095 LinkMaster.

X.25 SYSTEM DEFINITION

Here is the X.25 Sync Edit screen with the X.25 Transfer window:



Before beginning the transfer process:

1. Press Alt-F9 to check the communications parameters. Refer to the chapter on **X.25 Parameters** for descriptions of the parameters.
2. Check the address of the 46095 LinkMaster. The address is shown in the X.25 Sync Edit screen. Press F10 to exit the X.25 Transfer window and display the full X.25 Sync Edit screen.

NOTE: *When downloading, the back-end operating software must be downloaded first, followed by the front-end operating software, and finally by the T/Shell database configuration.*

The operating software does not have to be re-downloaded prior to replacing an existing database configuration.

To transfer files over a modem:

NOTE: *If RTS/CTS or DTR/DSR modem control settings are needed, press F10 to exit the X.25 Transfer window, select Modem Control from the X.25 System menu, use the Tab key to select a choice, and press Enter.*

1. Press F1. Use only a Hayes™-compatible modem. The dial type (pulse or tone) is selected from the *System Parameters* option of the Master Menu.
2. Enter the telephone number.
3. Press Enter.
4. After the other end answers, you may download operating software. You also may upload or download a T/Shell database configuration. See instructions below.
5. F2 hangs up the modem when the transfer is complete.
6. End of this procedure.

X.25 SYSTEM DEFINITION

DOWNLOADING OPERATING SOFTWARE

NOTE: *If the 46606 operating software has not been installed in the TSHELL directory (or the directory listed in the X.25 Data Path), you must exit the Asynchronous/Synchronous Multi-Port PAD Editor program and return to the DOS prompt.*

Before uploading, downloading or changing a line item, and if the data files were created with the earlier 46513 Asynchronous/Synchronous Multi-Port X.25 Editor, make sure that the 46606 software is using data from the latest version of the 46513 software. If the 46606 software reports a compatibility error message and the latest version of the 46513 software cannot be found, call Dantel Field Service.

To install the operating software:

1. Insert the 46606 disk into the computer.
2. Log onto the drive in which the disk is inserted.
3. Type:
COPY[space]*.*[space]C:\TSHELL (or the directory listed in the data path).
4. Press Enter.
5. After the files are copied, return to the Asynchronous/Synchronous Multi-Port PAD Editor program.

To download the operating software:

1. At the *Option* field, type **B**.
2. Press Enter.
3. A list of back-end operating software files appears. Normally there is only one file. Press the Enter key to download it to the 46095 LinkMaster.

NOTE: *If there is more than one file, select the X25VXXX.ABS file. If there is more than one X25VXXX.ABS file, choose the one with the highest number where the Xs are.*

4. After the back-end operating software is downloaded, type **F** at the *Option* field.
5. Press Enter.
6. The front-end operating software file, PROFLASH.HEX, appears. Press Enter to download it to the 46095 LinkMaster.
7. End of this procedure.

X.25 SYSTEM DEFINITION

DOWNLOADING THE T/SHELL DATABASE CONFIGURATION

NOTE: *The selected database configuration is the one that will be downloaded to the 46095 LinkMaster. If there is a database configuration already in the 46095 LinkMaster, the configuration is erased when the new one is downloaded.*

To download the database configuration:

1. At the *Option* field, type **D**.
 2. Press Enter.
 3. If the 46095 LinkMaster has a password, type it and press Enter. If there is no password, just press Enter.
-

UPLOADING A T/SHELL DATABASE CONFIGURATION

NOTE: *The database in the 46095 LinkMaster will be uploaded into the currently selected database configuration. All database definitions in the currently selected database will be replaced by those in the 46095 LinkMaster.*

To upload a database configuration:

1. At the *Option* field, type **U**.
 2. Press Enter.
 3. A warning appears advising that the data to be uploaded will overwrite any data in the computer in the selected database. Type **Y** or **N** and press Enter to continue.

If you are about to overwrite a database configuration that you want to keep, exit the Transfer window, choose *Select X.25* from the X.25 System menu, and create a new database.
 4. If the 46095 LinkMaster has a password, type it and press Enter. If there is no password, just press Enter.
-

DOWNLOADING T/SHELL LINE ITEM CHANGES

NOTE: *The selected database configuration is the one that will be downloaded to the 46095 LinkMaster.*

To download line item changes:

1. At the *Option* field, type **L**.
 2. Press Enter.
-

CONTINUED . . .

X.25 SYSTEM DEFINITION

3. If the 46095 LinkMaster has a password, type it and press Enter. If there is no password, just press Enter.
4. After line item changes are downloaded, save the changes to the Line Item Change database if the same download may be needed again. Delete the changes if they will not be needed again.

DELETING T/SHELL LINE ITEM CHANGES

NOTE: *The selected database configuration is the one that will be downloaded to the 46095 LinkMaster.*

To download the database configuration:

1. At the *Option* field, type **X**.
2. Press Enter.

NOTE: *This deletes only the Line Item Change database. It does not alter the database in the 46095 hardware module or other parts of the database configuration in the T/Shell program. Use the empty database to create a new line item change.*

CAUTION: *If the line item changes are not deleted, the Line Item Change database will accumulate all the line item changes that you make.*

DATA TRANSFER OVER THE NETWORK

The databases in 46095 LinkMasters can be managed with this T/Shell program over the X.25 network.

NOTE: *The databases of LinkMaster modules can be managed with the T/Shell program or by using the Virtual Access Interface to send a set of predefined commands over the X.25 network. Refer to Fig. 2.*

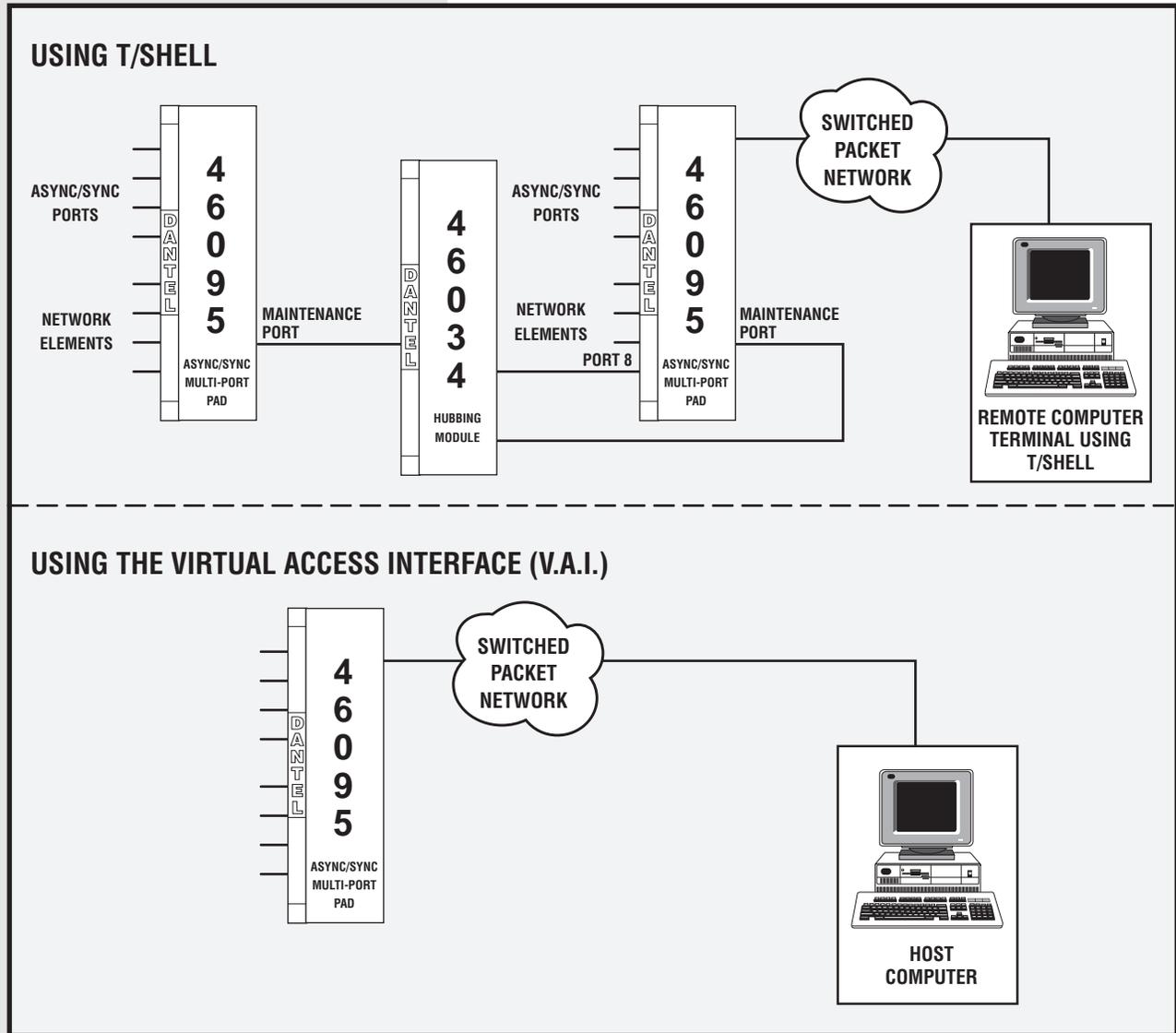
The 46095 LinkMasters initially must be set up at the site where they are installed. The operating software and database configuration must be downloaded from a computer connected directly to the printer (maintenance) port of each module.

Once the 46095 LinkMasters are operating, changes to their databases can be made remotely using the line item download. When the module connected to the X.25 network is initially configured, it is necessary to configure one port (in this case, port 8) to a PVC or SVC that goes to the remote computer.

X.25 SYSTEM DEFINITION

When changing a database remotely, the data goes to the 46095 LinkMaster connected to the network and is sent out port 8 to the Hubbing Module. The Hubbing Module routes the data to the printer (maintenance) ports of all the 46095 LinkMasters. Only the 46095 LinkMaster with the correct address will accept the changes. Refer to Fig. 2.

FIG. 2 - DATA TRANSFER DOWNLOAD VIA THE NETWORK LINK



X.25 SYSTEM DEFINITION

REPORTS

Use the Reports option to generate reports on how the ports of the 46095 LinkMaster are configured. The reports can be sent to either the screen, a file or a printer.

Here is the X.25 Sync Edit screen for reports:



To generate a report:

1. In the *Output to* field, type **F** for file, **P** for printer, or **S** for screen.
2. Press Enter.

CAUTION: *When a printer is the destination, an error message appears if there is no printer connected to your computer or if the printer is not turned on. If the error message appears, press any key to continue. The computer exits the program and returns to the Master Menu.*

When a file is selected as the destination of a report, enter a DOS file name. If no file name extension is entered, the extension .LST is automatically appended. The file will be sent to the destination specified in the *Rpt Path* of the *X.25 Parameters* option. Refer to the chapter on *X.25 Parameters*.

X.25 SYSTEM DEFINITION

DATA PORT PROTOCOL AND LCNs

Here is an example of a Data Port Protocol and LCNs report on the screen:

```
System ID : DANTEL Desc: X.25 Sync Edit Page 2
Data Port Protocol and LCNs
Port Protocol LCN1 LCN2 LCN3 LCN4 LCN5 LCN6 LCN7 LCN8
Protocol LCN9 LCN10 LCN11 LCN12 LCN13 LCN14 LCN15 LCN16
Protocol LCN17 LCN18 LCN19 LCN20 LCN21 LCN22 LCN23 LCN24
Protocol LCN25 LCN26 LCN27 LCN28 LCN29 LCN30 LCN31 LCN32
1 X25 1 2
X25
X25
X25
2 X25 1 2
X25
X25
X25
3 TL1 1
F10/Esc = Exit, Any Other Key to See Next Page [DANTEL]
```

SVC ADDRESSES

Here is an example of an SVC Addresses report on the screen:

```
System ID : DANTEL Desc: X.25 Sync Edit Page 5
SVC Address(es)
P P SVC1 SVC2 SVC3 SVC4
O R SVC5 SVC6 SVC7 SVC8
R O SVC9 SVC10 SVC11 SVC12
T T SVC13 SVC14 SVC15 SVC16
O SVC17 SVC18 SVC19 SVC20
C SVC21 SVC22 SVC23 SVC24
O SVC25 SVC26 SVC27 SVC28
L SVC29 SVC30 SVC31 SVC32
1 X25 *****
X25
X25
X25
X25
X25
X25
X25
F10/Esc = Exit, Any Other Key to See Next Page [DANTEL]
```

X.25 SYSTEM DEFINITION

TRANSLATION TABLE

Here is an example of a Translation Table report on the screen:

```

System ID : DANTEL Desc: X.25 Sync Edit Page 9
Translation Table
Port Protocol LCN1 LCN2 LCN3 LCN4 LCN5 LCN6 LCN7 LCN8
Protocol LCN9 LCN10 LCN11 LCN12 LCN13 LCN14 LCN15 LCN16
Protocol LCN17 LCN18 LCN19 LCN20 LCN21 LCN22 LCN23 LCN24
Protocol LCN25 LCN26 LCN27 LCN28 LCN29 LCN30 LCN31 LCN32

1 X25 3 2 **** **** **** **** **** ****
X25 **** **** **** **** **** **** **** ****
X25 **** **** **** **** **** **** **** ****
X25 **** **** **** **** **** **** **** ****

2 X25 4 1001 **** **** **** **** **** ****
X25 **** **** **** **** **** **** **** ****
X25 **** **** **** **** **** **** **** ****
X25 **** **** **** **** **** **** **** ****

F10/Esc = Exit, Any Other Key to See Next Page [DANTEL]
  
```

SVC POOL TABLE

Here is an example of a SVC Pool Table report on the screen:

```

System ID : DANTEL Desc: X.25 Sync Edit Page 10
SVC POOL Table
Port Protocol LCN1 LCN2 LCN3 LCN4 LCN5 LCN6 LCN7 LCN8
Protocol LCN9 LCN10 LCN11 LCN12 LCN13 LCN14 LCN15 LCN16
Protocol LCN17 LCN18 LCN19 LCN20 LCN21 LCN22 LCN23 LCN24
Protocol LCN25 LCN26 LCN27 LCN28 LCN29 LCN30 LCN31 LCN32

1 X25
X25
X25
X25

2 X25 65 66 67 68 69 70 71 72
X25
X25
X25

F10/Esc = Exit, Any Other Key to See Next Page [DANTEL]
  
```

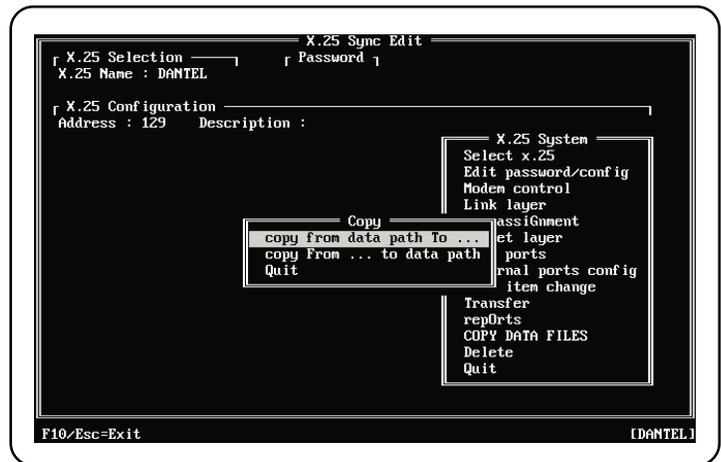
X.25 SYSTEM DEFINITION

COPY DATA FILES

Use the Copy Data Files to copy the files associated with the selected database configuration for the following purposes:

- ◆ To back up the files.
- ◆ To transfer the files to another computer.
- ◆ To use the files as the basis for creating a new database configuration.

