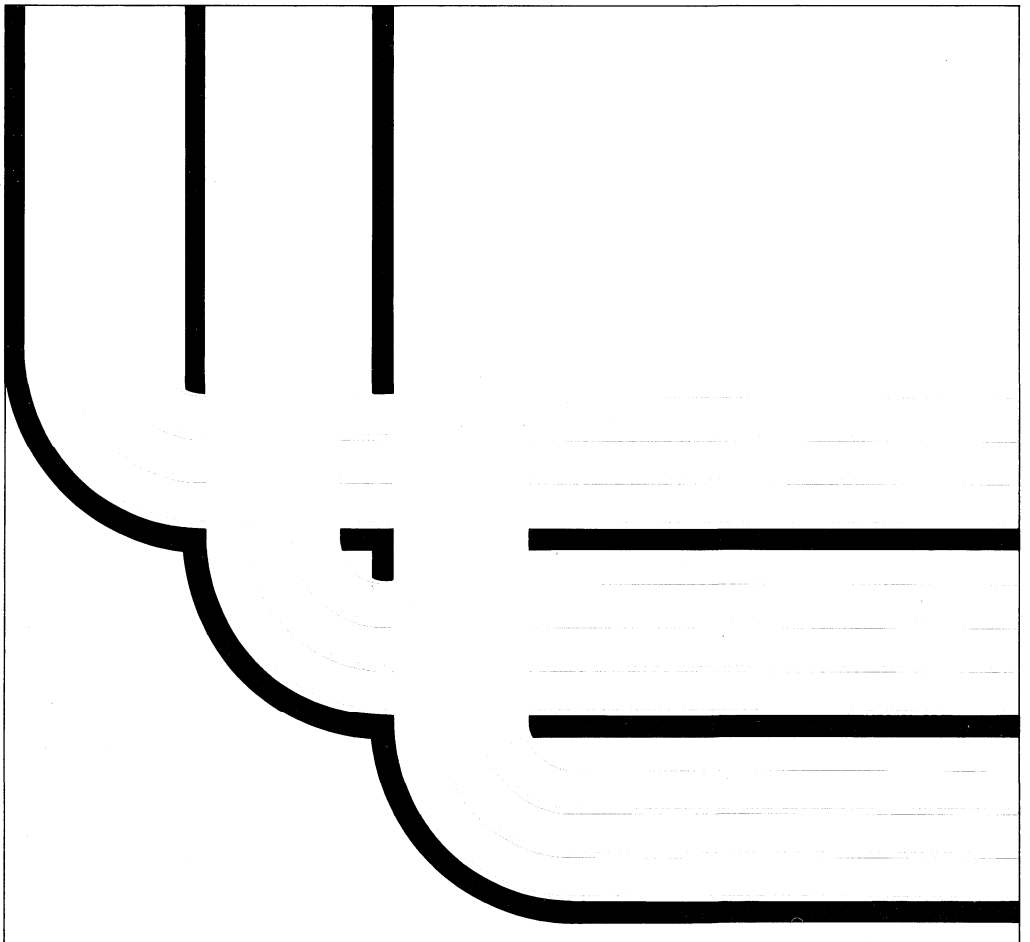
Application System/400

SC41-0001-02

Communications: Operating System/400 Communications Configuration Reference

Version 2



System and Application Support

Application System/400

SC41-0001-02

Communications: Operating System/400 Communications Configuration Reference

Version 2

Take Note!

Before using this information and the product it supports, be sure to read the general information under "Notices" on page ix.

Third Edition (November 1993)

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About This Manual

This manual describes the objects, commands, and parameters used to configure OS/400 communications. It includes a general discussion of the objects and methods used to configure communications and detailed descriptions of all parameters that can be specified for the commands used to create the configuration objects.

This manual is intended for use as a source of detailed information for configuring all communications types and should be used in conjunction with one or more other AS/400 communications manuals that address the specific communications types being configured.

This manual does **not** describe the complete configuration requirements for licensed programs available for the AS/400 system, such as Remote Job Entry (RJE), TCP/IP Connectivity Utilities/400, or the OSI Communications Subsystem/400.

You may need to refer to other IBM manuals for more specific information about a particular topic. The *Publications Guide*, GC41-9678, provides information on all the manuals in the AS/400 library.

For a list of related publications, see the "Bibliography" on page H-1.

Who Should Use This Manual

This manual should be used by system operators, administrators, programmers, or support personnel who are configuring for or using AS/400 communications.

Users of this manual should understand general communications concepts and be familiar with the AS/400 concepts described in the *System Concepts*, GC41-9802 and *System Operator's Guide*, SC41-8082.

Some of the information contained in this manual assumes that the user has a thorough knowledge of communications protocols. If you need more information about protocols, AS/400 communications, or configuration requirements for other systems and communications controllers that can be attached to the AS/400 system, see the list of related publications in the Bibliography.

Summary of Changes

APPC Data Compression: Three new parameters have been added to the mode description to allow specification of both inbound and outbound session-level data compression for APPC communications. See the descriptions of the DTACPR, INDTACPR, and OUTDTACPR parameters in Chapter 9 for more information.

Distributed Data Interface (DDI) Network Support: Support has been added to allow connection to distributed data interface (DDI) networks, including fiber and shielded twisted pair distributed data interface networks (FDDI and SDDI). A new line description type, the DDI line (CRTLINDDI command), is used to configure the AS/400 connection to the DDI network. See Chapter 6 for more information about the CRTLINDDI command. The *Local Area Network Guide* includes detailed information about AS/400 support for DDI networks.

Frame Relay Networking: Support has been added to allow communications using frame relay networks. Two new object types, the frame relay network interface description (CRTNWIFR command) and the frame relay line description (CRTLINFR command) have been added to support this function. Frame relay communications can be configured in one of two ways:

- *SNA direct* connections use a frame relay network interface and a frame relay line description to carry SNA data to another system.
- *Bridged* connections allow an AS/400 system to exchange SNA or non-SNA data over a frame relay network to a remote bridge that is attached to a token-ring, Ethernet, or DDI network.

Parameters have been added to token-ring and Ethernet line descriptions to allow attachment to the frame relay network interface. See Chapter 6 for more information about the frame relay, token-ring, Ethernet, and DDI line descriptions; see Chapter 5 for information about the frame relay network interface description. The *Local Area Network Guide* includes detailed information about AS/400 support for frame relay networks.

Host Print Transform: Several parameters have been added to the printer device description (Chapter 8) to allow use of the host print transform function. This function provides AS/400-based conversion of SNA character stream (SCS) data to ASCII transparent data. See the *Guide to Programming for Printing* for more information about this function.

ISDN Support for Bellcore National ISDN and ETSI (European) ISDN Networks: New values have been added to the network type (NETTYPE) parameters to allow specification of networks conforming to the Bellcore National ISDN standard in North America and the European Telecommunications Standards Institute (ETSI) ISDN standard in Europe. The new values, *NISDN and *ETSI, can be specified for the NETTYPE parameters on network interface descriptions (Chapter 5), connection lists (Chapter 11), and in the network attributes.

RSHUTD Session Termination: A new parameter has been added to the Create Device Description (SNA Host) (CRTDEVHOST) command to allow use of the RSHUTD command when requesting an end of session. See the description of the ENDSSNHOST parameter in Chapter 8 for more information.

SDLC Support for High Speed Communications: Support has been added to allow line speeds of up to 2048 Kbps over SDLC lines using the appropriate J1/T1/E1 data communications equipment. The High Speed Communications Input/Output Processor (feature code 2666) supports SDLC line speeds of up to 2048000 bps. Several new values have been added to the LINESPEED and LINKSPEED parameters on the SDLC line description (Chapter 6) and to the link speed element of the ROWnLINE parameter on the class-of-service description (Chapter 9).

SNA Primary LU2 Support (SPLS): This function provides AS/400-to-System/390 connectivity similar to the network routing facility. New values have been added to the application type (APPTYPE) parameter for display and printer device descriptions (Chapter 8). A new SNA host controller description parameter (AUTOCRTDEV, Chapter 7) allows automatic creation of some device descriptions used for this support. See the

| *Remote Work Station Guide* for more information
| about configuring for SPLS.

| **User Exit Program for Printing Job and**
| **File Separators:** A new parameter has been
| added to the Create Device Description (Printer)
| (CRTDEVPRT) command that allows you to
| specify an exit program for printing job and file
| separator pages. (See the description of the
| SEPPGM parameter in Chapter 8.) The exit
| program interface is described in the *System*
| *Programmer's Interface Reference*.

Part 1. Communications Configuration Overview

Chapter 1. Introduction to AS/400 Communications Configuration

AS/400* communications configuration is done by either manually or automatically creating a set of configuration objects that represent the local and remote stations that are to communicate. The types of objects required for a communications configuration vary, depending on the type of communications being configured, and can represent either physical or logical devices.

This chapter will introduce the configuration objects used by the AS/400 system and describe what they are and how they work together. Chapter 2 describes various methods you can use to create the configuration objects.

Configuration Objects

Configuration objects are used by the AS/400 system to describe both physical and logical aspects of the communications environment. These include:

Line Descriptions
Describe the physical line and the line protocol used for communications

Controller Descriptions
Describe physical remote controllers or provide logical representations of remote systems

Device Descriptions
Describe the characteristics of physical or logical remote devices

Mode Descriptions
Describe session limits and characteristics used for advanced program-to-program communications (APPC) and Advanced Peer-to-Peer Networking* (APPN*)

Class-of-Service Descriptions
Describe node and transmission group characteristics used for APPN route selection

Configuration Lists
Contain entries describing local and remote locations, pass-through information, and addresses used by a configuration

Network Interface Descriptions
Describe the characteristics or protocol for communications with an integrated services digital network (ISDN) or frame relay network

Connection Lists
Contain entries describing local and remote locations in an ISDN network

Each of these objects is introduced in this chapter. Detailed information for creating each of the object types is provided in the following chapters.

Basic Configuration Objects

Most communications configurations use at least three types of configuration objects: The line description, controller description, and device description.

Each of these object types are divided into several categories, determined by the CL command used to create the object. For example, line descriptions are created using the CRTLINxxx commands; to create a line description for a token-ring network, the CRTLINTRN command is used.

A complete list of CL commands used for OS/400* communications configuration is provided under "Configuration Using CL Commands" on page 2-7. The following topics introduce the commands used to create the basic configuration objects, including a brief description of which communications types use which commands.

Line Descriptions

The line description describes the local system and the communications type used by the local system. Line descriptions define the physical interface between the local system and the remote system, controller, or network (for example, RS-232/V.24, X.21, or V.35) and the protocol used for communications. Line descriptions can also include information about the line speed, whether the line is switched or nonswitched, and the network address or telephone number of the local system.

Line descriptions are created using CL commands; the specific command used depends on the communications protocol:

CRTLINASC Asynchronous communications (start/stop protocol)
CRTLINBSC Binary synchronous communications (BSC)
CRTLINDDI Distributed data interface (DDI) networks, including fiber (FDDI) and shielded twisted pair (SDDI) networks
CRTLINETH Ethernet networks (including IEEE 802.3 and Ethernet Version 2)
CRTLINFR Frame relay networks
CRTLINIDLC ISDN data link control (ISDN networks)
CRTLINNET Network lines. These line descriptions are automatically created for Callpath/400* connections using ISDN D-channels.
CRTLINSDLC Synchronous data link control (SDLC)
CRTLINTDLC Twinaxial data link control (TDLC). These line descriptions are automatically created for locally attached devices.
CRTLINTRN Token-ring networks
CRTLINX25 X.25 packet-switching networks or ISDN networks that support X.25 packet switching.

With the exception of ISDN and frame relay networks, the line description is normally the first configuration object created. One or more line descriptions can be created for each communications line that attaches to your system; however, only one line description can be varied on at a time for each communications line.

See Chapter 6 for detailed descriptions of line description parameters.

Controller Descriptions

The controller description describes the characteristics of the remote system, controller, or network that is to communicate with the local system. Controller descriptions can describe an actual physical controller (such as a 5394 Remote Work Station Controller), or logically represent the connection to another system or network.

Many controller descriptions can be associated with a single line description. For example, an AS/400 system in a token-ring network with 20 personal computers can be configured using a single line description (using the CRTLINTRN command) and 20 controller descriptions, each describing one personal computer. Controller descriptions usually include addressing information about the remote system (such as token-ring adapter addresses or telephone numbers for switched connections); the controller description *always* includes information to describe the communications between the local system and a specific remote station, regardless of whether the remote station is another system, a remote work station controller, or a network.

The specific command used to create the controller description depends on the type of communications as shown in the following list:

CRTCTLAPPC	APPC, with or without APPN support. APPC controllers are also used to configure for SNA pass-through (non-APPC) communications
CRTCTLASC	Asynchronous communications using asynchronous (start/stop) or X.25 lines
CRTCTLBSC	Binary synchronous communications (BSC)
CRTCTLFNC	Finance communications controllers
CRTCTLHOST	SNA communications with System/370* or System/390* host systems
CRTCTLNET	Transmission Control Protocol/Internet Protocol (TCP/IP), OSI communications, or user-defined communications. These controller descriptions are normally created automatically.
CRTCTLRTL	Retail communications controllers
CRTCTLRWS	Remote work station controllers (3174, 3274, 5251 Model 12, 5294, 5394, and 5494)
CRTCTLVWS	Virtual work station controllers used for display station pass-through

The controller description is normally created after the line description and before any device descriptions. See Chapter 2 for information about exceptions to the order used to create configuration objects.

See Chapter 7 for detailed descriptions of controller description parameters. See the *Device Configuration Guide* for information about configuring tape and twinaxial local work station controller descriptions. See the *ASCII Work Station Reference and Example* for information about configuring devices attached to ASCII work station controllers.

Device Descriptions

The device description describes the characteristics of the physical or logical device that is to communicate with the local system. Device descriptions can describe a physical device (such as a 3180 display station), or logically represent a communications session or a program running on another system.

Many device descriptions can be associated with a single controller description. For example, a 5394 remote work station controller with four display stations and a printer attached to it would be configured using a single controller description (using the CRTCTLRWS command) and five device descriptions, each describing one of the attached devices. Device descriptions usually include information about the specific device type (for physical devices), some form of addressing information, including a remote location name if the device is to be used by a program, and the name of the controller description associated with the device.

The specific command used to create the device description depends on the type of communications as shown in the following list:

CRTDEVAPPC	APPC, with or without APPN support
CRTDEVASC	Asynchronous communications using asynchronous (start/stop) or X.25 lines. Asynchronous device descriptions are always associated with asynchronous controller descriptions.
CRTDEVBSC	Binary synchronous communications (BSC). These device descriptions are used to configure for communications using binary synchronous communications equivalence link (BSCEL), System/38 BSC communications, RPG II with BSCA files and tele-

communications specifications, remote job entry (RJE), or 3270 device emulation. BSC device descriptions are always associated with BSC controller descriptions.

CRTDEVDSP Physical or virtual display stations

CRTDEVFNC Finance communications devices

CRTDEVHOST SNA communications with System/370 or System/390 host systems. These device descriptions are used to configure for remote job entry (RJE), 3270 device emulation, or user-written application programs that use SNA communications.

CRTDEVINTR Intrasystem communications devices. These are logical devices used to run communications applications within the same AS/400 system; no line or controller descriptions are associated with the intrasystem device description.

CRTDEVNET Transmission Control Protocol/Internet Protocol (TCP/IP), OSI communications, or user-defined communications. These device descriptions are normally created automatically.

CRTDEVPRT Printers

CRTDEVRTL Retail communications devices

CRTDEVSNPT SNA pass-through devices

CRTDEVSNUF Communications using the SNA Upline Facility (SNUF). SNUF devices are always associated with SNA host controllers.

The device description is normally created after the controller description. Device descriptions used for APPN, TCP/IP, OSI, and user-defined communications are normally created automatically.

See Chapter 8 for detailed descriptions of device description parameters. See the *Device Configuration Guide* for information about configuring locally attached devices.

Other Configuration Objects

In addition to the line, controller, and device description, some communications types use the following configuration objects:

- Mode descriptions are used by APPC and APPN
- Class-of-service descriptions are used by APPN only
- Configuration lists are used by APPN, asynchronous communications when running over an X.25 line, and retail pass-through communications
- Network interface descriptions are used by ISDN and frame relay networks
- Connection lists are used only by ISDN networks

Mode Descriptions

The mode description describes the session characteristics and number of sessions used to negotiate the allowable values between the local and remote locations. The AS/400 mode descriptions are used only by APPC and APPN.

Several mode descriptions are supplied with the system. System-supplied mode descriptions can be changed, but will be restored to their original values at each initial program load (IPL).

If you choose to define a new mode description, you must ensure that the configuration for the remote system specifies a mode description of the same name and with the same session characteristics. Also, because mode descriptions are refer-

enced by device descriptions, any mode descriptions associated with a device description must exist at the time the device description is specified.

For an overview of mode descriptions and detailed descriptions of mode description parameters, see "Mode Descriptions" on page 9-2. For more information about mode descriptions, see the *APPN Guide*.

Class-of-Service Descriptions

The class-of-service description tells the system which network nodes and transmission groups are acceptable and, of those acceptable, which are preferred during route selection. The descriptions can include information such as transmission priority, link speed, cost-per-connection time, and security. Class-of-service descriptions are used only by APPN.

Several class-of-service descriptions are supplied with the system. System-supplied class-of-service descriptions can be changed, but will be restored to their original values at each IPL.

Because class-of-service descriptions are referenced by mode descriptions, the class-of-service description must exist at the time the associated mode description is specified.

For an overview of class-of-service descriptions and detailed descriptions of class-of-service description parameters, see "Class-of-Service Descriptions" on page 9-7. For more information about class-of-service descriptions, see the *APPN Guide*.

Configuration Lists

A configuration list is a collection of entries, such as locations and network addresses, which are used by a configuration. You can create the following types of configuration lists for the system:

***APPNLCL**	APPN local location list
***APPNRMT**	APPN remote location list
***ASYNCADR**	Asynchronous network address list
***ASYNCLOC**	Asynchronous remote location list
***RTLPASTHR**	Retail pass-through list
***SNAPASTHR**	SNA pass-through list

For an overview of configuration lists and detailed descriptions of configuration list parameters, see Chapter 10.

Connection Lists

Connection lists are used to manage calls sent to and received from an ISDN. A connection list contains one or more entries to provide call information for incoming and outgoing calls. Chapter 11 contains an overview of connection lists and detailed descriptions of all connection list and connection list entry parameters.

ISDN configuration objects are normally created in the following order:

1. Connection list and connection list entries
2. Network interface description
3. IDLC or X.25 line descriptions
4. Controller descriptions
5. Device descriptions

See the *ISDN Guide* for more information about connection lists and AS/400 ISDN support.

Network Interface Descriptions

Network interface descriptions describe the interface between the AS/400 system and the ISDN or frame relay network. Chapter 5 contains detailed descriptions of all network interface description parameters.

See the *ISDN Guide* for more information about AS/400 ISDN support. See the *Local Area Network Guide* for more information about AS/400 frame relay support.

Network and System Identification

All networking protocols use a method to identify groups of systems as a network and to identify individual systems within the network. If your network or system is connected to systems outside of your enterprise (customers, suppliers, other network providers), you must ensure the uniqueness of your network and system identifiers.

SNA uses a *network identifier* to associate groups of systems and a *control point name* to identify individual systems within the network. This address pair is used to provide each system with a unique address. These values are configured in the network attributes on the AS/400 system and are equivalent to the NETID and SSCPNAME definitions specified in the VTAM start options for host systems.

Because of special processing done by APPN and host subarea networks based on the network identifier, the default AS/400 network identifier, APPN, should not be used. Instead, you should obtain a registered network identifier from the SNA Network Registry. If your enterprise has already chosen a network identifier, your branch office can assist you in getting your chosen network identifier registered in the SNA Registry to establish its uniqueness.

TCP/IP uses a 32-bit integer, the internet address, to provide unique system identification. The internet address consists of a *network ID* and a *host ID*. To connect to the Internet, you must use an address assigned by Government Systems, Inc. See the *TCP/IP Guide* for more information about TCP/IP addressing and internet address registration.

OSI network identification formats are specified by ISO 8348/Addendum 2. Network entity titles and NSAP addresses are used to uniquely identify systems within an OSI network. See the *OSI Communications Subsystem/400 Configuration and Administration Guide*, SL23-0187, for more information.

Relationships Between Configuration Objects and Communications Programs

Intersystem communications function (ICF) and Common Programming Interface Communications application programs are associated with communications configuration objects through remote location names. The remote location name serves as a logical representation of the target system for a communications program.

Remote location names are required parameters for all device descriptions that can be used by either ICF or CPI-Communications programs. These device descriptions must be manually created except when using APPN. The communications configuration objects that will be used by an application program are not

selected until the program needs to communicate with the remote system; for example, when an ICF application program issues an acquire operation, when a user accesses a file at a remote system using DDM, or when a user requests to sign on to a remote system using display station pass-through.

The following topics describe how application programs are associated with configuration objects and how remote location names are processed by different communications types.

How ICF and CPI-Communications Programs Reference Device Descriptions

For ICF application programs, the program and device description are associated through the program device entry in the ICF file used by the program. Figure 1-1 shows how the remote location name is used to link an ICF program device entry and the device description.

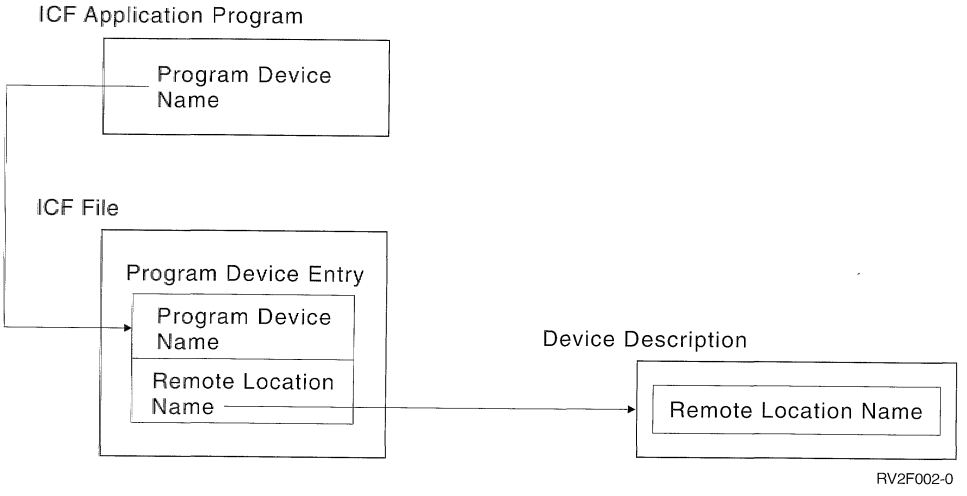


Figure 1-1. Relationship between ICF Program Device Entry and Device Description

CPI-Communications is only supported using APPC device descriptions. For CPI-Communications application programs, the program and the APPC device description are associated through the *partner_LU_name* conversation characteristic. The AS/400 system equivalent of the *partner_LU_name* is the combination of the remote network identifier and the remote location name.

The CPI-Communications program can specify the *partner_LU_name* directly, or use the symbolic destination name (*sym_dest_name*) conversation characteristic to indirectly specify the APPC device description to be used. The *sym_dest_name* points to a communications side information object containing a remote network identifier and remote location name; the side information object, in turn, points to the APPC device description.

If a CPI-Communications program specifies the *partner_LU_name* directly, this value overrides a *partner_LU_name* specified in the communications side information object (*sym_dest_name*). Figure 1-2 shows how the remote location name is used to link a CPI-Communications application program to the device description.

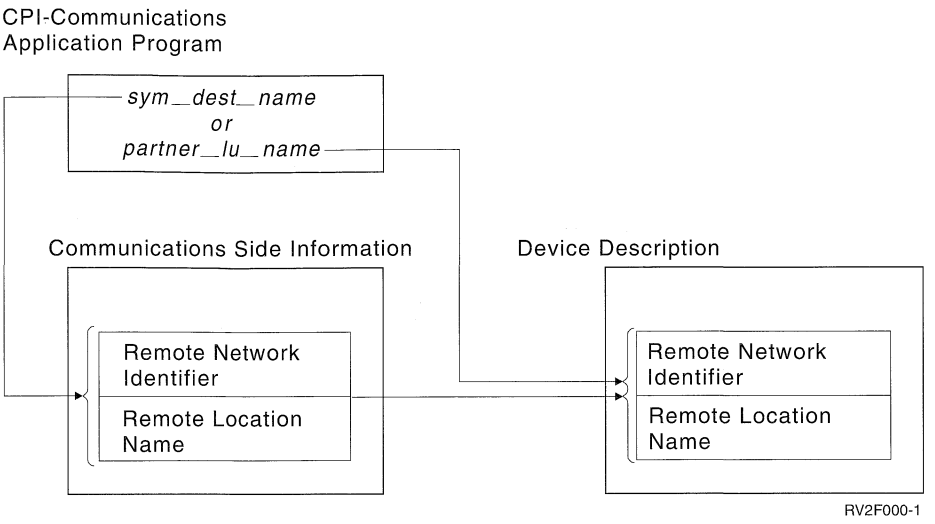


Figure 1-2. Relationship between CPI-Communications Program and Device Description

If you write your own application programs, see the *ICF Programmer's Guide* for more information about ICF programming, or the *APPC Programmer's Guide* for information about CPI-Communications programming.

Remote Location Name Processing

When an application program issues an operation requiring communications with a remote location, the system searches for a device description containing the remote location name. If a device description containing the remote location name is found, the communications type is determined from the device description; if one is not found, then the communications type being used is assumed to be APPC using the APPN support. Because the communications type used by an application program is determined by the remote location name, different types of device descriptions (for example, APPC and asynchronous device descriptions) must not specify the same remote location name.

Some communications types allow more than one device description of that type to contain the same remote location name. You can display all device descriptions (manually created or system created) with a given remote location name using the Work with Configuration Status (WRKCFGSTS) command or the Work with Device Descriptions (WRKDEVD) command.

The methods used by different communications types to select device descriptions are described below.

APPC: The local location name, remote network ID, and remote location name are used to select the device description. The specific processing depends on whether or not APPN support is used (specified by the APPN parameter on the device description). Note that when multiple APPC devices exist that have the same remote location name specified, all devices must specify either APPN(*YES) or APPN(*NO).

APPC Without APPN: More than one device description can contain the same remote location name, local location name, and remote network ID. You can let the system select the device description based on these three values or request a specific device description:

- If you allow the system to select the device description, it alphabetically searches the device descriptions matching the specified information and selects the device description based on the device status. For example, a device description with a status of ACTIVE is selected first; devices with status VARIED ON or VARIED ON PENDING are selected next, and so on.
- If you request a specific device description, the remote location name, local location name, and remote network ID must match.

Requesting a specific device description is desirable when:

- A specific logical unit on a host system is required by the AS/400 application program, or
- Device descriptions containing the same remote location name, local location name, and remote network ID are attached to more than one controller description.

Selecting the device description allows you to control which line and controller description are used.

APPN: You cannot request that a specific device description be selected when using APPN. APPN does not normally require remote location names to be configured; if remote locations need to be configured, the QAPPNRMT configuration list is used. In either case, the system creates device descriptions containing the remote location name when APPN is used.

When an application program requests a remote location that is using the APPN support, the system attempts to find the remote location within the APPN network and determine a route to it. The device description selected is one that matches the remote location name, local location name, and remote network ID, and that is attached to the controller description representing the first hop of the calculated route. The device description selected may already exist; if not, the system creates and varies on the device description. When the device description is selected, the mode parameter is processed.

See the *APPN Guide* for more information about APPC device selection, including the processing of the mode parameter and special values for the local location name, remote network ID, and device parameters. See Chapter 10 and the *APPN Guide* for information about APPN location lists.

Asynchronous Communications: The same remote location name cannot be configured in more than one device description. The device description selected is the one containing the remote location name.

BSCEL: The same remote location name cannot be configured in more than one device description. The device description selected is the one containing the remote location name.

SNA Upline Facility: The same remote location name can be configured in more than one device description. You can let the system select the device description or request a specific device description:

If you let the system select the device description, it alphabetically searches the device descriptions for a matching remote location name and selects the first one that is varied on and not currently in use. If you request a specific device description, then it is selected as long as it contains the specified remote location

name. Requesting a device description is desirable when a specific logical unit on the host system is required by the application program.

3270 Device Emulation (BSC and SNA): The same remote location name can be configured in more than one device description. You have the choice of letting the system select a device description based on the remote location name or requesting a specific device description. If you let the system select the device description, it alphabetically searches the device descriptions for a matching remote location name and selects the first one that is varied on and not currently in use. If you request a specific device description, then it is selected. Requesting a device description is desirable when a specific logical unit on the host must be used for 3270 device emulation.

See the *3270 Device Emulation Guide* for more information about device selection for 3270 device emulation.

Intrasystem Communications: The same remote location name can be configured in more than one device description. You have the choice of letting the system select a device description based on the remote location name or requesting a specific device description.

If you let the system select the device description, it alphabetically searches the device descriptions for a matching remote location name and selects the first one that is varied on.

Finance Communications: Use the remote location name for only intersystem communications function (ICF) devices. The same remote location name cannot be configured in more than one device description. The device description selected is the one containing the remote location name.

Retail Communications: The same remote location name cannot be configured in more than one device description. The device description selected is the one containing the remote location name.

Chapter 2. Performing Configuration Tasks

Depending on the communications support you intend to use, configuration can be either manual or automatic (the system performs the configuration) or a combination of both. For manual configuration, use either the menus or CL commands.

Automatic Configuration

For personal computers attached to local work station controllers, the AS/400 system can automatically configure the twinaxial data link control (TDLC) line, APPC controller descriptions, and APPC device descriptions. It is recommended that you do not manually create these configuration descriptions. For information about automatic configuration of devices attached to local work station controllers, refer to the *Device Configuration Guide*.

APPC controller and device descriptions for personal computers that run PC Support/400 and are attached to 5394 or 5494 remote work station controllers can also be automatically configured.

For Advanced Peer-to-Peer Networking (APPN) support, APPC devices are automatically configured when a request to establish a session is received and a device description does not exist for that request. Automatic configuration of APPC controller descriptions can also be specified for local area network lines by using the AUTOCRTCTL parameter on the line description. See the *APPN Guide* for information about APPN automatic configuration.

For 5250 display station pass-through, the AS/400 system can automatically configure virtual work station controllers and virtual display devices. Some device descriptions used by the SNA Primary LU2 Support (SPLS) can be automatically created. For more information about automatic configuration for display station pass-through and SPLS, see the *Remote Work Station Guide*.

The AS/400 system can automatically configure network lines, controllers, and devices used by CallPath/400, TCP/IP, OSI, and user-defined communications.

Manual Configuration

The AS/400 system can be configured for communications using any of several methods:

- Using the Work with... commands. By entering a Work with... command on the command line of any display (for example, WRKLIND, Work with Line Descriptions), you are shown a Work with... display on which you can create, change, copy, rename, delete, display, print, or retrieve the CL source for the configuration objects.
- Using the system menus. By selecting options from the system menus, you are shown a Work with... display for the object type you want to configure. This method is essentially the same as entering the Work with... command on the command line.
- Using CL commands. CL commands can be used for any of the operations available on the Work with... displays except *copy*. CL commands to create, change, display, or delete configuration objects can be used in several ways:
  - Direct entry. You can type the CL command for the object type you want to configure (for example, CRTLINSDLC to create an SDLC line

description), including all required parameters and any others you want to specify. Commands can be entered either on the command line of system menus or on the Command Entry display. (The Command Entry display is shown by typing `CALL QCMD` on any command line, then pressing the Enter key.)

- Command prompting. You can type the CL command with or without parameters on the command line, then press F4 (Prompt). You will be shown one or more displays on which you can specify values for the command prompts and request online help for individual parameters.

  When using command prompting, some of the parameters that can be specified for a command are not shown, depending on values you select. See "Conditional Prompting" on page 2-11 for more information.

- CL programs. You can enter the CL commands for the objects you want to configure in a CL program. See the discussion of the Retrieve Configuration Source (RTVCFGSRC) command in Chapter 3 for information about how source retrieved using this command can be used in a CL program to save the local system configuration or to create or maintain the communications configuration for a remote AS/400 system.

All of these methods can be used for each of the configuration objects discussed previously in the topic "Configuration Objects" on page 1-2.

Work with... Displays for Communications

All of the system configuration menus lead to a configuration Work with... display. The Work with... display can be shown either by selecting options from the system menus or by typing the Work with... command name (for example, WRKCTLD to work with controller descriptions) on the command line of any display and pressing the Enter key.

Using the Work with... displays is generally the easiest method for configuring communications. These displays allow you to perform most configuration tasks for each of the configuration objects described earlier in this chapter.

Each configuration Work with... display contains a list of all configuration descriptions of a particular type. You can use the list to choose which description you would like to work with. For example, if you want to work with a line description, you can select options from system menus (or type WRKLIND on the command line, then press the Enter key) to be shown the Work with Line Descriptions display. The display shown will look like the following:

```
                        Work with Line Descriptions
                                                              System:   RCH38361
Position to . . . . .  _________   Starting characters

Type options, press Enter.
  2=Change   3=Copy   4=Delete   5=Display   6=Print   7=Rename
  8=Work with status  9=Retrieve source

Opt   Line         Type     Text
 _    AAAA         *IDLC
 _    ACTIVE       *IDLC
 _    ADUMMY1      *X25
 _    ALINESDLC    *SDLC
 _    ALINESDLCA   *SDLC
 _    ALINE1       *IDLC
 _    ALINE2       *IDLC
 _    ANEW16K      *TRLAN
 _    ANEW16K2     *TRLAN
                                                                      More...
Parameters or command
===> ____________________________________________________________________________
F3=Exit   F4=Prompt   F5=Refresh   F6=Create   F9=Retrieve   F12=Cancel
F14=Work with status
```

Figure 2-1. Work with Line Descriptions Display

The Work with... displays allow you to perform many configuration tasks. For example, using the Work with Line Descriptions display, you can select any of the following options by typing the option number in the Opt column for any of the listed line descriptions.

2=Change Selecting option 2 will show you the Change Line Description display. On the change command prompt display, the current values for the existing line descriptions are shown.

Notes:

1. There may be some information about a configuration object that cannot be changed. For those values that can be changed, some changes are allowed only when the object is in a particular state. Some changes may take effect immediately; others may require the description to be varied off and then varied on again to take effect.

   See the detailed descriptions of parameters in Chapter 5 through Chapter 11 for more information.

2. On the command prompt display for changing a description, selecting the value *SAME indicates that the value for that prompt will not be changed. The value remains the same as that specified when the description was created or last changed.

3=Copy Selecting option 3 allows you to copy a line description. You will be shown a Create Line Description prompt display on which the values from the line description being copied are shown. Most of these values can be left unchanged, if you want, or changed on the display before pressing the Enter key to create the copied line description.

4=Delete Selecting option 4 allows you to delete a line description. After pressing the Enter key, the system will show the Confirm Delete of Line Descriptions display to verify that you want to delete the line description. The line must be varied off before it can be deleted.

5=Display Selecting option 5 shows the Display Line Description display, listing the current values specified for an existing line description.

6=Print Selecting option 6 prints the line description. This option is the same as specifying *PRINT for the *Output* prompt on the Display Line Description display.

7=Rename Selecting option 7 allows you to rename a line description. See "Renaming Configuration Objects" on page 2-11 for more information about renaming configuration objects.

8=Work with status
Selecting option 8 shows the Work with Configuration Status display for the line description. This display supports options for other configuration tasks, including options to vary on or vary off the line description.

See the *Work Management Guide* for detailed information about working with the status of communications configuration objects.

9=Retrieve source
Selecting option 9 allows you to retrieve configuration source for the line description. This option creates CL command source for the selected line descriptions and places it in a source file member. See Chapter 3 for more information about retrieving configuration source.

In addition to the options for existing line descriptions, you can also use F6 to create a new line description. Pressing F6 shows the Create Line Description display. F14 (Work with Status) allows you to work with the status of all line descriptions listed.

When performing an operation other than create, you can perform multiple operations. You can combine operations or do many of the same operations. The operations are processed in the order they appear on the display. For example, you can type a 5 next to one entry, a 6 next to several other entries, and a 4 next to still more entries. When the Enter key is pressed, all operations are processed in the order in which they appear in the options list (not the order in which they are typed).

If you know the name, or the first part of the name, of the description you want to work with, you can fill in the *Position to* prompt. After you press the Enter key, the name you entered is at the top of the list. This can save the time spent paging through the list.

There may be more line descriptions requested than can be shown on one display. If you see `More. . .` at the end of the list, use the Page Down (or Roll Up) key to view more line descriptions. If `Bottom` appears at the end of the list, no more descriptions exist.

If you use F6 to create a line description from the Work with Line Descriptions display, you will be shown the Create Line Description display (Figure 2-2). Type the new line description name and the line type, then press the Enter key; you will then be shown the entry display for the type of line description being created.

```
                          Create Line Description

Type choices, press Enter.

  New line description      __________    Name

  Line type . . . . . .     ______        *ASYNC = Asynchronous communications
                                          *BSC   = Binary synchronous
                                                   communications
                                          *DDI   = Distributed data interface
                                          *ELAN  = Ethernet local area network
                                          *FR    = Frame relay
                                          *IDLC  = ISDN data link control
                                          *NET   = Network
                                          *SDLC  = Synchronous data link control
                                          *TDLC  = Twinaxial data link control
                                          *TRLAN = Token-Ring local area network
                                          *X25   = X.25 communications network
```

Figure 2-2. Create Line Description Display

After you have created the line description, the Work with Line Descriptions display appears again. If you press F5 (Refresh), the line description you created appears in the list of existing lines.

For more information about communications lines, refer to Chapter 6.

Configuration Using System Menus

The configuration menus are provided by the system to lead you step by step through the configuration process. When configuring for communications, you can select options leading to a Work with... display for the object you want to configure.

For example, from the AS/400 Main Menu, you can select option 6 (Communications). Next, select option 4 from the Communications menu to be shown the Configure Communications and Remote Hardware display (see Figure 2-3). By selecting any of the options on this display, you will be shown the Work with... display for the object type you select. For example, selecting option 1 will show the Work with Line Descriptions display.

```
CFGCMN          Configure Communications and Remote Hardware
                                                      System:   RCH38361
Select one of the following:

     1. Work with lines
     2. Work with communications controllers
     3. Work with work station controllers
     4. Work with communications devices
     5. Work with printers
     6. Work with display stations
     7. Work with modes
     8. Work with classes-of-service
     9. Work with configuration lists
    10. Work with network interfaces
    11. Work with connection lists

    20. Configure TCP/IP
                                                                  More...
Selection or command
===> _____________________________________________________________________

F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel   F13=User support
F16=System main menu
(C) COPYRIGHT IBM CORP. 1980, 1991.
```

```
CFGCMN          Configure Communications and Remote Hardware
                                                      System:   RCH38361
Select one of the following:

    21. Configure OSI

    30. Configure personal computer connections
```

Figure 2-3. Configure Communications and Remote Hardware Display

See the topic "Work with... Displays for Communications" on page 2-3 for more information about using the Work with... displays.

Configuration Using CL Commands

The configuration commands provided by the system allow you to create, change, display, print, and delete communications descriptions. You can use the commands to do all configuration tasks that you can do with the Work with... displays, except copying descriptions and configuring for TCP/IP and OSI. See the *CL Reference* for the syntax of the configuration commands. The following chapters discuss network interface, line, controller, device, mode, and class-of-service descriptions, configuration lists and connection lists; each of these chapters provides detailed information about the parameters that can be specified for these commands.

The CL commands used to configure communications can be typed, with the parameters and values you want to specify, on the command line of any AS/400 system display. You can also type the command on the command line and press F4 (Prompt). Using the prompt display, the system shows one or more displays from which you can select the values you want to specify.

The prompts shown on these displays depend on the values that you enter. For example, if you are describing a switched line, only the prompts that apply to a switched line are displayed.

You can also use configuration commands in CL programs. By coding configuration description commands in a CL program, a central site can develop configuration descriptions for a remote site. The program can then be sent to and run at the remote site.

See Chapter 3 for information about using the Retrieve Configuration Source (RTVCFGSRC) command. This command can be used to create a source member containing CL commands representing some or all configuration objects. The retrieved source can be used as a means of saving configuration information or of creating a CL program for configuring another AS/400 system.

The following lists show the CL commands that can be used to configure communications objects.