Here is the X.25 Sync Edit screen with the Copy menu:

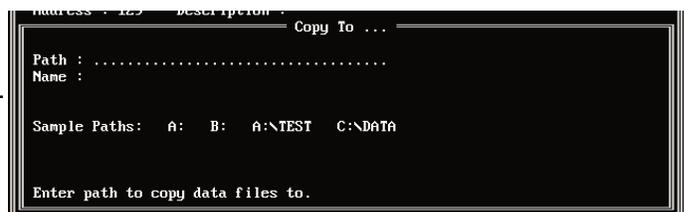
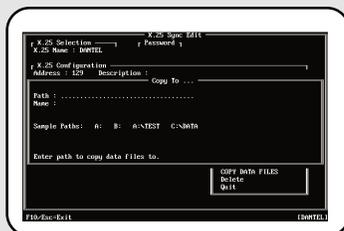


COPY To

To copy a file to another location:

1. Highlight *Copy From Data Path To ...*
2. Press Enter.

Here is the Copy To ... window:



CONTINUED . . .

X.25 SYSTEM DEFINITION

3. In the *Path* field, enter the destination drive and path where the currently selected database configuration is to be copied.
4. Press Enter.
5. The *Name* field defaults to the current name. To change the name, type a new one.

NOTE: *When copying a configuration from one location to another, renaming the configuration is not necessary. Copying a configuration from one location to the same location (such as to use a configuration as the basis for creating a new one), requires that the new configuration be renamed.*

6. Press Enter.
7. To start the copying process, press Enter.

NOTE: *The configuration files are being copied, not moved; therefore, the files being copied are not being erased from their original location.*

COPY FROM

To copy a file from another location:

1. Highlight *Copy From ... To Data Path*.
2. Press Enter.

Here is the Copy From ... window:



3. In the *Path* field, enter the drive and path containing the current database configuration.
4. Press Enter.
5. In the *Name* field, enter the system name of the database configuration to be copied.
6. Press Enter.
7. In the *Password* field, enter the system name's password if there is one.
8. Press Enter.

CONTINUED . . .

X.25 SYSTEM DEFINITION

9. The *New Name* field defaults to the same name as shown in the Name field. To change the name, type a new one.

NOTE: *When copying a configuration from one location to another, renaming the configuration is not necessary. Copying a configuration from one location to the same location (such as to use a configuration as the basis for creating a new one), requires that the new configuration be renamed.*

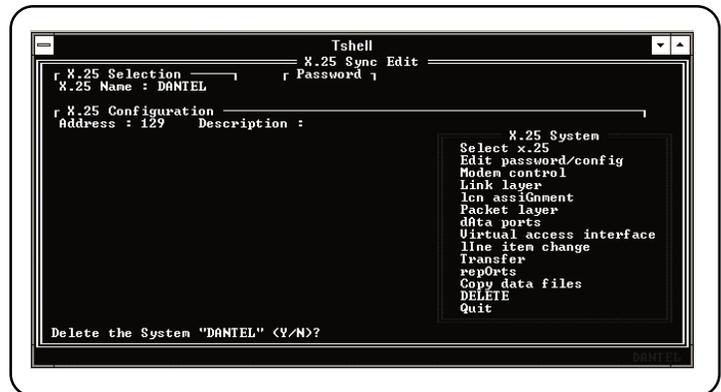
10. Press Enter.
11. To start the copying process, press Enter.

NOTE: *The configuration files are being copied, not moved; therefore, the files being copied are not being erased from their original location.*

DELETE

Use the Delete option to erase the currently selected database configuration from the computer.

Here is the screen:



When initiating this command, a warning message appears at the bottom left corner of the screen. An example of the warning message is shown below.

Delete the System "DANTEL" (Y/N)?

Type **Y** (Yes) to delete the database configuration. Type **N** (No) to cancel the deletion command.

WARNING: *This command erases all references to the configuration.*

X.25 PARAMETERS

Use the X.25 Parameters option of the X.25 Module menu to select the communications parameters for uploading and downloading T/Shell database configurations, downloading the 46606 operating software to 46095 LinkMasters, and specifying where to store reports on database configurations on your computer.

Here is the X.25 Sync Edit Parameters window:



To change the parameters:

1. Enter the desired value.
2. Press Enter.

If no changes are needed to a value at a particular field, press Enter to advance to the next field.

If some fields have been changed and all the remaining fields are acceptable, press F8 to save the changes and return to the X.25 Module menu.

At the last field (Rpt Path), if the value is changed, press Enter to save all changes to the system parameters. If it is not changed, press Enter or F8 to save any other changes to the system parameters. The X.25 Module menu appears.

Here are descriptions of each parameter:

Com Port - Specifies which communications port to use when downloading operating software or database configurations to 46095 modules. Acceptable entries are 1 - 4. This field defaults to 1.

WARNING: *If a communications port that your computer does not have is chosen, the T/Shell program locks up when the computer tries to use that port and you must reboot your computer.*

CONTINUED . . .

X.25 PARAMETERS

Baud - Sets the baud rate for the communications port. Acceptable baud rates are 110, 150, 300, 600, 1200, 2400, 4800, 9600, 19 (19,200), 38 (38,400), and 115 (115,200). This field defaults to 9600.

Parity - Sets the parity for the communications port. Acceptable values are E)ven, O)dd, N)one. This field defaults to N)one.

Stop Bits - Sets the number of stop bits for the communications port. Acceptable values are 1 or 2. This field defaults to 1.

Timeout - Sets the amount of time in milliseconds that the computer waits for the device at the other end of the communications line to acknowledge that it is ready to receive data. Acceptable values are 50 - 9999 milliseconds. This field defaults to 3000 milliseconds (3 seconds).

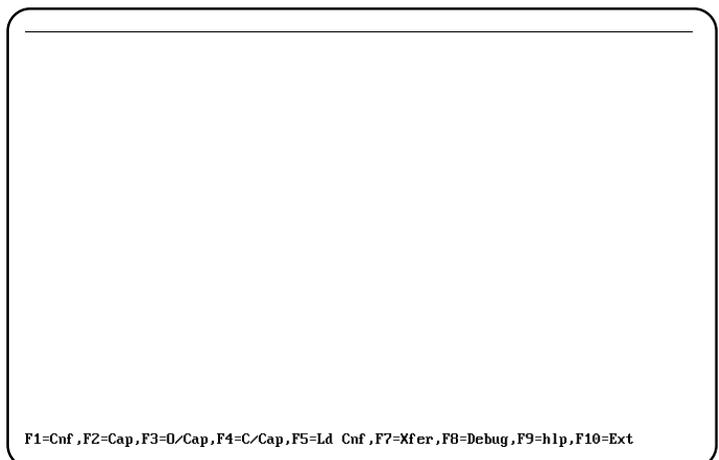
Resend Max - Specifies the number of resends that the computer attempts before declaring a "Com Port Error" when trying to upload or download data. Acceptable values are 1-100. This field defaults to 20.

Rpt Path - Specifies the drive and directory that the computer is to use to store any reports that are sent to a file. For more information, see the *Reports* section of the *X.25 System Definition* chapter. This field defaults to the current directory.

TERMINAL EMULATION

The Terminal option of the X.25 Module menu activates the terminal emulator that imitates a dumb terminal's monitor. The purpose of this mode is to allow direct communications with another device.

The terminal emulator screen is blank except for the bottom line, which displays the available command keys. Here is the screen:



TERMINAL EMULATION

Below is a brief description of the function of each command key. More detailed information is provided in other sections of this chapter.

F1 - Edit Terminal Configuration (Cnf) - Configures how the terminal emulator communicates with another device. Also programs function keys to playback a lengthy string of characters that may constitute a command, an often used phrase, etc.

F2 - Toggle Capture File (Cap) - Starts and stops the capturing of data received by the terminal. The data then can be reviewed at a later time.

F3 - Open Capture File (O/Cap) - Opens a capture file.

F4 - Close Capture File (C/Cap) - Closes a capture file.

F5 - Load Configuration File (Ld Cnf) - Changes the current terminal configuration to a new configuration.

F7 - Download File Transmission (Xfer) - Transfers (downloads) a DOS file from your computer to another device.

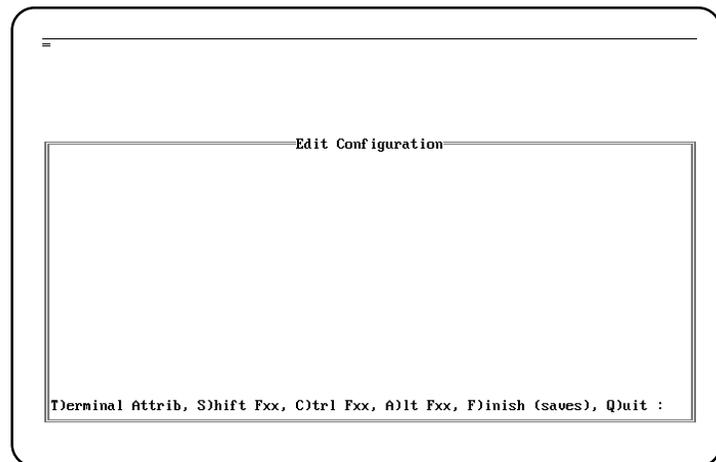
F8 - Toggle Protocol Analyzer/Debug (Debug) - Activates and deactivates a protocol analyzer for troubleshooting problems of the device connected to the terminal emulator.

F9 - Help Message (hlp) - Displays on-line help.

F10 - Exit Terminal Emulator (Ext) - Exits the terminal mode and returns to the 40 MAP Editor Module menu.

EDIT TERMINAL CONFIGURATION

Press F1 from the main terminal emulator screen to select the terminal configuration option. The Edit Configuration window appears:



TERMINAL EMULATION

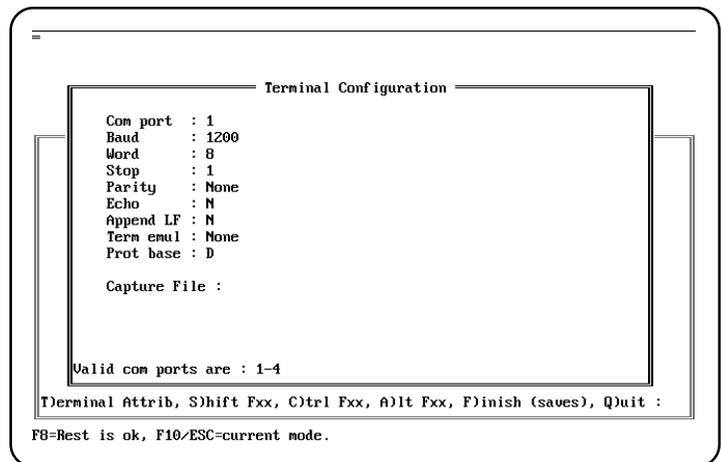
Options include:

- ◆ Change the terminal's configuration for communicating with another device. See **Terminal Attributes** in this section.
- ◆ Program the function keys. See **Shift Fxx**, **Ctrl Fxx**, and **Alt Fxx** in this section.
- ◆ Create a file to save the changes made in the two items above. See **Finish** in this section.

TERMINAL ATTRIBUTES

To change the terminal configuration:

1. Type **T**. The terminal configuration window appears:



2. Enter the desired value.
3. Press Enter.

If no change is required to a value at a particular field, press Enter to advance to the next field.

If some fields have been changed and all the remaining fields are acceptable, press F8 to return to the Edit Configuration window.

At the last field (Prot base), press Enter after making a change to the terminal attributes. If you do not change the value of the protocol base, press Enter or F8 to make any other changes to the system parameters.

If you change the default settings, the changes remain in effect until you change them again or you exit the program to the Master Menu. When you return to the Master Menu, the computer automatically restores the default settings.

To save these changes, refer to section **Finish**, later in this chapter.

TERMINAL EMULATION

Here is a description of each parameter:

Com Port - Specifies which communications port to use. Acceptable entries are 1 - 4. This field defaults to 1.

NOTE: *The terminal emulator can use the same communications port that the T/Shell software uses for its external communication.*

Baud - Specifies the baud rate for the communications port. Acceptable baud rates are 110, 150, 300, 600, 1200, 2400, 4800, 9600, 19 (19,200), 38 (38,400), and 115 (115,200). This field defaults to 1200.

Word - Specifies the number of word bits for the communications port. Acceptable values are 7 and 8. This field defaults to 8.

Stop - Specifies the number of stop bits for the communications port. Acceptable values are 1 and 2. This field defaults to 1.

Parity - Specifies the parity for the communications port. Acceptable values are E)ven, O)dd, N)one. This field defaults to None.

Echo - Specifies how the terminal emulator communicates. Acceptable values are Y)es, echo (results in half duplex operation) and N)o, don't echo (results in full duplex operation). This field defaults to N.

Append LF - Tells the computer whether to add a linefeed when it receives an Enter (CR or carriage return) command. Acceptable values are Y)es, append a linefeed character after Enter and N)o, don't append a linefeed after Enter. This field defaults to N.

Term Emul - Selects the specific type of terminal the computer emulates. Partial emulation of ADDS Viewpoint functions is available by selecting A. The available ADDS Viewpoint functions are clear screen, clear to the end of line, and cursor positioning. Select N (none) for no terminal emulation. This field defaults to None.

Prot Base - Specifies the number base that the Debug Mode uses to display data. Acceptable values are D (decimal) and H (hexadecimal). This field defaults to D.

Capture File - Displays the name and status of a capture file if one is open.

NOTE: *Capture File parameters cannot be changed while editing the terminal configuration.*

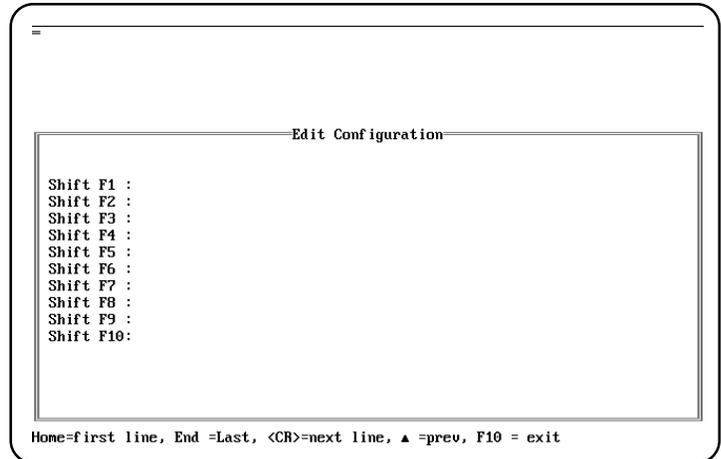
TERMINAL EMULATION

SHIFT FXX

Use the S)hift Fxx option to define text strings that can be played back when you press the Shift key and one of the function keys simultaneously.

To program the Shift and function keys:

1. Type **S**. This screen appears:



2. Enter a string of characters, up to a maximum of 56 characters. An Enter can be included as part of the string by entering Ctrl-M.
3. Press Enter.
Press Enter to skip one function key and move to the next field.
Press F10 to skip all function keys and return to the Edit Configuration window.
At the last field (Shift F10), the Edit Configuration window appears when you press Enter.
4. To save these changes, refer to section **Finish**.