- Network interface description commands:

Command	Command Name
WRKNWID	Work with Network Interface Descriptions
CRTNWIFR	Create Network Interface Description (Frame Relay)
CHGNWIFR	Change Network Interface Description (Frame Relay)
CRTNWIISDN	Create Network Interface Description (ISDN)
CHGNWIISDN	Change Network Interface Description (ISDN)
DLTNWID	Delete Network Interface Description
DSPNWID	Display Network Interface Description

- Line description commands:

Command	Command Name
WRKLIND	Work with Line Descriptions
CRTLINASC	Create Line Description (Asynchronous)
CHGLINASC	Change Line Description (Asynchronous)
CRTLINBSC	Create Line Description (BSC)
CHGLINBSC	Change Line Description (BSC)
CRTLINDDI	Create Line Description (DDI)
CHGLINDDI	Change Line Description (DDI)
CRTLINETH	Create Line Description (Ethernet)
CHGLINETH	Change Line Description (Ethernet)
CRTLINFR	Create Line Description (Frame Relay)
CHGLINFR	Change Line Description (Frame Relay)
CRTLINIDLC	Create Line Description (IDLC)
CHGLINIDLC	Change Line Description (IDLC)
CRTLINNET	Create Line Description (Network)
CHGLINNET	Change Line Description (Network)
CRTLINSDLC	Create Line Description (SDLC)
CHGLINSDLC	Change Line Description (SDLC)
CRTLINTDLC	Create Line Description (TDLC)
CHGLINTDLC	Change Line Description (TDLC)
CRTLINTRN	Create Line Description (Token-Ring Network)
CHGLINTRN	Change Line Description (Token-Ring Network)
CRTLINX25	Create Line Description (X.25)
CHGLINX25	Change Line Description (X.25)
DLTLIND	Delete Line Description
DSPLIND	Display Line Description

- Controller description commands:

Command	Command Name
WRKCTLD	Work with Controller Descriptions
CRTCTLAPPC	Create Controller Description (APPC)
CHGCTLAPPC	Change Controller Description (APPC)
CRTCTLASC	Create Controller Description (Asynchronous)
CHGCTLASC	Change Controller Description (Asynchronous)
CRTCTLBSC	Create Controller Description (BSC)
CHGCTLBSC	Change Controller Description (BSC)
CRTCTLFNC	Create Controller Description (Finance)
CHGCTLFNC	Change Controller Description (Finance)
CRTCTLHOST	Create Controller Description (SNA Host)
CHGCTLHOST	Change Controller Description (SNA Host)
CRTCTLNET	Create Controller Description (Network)
CHGCTLNET	Change Controller Description (Network)
CRTCTLRTL	Create Controller Description (Retail)
CHGCTLRTL	Change Controller Description (Retail)
CRTCTLRWS	Create Controller Description (Remote Work Station)
CHGCTLRWS	Change Controller Description (Remote Work Station)
CRTCTLVWS	Create Controller Description (Virtual Work Station)
CHGCTLVWS	Change Controller Description (Virtual Work Station)
DLTCTLD	Delete Controller Description
DSPCTLD	Display Controller Description

- Device description commands:

Command	Command Description
WRKDEVD	Work with Device Descriptions
CRTDEVAPPC	Create Device Description (APPC)
CHGDEVAPPC	Change Device Description (APPC)
CRTDEVASC	Create Device Description (Asynchronous)
CHGDEVASC	Change Device Description (Asynchronous)
CRTDEVBSC	Create Device Description (BSC)
CHGDEVBSC	Change Device Description (BSC)
CRTDEVDSP	Create Device Description (Display)
CHGDEVDSP	Change Device Description (Display)
CRTDEVFNC	Create Device Description (Finance)
CHGDEVFNC	Change Device Description (Finance)
CRTDEVHOST	Create Device Description (SNA Host)
CHGDEVHOST	Change Device Description (SNA Host)
CRTDEVINTR	Create Device Description (Intrasystem)
CHGDEVINTR	Change Device Description (Intrasystem)
CRTDEVNET	Create Device Description (Network)
CHGDEVNET	Change Device Description (Network)
CRTDEVPRT	Create Device Description (Printer)
CHGDEVPRT	Change Device Description (Printer)
CRTDEVRTL	Create Device Description (Retail)
CHGDEVRTL	Change Device Description (Retail)
CRTDEVSNPT	Create Device Description (SNA Pass-through)
CHGDEVSNPT	Change Device Description (SNA Pass-through)
CRTDEVSNUF	Create Device Description (SNUF)
CHGDEVSNUF	Change Device Description (SNUF)
DLTDEVD	Delete Device Description
DSPDEVD	Display Device Description

- Mode description commands:

Command	Command Name
WRKMODD	Work with Mode Descriptions
CRTMODD	Create Mode Description
CHGMODD	Change Mode Description
DLTMODD	Delete Mode Description
DSPMODD	Display Mode Description

- Class-of-service description commands:

Command	Command Name
WRKCOSD	Work with Class-of-Service Descriptions
CHGCOSD	Change Class-of-Service Description
CRTCOSD	Create Class-of-Service Description
DLTCOSD	Delete Class-of-Service Description
DSPCOSD	Display Class-of-Service Description

Note: To copy line, controller, device, mode, or class-of-service descriptions, use option 3 on the Work with... displays.

- Configuration list commands:

Command	Command Name
WRKCFGL	Work with Configuration Lists
CRTCFGL	Create Configuration List
CHGCFGL	Change Configuration List
CPYCFGL	Copy Configuration List
ADDCFGLE	Add Configuration List Entries
CHGCFGLE	Change Configuration List Entries
RMVCFGLE	Remove Configuration List Entries
DLTCFGL	Delete Configuration List
DSPCFGL	Display Configuration List

- Connection list commands:

Command	Command Name
WRKCNNL	Work with Connection Lists
CRTCNNL	Create Connection List
CHGCNNL	Change Connection List
DLTCNNL	Delete Connection List
DSPCNNL	Display Connection List
WRKCNNLE	Work with Connection List Entries
ADDCNNLE	Add Connection List Entry
CHGCNNLE	Change Connection List Entry
RMVCNNLE	Remove Connection List Entry
RNMCNNLE	Rename Connection List Entry

- Other configuration commands:

Command	Command Name
WRKCFGSTS	Work with Configuration Status
RTVCFGSTS	Retrieve Configuration Status
VRYCFG	Vary Configuration
RTVCFGSRC	Retrieve Configuration Source
SAVCFG	Save Configuration
RSTCFG	Restore Configuration
DSPCNNSTS	Display Connection Status

Conditional Prompting

When using command prompting, either by pressing F6 (Create) from the Work with... displays or by pressing F4 (Prompt) when entering a command on the command line, the AS/400 system provides conditional prompting based on values you specify. Conditional prompting can save time and prevent errors when used for creating configuration descriptions because the system shows only those prompts that apply to the type of line, controller, or device that you are configuring.

For example, when creating an APPC controller for use with an X.25 line (by specifying LINKTYPE(*X25)), only those prompts on the CRTCTLAPPC command that apply to X.25 lines are shown; prompts used for controllers attached to SDLC or local area network lines are not shown.

Other function keys that can be used on the command prompt displays include:

F9 (All parameters)
Shows all parameters that can be specified for the command. This function turns off conditional prompting; it should not be used to create configuration objects.

F10 (Additional parameters)
Shows optional parameters for a command.

F11 (Keywords)
Shows the parameter name associated with each prompt.

Renaming Configuration Objects

Names given to configuration objects when created cannot be changed using the change commands (for example, the CHGLINSDLC command). However, the names of most configuration objects can be changed using the Rename Object (RNMOBJ) command or by selecting option 7 from the Work with... displays for the configuration objects. You must have object management authority to the object to use the RNMOBJ command.

Network interface, line, controller, and device description names can be changed only when the objects are varied off; connection lists should be renamed only when there are no active references to the object.

Configuration objects are normally referenced by several other objects. The system can update some of these references to reflect the new object name, but it is the responsibility of the user to ensure that all references to the renamed object are resolved. Objects that may reference a renamed configuration object but are *not* updated by the system include:

- Work station and communication entries in subsystem descriptions
- Display and printer files
- ICF files and CPI-Communications side information
- CL programs
- User profiles and job descriptions
- System values and network attributes
- Other configuration objects

The following objects cannot be renamed:

- Electronic Customer Support (ECS) configuration objects
- QCTL and QCONSOLE controller and device descriptions

- QAPPNRMT, QAPPNLCL, QASYNCLOC, QRTLPASTHR, and QSNAPASTHR configuration lists
- QDCCNNLANY connection list

Considerations for National Language Support

If your system will be communicating with systems using different national languages, use care when specifying configuration names that will be exchanged with the remote system. Avoid using characters that may not be available on the keyboard used by the remote system; for example, characters such as $ (hex 5B), # (hex 7B), and @ (hex 7C). The use of these characters should be limited to migration and support of existing systems that do use them.

Configuration names that may be exchanged with remote systems include:

- Network identifiers
- Location names
- Control point names
- Mode description names
- Class-of-service description names

If a special character must be used that is not available on your keyboard, you must determine the hexadecimal representation of that character and substitute the appropriate character from the code page for your keyboard type. See the *National Language Support Planning Guide* for information about keyboard types and code pages.

Authority

To perform the configuration tasks on a particular configuration description, you must have special authority to the description. Some tasks are more restricted than others and require a greater amount of authority.

The authority required for each of the configuration tasks follows:

- To create a configuration description, you only need authority to the particular configuration command.
- To display or print a configuration description, you must have *USE authority to the description.
- To copy a configuration description, you must have *USE authority to the description.
- To change a configuration description, you must have *CHANGE authority to the description.
- To use the Work with... displays, you must have object operational authority for the object.
- To delete a configuration description, you must have both object operational authority and object existence authority for the object.

For more information on authority, see the manual *Security Reference*.

Determining System Resource Names

Before you create a line or network interface description, you must determine the system resource name assigned to the communications port that will be used by the physical line. (You do not have to specify a resource name for TDLC line descriptions, or for line descriptions attached to network interface descriptions.) Resource names are assigned by the system to all the hardware attached to the system, including communications controllers and ports.

This system resource name must be specified for the *Resource name* prompt (RSRCNAME parameter) on the create line description command. If you are using an automatic call unit, you must also specify an *Autocall resource name* (ACRSRCNAME parameter) for the port to which the automatic call unit is attached.

Either of two CL commands can be used to determine system resource names: Work with Hardware Products (WRKHDWPRD) and Work with Hardware Resources (WRKHDWRSC). The WRKHDWRSC command provides many functions, including the ability to create, change, and vary on or off a line or network interface description for a particular communications port (resource name) by selecting an option on one of the WRKHDWRSC displays.

The following topic provides an example of how the WRKHDWRSC command can be used to display the system resource names for communications ports and to create a line description for the selected port.

Using the Work with Communication Resources Displays

To determine the resource names assigned to communications ports, type WRKHDWRSC TYPE(*CMN), then press the Enter key. You will be shown the Work with Communication Resources display (see Figure 2-4 on page 2-14).

The Work with Communication Resources displays can be used to show three groups of information about each communications resource. Each of the displays shows the resource name and configuration description for each communications controller, adapter, and port. By pressing F11, you can change the information shown as follows:

- The first display (Figure 2-4 on page 2-14) shows the names of the line and network interface descriptions associated with each port.
- The second display (Figure 2-5 on page 2-14) shows the status of each controller, adapter, and port.
- The third display (Figure 2-6 on page 2-15) shows location information for each communications controller and adapter. This example shows a display for a 9406 System Unit. Location information shown for the 9404 System Unit shows unit and card position; the 9402 System Unit display shows card position.

```
                        Work with Communication Resources
                                                                  System:   RCH38361
Type options, press Enter.
  2=Edit   4=Remove   5=Work with configuration description
  7=Add configuration description ...

                          Configuration
Opt  Resource             Description     Type  Description
 _   CC01                                 6130  Comm Processor
 _     LIN01                              6031  Comm Adapter
 _       LIN011          NCTEST           6031  Comm Port
 _       LIN011          NCTEST1          6031  Comm Port
 _       LIN011          QESLINE          6031  Comm Port
 _       LIN011          QTILINE          6031  Comm Port
 _       LIN011          SSSTEST          6031  Comm Port
 _       LIN011          TST0001          6031  Comm Port
 _       LIN011          TST001           6031  Comm Port
 _       LIN011          VMBRIDGE         6031  Comm Port
 _       LIN011          ACTIVE           6031  Comm Port
 _       LIN011          ATT5E42          6031  Comm Port
                                                                          More...
F3=Exit      F5=Refresh   F6=Print   F11=Display resource addresses/statuses
F12=Cancel   F23=More options
```

*Figure 2-4. WRKHDWRSC *CMN Display Showing Configuration Description Information*

```
                        Work with Communication Resources
                                                                  System:   RCH38361
Type options, press Enter.
  2=Edit   4=Remove   5=Work with configuration description
  7=Add configuration description ...

Opt  Resource         Type  Address          Status
 _   CC01             6130  0030-FFFFFFFF    Operational
 _     LIN01          6031  0030-00FFFFFF    Operational
 _       LIN011       6031  0030-0000FFFF    Operational
 _       LIN011       6031  0030-0000FFFF    Operational
 _       LIN011       6031  0030-0000FFFF    Operational
 _       LIN011       6031  0030-0000FFFF    Operational
 _       LIN011       6031  0030-0000FFFF    Operational
 _       LIN011       6031  0030-0000FFFF    Operational
 _       LIN011       6031  0030-0000FFFF    Operational
 _       LIN011       6031  0030-0000FFFF    Operational
 _       LIN011       6031  0030-0000FFFF    Operational
 _       LIN011       6031  0030-0000FFFF    Operational
                                                                          More...
F3=Exit      F5=Refresh   F6=Print   F11=Display serial numbers/locations
F12=Cancel   F23=More options
```

*Figure 2-5. WRKHDWRSC *CMN Display Showing Resource Status Information*

```
                    Work with Communication Resources
                                                              System:   RCH38361
Type options, press Enter.
  2=Edit   4=Remove   5=Work with configuration description
  7=Add configuration description ...

                              Serial      Frame   EIA     Card
Opt  Resource        Type     Number       ID   Location Position
 _   CC01            6130  10-7751193   01      01      12
 _     LIN01          6031  10-7545140   01      01      13
 _       LIN011       6031  10-7545140   01      01      13
 _       LIN011       6031  10-7545140   01      01      13
 _       LIN011       6031  10-7545140   01      01      13
 _       LIN011       6031  10-7545140   01      01      13
 _       LIN011       6031  10-7545140   01      01      13
 _       LIN011       6031  10-7545140   01      01      13
 _       LIN011       6031  10-7545140   01      01      13
 _       LIN011       6031  10-7545140   01      01      13
 _       LIN011       6031  10-7545140   01      01      13
 _       LIN011       6031  10-7545140   01      01      13
                                                              More...
F3=Exit      F5=Refresh   F6=Print   F11=Display configuration descriptions
F12=Cancel   F23=More options
```

*Figure 2-6. WRKHDWRSC *CMN Display Showing Location and Serial Number Information*

Creating Line and Network Interface Descriptions

There are several ways you can use the Work with Communication Resources displays to help you create line and network interface descriptions. You can:

- Use the Work with Communication Resources displays to find the resource names you need, exit the displays, then use the create commands, system menus, or CL programs to create the line or network interface descriptions directly.
- Print the information from the displays (using F6=Print), then use the printed output as a reference for creating the descriptions.
- Use option 7 (Add configuration description) on the Work with Communication Resources displays to create a new line or network interface description for a specific communications port.

Example of Creating a Line Description Using WRKHDWRSC

If you choose to use the third method described above to create a line or network interface description (option 7 on the Work with Communication Resources display), the system will supply some of the information you need, including the resource name, on the command prompt display for the line or network interface description you are creating.

For example, by typing `WRKHDWRSC TYPE(*CMN)` on the command line of a system menu, you will see a display like the one shown in Figure 2-7.

```
                    Work with Communication Resources
                                                              System:   RCH38361
Type options, press Enter.
  2=Edit   4=Remove   5=Work with configuration description
  7=Add configuration description ...

                         Configuration
Opt  Resource             Description    Type  Description
 _   CC01                               6130  Comm Processor
 _     LIN01                            6031  Comm Adapter
 _       LIN011          NCTEST         6031  Comm Port
 _       LIN011          NCTEST1        6031  Comm Port
 _       LIN011          QESLINE        6031  Comm Port
 7       LIN011          QTILINE        6031  Comm Port
 _       LIN011          SSSTEST        6031  Comm Port
 _       LIN011          TST0001        6031  Comm Port
 _       LIN011          TST001         6031  Comm Port
 _       LIN011          VMBRIDGE       6031  Comm Port
 _       LIN011          ACTIVE         6031  Comm Port
 _       LIN011          ATT5E42        6031  Comm Port
                                                                      More...
F3=Exit      F5=Refresh   F6=Print   F11=Display resource addresses/statuses
F12=Cancel   F23=More options
```

*Figure 2-7. Example of Using Option 7 on the WRKHDWRSC TYPE(*CMN) Display*

Enter a 7 in the *Option* column for the row containing the port for which you want to create a line description, then press the Enter key. You are then shown a Create Line Description display similar to Figure 2-8.

```
                         Create Line Description

Type choices, press Enter.

  New line description     BSCLIN2      Name

  Line type . . . . . .    *BSC         *ASYNC = Asynchronous communications
                                        *BSC   = Binary synchronous
                                                 communications
                                        *SDLC  = Synchronous data link control
                                        *X25   = X.25 communications network
```

Figure 2-8. Create Line Description Display

On the Create Line Description display, enter the name and the line type (in this example, *BSC) for the new line description. The line type you specify must be compatible with the communications adapter for the resource name (communications port) selected on the Work with Communication Resources display.

When you press the Enter key you will be shown the create line description prompt display for the line type you selected, with the line description name and resource name prompts already filled in as shown in Figure 2-9 on page 2-17.

```
                    Create Line Desc (BSC) (CRTLINBSC)

Type choices, press Enter.

Line description . . . . . > BSCLIN2      Name
Resource name  . . . . . > LIN011       Name
Online at IPL  . . . . . *YES           *YES, *NO
Application type . . . . . *PGM         *PGM, *RJE, *EML
Physical interface . . . . . *RS232V24    *RS232V24, *V35, ...
Connection type  . . . . . *NONSWTPP    *NONSWTPP, *SWTPP, *MPTRIB
```

Figure 2-9. BSC Line Description Prompt Display

Using System-Supplied Configuration Examples

The system provides a tool that can be used to create example configurations of several types. The configuration objects created by the tool can be used simply as examples or, with a few changes, they can be used as working communications configurations. The principal parts of the tool are:

ZCRTXMPCFG The configuration example tool. ZCRTXMPCFG provides a menu from which options can be selected to create any or all of seven types of communications configurations.

TDCINST A CL program used to create the ZCRTXMPCFG command.

Creating the Configuration Examples Tool

To create the system-supplied example configurations, you must first build the tool that provides this function. All of the objects required to build the tool are shipped with the system in library QUSRTOOL. Do the following to build the tool:

1. Determine which user libraries you want the install program and the configuration tool to be created in. The following steps refer to these libraries as follows:

   `libr1` Library containing the TDCINST install program
   `libr2` Library containing the ZCRTXMPCFG command

   `libr1` and `libr2` can be the same; the libraries must exist at the time they are specified on the following commands.

2. Create the CL program TDCINST using the following command:

   ```
   CRTCLPGM PGM(libr1/TDCINST) SRCFILE(QUSRTOOL/QATTCL)
   ```

   This step assumes that source file QATTCL resides in library QUSRTOOL. If the source file has been copied to another library, replace QUSRTOOL with the new library name.

3. Add `libr1` and `libr2` to your library list using the following commands:

   ```
   ADDLIBLE libr1
   ADDLIBLE libr2
   ```

4. Run the install program to create the tool. The following command creates the ZCRTXMPCFG command and related objects in `libr2`:

   ```
   CALL libr1/TDCINST libr2
   ```

When the TDCINST program completes, you can use the ZCRTXMPCFG command to create example configurations.

Using the ZCRTXMPCFG Command

Type the command ZCRTXMPCFG to show the Create Example Configurations display shown in Figure 2-10. Select any or all of the options listed and the tool creates example configuration descriptions for that option.

```
                        Create Example Configurations

Type option, press Enter.
  1=Create example configuration description(s)

Opt  Text
 _   Multipoint SDLC line with attached 5294/5394/5251-12 remote controllers
 _   Switched dial-in SDLC line with attached 5294 controller
 _   AS/400 to AS/400 passthru over switched dial-in SDLC line
 _   AS/400 to AS/400 passthru over switched dial-out SDLC line
 _   AS/400 to S/370 Host over nonswitched SDLC line running:
       o  3270 emulation, RJE, APPC, SNUF, Host and DHCF
 _   Token-Ring network running:
       o  3270 emulation, RJE, APPC, SNUF, Host and DHCF
 _   X.25 network running:
       o  3270 emulation, RJE, APPC, SNUF, Host, DHCF, Async and 5394
 _   APPC Non-Switched Connection over ISDN
 _   APPC Switched Connection over ISDN


F3=Exit   F12=Previous   F14=Work with lines   F15=Work with controllers
F16=Work with devices    F17=Work with modes
```

Figure 2-10. Create Example Configurations (ZCRTXMPCFG Command) Display

Notes:

1. All configuration objects created by the tool have names that start with the letters TDC; the text description (TEXT parameter) for each object begins with the word EXAMPLE.
2. The tool will not create a new configuration object if an object with the same name and type already exists on the system.
3. Function keys (F14, F15, F16, and F17) shown on the Create Example Configurations display can be used to show the Work with... displays for the configuration objects created by the tool. Only those objects created by the tool are listed on the Work with... displays.
4. Line and network interface descriptions created by this tool all specify CHANGEME as the resource name. If you want to vary on any of the line descriptions created by the tool, you must change the resource name to a valid value. See "Determining System Resource Names" on page 2-13 for information about specifying resource names.
5. Some communications functions require additional objects be created before the configuration can be used. For example, remote job entry (RJE) requires session descriptions that are normally created when the CRTRJECFG command is used. See the *RJE Guide* for more information.

Using the Operational Assistant Communications Configuration Menu

The Operational Assistant Communications Configuration menu can be used to configure certain types of communications to other AS/400 systems, System/36s, or to remote work station controllers and attached devices.

See Appendix F for more information about using the Operational Assistant* communications configuration function.

Chapter 3. Saving, Restoring, and Retrieving Configuration Source

This chapter discusses methods for:

- Recovering configuration objects that are damaged or deleted by mistake or by system failure
- Providing configuration support for several AS/400 installations

Saving and Restoring Configuration Objects

When you have finished configuring for communications, you should save your configuration objects. This should be done as part of a backup and recovery plan for the entire system, allowing you to recover from damaged objects, system failure, or even loss of the entire system due to flood, fire, or some other disaster.

Network interface, line, controller, device, mode, and class-of-service descriptions, configuration lists, and connection lists can be saved and restored using the Save Configuration (SAVCFG), Save System (SAVSYS), and Restore Configuration (RSTCFG) commands. Before using the SAVSYS command, all activity on the system should be ended by using the End Subsystem (ENDSBS) command.

The *Basic Backup and Recovery Guide* contains detailed descriptions of the commands and methods you can use to save and restore all or part of your system. See the *TCP/IP Guide* for additional information about saving configurations for TCP/IP; see the *Distribution Services Network Guide* for information about saving SNADS configuration objects.

If you are configuring a central site and intend to use the saved system configuration to install multiple systems, see "Considerations for Installing Multiple Systems" on page 3-14.

Retrieving Configuration Source

You can use the Retrieve Configuration Source (RTVCFGSRC) command to retrieve source for configuration objects. This command creates CL command source for specified configuration objects in a source file member. This source can then be used to create CL programs to:

- Configure communications for the local system. This provides an alternative to using the SAVCFG or SAVSYS command for saving configuration information.
- Configure communications for remote AS/400 systems. After converting the retrieved source into a CL program, the program can be sent to and run at the remote system, allowing one site to easily create and maintain configurations for one or more remote systems.

Using the RTVCFGSRC Command

The RTVCFGSRC command can be entered interactively (on the command line of any display) or it can be used in a CL program. The prompt display for the command can also be seen by selecting option 9 (Retrieve source) on the Work with... displays for network interface, line, controller, device, mode, and class-of-service descriptions, and connection lists.

Note: Source for configuration lists cannot be retrieved using the RTVCFGSRC command. It can be separately saved using the Save Configuration

(SAVCFG) command and restored using either the Restore Object (RSTOBJ) command or the Restore Configuration (RSTCFG) command.

The prompt display for retrieving configuration source is shown below, including the additional parameters available by pressing F10 (Additional parameters).

```
                  Retrieve Configuration Source (RTVCFGSRC)

Type choices, press Enter.

Configuration description  . . .  _________    Name, generic*, *ALL
             + for more values    _________
Type . . . . . . . . . . . . . .  ____         *ALL, *NWID, *LIND, *CTLD...
Source file  . . . . . . . . . .  QCLSRC       Name, QCLSRC
  Library  . . . . . . . . . . .    *LIBL       Name, *LIBL, *CURLIB
Source member  . . . . . . . . .  *CFGD        Name, *CFGD
Retrieve option  . . . . . . . .  *NET         *NET, *OBJ

                          Additional Parameters

Member option  . . . . . . . . .  *REPLACE     *ADD, *REPLACE
Text 'description' . . . . . . .  *CFGDTXT
_____

                                                                      Bottom
F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
F24=More keys
```

Figure 3-1. Retrieve Configuration Source (RTVCFGSRC) Display

The following prompts are specified when using the Retrieve Configuration Source (RTVCFGSRC) display. The parameter names (used when entering the command on the command line or in a CL program) are shown in parentheses.

Configuration description (CFGD)

Specifies the names of configuration objects that are to have their source retrieved. The type of object (for example, line description) is specified on the CFGTYPE parameter.

Possible values are:

- *ALL to retrieve all objects of the type specified on the CFGTYPE parameter.
- A generic name, such as LIN*, which will retrieve all configuration objects with names beginning with the characters LIN and of the type specified by the CFGTYPE parameter.
- Up to 256 individual names of configuration objects of the type specified by the CFGTYPE parameter.

Type (CFGTYPE)

Specifies the object type of the configuration descriptions specified by the CFGD parameter. Possible values are:

- Specify the object type: *NWID, *LIND, *CTLD, *DEVD, *MODD, *COSD, or *CNNL, representing network interface, line, controller, device, mode, class-of-service descriptions, and connection lists, respectively. Configuration lists cannot be retrieved.

- *ALL to retrieve source for all network interface, line, controller, device, mode, class-of-service descriptions, and connection lists having names matching the value specified in the CFGD parameter.

When *ALL is specified, source is retrieved in the following order:

1. Connection lists
2. Network interface descriptions
3. Non-TDLC line descriptions
4. Non-TDLC controller descriptions (those controller descriptions not attached to TDLC lines)
5. TDLC line descriptions
6. TDLC controller descriptions
7. Device descriptions
8. Mode descriptions
9. Class-of-service descriptions
10. Switched NWI list (SWTNWILST) for IDLC and X.25 line descriptions
11. Switched line list (SWTLINLST) for controller descriptions
12. Switched controllers list (SWTCTLLST) for line descriptions
13. Printers (PRINTER parameter) attached to remote display stations

Source file (SRCFILE)

Specifies the source file where the retrieved configuration source is stored. The default source file is *LIBL/QCLSRC. If another source file name is used, the file must exist at the time the RTVCFGSRC command is run.

Source file member (SRCMBR)

Specifies the source file member where the retrieved configuration source is stored. The default is *CFGD.

If *CFGD is used, the source member name is determined as follows:

- If the value specified for the CFGD parameter is *ALL, a generic name, or a list of object names, CFGSRC will be used as the member name.
- If the value specified for the CFGD is a single object name, that name will be used as the member name.

A specific member name can also be specified. If a specified member name does not exist, it will be created automatically.

Retrieve option (RTVOPT)

Specifies which attachment information is retrieved for the specified objects. Possible values are:

*NET (The default) This value retrieves the source for the configuration object names specified on the CFGD parameter, of the type specified on the CFGTYPE parameter. RTVOPT(*NET) also retrieves:

- The source for configuration objects that are attached downline. For example, if CFGTYPE(*CTLD) is specified, the configuration source for devices attached to the specified controllers is also retrieved.
- Switched attachment information. For example, if CFGTYPE(*CTLD) is specified, the switched attachment configuration information (if any) is retrieved in the form of CHGCTL*xxx* commands including the SWTLINLST parameter following the CRTCTL*xxx* commands. CHGLIN*xxx* commands, including the SWTCTLLST parameter, are retrieved for lines using switched controllers.

*OBJ This value retrieves only the source for the configuration object names specified on the CFGD parameter, of the type specified on the CFGTYPE parameter.

The RTVOPT parameter cannot be specified if CFGTYPE(*ALL) is specified. If CFGTYPE(*ALL) is specified, the source is retrieved for objects of all types with names as specified on the CFGD parameter, followed by switched attachment information (SWTNWILIST, SWTLINLST, and SWTCTLLST parameters on the change line and change controller commands).

Member option (MBROPT)

Specifies whether retrieved source is added to an existing source member or replaces an existing source member. Possible values are:

*REPLACE (The default) Replaces any source already existing in the source file member with the source retrieved by this command.

*ADD Adds the retrieved source to any source already in the source file member.

Text description (TEXT)

Specifies a description of the source file member. Descriptions must be no longer than 50 characters, enclosed in apostrophes.

The default value for this parameter is *CFGDTXT. If *ALL, a generic name, or a list of names is specified for the CFGD parameter, *BLANK is used as the text description of the source file member. Otherwise, the text specified in the configuration object is used.

If MBROPT(*REPLACE) is specified, the description of the source file member is also replaced.

Considerations for Retrieving Configuration Source

Consider the following when you use the RTVCFGSRC command:

- The source file used for retrieving the source must be created *before* using the RTVCFGSRC command. Use the Create Source Physical File (CRTSRCPF) command to create the source file. The file must have a record length of at least 45 characters.

  See the *Database Guide* for detailed information about using source files and source members.

- Configuration list information cannot be retrieved using the RTVCFGSRC command.
- APPC device passwords (LOCPWD parameters) cannot be retrieved.
- Authority specified for the configuration objects (AUT parameters) is not retrieved. If you wish to specify an authority other than the default (*CHANGE) for any of the configuration objects retrieved, you can do so by:
  - Editing the source file member before using it in a CL program
  - Granting or revoking authority for the objects created
  - Changing the default for the AUT parameter (using the CHGCMDDFT command) for the commands that will be used.
- The RTVCFGSRC command creates configuration source for the current release of the OS/400 licensed program only. However, systems running earlier releases can still be supported using the RTVCFGSRC command.

To create configurations for AS/400 systems running earlier releases of the OS/400 program, those parameters and values that do not apply should be removed from the source file member before using source retrieved from a system running the current release. When these parameters and values have been removed, the retrieved source can be used in CL programs to create configurations for systems running earlier releases of the OS/400 licensed program.

- The retrieved source must be edited if it is to be used as a CL program. PGM and ENDPGM statements must be added, along with any comments or changes (including those needed to support previous the OS/400 licensed program releases) before using the CRTCLPGM command to create the program.

  The retrieved source can also be submitted as a batch job. See the *Work Management Guide* for information about submitting batch jobs; see the *CL Programmer's Guide* for detailed information about writing CL programs.

Example of Retrieving Configuration Source

The following example shows how the RTVCFGSRC command can be used to retrieve configuration source into a source file member and how to create a CL program using that source. In this example, a program will be created that can be used to recreate configuration objects for the local system as a means of recovery. If any of the objects used by the example configuration are damaged or deleted by mistake, the program can be run to recreate those objects.

Programs created in this way can also be sent to another AS/400 system and run to create the configuration objects for that system.

This example uses objects created for a 5250 remote work station communications configuration. These consist of:

- A switched SDLC line description named SOXLINE.
- Two remote work station controller descriptions, BOSTON and CHICAGO.
- Display and printer device descriptions attached to each of the controller descriptions (BOSDSP, BOSPRT, CHIDSP, and CHIPRT).

Source retrieved using the RTVCFGSRC command will be stored in a file called QCLSRC in library QGPL unless you specify a different library and source file. If you wish to use a source file other than QGPL/QCLSRC, both the library and the source physical file must be created before you use the RTVCFGSRC command.

For this example, the Create Library (CRTLIB) and Create Source Physical File (CRTSRCPF) commands were used to create a library called CFGLIB and a source physical file called RWSRTV.

Retrieving the Source

To begin retrieving configuration source, type RTVCFGSRC (**1**) on any command line, then press F4 to use the command prompt displays. This example uses the AS/400 Programming Development Manager (PDM) displays to display and edit the source member and to compile the CL program.

```
                AS/400 Programming Development Manager (PDM)

Select one of the following:

     1. Work with libraries
     2. Work with objects
     3. Work with members

     9. Work with user-defined options









Selection or command
===> 1 RTVCFGSRC
_____________________________________________________________________________
F3=Exit        F4=Prompt       F9=Retrieve        F10=Command entry
F12=Cancel     F18=Change defaults
                                        (C) COPYRIGHT IBM CORP. 1981, 1991.
```

Figure 3-2. Entering the RTVCFGSRC Command on PDM Main Menu

Because the configuration source being retrieved uses a switched line and a generic naming convention has not been used, the line description source must be retrieved separately from the controller and device description source.

Note: You can retrieve a complete network configuration using a single RTVCFGSRC command if either of the following is true:

- If the line description is nonswitched, you can specify the name of the nonswitched line description for the CFGD (Configuration description) parameter and use the default *NET for the RTVOPT (Retrieve option) parameter. The command will locate and retrieve the source for the line description and its attached controller and device descriptions.
- If generic names have been used for the configuration objects (LIND, CTLD, and DEVD parameters), you can specify the generic name for the CFGD parameter and *ALL for the CFGTYPE parameter to retrieve all configuration objects with that generic name.

  For example, assume that the following objects are created, each using RWS as the first three characters of the object name:

  ```
  CRTLINSDLC LIND(RWSLINE) ...
  CRTCTLRWS CTLD(RWSCTL1) ...
  CRTCTLRWS CTLD(RWSCTL2) ...
  CRTDEVDSP DEVD(RWSDSP1) ...
  CRTDEVDSP DEVD(RWSDSP2) ...
  ```

  The complete configuration can be retrieved by specifying:

  ```
  RTVCFGSRC CFGD(RWS*) CFGTYPE(*ALL) ...
  ```

Figure 3-3 shows the prompts specified to retrieve the source for the SOXLINE line description. The source will be retrieved into source member RWSPGM, in source file RWSRTV, in library CFGLIB.

```
                Retrieve Configuration Source (RTVCFGSRC)

Type choices, press Enter.

Configuration description  . . . > SOXLINE     Name, generic*, *ALL
            + for more values
Type . . . . . . . . . . . . . . > *LIND       *ALL, *NWID, *LIND, *CTLD...
Source file  . . . . . . . . . . > RWSRTV      Name, QCLSRC
  Library  . . . . . . . . . . . >   CFGLIB    Name, *LIBL, *CURLIB
Source member  . . . . . . . . . > RWSPGM      Name, *CFGD
Retrieve option  . . . . . . . .   *NET        *NET, *OBJ
```

Figure 3-3. Retrieving SOXLINE Line Description Source

Type the RTVCFGSRC command again and press F4 to retrieve the source for the BOSTON and CHICAGO controller descriptions. After filling in the fields as shown in Figure 3-4, press F10 to show additional parameters.

```
                Retrieve Configuration Source (RTVCFGSRC)

Type choices, press Enter.

Configuration description  . . . > BOSTON      Name, generic*, *ALL
            + for more values > CHICAGO
Type . . . . . . . . . . . . . . > *CTLD       *ALL, *NWID, *LIND, *CTLD...
Source file  . . . . . . . . . . > RWSRTV      Name, QCLSRC
  Library  . . . . . . . . . . . >   CFGLIB    Name, *LIBL, *CURLIB
Source member  . . . . . . . . . > RWSPGM      Name, *CFGD
Retrieve option  . . . . . . . .   *NET        *NET, *OBJ
```

Figure 3-4. Retrieving BOSTON and CHICAGO Controller Description Source

To retrieve the controller description source into the same source member as the line description source without replacing the line description source, you must specify *ADD for the MBROPT (Member option) parameter (**2** in Figure 3-5 on page 3-9). The RTVOPT (Retrieve option) value (*NET) will also retrieve the source for all device descriptions attached to the BOSTON and CHICAGO controller descriptions.

```
                  Retrieve Configuration Source (RTVCFGSRC)

Type choices, press Enter.

Configuration description  . . . > BOSTON       Name, generic*, *ALL
              + for more values > CHICAGO
Type . . . . . . . . . . . . . . > *CTLD        *ALL, *NWID, *LIND, *CTLD...
Source file  . . . . . . . . . . > RWSRTV       Name, QCLSRC
  Library  . . . . . . . . . . .   CFGLIB       Name, *LIBL, *CURLIB
Source member  . . . . . . . . . > RWSPGM       Name, *CFGD
Retrieve option  . . . . . . . .   *NET         *NET, *OBJ

                          Additional Parameters

Member option  . . . . . . . . . > *ADD    2    *ADD, *REPLACE




                                                                      Bottom
F3=Exit   F4=Prompt   F5=Refresh   F10=Additional parameters   F12=Cancel
F13=How to use this display        F24=More keys
```

Figure 3-5. Displaying Additional RTVCFGSRC Parameters

When the configuration source has been retrieved, you can use the PDM displays to show the contents of the source member. Figure 3-6 on page 3-10 shows the source retrieved into member RWSPGM by the RTVCFGSRC commands. Notice that the switched line information (SWTLINLST parameters) is added at the end of the source retrieved for the device descriptions (**3**).

```
       ********** Beginning of data *************************************
0000.01 /*                                    RWSPGM      9/20/90 17:44:40 */
0000.03 CRTLINSDLC LIND(SOXLINE) RSRCNAME(LIN021) ONLINE(*NO) ROLE(*PRI) +
0000.04          INTERFACE(*RS232V24) CNN(*SWTPP) VRYWAIT(*NOWAIT) +
0000.05          AUTOCALL(*NO) EXCHID(05610070) NRZI(*YES) MAXCTL(1) +
0000.06          CLOCK(*MODEM) LINESPEED(9600) MODEM(*NORMAL) +
0000.07          MODEMRATE(*FULL) SWTCNN(*ANS) AUTOANS(*YES) AUTODIAL(*NO) +
0000.08          CALLNBR(*NONE) CNNPOLLRTY(7) MAXFRAME(521) +
0000.09          THRESHOLD(*OFF) DUPLEX(*HALF) MODULUS(8) MAXOUT(7) +
0000.10          NPRDRCVTMR(320) IDLTMR(30) CNNPOLLTMR(30) POLLPAUSE(0) +
0000.11          FRAMERTY(7) LINKSPEED(9600) COSTCNN(128) COSTBYTE(128) +
0000.12          SECURITY(*NONSECURE) PRPDLY(*TELEPHONE) USRDFN1(128) +
0000.13          USRDFN2(128) USRDFN3(128) DSRDRPTMR(6) AUTOANSTYP(*DTR) +
0000.14          CTSTMR(25) RMTANSTMR(60) CMNRCYLMT(2 5) +
0000.15          TEXT('Switched line for Boston and Chicago RWS')
0000.16 /*                                    RWSPGM      9/20/90 17:45:09 */
0000.17 CRTCTLRWS CTLD(BOSTON) TYPE(5394) MODEL(1) LINKTYPE(*SDLC) +
0000.18          ONLINE(*NO) SWITCHED(*YES) SHM(*NO) SNBU(*NO) +
0000.19          CODE(*EBCDIC) DEVWAITTMR(120) MAXFRAME(517) +
0000.20          EXCHID(05F00004) INLCNN(*ANS) CNNNBR('16172344567') +
0000.21          PREDIALDLY(6) REDIALDLY(120) DIALRTY(2) STNADR(04) +
0000.22          POLLPTY(*NO) POLLLMT(0) OUTLMT(*POLLLMT) CNNPOLLRTY(7) +
0000.23          NDMPOLLTMR(*CALC) CMNRCYLMT(2 5) +
0000.24          TEXT('Boston 5394 RWS controller')
0000.25 CRTCTLRWS CTLD(CHICAGO) TYPE(5394) MODEL(1) LINKTYPE(*SDLC) +
0000.26          ONLINE(*NO) SWITCHED(*YES) SHM(*NO) SNBU(*NO) +
0000.27          CODE(*EBCDIC) DEVWAITTMR(120) MAXFRAME(517) +
0000.28          EXCHID(05F00005) INLCNN(*ANS) CNNNBR('13123455678') +
0000.29          PREDIALDLY(6) REDIALDLY(120) DIALRTY(2) STNADR(05) +
0000.30          POLLPTY(*NO) POLLLMT(0) OUTLMT(*POLLLMT) CNNPOLLRTY(7) +
0000.31          NDMPOLLTMR(*CALC) CMNRCYLMT(2 5) +
0000.32          TEXT('Chicago 5394 RWS controller')
0000.33 CRTDEVDSP DEVD(BOSDSP) DEVCLS(*RMT) TYPE(3196) MODEL(A1) LOCADR(01) +
0000.34          ONLINE(*NO) CTL(BOSTON) DROP(*YES) CHRID(*SYSVAL) +
0000.35          ALWBLN(*YES) PRTFILE(*LIBL/QSYSPRT) MAXLENRU(*CALC) +
0000.36          TEXT('Boston 3196 display station')
0000.37 CRTDEVDSP DEVD(CHIDSP) DEVCLS(*RMT) TYPE(3180) MODEL(2) LOCADR(00) +
0000.38          ONLINE(*NO) CTL(CHICAGO) DROP(*YES) CHRID(*SYSVAL) +
0000.39          ALWBLN(*YES) PRTFILE(*LIBL/QSYSPRT) MAXLENRU(*CALC) +
0000.40          TEXT('Chicago 3180 display station')
0000.41 CRTDEVPRT DEVD(BOSPRT) DEVCLS(*RMT) TYPE(*IPDS) MODEL(0) AFP(*NO) +
0000.42          LOCADR(07) ONLINE(*NO) CTL(BOSTON) FONT(011 *NONE) +
0000.43          FORMFEED(*CONT) PRTERRMSG(*INQ) MSGQ(*LIBL/QSYSOPR) +
0000.44          MAXLENRU(*CALC) PACING(7) +
0000.45          TEXT('Boston 4224 IPDS printer')
0000.46 CRTDEVPRT DEVD(CHIPRT) DEVCLS(*RMT) TYPE(4214) MODEL(2) LOCADR(0E) +
0000.47          ONLINE(*NO) CTL(CHICAGO) FORMFEED(*CONT) PRTERRMSG(*INQ) +
0000.48          MSGQ(*LIBL/QSYSOPR) MAXLENRU(*CALC) PACING(7) +
0000.49          TEXT('Chicago 4214-2 printer')
0000.50 CHGCTLRWS CTLD(BOSTON) SWTLINLST(SOXLINE)  3
0000.51 CHGCTLRWS CTLD(CHICAGO) SWTLINLST(SOXLINE)
0000.52 CHGDEVDSP DEVD(BOSDSP) PRINTER(BOSPRT)
0000.53 CHGDEVDSP DEVD(CHIDSP) PRINTER(CHIPRT)
       ****************** End of data ***************************************
```

Figure 3-6. Contents of Source Member RWSPGM after Retrieving Source

Creating a CL Program from Retrieved Configuration Source

Once the configuration source has been retrieved into a source member, the member must be edited to create a CL program. In this example, the only changes made to the source member will be the addition of PGM and ENDPGM commands. You can also add, change, or delete commands or parameters as required.

Note: You can also use the retrieved configuration source to create a batch job by adding //BCHJOB and //ENDBCHJOB statements rather than PGM and ENDPGM commands. Use the Submit Database Job (SBMDBJOB) command to run the batch job.

From the PDM main menu (shown in Figure 3-2 on page 3-7), you can type a 3 on the command line to show the Specify Members to Work With display (Figure 3-7). Specify the source file (RWSRTV), library (CFGLIB), and, optionally, the name of the member you are going to edit, then press the Enter key.

```
                    Specify Members to Work With

Type choices, press Enter.

  File . . . . . .   RWSRTV      Name, F4 for list

    Library . . . . . .   CFGLIB     *LIBL, *CURLIB, name

  Member:
    Name . . . . . .   RWSPGM      *ALL, name, *generic*
    Type . . . . . .   *ALL        *ALL, type, *generic*, *BLANK









F3=Exit     F4=Prompt     F5=Refresh     F12=Cancel
```

Figure 3-7. Specifying the Source File and Library

On the Work with Members Using PDM display shown in Figure 3-8, move the cursor to the Type field and change the member type from CL to CLP (CL program) as shown at **4**. Then select option 2 (Edit) to edit the file member (**5**).

```
                        Work with Members Using PDM

File . . . . . .   RWSRTV
  Library . . . .    CFGLIB          Position to . . . . .

Type options, press Enter.
  2=Edit         3=Copy       4=Delete       5=Display      6=Print
  7=Rename       8=Display description       9=Save         13=Change text ...

Opt  Member      Type         Text
2    RWSPGM      CLP 4        Switched line for Boston and Chicago RWS
5

                                                                      Bottom
Parameters or command
===>
F3=Exit          F4=Prompt          F5=Refresh          F6=Create
F9=Retrieve      F10=Command entry  F23=More options    F24=More keys
```

Figure 3-8. Changing the Source Physical File Member Type

On the Edit display, type an I (insert line) in the line number column at the left. Add the PGM statement on the new line. Repeat the procedure for the ENDPGM statement at the end of the source, using I to insert the new line.

When the PGM and ENDPGM commands (and any other changes you want to make) have been added to the source member, use F3 to exit. You can now create a CL program by typing the CRTCLPGM command or by selecting option 14 (Compile), then pressing F4. Figure 3-9 shows the prompt display for the CRTCLPGM command. The program is given the name RWSCFG and will be created in library CFGLIB. The source file, library, and source member are each specified as before.

```
                        Create CL Program (CRTCLPGM)

Type choices, press Enter.

Program . . . . . > RWSCFG      Name
  Library . . . . . >   CFGLIB    Name, *CURLIB
Source file . . . . . > RWSRTV     Name
  Library . . . . . >   CFGLIB    Name, *LIBL, *CURLIB
Source member . . . . . > RWSPGM     Name, *PGM
Text 'description' . . . . . > 'Program to create RWS configuration'
_____

                                                                    Bottom
F3=Exit   F4=Prompt   F5=Refresh   F10=Additional parameters   F12=Cancel
F13=How to use this display        F24=More keys
```

Figure 3-9. Creating the CL Program Using the RWSPGM Source Member

Figure 3-10 shows the list of the compiled program RWSPGM. The program can now be used to re-create the configuration objects for remote work station communications with Boston and Chicago. To run the program, use the CALL command and specify the library and program name as follows:

```
CALL CFGLIB/RWSCFG
```

Note: If the objects to be created by the program already exist on the system when the program is run, the program will fail.

```
5738SS1 V2R1M0  900907              Control Language              CFGLIB/RWSCFG       01/20/91 17:50:24     Page
Program . . . . . :   RWSCFG
  Library . . . . . :     CFGLIB
Source file . . . . . :   RWSRTV
  Library . . . . . :     CFGLIB
Source member name  . . . . . :   RWSPGM   01/20/91 17:47:30
Source printing options . . . . . :   *SOURCE  *XREF  *GEN  *NOSECLVL
Program generation options  . . . . . :   *NOLIST  *NOXREF  *NOPATCH
User profile  . . . . . :   *USER
Program logging . . . . . :   *JOB
Allow RTVCLSRC command  . . . . . :   *YES
Replace program . . . . . :   *YES
Target release  . . . . . :   *CURRENT
Authority . . . . . :   *LIBCRTAUT
Text  . . . . . :   Program to create RWS configuration
Compiler  . . . . . :   IBM AS/400 Control Language Compiler
```

Figure 3-10 (Part 1 of 3). CL Program to Create Configuration Objects for Boston and Chicago

```
                                  Control Language Source
SEQNBR  *...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7 ...+... 8 ...+... 9 ...+.  DATE
     1- /*                                    RWSPGM      9/20/90 17:44:40 */                            01/20/91
     2- PGM                                                                                              01/20/91
     3- CRTLINSDLC LIND(SOXLINE) RSRCNAME(LIN021) ONLINE(*NO) ROLE(*PRI) +                                01/20/91
     4           INTERFACE(*RS232V24) CNN(*SWTPP) VRYWAIT(*NOWAIT) +                                     01/20/91
     5           AUTOCALL(*NO) EXCHID(05610070) NRZI(*YES) MAXCTL(1) +                                   01/20/91
     6           CLOCK(*MODEM) LINESPEED(9600) MODEM(*NORMAL) +                                          01/20/91
     7           MODEMRATE(*FULL) SWTCNN(*ANS) AUTOANS(*YES) AUTODIAL(*NO) +                             01/20/91
     8           CALLNBR(*NONE) CNNPOLLRTY(7) MAXFRAME(521) +                                            01/20/91
     9           THRESHOLD(*OFF) DUPLEX(*HALF) MODULUS(8) MAXOUT(7) +                                    01/20/91
    10           NPRDRCVTMR(320) IDLTMR(30) CNNPOLLTMR(30) POLLPAUSE(0) +                                01/20/91
    11           FRAMERTY(7) LINKSPEED(9600) COSTCNN(128) COSTBYTE(128) +                                01/20/91
    12           SECURITY(*NONSECURE) PRPDLY(*TELEPHONE) USRDFN1(128) +                                  01/20/91
    13           USRDFN2(128) USRDFN3(128) DSRDRPTMR(6) AUTOANSTYP(*DTR) +                               01/20/91
    14           CTSTMR(25) RMTANSTMR(60) CMNRCYLMT(2 5) +                                               01/20/91
    15           TEXT('Switched line for Boston and Chicago RWS')                                        01/20/91
    16- /*                                    RWSPGM      9/20/90 17:45:09 */                            01/20/91
    17- CRTCTLRWS CTLD(BOSTON) TYPE(5394) MODEL(1) LINKTYPE(*SDLC) +                                      01/20/91
    18           ONLINE(*NO) SWITCHED(*YES) SHM(*NO) SNBU(*NO) +                                         01/20/91
    19           CODE(*EBCDIC) DEVWAITTMR(120) MAXFRAME(517) +                                           01/20/91
    20           EXCHID(05F00004) INLCNN(*ANS) CNNNBR('16172344567') +                                   01/20/91
    21           PREDIALDLY(6) REDIALDLY(120) DIALRTY(2) STNADR(04) +                                    01/20/91
    22           POLLPTY(*NO) POLLLMT(0) OUTLMT(*POLLLMT) CNNPOLLRTY(7) +                                01/20/91
    23           NDMPOLLTMR(*CALC) CMNRCYLMT(2 5) +                                                      01/20/91
    24           TEXT('Boston 5394 RWS controller')                                                      01/20/91
    25- CRTCTLRWS CTLD(CHICAGO) TYPE(5394) MODEL(1) LINKTYPE(*SDLC) +                                     01/20/91
    26           ONLINE(*NO) SWITCHED(*YES) SHM(*NO) SNBU(*NO) +                                         01/20/91
    27           CODE(*EBCDIC) DEVWAITTMR(120) MAXFRAME(517) +                                           01/20/91
    28           EXCHID(05F00005) INLCNN(*ANS) CNNNBR('13123455678') +                                   01/20/91
    29           PREDIALDLY(6) REDIALDLY(120) DIALRTY(2) STNADR(05) +                                    01/20/91
    30           POLLPTY(*NO) POLLLMT(0) OUTLMT(*POLLLMT) CNNPOLLRTY(7) +                                01/20/91
    31           NDMPOLLTMR(*CALC) CMNRCYLMT(2 5) +                                                      01/20/91
    32           TEXT('Chicago 5394 RWS controller')                                                    01/20/91
    33- CRTDEVDSP DEVD(BOSDSP) DEVCLS(*RMT) TYPE(3196) MODEL(A1) LOCADR(01) +                             01/20/91
    34           ONLINE(*NO) CTL(BOSTON) DROP(*YES) CHRID(*SYSVAL) +                                     01/20/91
```

Figure 3-10 (Part 2 of 3). CL Program to Create Configuration Objects for Boston and Chicago

```
5738SS1 V2R1M0  900907                Control Language                CFGLIB/RWSCFG        01/20/91 17:50:24     Page
                                    Control Language Source
SEQNBR  *...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7 ...+... 8 ...+... 9 ...+.  DATE
    35          ALWBLN(*YES) PRTFILE(*LIBL/QSYSPRT) MAXLENRU(*CALC) +                                    01/20/91
    36          TEXT('Boston 3196 display station')                                                      01/20/91
    37- CRTDEVDSP DEVD(CHIDSP) DEVCLS(*RMT) TYPE(3180) MODEL(2) LOCADR(00) +                              01/20/91
    38          ONLINE(*NO) CTL(CHICAGO) DROP(*YES) CHRID(*SYSVAL) +                                     01/20/91
    39          ALWBLN(*YES) PRTFILE(*LIBL/QSYSPRT) MAXLENRU(*CALC) +                                    01/20/91
    40          TEXT('Chicago 3180 display station')                                                     01/20/91
    41- CRTDEVPRT DEVD(BOSPRT) DEVCLS(*RMT) TYPE(*IPDS) MODEL(0) AFP(*NO) +                               01/20/91
    42          LOCADR(07) ONLINE(*NO) CTL(BOSTON) FONT(011 *NONE) +                                     01/20/91
    43          FORMFEED(*CONT) PRTERRMSG(*INQ) MSGQ(*LIBL/QSYSOPR) +                                    01/20/91
    44          MAXLENRU(*CALC) PACING(7) +                                                              01/20/91
    45          TEXT('Boston 4224 IPDS printer')                                                         01/20/91
    46- CRTDEVPRT DEVD(CHIPRT) DEVCLS(*RMT) TYPE(4214) MODEL(2) LOCADR(0E) +                              01/20/91
    47          ONLINE(*NO) CTL(CHICAGO) FORMFEED(*CONT) PRTERRMSG(*INQ) +                               01/20/91
    48          MSGQ(*LIBL/QSYSOPR) MAXLENRU(*CALC) PACING(7) +                                          01/20/91
    49          TEXT('Chicago 4214-2 printer')                                                           01/20/91
    50- CHGCTLRWS CTLD(BOSTON) SWTLINLST(SOXLINE)                                                        01/20/91
    51- CHGCTLRWS CTLD(CHICAGO) SWTLINLST(SOXLINE)                                                       01/20/91
    52- CHGDEVDSP DEVD(BOSDSP) PRINTER(BOSPRT)                                                           01/20/91
    53- CHGDEVDSP DEVD(CHIDSP) PRINTER(CHIPRT)                                                           01/20/91
   100- ENDPGM                                                                                           01/20/91
                            * * * * *  E N D  O F  S O U R C E  * * * * *
5738SS1 V2R1M0  900907                Control Language                CFGLIB/RWSCFG        01/20/91 17:50:24     Page
                                     Cross Reference
* CPD0792 10  No data areas, variables, or labels used in program.
                     * * * * *  E N D  O F  C R O S S  R E F E R E N C E  * * * * *
5738SS1 V2R1M0  900907                Control Language                CFGLIB/RWSCFG        01/20/91 17:50:24     Page
                                      Message Summary
              Severity
Total         0-9  10-19  20-29  30-39  40-49  50-59  60-69  70-79  80-89  90-99
    1           0      1      0      0      0      0      0      0      0      0
Program RWSCFG created in library CFGLIB. Maximum error severity 10.
                            * * * * *  E N D  O F  M E S S A G E  S U M M A R Y  * * * * *
                              * * * * *  E N D  O F  C O M P I L A T I O N  * * * * *
```

Figure 3-10 (Part 3 of 3). CL Program to Create Configuration Objects for Boston and Chicago

Considerations for Installing Multiple Systems

This section contains special considerations for saving a system configuration and sending it to be used on multiple systems. For information about Transmission Control Protocol/Internet Protocol (TCP/IP) considerations, see the *TCP/IP Guide*.

If you are at a central site planning to save your system and send it to other systems, or if you are using source created using the RTVCFGSRC command to create configuration descriptions on another system, you should be aware of the following.

The resource names (RSRCNAME parameters) specified for line and network interface descriptions on your system may not be correct for use by other systems. Even if the other systems have equivalent function and hardware, the resource names can be different if the communications cards are placed in different card positions. Thus, you may have to change the resource names in configuration descriptions that are restored from other systems.

For example, if you create a line description for an SDLC communications line with the resource name of LIN012, and send that description to another site, that description is associated with the resource name LIN012. At the other site, the resource name LIN012 may have been assigned to a different line, and the configuration description you sent will not work.

Also, other configuration information may need to be changed in the other system configurations, such as the network addresses, telephone numbers, exchange identifiers, and remote location names.

There are three possible ways to manage the configuration descriptions on a newly installed system:

- You can write detailed instructions to the user who is to load the saved system tape and install the new system. These instructions should include a list of all the changes required to the configuration descriptions, as well as instructions on how to obtain the system configuration list for the system to determine which resource names need to be changed in the configuration descriptions.
- You can write a program to detect the resource name differences and make all the necessary configuration description changes required. If you are using a program created using the RTVCFGSRC command, you can edit the source member to include the necessary changes before sending the program to the other AS/400 system.
- You can create a pass-through environment at the central site to remotely sign on to the new system after the save tape has been loaded and the new system has been installed. See the *Remote Work Station Guide* for information about configuring for display station pass-through.

When the communications configuration for the new system has been created, ensure that the new system is saved using the procedures discussed in the *Advanced Backup and Recovery Guide*.

Chapter 4. Configuring for AS/400 Communications

The purpose of this chapter is to help you configure your AS/400 system in a communications network. Information is provided to help you determine what you need to do and where you can find information to configure the system for your communications application.

This chapter provides brief descriptions of some of the commonly used communications functions and lists of publications containing configuration examples and information for each function. The listed publications should be used in conjunction with this manual and the *Communications Management Guide* when configuring the AS/400 system.

Note: Manuals produced by the International Technical Support Centers (manuals with form numbers GG24-xxxx) are not formally tested and are not updated. These manuals are written for a specific release of the OS/400 licensed program and may not discuss all of the functions available on your AS/400 system.

All references to specific chapters refer to chapters in this manual.

General Configuration Considerations

The following topic lists some general considerations for configuring AS/400 communications. If you are configuring for a token-ring, distributed data interface (DDI), Ethernet, or frame relay network (including bridged frame relay connections to remote local area networks), see the *Local Area Network Guide*. If you are configuring for an integrated services digital network (ISDN) or X.25 network, the following publications provide additional information and configuration examples for these network types:

- *ISDN Guide*
- *X.25 Network Guide*

ICF and CPI-Communications Applications: Applications using the intersystem communications function (ICF) and CPI-Communications support require coordination between the application program and the communications configuration as described under "Relationships Between Configuration Objects and Communications Programs" on page 1-7. See the *ICF Programmer's Guide* for complete information about ICF files; see the *APPC Programmer's Guide* for information about CPI-Communications programming.

Network Attributes: The specification of network attributes for use by APPN, DDM, and OS/400 alert support is not described in detail in this book. Information about specifying network attributes for these communications types can be found in the *APPN Guide*, *DDM Guide*, and the *Alerts and DSNX Guide* (for alert support).

Communications Subsystems: Some applications require that you add communications, routing, or work station entries to the communications subsystem. You may also want to create a new subsystem for your communications application to run in, rather than use the default subsystems supplied by the system. For information about creating and using subsystems, see the *Communications Management Guide* and the *Work Management Guide*.

Matching Parameters: AS/400 configuration normally requires some coordination of configuration parameters with the remote system or controller. Chapter 12 provides a guide to specifying these parameters for several of the most commonly

attached systems and controllers. Configuration examples given in the publications listed in this chapter for the various communications types may also be helpful.

Ethernet Considerations: All systems and controllers that support token-ring network connections to the AS/400 system can also connect to the AS/400 system using Ethernet lines. However, most systems and controllers, including System/36, System/370 (including the 9370), the 3174 Control Unit, and the Financial Branch System Services (FBSS) finance controller, require the use of the 8209 LAN Bridge. In each of these cases, the remote system or controller must be attached to a token-ring network, with the LAN Bridge used to attach the token ring to the Ethernet bus.

See Appendix B or the *Local Area Network Guide* for information about the 8209 LAN Bridge and special considerations for AS/400 configuration in the bridged environment.

Integrated Services Digital Network (ISDN) Configuration: Configuration for integrated services digital networks (ISDNs) requires you to create some objects not used by other communications types. Connection lists and connection list entries for switched connections should be created first (see Chapter 11), followed by the network interface description (see Chapter 5) and one or more IDLC or X.25 line descriptions (see Chapter 6).

See the *ISDN Guide* for more information about the AS/400 ISDN support.

AS/400 Communications Functions

This section provides brief descriptions of many of the available AS/400 communications functions and lists publications containing information and examples that can be used to configure each communications type.

APPC and APPN

Advanced program-to-program communications (APPC) support is an AS/400 implementation of the Systems Network Architecture (SNA) logical unit (LU) session type 6.2 and node type 2.1 architectures. APPC is used to refer to the application program interface and general support supplied by the AS/400 system to these architectures.

Advanced Peer-to-Peer Networking (APPN) support is an AS/400 extension to the Systems Network Architecture (SNA) logical unit (LU) session type 6.2 and node type 2.1 architectures.

APPN provides networking support that allows the AS/400 system to participate in and control a network of systems without requiring the networking support traditionally provided by a host system.

The remote system can be any of the following systems:

- AS/400 system
- RISC System/6000*
- System/36
- System/38
- IBM Personal Computer
- Displaywriter

- Series/1*
- 5520 Administrative System
- Any other system that supports APPC/APPN architecture
- Any of the following host systems:
  - System/370 system
  - System/390 system
  - ES/9000* system
  - 9370 system

  The host system must be running Advanced Communications Facility/Network Control Program (ACF/NCP) Version 4 Release 3 or later, ACF/NCP Version 5 Release 2 or later, and Virtual Telecommunications Access Method (VTAM*) Version 3 Release 1.1 or later. The host system can also be running Customer Information Control System for Virtual Storage (CICS/VS) Version 1.6 or later.

See *Communications: Advanced Program-to-Program Communications Programmer's Guide*, SC41-8189 and *Communications: Advanced Peer-to-Peer Networking Guide*, SC41-8188 for information about APPC and APPN. The following manuals contain additional configuration examples:

- *An Example of Configuring an Advanced Peer-to-Peer Network for Display Station Pass-Through and Object Distribution*, SA21-9582
- *AS/400 Communication Definitions Examples*, GG24-3449
- *AS/400, System/38 and PS/2* as T2.1 Nodes in a Subarea Network*, GG24-3420
- *AS/400—S/370 Connectivity*, GG24-3336
- *Examples of Advanced Program-to-Program Communications Between the Application System/400* and CICS*, GC21-8183
- *IBM AS/400 in Large Networks: A Case Study*, GG24-3447
- *Management of AS/400 in SNA Subarea Network Using NetView Products*, GG24-3289
- *Managing Multiple AS/400s in a Peer Network*, GG24-3614
- *S3/X and AS/400 APPN Nodes Using the SNA/LEN Subarea Network*, GG24-3288

Alerts

An alert is a Systems Network Architecture (SNA) message that is sent from one system within a communications network to a central network management site called the problem management focal point. The alert notifies the network operator of an actual or impending loss of a resource and provides information about the problem, including possible causes and recommended actions.

You can use the OS/400 alert support to start and stop the automatic creation of alerts, to specify which systems send alerts to a focal point using APPN, and to control which error conditions create alerts.

See the *Communications and Systems Management Guide (Alerts and Distributed Systems Node Executive)*, SC41-9661 for information about alerts. For additional examples of configuring alert support for NetView* applications, see the following manuals:

- *AS/400 Communication Definitions Examples*, GG24-3449
- *IBM AS/400 in Large Networks: A Case Study*, GG24-3447
- *Management of AS/400 in SNA Subarea Network Using NetView Products*, GG24-3289

Asynchronous Communications

OS/400 asynchronous communications support allows an AS/400 application program to exchange data with a remote device using either an asynchronous (start-stop) or X.25 line. Your application program must provide the data stream required by the remote device. Asynchronous communications support transmits your data stream in either a stop-start format or within X.25 data packets. You must create an intersystem communications function (ICF) file before ICF asynchronous communications can be used.

See the *Communications: Asynchronous Communications Programmer's Guide*, SC41-9592 for information about asynchronous communications. If you are configuring for asynchronous communications over an X.25 network, see also the *Communications: X.25 Network Guide*, SC41-0005.

Binary Synchronous Communications Equivalence Link (BSCEL)

Binary synchronous communications equivalence link (BSCEL) supplies distributed data processing support to AS/400 users who want to communicate with a remote system or device using binary synchronous communications (BSC). It also supplies online and batch communications between application programs on different BSC systems.

See the *Communications: BSC Equivalence Link Programmer's Guide*, SC41-9593 for more information about BSCEL. *AS/400 Communication Definitions Examples*, GG24-3449, contains additional examples of binary synchronous communications configurations. For information about System/36 environment programs using RPG II with BSCA files and telecommunications specifications see the *Languages: System/36-Compatible RPG II User's Guide and Reference*, SC09-1162.

Display Station Pass-Through

Display station pass-through is a communications function that allows you to sign on to one system (an AS/400 system, a System/38, or a System/36) from another system (an AS/400 system, a System/38, or a System/36) and use that system's programs and data. The system that issues a request to establish communications with another system is called the source system. The system that receives a request from another system is called the target system.

See the *Communications: Remote Work Station Guide*, SC41-0002 for information about display station pass-through. *AS/400 Communication Definitions Examples*, GG24-3449, and *An Example of Configuring an Advanced Peer-to-Peer Network for Display Station Pass-Through and Object Distribution*, SA21-9582, contain additional configuration examples.

Distributed Data Management (DDM)

The OS/400 distributed data management (DDM) support allows application programs or users to access data files that reside on remote systems and also allows remote systems to access data files on the local AS/400 system.

DDM consists of three parts for processing remote files:

- Source DDM (SDDM), which is the support on the source or local AS/400 system that is started within a source job to do DDM functions. The SDDM translates requests for remote file access from source system application programs into DDM requests that are routed to the target system for processing.

- Target DDM (TDDM), which is the target system job that is started on the target or remote system as a result of an incoming DDM request and that ends when the associated DDM conversation ends.
- DDM file, which is a special type of file that exists on the source system to access a remote file.

See the *Distributed Data Management Guide*, SC41-9600 for information about DDM. The following manuals contain additional configuration examples:

- *AS/400 Communication Definitions Examples*, GG24-3449
- *AS/400—S/370 Connectivity*, GG24-3336

Distributed Host Command Facility (DHCF)

The OS/400 distributed host command facility (DHCF) support allows the AS/400 system to become part of a Host Command Facility (HCF) network.

With OS/400 DHCF support, one or more HCF host system users, using 3270 display stations, can remotely operate and control the AS/400 system as though they were using remote 5250 display stations attached to the AS/400 system.

See the *Communications: Remote Work Station Guide*, SC41-0002 for information about DHCF. *Management of AS/400 in SNA Subarea Network Using NetView Products*, GG24-3289, and *AS/400 Communication Definitions Examples*, GG24-3449, contain additional examples of configuring for DHCF.

Distributed Systems Node Executive (DSNX)

The OS/400 distributed systems node executive (DSNX) support allows the AS/400 system to be part of the NetView Distribution Manager (NetView DM) network. NetView DM is a licensed program that gives you the capability to plan, schedule, and control the exchange of data between the host system and one or more remote sites.

You can use the DSNX support to distribute files and job streams in a network controlled by a System/370 or System/390. You can use this function for central site programming and maintenance and also for the distribution of AS/400 objects.

See the *Communications and Systems Management Guide (Alerts and Distributed Systems Node Executive)*, SC41-9661 for information about DSNX. The following manuals contain additional configuration examples:

- *IBM AS/400 in Large Networks: A Case Study*, GG24-3447
- *Management of AS/400 in SNA Subarea Network Using NetView Products*, GG24-3289
- *AS/400 Communication Definitions Examples*, GG24-3449

File Transfer Support (FTS)

Using file transfer support (FTS), a user application program can send or retrieve database file members between one AS/400 system and another AS/400 system, send database file members to a System/36, and retrieve files and library members from a System/36.

FTS can be configured to use APPC, BSCEL, or asynchronous communications support. See the *Communications: Intersystem Communications Function Programmer's Guide*, SC41-9590 for information about FTS.

Finance Communications

Finance communications support allows programs on an AS/400 system to communicate with application programs using any of the following finance controllers attached using the communications line types shown:

Figure 4-1. Supported Finance Controllers and Line Types

Controller Type	SDLC	X.25	Token-Ring
3694 Document Processor	X		
4701 Communication Controller	X	X	
4702 Processor	X	X	
4730, 4731, 4732, and 4736 Personal Banking Machines	X		
Financial Branch System Services (FBSS)	X	X	X
4737 Self-Service Transaction Station	X	X	X

Finance application programs can be written using the intersystem communications function (ICF) interface for all of the listed controllers. Programs not using the ICF interface can be written for the 3694, 4701, and 4702 controllers.

Token-ring network lines (CRTLINTRN) can be used only for FBSS and 4737 controllers. When these controllers are configured on a token ring, they can also be connected to an AS/400 system on an Ethernet line by using the 8209 LAN Bridge.

See the *Communications: Finance Communications Programmer's Guide*, SC41-8099 for finance communications configuration examples. Information about matching parameters for the AS/400 and finance controllers can be found under "AS/400 Configuration Parameters for 4700 Finance Controllers" on page 12-36 and "Matching Parameters for FBSS Finance Controllers" on page 12-38.

Intrasystem Communications

Intrasystem communications allows two programs running in two different jobs on the same system to communicate with each other.

Intrasystem communications can be used to test new communications programs to be run using other communications types. Using intrasystem communications can help you debug the programs before they are used to communicate with a remote system over a communications line.

To configure for intrasystem communications, you need only create a device description (CRTDEVINTR command). See the *Communications: Intrasystem Communications Programmer's Guide*, SC41-9864 for information about intrasystem communications.

Network Routing Facility (NRF)

The network routing facility (NRF) allows a user signed on to a System/370 or System/390 host system to pass through to an AS/400 system. To use the AS/400 network routing facility support, the Network Routing Facility licensed program must be installed on the host communications controller.

NRF provides function similar to the Host Command Facility (HCF) and distributed host command facility (DHCF), but also includes support for printers.

See the *Communications: Remote Work Station Guide*, SC41-0002, for more information about configuring for the network routing facility.

Object Distribution

Object distribution provides a method of sending objects and messages from one user to another user, or to a group of users. Users can send data files, job streams, spooled output files, messages, and save files using the system distribution directory (for local users) or a Systems Network Architecture distribution services (SNADS) network and the system distribution directory (for remote users).

See the *Communications: Distribution Services Network Guide*, SC41-9588 for information about object distribution. *An Example of Configuring an Advanced Peer-to-Peer Network for Display Station Pass-Through and Object Distribution*, SA21-9582, contains additional configuration examples.

OfficeVision/400

An office network sets up communications between different systems so they can send and receive mail items, such as messages and documents. The distribution services for OfficeVision/400* are provided by Systems Network Architecture distribution services (SNADS). A SNADS configuration must exist on all systems that use distribution services. The SNADS application operates with APPC or APPN to communicate with the other systems in the network.

The office users on your AS/400 system are local users, and your document library is a local document library. If your system is a part of a network, the other systems in the network are remote systems. When your system is a part of a network, you can work with remote document libraries and send and receive messages and documents to and from remote users.

To communicate with remote users, you must specify distribution information for the remote systems, and add the remote users to the system distribution directory. To use remote document libraries, the remote document libraries must be added to the network configuration of the local system, and there must be distribution information for each remote document library.

See the *Communications: Distribution Services Network Guide*, SC41-9588 for information about configuring distribution services for an office network.

OSI Communications Subsystem/400

The open systems interconnection (OSI) model is a set of protocols that have been set as industry standards by the International Organization for Standardization (ISO). OSI was developed to allow computer systems supporting OSI protocols to communicate with each other, regardless of the manufacturer. OSI can be used for the simple transfer of data between systems, but was developed to support distributed data processing in which the same data must be made available to multiple processors in a network.

The IBM OSI Communications Subsystem/400 Version 2 licensed program, 5738-OS1, is a separately orderable licensed program that allows the AS/400 system to communicate with other systems that support the OSI protocols in an X.25 packet-switched network.

The OSI Communications Subsystem/400 must be installed before using OSI communications. See the *OSI Communications Subsystem/400 Configuration and Administration Guide*, SL23-0187, for information about configuring for OSI communications.

PC Support/400

PC Support/400 is a licensed program that runs on both your AS/400 system and your personal computer. PC Support/400 allows you to use personal computers as AS/400 work stations, sharing files, folders, and printers with other AS/400 and PC Support/400 users.

Except for configurations using X.25 lines, configuration for PC Support/400 can be done using AS/400 system menus (shown by typing GO PCSTSK). This interface replaces the explicit creation of line, controller, and device descriptions used for other communications types.

See the following manuals for information about configuring for PC Support/400.

- *AS/400—OS/2 Ethernet Connectivity*, GG24-3496
- *PC Support/400: DOS Installation and Administration Guide*, SC41-0006
- *PC Support/400: DOS Installation and Administration Guide (PS/55)*, SC41-0008
- *PC Support/400: OS/2 Installation and Administration Guide*, SC41-0007
- *PC Support/400: OS/2 Installation and Administration Guide (PS/55)*, SC41-0009

Remote Job Entry

Remote job entry extends the functions of a large host system to the AS/400 system, allowing the AS/400 system to use data and application programs that exist on the host system.

For remote job entry using SDLC and binary synchronous communications lines, most configuration tasks can be done using the Create RJE Configuration (CRTRJECFG) command. The *RJE Guide* describes how to use CRTRJECFG and provides work sheets and configuration examples for both BSC and SNA remote job entry configurations.

You must install the AS/400 Communications Utilities licensed program (5738-CM1) before using remote job entry. See the *RJE Guide* for information about remote job entry. The following manuals contain additional configuration examples.

- *AS/400 Communication Definitions Examples*, GG24-3449
- *AS/400—S/370 Connectivity*, GG24-3336
- *Data Communications: Connecting to a System/370 Using 3270 Device Emulation and Remote Job Entry*, SA21-9987
- *IBM AS/400 in Large Networks: A Case Study*, GG24-3447

Remote Work Station Communications

Remote work station communications allows you to sign on to an AS/400 system from a remote work station using 3174, 3274, 5294, 5394, 5494, or 5251 Model 12 remote controllers.

Examples of remote work station configurations can be found in the *Communications: Remote Work Station Guide*, SC41-0002 and *Data Communications: Remote Work Station Networking Example*, SA21-9977. See "Matching Parameters for 5294, 5394, and 5494 Remote Control Units" on page 12-26 and "Matching Parameters for 3174 and 3274 Control Units" on page 12-32 for information about matching parameters for these remote work station controllers.

Retail Communications

AS/400 retail communications provides the ability to attach the 3651, 3684, 4680, 4681, 4684, and 4692 retail controllers to the AS/400 system using synchronous data link control (SDLC). The 4680 and 4684 controllers can also be configured using X.25 and token-ring network lines.

Retail communications manages data with the intersystem communications function (ICF) to handle the sending and receiving of data between two programs. For communications to begin between programs, the retail communications device must first be configured and varied on.

Retail communications configuration depends on whether the AS/400 system functions as a host system or if retail pass-through support is used, or both. If the AS/400 system is a host system, you need to consider the configuration of retail communications only. If retail pass-through is used, the configurations of both retail communications and SNUF communications need to be considered.

See the *Communications: Retail Communications Programmer's Guide*, SC41-9858 for examples of retail communications configurations. See the *Communications: SNA Upline Facility Programmer's Guide*, SC41-9594 for information about using SNUF for retail pass-through configurations. Information about matching parameters for the AS/400 system and the 3651, 3684, and 4680 retail controllers can be found under "Matching Parameters for Retail Controllers" on page 12-41.

SNA Distribution Services (SNADS)

Systems Network Architecture distribution services (SNADS) is an asynchronous distribution service that can store distributions for later (delayed) delivery. SNADS is an OS/400 application that operates with APPC and APPN to communicate with the other systems in a SNADS network.

See the *Communications: Distribution Services Network Guide*, SC41-9588 for information about SNADS. *AS/400 Communication Definitions Examples*, GG24-3449, contains additional configuration examples.

SNA Pass-Through

SNA pass-through is a communications function that allows display, printer, retail, and finance devices attached to an AS/400 system to communicate directly with System/370 or System/390 host systems.

See the *Communications: Remote Work Station Guide*, SC41-0002, for more information about SNA pass-through. The *Communications: Finance Communications Programmer's Guide*, SC41-8099, and *Communications: Retail Communications Programmer's Guide*, SC41-9858, contain additional information for finance and retail devices using SNA pass-through.

SNA Primary LU2 Support (SPLS)

SNA Primary LU2 Support (SPLS) allows AS/400 systems connected to an SNA host network to establish sessions with 3270 display stations (LU2) and 3287 printers (LU1) that are attached to host communications controllers.

SPLS provides functions similar to the Network Routing Facility (NRF) and to the combined function of the Host Command Facility (HCF) and the distributed host command facility (DHCF).

SPLS supports two types of sessions:

- **Device-initiated sessions** allow 3270 devices to start sessions with the AS/400 system.
- **Application-initiated sessions** allow the AS/400 system to start sessions with 3270 devices.

Both session types provide connectivity between the AS/400 system and the 3270 devices and require no additional intermediate processing by VTAM or the host communications controller.

See the *Communications: Remote Work Station Guide*, SC41-0002, for more information about SPLS.

SNA Upline Facility (SNUF)

The SNA upline facility (SNUF) provides distributed data processing to AS/400 users who want to communicate with a remote host system through IBM Systems Network Architecture (SNA). The host system can be an IBM System/370, 30xx, or 43xx processor using either Customer Information Control System for Virtual Storage (CICS/VS) or Information Management System for Virtual Storage (IMS/VS).

SNUF provides both an interactive and a batch communications interface between the AS/400 system and the host system.

See the *Communications: SNA Upline Facility Programmer's Guide*, SC41-9594 for information about configuring for SNUF. If you need to configure SNUF for retail pass-through communications, see the *Retail Communications Programmer's Guide*.

TCP/IP Connectivity Utilities/400

Transmission Control Protocol/Internet Protocol (TCP/IP) is a set of communications protocols that enable products of many different vendors to connect as peers.

The TCP/IP Utilities licensed program supports the following functions:

- File Transfer Protocol (FTP)
- Simple Mail Transfer Protocol (SMTP)
- TCP/IP programming interface
- Remote terminal logon (TELNET)
- Line printer requester (LPR) and line printer daemon (LPD)

The TCP/IP Utilities licensed program, 5738-TC1, must be installed before using TCP/IP. See the *Transmission Control Protocol/Internet Protocol Guide*, SC41-9875 for information about TCP/IP.

User-Defined Communications Support

The OS/400 licensed program includes support for user-defined communications through a callable application program interface. This support allows a non-IBM communications protocol to be used for applications running over X.25, token-ring network, or Ethernet lines.

See the *System Programmer's Interface Reference*, SC41-8223 for more information about this support.

VM/MVS Bridge

The VM/MVS bridge (formerly known as RSCS/PROFS* bridge) is an application that provides distribution services between a Systems Network Architecture distribution services (SNADS) network and a System/370 RSCS or Job Entry Subsystem (JES2 or JES3) network. Distributions created by document interchange can be sent over this bridge. You can also send and receive files and messages using this bridge.

You must install the AS/400 Communications Utilities licensed program (5738-CM1) before using the VM/MVS bridge. See the *Communications: Distribution Services Network Guide*, SC41-9588 for information about VM/MVS bridge. The following manuals contain additional information about configuring for VM/MVS bridge:

- *AS/400 Communication Definitions Examples*, GG24-3449
- *AS/400 Office in a DIA/SNADS Network*, GG24-3268
- *AS/400—S/370 Connectivity*, GG24-3336
- *IBM AS/400 in Large Networks: A Case Study*, GG24-3447

3270 Device Emulation

3270 device emulation allows you to sign on to applications on a System/370 host system from a 5250-type display station attached to your AS/400 system. You can connect systems directly to an existing BSC or SNA 3270 network without making extensive changes to the host system applications or to the 3270 networks connected to the host systems.

See the *Communications: 3270 Device Emulation Guide*, SC41-9602 for information about 3270 device emulation. The following manuals contain additional examples:

- *AS/400 Communication Definitions Examples*, GG24-3449
- *AS/400—S/370 Connectivity*, GG24-3336
- *Data Communications: Connecting to a System/370 Using 3270 Device Emulation and Remote Job Entry*, SA21-9987
- *IBM AS/400 in Large Networks: A Case Study*, GG24-3447

Part 2. Configuration Objects

Chapter 5. Network Interface Descriptions

This chapter describes the prompts and parameters that are used to configure network interface descriptions on the AS/400 system.

The prompts described in this chapter are seen when working with the configuration prompt displays; the parameter names associated with these prompts are used when entering commands on the command line or in a CL program.

This chapter provides two discussions of network interface description prompts and parameters:

- A set of tables listing the prompts shown on the create network interface description commands. The parameter names associated with each prompt are also shown. For each prompt, the tables also include:
  - Values that can be specified for the prompt (or parameter)
  - Dependencies and requirements for specifying prompts (or parameters) and values
- Detailed descriptions of each prompt used by the create network interface description commands. Descriptions of the prompts are listed in alphabetical order by *parameter name*.

Specifying Network Interface Description Prompts and Parameters

The following tables list basic information for the prompts and parameters that can be specified for the create network interface description (CRTNWI*xxx*) commands. The table contains the following information:

Prompt
Prompt text. Prompts are listed in the order shown on the configuration displays. Depending on values you select, not all of the prompts will be shown.

Parameter
Equivalent parameter name

Values
Values that can be specified for the prompt or parameter

- Default values are underlined
- For prompts requiring a numeric value selected from a continuous range of values, the range is shown in parentheses
- For prompts on which a number of values may be specified, the maximum number of values that can be specified is shown in the *Dependencies* column.

Dependencies
Dependencies between parameters and values. This column indicates whether or not the parameter is required, if any conditions exist for specifying parameters and values, and so on.

Many dependencies are described using parameter names or parameter names with values. For example, the format ONLINE(*NO) is used in the tables (and in CL programs); it is equivalent to specifying *NO for the *Online at IPL* prompt on the configuration displays.

Some parameters list general dependencies; for example, some parameter dependencies may state that another parameter must be specified. Unless otherwise qualified, this restriction applies only to the specification of values other than the default for that parameter.

More complex parameters and dependencies are discussed in the detailed parameter descriptions under "Parameter and Prompt Descriptions" on page 5-8. Detailed descriptions in that topic are listed in alphabetical order by *parameter* name.