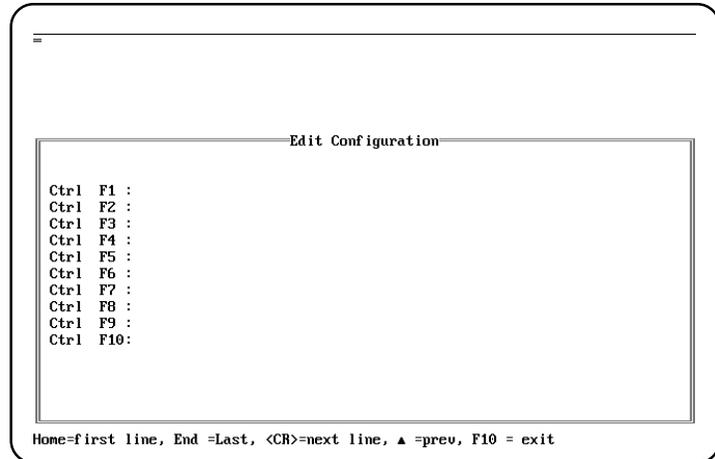
TERMINAL EMULATION

CTRL FXX

Use the Ctrl Fxx option to define text strings that can play back when the Ctrl key and one of the function keys are pressed simultaneously.

To program the Ctrl and function keys:

1. Type **C**. This screen appears:



2. Enter a string of characters, up to a maximum of 56 characters. An Enter can be included as part of the string by entering Ctrl-M.
3. Press Enter.
Press Enter to skip one function key and move to the next field.
Press F10 to skip all function keys and return to the Edit Configuration window.
At the last field (Shift F10), the Edit Configuration window appears when you press Enter.
4. To save these changes, refer to section **Finish**.

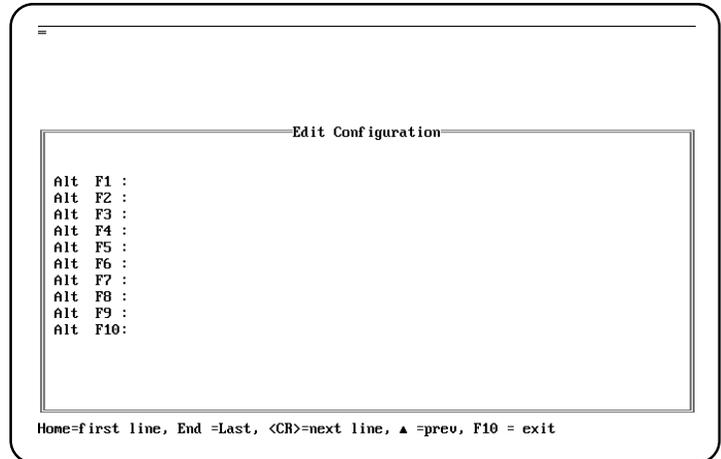
TERMINAL EMULATION

ALT Fxx

Use the Alt Fxx option to define text strings that can play back when the Alt key and one of the function keys are pressed simultaneously.

To program the Alt and function keys:

1. Type **A**. This screen appears:



2. Enter a string of characters, up to a maximum of 56 characters. An Enter can be included as part of the string by entering Ctrl-M.
3. Press Enter.
Press Enter to skip one function key and move to the next field.
Press F10 to skip all function keys and return to the Edit Configuration window.
At the last field (Shift F10), the Edit Configuration window appears when you press Enter.
4. To save these changes, refer to section **Finish**.

TERMINAL EMULATION

FINISH

Use the Finish options to save changes to the terminal configuration. There are two options:

- ◆ A file can be created that replaces the default settings with new default settings. The default settings are those the computer uses for the terminal configuration whenever the Terminal Emulator is entered from the Master Menu. The initial default settings are listed under *Terminal Attributes* in this section.
- ◆ A file can be created that can be used later but does not change the default settings.

To create a file that *does* change the default settings:

1. Make the changes as described under *Terminal Attributes* in this section.
2. Make the changes as described under *Shift Fxx*, *Ctrl Fxx*, and *Alt Fxx* in this section.
3. Type **F** when you are in the Edit Configuration window.
4. Type the file name **TERM**.
5. Press Enter. The new settings are now the defaults for the terminal configuration whenever the Terminal Emulator is entered from the Master Menu.

To create a file that *does not* change the default settings:

1. Make the changes as described under *Terminal Attributes* in this section.
2. Make the changes as described under *Shift Fxx*, *Ctrl Fxx*, and *Alt Fxx* in this section.
3. Type **F** when you are in the Edit Configuration window.
4. Type a valid DOS file name without an extension. The extension **.CNF** is automatically appended to the name.
5. Press Enter.

Whenever the Terminal Emulator is entered from the Master Menu, the initial default settings are still used for the terminal configuration. To change the default settings using the file that you just created:

1. Press F5 (Ld Cnf) from the main terminal emulator screen.
2. Enter the name of the file.
3. Press Enter. The settings in the file are now the defaults. They remain active until you change the settings, load a different terminal configuration file, or exit the program to the Master Menu.

TERMINAL EMULATION

CAPTURE FILE

The capture file stores data that is displayed on the computer screen. The F2 (Cap), F3 (O/Cap) and F4 (C/Cap) keys control the capture of displayed data into a capture file.

CAPTURING DATA

To capture data:

1. Press F3 (O/Cap) to open a file for storing captured data.
2. Enter a file name. This can be any valid DOS file name and can include the optional three character file extension. If no file extension is specified, the terminal emulator will append the .CAP extension automatically.
3. Press Enter.
4. The word "off" appears in the lower right corner of the screen. This indicates that a capture file is open but is not capturing data. To activate the capture file, press F2 (Cap). The capture status of the word "on" indicates that data is being captured.
5. To end the screen capture, save the data, and close the file press F4.

The maximum amount of data that can be stored in one capture file is 16 kilobytes. This is the contents of approximately eight screens. When the file is full, new data will overwrite old data. To capture more than 16 kilobytes of data, close the file after about eight screens of data have been captured and open another file.

If you want to temporarily suspend the capture operation, press F2 (Cap). The capture status in the lower right corner changes to "off." At this point, the capture file is still open but is inactive. Incoming data is still received, but it is not recorded. To reactivate the capture, press the F2 key again. The capture status changes to "on."

VIEWING A CAPTURE FILE

To review a captured file, the computer must be in DOS. The file may be reviewed by using any text editor that accepts files in standard ASCII format.

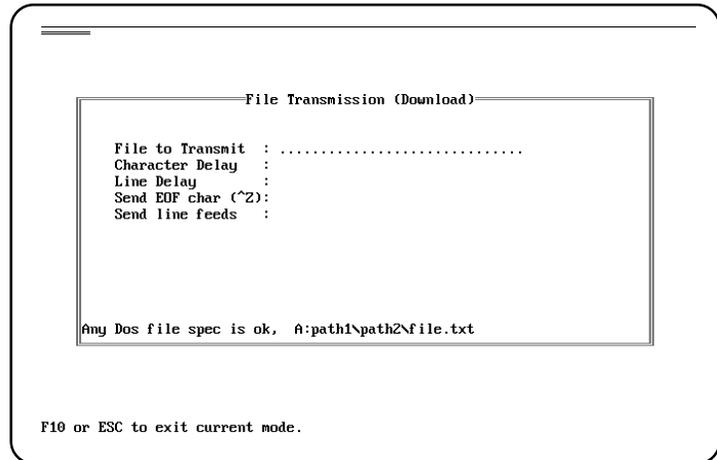
LOAD CONFIGURATION

For information about this option, see *Finish* in the *Edit Terminal Configuration* section.

TERMINAL EMULATION

FILE DOWNLOAD

Press F7 from the main terminal emulator screen to select the file download option. Here is the File Transmission (Download) window:



To download a file:

1. Enter the values for each field.
2. Press Enter. File transmission will begin after pressing Enter at the *Send Line Feeds* prompt.

During transmission, the screen is blank except for a status line at the bottom of the screen. The message in the status line indicates the name of file being transferred and the number of bytes transferred so far.

To terminate the file transmission, press either Esc or F10. Control returns to the terminal emulator upon completion of the file transmission.

Here are descriptions of the File Transmission fields:

File to Transmit - This is the disk drive, path, and filename designation of the DOS file that is to be transferred. For example, to transfer a file named MYFILE.DAT, stored on disk drive A: in directory NEWDIR, enter the following command:

A:\NEWDIR\MYFILE.DAT and press Enter (See your DOS manual for more information on directories and file names.)

Character Delay - This parameter is the amount of time, in milliseconds, that the computer waits between the characters it transmits. The acceptable range is 0-500 milliseconds (one-half second). This field defaults to 0 (zero).

Line Delay - This is the amount of time, in milliseconds, that the computer waits between the lines it transmits. The acceptable range is 0 (zero) to 999 milliseconds. This field defaults to 0 (zero).

NOTE:

Use the Edit Configuration screen to set the data transmission parameters. To access this screen, press the F1 key. Before you attempt a file download, verify that the terminal configuration parameters are compatible with those of the device that will be receiving the data.

TERMINAL EMULATION

Send EOF Char (^Z) - This parameter controls whether the computer transmits an end-of-file (Ctrl Z) character at the end of a DOS file. Acceptable responses are Y (yes) or N (no). The Send EOF Char defaults to N.

Send Line Feeds - This is the parameter that controls whether the computer transmits line feeds at the ends of lines. Acceptable responses are Y (yes) or N (no). The Send Line Feeds defaults to N.

DEBUG MODE (PROTOCOL ANALYZER)

To toggle the debug mode on and off, press F8 from the main terminal emulator screen. It is used for troubleshooting equipment connected to the terminal emulator. When the debug mode is on, data displays beginning at the current cursor position. The ASCII values of any bytes received display rather than the characters themselves. Data can be displayed in either decimal or hexadecimal format. The default display mode is decimal.

To change the display mode setting:

1. Press F1 (Cnf) from the main terminal emulator screen.
2. Type T.
3. Change the *Prot Base* parameter in the Terminal Configuration window.

PRINTER SYNTAX

To monitor and maintain of the 46095 LinkMaster, use Printer Syntax.

GETTING STARTED

Two methods for communicating with the LinkMaster units exist: Printer Syntax Mode and DCPF Addressing Mode.

PRINTER SYNTAX MODE

To use Printer Syntax commands to communicate directly with the 46095 LinkMaster, DIP switch S2-7 must be in the ON position (down). A dumb terminal or the T/Shell Terminal Emulator can then be used to communicate with the 46095 LinkMaster. Refer to Table C for DIP switch settings.

PRINTER SYNTAX

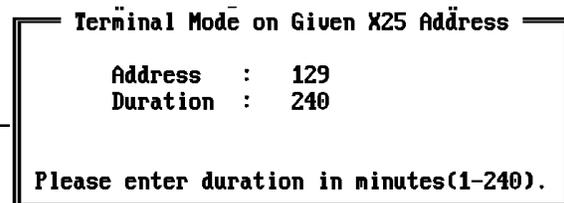
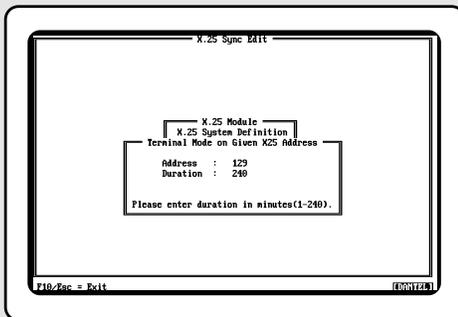
DCPF ADDRESSING MODE

The Switch command in the 46606 Asynchronous/Synchronous Multi-Port X.25 Interface Editor software allows communication with a 46095 LinkMaster whose Printer port is configured for DCPF addressing.

To use the DCPF addressing mode:

NOTE: Be sure the 46095 LinkMaster has the S2-7 DIP switch in the OFF (default) position. Verify that the baud of the computer (refer to the X.25 Parameters chapter) is the same as switch settings S1-7 and S1-8 on the 46095 LinkMaster.

1. Start the 46606 software program.
2. Select the *X25sync Editor* option from the Master Menu.
3. Press F2. The Terminal Mode on Given X25 Address window appears:



4. In the *Address* field, enter the address of the 46095 LinkMaster with which you want to communicate. Acceptable values are 129-192. The address must be the same as the address of the 46095 LinkMaster as set by switches S2-1 through S2-6.
5. Press Enter.
6. In the *Duration* field, enter the length of time that you want to remain in the Printer Syntax mode. Acceptable values are 1-240 minutes. At the end of the time period, the mode returns to DCPF.
7. Press Enter.
8. Communicate with the 46095 LinkMaster using the commands in this chapter.

PRINTER SYNTAX

ENTERING COMMANDS

To execute a command, type the command on the terminal and press Enter. A "X.25>" prompt indicates the LinkMaster is ready to accept a command.

The first command to enter is UNLOCK. This command unlocks the system so the other commands can be entered. Type UNL and press Enter. If there is a password in the system, enter it at the prompt in order to unlock the system. If a password is not in the system, one may be entered at this time. Refer to the Password command in this section.

When a hyphen is used in a command, insert a space on each side of the hyphen. For example: LCN - SHD. When a hyphen is used in a command, a "n" may be shown. Depending upon the application, enter the number of the port or channel number in place of the n character in the command. For example: LCN n SHD could be entered as LCN 5 SHD.

ERROR MESSAGE

If an incorrect command is issued to the system, the message *Invalid Command* appears on the terminal screen. When this happens, enter the correct command.

HELP SCREEN

To display a list of the commands available in the Printer Syntax, type HELP and press Enter.

PRINTER SYNTAX COMMANDS

The following is a list of printer syntax commands available through the 46095 LinkMaster printer port with examples of output responses. After typing a command (Input at Prompt), press Enter.

COLTR ON/OFF

Purpose:

Activates/deactivates the co-locator port.

Input at Prompt:

COLTR ON

COLTR OFF

Output Response:

None

PRINTER SYNTAX

CONF

Purpose:

Displays the system configuration of the 46095 LinkMaster.

Input at Prompt:

CONF

Output Response:

```
PS Time (in seconds) : 0
DCPF Address : 129
TL1 TIME : 93-01-01 12:00:25
SID : DANTEL
Int PVC TL1 : 4095
Svc TL1 (1) = NONE
Svc TL1(2) = NONE
```

DATE (CURRENT DATE)

Purpose:

Displays the current date.

Input at Prompt:

DATE

Output Response:

```
date 15-APR-1996
```

DATE (CHANGE DATE)

Purpose:

Changes the date.

Input at Prompt:

DATE 09-SEP-1993

Output Response:

None

PRINTER SYNTAX

DTE SHD

Purpose:

Displays the current SVC addresses assigned to the synchronous X.25 ports.

Input at Prompt:

DTE SHD

Output Response:

PORTS WITH X25 AND PS PROTOCOL AND THEIR ASSOCIATED SVC ADDRESSES
FORMAT-> OFFSET, ADDRESS, LCN, STATE

PORT 0 :
PORT 1 : (2) 5551000, 0, RESET
 (3) 5552000, 0, RESET
PORT 2 :
PORT 3 :
PORT 4 :
PORT 5 :
PORT 6 :
PORT 7 :
PORT 8 :

DTE SYS

Purpose:

Displays SVC asynchronous port address assignments.