Frame Relay Network Interface Description Prompts

Figure 5-1. Frame Relay Network Interface Description Prompts

CRTNWIFR Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Network interface description	NWID	*network-interface-description-name*	Required parameter
Resource name	RSRCNAME	*resource-name*	Required parameter Value assigned by system. See "Determining System Resource Names" on page 2-13 for information about using the WRKHDWRSC command to determine the resource name. See detailed description
Online at IPL	ONLINE	*YES, *NO	Specify only one description per resource name as ONLINE(*YES)
Vary on wait	VRYWAIT	*NOWAIT, *vary-on-wait* (15-180)	None
Data link connection ID	DLCI	*NONE, *DLCI-number line-description*	Up to 256 DLCI numbers and line description names can be specified Specify only if line description is created before network interface description
NRZI data encoding	NRZI	*NO, *YES	See detailed description
Interface	INTERFACE	*RS449V36, *V35, *X21	None
Clocking	CLOCK	*MODEM, *LOOP	None
Line speed	LINESPEED	1536000, *line-speed* (56000-2048000)	See detailed description
LMI mode	LMIMODE	*TE, *FH, *NONE	See detailed description
Polling interval	POLLITV	10, *polling-interval* (5-30)	Valid only for LMIMODE(*TE)
Full inquiry interval	FULLINQITV	6, *full-inquiry-interval* (1-255)	Valid only for LMIMODE(*TE)
Recovery limits	CMNRCYLMT	2 5, *count-limit time-interval*, *SYSVAL	None
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than 50-character description enclosed in apostrophes

ISDN Network Interface Description Prompts

Figure 5-2 (Page 1 of 4). ISDN Network Interface Description Prompts

CRTNWIISDN Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Network interface description	NWID	*network-interface-description-name*	Required parameter
Resource name	RSRCNAME	*resource-name*	Required parameter Value assigned by system. See "Determining System Resource Names" on page 2-13 for information about using the WRKHDWRSC command to determine the resource name. See detailed description
Online at IPL	ONLINE	*YES, *NO	Specify only one description per resource name as ONLINE(*YES)
Vary on wait	VRYWAIT	*NOWAIT, *vary-on-wait* (15-180)	None
Network type	NETTYPE	*NETATR, *ATTG3, *ATT5E42, *ATT5E5, *ATT5E6, *BTNR191, *CCITT88, *DBP1TR6, *ETSI, *FTVN2, *INSNET64, *NISDN, *NT100B29	None
Call control type	CALLCTL	*FIRST, *THIRD	If *FIRST is specified, CHLENTRY must specify only B-channels If *THIRD is specified, CHLENTRY must specify only D-channels and NETTYPE must be *ATTG3
Channel entries	CHLENTRY	*SWT2B, or *D1, *channel-number* or *D, *SWT or *NONSWT, *line-description-name*	See detailed description
Protocol entries	PCLENTRY	*IDLCMAX, *X25MAX, or *IDLC or *X25, *LOAD or *NOLOAD, *MAX, or *maximum-channels*	Up to 2 channels can be specified
Local number	LCLNBR	*CNNL, *'local-number'*	Local number can be up to 40 characters long, enclosed in apostrophes At least one switched channel entry (*SWT) must be specified on the CHLENTRY parameter Not valid for CALLCTL(*THIRD)
Local number type	LCLNBRTYPE	*NETTYPE, *UNKNOWN, *SUBSCRIPTION, *INTERNATL, *NATIONAL, *NETSPECIFIC, *ABR, *LCLDIRNBR, *BLKDIAL	LCLNBR must be specified; cannot be LCLNBR(*CNNL) At least one switched channel entry (*SWT) must be specified on the CHLENTRY parameter

Figure 5-2 (Page 2 of 4). ISDN Network Interface Description Prompts

CRTNWIISDN Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Local numbering plan	LCLNBRPLAN	*NETTYPE, *UNKNOWN, *ISDN, *DATA, *TELEX, *NATIONAL, *PRIVATE	LCLNBR must be specified; cannot be LCLNBR(*CNNL) At least one switched channel entry (*SWT) must be specified on the CHLENTRY parameter
Local number presentation[1]	LCLNBRPSN	*NONE, *ALLOW, *RESTRICT	LCLNBR must be specified; cannot be LCLNBR(*CNNL) At least one switched channel entry (*SWT) must be specified on the CHLENTRY parameter
X.31 notification class[1]	X31NFYCLS	*NETTYPE, *NONE, *CONDITIONAL, *UNCONDITIONAL	Specify only for X.25 connections
Characters to remove	RMVCHR	*NETTYPE, *NONE, *'character'*	Up to 10 characters can be specified. LCLNBR must be specified; cannot be LCLNBR(*CNNL) At least one switched channel entry (*SWT) must be specified on the CHLENTRY parameter
Local subaddress[1]	LCLSUBADR	*CNNL, *local-subaddress*	Up to 40 characters can be specified At least one switched channel entry (*SWT) must be specified on the CHLENTRY parameter Not valid for CALLCTL(*THIRD)
Local subaddress type[1]	LCLSUBTYPE	*NETTYPE, *NSAP, *USER	LCLSUBADR must be specified; cannot be LCLSUBADR(*CNNL) At least one switched channel entry (*SWT) must be specified on the CHLENTRY parameter
Service profile identifiers	SPID	*SPID-number* and *NONE, *ANY, or *SPID-value*	Required for NETTYPE(*NISDN) Valid only for NETTYPE(*NISDN) Value specified must be 9-20 characters in length
Terminal endpoint identifier	TEID	*AUTO, *terminal-endpoint-identifier* (0-63)	At least one switched channel entry (*SWT) must be specified on the CHLENTRY parameter Must be *AUTO if NETTYPE(*NISDN) is specified
Setup differences[1]	SETUPDIF	*NETTYPE, *NONE, *NOLLCIE	At least one switched channel entry (*SWT) must be specified on the CHLENTRY parameter Not valid for CALLCTL(*THIRD)

Figure 5-2 (Page 3 of 4). ISDN Network Interface Description Prompts

CRTNWIISDN Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Procedural differences[1]	PRCDIF	*NETTYPE, *NONE, *ACTCHLS1	At least one switched channel entry (*SWT) must be specified on the CHLENTRY parameter
X.31 differences[1]	X31DIF	*NETTYPE, *NONE, *NOCALLINGNETADR, *NOCALLEDNETADR, *NOCALLUSERDATA	Specify only for X.25 connections Not valid for CALLCTL(*THIRD)
Activation timer	ACTTMR	*NETTYPE, *activation-timer* (10-300)	Not valid for CALLCTL(*THIRD)
Reactivation timer	REACTTMR	*NETTYPE, *reactivation-timer* (10-1800)	Not valid for CALLCTL(*THIRD)
Error threshold level	THRESHOLD	*OFF, *MIN, *MED, *MAX, *SELECT	When using command prompt display, use *SELECT to specify threshold values for specific error types (following prompts)
Loss of frame alignment	FRAMEALIGN	*OFF, *MIN, *MED, *MAX, *threshold-value* (1-10000)	THRESHOLD(*SELECT) must be specified
Incoming system access errors[1]	DTSEIN	*OFF, *MIN, *MED, *MAX, *threshold-value* (1-5000)	THRESHOLD(*SELECT) must be specified
Outgoing system access errors[1]	DTSEOUT	*OFF, *MIN, *MED, *MAX, *threshold-value* (1-5000)	THRESHOLD(*SELECT) must be specified
Code error detected by TE	CDEERRTE	*OFF, *MIN, *MED, *MAX, *threshold-value* (1-10000)	THRESHOLD(*SELECT) must be specified
Code error detected by NT[1]	CDEERRNT	*OFF, *MIN, *MED, *MAX, *threshold-value* (1-5000)	THRESHOLD(*SELECT) must be specified
CRC errors received	CRCRCV	*OFF, *MIN, *MED, *MAX, *threshold-value* (1-10000)	THRESHOLD(*SELECT) must be specified At least one switched channel entry (*SWT) must be specified on the CHLENTRY parameter
Short frame	SHORTFRAME	*OFF, *MIN, *MED, *MAX, *threshold-value* (1-10000)	THRESHOLD(*SELECT) must be specified At least one switched channel entry (*SWT) must be specified on the CHLENTRY parameter
Receive overrun	OVERRUN	*OFF, *MIN, *MED, *MAX, *threshold-value* (1-3000)	THRESHOLD(*SELECT) must be specified At least one switched channel entry (*SWT) must be specified on the CHLENTRY parameter
Transmit underrun	UNDERRUN	*OFF, *MIN, *MED, *MAX, *threshold-value* (1-3000)	THRESHOLD(*SELECT) must be specified At least one switched channel entry (*SWT) must be specified on the CHLENTRY parameter

Figure 5-2 (Page 4 of 4). ISDN Network Interface Description Prompts

CRTNWIISDN Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Frame aborts	ABORTS	*OFF, *MIN, *MED, *MAX, *threshold-value* (1-5000)	THRESHOLD(*SELECT) must be specified At least one switched channel entry (*SWT) must be specified on the CHLENTRY parameter
Retransmitted frames	RETRANSMIT	*OFF, *MIN, *MED, *MAX, *threshold-value* (1-10000)	THRESHOLD(*SELECT) must be specified At least one switched channel entry (*SWT) must be specified on the CHLENTRY parameter
Frame sequence errors	FRMSEQERR	*OFF, *MIN, *MED, *MAX, *threshold-value* (1-3000)	THRESHOLD(*SELECT) must be specified At least one switched channel entry (*SWT) must be specified on the CHLENTRY parameter
Recovery limits	CMNRCYLMT	2 5, *count-limit time-interval*, *SYSVAL	None
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than 50-character description enclosed in apostrophes

Note:

1 The function represented by this parameter may not be available from all network providers, or may be available only as a subscription option.

Parameter and Prompt Descriptions

This topic contains detailed descriptions of all the parameters that can be specified using the create network interface description commands. The prompts for these parameters (shown on the configuration displays) are shown in parentheses following the parameter name. **Parameters are listed in alphabetical order.** If you do not know the parameter name associated with a certain prompt, see the table in the preceding topic; equivalent parameter names are listed for each prompt.

ABORTS (Frame aborts):

ISDN Network Interfaces: Specifies the level of error threshold monitoring done by the system for frame aborts. Possible values are:

*OFF (The default) Error threshold monitoring is not done for frame aborts.

*MIN Minimum error threshold monitoring. The system will send a message to the QSYSOPR message queue if 5 or more frame aborts occur in the first 30 seconds, or 150 errors in any 900-second (15-minute) time period.

*MED Medium error threshold monitoring. The system will send a message to the QSYSOPR message queue if 2 or more frame aborts occur in the first 60 seconds, or 30 errors in any 900-second (15-minute) time period.

*MAX Maximum error threshold monitoring. The system will send a message to the QSYSOPR message queue for each frame abort.

threshold-value

Specify a value in the range 1 to 5000, representing the number of frame aborts in a 15 minute (900 second) period. The system sends a message to the QSYSOPR message queue if the number of aborts specified occurs in any 15-minute time period.

You can change this parameter when the network interface is varied off using the CHGNWIISDN command.

ACTTMR (Activation timer):

ISDN Network Interfaces: Specifies the length of time allowed for the interface activation process to complete. (During interface activation, the system attempts to complete the ISDN synchronization process with the physical layer of the network.) Possible values are:

*NETTYPE The default value for the network type specified by the NETTYPE parameter is used.

activation-timer

Specify a value between 10 and 300 in 0.1-second intervals for the activation timer.

You can change this parameter when the network interface is varied off using the CHGNWIISDN command.

AUT (Authority):

All Network Interfaces: The level of public authority for this network interface description. Allowed values are:

*LIBCRTAUT

(Default) The system determines authority for the object using the value specified for the create authority prompt (CRTAUT parameter) specified for the library in which the object will be created.

*CHANGE

Combines the object operational authority and all data authorities (read, add, update, and delete).

*ALL Combines all the object authorities and data authorities. Users who are not explicitly authorized can control the object's existence, specify the security for the object, change the object, and transfer ownership of the object.

*USE Combines object operational authority and read authority. Users who are not explicitly authorized can display the object.

*EXCLUDE

Prevents users who are not explicitly authorized from accessing the object.

authorization-list-name

Specify the name of an existing authorization list. Users included in the authorization list are granted authority as specified by the list.

See the manual *Security Reference* for general information about the AS/400 system security.

Note: Authority cannot be changed using the change network interface description commands, but can be changed using the system security commands and menus.

CALLCTL (Call control type):

ISDN Network Interfaces: Specifies the type of call control used by the system. Possible values are:

*FIRST (The default) First party call control is performed by the system. The AS/400 system controls those calls to which it is a calling or called party.

*THIRD Third party call control is performed by the system. This value allows the AS/400 system to monitor and control calls to which it is not a calling or called party.

You cannot change this parameter using the CHGNWIISDN command.

CDEERRNT (Code error detected by NT):

ISDN Network Interfaces: Specifies the level of error threshold monitoring done by the system for code errors detected by the NT. This parameter is used only if PRCDIF(*ACTCHLS1) is also specified. Possible values are:

*OFF (The default) Error threshold monitoring is not done for code errors detected by the NT.

*MIN Minimum error threshold monitoring. The system will send a message to the QSYSOPR message queue if 9 or more code errors detected by the NT occur in the first 30 seconds, or 270 errors in any 900-second (15-minute) time period.

*MED Medium error threshold monitoring. The system will send a message to the QSYSOPR message queue if 3 or more code errors detected by the NT occur in the first 30 seconds, or 90 errors in any 900-second (15-minute) time period.

*MAX Maximum error threshold monitoring. The system will send a message to the QSYSOPR message queue for each code error detected by the NT.

threshold-value

Specify a value in the range 1 to 5000, representing the number of code errors detected by the NT in a 15 minute (900 second) period. The system sends a message to the QSYSOPR message queue if the number of code errors specified occurs in any 15-minute time period.

You can change this parameter when the network interface is varied off using the CHGNWIISDN command.

CDEERRTE (Code error detected by TE):

ISDN Network Interfaces: Specifies the level of error threshold monitoring done by the system for code errors detected by the TE. Possible values are:

*OFF (The default) Error threshold monitoring is not done for code errors detected by the TE.

*MIN Minimum error threshold monitoring. The system will send a message to the QSYSOPR message queue if 9 or more code errors detected by the TE occur in the first 30 seconds, or 270 errors in any 900-second (15-minute) time period.

*MED Medium error threshold monitoring. The system will send a message to the QSYSOPR message queue if 3 or more code errors detected by the TE occur in the first 30 seconds, or 90 errors in any 900-second (15-minute) time period.

*MAX Maximum error threshold monitoring. The system will send a message to the QSYSOPR message queue for each code error detected by the TE.

threshold-value

Specify a value in the range 1 to 60000, representing the number of code errors detected by the TE in a 15 minute (900 second) period. The system sends a message to the QSYSOPR message queue if the number of code errors specified occurs in any 15-minute time period.

You can change this parameter when the network interface is varied off using the CHGNWIISDN command.

CHLENTRY (Channel entries):

ISDN Network Interfaces: This parameter contains three elements used to specify the channel number, channel connection type, and line description used by this network interface description. For first-party call control (IDLC and X.25 connections), up to two B-channel entries can be specified; for third-party call control (network line connections), specify one D-channel entry. The default value, *SWT2B, creates two switched B-channel entries. If this value is not used, specify the channel number, channel connection type, and nonswitched line description name as follows:

Channel-number
Specify channel 1 or 2 for B-channel entries; specify *D for D-channel entry.

Channel-connection-type
Specify *SWT for switched or semi-permanent connections; *NONSWT for nonswitched connections or unused channels. *SWT is the default.
D-channel entries must be *NONSWT.

Line-description-name
Specify only if the channel connection type is nonswitched (*NONSWT) and the line descriptions already exist. The system automatically updates this value when line descriptions are created with the name of this network interface description specified for the NWI parameter.

You can change switched B-channel entries when the network interface is varied off using the CHGNWIISDN command. Nonswitched B-channel and D-channel entries cannot be changed.

CLOCK (Clocking):

Frame Relay Network Interfaces: Specifies the method by which the clocking function is provided for the network interface. Possible values are the default, *MODEM, or *LOOP. *LOOP indicates that the system inverts the clock from the modem and uses it as the transmit clock on the line.

CMNRCYLMT (Recovery limits):

All Network Interfaces: Allows second-level communications recovery limits to be specified for each network interface description. This parameter consists of two parts:

count-limit
Specifies the number of second-level recovery attempts to be automatically performed by the system. Valid values are 0 (no recovery attempted) to 99.

time-interval
Specifies the length of time (in minutes) in which the specified number of second-level recoveries can be attempted. Possible values are 0 to 120 in 1-minute intervals. The value 0 specifies infinite recovery if the *count-limit* value is not also 0.

Possible values are:

- `2 5`: The system-supplied default values for the count limit and time interval.
- *count-limit time-interval*: Specify count limit and time interval in the ranges indicated above. When specifying this parameter in a CL command, separate the values with a blank: `CMNRCYLMT(10 15)`.
- *SYSVAL: The recovery limits specified in the system value QCMNRCYLMT are used for this network interface description.

You can change this parameter at any time using the change network interface description commands. The changed values take effect on the next error sequence.

See the *Communications Management Guide* for more information about error recovery and the QCMNRCYLMT system value.

CRCRCV (CRC errors received):

ISDN Network Interfaces: Specifies the level of error threshold monitoring done by the system for CRC errors received. Possible values are:

*OFF (The default) Error threshold monitoring is not done for CRC errors received.

*MIN Minimum error threshold monitoring. The system will send a message to the QSYSOPR message queue if 5 or more CRC errors occur in the first 30 seconds, or 150 errors in any 900-second (15-minute) time period.

*MED Medium error threshold monitoring. The system will send a message to the QSYSOPR message queue if 2 or more CRC errors occur in the first 60 seconds,

or 30 errors in any 900-second (15-minute) time period.

*MAX Maximum error threshold monitoring. The system will send a message to the QSYSOPR message queue for each CRC error received.

threshold-value
Specify a value in the range 1 to 10000, representing the number of CRC errors received in a 15 minute (900 second) period. The system sends a message to the QSYSOPR message queue if the number of errors specified occurs in any 15-minute time period.

You can change this parameter when the network interface is varied off using the CHGNWIISDN command.

DLCI (Data link connection ID):

Frame Relay Network Interfaces: Specifies the data link connection identifiers (DLCIs) and line description names of lines attached to this network interface. Use this parameter only if the line descriptions are created before the network interface description. If the line descriptions have not already been created, the system automatically updates this information when line descriptions are created to attach to this network interface description. Possible values are:

*NONE
(The default) No DLCI values are specified.

DLCI-number line-description-name
Specify the DLCI numbers and the names of the associated frame relay, DDI, token-ring, or Ethernet line descriptions that are attached to this network interface. DLCI values must be in the range 1 through 1018; up to 256 entries can be specified.

You cannot use the CHGNWIFR command to change this parameter.

DTSEIN (Incoming system access error):

ISDN Network Interfaces: Specifies the level of error threshold monitoring done by the system for incoming system access errors. This parameter is used only if PRCDIF(*ACTCHLS1) is also specified. Possible values are:

*OFF (The default) Error threshold monitoring is not done for incoming system access errors.

*MIN Minimum error threshold monitoring. The system will send a message to the QSYSOPR message queue if 9 or more incoming system access errors occur in the first 30 seconds, or 270 errors in any 900-second (15-minute) time period.

*MED Medium error threshold monitoring. The system will send a message to the QSYSOPR message queue if 3 or more incoming system access errors occur in the first 30 seconds, or 90 errors in any 900-second (15-minute) time period.

*MAX Maximum error threshold monitoring. The system will send a message to the QSYSOPR message queue for each incoming system access error.

threshold-value
Specify a value in the range 1 to 5000, representing the number of incoming system access errors in a 15 minute (900 second) period. The system sends a message to the QSYSOPR message queue if the number of incoming system access errors specified occurs in any 15-minute time period.

You can change this parameter when the network interface is varied off using the CHGNWIISDN command.

DTSEOUT (Outgoing system access error):

ISDN Network Interfaces: Specifies the level of error threshold monitoring done by the system for outgoing system access errors. This parameter is used only if PRCDIF(*ACTCHLS1) is also specified. Possible values are:

*OFF (The default) Error threshold monitoring is not done for outgoing system access errors.

*MIN Minimum error threshold monitoring. The system will send a message to the QSYSOPR message queue if 9 or more outgoing system access errors occur in the first 30 seconds, or 270 errors in any 900-second (15-minute) time period.

*MED Medium error threshold monitoring. The system will send a message to the QSYSOPR message queue if 3 or more

outgoing system access errors occur in the first 30 seconds, or 90 errors in any 900-second (15-minute) time period.

*MAX Maximum error threshold monitoring. The system will send a message to the QSYSOPR message queue for each outgoing system access error.

threshold-value
Specify a value in the range 1 to 5000, representing the number of outgoing system access errors in a 15 minute (900 second) period. The system sends a message to the QSYSOPR message queue if the number of outgoing system access errors specified occurs in any 15-minute time period.

You can change this parameter when the network interface is varied off using the CHGNWIISDN command.

FRAMEALIGN (Loss of frame alignment):

ISDN Network Interfaces: Specifies the level of error threshold monitoring done by the system for frame alignment errors. Possible values are:

*OFF (The default) Error threshold monitoring is not done for frame alignment errors.

*MIN Minimum error threshold monitoring. The system will send a message to the QSYSOPR message queue if 9 or more frame alignment errors occur in the first 30 seconds, or 270 errors in any 900-second (15-minute) time period.

*MED Medium error threshold monitoring. The system will send a message to the QSYSOPR message queue if 3 or more frame alignment errors occur in the first 30 seconds, or 90 errors in any 900-second (15-minute) time period.

*MAX Maximum error threshold monitoring. The system will send a message to the QSYSOPR message queue for each frame alignment error.

threshold-value
Specify a value in the range 1 to 10000, representing the number of frame alignment errors in a 15 minute (900 second) period. The system sends a message to the QSYSOPR message queue if the number of frame alignment errors specified occurs in any 15-minute time period.

You can change this parameter when the network interface is varied off using the CHGNWIISDN command.

FRMSEQERR (Frame sequence errors):

ISDN Network Interfaces: Specifies the level of error threshold monitoring done by the system for frame sequence errors. Possible values are:

*OFF (The default) Error threshold monitoring is not done for frame sequence errors.

*MIN Minimum error threshold monitoring. The system will send a message to the QSYSOPR message queue if 2 or more frame sequence errors occur in the first 90 seconds, or 20 errors in any 900-second (15-minute) time period.

*MED Medium error threshold monitoring. The system will send a message to the QSYSOPR message queue if 2 or more frame sequence errors occur in the first 300 seconds, or 6 errors in any 900-second (15-minute) time period.

*MAX Maximum error threshold monitoring. The system will send a message to the QSYSOPR message queue for each frame sequence error.

threshold-value
Specify a value in the range 1 to 3000, representing the number of frame sequence errors in a 15 minute (900 second) period. The system sends a message to the QSYSOPR message queue if the number of errors specified occurs in any 15-minute time period.

You can change this parameter when the network interface is varied off using the CHGNWIISDN command.

FULLINQITV (Full inquiry interval):

Frame Relay Network Interfaces: Specifies the number of polling cycles that occur before a full status inquiry is requested. Allowed values are 1 to 255 cycles; the default value is 6. This parameter is valid only if LMIMODE(*TE) is also specified.

You can use the CHGNWIFR command to change this parameter when the network interface is varied off.

INTERFACE (Interface):

Frame Relay Network Interfaces: Specifies the type of physical interface used to connect to the frame relay network. Frame relay connection is supported on the High Speed Communications IOP (feature code 2666). Possible values are:

*RS449V36
: (The default) An RS-449/V.36 physical interface is used.

*V35
: A V.35 physical interface is used.

*X21
: An X.21 physical interface is used.

You cannot change this parameter using the CHGNWIFR command.

LCLNBR (Local number):

ISDN Network Interfaces: Specifies the local number for this system in the ISDN network. It does not apply to X.31 packet mode calls. Possible values are:

*CNNL
: (The default) The system uses information in the connection list and other considerations to determine whether to accept or reject the call. This value is required if the AS/400 system uses this network interface description for multiple subscription numbers.

local-number
: Specify up to 40 characters, enclosed in apostrophes, for the local number. For incoming calls, the system determines whether to accept or reject the call based on this parameter and the information in the connection list. For outgoing calls, the system uses the number specified for this parameter if the connection list specifies LCLNBR(*NWID).

If the AS/400 system shares a basic rate interface with another device, the AS/400 system must not accept incoming calls that are directed to the other device. The AS/400 system can reject calls for the other device more quickly if a local number is specified for the network interface description rather than in a connection list (*CNNL).

You can change this parameter when the network interface is varied off using the CHGNWIISDN command.

LCLNBRPLAN (Local numbering plan):

ISDN Network Interfaces: Specifies the numbering plan used for the local number specified on the LCLNBR parameter. This parameter can be specified only if a local number is specified for the network interface LCLNBR parameter. Possible values are:

*NETTYPE	The default value for the network type specified by the NETTYPE parameter is used.
*UNKNOWN	Numbering plan is not known.
*ISDN	ISDN/telephony numbering plan.
*DATA	Data numbering plan.
*TELEX	Telex** numbering plan.
*NATIONAL	National numbering plan.
*PRIVATE	Private numbering plan.

You can change this parameter when the network interface is varied off using the CHGNWIISDN command.

LCLNBRPSN (Local number presentation):

ISDN Network Interfaces: Specifies what local number information is to be shown to the called user. This parameter can be specified only if a local number is specified for the network interface LCLNBR parameter and applies only to outgoing calls. Possible values are:

*NONE
: (The default) The local number presentation is not encoded. The network determines whether the local number is presented to the called user.

*ALLOW
: Presentation of the local number to the called user is allowed.

*RESTRICT
: Presentation of the local number to the called user is restricted by the network.

You can change this parameter when the network interface is varied off using the CHGNWIISDN command.

LCLNBRTYPE (Local number type):

ISDN Network Interfaces: Specifies the type of local number specified on the LCLNBR parameter. This parameter can be specified only if a local number is specified for the network interface LCLNBR parameter. Possible values are:

*NETTYPE
: The default value for the network type specified by the NETTYPE parameter is used.

*UNKNOWN
: Local number type is not known.

*INTERNATL
: Local number is an international number type.

*NATIONAL
: Local number is a national number type.

*NETSPECIFIC
: Local number is specific to the network.

*SUBSCRIPTION
: Local number is a subscription number.

*LCLDIRNBR
: Local number is a local directory number. This value indicates the same numbering type as *SUBSCRIPTION.

*BLKDIAL
: Local number is a block dial type. This value indicates the same numbering type as *UNKNOWN—that is, the remote numbering type is not known.

*ABR
: Local number is an abbreviated number.

You can change this parameter when the network interface is varied off using the CHGNWIISDN command.

LCLSUBADR (Local subaddress):

ISDN Network Interfaces: Specifies the local subaddress. It does not apply to X.31 packet mode calls. Possible values are:

*CNNL
: (The default) The system uses information in the connection list and other considerations to determine whether to accept or reject the call.

local-subaddress
: Specify up to 40 hexadecimal characters for the local subaddress. For incoming calls, the system determines whether to accept or reject the call based on this parameter and the information in the connection list. For outgoing calls, the system uses the number specified for this parameter if the connection list specifies LCLSUBADR(*NWID).

  If LCLSUBTYPE(*USER) is specified, the subaddress should be an even number of characters in length. Each pair of characters represents one byte.

  If LCLSUBTYPE(*NSAP) is specified, the first two characters of the subaddress must be the Authority and Format Identifier (AFI) byte. The AFI byte specifies the format of the characters that follow. For example, if the AFI byte is `50`, the characters that follow should be a hexadecimal representation of International Alphabet 5 (IA5) characters.

If the AS/400 system shares a basic rate interface with another device, the AS/400 system must not accept incoming calls that are directed to the other device. The AS/400 system can reject calls for the other device more quickly if a local subaddress is specified for the network interface description rather than in a connection list (*CNNL). You can change this parameter when the network interface is varied off using the CHGNWIISDN command.

LCLSUBTYPE (Local subaddress type):

ISDN Network Interfaces: Specifies the local subaddress type.

*NSAP
: (The default) The local subaddress type is NSAP-encoded.

*USER
: The local subaddress is user-specified.

You can change this parameter when the network interface is varied off using the CHGNWIISDN command.

LINESPEED (Line speed):

Frame Relay Network Interfaces: Specifies the line speed in bits per second (bps) for the frame relay network interface.

Suggested values are: 56000, 64000, 128000, 192000, 256000, 320000, 384000, 448000, 512000, 1024000, 1536000, and 2048000 bps. The default value is 1536000 bps.

Connections using the RS-449/V.36 and X.21 physical interfaces (*RS449V36 or *X21 specified for the INTERFACE parameter) support line speeds up to 2048000 bps. Connections using

the V.35 interface (INTERFACE(*V35)) support line speeds up to 64000 bps.

You can use the CHGNWIFR command to change this parameter when the network interface description is varied off.

LMIMODE (LMI mode):

Frame Relay Network Interfaces: Specifies whether the local management interface (LMI) for this network interface is configured as terminal equipment (TE) or as a frame handler (FH). Possible values are:

*TE (The default) The local system is configured to communicate with the frame relay network as terminal equipment.

*FH The local system is configured as a frame handler. This configuration allows the AS/400 system to communicate with another system without connecting to a frame relay network. A modem eliminator or nonswitched line can be used to connect an AS/400 system configured as a frame handler to a second AS/400 system configured as the terminal equipment (LMIMODE(*TE)). The DLC identifiers specified for each system must match when this type of configuration is used.

*NONE The local system is configured to communicate with the frame relay network or another system without performing any LMI functions.

You can use the CHGNWIFR command to change this parameter when the network interface description is varied off.

NETTYPE (Network type):

ISDN Network Interfaces: Specifies the type of ISDN network the network interface description is used to attach to. The value specified for this parameter is used to determine the default values (*NETTYPE) used for many of the other network interface description parameters.

Possible values are:

*NETATR (The default) The network type specified by the DFTNETTYPE (default network type) parameter in the network attributes is used. You can display the default network type using the DSPNETA command, or change it using the CHGNETA command.

*ATTG3 Use this value when attaching to an ISDN in the US or Canada that uses AT&T** DEFINITY** G3i or G3r switching equipment.

*ATT5E42 Use this value when attaching to an ISDN in the US or Canada that uses AT&T 5ESS** Release 5E4.2 switching equipment.

*ATT5E5 Use this value when attaching to an ISDN in the US or Canada that uses AT&T 5ESS Release 5E5 switching equipment.

*ATT5E6 Use this value when attaching to an ISDN in the US or Canada that uses AT&T 5ESS Release 5E6 switching equipment.

*BTNR191 Use this value when attaching to an ISDN in the United Kingdom controlled by British Telecomm.

*CCITT88 The default values recommended by the 1988 CCITT standard are used.

*DBP1TR6 Use this value when attaching to the ISDN controlled by the Deutsche Bundespost.

*ETSI Use this value when attaching to an ISDN that uses the European Telecommunications Standards Institute (ETSI, also known as EuroISDN) standard.

*FTVN2 Use this value when attaching to the ISDN controlled by France Telecom (Numeris VN2).

*INSNET64 Use this value when attaching to the INSNET64 controlled by Nippon Telephone and Telegraph (NTT).

*NISDN Use this value when attaching to an ISDN that conforms to the Bellcore National ISDN standards for North America.

*NT100B29 Use this value when attaching to an ISDN in the US or Canada that uses Northern Telecom DMS100 Version BCS-29 or BCS-31 switching equipment.

You can change this parameter when the network interface is varied off using the CHGNWIISDN

command. However, all other parameters that were created using the *NETTYPE value will not be updated automatically to reflect the new network type. These parameters must be explicitly changed by specifying *NETTYPE to allow the system to recalculate the value for the new network type.

NRZI (NRZI data encoding):

Frame Relay Network Interfaces: Specifies whether non-return-to-zero inverted (NRZI) data encoding is used for connections using this network interface. Possible values are *YES or *NO; the default value, *NO, indicates that NRZI data encoding is not used.

Specify NRZI data encoding when the data communications equipment requires transitions in the data stream to maintain synchronization between transmitters and receivers.

Direct connections to the 6611 Network Processor that use the RS-449/V.36 interface should specify NRZI(*YES). Direct connections are those that are made without a frame relay network, including connections using a modem eliminator or non-switched line.

You can use the CHGLINFR command to change this parameter when the network interface description is varied off.

NWID (Network interface description):

All Network Interfaces: The name that will be used when you are working with the network interface description using the Vary Configuration (VRYCFG) and Work with Configuration Status (WRKCFGSTS) commands. The name you give the network interface description must follow AS/400 naming conventions, but it can be as descriptive as you choose. Examples are NYC370 and LU1003. See the *CL Reference* for information about naming the AS/400 objects.

You can use the RNMOBJ command (or option 7 on the Work with NWI Descriptions display) to change the name of a network interface description.

ONLINE (Online at IPL):

All Network Interfaces: The network interface description is varied on automatically when the system is turned on if you use the default *YES; specify *NO if you want to vary it on manually by using the Vary Configuration (VRYCFG) command. You can use the VRYCFG command to change the status of the network interface at any time after the initial program load (IPL).

You can change this parameter at any time using the change network interface description commands.

OVERRUN (Receive overrun):

ISDN Network Interfaces: Specifies the level of error threshold monitoring done by the system for receive overrun errors. Possible values are:

*OFF (The default) Error threshold monitoring is not done for receive overrun errors.

*MIN Minimum error threshold monitoring. The system will send a message to the QSYSOPR message queue if 2 or more receive overrun errors occur in the first 90 seconds, or 20 errors in any 900-second (15-minute) time period.

*MED Medium error threshold monitoring. The system will send a message to the QSYSOPR message queue if 2 or more receive overrun errors occur in the first 300 seconds, or 6 errors in any 900-second (15-minute) time period.

*MAX Maximum error threshold monitoring. The system will send a message to the QSYSOPR message queue for each receive overrun error.

threshold-value
Specify a value in the range 1 to 3000, representing the number of receive overrun errors in a 15 minute (900 second) period. The system sends a message to the QSYSOPR message queue if the number of errors specified occurs in any 15-minute time period.

You can change this parameter when the network interface is varied off using the CHGNWIISDN command.

PCLENTRY (Protocol entries):

ISDN Network Interfaces: This parameter is used to limit the number of B-channels that a protocol may use. Up to two protocol entries can be specified. This parameter consists of three elements. Possible values are:

Protocol used
Specify the protocol used by the network interface. Possible values are: *IDLCMAX (the default), *X25MAX, *IDLC, or *X25.

If either *IDLCMAX or *X25MAX is specified, the remaining elements of this parameter need not be specified. These values specify that all switched B-channels (up to 2) are available for use by the indicated protocol and the associated Licensed Internal Code will be preloaded.

Note: If *IDLCMAX is specified, one or both B-channels may still be used for X.25. Similarly, specifying *X25MAX does not preclude the use of one or both B-channels for IDLC. These values indicate the *maximum* number of channels that may be used by their associated protocol; these values do not restrict the use of the B-channels to either protocol.

If *IDLC or *X25 is specified for this element, the *preload Licensed Internal Code* and *maximum channels* elements must also be specified.

Preload Licensed Internal Code
Specify *LOAD or *NOLOAD, indicating whether the Licensed Internal Code should or should not be preloaded. Preloading allows the system to handle the first incoming call on the interface more quickly. The default value is *LOAD.

Maximum switched channels
Specify the maximum number of switched B-channels that are available for use by the specified protocol. Possible values are *MAX (all B-channels), or the specific number of B-channels (1 or 2). The default value is *MAX.

You can change this parameter when the network interface is varied off using the CHGNWIISDN command.

POLLITV (Polling interval):

Frame Relay Network Interfaces: Specifies the polling cycle interval. The polling cycle consists of a status inquiry message and a status message; the status message includes the status of the attached DLCIs. This parameter is only valid if LMIMODE(*TE) is also specified.

Allowed values are 5 to 30 (in 1.0-second intervals); the default value is 10 seconds.

You can use the CHGNWIFR command to change this parameter when the network interface is varied off.

PRCDIF (Procedural differences):

ISDN Network Interfaces: Specifies differences from the CCITT recommendation for miscellaneous procedures. More than one value can be specified for this parameter. Possible values are:

*NETTYPE	The default value for the network type specified by the NETTYPE parameter is used.
*NONE	No differences from the CCITT recommendation.
*ACTCHLS1	Activates the S1 maintenance channel. This value should be specified only for ISDN basic rate interfaces in North America if your network termination (NT) equipment supports the S1 channel. This value enables the CDEERRNT, DTSEIN, and DTSEOUT parameters and allows the AS/400 system to report problems with the NT or the connection between the NT and the network.

You can change this parameter when the network interface is varied off using the CHGNWIISDN command.

REACTTMR (Reactivation timer):

ISDN Network Interfaces: Specifies the length of time allowed for interface reactivation to occur after temporary loss of synchronization. Possible values are:

*NETTYPE
The default value for the network type specified by the NETTYPE parameter is used.

*WAIT The system will wait indefinitely for reactivation to occur.

reactivation-timer
Specify a value between 10 and 1800 in 0.1-second intervals for the reactivation timer.

You can change this parameter when the network interface is varied off using the CHGNWIISDN command.

RETRANSMIT (Retransmitted frames):

ISDN Network Interfaces: Specifies the level of error threshold monitoring done by the system for retransmitted frames. Possible values are:

*OFF (The default) Error threshold monitoring is not done for retransmitted frames.
*MIN Minimum error threshold monitoring. The system will send a message to the QSYSOPR message queue if 5 or more frames are retransmitted in the first 30 seconds, or 150 frames in any 900-second (15-minute) time period.
*MED Medium error threshold monitoring. The system will send a message to the QSYSOPR message queue if 2 or more frames are retransmitted in the first 60 seconds, or 30 frames in any 900-second (15-minute) time period.
*MAX Maximum error threshold monitoring. The system will send a message to the QSYSOPR message queue for each retransmitted frame.
threshold-value
Specify a value in the range 1 to 10000, representing the number of retransmitted frames in a 15-minute (900-second) period. The system sends a message to the QSYSOPR message queue if the number of retransmitted frames specified occurs in any 15-minute time period.

You can change this parameter when the network interface is varied off using the CHGNWIISDN command.

RMVCHR (Characters to remove):

ISDN Network Interfaces: Specifies characters that are to be removed from the local number (LCLNBR parameter) before sending the number to the network.

The local number can be specified with delimiters that make the number easier to read; for example, `LCLNBR('(507) 111-2222')`. By specifying `RMVCHR('('')'' ''-')`, the system will remove the left and right parentheses, blank, and hyphen before sending the local number to the network. In this example, the actual number sent to the network will be `5071112222`.

Possible values are:

*NETTYPE The default value for the network type specified by the NETTYPE parameter is used.
*NONE No characters are removed.
'character' Specify up to 10 characters, each enclosed in apostrophes, that are to be removed from the local number.

You can change this parameter when the network interface is varied off using the CHGNWIISDN command.

RSRCNAME (Resource name):

All Network Interfaces: The unique name that is *assigned by the system* to the physical equipment (in this case, a communications port) attached to the system. These names are automatically assigned and are used by the system to refer to information stored in the system about the port. Your communications line should be attached to the port with this resource name.

You can change this parameter when the network interface is varied off by using the change network interface description commands.

SETUPDIF (Setup differences):

ISDN Network Interfaces: Specifies differences from the CCITT recommendation for sending *Setup* messages to the network. Up to four values can be specified for this parameter. Possible values are:

*NETTYPE The default value for the network type specified by the NETTYPE parameter is used.
*NONE No differences from the CCITT recommendation.
*NOLLCIE The Low Layer Compatibility IE is not sent with the *Setup* message.

You can change this parameter when the network interface is varied off using the CHGNWIISDN command.

SHORTFRAME (Short frame):

ISDN Network Interfaces: Specifies the level of error threshold monitoring done by the system for short frame errors. Possible values are:

*OFF (The default) Error threshold monitoring is not done for short frame errors.

*MIN Minimum error threshold monitoring. The system will send a message to the QSYSOPR message queue if 6 or more short frame errors occur in the first 30 seconds, or 1 short frame is received every second for 14 minutes.

*MED
Medium error threshold monitoring. The system will send a message to the QSYSOPR message queue if 3 or more short frame errors occur in the first 30 seconds, or 1 short frame is received every 3 to 4 seconds for 10 to 14 minutes.

*MAX
Maximum error threshold monitoring. The system will send a message to the QSYSOPR message queue for each short frame error.

threshold-value
Specify a value in the range 1 to 10000, representing the number of short frame errors in a 15-minute (900-second) period. The system sends a message to the QSYSOPR message queue if the number of errors specified occurs in any 15-minute time period.

You can change this parameter when the network interface is varied off using the CHGNWIISDN command.

SPID (Service profile identifiers):

ISDN Network Interfaces: Specifies up to two service profile identifier (SPID) values for NETTYPE(*NISDN) network interface descriptions. The SPID value is obtained from the network provider at subscription time.

This parameter consists of two parts:

SPID-number
Specify the SPID number. Valid values are 1 and 2.

SPID-value
Specify the service profile identifier. Possible values are:

*NONE
(The default) No SPID or TEID is used.

*ANY
SPID initialization is not used; a TEID (terminal endpoint identifier) is used.

SPID-value
Specify the assigned SPID value. This value must consist of at least 9 and no more than 20 characters.

This parameter is required and valid only, for network interfaces that specify NETTYPE(*NISDN).

TEID (Terminal endpoint identifier):

ISDN Network Interfaces: Specifies the terminal endpoint identifier for this TE. Possible values are:

*AUTO (The default) The terminal endpoint identifier is automatically assigned by the network.

terminal-endpoint-identifier
Specify a number between 0 and 63 to use as the terminal endpoint identifier. This number is assigned by the network at subscription time.

Network interface descriptions that specify NETTYPE(*NISDN) must use *AUTO for this parameter.

TEXT (Text 'description'):

All Network Interfaces: Specifies a brief description of the network interface. The description must be no more than 50 characters, enclosed in apostrophes.

You can use the change network interface description commands to change the text description at any time.

THRESHOLD (Error threshold level):

ISDN Network Interfaces: Specifies the overall level of error threshold monitoring done by the system. Possible values are:

*OFF (The default) Error threshold monitoring is not done for any error types.

*MIN Minimum error threshold monitoring is done for all error types.

*MED Medium error threshold monitoring is done for all error types.

*MAX Maximum error threshold monitoring is done for all error types. The system sends a message to the QSYSOPR message queue for each error that occurs.

*SELECT
Allows error threshold monitoring to be individually set for any or all of the error types related to the following parameters:

ABORTS	Frame aborts
CDEERRNT	Code errors detected by the NT
CDEERRTE	Code errors detected by the TE
CRCRCV	CRC errors received
DTSEIN	Incoming system access errors
DTSEOUT	Outgoing system access errors
FRAMEALIGN	Frame alignment errors
FRMSEQERR	Frame sequence errors
OVERRUN	Receive overrun errors
RETRANSMIT	Retransmitted frames
UNDERRUN	Transmit underrun errors

Error threshold monitoring for each of the above error types can be set either to a threshold level (*OFF, *MIN, *MED, or *MAX, as described above) or to a specific number of errors.

You can change this parameter when the network interface is varied off using the CHGNWIISDN command.

UNDERRUN (Transmit underrun):

ISDN Network Interfaces: Specifies the level of error threshold monitoring done by the system for transmit underrun errors. Possible values are:

*OFF (The default) Error threshold monitoring is not done for transmit underrun errors.

*MIN Minimum error threshold monitoring. The system will send a message to the QSYSOPR message queue if 2 or more transmit underrun errors occur in the first 90 seconds, or 20 errors in any 900-second (15-minute) time period.

*MED Medium error threshold monitoring. The system will send a message to the QSYSOPR message queue if 2 or more transmit underrun errors occur in the first 300 seconds, or 6 errors in any 900-second (15-minute) time period.

*MAX Maximum error threshold monitoring. The system will send a message to the QSYSOPR message queue for each transmit underrun error.

threshold-value
Specify a value in the range 1 to 3000, representing the number of transmit underrun errors in a 15-minute (900-second) period. The system sends a message to the QSYSOPR message queue if the number of errors specified occurs in any 15-minute time period.

You can change this parameter when the network interface is varied off using the CHGNWIISDN command.

VRYWAIT (Vary on wait):

All Network Interfaces: Specifies whether the network interface is varied on synchronously or asynchronously. A wait time (synchronous vary on) should be specified for switched ISDN network interfaces. For example, when a batch program contains CL commands used to vary on network interface, line, controller, and device descriptions, followed by an open/acquire of a communications file, a wait time can be specified to prevent the program from attempting to use the network interface before the vary on is complete.

The following values may be specified:

- *NOWAIT: Do not wait for the network interface to vary on; the network interface is varied on asynchronously.
- *wait-time*: Specify a value from 15 to 180 in 1 second intervals. The system waits until the vary on is completed before ending the VRYCFG command, or until the number of seconds specified (wait timer) expires.

Notes:

1. If ONLINE(*YES) is specified, specifying a wait time in the network interface description will increase the system IPL time by the amount of time it takes to synchronously vary on the network interface or reach the wait time value.
2. Normal vary on time ranges from 5 to 45 seconds, but can be longer. The time required to vary on a network interface includes time taken to put tasks in place to manage the network interface, activate the communications I/O processor, and establish communications with the data circuit-terminating equipment (DCE).
3. Vary on time does not include telephone dialing time. If the vary on does not complete before the vary on wait timer expires, an informational message (CPI2603) will be sent, followed by a completion message for the VRYCFG command. If the network interface fails to vary on, an inquiry message will be sent indicating the reason for the failure.

You can change this parameter at any time using the change network interface description commands.

X31DIF (X.31 differences):

ISDN Network Interfaces: Specifies how network-specific differences for packet-mode (X.31 case B) operations affect call acceptance. This parameter can be used to specify whether the AS/400 system checks the X.25 calling network address, called network address, and call user data fields of call notifications received from the packet handler.

Possible values are:

*NETTYPE
: (The default) The system determines whether X.31 call data is checked, based on the value specified on the NETTYPE parameter.

*NONE
: All three values (calling network address, called network address, and call user data) are included in the call notification. The system uses these values to select the line and controller description used for the call.

*NOCALLINGNETADR
: The system does not check the calling network address field of the call notification. The system normally uses the calling network address to select the appropriate controller description for the call.

*NOCALLEDNETADR
: The system does not check the called network address field of the call notification. The system normally uses the called network address to select the appropriate line description for the call.

*NOCALLUSERDATA
: The system does not check the protocol identifier and password elements in the call user data field of the call notification. The first byte of call user data, known as the protocol identifier, is normally used to determine the higher layer protocol for which the call is intended (for example, SNA, asynchronous, or TCP/IP). The system normally uses the protocol identifier and the SNA password to select the appropriate controller description for the call.

You can change this parameter when the network interface is varied off using the CHGNWIISDN command.

X31NFYCLS (X.31 notification class):

ISDN Network Interfaces: Specifies the method used by the ISDN packet handler to notify the system of incoming packet mode (X.31 Case B) calls. Possible values are:

*NETTYPE
: (The default) The default value for the network type specified by the NETTYPE parameter is used.

*NONE
: The packet handler provides no notification.

*CONDITIONAL
: The packet handler provides notification only if a packet mode call cannot be delivered on an existing connection.

*UNCONDITIONAL
: The packet handler provides notification for every packet mode call.

You can change this parameter when the network interface is varied off using the CHGNWIISDN command.

Chapter 6. Communications Line Descriptions

This chapter describes the prompts and parameters that are used to configure communications lines on the AS/400 system.

The prompts described in this chapter are seen when working with the configuration prompt displays; the parameter names associated with these prompts are used when entering commands on the command line or in a CL program.

This chapter provides two discussions of line description prompts and parameters:

- A set of tables, one for each Create Line Description display. These tables list the prompts for each display (in the order they appear on the displays) and the associated parameter name. For each prompt, the tables also include:
  - Values that can be specified for the prompt (or parameter)
  - Dependencies and requirements for specifying prompts (or parameters) and values
- Detailed descriptions of each prompt used by the create line description commands, with considerations for use of the prompt for various line types. Descriptions of the prompts are listed in alphabetical order by *parameter name*.

Specifying Line Description Prompts and Parameters

The following tables list basic information for the prompts and parameters that can be specified for each of the create line description (CRTLIN*xxx*) commands. The tables are shown in alphabetical order by *command* name and contain the following information:

Prompt
Prompt text. Prompts are listed in the order shown on the configuration displays.

Depending on the values you select, not all of the prompts will be shown.

Parameter
Equivalent parameter name

Values
Values that can be specified for the prompt or parameter

- Default values are underlined
- For prompts requiring a numeric value selected from a continuous range of values, the range is shown in parentheses
- For prompts on which a number of values may be specified, the maximum number of values that can be specified is shown in the *Dependencies* column.

Dependencies
Dependencies between parameters and values. This column indicates whether or not the parameter is required, if any conditions exist for specifying parameters and values, and so on.

Many dependencies are described using parameter names or parameter names with values. For example, the format ONLINE(*NO) is used in the tables (and in CL programs); it is equivalent to specifying *NO for the *Online at IPL* prompt on the configuration displays.

Some parameters list general dependencies; for example, some parameter dependencies may state that another parameter must be specified. Unless otherwise qualified, this restriction applies only to the specification of values other than the default for that parameter.

More complex parameters and dependencies are discussed in the detailed parameter descriptions under "Parameter and Prompt Descriptions" on page 6-35. Detailed descriptions in that topic are listed in alphabetical order by *parameter* name.

Asynchronous Line Description Prompts

Figure 6-1 (Page 1 of 3). Asynchronous Line Description Prompts

CRTLINASC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Line description name	LIND	*line-description-name*	Required parameter
Resource name	RSRCNAME	*resource-name*	Required parameter Value assigned by system. See "Determining System Resource Names" on page 2-13 for information about using the WRKHDWRSC command to determine the resource name.
Online at IPL	ONLINE	*YES, *NO	Specify only one description per resource name as ONLINE(*YES)
Physical interface	INTERFACE	*RS232V24	See detailed description
Connection type	CNN	*NONSWTPP, *SWTPP	None
Switched network backup	SNBU	*NO, *YES	CNN(*NONSWTPP) must be specified
Vary on wait	VRYWAIT	*NOWAIT, *vary-on-wait* (15-180)	CNN(*SWTPP) or SNBU(*YES) must be specified
Autocall unit	AUTOCALL	*NO, *YES	CNN(*SWTPP) or SNBU(*YES) must be specified If AUTODIAL(*YES) and DIALCMD(*NONE), specify *YES If AUTOCALL(*YES) is specified, a separate automatic calling unit must be available to perform the automatic call function.
Attached non-switched controller name	CTL	*controller-name*	Specify only if controller description created before line description CNN(*NONSWTPP) must be specified
Switched controllers list	SWTCTLLST	*switched-controller-name*	Up to 64 controllers can be specified CNN(*SWTPP) or SNBU(*YES) must be specified
Data bits per character	BITSCHAR	8, 7	Must match remote system
Type of parity	PARITY	*NONE, *ODD, *EVEN	See detailed description
Number of stop bits	STOPBITS	1, 2	Must match remote system
Duplex	DUPLEX	*FULL, *HALF	Must match remote system
Echo support	ECHO	*NONE, *ALL, *CNTL	DUPLEX(*FULL) must be specified for values other than *NONE Specify *NONE if DUPLEX(*HALF)
Line speed	LINESPEED	1200, *line-speed*	Must match remote system and be supported by the attached modem

Figure 6-1 (Page 2 of 3). Asynchronous Line Description Prompts

CRTLINASC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Modem type supported	MODEM	*NORMAL, *V54, *IBMWRAP	See detailed description
Modem data rate select	MODEMRATE	*FULL, *HALF	INTERFACE(*RS232V24) must be specified
Switched connection type	SWTCNN	*BOTH, *ANS, *DIAL	CNN(*SWTPP) or SNBU(*YES) must be specified Specify *DIAL if DIALCMD(*OTHER)
Autoanswer	AUTOANS	*YES, *NO	CNN(*SWTPP) or SNBU(*YES) must be specified SWTCNN must be *BOTH or *ANS
Autodial	AUTODIAL	*NO, *YES	CNN(*SWTPP) or SNBU(*YES) must be specified
Dial command type	DIALCMD	*NONE, *V25BIS, *OTHER	Required if AUTODIAL(*YES) AUTODIAL(*YES) and either CNN(*SWTPP) or SNBU(*YES) must be specified
Autocall resource name	ACRSRCNAME	*autocall-resource-name*	Required if AUTOCALL(*YES) is specified Value assigned by system. See "Determining System Resource Names" on page 2-13 for information about using the WRKHDWRSC command to determine the resource name. Specify only if automatic calling unit is not integrated into the modem
Calling number	CALLNBR	*NONE, *calling-number*	Specify for CRI dial command using V.25 bis Up to 32 characters can be specified CNN(*SWTPP) or SNBU(*YES) must be specified
Inactivity timer	INACTTMR	300, *NOMAX, *inactivity-timer*	CNN(*SWTPP) or SNBU(*YES) must be specified Specify *NOMAX if DIALCMD(*OTHER) See detailed description
Maximum buffer size	MAXBUFFER	896, *buffer-size*	Must be at least 896 for file transfer support
Error threshold level	THRESHOLD	*OFF, *MIN, *MED, *MAX	None
Flow control	FLOWCNTL	*NO, *YES	Specify *YES (use XON and XOFF characters) only if DUPLEX(*FULL)
XON character	XONCHAR	11, *XON-character*	Must match remote system; cannot be same as XOFF character FLOWCNTL(*YES) must be specified

Figure 6-1 (Page 3 of 3). Asynchronous Line Description Prompts

CRTLINASC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
XOFF character	XOFFCHAR	13, *XOFF-character*	Must match remote system; cannot be same as XON character FLOWCNTL(*YES) must be specified
End-of-record table	EORTBL	*EOR-character trailing-characters*	See detailed description
Idle timer	IDLTMR	1, *idle-timer*	None
Data Set Ready drop timer	DSRDRPTMR	6, *DSR-drop-timer* (3-60)	CNN(*SWTPP) or SNBU(*YES) must be specified
Autoanswer type	AUTOANSTYP	*DTR, *CDSTL	AUTOANS(*YES) must be specified
Clear To Send timer	CTSTMR	25, *CTS-timer* (10-60)	CNN(*SWTPP) or SNBU(*YES) must be specified
Remote answer timer	RMTANSTMR	60, *remote-answer-timer* (30-120)	CNN(*SWTPP) or SNBU(*YES) must be specified
Recovery limits	CMNRCYLMT	2 5, *count-limit time-interval*, *SYSVAL	None
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than a 50-character description enclosed in apostrophes

Binary Synchronous Communications (BSC) Line Description Prompts

Figure 6-2 (Page 1 of 4). Binary Synchronous Communications (BSC) Line Description Prompts

CRTLINBSC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Line description name	LIND	*line-description-name*	Required parameter
Resource name	RSRCNAME	*resource-name*	Required parameter Value assigned by system. See "Determining System Resource Names" on page 2-13 for information about using the WRKHDWRSC command to determine the resource name.
Online at IPL	ONLINE	*YES, *NO	Specify only one description per resource name as ONLINE(*YES)
Application type	APPTYPE	*PGM, *RJE, *EML	APPTYPE value for CRTCTLBSC must match this value
Physical interface	INTERFACE	*RS232V24, *V35, *X21BISV24, *X21BISV35	See detailed description
Connection type	CNN	*NONSWTPP, *SWTPP, *MPTRIB	Specify *MPTRIB if APPTYPE(*EML) Do not specify *MPTRIB if APPTYPE(*RJE) Do not specify *SWTPP if INTERFACE(*V35) or INTERFACE(*X21BISV35)
Switched network backup	SNBU	*NO, *YES	Valid only for INTERFACE(*RS232V24) Specify *YES for CNN(*NONSWTPP) only Modem must support switched network backup
Vary on wait	VRYWAIT	*NOWAIT, *vary-on-wait* (15-180)	CNN(*SWTPP) or SNBU(*YES) must be specified
Autocall unit	AUTOCALL	*NO, *YES	Valid only for INTERFACE(*RS232V24) CNN(*SWTPP) or SNBU(*YES) must be specified Specify *YES if AUTODIAL(*YES) and DIALCMD(*NONE) If AUTOCALL(*YES) is specified, a separate automatic calling unit must be available to perform the automatic call function.
Attached non-switched controller name	CTL	*controller-name*	Specify only if controller description created before line description CNN(*NONSWTPP) or CNN(*MPTRIB) must be specified

Figure 6-2 (Page 2 of 4). Binary Synchronous Communications (BSC) Line Description Prompts

CRTLINBSC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Switched controllers list	SWTCTLLST	*switched-controller-name*	Up to 64 controllers can be specified CNN(*SWTPP) or SNBU(*YES) must be specified
Station address	STNADR	*station-address*	Required for CNN(*MPTRIB) See detailed description for valid station addresses
Clocking	CLOCK	*MODEM	None
Duplex	DUPLEX	*HALF, *FULL	See detailed description
Line speed	LINESPEED	9600, *line-speed*	Must match remote system and be supported by the attached modem Maximum line speed for INTERFACE(*RS232V24) or INTERFACE(*X21BISV24) is 19200
Modem type supported	MODEM	*NORMAL, *V54, *IBMWRAP	See detailed description
Modem data rate select	MODEMRATE	*FULL, *HALF	Valid only for INTERFACE(*RS232V24) Modem must support selected modem data rate
Switched connection type	SWTCNN	*BOTH, *ANS, *DIAL	CNN(*SWTPP) or SNBU(*YES) must be specified
Autoanswer	AUTOANS	*YES, *NO	CNN(*SWTPP) or SNBU(*YES) must be specified SWTCNN must be *BOTH or *ANS
Autodial	AUTODIAL	*NO, *YES	CNN(*SWTPP) or SNBU(*YES) must be specified Specify *NO if CNN(*SWTPP) and INTERFACE(*X21BISV24) SWTCNN must be *BOTH or *DIAL If *YES, AUTOCALL(*YES) must be specified to use automatic calling unit
Dial command type	DIALCMD	*NONE, *V25BIS	AUTODIAL(*YES) must be specified CNN(*SWTPP) or SNBU(*YES) must be specified *V25BIS is valid only for INTERFACE(*RS232V24)
Autocall resource name	ACRSRCNAME	*autocall-resource-name*	Required if AUTOCALL(*YES) Value assigned by system. See "Determining System Resource Names" on page 2-13 for information about using the WRKHDWRSC command to determine the resource name. Specify only if automatic calling unit is not integrated into the modem

Figure 6-2 (Page 3 of 4). Binary Synchronous Communications (BSC) Line Description Prompts

CRTLINBSC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Calling number	CALLNBR	*NONE, *calling-number*	Specify only for CRI dial command using V.25 bis Up to 32 characters can be specified CNN(*SWTPP) or SNBU(*YES) must be specified
Inactivity timer	INACTTMR	300, *NOMAX, *inactivity-timer*	CNN(*SWTPP) or SNBU(*YES) must be specified Not valid for APPTYPE(*RJE) See detailed description
Maximum buffer size	MAXBUFFER	1024, *buffer-size*	See detailed description
Character code	CODE	*EBCDIC, *ASCII	*ASCII is not valid for APPTYPE(*RJE) See detailed description
SYN characters	SYNCCHARS	2, 4	SYNCCHARS(4) can be specified only on a 9406 System Unit using the 6130 IOP
Error threshold level	THRESHOLD	*OFF, *MIN, *MED, *MAX	None
Include STX character in the LRC	STXLRC	*NO, *YES	Valid only if CODE(*ASCII) *YES is assumed for 9404 System Unit
Receive timer	RCVTMR	30, *receive-timer*	See detailed description
Continue timer	CONTTMR	20, *continue-timer*	Not valid for APPTYPE(*RJE)
Contention state retry	CTNRTY	7, *contention-state-retry*	See detailed description
Data state retry	DTASTTRTY	7, *data-state-retry*	See detailed description
Transmit TTD or WACK retry	TMTRTY	60, *NOMAX, *transmit-TTD-or-WACK-retry*	Not valid for APPTYPE(*RJE)
Receive TTD or WACK retry	RCVRTY	45, *NOMAX, *receive-TTD-or-WACK-retry*	Not valid for APPTYPE(*RJE) or (*EML)
Data Set Ready drop timer	DSRDRPTMR	6, *DSR-drop-timer* (3-60)	CNN(*SWTPP) or SNBU(*YES) must be specified
Autoanswer type	AUTOANSTYP	*DTR, *CDSTL	AUTOANS(*YES) must be specified
Clear To Send timer	CTSTMR	25, *CTS-timer* (10-60)	CNN(*SWTPP) or SNBU(*YES) must be specified
Remote answer timer	RMTANSTMR	60, *remote-answer-timer* (30-120)	CNN(*SWTPP) or SNBU(*YES) must be specified
Recovery limits	CMNRCYLMT	2 5, *count-limit time-interval*, *SYSVAL	None

Figure 6-2 (Page 4 of 4). Binary Synchronous Communications (BSC) Line Description Prompts

CRTLINBSC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than a 50-character description enclosed in apostrophes

Distributed Data Interface (DDI) Line Description Prompts

Figure 6-3 (Page 1 of 2). Distributed Data Interface Line Description Prompts

CRTLINDDI Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Line description name	LIND	*line-description-name*	Required parameter
Resource name	RSRCNAME	*NWID, *resource-name*	Required parameter Value assigned by system. See "Determining System Resource Names" on page 2-13 for information about using the WRKHDWRSC command to determine the resource name. Specify *NWID for lines attached to frame relay network interface descriptions
Online at IPL	ONLINE	*YES, *NO	Specify only one description per resource name as ONLINE(*YES)
Vary on wait	VRYWAIT	*NOWAIT, *vary-on-wait* (15-180)	None
Maximum controllers	MAXCTL	40, *maximum-controllers* (1-256)	Up to 256 controllers can be specified for the 9406 System Unit; up to 128 for the 9404 System Unit; up to 64 for the 9402 System Unit See detailed description
Maximum frame size	MAXFRAME	4444, *maximum-frame-size* (265-4444)	See detailed description
Attached non-switched NWI	NWI	*NONE, *NWI-name*	See detailed description
DLC identifier	NWIDLCI	*NONE, *DLC-identifier* (1-1018)	See detailed description
Local adapter address	ADPTADR	*ADPT, *local-adapter-address*	Preset value: can be overridden *ADPT cannot be specified if RSRCNAME is *NWID
Exchange identifier	EXCHID	*SYSGEN, *exchange-identifier*	Must be specified as `056xxxxx`; see detailed description
SSAP list	SSAP	*SYSGEN, or *source-service-access-point* *CALC, *SSAP-maximum-frame-size* (265-4444) *CALC, *SNA, *NONSNA	Up to 24 values can be specified; duplicate values not allowed Valid SSAPs for SNA applications are 04-9C, divisible by 4 Valid SSAPs for non-SNA applications are 02-FE, divisible by 2 See detailed description
Group address	GRPADR	*NONE, *group-address*	Up to 12 values can be specified; see detailed description
Token rotation time	TKNRTTTIME	*CALC, *token-rotation-time* (4-167)	*CALC must be specified if RSRCNAME is *NWID

Figure 6-3 (Page 2 of 2). Distributed Data Interface Line Description Prompts

CRTLINDDI Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Link speed	LINKSPEED	*MAX, *MIN, 4M, 10M, 16M, *link-speed*	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Cost per connect time	COSTCNN	0, *cost-per-connect-time* (0-255)	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Cost per byte	COSTBYTE	0, *cost-per-byte* (0-255)	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Security for line	SECURITY	*NONSECURE, *PKTSWTNET, *UNDGRDCBL, *SECURECND, *GUARDCND, *ENCRYPTED, *MAX	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Propagation delay	PRPDLY	*LAN, *MIN, *PKTSWTNET, *TELEPHONE, *SATELLITE, *MAX	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
User-defined 1, 2, and 3	USRDFN1 USRDFN2 USRDFN3	128, *user-defined-value* (0-255)	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Autocreate controller	AUTOCRTCTL	*NO, *YES	See detailed description
Autodelete controller	AUTODLTCTL	1440, *NONE, *auto-delete-controller* (1-10000)	AUTOCRTCTL(*YES) must be specified
Recovery limits	CMNRCYLMT	2 5, *count-limit time-interval*, *SYSVAL	None
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than a 50-character description enclosed in apostrophes

Ethernet Line Description Prompts

Figure 6-4 (Page 1 of 2). Ethernet Line Description Prompts

CRTLINETH Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Line description name	LIND	*line-description-name*	Required parameter
Resource name	RSRCNAME	*NWID, *resource-name*	Required parameter Value assigned by system. See "Determining System Resource Names" on page 2-13 for information about using the WRKHDWRSC command to determine the resource name. Specify *NWID for lines attached to frame relay network interface descriptions
Online at IPL	ONLINE	*YES, *NO	Specify only one description per resource name as ONLINE(*YES)
Vary on wait	VRYWAIT	*NOWAIT, *vary-on-wait* (15-180)	None
Network controller	NETCTL	*network-controller*	Specify only if controller description created before line description
Attached non-switched NWI	NWI	*NONE, *NWI-name*	See detailed description
DLC identifier	NWIDLCI	*NONE, *DLC-identifier* (1-1018)	See detailed description
Local adapter address	ADPTADR	*ADPT, *local-adapter-address*	Preset value: can be overridden *ADPT cannot be specified if RSRCNAME is *NWID See detailed description
Group address	GRPADR	*NONE, *group-address*	Up to 12 group addresses can be specified See detailed description
Exchange identifier	EXCHID	*SYSGEN, *exchange-identifier*	Must be specified as `056xxxxx`; see detailed description
Ethernet standard	ETHSTD	*ALL, *ETHV2, *IEEE8023	See detailed description
Maximum controllers	MAXCTL	40, *maximum-controllers*	Up to 256 controllers can be specified for the 9406 System Unit; up to 128 for the 9404 System Unit; up to 64 for the 9402 System Unit See detailed description

Figure 6-4 (Page 2 of 2). Ethernet Line Description Prompts

CRTLINETH Command			
Prompt	**Parameter**	**Values**	**Dependencies**
SSAP list	SSAP	*SYSGEN, or *source-service-access-point* *CALC, *SSAP-maximum-frame-size* (265-1496) *CALC, *SNA, *NONSNA	Up to 24 values can be specified; duplicate values not allowed If ETHSTD(*ETHV2) is specified, SSAPs 06 and AA cannot be specified Valid SSAPs for SNA applications are 04-9C, divisible by 4 Valid SSAPs for non-SNA applications are 02-FE, divisible by 2 See detailed description
Error threshold level	THRESHOLD	*OFF, *MIN, *MED, *MAX	*OFF must be specified if RSRCNAME is *NWID
Link speed	LINKSPEED	10M, *MIN, *MAX, *link-speed*	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Cost per connect time	COSTCNN	0, *cost-per-connect-time* (0-255)	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Cost per byte	COSTBYTE	0, *cost-per-byte* (0-255)	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Security for line	SECURITY	*NONSECURE, *PKTSWTNET, *UNDGRDCBL, *SECURECND, *GUARDCND, *ENCRYPTED, *MAX	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Propagation delay	PRPDLY	*LAN, *MIN, *PKTSWTNET, *TELEPHONE, *SATELLITE, *MAX	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
User-defined 1, 2, and 3	USRDFN1 USRDFN2 USRDFN3	128, *user-defined-value* (0-255)	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Autocreate controller	AUTOCRTCTL	*NO, *YES	See detailed description
Autodelete controller	AUTODLTCTL	1440, *NONE, *auto-delete-controller* (1-10000)	AUTOCRTCTL(*YES) must be specified
Recovery limits	CMNRCYLMT	2 5, *count-limit time-interval*, *SYSVAL	None
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than a 50-character description enclosed in apostrophes

Frame Relay Line Description Prompts

Figure 6-5 (Page 1 of 2). Frame Relay Line Description Prompts

CRTLINFR Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Line description name	LIND	*line-description-name*	Required parameter
Attached nonswitched NWI	NWI	*NONE, *NWI-name*	See detailed description
DLC identifier	NWIDLCI	*NONE, *DLC-identifier* (1-1018)	See detailed description
Online at IPL	ONLINE	*YES, *NO	None
Vary on wait	VRYWAIT	*NOWAIT, *vary-on-wait* (15-180)	None
Maximum controllers	MAXCTL	40, *maximum-controllers*	Up to 256 controllers can be specified for the 9406 System Unit; up to 128 for the 9404 System Unit; up to 64 for the 9402 System Unit See detailed description
Maximum frame size	MAXFRAME	1590, *maximum-frame-size)* (265-8182)	See detailed description
Link speed	LINKSPEED	64000, *link-speed*	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES) See detailed description
Exchange identifier	EXCHID	*SYSGEN, *exchange-identifier*	Must be specified as `056xxxxx`; see detailed description
SSAP list	SSAP	*SYSGEN, or *source-service-access-point* *CALC, *SSAP-maximum -frame-size* (265-8182) *CALC, *SNA, *NONSNA	Up to 24 values can be specified; duplicate values not allowed Valid SSAPs for SNA applications are 04-9C, divisible by 4 Valid SSAPs for non-SNA applications are 02-FE, divisible by 2 See detailed description
Cost per connect time	COSTCNN	0, *cost-per-connect-time* (0-255)	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Cost per byte	COSTBYTE	0, *cost-per-byte* (0-255)	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Security for line	SECURITY	*PKTSWTNET, *NON-SECURE, *UNDGRDCBL, *SECURECND, *GUARDCND, *ENCRYPTED, *MAX	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Propagation delay	PRPDLY	*PKTSWTNET, *MIN, *LAN, *TELEPHONE, *SATELLITE, *MAX	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)

Figure 6-5 (Page 2 of 2). Frame Relay Line Description Prompts

CRTLINFR Command			
Prompt	**Parameter**	**Values**	**Dependencies**
User-defined 1, 2, and 3	USRDFN1 USRDFN2 USRDFN3	128, *user-defined-value* (0-255)	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Recovery limits	CMNRCYLMT	2 5, *count-limit time-interval*, *SYSVAL	None
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than a 50-character description enclosed in apostrophes

ISDN Data Link Control (IDLC) Line Description Prompts

Figure 6-6 (Page 1 of 3). ISDN Data Link Control (IDLC) Line Description Prompts

CRTLINIDLC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Line description name	LIND	*line-description-name*	Required parameter
Online at IPL	ONLINE	*YES, *NO	None
Vary on wait	VRYWAIT	*NOWAIT, *vary-on-wait* (15-180)	None
NWI connection type	CNN	*SWT, *NONSWT	None
Attached nonswitched NWI	NWI	*attached-NWI-name*	See detailed description
NWI channel type	NWICHLTYPE	*B	See detailed description
NWI channel number	NWICHLNBR	*attached-NWI-channel-number*	See detailed description
Switched NWI list	SWTNWILST	*NONE, or *NWID-name NWI-channel-type NWI-channel-number*	Up to 64 entries can be specified CNN(*SWT) must be specified
Switched connection type	SWTCNN	BOTH, *ANS, *DIAL	CNN(*SWT) must be specified
Incoming connection list	CNNLSTIN	*NETATR, *connection-list-name*	SWTCNN(*BOTH) or SWTCNN(*ANS) must be specified
Exchange identifier	EXCHID	*SYSGEN, *exchange-identifier*	Must be specified as 056xxxxx; see detailed description
Error threshold level	THRESHOLD	*OFF, *MIN, *MED, *MAX, *SELECT	When using command prompt display, use *SELECT to specify threshold values for specific error types (following prompts)
CRC errors received	CRCRCV	*OFF, *MIN, *MED, *MAX, *threshold-value* (1-10000)	THRESHOLD(*SELECT) must be specified
Short frame	SHORTFRAME	*OFF, *MIN, *MED, *MAX, *threshold-value* (1-10000)	THRESHOLD(*SELECT) must be specified
Receive overrun	OVERRUN	*OFF, *MIN, *MED, *MAX, *threshold-value* (1-3000)	THRESHOLD(*SELECT) must be specified
Transmit underrun	UNDERRUN	*OFF, *MIN, *MED, *MAX, *threshold-value* (1-3000)	THRESHOLD(*SELECT) must be specified
Frame aborts	ABORTS	*OFF, *MIN, *MED, *MAX, *threshold-value* (1-5000)	THRESHOLD(*SELECT) must be specified
Retransmitted frames	RETRANSMIT	*OFF, *MIN, *MED, *MAX, *threshold-value* (1-10000)	THRESHOLD(*SELECT) must be specified

Figure 6-6 (Page 2 of 3). ISDN Data Link Control (IDLC) Line Description Prompts

CRTLINIDLC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Frame sequence errors	FRMSEQERR	*OFF, *MIN, *MED, *MAX, *threshold-value* (1-3000)	THRESHOLD(*SELECT) must be specified
Maximum frame size	MAXFRAME	2048, *maximum-frame-size* (265-8196)	See detailed description
Information transfer type	INFTRFTYPE	*UNRESTRICTED, *V110, *IVTHDLC	CNN(*NONSWT) must be specified
Attached nonswitched controller	CTL	*controller-name*	Specify only if controller description created before line description
Default window size	IDLCWDWSIZ	*CNN, *default-window-size* (1-31)	See detailed description
Frame retry limit	IDLCFRMRTY	*CNN, *frame-retries* (0-100)	See detailed description
Response timer	IDLCRSPTMR	*CNN, *response-timer* (10-100)	See detailed description
Connect retry count	IDLCCNNRTY	*CNN, *NOMAX, *connection-retries* (1-100)	See detailed description
Link speed	LINKSPEED	64000, 56000	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Switched NWI selection	SWTNWISLCT	*FIRST, *CALC	CNN(*SWT) must be specified
Cost per connect time	COSTCNN	*CNN, *cost-per-connect-time* (0-255)	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Cost per byte	COSTBYTE	*CNN, *cost-per-byte* (0-255)	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Security for line	SECURITY	*NONSECURE, *PKTSWTNET, *UNDGRDCBL, *SECURECND, *GUARDCND, *ENCRYPTED, *MAX	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Propagation delay	PRPDLY	*TELEPHONE, *MIN, *LAN, *PKTSWTNET, *SATELLITE, *MAX	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
User-defined 1, 2, and 3	USRDFN1 USRDFN2 USRDFN3	128, *user-defined-value* (0-255)	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Recovery limits	CMNRCYLMT	2 5, *count-limit time-interval*, *SYSVAL	None
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None

Figure 6-6 (Page 3 of 3). ISDN Data Link Control (IDLC) Line Description Prompts

CRTLINIDLC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than a 50-character description enclosed in apostrophes

Network Line Description Prompts

Figure 6-7. Network Line Description Prompts

CRTLINNET Command			
Prompt	**Param-eter**	**Values**	**Dependencies**
Line description name	LIND	*line-description-name*	Required parameter
Online at IPL	ONLINE	*YES, *NO	None
Attached nonswitched NWI	NWI	*attached-NWI-name*	Specify only if NWI created before line description
Attached controller	CTL	*controller-name*	Specify only if controller created before line description
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than a 50-character description enclosed in apostrophes

Synchronous Data Link Control (SDLC) Line Description Prompts

Figure 6-8 (Page 1 of 6). Synchronous Data Link Control (SDLC) Line Description Prompts

CRTLINSDLC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Line description name	LIND	*line-description-name*	Required parameter
Resource name	RSRCNAME	*resource-name*	Required parameter Value assigned by system. See "Determining System Resource Names" on page 2-13 for information about using the WRKHDWRSC command to determine the resource name. Up to 6 resource names (no duplicates) can be specified if CNN(*SHM), unless ROLE(*SEC) and SHMNODE(*T20) are specified; then only 1 resource name can be specified.
Online at IPL	ONLINE	*YES, *NO	Specify only one description per resource name as ONLINE(*YES)
Data link role	ROLE	*NEG, *PRI, *SEC	For CNN(*SHM), specify *NEG if SHMNODE(*T21); specify *PRI or *SEC if SHMNODE(*T20)
Physical interface	INTERFACE	*RS232V24, *V35, *X21, *X21BISV24, *X21BISV35, *RS449V36	See detailed description
Connection type	CNN	*NONSWTPP, *SWTPP, *MP, *SHM	For INTERFACE(*V35), *X21BISV35, or *RS449V36, CNN must not be *SWTPP For *SHM, INTERFACE(*X21) must be specified Cannot be *MP if ROLE(*NEG)
Switched network backup	SNBU	*NO, *YES	Modem must support switched network backup *YES is valid only for INTERFACE(*RS232V24) Specify *NO for CNN(*SWTPP)
Short hold mode node type	SHMNODE	*T21, *T20	Valid for CNN(*SHM) only
Vary on wait	VRYWAIT	*NOWAIT, *vary-on-wait* (15-180)	CNN(*SWTPP), CNN(*SHM), or SNBU(*YES) must be specified

Figure 6-8 (Page 2 of 6). Synchronous Data Link Control (SDLC) Line Description Prompts

CRTLINSDLC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Autocall unit	AUTOCALL	*NO, *YES	INTERFACE(*RS232V24) and either CNN(*SWTPP) or SNBU(*YES) must be specified Specify *YES if AUTODIAL(*YES) and DIALCMD(*NONE) If AUTOCALL(*YES) is specified, a separate automatic calling unit must be available to perform the automatic call function.
Attached non-switched controller name	CTL	*controller-name*	Specify only if controller description created before line description Number of controllers specified must be no more than MAXCTL If CNN(*NONSWTPP), only one controller can be specified Not valid for CNN(*SWTPP) or CNN(*SHM)
Exchange identifier	EXCHID	*SYSGEN, *exchange-identifier*	Must be specified as 056xxxxx; see detailed description
NRZI data encoding	NRZI	*YES, *NO	See detailed description
Maximum controllers	MAXCTL	1, *maximum-controllers*	For CNN(*MP), maximum number of controllers is 254 For CNN(*SHM), maximum number of controllers is 64 If CNN(*SHM), ROLE(*SEC), and SHMNODE(*T20), specify 1 See detailed description
Clocking	CLOCK	*MODEM, *LOOP	*LOOP is valid for INTERFACE(*RS449V36) only
Line speed	LINESPEED	9600, *line-speed*	Must match remote system and be supported by the attached modem See detailed description
Modem type supported	MODEM	*NORMAL, *V54, *IBMWRAP, *IBMLPDA1, *IBMLPDA2	See detailed description
Modem data rate select	MODEMRATE	*FULL, *HALF	Valid for INTERFACE(*RS232V24) only Modem must support selected modem data rate
Switched connection type	SWTCNN	*BOTH, *ANS, *DIAL	CNN(*SWTPP) or SNBU(*YES) must be specified Specify *BOTH if CNN(*SHM)

Figure 6-8 (Page 3 of 6). Synchronous Data Link Control (SDLC) Line Description Prompts

CRTLINSDLC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Autoanswer	AUTOANS	*YES, *NO	CNN(*SWTPP), CNN(*SHM), or SNBU(*YES) must be specified Specify *YES if INTERFACE(*X21) and CNN(*SWTPP) or *SHM SWTCNN must be *BOTH or *ANS
Autodial	AUTODIAL	*NO, *YES	CNN(*SWTPP), CNN(*SHM), or SNBU(*YES) must be specified Specify *YES if INTERFACE(*X21) and CNN(*SWTPP) or CNN(*SHM) Specify *NO if INTERFACE(*X21BISV24) and CNN(*SWTPP) SWTCNN must be *BOTH or *DIAL Must be *YES if AUTOCALL(*YES)
Dial command type	DIALCMD	*NONE, *V25BIS	CNN(*SWTPP) or SNBU(*YES) must be specified Valid only for AUTODIAL(*YES) *V25BIS is valid only for INTERFACE(*RS232V24)
Autocall resource name	ACRSRCNAME	*autocall-resource-name*	Required if AUTOCALL(*YES) Value assigned by system. See "Determining System Resource Names" on page 2-13 for information about using the WRKHDWRSC command to determine the resource name. Specify only if automatic calling unit is not integrated into the modem
SHM call timer	SHMCALLTMR	*NONE, *call-timer* (1-60)	Valid only for CNN(*SHM)
SHM maximum connect timer	SHMMAXCNN	8, *NOMAX, *SHM-maximum-connect-timer* (1-254)	Valid only for CNN(*SHM)
SHM answer delay timer	SHMANSDLY	11, *NOMAX, *SHM-answer-delay-timer* (1-254)	Valid only for CNN(*SHM)
SHM call format	SHMCALLFMT	*DNIC, *DCC	CNN(*SHM) and SHMNODE(*T21) must be specified
SHM access code	SHMACC	*access-code*	CNN(*SHM) and SHMNODE(*T21) must be specified

Figure 6-8 (Page 4 of 6). Synchronous Data Link Control (SDLC) Line Description Prompts

CRTLINSDLC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Calling number	CALLNBR	*NONE, *calling-number*	Specify for CNN(*SHM) (required) or for V.25 bis connections requiring the CRI dial command For V.25 bis, up to 32 characters can be specified If CNN(*SHM) and SHMNODE(*T20), up to 18 characters can be specified. If CNN(*SHM) and SHMNODE(*T21), up to 14 characters can be specified.
Station address	STNADR	*station-address*	Required if CNN(*SWTPP) or SNBU(*YES) and ROLE(*SEC) or ROLE(*NEG) is specified, or if CNN(*SHM), SHMNODE(*T20), and ROLE(*SEC) are specified See detailed description
Connect poll retry	CNNPOLLRTY	7, *connect-poll-retry* (0-64)	CNN(*SWTPP) or SNBU(*YES) must be specified with ROLE(*PRI) or ROLE(*NEG) See detailed description.
Connect timer	CNNTMR	*NOMAX, *connect-timer* (1-32767)	Valid only for INTERFACE(*X21) and CNN(*SWTPP)
Short timer	SHORTTMR	50, *short-timer* (10-600)	Valid only for INTERFACE(*X21) and CNN(*SWTPP) or CNN(*SHM)
Long timer	LONGTMR	600, *long-timer* (100-6000)	Valid only for INTERFACE(*X21) and CNN(*SWTPP) or CNN(*SHM)
Short retry	SHORTRTY	7, *short-retry* (0-254)	Valid only for INTERFACE(*X21) and CNN(*SWTPP) or CNN(*SHM)
Long retry	LONGRTY	1, *long-retry* (0-254)	Valid only for INTERFACE(*X21) and CNN(*SWTPP) or CNN(*SHM)
Call progress signal retry	CPSRTY	*CPS41, *CPS42, *CPS43, *CPS44, *CPS45, *CPS46, *CPS47, *CPS48, *CPS49, *CPS71, *CPS72	Up to 11 values can be specified; duplicate values are ignored. Valid only for INTERFACE(*X21) and CNN(*SWTPP) or CNN(*SHM)
Maximum frame size	MAXFRAME	521, 265, 1033, 2057	See detailed description
Error threshold level	THRESHOLD	*OFF, *MIN, *MED, *MAX	None
Duplex	DUPLEX	*HALF, *FULL	*FULL required if INTERFACE(*RS449V36) is specified or if INTERFACE(*X21) and CNN(*SWTPP) or CNN(*SHM) are specified
Modulus	MODULUS	8, 128	Specify MODULUS(8) for CNN(*MP) or CNN(*SHM)

Figure 6-8 (Page 5 of 6). Synchronous Data Link Control (SDLC) Line Description Prompts

CRTLINSDLC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Maximum out-standing frames	MAXOUT	7, *maximum-outstanding-frames* (1-28)	Must be less than MODULUS value If MODULUS(128), specify a value in the range 8-28
Inactivity timer	INACTTMR	300, *NOMAX, *inac-tivity-timer* (150-4200)	Valid only for ROLE(*SEC) or ROLE(*NEG)
Poll response delay	POLLRSPDLY	0, *poll-response-delay* (0-2048)	Valid only for ROLE(*SEC) or ROLE(*NEG)
Nonproductive receive timer	NPRDRCVTMR	320, *nonproductive-receive-timer* (160-4200)	Valid only for ROLE(*PRI) or ROLE(*NEG)
Idle timer	IDLTMR	30, *idle-timer* (5-300)	Valid only for ROLE(*PRI) or ROLE(*NEG)
Connect poll timer	CNNPOLLTMR	30, *connect-poll-timer* (2-300)	Valid only for ROLE(*PRI) or ROLE(*NEG)
Poll cycle pause	POLLPAUSE	0, *poll-cycle-pause* (0-2048)	Valid only for ROLE(*PRI) or ROLE(*NEG)
Frame retry	FRAMERTY	7, *frame-retry* (0-64)	Valid only for ROLE(*PRI) or ROLE(*NEG)
Fair polling timer	FAIRPLLTMR	15, *fair-polling-timer* (5-60)	Valid only for multipoint lines (CNN(*MP))
Data Set Ready drop timer	DSRDRPTMR	6, *DSR-drop-timer* (3-60)	CNN(*SWTPP) or SNBU(*YES) must be specified Not valid for CNN(*SHM)
Autoanswer type	AUTOANSTYP	*DTR, *CDSTL	AUTOANS(*YES) must be specified Not valid for CNN(*SHM)
Clear To Send timer	CTSTMR	25, *CTS-timer* (10-60)	CNN(*SWTPP) or SNBU(*YES) must be specified Not valid for CNN(*SHM)
Remote answer timer	RMTANSTMR	60, *remote-answer-timer* (30-120)	CNN(*SWTPP) or SNBU(*YES) must be specified Not valid for CNN(*SHM)
Link speed	LINKSPEED	*INTERFACE, *MIN , *MAX, *link-speed*	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Cost per connect time	COSTCNN	*CNN, *cost-per-connect-time* (0-255)	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Cost per byte	COSTBYTE	*CNN, *cost-per-byte* (0-255)	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Security for line	SECURITY	*NONSECURE, *PKTSWTNET, *UNDGRDCBL, *SECURECND, *GUARDCND, *ENCRYPTED, *MAX	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)

Figure 6-8 (Page 6 of 6). Synchronous Data Link Control (SDLC) Line Description Prompts

CRTLINSDLC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Propagation delay	PRPDLY	*TELEPHONE, *MIN, *LAN, *PKTSWTNET, *SATELLITE, *MAX	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
User-defined 1, 2, and 3	USRDFN1 USRDFN2 USRDFN3	128, *user-defined-value* (0-255)	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Recovery limits	CMNRCYLMT	2 5, *count-limit* *time-interval*, *SYSVAL	None
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than a 50-character description enclosed in apostrophes

Twinaxial Data Link Control (TDLC) Line Description Prompts

Figure 6-9. Twinaxial Data Link Control (TDLC) Line Description Prompts

CRTLINTDLC Command			
Prompt	**Param-eter**	**Values**	**Dependencies**
Line description name	LIND	*line-description-name*	Required parameter
Attached work station controller	WSC	*work-station-controller-name*	Required parameter
Online at IPL	ONLINE	*YES, *NO	None
Attached APPC con-trollers	CTL	*controller-name*	Up to 56 controllers can be specified Specify only if controller description created before line description
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than a 50-character description enclosed in apostrophes