Input at Prompt:

DTE SYS

Output Response:

ADDRESS DISPLAY FORMAT:	DTE.EXTENSION
PORT LOCAL DTE ADDRESS:	5551000.0
3 REMOTE DTE ADDRESS:	7771000.0
PORT LOCAL DTE ADDRESS:	5552000.0
4 REMOTE DTE ADDRESS:	7772000.0

PRINTER SYNTAX

FRM STA

Purpose:

Displays the current link (frame) layer status (layer 2).

Input at Prompt:

FRM STA

Output Response:

Local frame V(s),V(r)	:	1, 1
Local station state	:	Normal data transfer [0]
Remote station state	:	Normal data transfer [0]
Data link state	:	Information transfer [0]
Last ack. frame seq.	:	1
Unack. frame count	:	0

FRM SYS

Purpose:

Displays the current link (frame) layer configuration (layer 2).
This is a key command for link status troubleshooting.

Input at Prompt:

FRM SYS

Output Response:

WINDOW	T1	T2	T3	T4	N1	N2	UNIT_TYPE	OPERATING_MODE
2	3	0.0	12	0	1080	7	DTE(3/A)	NORMAL OPERATION
IDLE LINK DISCONNECTION	:	NOT ALLOWED						
LINK SETUP INITIATOR	:	ACTIVE						
FRM TRANSMITTER BUFFER	:	NOT FULL						
LEVEL 2 LAYER	:	READY						

HELP

Purpose:

Displays available commands.

Input at Prompt:

HELP

CONTINUED . . .

PRINTER SYNTAX

Output Response:

```
***** AVAILABLE COMMANDS *****
DTE :- DTE address table      LCN :- logical channel table
PAD :- port data table        FRM :- link layer attribute table
SWI :- display dip switches   VER :- displays software version
DBG :- diagnostics on/off     MDM :- x25 port modem control
LOC :- lock the system        PKT :- packet layer optional parameters
UNL :- unlock the system      ERR :- errors
DATE :- current date          CONF :- X25 configuration
TIME :- current time          COLTR :- Co-Locator Port on/off
```

LCN - POOL

Purpose:

Displays the pool of available LCNs for each port.

Input at Prompt:

LCN - POOL

NOTE: *Displays all defined ports.*

Input at Prompt:

LCN n POOL

NOTE: *Enter the port number in place of the n character in the command. The range of the port number (n) is between 1 and 8. The port number entered must be defined in the database.*

Output Response:

```
SVC POOLS  {* = Not Available}
PORT # : 1
3 ( )    4 ( )    0 ( )    0 ( )    0 ( )    0 ( )    0 ( )    0 ( )
0 ( )    0 ( )    0 ( )    0 ( )    0 ( )    0 ( )    0 ( )    0 ( )
0 ( )    0 ( )    0 ( )    0 ( )    0 ( )    0 ( )    0 ( )    0 ( )
0 ( )    0 ( )    0 ( )    0 ( )    0 ( )    0 ( )    0 ( )    0 ( )
PORT # : 2
3 ( )    4 ( )    0 ( )    0 ( )    0 ( )    0 ( )    0 ( )    0 ( )
0 ( )    0 ( )    0 ( )    0 ( )    0 ( )    0 ( )    0 ( )    0 ( )
0 ( )    0 ( )    0 ( )    0 ( )    0 ( )    0 ( )    0 ( )    0 ( )
0 ( )    0 ( )    0 ( )    0 ( )    0 ( )    0 ( )    0 ( )    0 ( )
```

PRINTER SYNTAX

LCN - SHD

Purpose:

Displays the LCN Translation Table.

Input at Prompt:

LCN - SHD

NOTE: *Displays all defined ports.*

Input at Prompt:

LCN n SHD

NOTE: *Enter the port number in place of the n character in the command. The range of the port number (n) is between 1 and 8. The port number entered must be defined in the database.*

Output Response:

LCN TRANSLATION TABLE

PORT # : 1

0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0

PORT # : 2

3	4	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0

LCN - STA

Purpose:

Displays the logical channel status.

Input at Prompt:

LCN - STA

NOTE: *Displays all defined channels.*

CONTINUED . . .

PRINTER SYNTAX

Input at Prompt:

LCN n STA

NOTE: *Enter the channel number in place of the n character in the command. The range of the channel number (n) is between 1 and 4,096. The channel numbers entered must be defined in the database.*

Output Response:

```
Tx/Rx Parameters: - RNR:P(s):unack pkts>window:pkt_size
Timers : - timer:remaining time:retransmit count
LCN STATE TYPE  MODE TX PARAMETERS RX PARAMETERS ACTIVE TIMERS
1    d1  PVC   Idle  0:0:0:2:128  0:0:0:2:128      NONE
POOL SIZE 4240 [8320]; LVL3 1 - SYS RESET: 1; NMA: N
```

LCN - SYS

Purpose:

Displays the LCN channel configuration.

Input at Prompt:

LCN - SYS

NOTE: *Displays all defined channels.*

Input at Prompt:

LCN n SYS

NOTE: *Enter the channel number in place of the n character in the command. The range of the channel number (n) is between 1 and 4,096. The channel numbers entered must be defined in the database.*

CONTINUED . . .

PRINTER SYNTAX

Output Response:

```
LOGICAL CHANNEL CONFIG. DATA
Total number of channels =      4
LCN TYPE  CLASS TX-WINDOW TX-PKT RX-WINDOW RX-PKT THROUGHPUT
1   PVC   BOTHWAY 2       128     2       128     1200
2   PVC   BOTHWAY 2       128     2       128     1200
3   SVC   BOTHWAY 2       128     2       128     1200
4   SVC   BOTHWAY 2       128     2       128     1200
```

LOCK

Purpose:

To lock the system. No user interaction is processed until the system is unlocked.

Input at Prompt:

LOCK

Output Response:

```
SYSTEM IS LOCKED!
```

MDM SYS

Purpose:

Displays the current configuration for interfacing with a modem.

Input at Prompt:

MDM SYS

Output Response:

```
MODEM CONTROL SIGNAL STATUS
RTS   CTS   DTR   DSR
OFF   OFF   OUTPUT INPUT
```

PRINTER SYNTAX

PAD - STA

Purpose:

Displays PAD port status.

Input at Prompt:

PAD - STA

NOTE: *Displays all defined ports.*

Input at Prompt:

PAD n STA

NOTE: *Enter the port number in place of the n character in the command.*

Output Response:

PORT CHANNEL	TYPE	STATE
0	0	Not in Service
1	1 (PVC)	DATA FLOW
2	0 (SVC)	Idle
.	.	Not in Service
.	.	Not in Service
8	0	Not in Service

PAD - SYS

Purpose:

Displays the current configuration for the PAD port parameters.

Input at Prompt:

PAD - SYS

NOTE: *Displays all defined ports.*

Input at Prompt:

PAD n SYS

CONTINUED . . .

PRINTER SYNTAX

NOTE: Enter the PAD port number in place of the n character in the command.

PAD - SYS Output Response on Async ports:

```
PORT 0 IS NOT INITIALIZED!
1  BAUD : 9600 RTS/CTS:OFF      PROTOCOL : TL1
   PARITY: NO  XON/XOFF TX:OFF  MSG_SIZE: 128
   DATA : 8   XON/XOFF RX:OFF  TIMEOUT  : 50
   STOP  : 1   EOM: 59, 0, 0, 0
USED LCN(S) : ( 0) 1
PORT 2 IS NOT INITIALIZED!
PORT 3 IS NOT INITIALIZED!
PORT 4 IS NOT INITIALIZED!
PORT 5 IS NOT INITIALIZED!
PORT 6 IS NOT INITIALIZED!
PORT 7 IS NOT INITIALIZED!
PORT 8 IS NOT INITIALIZED!
```

PAD - SYS Output Response on Sync ports:

```
PORT 0 IS NOT INITIALIZED!
1  BAUD: 9600  PROTOCOL: X25    PKT: 512  LVL3: READY
   ADDRESS: DCE  MODE: ACT    WIN: 7   CLOCK: INT  LVL2: READY
   T1 : T2 : T3 : N1 : N2 : : 3 : 0 : 120 : 4152 : 7   T20 : 0
   USED LCN(S): 1   2
2  BAUD: 9600  PROTOCOL: X25    PKT: 512  LVL3: READY
   ADDRESS: DCE  MODE: ACT    WIN: 7   CLOCK: INT  LVL2: READY
   T1 : T2 : T3 : N1 : N2 : : 3 : 0 : 120 : 4152 : 7   T20 : 0
   USED LCN(S): 3   4
PORT 3 IS NOT INITIALIZED!
4  BAUD: 9600  PROTOCOL: X25    PKT: 512  LVL3: READY
   ADDRESS: DCE  MODE: ACT    WIN: 7   CLOCK: INT  LVL2: READY
   T1 : T2 : T3 : N1 : N2 : : 3 : 0 : 120 : 4152 : 7   T20 : 0
   USED LCN(S) : 5   6   7
PORT 5 IS NOT INITIALIZED!
PORT 6 IS NOT INITIALIZED!
PORT 7 IS NOT INITIALIZED!
PORT 8 IS NOT INITIALIZED!
```

NOTE: The last line gives information about the LCNs assigned to the port. For example: ports 1 and 2 have entry 0 (zero) assigned as LCN channel 1.

PRINTER SYNTAX

PAS (WITH NEW PASSWORD ADDED)

Purpose:

Allows entering a password for the first time.

NOTE: *Enter a password of up to 8 characters.*

Input at Prompt:

PAS

Output Response:

```
Enter New Password: **** (enter password)
Re-Enter New Password: **** (verify password)
PASSWORD ACCEPTED!
```

PAS (WITH PASSWORD CHANGE)

Purpose:

Allows changing an existing password to a new password.

NOTE: *Enter a password of up to 8 characters.*

Input at Prompt:

PAS

Output Response:

```
Enter Old Password : **** (enter original pwd)
Enter New Password : **** (enter new password)
Re-Enter New Password: **** (verify new pwd)
PASSWORD ACCEPTED!
```

NOTE: *The password is entered twice to verify that the first entry is the password entry that you intended.*

PRINTER SYNTAX

PKT STA

Purpose:

Displays the system packet layer performance (layer 3).

Input at Prompt:

PKT STA

Output Response:

```
X.25 PERFORMANCE DATA (No. OF PACKETS)
TYPE  SENT RECEIVED  RESET CALL_REQUEST  REJ_RCVD  ERR_DATA_RCVD
1      0      0      0      0      0      0
      HOUR COUNTER : 0
```

PKT SYS

Purpose:

Displays the current packet layer configuration (layer3).

Input at Prompt:

PKT SYS

Output Response:

```
AUTO CALL REQUEST      :REFUSED
EXTENSION ADDRESS CODING METHOD :CCITT X.25 FORMAT
```

SWITCH

Purpose:

Displays settings of switches S1 and S2 on the X.25 section of the 46095 LinkMaster. Switch S1 on the data port expansion section is not used so those switch positions are not shown.

Input at Prompt:

SWI

Input at Prompt:

SWITCH

CONTINUED . . .

PRINTER SYNTAX

Output Response:

	8	7	6	5	4	3	2	1
SW1	1	1	0	0	0	0	0	0
SW2	0	1	0	0	0	0	0	0

TIME (CURRENT TIME)

Purpose:

Displays the current time.

Input at Prompt:

TIME

Output Response:

time 00:00:00

TIME (CHANGE TIME)

Purpose:

Changes the time.

Input at Prompt:

TIME 10:51:57

Output Response:

None

UNLOCK

Purpose:

Unlocks the system so that it will accept commands.

Input at Prompt:

UNL

Output Response:

NO PREVIOUS PASSWORD - SYSTEM IS UNLOCKED!

PRINTER SYNTAX

VERS

Purpose:

Displays the 46095 LinkMaster software version.

Input at Prompt:

VERS or VER

Output Response:

```
Software 46606-02 for unit 46095-00
B A C K   E N D
Software Revision Major 1
Software Revision Minor 0.0
F R O N T   E N D
Software Revision Major 1
Software Revision Minor 0.0
```

VIRTUAL ACCESS/ALARM MESSAGES

The following commands can be used to access the 46095 LinkMaster from the network. The commands and examples of output responses are provided here as a convenient reference. These commands are available from a dumb terminal or using a terminal emulator. Macros may be defined to enter the commands.

The Internal Ports Configuration allows alarms to be sent to the network.

PROVISIONING OVER VIRTUAL ACCESS INTERFACE (VAI) PORT

The ability to provision over the Virtual Access Interface encompass creating an instruction set for the creation and administration of the Multi Port Processor, now known as LinkMaster, database over the high speed X25 network connection.

NOTE: *The 46095 Multi Port Processor is now known as the LinkMaster.*

The LinkMaster units are programmed to recognize these instructions and perform all the necessary changes and updates to its database, thus providing for a way to accomplish database modifications over the network, a feature previous T/shell Sync

VIRTUAL ACCESS/ALARM MESSAGES

Editor software versions lacked. This provides a host with the ability to provision a network of LinkMaster nodes over the X.25 network via a virtual channel.

1. VAI PORT SETUP

Initial setup of the Virtual Access Interface (vai) port requires on-site setup of the LinkMaster unit. The following are steps to follow:

1. Follow the instructions in the T/Shell User's Manual to download the Back End operating software to the Nexcon unit. This is the file with the .ABS extension. This file is located on the program disk.

NOTE: *If there is more than one file, select the X25VXXX.ABS file. If there is more than one X25VXXX.ABS file, choose the one with the highest number where the Xs are.*

2. Follow the instructions in the T/Shell User's Manual to download the Front End operating software to the Nexcon unit. This is the file with .HEX extension. This file is located on the program disk.
3. At the T/Shell "Link Layer" menu option, set up the proper parameters to establish communication over the high-speed X25 link.
4. At the "Lcn Assignment" menu option: If a logical channel number has been selected that is of PVC type to be the vai port, enter it here as a PVC type lcn. If the vai port will be over an SVC connection, enter one or more SVC logical channels for your SVC pool here.
5. At the "Virtual Access Interface" menu option: Designate the PVC logical channel number or the SVC called address here.
6. Follow the instructions in the T/Shell User's Manual to download the database to the Nexcon unit.

Once the database is downloaded, the Link Layer should come up and the X25 LED on the Nexcon Unit should light. If not, recheck the Link Layer parameters for correct settings.

2. VAI PORT INPUT COMMAND FORMAT

Input commands are specified according to the following format:

COMMAND CODE:

ABBREVIATED NAME

PURPOSE:

FULL COMMAND NAME: The purpose of the command is stated in this section.

CONTINUED . . .

VIRTUAL ACCESS/ALARM MESSAGES

INPUT FORMAT:

COMMAND and PARAMETERS: This section gives the body of the commands to include the command verb, modifiers, and all relevant parameter blocks.

verb[-modifier[-modifier]]:[<tid>]:[<pid>]:<ctag>

[:[general block]:[first parameter block]...[:last parameter block]];

<tid> The Target Identifier (TID) that identifies the target LinkMaster unit to which a command is directed.

<pid> The Port Identifier that identifies the targeted port in the LinkMaster unit to which the command pertains.

<ctag> The Correlation Tag (CTAG) used to correlate input and response messages. The valid value of <ctag> is an ASCII identifier limited to a maximum of 6 characters.