Token-Ring Network Line Description Prompts

Figure 6-10 (Page 1 of 3). Token-Ring Network Line Description Prompts

CRTLINTRN Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Line description name	LIND	*line-description-name*	Required parameter
Resource name	RSRCNAME	*NWID, *resource-name*	Required parameter Value assigned by system. See "Determining System Resource Names" on page 2-13 for information about using the WRKHDWRSC command to determine the resource name. Specify *NWID for lines attached to frame relay network interface descriptions
Online at IPL	ONLINE	*YES, *NO	Specify only one description per resource name as ONLINE(*YES)
Vary on wait	VRYWAIT	*NOWAIT, *vary-on-wait* (15-180)	None
Network controller	NETCTL	*network-controller*	Specify only if controller description created before line description

Figure 6-10 (Page 2 of 3). Token-Ring Network Line Description Prompts

CRTLINTRN Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Maximum controllers	MAXCTL	40, *maximum-controllers*	Up to 256 controllers can be specified for the 9406 System Unit; up to 128 for the 9404 System Unit; up to 64 for the 9402 System Unit See detailed description
Attached non-switched NWI	NWI	*NONE, *NWI-name*	See detailed description
DLC identifier	NWIDLCI	*NONE, *DLC-identifier* (1-1018)	See detailed description
Line speed	LINESPEED	4M, 16M, *NWI	Specify *NWI if RSRCNAME(*NWID) is specified
Maximum frame size	MAXFRAME	16393, *maximum-frame-size* (265-16393)	See detailed description
TRLAN manager logging level	TRNLOGLVL	*OFF, *MIN, *MED, MAX	None
TRLAN manager mode	TRNMGRMODE	*OBSERVING, *CONTROLLING	None
Log configuration changes	LOGCFGCHG	*LOG, *NOLOG	None
Token-ring inform of beacon	TRNINFBCN	*YES, *NO	None
Local adapter address	ADPTADR	*ADPT, *local-adapter-address*	Preset value: can be overridden *ADPT cannot be specified if RSRCNAME is *NWID
Exchange identifier	EXCHID	*SYSGEN, *exchange-identifier*	Must be specified as `056xxxxx`; see detailed description
Functional address	FCNADR	*NONE, *functional-address*	Up to 31 values can be specified; see detailed description
SSAP list	SSAP	*SYSGEN, or *source-service-access-point* *CALC, *SSAP-maximum -frame-size* (265-16393) *CALC, *SNA, *NONSNA	Up to 24 values can be specified; duplicate values not allowed Valid SSAPs for SNA applications are 04-9C, divisible by 4 Valid SSAPs for non-SNA applications are 02-FE, divisible by 2 For lines attached to network interface descriptions, SSAP maximum frame size must be in the range 265-8151 See detailed description
Early token release	ELYTKNRLS	*LINESPEED, *YES, *NO	*YES cannot be specified if LINESPEED is 4M
Error threshold level	THRESHOLD	*OFF, *MIN, *MED, *MAX	None
Link speed	LINKSPEED	4M, *MIN, *MAX, *link-speed*	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)

Figure 6-10 (Page 3 of 3). Token-Ring Network Line Description Prompts

CRTLINTRN Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Cost per connect time	COSTCNN	0, *cost-per-connect-time* (0-255)	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Cost per byte	COSTBYTE	0, *cost-per-byte* (0-255)	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Security for line	SECURITY	*NONSECURE, *PKTSWTNET, *UNDGRDCBL, *SECURECND, *GUARDCND, *ENCRYPTED, *MAX	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Propagation delay	PRPDLY	*LAN, *MIN, *PKTSWTNET, *TELE-PHONE, *SATELLITE, *MAX	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
User-defined 1, 2, and 3	USRDFN1 USRDFN2 USRDFN3	128, *user-defined-value* (0-255)	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Autocreate con-troller	AUTOCRTCTL	*NO, *YES	See detailed description
Autodelete con-troller	AUTODLTCTL	1440, *NONE, *auto-delete-controller* (1-10000)	AUTOCRTCTL(*YES) must be speci-fied
Recovery limits	CMNRCYLMT	2 5, *count-limit time-interval*, *SYSVAL	None
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than a 50-character description enclosed in apostrophes

X.25 Line Description Prompts

Figure 6-11 (Page 1 of 5). X.25 Line Description Prompts

CRTLINX25 Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Line description name	LIND	*line-description-name*	Required parameter
Resource name	RSRCNAME	*NWID, *resource-name*	Required parameter Value assigned by system. See "Determining System Resource Names" on page 2-13 for information about using the WRKHDWRSC command to determine the resource name. Specify *NWID for line descriptions using INTERFACE(*X31)
Logical channel entries	LGLCHLE	*PROMPT, *logical-channel-id* *logical-channel-type* *PVC-controller*	Required parameter Up to 64 values can be specified See detailed description
Local network address	NETADR	*local-network-address*	Required parameter If EXNNETADR(*NO), up to 15 digits can be specified If EXNNETADR(*YES), up to 17 digits can be specified
Connection initiation	CNNINIT	*LOCAL, *REMOTE, *WAIT	Required parameter
Online at IPL	ONLINE	*YES, *NO	Specify only one description per resource name as ONLINE(*YES)
Physical interface	INTERFACE	*X21BISV24, *RS232V24, *X21BISV35, *X21, *X31	Specify *X31 for lines attached to ISDN B-channels INTERFACE(*X31) must be specified if RSRCNAME(*NWID) is specified See detailed description
Connection type	CNN	*NONSWTPP, *SWTPP	CNN(*SWTPP) is valid only if INTERFACE is *X21BISV24, *RS232V24, or *X31
Attached non-switched NWI	NWI	*attached-NWI-name*	INTERFACE(*X31) and CNN(*NONSWTPP) must be specified
NWI channel type	NWICHLTYPE	*B	INTERFACE(*X31) and CNN(*NONSWTPP) must be specified
NWI channel number	NWICHLNBR	*attached-NWI-channel-number*	INTERFACE(*X31) and CNN(*NONSWTPP) must be specified
Switched NWI list	SWTNWILST	*NONE, or *NWID-name*, *NWID-channel-type*, *NWID-channel-number*	INTERFACE(*X31) and CNN(*SWTPP) must be specified Up to 64 entries can be specified
X.25 DCE support	X25DCE	*NO, *YES	See detailed description

Figure 6-11 (Page 2 of 5). X.25 Line Description Prompts

CRTLINX25 Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Vary on wait	VRYWAIT	*NOWAIT, *vary-on-wait* (15-180)	None
Line speed	LINESPEED	9600, *CALC, *line-speed*	19200 is maximum for INTERFACE(*X21BISV24) and INTERFACE(*RS232V24) For INTERFACE(*X31) only, specify LINESPEED(*CALC)
Network controller	NETCTL	*network-controller*	Specify only if controller description created before line description
Switched controller list	SWTCTLLST	*NONE, *switched-controller-name*	Use only for asynchronous communications using SVCs to receive call requests Up to 64 controllers can be specified
Exchange identifier	EXCHID	*SYSGEN, *exchange-identifier*	If *SYSGEN is not used, EXCHID must be specified as 056xxxxx; see detailed description
Packet mode	PKTMODE	*NO, *YES	INTERFACE(*X31) must be specified
Information transfer type	INFTRFTYPE	*UNRESTRICTED, *V110, *IVTHDLC	INTERFACE(*X31) and CNN(*NONSWTPP) must be specified
Extended network addressing	EXNNETADR	*NO, *YES	See detailed description
Maximum frame size	MAXFRAME	1024, *maximum-frame-size* (1024-4096)	Value specified must be greater than or equal to MAXPKTSIZE value
Default packet size	DFTPKTSIZE	128 *TRANSMIT, 64, 256, 512, 1024, 2048, 4096	Value cannot be greater than MAXPKTSIZE
Maximum packet size	MAXPKTSIZE	*DFTPKTSIZE *TRANSMIT, 64, 128, 256, 512, 1024, 2048, 4096, *DFTPKTSIZE	Value cannot be less than DFTPKTSIZE
Modulus	MODULUS	8, 128	None
Default window size	DFTWDWSIZE	2 *TRANSMIT, *default-window-size*	Valid values are 1-7 for MODULUS(8), 1-15 for MODULUS(128)
Insert network address in packets	ADRINSERT	*YES, *NO	*YES required to run SVCs without X.25 network
Network user identification (NUI) facility	NETUSRID	*NONE, or *NUI-information*	CNN(*SWTPP) must be specified Up to 218 hexadecimal characters can be specified
Idle timer	IDLTMR	40, *idle-timer* (3-600)	See detailed description
Frame retry	FRAMERTY	7, *frame-retry* (0-64)	See detailed description
Error threshold level	THRESHOLD	*OFF, *MIN, *MED, *MAX	None

Figure 6-11 (Page 3 of 5). X.25 Line Description Prompts

CRTLINX25 Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Connection number	CNNNBR	*connection-number*	Required for CNN(*SWTPP); not valid for CNN(*NONSWTPP) or INTERFACE(*X31) See detailed description
Calling number	CALLNBR	*NONE, *calling-number*	CNN(*SWTPP) must be specified Not valid for INTERFACE(*X31) See detailed description
Modem type supported	MODEM	*NORMAL, *V54, *IBMWRAP	Valid for INTERFACE(*RS232V24) only See detailed description
Modem data rate select	MODEMRATE	*FULL, *HALF	Valid for INTERFACE(*RS232V24) only Modem must support selected modem data rate
Switched connection type	SWTCNN	*BOTH, *ANS, *DIAL	CNN(*SWTPP) must be specified
Outgoing connection list	CNNLSTOUT	*connection-list-name*	INTERFACE(*X31), PKTMODE(*NO), and SWTCNN(*BOTH) or SWTCNN(*DIAL) must be specified
Outgoing connection list entry	CNNLSTOUTE	*connection-list-entry*	INTERFACE(*X31), PKTMODE(*NO), and SWTCNN(*BOTH) or SWTCNN(*DIAL) must be specified
Incoming connection list	CNNLSTIN	*NETATR, *connection-list-name*	INTERFACE(*X31), PKTMODE(*NO), and SWTCNN(*BOTH) or SWTCNN(*ANS) must be specified
Autoanswer	AUTOANS	*YES, *NO	CNN(*SWTPP) must be specified SWTCNN must be *BOTH or *ANS
Autodial	AUTODIAL	*NO, *YES	INTERFACE(*RS232V24) and CNN(*SWTPP) must be specified SWTCNN must be *BOTH or *DIAL Must be *YES if AUTOCALL(*YES)
Dial command type	DIALCMD	*NONE, *V25BIS	CNN(*SWTPP) and AUTODIAL(*YES) must be specified *V25BIS is valid only for INTERFACE(*RS232V24)
Call immediate	CALLIMMED	*NO, *YES	CNN(*SWTPP) must be specified
Autocall unit	AUTOCALL	*NO, *YES	INTERFACE(*RS232V24) and CNN(*SWTPP) must be specified Specify *YES if AUTODIAL(*YES) and DIALCMD(*NONE) If AUTOCALL(*YES) is specified, a separate automatic calling unit must be available to perform the automatic call function.

Figure 6-11 (Page 4 of 5). X.25 Line Description Prompts

CRTLINX25 Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Autocall resource name	ACRSRCNAME	*autocall-resource-name*	Required if AUTOCALL(*YES) Value assigned by system. See "Determining System Resource Names" on page 2-13 for information about using the WRKHDWRSC command to determine the resource name. Specify only if automatic calling unit is not integrated into the modem
Predial delay	PREDIALDLY	6, *predial-delay* (0-254)	CNN(*SWTPP) must be specified
Redial delay	REDIALDLY	120, *redial-delay* (0-254)	CNN(*SWTPP) must be specified
Dial retries	DIALRTY	2, *dial-retries* (0-254)	CNN(*SWTPP) must be specified
Switched disconnect	SWTDSC	*YES, *NO	CNN(*SWTPP) must be specified
Switched disconnect timers	SWTDSCTMR	170 0, *minimum-connect-timer disconnection-delay-timer*	CNN(*SWTPP) and SWTDSC(*YES) must be specified
Data Set Ready drop timer	DSRDRPTMR	6, *DSR-drop-timer* (3-60)	CNN(*SWTPP) must be specified
Autoanswer type	AUTOANSTYP	*DTR, *CDSTL	AUTOANS(*YES) must be specified
Clear To Send timer	CTSTMR	25, *CTS-timer* (10-60)	CNN(*SWTPP) must be specified
Remote answer timer	RMTANSTMR	60, *remote-answer-timer* (30-120)	CNN(*SWTPP) must be specified
Link speed	LINKSPEED	*INTERFACE, *MIN, *MAX, *link-speed*	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Switched NWI selection	SWTNWISLCT	*FIRST, *CALC	INTERFACE(*X31) and CNN(*SWTPP) must be specified
Cost per connect time	COSTCNN	128, *cost-per-connect-time* (0-255)	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Cost per byte	COSTBYTE	128, *cost-per-byte* (0-255)	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Security for line	SECURITY	*PKTSWTNET, *NON-SECURE, *UNDGRDCBL, *SECURECND, *GUARDCND, *ENCRYPTED, *MAX	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
Propagation delay	PRPDLY	*PKTSWTNET, *MIN, *LAN, *TELEPHONE, *SATELLITE, *MAX	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)
User-defined 1, 2, and 3	USRDFN1 USRDFN2 USRDFN3	128, *user-defined-value* (0-255)	Use only for lines with APPC or SNA host controller descriptions with APPN(*YES)

Figure 6-11 (Page 5 of 5). X.25 Line Description Prompts

CRTLINX25 Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Recovery limits	CMNRCYLMT	2 5, *count-limit time-interval*, *SYSVAL	None
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than a 50-character description enclosed in apostrophes

Parameter and Prompt Descriptions

This topic contains detailed descriptions of all the parameters that can be specified using the create line description commands. The prompts for these parameters (shown on the configuration displays) are shown in parentheses following the parameter name. **Parameters are listed in alphabetical order.** If you do not know the parameter name associated with a certain prompt, see the tables in the preceding topic; equivalent parameter names are listed for each prompt.

See Chapter 12 for more information about matching configuration parameters and values for other systems and controllers.

ABORTS (Frame aborts):

IDLC Lines: This parameter specifies the level of error threshold monitoring done by the system for frame aborts. Possible values are:

*OFF (The default) Error threshold monitoring is not done for frame aborts.

*MIN Minimum error threshold monitoring. The system will send a message to the QSYSOPR message queue if 6 or more frame aborts occur in the first 30 seconds, or 180 errors in any 900-second (15-minute) time period.

*MED Medium error threshold monitoring. The system will send a message to the QSYSOPR message queue if 2 or more frame aborts occur in the first 30 seconds, or 60 errors in any 900-second (15-minute) time period.

*MAX Maximum error threshold monitoring. The system will send a message to the QSYSOPR message queue for each frame abort.

threshold-value
Specify a value in the range 1 to 5000, representing the number of frame aborts in a 15-minute (900-second) period. The system sends a message to the QSYSOPR message queue if the number of aborts specified occurs in any 15-minute time period.

You can change this parameter when the line is varied off using the CHGLINIDLC command.

ACRSRCNAME (Autocall resource name):

Asynchronous, BSC, SDLC, and X.25 Lines: The name that is *assigned by the system* to a communications port from which a communications line attaches to an automatic call unit.

The ACRSRCNAME parameter is specified only if an automatic call unit is not integrated in the modem being used.

When you are configuring your communications line, you will need to know what resource name the system assigned to the port to which your automatic call unit is attached. The automatic call unit must be attached to the same communications controller as your communications line. See "Determining System Resource Names" on page 2-13 for instructions on how to use the Work with Hardware Resources (WRKHDWRSC) command to determine the resource name for the port to which your automatic call unit is attached. See Appendix C for more information about the use of the automatic call function.

You can change this parameter when the line is varied off using the appropriate change line description command.

ADPTADR (Local adapter address):

DDI, Ethernet, and Token-Ring Network Lines: The address that the adapter for this line transmits from and answers to on the token-ring, DDI, or Ethernet local area network.

The default (*ADPT) uses the preset address assigned to the card by the manufacturer. *ADPT cannot be used for lines attached to frame relay network interface descriptions. You can specify a different (locally administered) address to override the preset address:

- For Ethernet lines, valid values are 12-digit hexadecimal values in the range 020000000000 through FEFFFFFFFFFF. The second digit must be 2, 6, A, or E.
- For token-ring and DDI lines, valid values are 12-digit hexadecimal values in the range 400000000000 through 7FFFFFFFFFFF.

Generally, other systems and controllers connecting to this AS/400 system on a local area

network will use this value to identify the AS/400 system in their configurations. However, special considerations apply for environments using the 8209 LAN Bridge and for PC Support/400 using Ethernet lines. See Appendix B for more information.

If you use the default (*ADPT), you can use the Display Line Description (DSPLIND) command to determine the adapter address *after* the line has been varied on.

You can change this parameter when the line is varied off using the appropriate change line description command.

ADRINSERT (Insert network address in packets):

X.25 Lines: Determines if the AS/400 system inserts the local network address (NETADR) in call-request and call-accept packets. The choice for this parameter is determined by the network subscription; some networks do not accept the packets with the addresses inserted. *YES is the default.

Note: A value of *YES is required to run switched virtual circuits without an X.25 network. See the X25DCE parameter description for more information on running without X.25 networks.

You can change this parameter when the line is varied off using the CHGLINX25 command.

APPTYPE (Application type):

BSC Lines: The type of application that this BSC line is used for. The default is *PGM for user-written application programs; other choices are *RJE for remote job entry and *EML for 3270 device emulation. A line that is configured for one type of application cannot be used by another type of application. APPTYPE parameters specified for all controllers attached to this line description must match this value.

You cannot change this parameter using the CHGLINBSC command.

AUT (Authority):

All Line Types: The level of public authority for this line description. Allowed values are:

*LIBCRTAUT
: (Default) The system determines authority for the object using the value specified for the create authority prompt (CRTAUT parameter) specified for the library in which the object will be created.

*CHANGE
: Combines the object operational authority and all data authorities (read, add, update, and delete).

*ALL
: Combines all the object authorities and data authorities. Users who are not explicitly authorized can control the object's existence, specify the security for the object, change the object, and transfer ownership of the object.

*USE
: Combines object operational authority and read authority. Users who are not explicitly authorized can display the object.

*EXCLUDE
: Prevents users who are not explicitly authorized from accessing the object.

authorization-list-name
: Specify the name of an existing authorization list. Users included in the authorization list are granted authority as specified by the list.

See the manual *Security Reference* for general information about the AS/400 system security.

Note: Authority cannot be changed using the change line description commands, but can be changed using the system security commands and menus.

AUTOANS (Autoanswer):

Asynchronous, BSC, SDLC, and X.25 Lines: Whether you intend to use your modem's automatic answer function. *YES is valid only if your modem has the automatic answer function.

If *YES (the default) is used, the AS/400 system waits for the modem to indicate it answered a call. If *NO is specified, you must indicate to the AS/400 system when you manually answer a call by running the Answer Line (ANSLIN) command. If you intend to use automatic answer, SWTCNN must be *BOTH or *ANS.

You can change this parameter when the line is varied off using the appropriate change line description command.

SDLC Lines: For an X.21 circuit-switched or short-hold mode connection, you must specify *YES.

AUTOANSTYP (Autoanswer type):

Asynchronous, BSC, SDLC, and X.25 Lines: This parameter specifies the method to be used by the system and modem to answer incoming calls. This parameter is valid only if AUTOANS(*YES) is also specified. Possible values are:

*DTR (The default) The system will turn on Data Terminal Ready (DTR) to answer the call, then wait for the modem to turn on Data Set Ready (DSR).

*CDSTL The system will turn on Connect Data Set to Line (CDSTL) after monitoring ring indicate to instruct the modem to answer the call.

You can change this parameter when the line is varied off using the appropriate change line description command.

AUTOCALL (Autocall unit):

Asynchronous, BSC, SDLC, and X.25 Lines: For switched lines or lines with switched network backup, specify *YES if the line has an associated automatic call unit that can do automatic dialing to the remote system or network.

This parameter is valid only if you selected *RS232V24 for the INTERFACE parameter.

Note: Autocall implementation requires two lines: One line (RS232/V.24) carries data to the modem; the other (for dialing) connects to the automatic call unit.

The automatic call unit must be connected using one of the special cables listed below:

- RPQ 843567 for the 9406 System Unit
- RPQ 843568 for the 9404 System Unit

You also need to specify the port from which the call will be made; this port, to which the automatic call unit is attached, is specified on the ACRSRCNAME parameter.

You cannot change this parameter using the change line description commands.

AUTOCRTCTL (Autocreate controller):

DDI, Ethernet, and Token-Ring Network Lines: Specifies whether or not the system is to automatically create APPC controller descriptions when incoming calls are received from other systems on the local area network.

Possible values are *NO (the default), or *YES to automatically create APPC controller descriptions.

If *YES is specified, the system will use the values specified in a model controller description, if one exists, to automatically create the new controller description. The model controller description is designated by specifying MDLCTL(*YES) on the controller description and must be associated with this line description. If no model controller description exists, the default values for the controller description parameters will be used. See the description of the MDLCTL parameter in Chapter 7 for more information about model controller descriptions.

The *APPN Guide* contains more information about automatic configuration for APPN.

You can change this parameter at any time using the appropriate change line description command.

AUTODIAL (Autodial):

Asynchronous, BSC, SDLC, and X.25 Lines: Specify *YES if you intend to use the automatic call function or *NO to manually dial the remote system or network to establish a switched line connection. *NO is the default.

Automatic calling can be performed:

- By your modem if it supports V.25bis using asynchronous, BSC, SDLC, or X.25 protocols
- By an automatic call unit attached to another port on the same communications controller as the data line
- Through the use of an X.21 circuit-switching network

If you intend to use automatic calling, SWTCNN must be *BOTH or *DIAL.

You can change this parameter when the line is varied off using the appropriate change line description command.

SDLC Lines: For an X.21 circuit-switched or short-hold mode connection, you must specify *YES.

AUTODLTCTL (Autodelete controller):

DDI, Ethernet, and Token-Ring Network Lines: Specifies the number of minutes the system should wait before automatically varying off and deleting automatically created controller descriptions associated with this line. This parameter can be specified only if AUTOCRTCTL(*YES) is also specified.

The timer specified by this parameter can take effect only after the status of the controller description has gone from an ACTIVE or VARIED ON status to an idle state. The controller description can be automatically deleted only while in an idle state (VARY ON PENDING or RCYCNL) and only after having been in that state for the length of time specified by this parameter. Any change in controller status to ACTIVE or VARY ON PENDING restarts the timer.

Possible values are:

- 1440 (24 hours). This is the default value for line descriptions specifying AUTOCRTCTL(*YES)
- A value in the range 1 through 10000, in minutes
- *NONE. This value indicates that the controller descriptions are not to be varied off and deleted.

You can change this parameter when the line is varied off using the appropriate change line description command.

BITSCHAR (Data bits per character):

Asynchronous Lines: The data bits per character can be either 7 or 8 bits (excluding the parity bit).

The data bits per character that you specify must match that of the remote system. The default is 8.

You can change this parameter using the CHGLINASC command when the line is varied off.

CALLIMMED (Call immediate):

X.25 Lines: Specifies, for switched X.25 lines (CNN(*SWTPP)), whether a call should be made immediately after varying on the line description.

For ISDN connections, the number used to make the call is taken from the connection list entry specified on the CNNLSTOUTE parameter. For non-ISDN connections, the number used is specified on the CNNNBR parameter.

Possible values are *NO (the default) or *YES. If *NO is specified, calls will be implicitly initiated when application programs open communications files. Specify *NO if SWTDSC(*YES) is specified.

You can change this parameter when the line is varied off using the CHGLINX25 command.

CALLNBR (Calling number):

Asynchronous, BSC, SDLC, and X.25 Lines: Specifies the local connection number of a line used for:

- X.21 short-hold mode (SDLC lines only)
- V.25bis call request with identification (CRI) dial command

This parameter is valid only if CNN(*SWTPP) or CNN(*SHM) is specified.

You can change this parameter when the line is varied off using the appropriate change line description command.

V.25bis: This parameter is used when the CRI function is needed for V.25bis. When V.25bis CRI dialing is used, the system will take the called (connection) number from the CNNNBR parameter, add a separator character (;), and concatenate the calling number at the end. For example:

```
xxxxxxxxxxxx;yyyyyyyyyyyy
```

where xxxxxxxxxxxx represents the connection number and yyyyyyyyyyyy represents the calling number. Up to 32 characters can be specified for each number (CALLNBR and CNNNBR). For X.25 connections, the CNNNBR parameter used is that specified on the CRTLINX25 command; for

other line types, the controller description CNNNBR is used.

The default, *NONE, indicates that call request normal (CRN) dialing is used.

Specify the calling number only when the modem and the network support the CRI dial command.

X.21 Short-Hold Mode: This parameter is required for all X.21 short-hold mode lines (CNN(*SHM)). The number of characters that can be specified for the calling number used for short-hold mode depends on the value specified for the SHMNODE parameter:

- If SHMNODE(*T20), up to 18 characters can be specified for the calling number
- If SHMNODE(*T21), up to 14 characters can be specified for the calling number

The calling number is passed to the remote system at the initial connection. This number will be dialed by the remote system to reestablish the short-hold mode connection.

If SHMNODE(*T21) is specified, the 4-digit local data network identification code (DNIC) or 3-digit local data country code (DCC) must be included in the first 3 or 4 digits of the calling number. If SHMNODE(*T20) is specified, include the DNIC or DCC in the first digits of the calling number only if the remote device will always be calling from a different DNIC or DCC location.

See the descriptions of the SHMACC and SHMCALLFMT parameters for more information about short-hold mode access codes and call formats.

CLOCK (Clocking):

BSC and SDLC Lines: Specifies that the clocking function for the line is provided by the modem (*MODEM). The modem is the data circuit-terminating equipment (DCE); the AS/400 system is the data terminal equipment (DTE).

For SDLC lines, the value *LOOP can also be specified. This value indicates that the DCE received clock is looped back to the DCE on the DTE transmit clock. This value can be used to improve high speed data transmission but is valid only if supported by the modem.

CMNRCYLMT (Recovery limits):

Asynchronous, BSC, DDI, Ethernet, Frame Relay, IDLC, SDLC, Token-Ring, and X.25 Lines: Allows second-level communications recovery limits to be specified for each line description. This parameter consists of two parts:

count-limit
: Specifies the number of second-level recovery attempts to be automatically performed by the system. Valid values are 0 (no recovery attempted) to 99.

time-interval
: Specifies the length of time (in minutes) in which the specified number of second-level recoveries can be attempted. Possible values are 0 to 120 in 1-minute intervals. The value 0 specifies infinite recovery if the *count-limit* value is not also 0.

Possible values are:

- `2 5`: The system-supplied default values for the count limit and time interval for each line type.
- *count-limit time-interval*: Specify count limit and time interval in the ranges indicated above. When specifying this parameter in a CL command, separate the values with a blank: `CMNRCYLMT(10 15)`.
- *SYSVAL: The recovery limits specified in the system value QCMNRCYLMT are used for this line description.

You can change this parameter at any time using the appropriate change line description command. The changed values take effect on the next error sequence.

See the *Communications Management Guide* for more information about error recovery and the QCMNRCYLMT system value.

CNN (Connection type):

SDLC Lines: The type of line connection can be:

*NONSWTPP	Nonswitched point-to-point (the default)
*SWTPP	Switched point-to-point
*MP	Nonswitched multipoint
*SHM	X.21 short-hold mode

Notes:

1. If you specify the physical interface (INTERFACE parameter) to be *V35, *X21BISV35, or *RS449V36, the connection type must be *NONSWTPP or *MP.
2. Connection type *SHM is valid only for the *X21 physical interface.

You cannot change this parameter using the CHGLINSDLC command.

Asynchronous and X.25 Lines:

*NONSWTPP Nonswitched point-to-point (the default)
*SWTPP Switched point-to-point

For X.25 lines that specify INTERFACE(*X31), these values are equivalent to the switched and nonswitched values described for IDLC lines.

You cannot change this parameter using the change line description commands.

IDLC Lines:

*SWT Switched (the default). The network interface description used will be selected from those listed on the SWTNWILST parameter.
*NONSWT Nonswitched. The line is permanently attached to the network interface description specified by the NWI parameter.

You cannot change this parameter using the change line description commands.

BSC Lines: The type of line connection can be:

*NONSWTPP Nonswitched point-to-point (the default)
*SWTPP Switched point-to-point
*MPTRIB Multipoint tributary

If the application type is emulation (*EML), the connection type must be multipoint tributary (*MPTRIB). If the application type is remote job entry (*RJE), the connection type must not be multipoint tributary (*MPTRIB).

This parameter, in combination with the application type, actually describes the type of BSC protocol. Figure 6-12 shows the valid combinations of the CNN and APPTYPE parameters.

Figure 6-12. Valid Combinations of APPTYPE and CNN Parameters for BSC Lines

	CNN		
APPTYPE	***NONSWTPP**	***SWTPP**	***MPTRIB**
*PGM	X	X	X[1]
*RJE	X	X	
*EML			X[2]

1 If *MPTRIB and *PGM are specified, the protocol is BSC multipoint; however, the physical line can be point-to-point or multipoint.

2 Although *MPTRIB protocol must be used for *EML, the physical line can be either multipoint or point-to-point.

You cannot change this parameter using the CHGLINBSC command.

CNNINIT (Connection initiation):

X.25 Lines: The possible values to initiate the X.25 data link connection are:

*LOCAL The local system attempts to activate the link by sending the SABM (Set Asynchronous Balanced Mode) command.

*REMOTE The data circuit-terminating equipment (DCE) attempts to activate the link (the local system waits for the SABM command).

*WAIT The local system waits for a DM (disconnect mode) response or DISC (disconnect) command from the DCE before sending a SABM command.

Note: For networks that do not begin the link connection, selecting *REMOTE or *WAIT for this parameter will not result in a high-level data link control (HDLC) link connection being established; that is, the line remains in vary on status until it is varied off.

You can change this parameter when the line is varied off using the CHGLINX25 command.

CNNLSTIN (Incoming connection list):

IDLC and X.25 Lines: This parameter specifies the name of the connection list used to retrieve ISDN call information when authorizing incoming

calls. This parameter is valid only for switched lines that can be used for incoming calls: SWTCNN must be *ANS or *BOTH.

Possible values are *NETATR (the default), which uses the default connection list specified in the network attributes, or the name of a specific connection list.

You can change this parameter when the line is varied off using the appropriate change line description command.

CNNLSTOUT (Outgoing connection list)

X.25 Lines: For switched ISDN connections, this parameter specifies the name of a connection list containing the network-assigned numbers used for outgoing calls on this controller. This parameter can only be specified if SWTCNN(*BOTH) or SWTCNN(*DIAL) is specified.

You can change this parameter when the line is varied off using the CHGLINX25 command.

CNNLSTOUTE (Outgoing connection list entry):

X.25 Lines: For switched ISDN connections, this parameter specifies the name of the connection list entry containing the network-assigned numbers used for outgoing calls on this line. The name of the connection list containing this entry must be specified on the CNNLSTOUT parameter. This parameter can only be specified if SWTCNN(*BOTH) or SWTCNN(*DIAL) is specified.

You can change this parameter when the line is varied off using the CHGLINX25 command.

CNNNBR (Switched connection number):

X.25 Lines: For switched X.25 lines, CNNNBR specifies the number of the remote DCE (packet switched data network) that can be contacted using this line description. Up to 32 characters can be specified.

This parameter is required if CNN(*SWTPP) is specified; it is not allowed if CNN(*NONSWTPP) is specified.

The format of this field is dependent on the exact type of physical interface and modem used. See the user's manual for the modem you are using for the exact format.

If automatic calling is used, the number is sent to the automatic call unit or modem. If manual calling is used, the number is displayed to the system operator when it is time to make the call.

V.25bis Considerations: The following considerations apply only for lines with DIALCMD(*V25BIS) specified:

V.25bis allows special characters to be included in the telephone number for additional dialing control. The following special characters are defined by the CCITT V.25bis recommendation:

: *Wait Tone*: The modem will wait a specified length of time for a tone. This is useful with certain private branch exchanges (PBXs) where a second dial tone is needed for outside calls.

< *Pause*: Causes the modem to pause before dialing the next number. The use and duration of the pause is country-dependent.

= *Separator 3*: The use of this parameter is country-dependent.

> *Separator 4*: The use of this parameter is country-dependent.

P *Pulse Mode*: Causes the modem to dial the number string that follows in *pulse* (rather than *tone*) mode.

T *Tone Mode*: Causes the modem to dial the number string that follows in *tone* (rather than *pulse*) mode.

& *Flash*: The use of this parameter is country-dependent.

Note that your modem may not support all of the above special characters or may support other special characters in addition to those listed. Refer to the documentation for your modem for more information about which special characters and which functions are supported.

You can change this parameter when the line is varied off using the CHGLINX25 command.

CNNPOLLRTY (Connect poll retry):

SDLC Lines: The number of connect poll retries that will be attempted before the AS/400 system indicates the error in contacting the remote system or controller. You can specify:

- 1 to 64: The number of retries to be made. The default is 7 retries.
- 0: No retries will be made.

This parameter is valid only for primary or negotiable stations with switched lines or with switched network backup. In addition, it is used only when the remote system or controller calls the AS/400 system.

Note: If the AS/400 system is calling over a switched line, this value is overridden by the value on the controller description. For nonswitched lines, the value on the controller description is always used.

Use the CHGLINSDLC command to change the number of connect poll retries when the line is varied off.

CNNPOLLTMR (Connect poll timer):

SDLC Lines: The length of time that the system waits for the response to a poll while in normal disconnect mode before polling the next station. This parameter is valid only for primary or negotiable lines. Allowed values are from 2 to 300 in 0.1 second intervals; 30 (3 seconds) is the default.

The table of *minimum* times shown for the IDLTMR parameter also applies to this parameter. You should also allow for remote system processing time when setting this timer.

Use the CHGLINSDLC command to change the connect poll timer when the line is varied off.

CNNTMR (Connect timer):

SDLC Lines: The amount of time that an automatic answer connect request waits for an incoming call on an X.21 circuit-switched line. If no incoming call is received within the selected time, the line will be made inoperative. Allowed values are:

- *NOMAX (the default), which means the AS/400 system waits indefinitely for an incoming call.
- 1 to 32767 in 0.1 second intervals (0.1 to 3276.7 seconds).

This parameter is used only for X.21 circuit-switched lines.

You can change this parameter when the line is varied off using the CHGLINSDLC command.

CODE (Character code):

BSC Lines: The type of character code used can be either the default EBCDIC (*EBCDIC) or ASCII (*ASCII). If you specify *ASCII, BSC control characters and data are translated to ASCII before being sent on the line. When data or BSC control characters are received off the line, they are translated to EBCDIC. If you are using an application type of *RJE, specify *EBCDIC.

You can change this parameter using the CHGLINBSC command when the line is varied off.

CONTTMR (Continue timer):

BSC Lines: The length of time that the system waits before sending a TTD or WACK control character. These control characters are used to hold up the line while waiting for the system or a user application program or system to present an I/O request to the line. The value specified for this parameter should be smaller than the value of the receive timer (RCVTMR or equivalent parameter) on the remote system. The values can be from 16 to 24 in 0.1 second intervals; 20 (2 seconds) is the default.

This parameter cannot be specified if APPTYPE is *RJE.

You can change this parameter using the CHGLINBSC command when the line is varied off.

COSTBYTE (Cost per byte):

DDI, Ethernet, Frame Relay, IDLC, SDLC, Token-Ring Network, and X.25 Lines: The relative cost per byte of sending and receiving data on the line. Valid values are from 0 (the least expensive) to 255 (the most expensive).

- For IDLC and SDLC lines, the default is *CNN, which means 0 is used for nonswitched connections, 128 for switched connections.
- For DDI, Ethernet, frame relay, and token-ring network lines, the default is 0.
- For X.25 lines, the default is 128.

Note: This parameter is used only for lines that are to be attached to APPC or host controller descriptions that specify APPN(*YES). This parameter is used to define line characteristics for use by APPN in class-of-service processing. The value selected for this parameter and the class of service selected for a session determine route selection through an APPN network.

If you are not using APPN on this line, or are using APPN but do not plan to tailor the route selection process, use the default values. For more information about APPN, see the *APPN Guide*.

You can change this parameter when the line is varied off using the appropriate change line description command.

COSTCNN (Cost per connect time):

DDI, Ethernet, Frame Relay, IDLC, SDLC, Token-Ring Network, and X.25 Lines: The relative cost of being connected on the line. For example, connection to a nonswitched line has the lowest relative cost and a switched line a higher value. You pay the same for a nonswitched line regardless of the use; you pay for a switched line based on the amount of time you use it.

Valid values are from 0 (the least expensive) to 255 (the most expensive).

- For IDLC and SDLC lines, the default is *CNN, which means 0 is used for nonswitched connections, 128 for switched connections.
- For DDI, Ethernet, frame relay, and token-ring network lines, the default is 0.
- For X.25 lines, the default is 128.

You can change this parameter when the line is varied off using the appropriate change line description commands.

Note: This parameter is used only for lines that are to be attached to APPC or host controller descriptions that specify APPN(*YES). This parameter is used to define line characteristics for use by APPN in class-of-service processing. The value selected for this parameter and the class of service selected for a session determine route selection through an APPN network.

If you are not using APPN on this line, or are using APPN but do not plan to tailor the route selection process, use the default values. For more information about APPN, see the *APPN Guide*.

CPSRTY (Call progress signal retry):

SDLC Lines: Specifies whether a call attempt should be retried if the specified call progress signals are received for an X.21 circuit-switched or short-hold mode line. This parameter can be specified only if the connection type is X.21 circuit-switched or short-hold mode; INTERFACE must be *X21.

Possible values are: *CPS41, *CPS42, *CPS43, *CPS44, *CPS45, *CPS46, *CPS47, *CPS48, *CPS49, *CPS71, and *CPS72. Each of the possible values corresponds to X.21 call progress signals 41 through 49, 71, and 72, as shown below:

Figure 6-13. Call Progress Signal Codes

Code	Explanation
41	Access barred
42	Changed number
43	Not obtainable
44	Out of order
45	Controlled not ready
46	Uncontrolled not ready
47	DCE power off
48	Invalid facility request
49	Network fault in local loop
71	Long term network congestion
72	Recognized Private Operating Agency (RPOA) out of order

If CPSRTY is used, retries of the specified call progress signals are made using the values specified for the LONGTMR and LONGRTY values. If no value is specified for this parameter, none of the listed call progress signals (CPS41-CPS49, CPS71-CPS72) are retried.

Up to 11 values may be specified for CPSRTY; duplicate values are ignored.

You can change this parameter when the line is varied off using the CHGLINSDLC command.

CRCRCV (CRC errors received):

IDLC Lines: This parameter specifies the level of error threshold monitoring done by the system for CRC errors received. Possible values are:

*OFF (The default) Error threshold monitoring is not done for CRC errors received.

*MIN Minimum error threshold monitoring. The system will send a message to the QSYSOPR message queue if 6 or more CRC errors occur in the first 30 seconds, or 180 errors in any 900-second (15-minute) time period.

*MED
Medium error threshold monitoring. The system will send a message to the QSYSOPR message queue if 2 or more CRC errors occur in the first 30 seconds, or 60 errors in any 900-second (15-minute) time period.

*MAX
Maximum error threshold monitoring. The system will send a message to the QSYSOPR message queue for each CRC error received.

threshold-value
Specify a value in the range 1 to 10000, representing the number of CRC errors received in a 15-minute (900-second) period. The system sends a message to the QSYSOPR message queue if the number of errors specified occurs in any 15-minute time period.

You can change this parameter when the network interface is varied off using the CHGLINIDLC command.

CTL (Attached controllers):

Asynchronous, BSC, IDLC, Network, SDLC, and TDLC Lines: Use this parameter only if the controller descriptions are created before the associated line description. If the controller description has not already been created, the system automatically updates this information when a controller description is created for this line description.

You cannot change this parameter using the change line description commands.

SDLC Lines: For point-to-point or multipoint non-switched lines (using either multipoint primary or secondary multistation support), this parameter includes the name of one or more controller descriptions that represent remote controllers or remote systems to which the line is physically attached.

For a line configured as CNN(*NONSWTPP), only one controller can be specified. For a multipoint line (CNN(*MP)), you may specify up to the number specified for the MAXCTL parameter. This parameter is not used for CNN(*SWTPP) or CNN(*SHM) connections.

Asynchronous, BSC, Network, and IDLC Lines: For nonswitched lines, this is the name of the controller description to which the line is physically attached.

TDLC Lines: Specifies the names of one or more APPC controller descriptions that are associated with this line.

CTNRTY (Contention state retry):

BSC Lines: The contention state is the condition that exists after the EOT character has been received or sent and before a BID is complete. If an error occurs during the contention state, this parameter specifies the number of contention state retries that can be attempted before disconnecting the line. Valid values range from 0, which indicates no retries, to 21 retries; 7 is the default.

You can change this parameter at any time using the CHGLINBSC command.

CTSTMR (Clear To Send timer):

Asynchronous, BSC, SDLC, and X.25 Lines: This parameter specifies the length of time that the system should wait for the modem (DCE) to raise or drop Clear to Send (CTS) before signaling an error.

This parameter is valid only for switched lines (CNN(*SWTPP) or SNBU(*YES)); it cannot be specified for SDLC lines using X.21 short-hold

mode. Allowed values are 10 through 60, in seconds. The default is 25 (25 seconds).

You can change this parameter when the line is varied off using the appropriate change line description command.

DFTPKTSIZE (Default packet size):

X.25 Lines: Specifies the default packet size to use for controllers attached to this line description. The AS/400 system supports packet sizes of 64, 128, 256, 512, 1024, 2048, and 4096 bytes.

This parameter contains two elements, the *transmit* packet size, and the *receive* packet size. The default value (128 *TRANSMIT, indicates that the transmit packet size is set to 128 bytes; the receive packet size (*TRANSMIT) is set to the same value as the transmit packet size (128). (The default value for the DFTPKTSIZE parameter on the controller descriptions is DFTPKTSIZE(*LIND *LIND). If the default is used, the controller description uses the values specified for the line description default transmit and receive packet sizes.)