RESPONSE FORMAT:

NORMAL RESPONSE:

```
<cr> <lf> <lf>
^^^<rsphdr> <cr> <lf>
M^^<ctag>^COMPLD <cr> <lf>;
<rspblk> * ;
```

ERROR RESPONSE:

```
<cr> <lf> <lf>
^^^<rsphdr> <cr> <lf>
M^^<ctag>^DENY <cr> <lf>
^^^<errcde> <cr> <lf>
(^^^^"<error description>" <cr> <lf>) *
(^^^/*error text*/ <cr> <lf>) * ;
```

Where <errcde> ERROR CODES = One of the following:

ICNV	Input, Invalid CoMmand IICM
IDNV	Input, Invalid DaTa parameter IIDT
IIFM	Input, Invalid data ForMat
IISP	Input, Invalid Syntax or Punctuation
IITA	Input, Invalid TArget identifier
IIPG	Input, Invalid Paramter Grouping
IDRG	Input, Out of Range Data

CONTINUED . . .

VIRTUAL ACCESS/ALARM MESSAGES

SROF	Status, Requested Operation Failed
IIAC	Input, Invalid ACcess identifier
IICT	Input, Invalid Correlation Tag
SWLD	Status, Working unit Locked

NOTE: *In the later section, Input Commands Specification, the NORMAL response will only be listed should a <rspblk> is present, otherwise a COMPLD (Complied) response is assumed with the appropriate <tid> and <ctag>. <rspblk> is optional and will be present only if the response has parameters/data to send back. Also, the ERROR response will only be listed should a special <errcde>, <error description> and <error text> be needed. A set of applicable error codes with their interpretations are listed in Appendix B of the OTGR.*

3. VAI PORT INPUT COMMANDS SET

ABBREVIATED NAME	Full Name
------------------	-----------

DATA PORTS

>ADD-SYNCPRT	ADD-SYNCHRONOUS PORT
>ADD-ASYNCPRT	ADD-ASYNCHRONOUS PORT
>SET-ATTR-SYNCPRT	SET-ATTRIBUTES-SYNCHRONOUS PORT
>SET-ATTR-ASYNCPRT	SET-ATTRIBUTES-ASYNCHRONOUS PORT
>DEL-SYNCPRT	DELETE-SYNCHRONOUS PORT
>DEL-ASYNCPRT	DELETE-ASYNCHRONOUS PORT
%RTRV-ATTR-SYNCPRT	RETRIEVE-ATTRIBUTES-SYNCHRONOUS PORT
%RTRV-ATTR-ASYNCPRT	RETRIEVE-ATTRIBUTES-ASYNCHRONOUS PORT
%RTRV-STA-PRT	RETRIEVE-STATUS-PORT

X25 LINK

>SET-ATTR-LNK	SET-ATTRIBUTES-LINK
%RTRV-ATTR-LNK	RETRIEVE-ATTRIBUTES-LINK

CONTINUED . . .

VIRTUAL ACCESS/ALARM MESSAGES

LOGICAL CHANNELS

>ADD-CHNL ADD-CHANNELS
>SET-ATTR-CHNL SET-ATTRIBUTE-CHANNELS
>DEL-CHNL DELETE-CHANNELS
%RTRV-ATTR-CHNL RETRIEVE-ATTRIBUTES-CHANNELS
%RTRV-STA-CHNL RETRIEVE-STATUS-CHANNELS

LOGICAL CHANNEL ASSIGNMENTS

>ASSN-CHNL ASSIGN-CHANNELS
>DASSN-CHNL DEASSIGN-CHANNELS
%RTRV-ASSN-CHNL RETRIEVE-ASSIGNED-CHANNELS

LOGICAL CHANNEL TRANSLATIONS

>ASSN-CHNL-TRNS ASSIGN-CHANNEL-TRANSLATION
>DASSN-CHNL-TRNS DEASSIGN-CHANNEL-TRANSLATION
%RTRV-STA-TRNS RETRIEVE-STATUS-TRANSLATION

SYNCHRONOUS PORT SVCS

>ASSN-SYNCPRT-SVC ASSIGN-SYNCHRONOUS PORT-SVC
>DASSN- SYNCPRT-SVC DEASSIGN- SYNCHRONOUS PORT-SVC
%RTRV- SYNCPRT-SVC RETRIEVE- SYNCHRONOUS PORT-SVC

SVC ADDRESSES

>ASSN-SYNCADR ASSIGN-SYNCHRONOUS ADDRESS
>ASSN-ASYNCADR ASSIGN-ASYNCHRONOUS ADDRESS
>DASSN-SYNCADR DEASSIGN-SYNCHRONOUS ADDRESS
>DASSN-ASYNCADR DEASSIGN-ASYNCHRONOUS ADDRESS

CONTINUED . . .

VIRTUAL ACCESS/ALARM MESSAGES

%RTRV-SYNCADR RETRIEVE-SYNCHRONOUS ADDRESS

%RTRV-ASYNCADR RETRIEVE-ASYNCHRONOUS ADDRESS

PACKET LAYER FACILITIES

>SET-ATTR-PKTFAC SET-ATTRIBUTES-PACKET FACILITIES

%RTRV-ATTR-PKTFAC RETRIEVE-ATTRIBUTES-PACKET FACILITIES

MODEM CONTROLS

>SET-ATTR-MDM SET-ATTRIBUTES-MODEM

%RTRV-ATTR-MDM RETRIEVE-ATTRIBUTES-MODEM

VIRTUAL PORTS

>SET-ATTR-VAITID SET-ATTRIBUTES-VIRTUAL ACCESS INTERFACE TID

>SET-ATTR-VAIPVC SET-ATTRIBUTES-VIRTUAL ACCESS INTERFACE PVC

>SET-ATTR-VAISVC SET-ATTRIBUTES-VIRTUAL ACCESS INTERFACE SVC

>SET-ATTR-VAIPOLL SET-ATTRIBUTES-VIRTUAL ACCESS INTERFACE POLLING

>SET-ATTR-VAIALM SET-ATTRIBUTES-VIRTUAL ACCESS INTERFACE ALARM-
ING

%RTRV-ATTR-VAI RETRIEVE-ATTRIBUTES-VIRTUAL ACCESS INTERFACE

NODE MAINTENANCE

>START-PRT START-PORT

>HALT-PRT HALT-PORT

USER ACCESS

%START-USERACS ACTIVATE-USER ACCESS

%HALT-USERACS END-USER ACCESS

>SET-USERACS SET-USER ACCESS

CONTINUED . . .

VIRTUAL ACCESS/ALARM MESSAGES

MISCELLANEOUS

%RTRV-HDR	RETRIEVE-HEADER
%RTRV-MEM	RETRIEVE-MEMORY
%RTRV-DATETIME	RETRIEVE-DATETIME
>SET-DATETIME	SET-DATETIME
>INIT-LINKMASTER	INITIALIZE-LinkMaster

VIRTUAL ACCESS INTERFACE MODE (VAI)

Upon entering Virtual Access Interface (VAI) mode, the prompt "vai%" will appear. The symbol "%" corresponds with those commands which have this symbol preceding them. At this prompt, only non-detrimental commands can be executed, such as all RTRV commands. Upon executing the command START-USERACS; and entering the correct password as specified below, the prompt will change to "vai>" indicating those commands which have the symbol ">" preceding them above can be executed here. These are commands which are used for the creation and maintaining of the LinkMaster database. ONCE DONE WITH DATABASE MODIFICATION, THE USER SHOULD EXIT THE "vai>" MODE BY EXECUTING: HALT-USERACS; (no password is needed here).

4. VAI PORT INPUT COMMANDS SPECIFICATION

COMMAND CODE: ADD-SYNCPRT

PURPOSE:

ADD-SYNCHRONOUS PORT: Activate the specified port as type Synchronous (SYNC) being set at the specified protocol and assigns the appropriate default parameters to that port.

INPUT FORMAT:

ADD-SYNCPRT:<tid>:<pid>:<ctag>:<prot>;

<tid> Defined in Section 2.

<pid> Defined in Section 2.

<ctag> Defined in Section 2.

<prot> Port Protocol = "X25", "SP" or "PS".

CONTINUED . . .

VIRTUAL ACCESS/ALARM MESSAGES

EXAMPLE:

ADD-SYNCPRT:DANTEL1:3:1:X25;

COMMAND CODE: ADD-ASYNCPRT

PURPOSE:

ADD-ASYNCHRONOUS PORT: Activate the specified port as type Asynchronous (ASYNC) being set at the specified protocol and assigns the appropriate default parameters to that port.

INPUT FORMAT:

ADD-ASYNCPRT:<tid>:<pid>:<ctag>:<prot>;

<tid> Defined in Section 2.

<pid> Defined in Section 2.

<ctag> Defined in Section 2.

<prot> Port Protocol = "TL1" or "CAS" (MTL1).

EXAMPLE:

ADD-ASYNCPRT:DANTEL1:4:2:TL1;

COMMAND CODE: SET-ATTR-SYNCPRT

PURPOSE:

SET-ATTRIBUTES-SYNCHRONOUS PORT: Update the specified synchronous port with the specified parameters.

INPUT FORMAT:

SET-ATTR-SYNCPRT:<tid>:<pid>:<ctag>:<prot>,<pkt>,
<baud>:<clock>,<linkmode>,<dev>,<rts>:<wt>,
<n1>,<n2>,<t1>,<t4>;

<tid> Defined in Section 2.

<pid> Defined in Section 2.

<ctag> Defined in Section 2.

<prot> Port Protocol = "X25", "SP" or "PS".

<pkt> Packet Size = 128, 256 or 512.

<baud> Baud rate = 1200, 2400, 4800 or 9600.

<clock> Clock type = "INT" (Internal) or "EXT" (external).

<linkmode> Link mode = "ACT" (Active) or "PAS" (passive).

<dev> Device type = "DTE" or "DCE".

CONTINUED . . .

VIRTUAL ACCESS/ALARM MESSAGES

<rts>	RTS = "ON" or "OFF".
<wt>	Frame Window Size = 1-8.
<n1>	Bits Per I Frame = 1080-4152.
<n2>	Re-transmission Count = 2-16.
<t1>	Ack Retry Timer = 2-20.
<t4>	No Activity Timer = 0-120.

EXAMPLE:

SET-ATTR-SYNCPR: DANTEL1:3:3:X25,512,9600:INT,ACT,
DTE,OFF:7,4152,2,20,0;

COMMAND CODE: SET-ATTR-ASYNCPRT

PURPOSE:

SET-ATTRIBUTES-ASYNCHRONOUS PORT: Update the specified asynchronous port with the specified parameters.

INPUT FORMAT:

SET-ATTR-ASYNCPRT:<tid>:<pid>:<ctag>:<prot>,<pkt>,
<baud>:<dbits>,<sbits>,<parity>:<chr1>,
<chr2>,<chr3>,<chr4>;

<tid>	Defined in Section 2.
<pid>	Defined in Section 2.
<ctag>	Defined in Section 2.
<prot>	Port Protocol = "TL1" or "CAS" (MTL1).
<pkt>	Packet Size = 128, 256 or 512.
<baud>	Baud rate = 1200, 2400, 4800 or 9600.
<dbits>	Data bits = 8 or 7.
<sbits>	Stop bits = 1 or 2.
<parity>	Parity = "NONE", "ODD" or "EVEN".
<chr1>	End of File Character 1 = 0-255.
<chr2>	End of File Character 2 = 0-255.
<chr3>	End of File Character 3 = 0-255.
<chr4>	End of File Character 4 = 0-255.

EXAMPLE:

SET-ATTR-ASYNCPRT: DANTEL1:4:4:TL1,128,9600:8,1,
NONE:59,0,0,0;

VIRTUAL ACCESS/ALARM MESSAGES

COMMAND CODE: DEL-SYNCPRT

PURPOSE:

DELETE-SYNCHRONOUS PORT: De-activate and delete the specified synchronous port.

INPUT FORMAT:

DEL-SYNCPRT:<tid>:<pid>:<ctag>;

<tid> Defined in Section 2.

<pid> Defined in Section 2.

<ctag> Defined in Section 2.

EXAMPLE:

DEL-SYNCPRT:DANTEL1:8:5;

COMMAND CODE: DEL-ASYNCPRT

PURPOSE:

DELETE-ASYNCHRONOUS PORT: De-activate and delete the specified asynchronous port.

INPUT FORMAT:

DEL-ASYNCPRT:<tid>:<pid>:<ctag>;

<tid> Defined in Section 2.

<pid> Defined in Section 2.

<ctag> Defined in Section 2.

EXAMPLE:

DEL-ASYNCPRT:DANTEL1:1:6;

COMMAND CODE:RTRV-ATTR-SYNCPRT

PURPOSE:

RETRIEVE-ATTRIBUTES-SYNCHRONOUS PORTS:

Retrieve the current parameter settings for the specified port or range of ports.

CONTINUED . . .

VIRTUAL ACCESS/ALARM MESSAGES

INPUT FORMAT:

RTRV-ATTR-SYNCPRT:<tid>::<<ctag>:<start pid>,<end pid>;

<tid> Defined in Section 2.

<ctag> Defined in Section 2.

<start pid> Starting with port = 1-8.

<end pid> Ending with port = 1-8.

RESPONSE BLOCK FORMAT:

```
^^^"<pid>:<prot>,<pkt>,<baud>:<clock>,<linkmode>,<dev>:  
<wt>,<n1>,<n2>,<t1>,<t4>"<cr> <lf>
```

EXAMPLE:

RTRV-ATTR-SYNCPRT:DANTEL1::7:1,8; or

RTRV-ATTR-SYNCPRT:DANTEL1::7:3,3; or

RTRV-ATTR-SYNCPRT:DANTEL1::7:3,;

COMMAND CODE: RTRV-ATTR-ASYNCPRT

PURPOSE:

RETRIEVE-ATTRIBUTES-ASYNCHRONOUS PORTS:

Retrieve and display the current parameter settings for the specified port or range of ports.

INPUT FORMAT:

RTRV-ATTR-ASYNCPRT: <tid>::<<ctag>:<start pid>,<end pid>;

<tid> Defined in Section 2.

<ctag> Defined in Section 2.

<start pid> Starting with port = 1-8.

<end pid> Ending with port = 1-8.

RESPONSE BLOCK FORMAT:

```
^^^"<pid>:<prot>,<pkt>,<baud>:<dbits>,<sbits>,<parity>:  
<chr1>,<chr2>,<chr3>,<chr4>"<cr> <lf>
```

CONTINUED . . .

VIRTUAL ACCESS/ALARM MESSAGES

EXAMPLE:

RTRV-ATTR-ASYNCPRT:DANTEL1::8:1,8; or

RTRV-ATTR-ASYNCPRT:DANTEL1::8:4,4; or

RTRV-ATTR-ASYNCPRT:DANTEL1::8:4;

COMMAND CODE: RTRV-STA-PRT

PURPOSE:

RETRIEVE-STATUS-PORTS: Retrieve and display the current status of Level 2 and Level 3 of the specified port or range of ports.

INPUT FORMAT:

RTRV-STA-PRT:<tid>::<ctag>;

<tid> Defined in Section 2.

<ctag> Defined in Section 2.

RESPONSE BLOCK FORMAT:

```
^^^"<pid>:<level 2 up/down>,<level 3 up/down>" <cr> <lf>
```

EXAMPLE:

RTRV-STA-PRT:DANTEL1::9;

COMMAND CODE: SET-ATTR-LNK

PURPOSE:

SET-ATTRIBUTES-LINK: Set/reset parameters for the master link (X.25 port).

NOTE: *Care should be taken when using this command. Execution will result in the reinitialization of the link.*

INPUT FORMAT:

SET-ATTR-LINK:<tid>::<ctag>:<adr>,<linkmode>,<machine>,<lpbk>:<wt>,<n1>,<n2>,<t1>,<t3>,<t4>;

<tid> Defined in Section 2.

<ctag> Defined in Section 2.

CONTINUED . . .

VIRTUAL ACCESS/ALARM MESSAGES

<adr> Addressing = "DTE" or "DCE"
<linkmode> Link mode = "ACT" (Active) or "PAS" (passive).
<machine> Machine type = "NMA", "STD" (standard) or "PAD".
<lpbk> Loop Back Selection = "NORM" (normal), "SIMP" (simple), "CLKS" (clockless), "SILN" (silent clockless), "SCLS" (silent clockless).
<wt> Frame Window Size = 1-8.
<n1> Bits Per I Frame = 1080-4152.
<n2> Re-transmission Count = 2-16.
<t1> Ack Retry Timer = 2-20.
<t3> Disconnect Timer = 4-32.
<t4> No Activity Timer = 0-120.

EXAMPLE:

SET-ATTR-LINK:DANTEL1::10:DTE,PAS,STD,NORM:7,4152,16,20,4,0;

COMMAND CODE: RTRV-ATTR-LNK

PURPOSE:

RETRIEVE-ATTRIBUTES-LINK: Retrieve and display the current parameter settings for the main X25 Link.

INPUT FORMAT:

RTRV-ATTR-LNK:<tid>::<ctag>;

<tid> Defined in Section 2.

<ctag> Defined in Section 2.

RESPONSE BLOCK FORMAT:

```
^^^"<adr>,<linkmode>,<machine>,<lpbk>:<wt>,<n1>,<n2>,<t1>,<t3>,<t4>"<cr> <lf>
```

EXAMPLE:

RTRV-ATTR-LNK:DANTEL1::11;

VIRTUAL ACCESS/ALARM MESSAGES

COMMAND CODE: ADD-CHNL

PURPOSE:

ADD-CHANNELS: Add one or more logical channel entries to its LCN table and assigns the appropriate parameters to those channels.

INPUT FORMAT:

ADD-CHNL:<tid>::<<ctag>:<start_lcn>,<end_lcn>:<lcn_type>;

<tid> Defined in Section 2.

<ctag> Defined in Section 2.

<start_lcn> Starting Logical Channel Number = 1-4096.

<end_lcn> Ending Logical Channel Number = 1-4096.

<lcn_type> Logical Channel Type = "SVC" (switched virtual circuit), "PVC" (permanent virtual circuit).

EXAMPLE:

ADD-CHNL:DANTEL1::12:15,35:PVC;

ADD-CHNL:DANTEL1::13:36,46:SVC;

COMMAND CODE: SET-ATTR-CHNL

PURPOSE:

SET-ATTRIBUTES-CHANNELS: Update the specified logical channel entries in its LCN table with the specified parameters.

NOTE: *Specifying a range of LCNs of which some LCN in this range are not yet defined will result in an error message of SROF, even though the changes have taken effect for those LCNs that are defined.*

INPUT FORMAT:

SET-ATTR-CHNL:<tid>::<<ctag>:<start_lcn>,<end_lcn>:
<lcn_type>,<pkt>,<wt>,<ct>,<thr>;

<tid> Defined in Section 2.

<ctag> Defined in Section 2.

<start_lcn> Starting Logical Channel Number = 1-4096.

<end_lcn> Ending Logical Channel Number = 1-4096.

CONTINUED . . .

VIRTUAL ACCESS/ALARM MESSAGES

<lcn_type> Logical Channel Type = "SVC" (switched virtual circuit), "PVC" (permanent virtual circuit).
<pkt> Packet Size = 128, 256 or 512.
<wt> Frame Window Size = 1-8.
<ct> Circuit Type = "BOTH" (duplex), "IN" (incoming), "OUT" (outgoing).
<thr> Throughput = 1200-56000.

EXAMPLE:

SET-ATTR-CHNL:DANTEL1::14:15,19:PVC,128,7,BOTH,9600;
SET-ATTR-CHNL:DANTEL1::15:20,20:PVC,128,7,BOTH,9600;
SET-ATTR-CHNL:DANTEL1::16:21,35:SVC,512,7,BOTH,9600;
SET-ATTR-CHNL:DANTEL1::17:13,36:SVC,512,7,BOTH,9600;

COMMAND CODE: DEL-CHNL

PURPOSE:

DELETE-CHANNELS: Delete one or more defined logical channel entries from the LCN assignment table along with the entries' parameters.

INPUT FORMAT:

DEL-CHNL:<tid>::<ctag>:<start_lcn>,<end_lcn>;

<tid> Defined in Section 2.
<ctag> Defined in Section 2.
<start_lcn> Starting Logical Channel Number = 1-4096.
<end_lcn> Ending Logical Channel Number = 1-4096.

EXAMPLE:

DEL-CHNL:DANTEL1::18:37,46;

VIRTUAL ACCESS/ALARM MESSAGES

COMMAND CODE: RTRV-ATTR-CHNL

PURPOSE:

RETRIEVE-ATTRIBUTES-CHANNELS: Retrieve and display the current parameter settings for the specified logical channel or range of channels.

INPUT FORMAT:

RTRV-ATTR-CHNL:<tid>::<ctag>:<start_lcn>,<end_lcn>;

<tid> Defined in Section 2.

<ctag> Defined in Section 2.

<start_lcn> Starting Logical Channel Number = 1-4096.

<end_lcn> Ending Logical Channel Number = 1-4096.

RESPONSE BLOCK FORMAT:

```
^^^"<lcn>:<lcn_type>,<pkt>,<wt>,<ct>,<thr>" <cr> <lf>
```

EXAMPLE:

RTRV-ATTR-CHNL:DANTEL1::19:1,4096; **or**

RTRV-ATTR-CHNL:DANTEL1::19:15,36; **or**

RTRV-ATTR-CHNL:DANTEL1::19:15,;

COMMAND CODE: ASSN-CHNL

PURPOSE:

ASSIGN-CHANNELS: Assign one or more logical channels of PVC type to the specified data port.

INPUT FORMAT:

ASSN-CHNL:<tid>:<pid>:<ctag>:<start_lcn>,<end_lcn>;

<tid> Defined in Section 2.

<pid> Defined in Section 2.

<ctag> Defined in Section 2.

<start_lcn> Starting Logical Channel Number = 1-4096.

<end_lcn> Ending Logical Channel Number = 1-4096.

CONTINUED . . .

VIRTUAL ACCESS/ALARM MESSAGES

EXAMPLE:

ASSN-CHNL:DANTEL1:3:20:21,35;

ASSN-CHNL:DANTEL1:4:21:17,17;

COMMAND CODE: DASSN-CHNL

PURPOSE:

DEASSIGN-CHANNELS: Remove one or more logical channels of PVC type from specified data port.

INPUT FORMAT:

DASSN-CHNL:<tid>:<pid>:<ctag>:<start_lcn>,<end_lcn>;

<tid> Defined in Section 2.

<pid> Defined in Section 2.

<ctag> Defined in Section 2.

<start_lcn> Starting Logical Channel Number = 1-4096.

<end_lcn> Ending Logical Channel Number = 1-4096.

EXAMPLE:

DASSN-CHNL:DANTEL1:4:22:17,17;

DASSN-CHNL:DANTEL1:3:22:34,35; or

DASSN-CHNL:DANTEL1:3:22:34,34; and

DASSN-CHNL:DANTEL1:3:23:35,35;

COMMAND CODE: RTRV-ASSN-CHNL

PURPOSE:

RETRIEVE-ASSIGNED-CHANNELS: Retrieve and display the status of one or more channels as well as the port to which they are assigned and the states that they are in.

INPUT FORMAT:

RTRV-ASSN-CHNL:<tid>::<ctag>:<start pid>,<end pid>;

<tid> Defined in Section 2.

<ctag> Defined in Section 2.

<start pid> Starting with port = 1-8.

<end pid> Ending with port = 1-8.

CONTINUED . . .

VIRTUAL ACCESS/ALARM MESSAGES

RESPONSE BLOCK FORMAT:

```
^^^^<start pid>:<lc1>,<lc2>,<lc3>,<lc4>,<lc5>,<lc6>,<lc7>,<lc8>"<cr> <lf>
^^^^<start pid>:<lc9>,<lc10>,<lc11>,<lc12>,<lc13>,<lc14>,<lc15>,<lc16>"<cr> <lf>
^^^^<start pid>:<lc17>,<lc18>,<lc19>,<lc20>,<lc21>,<lc22>,<lc23>,<lc24>"<cr> <lf>
^^^^<start pid>:<lc25>,<lc26>,<lc27>,<lc28>,<lc29>,<lc30>,<lc31>,<lc32>"<cr> <lf>
^^^^<end pid>:<lc1>,<lc2>,<lc3>,<lc4>,<lc5>,<lc6>,<lc7>,<lc8>"<cr> <lf>
^^^^<end pid>:<lc9>,<lc10>,<lc11>,<lc12>,<lc13>,<lc14>,<lc15>,<lc16>"<cr> <lf>
^^^^<end pid>:<lc17>,<lc18>,<lc19>,<lc20>,<lc21>,<lc22>,<lc23>,<lc24>"<cr> <lf>
^^^^<end pid>:<lc25>,<lc26>,<lc27>,<lc28>,<lc29>,<lc30>,<lc31>,<lc32>"<cr> <lf>
```

EXAMPLE:

RTRV-ASSN-CHNL:DANTEL1:4:24:1,8; or
RTRV-ASSN-CHNL:DANTEL1:4:25:3,3; and
RTRV-ASSN-CHNL:DANTEL1:4:26:4,4;

COMMAND CODE: ASSN-CHNL-TRNS

PURPOSE:

ASSIGN-CHANNEL-TRANSLATION: Create a translation mapping between two already defined logical channels.

INPUT FORMAT:

ASSN-CHNL-TRNS:<tid>:<pid>:<ctag>:<lcn>,<x_lcn>;

<tid> Defined in Section 2.

<pid> Defined in Section 2.

<ctag> Defined in Section 2.

<lcn> Logical Channel Number to be translated from
=1-4096.

<x_lcn> Logical Channel Number to be translated to
=1-4096.

CONTINUED . . .

VIRTUAL ACCESS/ALARM MESSAGES

EXAMPLE:

ASSN-CHNL-TRNS:DANTEL1:3:27:21,15;
ASSN-CHNL-TRNS:DANTEL1:3:28:22,16;
ASSN-CHNL-TRNS:DANTEL1:3:29:23,18;

COMMAND CODE: DASSN-CHNL-TRNS

PURPOSE:

DEASSIGN-CHANNEL-TRANSLATION: Remove the translation mapping of the specified logical channels.

NOTE: *On ports with SP protocol, the possible range for <lcn> is 1-4; meaning the first through the fourth port that is defineable on an SP port.*

INPUT FORMAT:

DASSN-CHNL-TRNS:<tid>:<pid>:<ctag>:<lcn>;

<tid> Defined in Section 2.

<pid> Defined in Section 2.

<ctag> Defined in Section 2.

<lcn> Logical Channel Number to be translated from
 = 1-4096.

EXAMPLE:

DASSN-CHNL-TRNS:DANTEL1:3:30:23;

COMMAND CODE: RTRV-STA-TRNS

PURPOSE:

RETRIEVE-STATUS-TRANSLATION: Retrieve and display current mappings of any LCN translation that are being performed within the specified port or system.

INPUT FORMAT:

RTRV-STA-TRNS:<tid>::<ctag>:<start pid>,<end pid>;

<tid> Defined in Section 2.

<pid> Defined in Section 2.

CONTINUED . . .

VIRTUAL ACCESS/ALARM MESSAGES

<ctag> Defined in Section 2.
<start pid> Starting with port = 1-8.
<end pid> Ending with port = 1-8

RESPONSE BLOCK FORMAT:

```
^^^^<start pid>:<xlcn1>,<xlcn2>,<xlcn3>,<xlcn4>,<xlcn5>,<xlcn6>,<xlcn7>,<xlcn8>"<cr> <lf>  
^^^^<start pid>:<xlcn9>,<xlcn10>,<xlcn11>,<xlcn12>,<xlcn13>,<xlcn14>,<xlcn15>,<xlcn16>"<cr> <lf>  
^^^^<start pid>:<xlcn17>,<xlcn18>,<xlcn19>,<xlcn20>,<xlcn21>,<xlcn22>,<xlcn23>,<xlcn24>"<cr> <lf>  
^^^^<start pid>:<xlcn25>,<xlcn26>,<xlcn27>,<xlcn28>,<xlcn29>,<xlcn30>,<xlcn31>,<xlcn32>"<cr> <lf>  
^^^^<end pid>:<xlcn1>,<xlcn2>,<xlcn3>,<xlcn4>,<xlcn5>,<xlcn6>,<xlcn7>,<xlcn8>"<cr> <lf>  
^^^^<end pid>:<xlcn9>,<xlcn10>,<xlcn11>,<xlcn12>,<xlcn13>,<xlcn14>,<xlcn15>,<xlcn16>"<cr> <lf>  
^^^^<end pid>:<xlcn17>,<xlcn18>,<xlcn19>,<xlcn20>,<xlcn21>,<xlcn22>,<xlcn23>,<xlcn24>"<cr> <lf>  
^^^^<end pid>:<xlcn25>,<xlcn26>,<xlcn27>,<xlcn28>,<xlcn29>,<xlcn30>,<xlcn31>,<xlcn32>"<cr> <lf>
```

EXAMPLE:

RTRV-STA-TRNS:DANTEL1:4:31:1,8; or
RTRV-STA-TRNS:DANTEL1:4:31:3,3; and
RTRV-STA-TRNS:DANTEL1:4:33:26:4,4;

COMMAND CODE: ASSN-SYNCPRT-SVC

PURPOSE:

ASSIGN-SYNCHRONOUS PORT-SVC: Add one or more logical channels to the SVC pool of a synchronous port.

INPUT FORMAT:

ASSN-SYNCPRT-SVC:<tid>:<pid>:<ctag>:<start_lcn>,<end_lcn>;

<tid> Defined in Section 2.
<pid> Defined in Section 2.
<ctag> Defined in Section 2.
<start_lcn> Logical Channel Number = 1-4096.
<end_lcn> Logical Channel Number = 1-4096.

CONTINUED . . .

VIRTUAL ACCESS/ALARM MESSAGES

EXAMPLE:

ASSN-SYNCPRT-SVC:DANTEL1:3:34:1,10;

COMMAND CODE: DASSN-SYNCPRT-SVC

PURPOSE:

DASSIGN-SYNCHRONOUS PORT-SVC: Removes one or more logical channels from the SVC pool of a synchronous port.

INPUT FORMAT:

DASSN-SYNCPRT-SVC:<tid>:<pid>:<ctag>:<start_lcn>,<end_lcn>;

<tid> Defined in Section 2.

<pid> Defined in Section 2.

<ctag> Defined in Section 2.

<start_lcn> Logical Channel Number = 1-4096.

<end_lcn> Logical Channel Number = 1-4096.

EXAMPLE:

DASSN-SYNCPRT-SVC:DANTEL1:3:35:9,10;

COMMAND CODE: RTRV-SYNCPRT-SVC

PURPOSE:

RETRIEVE-SYNCHRONOUS PORT-SVC: Retrieve and display current list of SVC pool assignment for one or more ports.