For switched virtual circuit (SVC) controllers that specify *LIND, this means that no packet size negotiated facilities will be coded for call request or accept packets. The value supplied cannot exceed the maximum packet size supported by the network (the MAXPKTSIZE parameter).

You can change this parameter when the line is varied off using the CHGLINX25 command.

DFTWDWSIZE (Default window size):

X.25 Lines: Specifies the default window size to use for controllers attached to this line description. Values of 1 through 7 are valid for networks that use modulus 8 packet numbering; values of 1 through 15 are valid for networks that use modulus 128 packet numbering.

This parameter contains two elements, the *transmit* window size, and the *receive* window size. The default value (2 *TRANSMIT), indicates that the transmit window size is set to 2; the receive window size (*TRANSMIT) is set to the same value as the transmit window size (2). (The default value for the DFTWDWSIZE parameter on the controller descriptions is DFTWDWSIZE(*LIND *LIND). If the default is used, the controller description uses the values specified for the line description default transmit and receive window sizes.)

For SVC controllers that specify *LIND, this means that no packet window size negotiated facilities will be coded for call request or accept packets. This value cannot exceed the maximum packet window size supported by the network.

You can change this parameter when the line is varied off using the CHGLINX25 command.

DIALCMD (Dial command type):

Asynchronous, BSC, SDLC, and X.25 Lines: The dial command type used to establish a connection with a remote system. This parameter differentiates between the various types of command-capable modems (for example, automatic dialing) and the noncommand-capable modem method. If you specified *YES for automatic dialing (AUTODIAL), then you must specify a dial command type (DIALCMD parameter).

You can change this parameter when the line is varied off using the appropriate change line description command.

Asynchronous Lines: Values that can be specified for asynchronous lines are:

- *NONE (the default): Specify *NONE if the modem is not a command-capable modem but has automatic dialing capability through a separate interface.
- *V25BIS: Uses the V.25bis dial command method per the CCITT recommendations. This method has a single physical interface for call establishment and data transmission. It is sometimes referred to as a serial automatic call interface because the dial digits are presented serially on the interface from the system data terminal equipment (DTE) to the modem data circuit-terminating equipment (DCE). It is also referred to as a command-capable modem.
- *OTHER: For types of equipment capable of serial automatic call other than V.25bis. Examples of these are modems that support the IBM command set for serial dial, the Smartmodem** AT command set, or any of

several other such schemes. For these modems, the dial digits and any other call-related data must be placed directly into the data stream by the application program. The connection number (CNNNBR) in the controller description is not used in these situations.

See the *Asynchronous Communications Programmer's Guide* for more information about output operations.

Note: You should also specify *NO for automatic call (AUTOCALL), *DIAL for switched connection type (SWTCNN), and *YES for automatic dial (AUTODIAL).

SDLC and X.25 Lines: Values that can be specified for SDLC and X.25 lines are:

- *NONE (the default): Use if the modem is not a command-capable modem but has automatic dialing capability through a separate interface. This value is also used for X.21 circuit-switched networks (SDLC lines only).
- *V25BIS: Uses the V.25bis dial command method per the CCITT recommendations. This method has a single physical interface for call establishment and data transmission.

DIALRTY (Dial retries):

X.25 Lines: The number of times to retry dialing the number before considering the dialing unsuccessful. The number of retries can be from 0 (no retries) to 254; 2 retries is the default.

This parameter can be specified only if CNN(*SWTPP) is also specified.

The defaults meet most countries' requirements relative to call retries and call delays. Ensure the default or any new value you use is in accordance with your country's requirements. If you are not aware of your country's requirement, your IBM representative or IBM-approved remarketer can provide this information.

See the topic "Dial Retry Limitations" on page C-10 for more considerations for using this parameter.

You can change this parameter using the CHGLINX25 command.

DSRDRPTMR (Data Set Ready drop timer):

Asynchronous, BSC, SDLC, and X.25 Lines: This parameter specifies the length of time that the system should wait for the modem (DCE) to drop Data Set Ready (DSR) after the system has dropped Data Terminal Ready (DTR) before signalling an error.

This parameter is valid only for switched lines (CNN(*SWTPP) or SNBU(*YES)); it cannot be specified for SDLC lines using X.21 short-hold mode. Allowed values are 3 through 60, in seconds. The default is 6 (6.0 seconds).

You can change this parameter when the line is varied off using the appropriate change line description command.

DTASTTRTY (Data state retry):

BSC Lines: The data state is the time that BSC is sending or receiving data on the communications line. If an error occurs, this retry specifies the number of data state retries to attempt before indicating the error, ending the session, and possibly making the line inoperative. The values can be from 0, which indicates no retries, to 255 retries; 7 retries is the default.

You can change this parameter at any time using the CHGLINBSC command.

DUPLEX (Duplex):

Asynchronous, BSC, and SDLC Lines: If *FULL duplex is selected, the AS/400 system will leave the request-to-send (RTS) modem signal on continuously. If *HALF duplex is selected, RTS will be raised when the AS/400 system must transmit data and dropped when it is finished transmitting. The default is *FULL for asynchronous lines, and *HALF for BSC and SDLC lines. For primary stations on multipoint lines, *FULL is recommended.

You can change this parameter using the appropriate change line description command when the line is varied off.

Asynchronous Lines: If your modem supports sending and receiving data at the same time, specify *FULL (the default). The value you specify must match the remote system.

BSC and SDLC Lines: *HALF will work with most modems in most configurations, regardless of whether the remote system has specified *HALF duplex or *FULL duplex operation for its modem.

It is more efficient to specify *FULL if your modem supports duplex operation. *FULL is not always valid, however, even if your modem supports duplex operation. For example, if your AS/400 system is a secondary station on a multipoint line, you should specify *HALF.

Notes:

1. DUPLEX(*FULL) must be specified for X.21 circuit-switched and short-hold mode lines
2. DUPLEX(*FULL) is recommended for the following:
   - Primary stations on multipoint lines
   - Both primary and secondary stations on nonswitched lines
   - Connections to J1/T1/E1 networks that use the High Speed Communications IOP (all INTERFACE types) and the Multiline Communications Input/Output Processor (INTERFACE(*V35))
3. The AS/400 SDLC is always two-way alternate, independent of DUPLEX(*FULL) or (*HALF).

ECHO (Echo support):

Asynchronous Lines: Causes the AS/400 system to send back (echo) to the remote station none of the characters that it receives (the default, *NONE), all of the characters (*ALL), or all data up to, but not including, the end-of-record character (*CNTL).

Specify *NONE if you specified *HALF for the DUPLEX parameter.

Note: Your system and the remote system should not both support echo at the same time.

You can change this parameter using the CHGLINASC command when the line is varied off.

ELYTKNRLS (Early token release):

Token-Ring Network Lines: Allows greater throughput on 16-megabyte token-ring network lines. Possible values are *LINESPEED (the default, which selects *YES if LINESPEED(16M) is specified, *NO if LINESPEED(4M) is specified), *YES, or *NO. *YES cannot be specified for LINESPEED(4M).

You can change this parameter at any time, using the CHGLINTRN command. The change takes effect the next time the line is varied on.

EORTBL (End-of-record table):

Asynchronous Lines: The end-of-record table allows the system to recognize logical records when receiving data. The values in this table are specified in pairs: The first value is the EOR character and is specified as a hexadecimal character from 01 to FF. The second value is the number of characters that follow the EOR character and is specified as a digit from 0 to 4.

Note: A value of hex 00 indicates no EOR character. If no EOR character is used, the number of trailing characters must be 0.

For example, if you define an ASCII line feed (LF) character (hex 0A) as the EOR character, the system will return the EOR character (LF, in this example) and up to four trailing characters with the logical record when the LF character is detected in the data stream.

You can change this parameter using the CHGLINASC command when the line is varied off.

ETHSTD (Ethernet standard):

Ethernet Lines: Specifies the standard used by the Ethernet local area network. Possible values are:

*ALL (The default) More than one Ethernet standard can be used. SNA data is sent using IEEE 802.3 frames.

*ETHV2 Ethernet Version 2 is used.

*IEEE8023 IEEE 802.3 standard is used.

See the *Local Area Network Guide* for more information about Ethernet standards.

You cannot change this parameter using the CHGLINETH command. The line description must be deleted, then created again, to specify a different Ethernet standard.

EXCHID (Exchange identifier):

DDI, Ethernet, Frame Relay, IDLC, SDLC, Token-Ring Network, and X.25 Lines: The exchange identifier that the local AS/400 system can send to the remote controller or system. The identifier must be specified as `056`*xxxxx*, where `056` is the AS/400 assigned block number and *xxxxx* is any combination of the characters 0 through 9 and A through F. If you use the default (*SYSGEN), the AS/400 system creates a value with `056` as the block number and the remaining digits (*xxxxx*) based on the machine serial number (the value created is the binary equivalent of the AS/400 machine serial number). You can use the DSPLIND command to determine the exchange identifier after the line description is created.

The exchange identifier may be used to identify the AS/400 system to the remote system. The value specified may need to be coordinated with the remote system configuration if the remote system or controller is sensitive to the exchange identifier that the AS/400 system sends.

For communications between an AS/400 system and a host system over an SDLC line, the host system can optionally participate in exchange identification. To use PU type 2.1 support with the AS/400 system, the host system must specify XID=YES on the PU definition statement.

You cannot change this parameter using the change line description commands.

EXNNETADR (Extended network addressing):

X.25 Lines: This parameter specifies whether or not extended network addressing is used by this line description and attached controller descriptions. Possible values are *NO (the default) or *YES.

EXNNETADR(*YES) allows up to 17 characters to be specified for the network address (NETADR parameter) on the line description and for connection numbers (CNNNBR parameters) specified on attached controller descriptions.

NETLVL(1988) must also be specified for any controller description using a 17-character connection number.

You can change this parameter using the CHGLINSDLC command when the line is varied off.

FAIRPLLTMR (Fair polling timer):

SDLC Lines: The FAIRPLLTMR parameter can be specified for multipoint lines to prevent one station from tying up the line for long periods of time. The value specified for this parameter indicates the maximum length of time (in seconds) that the system will send data to one or more stations on the line before polling stations without pending output requests.

Values that can be specified are 5 through 60 in seconds. The default is 15 seconds.

You can change this parameter using the CHGLINSDLC command when the line is varied off.

FCNADR (Functional Address):

Token-Ring Network Lines: This parameter allows up to 31 bit-significant functional addresses to be specified. Functional addresses must be specified as 12-digit hexadecimal numbers in the range C00000000001 to C00040000000. The default value is *NONE (no functional addresses).

Figure 6-14 lists functional addresses defined by the IEEE and IBM.

Figure 6-14 (Page 1 of 2). IEEE- and IBM-Defined Functional Addresses

Active monitor	C00000000001
Ring Parameter Server	C00000000002
Network Server Heartbeat	C00000000004
Ring Error Monitor	C00000000008
Configuration Report Server	C00000000010
Synchronous Bandwidth Manager	C00000000020
Locate—Directory Server	C00000000040
NETBIOS	C00000000080
Bridge	C00000000100

Figure 6-14 (Page 2 of 2). IEEE- and IBM-Defined Functional Addresses	
IMPL Server	C00000000200
Ring Authorization Server	C00000000400
LAN Gateway	C00000000800
Ring Wiring Concentration	C00000001000
LAN Manager	C00000002000
User-defined	C00000004000 through C00040000000

You can use the CHGLINTRN command to change this parameter when the line is varied off.

FLOWCNTL (Flow control):

Asynchronous Lines: The FLOWCNTL parameter indicates whether you will use the XON and XOFF flow control characters to control the flow of data to your system.

Note: Specify the default *NO for this parameter if you specified *HALF for the DUPLEX parameter.

You can change this parameter using the CHGLINASC command when the line is varied off.

FRAMERTY (Frame retry):

SDLC and X.25 Lines: Allowed values are 0 (no retries) to 64 retries; 7 is the default.

You can change this parameter when the line is varied off using the CHGLINSDLC or CHGLINX25 command.

SDLC Lines: The number of retries for an unanswered or unacknowledged frame. If no response is received after all retries have been completed, the controller is made inoperative. This parameter is valid only for primary or negotiable lines, and is only used on negotiable lines if the AS/400 system assumes a primary role.

X.25 Lines: The maximum number of high-level data link control (HDLC) frame retries to be attempted for various error conditions on the interface, such as link level time-outs. This is the X.25 HDLC LAPB N2 retry value.

FRMSEQERR (Frame sequence errors)

IDLC Lines: This parameter specifies the level of error threshold monitoring done by the system for frame sequence errors. Possible values are:

*OFF (The default) Error threshold monitoring is not done for frame sequence errors.

*MIN Minimum error threshold monitoring. The system will send a message to the QSYSOPR message queue if 2 or more frame sequence errors occur in the first 90 seconds, or 20 errors in any 900-second (15-minute) time period.

*MED Medium error threshold monitoring. The system will send a message to the QSYSOPR message queue if 2 or more frame sequence errors occur in the first 300 seconds, or 6 errors in any 900-second (15-minute) time period.

*MAX Maximum error threshold monitoring. The system will send a message to the QSYSOPR message queue for each frame sequence error.

threshold-value
Specify a value in the range 1 to 3000, representing the number of frame sequence errors in a 15-minute (900-second) period. The system sends a message to the QSYSOPR message queue if the number of errors specified occurs in any 15-minute time period.

You can change this parameter when the network interface is varied off using the CHGLINIDLC command.

GRPADR (Group address):

DDI and Ethernet Lines: This parameter allows up to 12 group addresses to be specified. The group address is an address to which a subset of units on the Ethernet or DDI bus agrees to respond in addition to their local adapter address.

- Specify Ethernet group addresses as 12-digit hexadecimal numbers in the range 010000000000 to FDFFFFFFFFFF, with 1, 3, 5, 7, 9, B, D, or F as the second digit (excluding FFFFFFFFFFFF, which is used as a broadcast address).
- Specify DDI group addresses as 12-digit hexadecimal numbers in the range 800000000000 to FFFFFFFFFFFE.

The default value is *NONE (no group addresses).

You can change this parameter when the line is varied off using the appropriate change line description command.

IDLCCNNRTY (Connect retry count):

IDLC Lines: This parameter specifies the number of times to retry a transmission at connection time. This parameter is used to specify a retry value before the controller description associated with this line description has become active.

Possible values are any number of retries in the range 1 through 100 or *NOMAX, indicating indefinite retries. The default value, *CNN, uses indefinite retries for nonswitched connections (CNN(*NONSWT)), or 7 retries for switched (CNN(*SWT)) connections. *NOMAX can be specified only for nonswitched lines.

You can change this parameter using the CHGLINIDLC command when the line is varied off.

IDLCFRMRTY (Frame retry):

IDLC Lines: This parameter specifies the maximum number of frame retransmissions to attempt before initiating recovery. If recovery is unsuccessful, an error is reported. This parameter is used to specify the maximum retry value before the controller description associated with this line description has become active. This parameter represents the CCITT N200 retry counter.

Possible values are any number of retries in the range 0 through 100. The default value, *CNN, uses 7 retries.

You can change this parameter using the CHGLINIDLC command when the line is varied off.

IDLCRSPTMR (Response timer):

IDLC Lines: This parameter specifies the length of time to wait before retransmitting a frame when an acknowledgement is not received. This parameter is used to specify the response timer value before the controller description associated with this line description has become active. This parameter represents the CCITT T200 timer.

Possible values are any value in the range 10 through 100, in 0.1-second intervals. The default value, *CNN, uses a 1.0-second response timer.

You can change this parameter using the CHGLINIDLC command when the line is varied off.

IDLCWDWSIZ (Default window size):

IDLC Lines: This parameter specifies the default window size used for this line description. This parameter is used to specify the window size value before the controller description associated with this line description has become active. The window size specifies the maximum number of information frames that can be outstanding without an acknowledgement.

Possible values are any value in the range 1 through 31. The default value, *CNN, uses a window size of 7.

You can change this parameter using the CHGLINIDLC command when the line is varied off.

IDLTMR (Idle timer):

Asynchronous Lines: Specifies the maximum allowable time between characters before the adapter forwards the receive buffer to the system. Allowed values are from 0 (no timer) to 254 in 0.5 second intervals; the default is 1 (0.5 second).

You can change this parameter using the CHGLINASC command when the line is varied off.

SDLC Lines: The maximum amount of time that the system should wait for a response from a secondary station to a poll. This parameter is valid for a primary or negotiable line only. It is only used on negotiable lines if the AS/400 system negotiates to be the primary station.

Specify a value from 5 to 300 in 0.1 second intervals; the default is 30 (3 seconds). Because the length of time required to receive a response from a secondary station is a function of the propagation time to and from the secondary station and clear-to-send delay at the secondary station, the following figure indicates the *minimum* value you should specify for different line characteristics:

Line Characteristic	Value	Time (Seconds)
Duplex	5	0.5
Half duplex	10	1.0
Satellite link	20	2.0

This time-out is also dependent on the remote station's processing time. You should also allow for the longest possible processing time at the secondary station. However, time-out values that are too long lengthen the time required to detect a failing remote station and can adversely affect performance on a multipoint line. Also, if the idle timer is set to a value greater than the corresponding inactivity timer value at the secondary station, the line may report permanent errors rather than using normal recovery procedures for line errors.

Use the CHGLINSDLC command to change the idle timer when the line is varied off.

X.25 Lines: The maximum amount of time that the system should wait for acknowledgement from the network for each frame sent before retransmission. This value is also known as the X.25 HDLC LAPB T1 DTE timer (or, high-level data link control, link access protocols-balanced T1 data terminal equipment timer).

Allowed values are from 3 to 600, in 0.1-second intervals, providing time-out values from 0.3 to 60 seconds. The default value is 40 (4.0 seconds). Use the expression shown in Figure 6-15 to determine the minimum value that should be specified for this parameter.

```
(2 * P + (MAXPKTSIZE*8)/LINESPEED + D) * 10
```

Figure 6-15. Minimum IDLTMR Value Calculation

Where:

`P` is the propagation delay (in seconds) of the medium used to connect the AS/400 system to the network

`MAXPKTSIZE`
is the transmit packet size (MAXPKTSIZE parameter)

`LINEPSEED`
is the line speed (LINESPEED parameter)

`D` is the DCE processing overhead (in seconds)

The value specified should be large enough to include transmission time to and from the network, plus line propagation delay and worst-case data circuit-terminating equipment (DCE) processing time. Contact your network provider for propagation delay and DCE processing time information.

If the actual DCE response time exceeds the idle timer value, line failures can occur or unnecessary recovery can decrease throughput. Values much larger than necessary can prolong error detection in the event of network failure, or it can degrade performance even during occasional recoverable error occurrences.

You can change this parameter when the line is varied off using the CHGLINX25 command.

INACTTMR (Inactivity timer)

Asynchronous, BSC, and SDLC Lines: Allowed entries for the inactivity timer are:

- *NOMAX, which means that the system waits indefinitely.
- 150 to 4200 in 0.1 second intervals; 300 (30 seconds) is the default.

Note: The default of 30 seconds meets most countries' requirements to disconnect from the line when there is no activity. Ensure the default or any new value you use is in accordance with your country's requirements. If you are not aware of your country's requirements, your IBM representative or IBM-approved remarketer can provide this information. This parameter can be changed using the appropriate change line description command when the line is varied off.

Asynchronous Lines: This value is the time that the system waits for activity on a switched line before disconnecting. The timer is started at the time a switched connection is established and ended on transmission or receipt of any data.

Setting this value too low can result in an unnecessary loss of sessions.

If the dial command type is *OTHER, specify *NOMAX for the inactivity timer.

BSC Lines: The length of time that the system waits for activity on a line. This timer is started at connection time and whenever an end-of-

transmission (EOT) record is sent or received. The timer is turned off whenever data is sent or received. When the timer runs out, the system disconnects.

This parameter applies only to switched point-to-point lines (CNN(*SWTPP)) and is valid only for application type *PGM.

You may want to specify a small value to avoid unnecessary telephone costs or specify a larger value to be more tolerant of user-application idle states.

SDLC Lines: The length of time that the system waits for a valid frame to flow. This parameter is valid only for secondary or negotiable lines; for negotiable, it is used only if the AS/400 system assumes a secondary role. This timer is started at connection time and restarted on transmission of any frame; it is reset when the system receives a frame with a valid frame check sequence.

The INACTTMR parameter is used to let a secondary SDLC station know when the link and/or primary SDLC station is inoperative. If the inactivity time passes with no valid frames being received, the line is assumed to be inoperative. If the line is a switched line, it is disconnected at this time.

Setting this value too low can result in an unnecessary loss of sessions if the primary station polls slower than the value specified for the inactivity timer. The length of time between polls is dependent on the primary station's polling algorithm, the number of secondary stations on the line, the line speed, and any time-outs that can occur due to line errors or secondary stations that do not respond. If the inactivity time-out occurs while the primary station and link are still operational, it may be necessary to increase the inactivity timer.

INFTRFTYPE (Information transfer type):

IDLC and X.25 Lines: This parameter specifies how data is to be encoded for the ISDN B-channel associated with this line description. Possible information transfer types are:

*UNRESTRICTED
: (The default) Data channel traffic is unrestricted. No encoding is done by the physical layer. Each B-channel operates at 64K bps.

*V110
: Channel uses CCITT V-Series Recommendation 110. Each B-channel operates at 56K bps.

*IVTHDLC
: Channel uses inverted HDLC data encoding. Each B-channel operates at 64K bps. Use of this value is not recommended.

You can change this parameter using the appropriate change line description command when the line is varied off.

INTERFACE (Physical interface):

Asynchronous, BSC, SDLC, and X.25 Lines: The type of physical communications line interface that this communications adapter port and cable will be attached to. The RSRCNAME parameter refers to the port on the adapter. This port and the cable that is attached must be compatible with the types of physical interface to which they are being connected.

This parameter cannot be changed using the change line description commands: You must delete the description and create it again.

Figure 6-16 on page 6-53 shows the values that can be specified for the INTERFACE parameter for the various line types. The following INTERFACE values are supported for one or more of the create line description commands:

***RS232V24**
: The standard interface for low-speed communications line attachments. This value is the default for asynchronous, BSC, and SDLC lines. This value should be specified for any of the lines within subsystems that identify EIA RS232D or V.24 interface except when these interfaces are attached to X.21 networks (see the *X21BISV24 discussion below).

***X21BISV24**
: The interface for low-speed communications line attachments when attaching to X.21 networks that have the interim (bis) attachment

similar to EIA-232 or V.24. This value is the default for X.25 lines.

***X21BISV35**
The interface for medium-speed communications line attachments when attaching to X.21 networks that have the interim (bis) attachment similar to V.35.

***X21**
The interface used on X.21 digital network line attachments. This value should be specified for any of the lines within subsystems that identify attachment to X.21 networks that have the true interface (not the bis interface).

***X31**
The interface used for support of packet-mode terminal equipment by an ISDN. Specify this value when running X.25 over an ISDN B-channel.

***V35**
The standard interface for medium-speed communications line attachments. This value should be specified for any of the lines within subsystems that identify V.35 interfaces except when you use these interfaces to attach to X.21 networks (see the *X21BISV35 description).

***RS449V36**
A more recent interface for medium speed communications line attachments. This value should be specified for any of the lines within subsystems that identify EIA RS449 or V.36 interfaces.

Figure 6-16. INTERFACE Parameter Values for Line Types

	Physical Interface						
Line Type	***RS232V24**	***X21BISV24**	***X21BISV35**	***X21**	***X31**	***V35**	***RS449V36**
Asynchronous	X[1]						
BSC	X[1]	X	X			X	
SDLC	X[1]	X	X	X		X	X
X.25	X	X[1]	X	X	X		

Note:

1 Indicates the default INTERFACE value for the listed line type.

Figure 6-17 shows the INTERFACE parameter values that can be specified for various subsystem feature codes used by the AS/400 system.

Figure 6-17 (Page 1 of 2). INTERFACE Values Supported for Version 2 9406 System Unit, 9404 System Unit, and AS/400 9402 System Unit

Feature Code	***RS232V24**	***X21BISV24**	***X21BISV35**	***X21**	***X31**	***V35**	***RS449V36**
2605					X		
2654	X	X					
2655	X	X					
2656				X			
2657	X	X					
2658	X	X					
2659				X			
2666			X	X		X	X
6151				X			
6153			X			X	

Figure 6-17 (Page 2 of 2). INTERFACE Values Supported for Version 2 9406 System Unit, 9404 System Unit, and AS/400 9402 System Unit

Feature Code	*RS232V24	*X21BISV24	*X21BISV35	*X21	*X31	*V35	*RS449V36
6154	X	X					
6155	X	X					
6171				X			
6173			X			X	
6174	X	X					
6175	X	X					

LGLCHLE (Logical channel entries):

X.25 Lines: The logical channel identifier and type for each logical channel associated with this line description. The number of entries and their respective types are determined by the number and types of the logical channels subscribed to from the network provider.

Up to 64 permanent virtual circuits (PVCs) and switched virtual circuits (SVCs) can be specified for each line description. However, the total number of *active* virtual circuits for each line description is restricted as follows:

Figure 6-18. Active Virtual Circuit Capacities per Line

Processor (Feature Code)	System Unit		
	9402	9404	9406
Multiple Function IOP (2507, 9146)	16	16	16
Three-Line Communications Controller (6150)	48	48	
Multiline Communications Processor (6130)			64
Multiline Communications Input/Output Processor (2623)	64	64	64

There are no default values for this parameter, so at least one logical channel entry must be defined.

Each logical channel entry contains three sub-fields:

- The *logical-channel-identifier*, as supplied by the network subscription, specified in 3 hexadecimal digits in the format *gcc*, where:

  g = the logical channel group number
  **.cc* = the logical channel number

  Note: Logical channel zero (hex 000) is no longer allowed. Existing line descriptions that specify logical channel zero will fail when an attempt is made to vary them on, with messages CPI59B2 and CPI8FCE issued by the system. Use the CHGLINX25 command to change or remove references to logical channel zero.

  If a PVC controller is defined for logical channel zero, the controller description must also be changed.

- The *logical-channel-type* specified as the type of circuit that can be assigned for this logical channel. These types can be specified as *PVC, *SVCIN, *SVCBOTH, and *SVCOUT.

  Logical channel entries of type *PVC cannot be specified for switched X.25 lines (CNN(*SWTPP)).

- The *PVC-controller* specified as the name of any controller description that currently exists and is to be connected to the PVC on this line description.

  If the line description is created before the PVC controller description for a given PVC logical channel entry, the PVC controller name must be left blank. When the PVC controller description is created, the line description

name and logical channel identifier must be specified. The system automatically updates the line description.

Logical channel entries must be entered in order by type, based on the X25DCE parameter value specified:

- If X25DCE(*NO), *PVC logical channel entries must be specified first, followed by *SVCIN, *SVCBOTH, and *SVCOUT logical channel entries.
- If X25DCE(*YES), *PVC logical channel entries must be specified first, followed by *SVCOUT, *SVCBOTH, and *SVCIN logical channel entries.

In each case, the order of entries shown assumes that entries of all types are specified. If, for example, X25DCE(*NO) is specified and no logical channel entries of type *SVCIN are required, the order in which the entries are specified will be: *PVC, *SVCBOTH, *SVCOUT.

The system automatically reorders the entries provided by the user into ascending order by logical channel identifier (for example, 001, 002, 003, and so on) if they were not so ordered in the command field.

If *PROMPT is specified in the logical channel identifier field for either CRTLINX25 or CHGLINX25 when these commands are run interactively, entry displays assist in entering the logical channel entries. The entry display for CRTLINX25 contains input fields for all entries that can take input. The entry display for CHGLINX25 shows all current logical channel entries that can be changed and that contain input fields for adding new entries.

When the *PROMPT option is used, any entries (with the exception of entries attached to PVC controllers when using CHGLINX25), can be added, changed, or removed. The create and delete controller commands cause connections to be added or removed from this table for attached PVC controllers. When using command prompting to change logical channel entries, all current logical channel entries must be specified again for them to be kept.

You can change this parameter when the line is varied off using the CHGLINX25 command.

LIND (Line description name):

All Line Types: The name that will be used when you are working with the line using the Vary Configuration (VRYCFG) and Work with Configuration Status (WRKCFGSTS) commands. The name you give the line description must follow AS/400 naming conventions, but it can be as descriptive as you choose. Examples are NYC370 and LU1003. See the *CL Reference* for information about naming the AS/400 objects.

You can use the RNMOBJ command (or option 7 on the Work with Line Descriptions display) to change the name of a line description.

LINESPEED (Line speed):

Asynchronous, BSC, IDLC, SDLC, Token-Ring Network, and X.25 Lines: The line speed in bits per second (bps).

You can use the appropriate change line description command to change this parameter when the line is varied off.

Asynchronous Lines: Valid line speeds are: 75, 110, 150, 300, 600, 1200, 2400, 4800, 9600, and 19200 bps; the default is 1200 bps. The 9130 IOP for the 9406 System Unit also supports line speeds of 50 and 7200 bps.

The line speed you specify must match that of the remote system and be supported by the modem attached to the line.

Note: Asynchronous communications on the AS/400 system supports only internal clocking.

BSC Lines: Valid entries are: 600, 1200, 2400, 4800, 7200, 9600, 14400, 19200, 48000, 56000, 57600, and 64000; 9600 bps is the default.

Note: The 9130 IOP for the 9406 System Unit does not support the 64000 bps line speed. Because the AS/400 BSC interface uses external clocking, this value does not affect the actual line speed of the interface. However, to ensure that the AS/400 system provides accurate performance statistics, this value should match the actual line speed.

SDLC Lines: Valid entries are: 600, 1200, 2400, 4800, 7200, 9600, 14400, 19200, 48000, 56000, 57600, 64000, 112000, 128000, 168000, 192000,

224000, 256000, 280000, 320000, 336000, 384000, 392000, 448000, 504000, 512000, 560000, 576000, 616000, 640000, 672000, 704000, 728000, 768000, 784000, 832000, 840000, 896000, 952000, 960000, 1008000, 1024000, 1064000, 1088000, 1120000, 1152000, 1176000, 1216000, 1232000, 1280000, 1288000, 1344000, 1400000, 1408000, 1456000, 1472000, 1512000, 1536000, 1568000, 1600000, 1624000, 1664000, 1680000, 1728000, 1736000, 1792000, 1856000, 1920000, 1984000, and 2048000; 9600 bps is the default. Values greater than 64000 can be specified only for lines attached to the High Speed Communications IOP (feature code 2666) that specify *RS449V36 or *X21 for the INTERFACE parameter.

Because the AS/400 SDLC interface uses external clocking, this value does not affect the actual line speed of the interface. However, to ensure that the AS/400 system provides accurate performance statistics, this value should match the actual line speed.

Token-Ring Network Lines: Valid entries are 4M (the default), 16M, or *NWI. Specify *NWI for lines attached to frame relay network interface descriptions.

X.25 Lines: Valid entries are: 1200, 2400, 4800, 7200, 9600, 14400, 19200, 48000, 56000, 57600, 64000, and *CALC; 9600 bits per second is the default. *CALC must be specified for lines using INTERFACE(*X31); *CALC is not valid for other interface types.

Because the AS/400 X.25 physical interface uses external clocking, setting this value does not affect the actual line speed of the interface. However, to ensure that the AS/400 system provides accurate performance statistics, this value should match the actual line speed.

You can specify a maximum line speed of 19200 if you specify a physical interface of *X21BISV24 or *RS232V24.

LINKSPEED (Link speed):

DDI, Ethernet, Frame Relay, IDLC, SDLC, Token-Ring Network, and X.25 Lines: The link speed in bits per second (bps).

You can change this parameter when the line is varied off using the appropriate change line description command.

Note: This parameter is used only for lines that are to be attached to APPC or host controller descriptions that specify APPN(*YES). This parameter is used to define line characteristics for use by APPN in class-of-service processing; it does not necessarily represent the actual line speed. The value selected for this parameter and the class of service selected for a session determine route selection through an APPN network.

If you are not using APPN on this line, or are using APPN but do not plan to tailor the route selection process, use the default values. For more information about APPN, see the *APPN Guide*.

Frame Relay Lines: Allowed values are: 1200, 2400, 4800, 7200, 9600, 14400, 19200, 48000, 56000, 64000, 112000, 128000, 168000, 192000, 224000, 256000, 280000, 320000, 336000, 384000, 448000, 499000, 576000, 614000, 691000, 768000, 845000, 922000, 998000, 1075000, 1152000, 1229000, 1382000, 1536000, 1690000, 1843000, and 1997000 bps. 64000 bps is the default value.

IDLC Lines: Allowed values are 64000 (the default) and 56000 bps.

SDLC and X.25 Lines: Allowed values are: *MIN (for link speeds less than 1200 bps), 1200, 2400, 4800, 7200, 9600, 14400, 19200, 48000, 56000, 64000, 4M, *MAX (for link speeds greater than 4M bps), and *INTERFACE (the default). SDLC lines also support the following values for high speed J1/T1/E1 connections: 112000, 128000, 168000, 192000, 224000, 256000, 280000, 320000, 336000, 384000, 448000, 499000, 576000, 614000, 691000, 768000, 845000, 922000, 998000, 1075000, 1152000, 1229000, 1382000, 1536000, 1690000, 1843000, 1997000, 4M, 10M, and 16M.

If you use the default (*INTERFACE), then the link speed is based on the physical interface type:

- 9600 bps for EIA-232/V.24 and X.21bis/V.24
- 48000 bps for V.35 and X.21bis/V.35
- 64000 bps for X.21, X.31, and RS-449/V.36

DDI, Ethernet, and Token-Ring Network Lines: Allowed values are: *MIN (for link speeds less than 1200 bps), 1200, 2400, 4800, 7200, 9600, 14400, 19200, 48000, 56000, 64000, 112000, 128000, 168000, 192000, 224000, 256000, 280000, 320000, 336000, 384000, 448000, 499000, 576000, 614000, 691000, 768000, 845000, 922000, 998000, 1075000, 1152000, 1229000, 1382000, 1536000, 1690000, 1843000, 1997000, 4M (default for token-ring lines), 10M (default for Ethernet lines), 16M, and *MAX (default for DDI lines).

Note: If this and other lines are to be specified in the switched line list (SWTLINLST parameter) of an APPC controller description with APPN(*YES) specified, LINKSPEED values for all listed lines must be the same. For example, if an Ethernet line and either a token-ring network or DDI line description are included in the switched line list, the default LINKSPEED values for these line types (DDI and token-ring network: 4M; Ethernet: 10M) cannot be used.

LOGCFGCHG (Log configuration changes):

Token-Ring Network Lines: Specifies whether or not the token-ring network manager for this line is to log configuration changes on the ring. Possible values are *LOG (the default) or *NOLOG.

You can change this parameter when the line is varied off using the CHGLINTRN command.

LONGRTY (Long retry):

SDLC Lines: The number of bursts of call retry attempts that the system makes when processing a connection request. Allowed values are from 0 (no retries) to 254 retries; 1 retry is the default.

Notes:

1. The LONGRTY parameter is used only for X.21 circuit-switched or short-hold mode lines.
2. The default meets most countries' requirements relative to call retries and call delays. In the event that the default does not meet your country's requirements, the value must be configured in accordance with the country requirement. Before changing this value, ensure that the new value is in accordance with your country's requirements.

   If you are not aware of your country's requirement, your IBM representative or IBM-approved remarketer can provide this information.

This parameter is used to control retries when you are attempting to make a call over an X.21 circuit-switched or short-hold mode network. Call attempts are characterized by "bursts" of retries. A single burst of retries is controlled by the short timer and short retry value. If all short retries are completed, the system delays for a longer time (the long timer) before attempting another burst of retries. The total number of these bursts of retries is based on the long retry value.

You can change this parameter when the line is varied off using the CHGLINSDLC command.

LONGTMR (Long timer):

SDLC Lines: The timer used between bursts of call retry operations on an X.21 circuit-switched or short-hold mode line. The length of time that the system waits between connection retry attempts. Allowed values are from 100 to 6000 in 0.1 second intervals; 600 (60 seconds) is the default.

Notes:

1. The LONGTMR parameter is used only for X.21 circuit-switched or short-hold mode lines.
2. The default meets most countries' requirements relative to call retries and call delays. In the event that the default does not meet your country's requirements, the value must be configured in accordance with the country requirement. Before changing this value, ensure that the new value is in accordance with your country's requirements.

   If you are not aware of your country's requirement, your IBM representative or IBM-approved remarketer can provide this information.

This parameter is used to control retries when you are attempting to make a call over an X.21 circuit-switched or short- hold mode network. Call attempts are characterized by "bursts" of retries. A single burst of retries is controlled by the short timer and short retry value. If all short retries are completed, the system delays for a longer time (the long timer) before attempting another burst of

retries. The total number of these bursts of retries is based on the long retry value.

You can change this parameter when the line is varied off using the CHGLINSDLC command.

MAXBUFFER (Maximum buffer size):

Asynchronous Lines: The maximum size of the incoming and outgoing buffers. The size can be from 128 to 4096 characters; the default is 896 characters.

Note: If you are using the file transfer support on this line, the maximum buffer size must be at least 896.

You can change this parameter using the CHGLINASC command when the line is varied off.

BSC Lines: The maximum size of the incoming and outgoing blocks of data. The size can be from 8 to 8192 characters; the default is 1024 characters. Specifying a smaller size saves system resources. If the remote system sends more data than specified as the allowed maximum, the line is made inoperative. If you attempt to send more data than specified as the allowed maximum, you will receive a session error. To reduce the chance of this happening, specify 8192 for the maximum buffer size.

You can change this parameter using the CHGLINBSC command when the line is varied off.

MAXCTL (Maximum controllers): The maximum number of controllers this line can support. Use the default (1) for:

- Nonswitched point-to-point and switched point-to-point connection types
- Nonswitched point-to-point and multipoint connection types communicating with a host system using duplex, two-way simultaneous data transfer. (The host system specifies duplex data transfer in its NCP generation by specifying LINE ADDRESS=(nnn,FULL) on the LINE macroinstruction.)
- Short-hold mode lines specified with ROLE(*SEC) and SHMNODE(*T20)

Short-hold mode lines specified with ROLE(*PRI) or ROLE(*NEG) can support up to 64 controllers.

The maximum number of controllers that can be supported on a multipoint line is 254 (for both primary and secondary data link role); however, you should not specify more than you intend to use because this number affects the amount of system resources required.

For lines attached to frame relay network interface descriptions, this value represents the total number of active controllers for all lines attached to the network interface description.

You can change this parameter when the line is varied off using the CHGLINSDLC command.

DDI, Ethernet, Frame Relay, and Token-Ring Network Lines: Specifies the largest number of controllers that can be active on this line at any time. The maximum allowable value for the 9406 System Unit is 256, and the default is 40. For the 9404 System Unit, specify no more than 128; for the 9402 System Unit, specify no more than 64. You should make the number large enough to allow for all the controllers you plan to attach to the network that will communicate with this system at any one time.

Note: The number of controllers that can specify this line description in their switched line list (SWTLINLST) can be greater than the MAXCTL value, and they may even be varied on. But only the number of controllers specified for MAXCTL will be allowed to go into active session with this system over the local area network at any one time. A system message will inform you if that condition occurs.

You can use the appropriate change line description command to change this parameter when the line is varied off.

MAXFRAME (Maximum frame size):

DDI, Frame Relay, IDLC, SDLC, Token-Ring Network, and X.25 Lines: Specifies the maximum frame size that can be transmitted and received on this line.

When this line is used with APPC and host controllers, this maximum frame size parameter is negotiated with the remote system at exchange ID time. For host controllers, the host system must specify XID=YES on the PU definition statement to provide PU type 2.1 support. Each system indi-

cates the maximum SNA frame that can be received on the line by sending its MAXFRAME value in its exchange identifier.

When the remote system's exchange identifier is received, the maximum receive frame size in the received exchange identifier is compared with the value that was sent:

- If the remote system's maximum frame size is less than the MAXFRAME parameter configured for this line description, then the maximum send frame size is negotiated down to the MAXFRAME parameter received in the exchange identifier.
- If the connection is made to a host system that does not participate in exchange identifiers, the value used for the connection is either the MAXFRAME parameter in this line description or the MAXDATA parameter in the host PU definition statement, whichever is smaller.

Larger frame sizes can improve performance; however, if frequent line errors occur, performance may be degraded by larger frame sizes due to the greater likelihood that a frame may encounter an error and need to be transmitted again.

See the *Local Area Network Guide* for more information about determining frame sizes for frame relay, token-ring network, Ethernet, and DDI lines used with frame relay networks.

DDI Lines: Any value in the range 265 through 4444 can be specified. The default is 4444.

You can change this parameter when the line is varied off using the CHGLINDDI command.

Frame Relay Lines: Possible values are any value in the range 265 through 8182. The default value is 1590.

You can change this parameter when the line is varied off using the CHGLINFR command.

IDLC Lines: Any value in the range 265 through 8196 can be specified; 2048 is the default. For maximum frame sizes greater than 2048 bytes, the IDLC response time specified for controller descriptions associated with this line should use values greater than the default of 10 (1.0 second). See the description of the IDLCRSPTMR parameter in Chapter 7 for more information.

You can change this parameter when the line is varied off using the CHGLINIDLC command.

SDLC Lines: Valid frame sizes are: 265, 521, 1033, and 2057; 521 is the default.

You can change this parameter when the line is varied off using the CHGLINSDLC command.

Token-Ring Network Lines: Any value in the range 265 through 16393 can be specified. 1994 is the default. Values greater than 4060 can be specified only if the adapter supports the 16MB line speed and LINESPEED(16M) is specified. Lines attached to frame relay network interface descriptions must specify a value in the range 265 through 8151.

You can change this parameter when the line is varied off using the CHGLINTRN command.

X.25 Lines: For SNA communications, this value represents the maximum logical link control data unit that can be sent or received on the line. For non-SNA communications, this value represents the maximum data packet sequence that can be sent or received. This value should not be confused with the high-level data link control (HDLC) frame size.

Valid frame sizes are: 1024, 2048, and 4096; 1024 is the default. The value specified for this parameter must be greater than or equal to the value specified for the maximum transmit packet size (MAXPKTSIZE parameter).

You can change this parameter when the line is varied off using the CHGLINX25 command.