INPUT FORMAT:

RTRV-SYNCPRT-SVC:<tid>::<ctag>:<start pid>,<end pid>;

<tid> Defined in Section 2.

<pid> Defined in Section 2.

<ctag> Defined in Section 2.

<start pid> Starting with port = 1-8

<end pid> Ending with port = 1-8

CONTINUED . . .

VIRTUAL ACCESS/ALARM MESSAGES

RESPONSE BLOCK FORMAT:

```
^^^^<start pid>:<lc1>,<lc2>,<lc3>,<lc4>,<lc5>,<lc6>,<lc7>,<lc8>"<cr> <lf>
^^^^<start pid>:<lc9>,<lc10>,<lc11>,<lc12>,<lc13>,<lc14>,<lc15>,<lc16>"<cr> <lf>
^^^^<start pid>:<lc17>,<lc18>,<lc19>,<lc20>,<lc21>,<lc22>,<lc23>,<lc24>"<cr> <lf>
^^^^<start pid>:<lc25>,<lc26>,<lc27>,<lc28>,<lc29>,<lc30>,<lc31>,<lc32>"<cr> <lf>
^^^^<end pid>:<lc1>,<lc2>,<lc3>,<lc4>,<lc5>,<lc6>,<lc7>,<lc8>" <cr> <lf>
^^^^<end pid>:<lc9>,<lc10>,<lc11>,<lc12>,<lc13>,<lc14>,<lc15>,<lc16>"<cr> <lf>
^^^^<end pid>:<lc17>,<lc18>,<lc19>,<lc20>,<lc21>,<lc22>,<lc23>,<lc24>"<cr> <lf>
^^^^<end pid>:<lc25>,<lc26>,<lc27>,<lc28>,<lc29>,<lc30>,<lc31>,<lc32>"<cr> <lf>
```

EXAMPLE:

RTRV-SYNCPRT-SVC:DANTEL1:4:36:1,8; or
RTRV-SYNCPRT-SVC:DANTEL1:4:36:3,3;

COMMAND CODE: ASSN-SYNCADR

PURPOSE:

ASSIGN-SYNCHRONOUS ADDRESS: Assign at one time up to 4 SVC addresses to the specified synchronous port. NOTE: Duplicate addresses are permitted.

INPUT FORMAT:

ASSN-SYNCADR:<tid>:<pid>:<ctag>:<addr1>,<addr2>,<addr3>,<addr4>;

<tid>	Defined in Section 2.
<pid>	Defined in Section 2.
<ctag>	Defined in Section 2.
<addr1>	Address 1 = 1-9999999999999999.
<addr2>	Address 2 = 1-9999999999999999.
<addr3>	Address 3 = 1-9999999999999999.
<addr4>	Address 4 = 1-9999999999999999.

CONTINUED . . .

VIRTUAL ACCESS/ALARM MESSAGES

EXAMPLE:

ASSN-SYNCADR:DANTEL1:3:37:5557000,5558000,5559000,
5559999;

COMMAND CODE: ASSN-ASYNCADR

PURPOSE:

ASSIGN-ASYNCHRONOUS ADDRESS: Assign the specified SVC local/remote addresses and its extension to the specified asynchronous port. NOTE: Duplicate addresses are not permitted over multiple async ports.

INPUT FORMAT:

ASSN-ASYNCADR:<tid>:<pid>:<ctag>:<loc_addr>,
<loc_ext>,<rem_addr>,<rem_ext>;

<tid> Defined in Section 2.

<pid> Defined in Section 2.

<ctag> Defined in Section 2.

<loc_addr> Local Address = 1-9999999999999999.

<loc_ext> Local Address Extension = 1-9999999999999999.

<rem_addr> Remote Address = 1-9999999999999999.

<rem_ext> Remote Address Extension = 1-
9999999999999999.

EXAMPLE:

ASSN-ASYNCADR:DANTEL1:3:38:1888863,500,7779900,;

COMMAND CODE: DASSN-SYNCADR

PURPOSE:

DEASSIGN-SYNCHRONOUS ADDRESS: Delete at one time up to 4 SVC addresses on the specified synchronous port.

NOTE: Duplicated addresses are only deleted as many times as it is specified within the command.

INPUT FORMAT:

DASSN-SYNCADR:<tid>:<pid>:<ctag>:<addr1>,<addr2>,
<addr3>,<addr4>;

<tid> Defined in Section 2.

<pid> Defined in Section 2.

CONTINUED . . .

VIRTUAL ACCESS/ALARM MESSAGES

<ctag> Defined in Section 2.
<addr1> Address 1 = 1-9999999999999999.
<addr2> Address 2 = 1-9999999999999999.
<addr3> Address 3 = 1-9999999999999999.
<addr4> Address 4 = 1-9999999999999999.

EXAMPLE:

DASSN-SYNCADR:DANTEL1:3:39:5557000,5559999,,;

COMMAND CODE: DASSN-ASYNCAADR

PURPOSE:

DEASSIGN-ASYNCHRONOUS ADDRESS: Delete the specified SVC local/remote addresses and its extensions on the specified asynchronous port.

INPUT FORMAT:

DSSN-ASYNCAADR:<tid>:<pid>:<ctag>:<loc_addr>,<loc_ext>,<rem_addr>,<rem_ext>;

<tid> Defined in Section 2.
<pid> Defined in Section 2.
<ctag> Defined in Section 2.
<loc_addr> Local Address = 1-9999999999999999.
<loc_ext> Local Address Extension = 1-9999999999999999.
<rem_addr> Remote Address = 1-9999999999999999.
<rem_ext> Remote Address Extension = 1-9999999999999999.

EXAMPLE:

DASSN-ASYNCAADR:DANTEL1:3:40:1888863,500,,;

VIRTUAL ACCESS/ALARM MESSAGES

COMMAND CODE: RTRV-SYNCADR

PURPOSE:

RETRIEVE-SYNCHRONOUS ADDRESS: Retrieve and display all SVC addresses that are assigned to the specified synchronous port or range of ports.

INPUT FORMAT:

RTRV-SYNCADR:<tid>:<pid>:<ctag>:<start pid>,<end pid>;

<tid> Defined in Section 2.

<pid> Defined in Section 2.

<ctag> Defined in Section 2.

<start pid> Starting with port = 1-8

<end pid> Ending with port = 1-8

RESPONSE BLOCK FORMAT:

```
^^^"<pid>:<addr1>,<addr2>,<addr3>,<addr4>" <cr> <lf>
```

EXAMPLE:

RTRV-SYNCADR:DANTEL1:4:41:1,8; or

RTRV-SYNCADR:DANTEL1:4:41:3,3;

COMMAND CODE: RTRV-ASYNCADR

PURPOSE:

RETRIEVE-ASYNCHRONOUS ADDRESS: Retrieves and displays the SVC local/remote addresses and its extensions assigned to the specified asynchronous port or range of ports.

INPUT FORMAT:

RTRV-ASYNCADR:<tid>:<pid>:<ctag>:<start pid>,<end pid>;

<tid> Defined in Section 2.

<pid> Defined in Section 2.

<ctag> Defined in Section 2.

<start pid> Starting with port = 1-8

<end pid> Ending with port = 1-8

CONTINUED . . .

VIRTUAL ACCESS/ALARM MESSAGES

RESPONSE BLOCK FORMAT:

```
^^^"<pid>:<loc_addr>,<locext>:<rem_addr>,<rem_ext>" <cr> <lf>
```

EXAMPLE:

RTRV-ASYNCAADR:DANTEL1:4:42:1,8; or

RTRV-ASYNCAADR:DANTEL1:4:42:4,4;

COMMAND CODE: SET-ATTR-PKTFAC

PURPOSE:

SET-ATTRIBUTES-PACKET FACILITIES: Modifies the various packet facility parameters.

INPUT FORMAT:

SET-ATTR-PKTFAC:<tid>::<ctag>:<ac>,<ext>;

<tid> Defined in Section 2.

<ctag> Defined in Section 2.

<ac> Auto Call = 1 (ON), 0 (OFF).

<ext> Address Extension = 1(ON), 0 (OFF).

EXAMPLE:

SET-ATTR-PKTFAC:DANTEL1::43:1,1;

COMMAND CODE: RTRV-ATTR-PKTFAC

PURPOSE:

RETRIEVE-ATTRIBUTES-PACKET FACILITIES: Retrieves and displays current settings for the packet facility parameters.

INPUT FORMAT:

RTRV-ATTR-PKTFAC:<tid>::<ctag>;

<tid> Defined in Section 2.

<ctag> Defined in Section 2.

CONTINUED . . .

VIRTUAL ACCESS/ALARM MESSAGES

RESPONSE BLOCK FORMAT:

```
^^^"<ac>,<ext>" <cr> <lf>
```

EXAMPLE:

RTRV-ATTR-PKTFAC:DANTEL1::44;

COMMAND CODE: SET-ATTR-MDM

PURPOSE:

SET-ATTRIBUTES-MDM: Modifies the modem control setting.

INPUT FORMAT:

SET-ATTR-MODEM:<tid>::<ctag>:<ctrl>;

<tid> Defined in Section 2.

<ctag> Defined in Section 2.

<ctrl> Modem Control = 0 (None), 1 (RTS/CTS), 2 (DTR/DSR).

EXAMPLE:

SET-ATTR-MDM:DANTEL1::45:0;

COMMAND CODE: RTRV-ATTR-MDM

PURPOSE:

RETRIEVE-ATTRIBUTES-MODEM: Retrieves and displays the modem control setting.

INPUT FORMAT:

RTRV-ATTR-MDM:<tid>::<ctag>;

<tid> Defined in Section 2.

<ctag> Defined in Section 2.

RESPONSE BLOCK FORMAT:

```
^^^"<rts>,<cts>,<dtr>,<dsr>" <cr> <lf>
```

CONTINUED . . .

VIRTUAL ACCESS/ALARM MESSAGES

EXAMPLE:

RTRV-ATTR-MDM:DANTEL1::46;

COMMAND CODE: SET-ATTR-VAITID

PURPOSE:**SET-ATTRIBUTES-VIRTUAL ACCESS INTERFACE**

TARGET IDENTIFIER: Changes the current TID to a newly specified TID along with the calling address assigned to the unit with this TID.

INPUT FORMAT:

SET-ATTR-VAITID:<tid>::<<ctag>:<tid>,<addr>:<vai timeout>;

<tid> Defined in Section 2.

<ctag> Defined in Section 2.

<tid> New TID as defined in Section 1.

<addr> SVC Calling Address = 1-9999999999999999.

<vai_timeout> Provisioning Mode Inactivity Timeout = 1-240 minutes. Default = 10 minutes.

EXAMPLE:

SET-ATTR-VAITID:DANTEL1::47:DANTEL555,7772000:30;

COMMAND CODE: SET-ATTR-VAIPVC

PURPOSE:**SET-ATTRIBUTES-VIRTUAL ACCESS INTERFACE PVC:**

Changes or assign a new Permanent Virtual Circuit number to be the internal port and modify the frequency value for polling the ports for internal alarms.

INPUT FORMAT:

SET-ATTR-VAIPVC:<tid>::<<ctag>:<pvc_lcn>:<freq>;

<tid> Defined in Section 2.

<ctag> Defined in Section 2.

<pvc_lcn> Logical channel of PVC type (must be already created).

<freq> Polling Frequency = 1 - 240

CONTINUED . . .

VIRTUAL ACCESS/ALARM MESSAGES

EXAMPLE:

SET-ATTR-VAIPVC:DANTEL555::48:255:60;

COMMAND CODE: SET-ATTR-VAISVC

PURPOSE:

SET-ATTRIBUTES-VIRTUAL ACCESS INTERFACE SVC:
Changes or assign 2 Switched Virtual Circuits to be the internal channels for reporting of internal alarms.

INPUT FORMAT:

SET-ATTR-VAISVC:<tid>::<ctag>:<svc_addr1>,<svc_addr2>;

<tid> Defined in Section 2.

<ctag> Defined in Section 2.

<svc_addr1> SVC Called Address 1 = 1-9999999999999999.

<svc_addr2> SVC Called Address 2 = 1-9999999999999999.

EXAMPLE:

SET-ATTR-VAISVC:DANTEL555::49:5551000,7775000;

COMMAND CODE: SET-ATTR-VAIPOLL

PURPOSE:

SET-ATTRIBUTES-VIRTUAL ACCESS INTERFACE POLLING: Enable polling of specified ports for internal alarms.

INPUT FORMAT:

SET-ATTR-VAIPOLL:<tid>::<ctag>:<port1>,<port2>,<port3>,<port4>,<port5>,<port6>,<port7>,<port8>;

<tid> Defined in Section 2.

<ctag> Defined in Section 2.

<port1> - <port8> "ON" or "OFF".

EXAMPLE:

SET-ATTR-VAIPOLL:DANTEL555::50:OFF,OFF,ON,ON,OFF,OFF,OFF,OFF;

VIRTUAL ACCESS/ALARM MESSAGES

COMMAND CODE: SET-ATTR-VAIALM

PURPOSE:

SET-ATTRIBUTES-VIRTUAL ACCESS INTERFACE ALARMS: Enable the reporting of internal alarms for the specified ports.

INPUT FORMAT:

SET-ATTR-VAIALM:<tid>::<ctag>:<port1>,<port2>,<port3>,<port4>,<port5>,<port6>,<port7>,<port8>;

<tid> Defined in Section 2.

<ctag> Defined in Section 2.

<port1> - <port8> "ON" or "OFF".

EXAMPLE:

SET-ATTR-VAIALM:DANTEL555::51:OFF,OFF,ON,ON,OFF,OFF,OFF,OFF;

COMMAND CODE: RTRV-ATTR-VAI

PURPOSE:

RETRIEVE-ATTRIBUTES-VIRTUAL ACCESS INTERFACE: Retrieves all parameters relevant to the Virtual Access Interface Channel.

INPUT FORMAT:

RTRV-ATTR-VAI:<tid>::<ctag>;

<tid> Defined in Section 2.

<ctag> Defined in Section 2.

RESPONSE BLOCK FORMAT:

```
^^^"<dcpf_addr>,<tid>,<Date/Time>" <cr> <lf>
^^^"<pvc_lcn>,<svc_calling_addr>,<freq>" <cr> <lf>
^^^"<svc_called_addr1>,<svc_called_addr2>" <cr> <lf>
^^^"<alm_p1>,<alm_p2>,<alm_p3>,<alm_p4>,<alm_p5>,<alm_p6>,<alm_p7>,<alm_p8>"<cr> <lf>
^^^"<pol_p1>,<pol_p2>,<pol_p3>,<pol_p4>,<pol_p5>,<pol_p6>,<pol_p7>,<pol_p8>"<cr> <lf>
```

EXAMPLE:

RTRV-ATTR-VAI:DANTEL5555::52;

VIRTUAL ACCESS/ALARM MESSAGES

COMMAND CODE: START-PRT

PURPOSE:

START-PORTS: Activates the specified port or range of ports and allow data to pass through.

INPUT FORMAT:

START-PRT:<tid>:<pid>:<ctag>;

<tid> Defined in Section 2.

<pid> Defined in Section 2.

<ctag> Defined in Section 2.

EXAMPLE:

START-PRT:DANTEL555:3:53;

START-PRT:DANTEL555:4:54;

COMMAND CODE: HALT-PRT

PURPOSE:

HALT-PORTS: De-activates the specified port or range of ports and not to accept incoming data.

INPUT FORMAT:

HALT-PRT:<tid>:<pid>:<ctag>;

<tid> Defined in Section 2.

<pid> Defined in Section 2.

<ctag> Defined in Section 2.

EXAMPLE:

HALT-PRT:DANTEL555:3:55;

HALT-PRT:DANTEL555:4:56;

VIRTUAL ACCESS/ALARM MESSAGES

COMMAND CODE: START-USERACS

PURPOSE:

START-USER ACCESS: Allows the operator to be in the provisioning mode only when the entered password matches the Printer Port password for the targeted LinkMaster unit.

INPUT FORMAT:

START-USERACS:<tid>::<ctag>:<passwd>;

<tid> Defined in Section 2.

<ctag> Defined in Section 2.

<passwd> Password = Printer Port password (See practice).

EXAMPLE:

START-USERACS:DANTEL555::57:SWTCH134;

COMMAND CODE: HALT-USERACS

PURPOSE:

HALT-USER ACCESS: Halts the current provisioning session only when the entered password matches the Printer Port password for the targeted LinkMaster unit.

INPUT FORMAT:

HALT-USERACS:<tid>::<ctag>;

<tid> Defined in Section 2.

<ctag> Defined in Section 2.

EXAMPLE:

HALT-USERACS:DANTEL555::58;

COMMAND CODE: SET-USERACS

PURPOSE:

SET-USER ACCESS: Changes the Printer Port password on the targeted LinkMaster unit.

CONTINUED . . .

VIRTUAL ACCESS/ALARM MESSAGES

INPUT FORMAT:

SET-USERACS:<tid>::<<ctag>:<old_passwd>,<new_passwd1>,<new_passwd2>;

<tid> Defined in Section 2.

<ctag> Defined in Section 2.

<old_passwd> Password = Old Printer Port password (See practice).

<new_passwd1> New Password 1 = New Printer Port password.

<new_passwd2> New Password 2 = New passwd1 re-typed for verification purposes.

EXAMPLE:

SET-USERACS:DANTEL555::59:SWTCH134,SWITC437,SWITC437;

COMMAND CODE: RTRV-HDR

PURPOSE:

RETRIEVE-HEADER: Requests that an NE reply with a normal response indicating COMPLD.

INPUT FORMAT:

RTRV-HDR:<tid>::<<ctag>;

<tid> Defined in Section 2.

<ctag> Defined in Section 2.

RESPONSE BLOCK FORMAT:

NONE

EXAMPLE:

RTRV-HDR:DANTEL555::60;

VIRTUAL ACCESS/ALARM MESSAGES

COMMAND CODE: RTRV-MEM

PURPOSE:

RETRIEVE-MEMORY: Retrieves the current available buffer memory pool value.

INPUT FORMAT:

RTRV-MEM:<tid>::<ctag>;

<tid> Defined in Section 2.

<ctag> Defined in Section 2.

RESPONSE BLOCK FORMAT:

```
^^^"<available memory blocks>" <cr> <lf>
```

EXAMPLE:

RTRV-MEM:DANTEL555::61;

COMMAND CODE: RTRV-DATETIME

PURPOSE:

RETRIEVE-DATETIME: Retrieves the current system date and time.

INPUT FORMAT:

RTRV-DATETIME:<tid>::<ctag>;

<tid> Defined in Section 2.

<ctag> Defined in Section 2.

RESPONSE BLOCK FORMAT:

```
^^^"YY-MM-DD HH:MM:SS" <cr> <lf>
```

EXAMPLE:

RTRV-DATETIME:DANTEL555::62;

VIRTUAL ACCESS/ALARM MESSAGES

COMMAND CODE: SET-DATETIME

PURPOSE:

SET-DATETIME: Changes the date and time on the targeted LinkMaster unit.

INPUT FORMAT:

SET-DATETIME:<tid>::<<ctag>:<day>,<month>,<year>:<hour>,<minutes>,<seconds>;

<tid> Defined in Section 2.

<ctag> Defined in Section 2.

<day> Day = 01 - 31.

<month> Month = "JAN", "FEB", "MAR", "APR", "MAY", "JUN", "JUL", "AUG", "SEP", "OCT", "NOV", "DEC".

<year> Year = 0000 - 9999.

<hour> Hour = 01 - 24.

<minutes> Minute = 00 - 59

<seconds> Second = 00 - 59

EXAMPLE:

SET-DATETIME:DANTEL555::63:14,FEB,1997:08,30,50;

COMMAND CODE: INIT-NEXCON

PURPOSE:

INITIALIZE-NEXCON: Stops all data communication then re-initializes and re-starts the LinkMaster unit

INPUT FORMAT:

INIT-NEXCON:<tid>::<<ctag>;

<tid> Defined in Section 2.

<ctag> Defined in Section 2.

EXAMPLE:

INIT-NEXCON:DANTEL555::64;

VIRTUAL ACCESS/ALARM MESSAGES

ALARM MESSAGES

The following alarm messages will be sent to the alarm center from the virtual TL1 port. Refer to the **Internal Ports Configuration** section of the **X.25 System Definition** chapter.

MEMORY ALARM

Purpose:

The alarm message applies only when there is an alarm.

Output Response:

```
cr lf lf
  SID yy-mm-dd-hh:mm:ss cr lf
  C ATAG REPT ALM PKL cr lf
    ".CR,BUFR,SA,,,,," cr lf;
```

The above alarm message example indicates that the traffic in the 46095 LinkMaster is such that the buffer memory dedicated to handling data traffic is in a critical state. A TL1 alarm is sent once the amount of available memory drops to 1,000 of the maximum 4,000 blocks. The 46095 LinkMaster sends the TL1 alarm message to the alarm center.

Under normal operation, when the memory fills up so that only 400 blocks are left, the back end stops reading from the dual-port RAM. This causes data to be queued in the front end which then exercises flow control so that packets should not be discarded.

In the preceding message output, the following applies:

- ◆ The ATAG which is generated by the 46095 module, sequentially starting from 000001 to 999999 and back to 000000.
- ◆ BUFR is a condition type indicating a packet buffer problem.
- ◆ SA indicates Service Affecting.

CLEAR ALARM MEMORY

Purpose:

The clear alarm message applies only when the alarm clears.

CONTINUED . . .

VIRTUAL ACCESS/ALARM MESSAGES

Output Response:

```
cr lf lf
  SID yy-mm-dd-hh:mm:ss cr lf
A ATAG REPT ALM PKL cr lf
  ".CL,BUFR,SA,,,," cr lf;
```

The above message example indicates that the buffer memory has sufficient margin to accommodate efficient data transfer. When memory increases to 1,200 blocks, the TL1 message indicating the clearing of the memory alarm will be sent.

In the preceding message output, the following applies:

- ◆ A clear alarm message has a "CL" entry for clear.

DATA PORT ALARM

Purpose:

If any of the eight data ports fails to operate, the 46095 LinkMaster generates an alarm.

Output Response:

```
cr lf lf
  SID yy-mm-dd-hh:mm:ss cr lf
C ATAG REPT ALM cr lf
  PORT:CR,AMATLINK,SA,,,NEND,TRMT cr lf;
```

In the preceding message output, the following applies:

- ◆ PORT is the port number (1-8).
- ◆ AMATLINK means Automatic Message Accounting Link failure.

CLEAR DATA PORT ALARM

Purpose:

When a data port returns to normal operation, the 46095 module sends a message that the data port alarm was cleared.

CONTINUED . . .

VIRTUAL ACCESS/ALARM MESSAGES

Output Response:

```
cr lf lf
SID yy-mm-dd-hh:mm:ss cr lf
A ATAG REPT ALM cr lf
PORT:CL,AMATLINK,SA,,,NEND,TRMT cr lf;
```

In the preceding message output, the following applies:

- ◆ PORT is the port number (1-8).
 - ◆ CL stands for clear.
 - ◆ AMATLINK means Automatic Message Accounting Link failure.
-

VIRTUAL PORT USER ACCESS ALARM

Purpose:

To indicate that an operator has entered the Provisioning Enabled Mode (START-USERACS) on the established Virtual Channel. This alarm clears when the operator exits this mode (HALT-USERACS).

Output Response:

```
cr lf lf
SID yy-mm-dd-hh:mm:ss cr lf
A ATAG REPT ALM PKL cr lf
".CL,USERACS,SA,,,," cr lf;
```

The above message example indicates that the operator has exited the Provisioning Mode by executing the command HALT-USERACS.

In the preceding message output, the following applies:

- ◆ A virtual port user access alarm has a "CL" entry for clear.

GLOSSARY

ASCII

American Standard Code for Information Interchange. It permits information interchange among data processing and data communication systems.

Asynchronous

A data transmission scheme in which the sender encodes every character with start and stop bits to identify the beginning and end of each character. Devices that are directly accessible by people (for example, terminal keyboards) operate this way.

BE

The abbreviation BE refers to the back end of the 46095 module. This is the section of the module with the X.25 port.

CTS

Clear to Send - A control signal that is used to establish communications between equipment.

DCE

Data Circuit-terminating Equipment - This is the device on the network side of a user-to-network interface. When the 46095 module communicates with a network element, the network element is the DTE and the 46095 module is the DCE.

DSR

Data Set Ready - A control signal that is used to establish communications between equipment.

DTE

Data Terminal Equipment - This is the device on the user side of a user-to-network interface. When the 46095 module communicates with a network element, the network element is the DTE and the 46095 module is the DCE.

DTR

Data Terminal Ready - A control signal that is used to establish communications between equipment.

FE

The abbreviation FE refers to the front end of the 46095 module. This is the section of the module with the eight data ports.

I-Frame Window Size

Information Frame Window Size - This is the number of frames the 46095 module can transmit before getting an acknowledgment from the receiving end. The number of frames that can be sent must match the value given by the other end for receiving

GLOSSARY

frames. No more frames can be transmitted until the receiving end acknowledges receipt of all the frames sent. If the receiving end does not get all the data, it requests that the missing data be resent.

Link Setup Mode

There are two types of X.25 link setup mode: active and passive. When the 46095 module is in the active mode, it initiates communications to establish a link with the X.25 network. When it is in the passive mode, the module waits to be contacted by the network.

Logical Channel

A logical circuit through which two DTEs can exchange information. A logical channel can be a permanent virtual circuit (PVC) or a switched virtual circuit (SVC).

NMA Center

The Network Monitor and Analysis alarm center.

N1

This is the number of bits in an information frame (I-frame). It consists of the number of bytes of data in a packet (at level 3) plus seven bytes of overhead information. The number of bytes is multiplied by eight to get the number of bits. For example, if the packet size is 128 bytes, add 7 for overhead for a total of 135 bytes. Multiply by eight to get 1,080 bits.

N2

This value determines how many times the 46095 module resends data if it does not receive an acknowledgment.

Packet

A variable block of information with a prescribed maximum length. There are two types of packets: data packets and control packets.

Printer Syntax

Printer Syntax establishes the coding for the printer port to interface to a dumb terminal or a personal computer operating as a dumb terminal. Use the Printer Syntax to check the status and configuration of the 46095 module and to troubleshoot communications problems. Printer Syntax commands use ASCII text format.

GLOSSARY

PVC

Permanent Virtual Circuit - This type of circuit is a permanent logical association between two physically separate DTEs that does not require call setup or clearing procedures. A PVC is analogous to a leased line in the telephone industry.

RTS

Request to Send - A control signal that is used to establish communications between equipment.

SVC

Switched Virtual Circuit - This type of circuit is a temporary logical association between two physically separate DTEs. It requires call setup and clearing procedures. An SVC is analogous to a dial-up line in the telephone industry.

Synchronous

A method of data transmission in which the transmitter and receiver are synchronized by the same clock.

T1 Timer

When the 46095 module sends information, it must get an acknowledgment from the receiving end that the data was received. The value of the T1 timer determines how long the 46095 module waits for this acknowledgment before resending the data.

T2 Timer

The timer tells the X.25 network how long to wait for an acknowledgment that the 46095 module received a message. The module sends a response immediately and the time is set permanently at zero seconds.

T3 Timer

The timer tells the X.25 network how long to wait before disconnecting the 46095 module from the network. If the module stops communicating with the network, the network disconnects the module at the end of the time period unless communications are re-established.

T4 Timer

If there is no activity between the 46095 module and the network for the time period set by the timer, the network disconnects the link.

Throughput

The amount of information that can pass through a communications system when it is operating at saturation.

GLOSSARY

TL1

Transaction Language 1 - This is an ASCII-based man-to-machine language.

X.25

The interaction between the DTE and the DCE of a packet switching network as defined by the X.25 protocol. This interaction occurs at the DTE/DCE interface and in the 46095 module consists of three layers of information exchange:

- ◆ **Level 1** - The physical, electrical, functional, and procedural characteristics to establish, maintain, and disconnect the physical link between the DTE and DCE.
- ◆ **Level 2** - The link access procedure for data interchange across the link between the DTE and DCE.
- ◆ **Level 3** - The packet format and control procedure for the exchange of packets containing control information or user data between the DTE and DCE.

WARRANTY

LIMITED WARRANTY

The Seller warrants that the standard hardware products sold will be free from defects in material and workmanship and perform to the Seller's applicable published specifications for a period of 18 months for hardware, and 3 months for software, from the date of the original invoice. The liability of the Seller hereunder shall be limited to replacing or repairing, at its option, any defective products which are returned F.O.B. to the Seller's plant, (or, at the Seller's option, refunding the purchase price of such products). In no case are products to be returned without first obtaining permission and a customer return authorization number from the Seller. In no event shall the Seller be liable for any consequential or incidental damages.

Equipment or parts which have been subject to abuse, misuse, accident, alteration, neglect, unauthorized repair or installation are not covered by warranty. The Seller shall make the final determination as to the existence and cause of any alleged defect. No warranty is made with respect to custom equipment or products produced to the Buyer's specifications except as specifically stated in writing by the Seller in the contract for such custom equipment.

This warranty is the only warranty made by the Seller with respect to the goods delivered hereunder, and may be modified or amended only by a written instrument signed by a duly authorized officer of the Seller and accepted by the Buyer.

Warranty and remedies on products not manufactured by the Seller are in accordance with warranty of the respective manufacturer. **THE SELLER MAKES NO OTHER WARRANTY OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED; AND ALL IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEEDS THE AFORESAID OBLIGATIONS IS HEREBY DISCLAIMED BY THE SELLER.**

IN CASE OF DIFFICULTY

If you experience difficulty with this equipment, check the following, as appropriate:

1. **Switch settings**
2. **Signal levels**
3. **Software configuration**
4. **Connections between Dantel's equipment and your equipment.**

If there is still a problem, substitute equipment that is known to be good. For additional assistance, call Dantel's Technical Field Service Department weekdays, 6 A.M. to 5 P.M. pacific time:

1-800-4DANTEL (1-800-432-6835).

If a thorough checkout shows a piece of equipment has malfunctioned, you may return it to the factory. For repairs and emergency replacements, obtain a Return Material Authorization (RMA) number from the Customer Service Representative at **1-800-4DANTEL (1-800-432-6835)**.

To ensure expedient processing of your order, provide a purchase order number and shipping and billing information when requesting an RMA number. Also, when the units are returned to Dantel, include a description of the failure symptoms for each unit returned. Send defective equipment to:

Dantel, Inc. • 2991 North Argyle Avenue • Fresno, California 93727-1388