MAXOUT (Maximum outstanding frames):

SDLC Lines: The maximum number of information frames that can be sent to a remote system and received from a remote system before allowing the receiving system to respond. You can specify from 1 to 28 frames; however, the value must be less than the value specified for the MODULUS parameter. The default is 7.

The AS/400 system exchanges its MAXOUT value with the remote system during the exchange of identifiers (XIDs). If the remote system indicates a

smaller MAXOUT value than the MAXOUT value configured at the local system, the AS/400 system sends the smaller number of information frames before waiting for a response. However, the AS/400 system can receive as many information frames as specified in the MAXOUT parameter.

You can change this parameter when the line is varied off using the CHGLINSDLC command.

MAXPKTSIZE (Maximum packet size):

X.25 Lines: The maximum packet size that can be used by any controller associated with this line description. The value specified must not be less than the default packet size specified and cannot exceed that value supported by the network. Valid values are 64, 128, 256, 512, 1024, 2048, and 4096 bytes.

This parameter contains two elements, the *transmit* maximum packet size, and the *receive* maximum packet size. The default value (*DFTPKTSIZE *TRANSMIT), indicates that the maximum transmit packet size (*DFTPKTSIZE) is set to the same value as the default transmit packet size on the DFTPKTSIZE parameter; the maximum receive packet size (*TRANSMIT) is set to the same value as the maximum transmit size. The maximum receive packet size can also be set to *DFTPKTSIZE, indicating that it is to be the same as the default receive packet size.

You can change this parameter when the line is varied off using the CHGLINX25 command.

MODEM (Modem type supported):

Asynchronous, BSC, SDLC, and X.25 Lines: The classification of modem diagnostic tests to be used on the line. The options provided are modem diagnostic tests that support IBM modems and CCITT V.54 modems. Only one option can be selected to match the modem type being configured. To determine the option to select, see the appropriate modem documentation (for example, the owner's manual) that specifies those tests supported by the modem. Incorrect specification will result in tests not running correctly. The diagnostic test classifications are:

*NORMAL (The default) No tests are run to your modem.

*V54 Tests defined by the CCITT V.54 recommendations can be run to your modem.

*IBMWRAP An IBM modem with wrap test capabilities is being used on this line.

*IBMLPDA1 (SDLC lines only) An IBM modem with Link Problem Determination Aid-1 is being used on this line.

*IBMLPDA2 (SDLC lines only) An IBM modem with Link Problem Determination Aid-2 is being used on this line.

Run the tests when you want to verify that the communications equipment is operational or when an error condition occurs that requires problem analysis and resolution.

The tests are run either:

- Externally by running the Verify Communications (VFYCMN) command or by using the Communications Verification Program menu. You select the test to run based on the generic test function instead of the specific test command name.
- Internally using the problem analysis procedures if you choose to run the problem analysis option.

You can change this parameter using the appropriate change line description command when the line is varied off.

MODEMRATE (Modem data rate select)

Asynchronous, BSC, SDLC, and X.25 Lines: Whether this modem is being operated at its full rated speed (*FULL), the default, or at an alternate or half speed (*HALF). Specifying *HALF causes the AS/400 system to set off the data signaling rate selector interface signal to select the modem's lower speed and has an effect only if your modem supports this signal. You must ensure the comparable change in speed in the remote modem as well. Some modems switch speeds automatically if the speed of the other modem is changed.

If many errors occur at the modem's higher transmission rate, errors and associated retransmissions can be reduced by selecting a slower data transmission rate for better overall performance.

Modem data rate selection is valid only for *RS232V24 and must match the modem setting at the remote system.

You can change this parameter when the line is varied off using the appropriate change line description command.

MODULUS (Modulus):

SDLC Lines: Specifies whether extended sequence numbers are used (modulus 128) or not (modulus 8). Modulus 128 allows up to 127 information frames to be outstanding before waiting for an acknowledgement, as opposed to a maximum of 7 information frames for modulus 8. For modulus 128, specify 128; for modulus 8, specify 8. The default is 8.

Notes:

1. For CNN(*MP) or CNN(*SHM), specify MODULUS(8).
2. The AS/400 system supports a maximum of 28 outstanding information frames. For more information, see the description of the MAXOUT parameter.

Modulus 128, in conjunction with larger maximum outstanding frames, can improve performance over lines with long propagation and turnaround times by decreasing the number of times the line must be turned around to allow for transmission of acknowledgements. If the remote system does not also support modulus 128, modulus 8 is automatically used. Modulus 128 is not valid for multipoint lines.

For the remote system, the modulus is negotiated during the exchange of identifiers (XIDs). The system that is primary or negotiates to be the primary station determines the outcome of modulus negotiation by sending either an SNRM (Set Normal Response Mode) command, indicating modulus 8, or an SNRME (Set Normal Response Mode Extended) command, indicating modulus 128. The least-capable system decides the outcome of the modulus negotiation.

The system forces the user to specify a MAXOUT greater than or equal to 8 if the user also specifies a modulus value of 128; otherwise, the modulus value must be 8. If either system's MAXOUT value is less than 8, a modulus value of 8 is used.

You can change this parameter when the line is varied off using the CHGLINSDLC command.

X.25 Lines: The packet-level modulus used in your X.25 network; this information comes from your network subscription. Valid values are:

- 8 (the default): Packet window size can range from 1 through 7, using packet sequence numbers 0 through 7.
- 128: Packet window size can range from 1 through 15, using packet sequence numbers 0 through 127.

Note: This parameter does not affect the HDLC LAPB link level modulus window.

You can change this parameter when the line is varied off using the CHGLINX25 command.

NETADR (Local network address):

X.25 Lines: This parameter represents the X.25 network address of the AS/400 system and is provided by the network supplier. You must enter a network address.

If extended network addressing is used (EXNNETADR(*YES)), the network address can be up to 17 digits. If not, this address can be up to 15 decimal digits.

This parameter is equivalent to the *Local network address* prompt in the CNFIGX25 procedure on the System/36 and the X.25 network local address (LCLNETADR) parameter in the Create Line Description (CRTLIND) command on the System/38.

You can change this parameter when the line is varied off using the CHGLINX25 command.

NETCTL (Network controller):

Ethernet, Token-Ring Network, and X.25 Lines: The name of an existing network controller description. This parameter is optional; the network controller can be associated with the line using the Create Controller Description (Network) (CRTCTLNET) command after the line description is created. Network controller descriptions are automatically created by TCP/IP, OSI, and user-defined communications.

NETUSRID (Network user identification (NUI) facility):

X.25 Lines: For switched X.25 lines, this parameter allows network subscribers to specify the network user identification (NUI) selection facility that is encoded in the facility field of all call request packets sent on this line.

Possible values are:

- *NONE: (The default) Specifies that the NUI selection facility is not encoded in call request packets.
- *network-user-identification*: Specify up to 214 hexadecimal characters of NUI information as determined by the network provider. The number of characters specified must be an even number.

  The system provides the NUI facility code (C6) and the length in bytes (<L>) of the NUI information specified on this parameter. This information is provided to the network in the following format:

  ```
  C6 <L> <NUI-information>
  ```

You can change this parameter when the line is varied off using the CHGLINX25 command.

NPRDRCVTMR (Nonproductive receive timer):

SDLC Lines: The time that the system waits for either a final frame or an idle signal while the secondary station is continuously transmitting. If the timer runs out, the nonproductive receive condition is reported to the user and the line is made inoperative. This parameter is valid only for primary or negotiable lines.

This parameter tells the system how to distinguish between real data transmission attempts and a failing remote station sending data that is not valid on the line.

Allowed entries are from 160 to 4200 in 0.1 second intervals; the default is 320 (32 seconds).

The value specified should be greater than the length of time required to transmit the maximum number of outstanding frames (MAXOUT), each of maximum frame size (MAXFRAME).

You can change this parameter when the line is varied off using the CHGLINSDLC command.

NRZI (NRZI data encoding):

SDLC Lines: Whether the AS/400 system should use the non-return-to-zero inverted (NRZI) transmission coding method. The default (*YES) indicates that NRZI should be used.

NRZI transmission coding can allow transmitters and receivers to better maintain synchronization and may be required by some data communications equipment.

Normally, analog connections (connections using modems) should specify *YES. Specify *NO for use with digital data circuit-terminating equipment (DCE) and networks such as X.21 and J1/T1/E1 lines.

Each system or controller on a line must use the same transmission coding method.

You can change this parameter when the line is varied off using the CHGLINSDLC command.

NWI (Attached nonswitched NWI):

DDI, Ethernet, Frame Relay, IDLC, Network, Token-Ring Network, and X.25 Lines: This parameter specifies the name of the nonswitched network interface description that contains the channel or DLCI to which this line is to be attached. The network interface description specified must already exist, but does not need to be varied off at the time this line description is created. Specify *NONE for lines not attached to network interface descriptions.

For IDLC lines, CNN(*NONSWT) must also be specified; for X.25 lines, INTERFACE(*X31) and CNN(*NONSWTPP) must be specified.

You cannot change this parameter using the change line description commands.

NWICHLNBR (NWI channel number):

IDLC and X.25 Lines: For nonswitched connections, this parameter specifies the NWI channel to be used by this line description. (Channel numbers are specified on the CRTNWIISDN command, CHLENTRY parameter,

for the network interface description specified on the NWI parameter of this line description.) The combination of channel number and nonswitched NWI (NWI parameter) must be unique.

You cannot change this parameter using the change line description commands.

NWICHLTYPE (NWI channel type):

IDLC and X.25 Lines: For nonswitched connections, this parameter specifies the type of NWI channels to be used by this line description. *B (B-channel) is the default, and the only value available at this time.

You cannot change this parameter using the change line description commands.

NWIDLCI (DLC identifier):

DDI, Ethernet, Frame Relay, and Token-Ring Network Lines: For lines connected to frame relay network interface descriptions, this parameter specifies the number of the data link connection identifier (DLCI) used for the line. Possible values are *NONE (the default), indicating that no DLCI is used, or a value in the range 1 through 1018.

You cannot change this parameter using the change line description commands.

ONLINE (Online at IPL):

All Line Types: The line is varied on automatically when the system is turned on if you use the default *YES; specify *NO if you want to vary it on manually by using the Vary Configuration (VRYCFG) command. You can use the VRYCFG command to change the status of the line at any time after the initial program load (IPL).

Note: If more than one line description is created for a communications resource, only one line description should specify ONLINE(*YES). If more than one line description specifies ONLINE(*YES), only the first description, in alphabetical order, is varied on during the IPL. You can change this parameter at any time using the appropriate change line description command.

OVERRUN (Receive overrun):

IDLC Lines: This parameter specifies the level of error threshold monitoring done by the system for receive overrun errors. Possible values are:

*OFF (The default) Error threshold monitoring is not done for receive overrun errors.

*MIN Minimum error threshold monitoring. The system will send a message to the QSYSOPR message queue if 2 or more receive overrun errors occur in the first 90 seconds, or 20 errors in any 900-second (15-minute) time period.

*MED
Medium error threshold monitoring. The system will send a message to the QSYSOPR message queue if 2 or more receive overrun errors occur in the first 300 seconds, or 6 errors in any 900-second (15-minute) time period.

*MAX
Maximum error threshold monitoring. The system will send a message to the QSYSOPR message queue for each receive overrun error.

threshold-value
Specify a value in the range 1 to 3000, representing the number of receive overrun errors in a 15-minute (900-second) period. The system sends a message to the QSYSOPR message queue if the number of errors specified occurs in any 15-minute time period.

You can change this parameter when the network interface is varied off using the CHGLINIDLC command.

PARITY (Type of parity):

Asynchronous Lines: Indicates the type of parity for error checking (a parity bit is a binary check digit inserted into each byte of data to make the arithmetic sum of all the digits, including the parity bit, always odd or always even). Use the default (*NONE) for no parity, *ODD for an uneven sum, or *EVEN for an even sum.

The parity you specify must match that of the remote system.

Notes:

1. The combination of data bits per character (BITSCHAR parameter) plus the type of parity must equal 8 bits. Allowed combinations are:
   7 bits with even parity
   7 bits with odd parity
   8 bits with no parity
2. For the 9406 System Unit using the 6130 I/O processor, any combination of 7 to 8 data bits and even, odd, or no parity is allowed.
3. The parity bit is sent in addition to the number of bits specified for the BITSCHAR parameter.

You can change this parameter using the CHGLINASC command when the line is varied off.

PKTMODE (Packet mode):

X.25 Lines: Allows an AS/400 system to communicate directly with another system by using the B-channel X.25 virtual circuit service integrated within an ISDN. This service is not available from all network providers. The default value for this parameter is *NO.

For X.25 lines with INTERFACE(*X31), this parameter specifies whether to access the ISDN virtual circuit service. Possible values are *NO (the default), or *YES. Specify *NO if the ISDN network is used to provide transparent access to an X.25 packet-switching network external to the ISDN.

You can change this parameter using the CHGLINX25 command.

POLLPAUSE (Poll cycle pause):

SDLC Lines: The length of time that the system waits after the last remote system in the poll list is polled before beginning another pass through the poll list. This parameter is valid only for primary or negotiable lines. Allowed entries are from 0 to 2048 in 0.0001 second intervals; 0 (the default) means no pause.

You can change this parameter when the line is varied off using the CHGLINSDLC command.

POLLRSPDLY (Poll response delay):

SDLC Lines: The minimum duration of time that the system waits before it responds to a data poll if there is no information frame to transmit. This parameter is valid only for secondary or negotiable lines; it is only used on negotiable lines if the AS/400 system assumes a secondary role.

This parameter allows the system to better use the polls. The delay time allows the system to prepare data for transmission. It can adversely affect performance of other stations on a multi-point line.

Allowed entries are from 0 to 2048 in 0.0001 second intervals. The default (0) means no delay.

Use the CHGLINSDLC command to change the poll response delay when the line is varied off.

PREDIALDLY (Predial delay):

X.25 Lines: The length of time to wait before dialing the number to establish a connection to the remote system or network. The time is specified in 0.5 second intervals from 0 (no waiting) through 254 (127 seconds); 6 (3 seconds) is the default.

This parameter can be specified only if CNN(*SWTPP) is also specified.

The defaults meet most countries' requirements relative to call retries and call delays. Ensure the default or any new value you use is in accordance with your country's requirements. If you are not aware of your country's requirement, your IBM representative or IBM-approved remarketer can provide this information.

You can change this parameter using the CHGLINX25 command.

PRPDLY (Propagation delay):

DDI, Ethernet, Frame Relay, IDLC, SDLC, Token-Ring Network, and X.25 Lines: The time required for a signal to travel from one end of a link to the other end. The delay is based on the protocol and the physical connection used.

Valid propagation delay values are:

*TELEPHONE
: A telephone network with a delay of between 0.48 milliseconds and 49.152

milliseconds. This value is the default for IDLC and SDLC lines.

*LAN A local area network delay of less than 0.48 milliseconds. This value is the default for DDI, Ethernet, and token-ring network lines.

*PKTSWTNET
A packet-switching data network with a delay of between 49.152 milliseconds and 245.76 milliseconds. This value is the default for frame relay and X.25 lines.

*SATELLITE
A satellite delay of more than 245.76 milliseconds.

*MIN The minimum propagation delay.

*MAX The maximum propagation delay.

You can use the appropriate change line description command to change the propagation delay.

Note: This parameter is used only for lines that are to be attached to APPC or host controller descriptions that specify APPN(*YES). This parameter is used to define line characteristics for use by APPN in class-of-service processing. The value selected for this parameter and the class of service selected for a session determine route selection through an APPN network.

If you are not using APPN on this line, or are using APPN but do not plan to tailor the route selection process, use the default values. For more information about APPN, see the *APPN Guide*.

RCVRTY (Receive TTD or WACK retry):

BSC Lines: The number of times that a temporary text delay (TTD) or wait-before-transmit-positive acknowledgement (WACK) is received before the session fails. This parameter is not valid for application types *RJE and *EML. The values can be from 0, which indicates no retries, to 65534 retries, or *NOMAX, which indicates indefinite retries; 45 retries is the default.

You can change this parameter using the CHGLINBSC command when the line is varied off.

RCVTMR (Receive timer):

BSC Lines: The receive timer sets the maximum amount of time the AS/400 system waits for a response from the remote system before a time-out occurs. The values can be from 30 to 254 in 0.1 second intervals; 30 (3 seconds) is the default. If there is a time delay in your communications line, you may want to specify a larger value. The value specified for this parameter should be larger than the value of the continue timer (CONTTMR or equivalent parameter) on the remote system.

You can change this parameter using the CHGLINBSC command when the line is varied off.

REDIALDLY (Redial delay):

X.25 Lines: The length of time to wait before redialing the number to establish a connection to the remote system or network if the previous attempt was unsuccessful. The time is specified in 0.5 second intervals from 0 (no waiting) through 254 (127 seconds); 120 (60 seconds) is the default.

This parameter can be specified only if CNN(*SWTPP) is also specified.

The defaults meet most countries' requirements relative to call retries and call delays. Ensure the default or any new value you use is in accordance with your country's requirements. If you are not aware of your country's requirement, your IBM representative or IBM-approved remarketer can provide this information.

You can change this parameter using the CHGLINX25 command.

RETRANSMIT (Retransmitted frames):

IDLC Lines: This parameter specifies the level of error threshold monitoring done by the system for retransmitted frames. Possible values are:

*OFF (The default) Error threshold monitoring is not done for retransmitted frames.

*MIN Minimum error threshold monitoring. The system will send a message to the QSYSOPR message queue if 5 or more frames are retransmitted in the first 30

seconds, or 150 frames in any 900-second (15-minute) time period.

*MED Medium error threshold monitoring. The system will send a message to the QSYSOPR message queue if 2 or more frames are retransmitted in the first 60 seconds, or 30 frames in any 900-second (15-minute) time period.

*MAX Maximum error threshold monitoring. The system will send a message to the QSYSOPR message queue for each retransmitted frame.

threshold-value

Specify a value in the range 1 to 10000, representing the number of retransmitted frames in a 15-minute (900-second) period. The system sends a message to the QSYSOPR message queue if the number of retransmitted frames specified occurs in any 15-minute time period.

You can change this parameter when the network interface is varied off using the CHGLINIDLC command.

RMTANSTMR (Remote answer timer):

Asynchronous, BSC, SDLC, and X.25 Lines: This parameter specifies the length of time that the system should wait for the modem (DCE) to raise Data Set Ready (DSR) after dialing before signaling an error.

This parameter is valid only for switched lines (CNN(*SWTPP) or SNBU(*YES)); it cannot be specified for SDLC lines using X.21 short-hold mode. Allowed values are 30 through 120, in seconds. The default is 60 (60 seconds).

You can change this parameter when the line is varied off using the appropriate change line description command.

ROLE (Data link role):

SDLC Lines: Whether this system is the primary (*PRI) station, the secondary station (*SEC), or if this station should dynamically negotiate (*NEG) its role with the remote station when the line is varied on. The default value is *NEG.

If the AS/400 line specifies ROLE(*NEG) and if the remote system takes a fixed role (either primary or secondary), the AS/400 system assumes the opposite role. If the remote system is also negotiable, both systems negotiate to determine which takes the primary role; the other assumes the secondary role.

*NEG is valid only for point-to-point (switched or nonswitched) connection types and X.21 short-hold mode lines with SHMNODE(*T21) specified. Systems attached to multipoint lines must specify a role of *PRI or *SEC to avoid excessive retries when the line is varied on.

Notes:

1. If the connection type is *SWTPP and the AS/400 system will be answering calls on the line, it is best to have the data link role specified as *NEG if negotiable stations can call in. If the data link role is *PRI and a negotiable station calls in, the connection might not be possible.
2. The data link role in the line description must be compatible with the data link role in the controller descriptions that are or may be attached to this line. (A host controller description has an implicit role of *PRI because the host is always the primary station. Finance, retail, and remote work station controller descriptions have an implicit role of *SEC because these controllers always take a secondary role.) All combinations of the data link role on the line description and the controller description are compatible except for a primary line description with a primary controller description and a secondary line description with a secondary controller description; however, the following should be noted:
   - If the line description role is negotiable (*NEG) and the controller description role is primary (*PRI) or secondary (*SEC), the AS/400 system does not negotiate, but takes the opposite role.
   - If the line description role is primary (*PRI) and the controller description role is negotiable (*NEG), the AS/400 system assumes the role of the controller is secondary.
   - If the line description role is secondary (*SEC) and the controller description role is negotiable (*NEG), the AS/400 system assumes the role of the controller is primary.

The primary station is the controlling station, and the secondary station or stations are the responding stations. The primary station controls the data link by sending commands to the secondary station, and the secondary station responds to the commands.

You cannot change this parameter using the CHGLINSDLC command. You must delete the line description and create it again.

RSRCNAME (Resource name):

Asynchronous, BSC, DDI, Ethernet, SDLC, Token-Ring Network, and X.25 Lines: The unique name that is *assigned by the system* to the physical equipment (in this case, a communications port) attached to the system. These names are automatically assigned and are used by the system to refer to information stored in the system about the port. Your communications line should be attached to the port with this resource name.

For X.21 short-hold mode lines (CNN(*SHM) on the CRTLINSDLC command), you can specify up to six resource names. (However, if ROLE(*SEC) and SHMNODE(*T20) are also specified, only one resource name can be used.) All lines specified must be attached to the same communications I/O processor.

For DDI, Ethernet, and token-ring network lines, the value *NWID indicates that the resource name specified for the attached network interface description is used.

For X.25 lines used to connect to ISDN networks (INTERFACE(*X31)), specify the value *NWID for this parameter. *NWID indicates that the resource name specified for the attached network interface description is used.

When you are configuring your communications line, you need to know what resource name the system has assigned to the port to which the line is attached. See "Determining System Resource Names" on page 2-13 for instructions on how to use the Work with Hardware Resources (WRKHDWRSC) command to determine the resource name for the line.

You can change this parameter when the line is varied off using the appropriate change line description command.

SECURITY (Security for line):

DDI, Ethernet, Frame Relay, IDLC, SDLC, Token-Ring Network, and X.25 Lines: The types of security protection available on the line.

Valid values in order of least secure to most secure are:

*NONSECURE No security on the line. This value is the default for DDI, Ethernet, IDLC, SDLC, and token-ring network lines.

*PKTSWTNET In this packet-switching data network, the line is secure in that there is no fixed route the data traffic will take. This value is the default for frame relay and X.25 lines.

*UNDGRDCBL This is an underground cable (secure).

*SECURECND A secure conduit, but not guarded; for example, a pressurized pipe.

*GUARDCND The line is a guarded conduit protected against physical tapping.

*ENCRYPTED Data flowing on the line is encrypted.

*MAX This is a guarded conduit, protected against physical and radiation tapping.

You can change this parameter when the line is varied off using the appropriate change line description command.

Note: This parameter is used only for lines that are to be attached to APPC or host controller descriptions that specify APPN(*YES). This parameter is used to define line characteristics for use by APPN in class-of-service processing. The value selected for this parameter and the class of service selected for a session determine route selection through an APPN network.

If you are not using APPN on this line, or are using APPN but do not plan to tailor the route selection process, use the default values. For more information about APPN, see the *APPN Guide*.

SHMACC (SHM access code):

SDLC Lines: The access code used by an X.21 short-hold mode line when calling a system on another network. The access code can be 1 to 4 digits and is valid only for X.21 short-hold mode lines (CNN(*SHM)) with SHMNODE(*T21) specified.

The access code is attached in front of the remote system's connection number specified by the controller description CNNNBR parameter. If the network identifiers specified by the local and remote systems are the same (indicating a call within the same network), the AS/400 system does not use the access code.

You can change this parameter when the line is varied off using the CHGLINSDLC command.

SHMANSDLY (SHM answer delay timer):

SDLC Lines: This parameter specifies the length of time the system will wait for controllers to call in before attempting to call out. The SHM answer delay timer is started when one of the following is true:

- The time specified by the SHM maximum connect timer (SHMMAXCNN parameter) has expired
- A period of time equal to twice the value of the SHMMAXCNN parameter has elapsed with no opportunities for incoming calls to be received

Possible values are any value in the range 1 through 254 in 0.1-second intervals, or *NOMAX, indicating that the answer delay timer is not used. The default is 11 (1.1 seconds).

This parameter is valid only for X.21 short-hold mode lines (CNN(*SHM)).

You can change this parameter when the line is varied off using the CHGLINSDLC command.

SHMCALLFMT (SHM call format):

SDLC Lines: The format of the network identifier used in the local system's connection number. This parameter is valid only for X.21 short-hold mode lines (CNN(*SHM)) with SHMNODE(*T21) specified.

Possible values are the default, *DNIC (data network identification code), or *DCC (data country code).

- If *DNIC is specified, the AS/400 system assumes the first 4 digits of the CALLNBR parameter are the data network identification code of your network. If a call is placed to a controller with the same DNIC (on the controller description CNNNBR parameter), a local call is assumed and the system discards the first 4 digits of the CNNNBR parameter.
- If *DCC is specified, the AS/400 system assumes the first 3 digits of the CALLNBR parameter are the data country code. If a call is placed to a controller with the same DCC (on the controller description CNNNBR parameter), the system discards the first 3 digits of the CNNNBR parameter.

You can change this parameter when the line is varied off using the CHGLINSDLC command.

SHMCALLTMR (SHM call timer):

SDLC Lines: The interval at which a connection is reestablished on an X.21 short-hold mode line to verify the state of the remote system if no normal data traffic occurs in the specified interval.

Possible values are *NONE, the default (no call is made to verify the connection), or the length of the interval in minutes (1-60).

Note: The IOP does not support values greater than 54 minutes; values greater than 54 minutes can be specified, but the maximum 54-minute value will be used by the IOP. If the remote system fails or is reset during a short-hold mode disconnection (that is, while the switched connection was dropped), the AS/400 system may not learn of the failure. Using the SHMCALLTMR parameter, the AS/400 system periodically checks the status of the remote system even if there is no normal data traffic to cause a reconnection. If the reconnection fails, users of the failing controller will be notified of the error.

This parameter is valid only for X.21 short-hold mode lines (CNN(*SHM)).

You can change this parameter when the line is varied off using the CHGLINSDLC command.

SHMMAXCNN (SHM maximum connect timer):

SDLC Lines: This parameter specifies the length of time the system will allow connection to any one controller when there are more controllers/ than there are available ports. When the system has been connected to a controller for the length of time specified by this parameter, the system will clear the SHM connection to that controller and allow incoming calls from other controllers for the time specified by the SHM delay-for-answer timer (SHMANSDLY parameter).

Possible values are any value in the range 1 through 254 in 1.0-second intervals, or *NOMAX, indicating that the maximum connect timer is not used. The default is 8 (8.0 seconds).

This parameter is valid only for X.21 short-hold mode lines (CNN(*SHM)).

You can change this parameter when the line is varied off using the CHGLINSDLC command.

SHMNODE (SHM node type):

SDLC Lines: For X.21 short-hold mode lines only, SHMNODE specifies the physical unit type of the controllers using the X.21 short-hold mode line. Possible values are the default, *T21 for node type 2.1 (APPC) controllers, or *T20 for node type 2.0 (finance, SNA host, and remote work station) controllers.

If SHMNODE(*T21) is specified, ROLE must be *NEG. If SHMNODE(*T20) is specified, ROLE must be *PRI or *SEC.

Use this parameter only if CNN(*SHM) is specified.

SHORTFRAME (Short frame):

IDLC Lines: This parameter specifies the level of error threshold monitoring done by the system for short frame errors. Possible values are:

*OFF (The default) Error threshold monitoring is not done for short frame errors.

*MIN Minimum error threshold monitoring. The system will send a message to the QSYSOPR message queue if 6 or more short frame errors occur in the first 30 seconds, or 1 short frame is received every second for 14 minutes.

*MED
Medium error threshold monitoring. The system will send a message to the QSYSOPR message queue if 3 or more short frame errors occur in the first 30 seconds, or 1 short frame is received every 3-4 seconds for 10-14 minutes.

*MAX
Maximum error threshold monitoring. The system will send a message to the QSYSOPR message queue for each short frame error.

threshold-value
Specify a value in the range 1 to 3000, representing the number of short frame errors in a 15-minute (900-second) period. The system sends a message to the QSYSOPR message queue if the number of errors specified occurs in any 15-minute time period.

You can change this parameter when the network interface is varied off using the CHGLINIDLC command.

SHORTRTY (Short retry):

SDLC Lines: The number of retry attempts that the system makes during a burst of call retries. Allowed values are from 0 (no retries) to 254 retries; 7 retries is the default.

Notes:

1. The SHORTRTY parameter is used only for X.21 circuit-switched or short-hold mode lines.
2. The default meets most countries' requirements relative to call retries and call delays. In the event that the default does not meet your country's requirements, the value must be configured in accordance with the country requirement. Before changing this value, ensure that the new value meets your country's requirements.

   If you are not aware of your country's requirement, your IBM representative or IBM-approved remarketer can provide this information.

This parameter is used to control retries when you are attempting to make a call over an X.21 circuit-switched or short-hold mode network. Call

attempts are characterized by "bursts" of retries. A single burst of retries is controlled by the short timer and short retry value. If all short retries are completed, the system delays for a longer time (the long timer) before attempting another burst of retries. The total number of these bursts of retries is based on the long retry value.

You can change this parameter when the line is varied off using the CHGLINSDLC command.

SHORTTMR (Short timer):

SDLC Lines: The timer used during bursts of call retry operations on an X.21 circuit-switched line. It specifies the length of time that the system waits between retry attempts when processing a connection request. Allowed values are from 10 to 600 in 0.1 second intervals; 50 (5 seconds) is the default.

Notes:

1. The SHORTTMR parameter is used only for X.21 circuit-switched or short-hold mode lines.
2. The default meets most countries' requirements relative to call retries and call delays. In the event that the default does not meet your countries' requirements, the value must be configured in accordance with the country requirement. Before changing this value, ensure that the new value is in accordance with your country's requirements.

   If you are not aware of your country's requirement, your IBM representative or IBM-approved remarketer can provide this information.

This parameter is used to control retries when you are attempting to make a call over an X.21 circuit-switched or short-hold mode network. Call attempts are characterized by "bursts" of retries. A single burst of retries is controlled by the short timer and short retry value. If all short retries are completed, the system delays for a longer time (the long timer) before attempting another burst of retries. The total number of these bursts of retries is based on the long retry value.

You can change this parameter when the line is varied off using the CHGLINSDLC command.

SNBU (Switched network backup):

Asynchronous, BSC, and SDLC Lines: Specify *YES if you want the switched network backup capability; if not, use the default (*NO). To use this function, either the modem must have the switched network backup feature, or the modem must be replaced with a modem capable of supporting a switched connection.

The switched network backup feature can be activated or deactivated, allowing you to bypass an inoperable nonswitched connection by converting the line to a switched line operation.

This parameter is valid only if you selected *RS232V24 for the INTERFACE parameter. CNN must be *NONSWTPP or, for SDLC lines, *MP.

If you specify *YES for this parameter, the line description is subject to the same dependencies as a switched line. For SDLC lines, the combination of values specified for the EXCHID and STNADR parameters must be unique in the network.

Note: If you are using IBM 386x, 586x, or 786x modems, the switched network backup function cannot be specified using this parameter. For connections using these modems, specify the line description connection type as nonswitched (CNN(*NONSWTPP)); and activate the switched network backup feature using the modem operator interface (panel or switch). Do not use the ACTSNBU parameter on the change line description or change controller description commands.

For other modem types that support switched network backup, use the SNBU parameter to show that the modem is SNBU-capable. Use the ACTSNBU parameter on the change line description and change controller description commands, and the modem panel or switch, to activate the switched network backup feature.

You cannot change this parameter using the change line description commands.

SSAP (SSAP list):

DDI, Ethernet, Frame Relay, and Token-Ring Network Lines: Specifies the hexadecimal logical channel addresses used to route incoming data off the network to the correct user. Each SSAP is specified with the maximum frame size

that can be transmitted to that address and the type of application (SNA or non-SNA) that will use that SSAP.

The SSAP values listed on this parameter must include all destination service access point (DSAP) values that are specified for controller descriptions attached to this line.

If the default (*SYSGEN) is used, the system automatically creates SSAPs as follows:

- For token-ring network and DDI lines, and for Ethernet lines that specify ETHSTD(*ALL) or ETHSTD(*IEEE8023), the system creates three SSAPs: 04 for SNA, 06 and AA for TCP/IP applications.
- For Ethernet lines that specify ETHSTD(*ETHV2), the system creates SSAP 04.

Up to 24 unique SSAPs can be specified, each consisting of three elements (SSAP, SSAP maximum frame size, SSAP type):

SSAP value
Specify the SSAP values as follows:

- For SNA applications, SSAP values must be in the range 04 through 9C and be divisible by 4
- For non-SNA applications, SSAP values must be in the range 02 through FE and be divisible by 2
- For TCP/IP applications, use 06 and AA.

Up to 24 SSAPs can be specified; duplicate SSAP values are not allowed.

SSAP maximum frame size
Specifies the maximum data field that can be transmitted or received.

- For token-ring network lines, possible values are *MAXFRAME (the default), or any value in the range 265 through 16393.
- For DDI lines, possible values are *MAXFRAME (the default), or any value in the range 265 through 4444.
- Frame relay lines, and token-ring or DDI lines attached to frame relay network interface descriptions, must specify a value in the range 265 through 8151.

*MAXFRAME uses the value specified by the MAXFRAME parameter. The value specified for the SSAP maximum frame size must not be greater than the value specified for the MAXFRAME parameter.

- For Ethernet lines that specify ETHSTD(*ALL) or ETHSTD(*IEEE8023), possible values are *CALC (the default) or any value in the range 265 through 1496. Lines attached to frame relay network interface descriptions must specify a value in the range 265 through 1489.
- For Ethernet lines that specify ETHSTD(*ETHV2), possible values are *CALC (the default) or any value in the range 265 through 1493. Lines attached to frame relay network interface descriptions must specify a value in the range 265 through 1486.

SSAP type
Specifies whether the SSAP will be used for SNA or non-SNA applications. Possible values are *CALC (the default), *SNA, or *NONSNA.

If *CALC is used, the system checks the SSAP value to determine if it is in the range 04 through 9C and is divisible by 4. If so, the SSAP type is set to *SNA; if not, the SSAP type is set to *NONSNA.

When specifying this parameter in a CL program or from the command line, each SSAP (SSAP-value, SSAP-maximum-frame-size, and SSAP-type) must be enclosed in parentheses. The entire list of values must also be enclosed in parentheses. For example:

```
... SSAP((04 8196 *SNA) (08 1033 *SNA) +
(AA *MAXFRAME *NONSNA)) ...
```

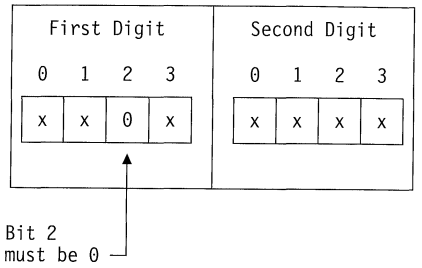
You can change this parameter using the appropriate change line description command when the line is varied off.

STNADR (Station address):

BSC Lines: For BSC communications on a multipoint line, this is the address used by the remote control station to poll the AS/400 system. The address is specified as 2 hexadecimal digits.

Valid addresses are hexadecimal digits from 04 through FE, excluding the BSC control characters. Bit 2 of the first digit is used to determine the poll or selection sequence and must be a 0; allowed

hexadecimal values for the first digit are 0, 1, 4, 5, 8, 9, C, and D.



For example, you can specify C5 (1100 0101) as a station address, but not E5 (1110 0101). E5 is used as a selection sequence for address C5.

Note: Addresses C1 and 50 are exceptions. For address C1, the selection sequence is 61; for address 50, the selection sequence is F0.

If the application type is *EML, then the address must be one of the following: 40, 4A, 4B, 4C, 4D, 4E, 4F, 50, 5A, 5B, 5C, 5D, 5E, 5F, C1, C2, C3, C4, C5, C6, C7, C8, C9, D1, D2, D3, D4, D5, D6, D7, D8, or D9.

You can use the CHGLINBSC command to change this parameter when the line is varied off.

SDLC Lines: The SDLC station address by which the AS/400 system is known to the remote system. Valid station addresses are hex 01 to FE.

The STNADR parameter is valid only when the AS/400 is in a secondary or negotiable role (ROLE parameter), with switched lines or with switched network backup. In addition, this station address is used only when the AS/400 system answers on a switched line; it must match the station address configured in the controller descriptions that will attach to the line description. If the AS/400's role is primary, this parameter is not required because the AS/400 system will poll with a broadcast (FF) address until it learns the remote system's address. If the AS/400 system calls over a switched line, the station address in the controller description is used.

Because this station address must match the station address in controller descriptions that attach to this line, all controllers that can call in on this line must have the same station address. Different controllers can be distinguished by their exchange identifiers (XIDs) or control point names.

This parameter is required for X.21 short-hold mode lines with SHMNODE(*T20) and ROLE(*SEC) specified. It is not allowed for other short-hold mode lines.

You can change this parameter when the line is varied off using the CHGLINSDLC command.

STOPBITS (Number of stop bits):

Asynchronous Lines: The number of bits to be added to the end of each character to keep the local and remote ends of the line synchronized. You can add either 1 (the default) or 2 stop bits to each character. Specify 2 for line speeds of 300 bits per second or lower.

The number of stop bits you specify must match that of the remote system.

You can change this parameter using the CHGLINASC command when the line is varied off.

STXLRC (Include STX character in the LRC):

BSC Lines: If you are using ASCII character codes on your line, you can specify *NO to exclude the start-of-text (STX) character in the longitudinal redundancy check (LRC) calculation. The default is *NO.

Note: For the 9404 System Unit, *YES is always assumed even if *NO is specified for this parameter.

You can change this parameter using the CHGLINBSC command when the line is varied off.

SWTCNN (Switched connection type):

Asynchronous, BSC, IDLC, SDLC, and X.25 Lines: For a switched line or a nonswitched line with switched network backup, specify whether the line can be used for incoming and outgoing calls (*BOTH), incoming calls only (*ANS), or outgoing calls only (*DIAL). *BOTH is the default.

Notes:

1. Specify SWTCNN(*BOTH) for X.21 short-hold mode lines.
2. Specify SWTCNN(*DIAL) for asynchronous lines with DIALCMD(*OTHER).

You can change this parameter when the line is varied off using the appropriate change line description command.

SWTCTLLST (Switched controller list):

Asynchronous and BSC Lines: The names of up to 64 controllers that can establish a connection with this switched line. The controller description must already exist before you can specify a name here. If the controller descriptions do not exist, you must add them to the line description using the CHGLINASC or CHGLINBSC command after the descriptions have been created.

This list is used when answering an incoming call. The first controller in the list that has vary on pending status is selected.

Note: For asynchronous lines, this parameter is valid only for switched point-to-point or switched network backup lines.

You can change this parameter using the appropriate change line description command when the line is varied off.

X.25 Lines: The names of the switched asynchronous (non-SNA) controller descriptions that can establish a connection with an X.25 switched virtual circuit (SVC). Up to 64 controllers can be named; these controllers must already have been created using the CRTCTLASC command. The default value is *NONE.

This parameter is used only for asynchronous communications on X.25 lines with a switched virtual circuit used to receive call requests. Attaching controllers that specify CNNNBR(*ANY) or ANSNBR(*ANY) may change the order of the switched controller list.

You can change this parameter when the line is varied off using the CHGLINX25 command.

SWTDSC (Switched disconnect):

X.25 Lines: Specifies, for switched lines (CNN(*SWTPP)), whether the line is to be dropped when no virtual circuits are active and the disconnection timers specified on the SWTDSCTMR parameter have expired.

Possible values are *YES (the default) or *NO. Specify *NO if CALLIMMED(*YES) is specified.

You can change this parameter when the line is varied off using the CHGLINX25 command.

SWTDSCTMR (Switched disconnect timers):

X.25 Lines: Specifies the timers used for disconnecting switched lines from a network or remote system. CNN(*SWTPP) and SWTDSC(*YES) must be specified to use this parameter. This parameter consists of two parts:

minimum-connection-timer
: Specifies the minimum length of time the AS/400 system will keep the switched connection active. This timer is started when the connection is established. Valid values are 0 through 65535 in 1-second intervals.

disconnect-delay-timer
: Specifies the length of time the AS/400 system will wait before attempting to disconnect the switched connection when the line is idle and the *minimum-connection-timer* has expired. Values are 0 through 65535 in 1-second intervals.

Possible values are:

- `170 0`: The system-supplied default values for the disconnect timers.
- *minimum-connect-timer disconnection-delay-timer*: Specify each of the timer values in the ranges indicated above. When specifying this parameter in a CL command, separate the values with a blank: `SWTDSCTMR(180 60)`.

You can change this parameter when the line is varied off using the CHGLINX25 command.

SWTNWILST (Switched NWI list):

IDLC and X.25 Lines: For switched IDLC and X.25 lines, this parameter specifies the names of up to 64 network interface descriptions that can establish a connection with this line. The default value, *NONE, should be used for nonswitched lines.

The NWI used is chosen from this list based on the value specified for the switched NWI selection (SWTNWISLCT) parameter at the time the call is processed.

The network interface description must already exist before you can specify a name here. If the network interface descriptions do not exist, you must add them to the line description using the appropriate change line description command after the NWI descriptions have been created.

This list is used when answering an incoming call or dialing an outgoing call. The first network interface description in the list in connect pending status is selected.

This parameter consists of three elements:

NWI-description
: Specifies the name of the network interface description that contains the switched channel entry used by this line description.

NWI-channel-type
: Specifies the NWI channel type (*B).

NWI-channel-number
: Specifies the NWI channel number (1, 2, or *CALC). The default value, *CALC, selects channel 1 or 2, based on channel availability.

You can change this parameter using the appropriate change line description command when the line is varied off.

SWTNWISLCT (Switched NWI selection):

IDLC and X.25 Lines: For switched ISDN connections, this parameter specifies the method used to select network interface descriptions from the switched NWI list. Possible values are:

*FIRST (The default) Selection begins with the first network interface description in the switched NWI list.

*CALC The system selects the network interface to use.

You can change this parameter when the line is varied off using the appropriate change line description command.

SYNCCHARS (SYN characters):

BSC Lines: The SYN character is used to establish and maintain synchronization and as a time-fill character in the absence of any data or other control character. Allowed values are 2 and 4. The default is 2, which will insert 2 consecutive SYN characters.

Currently, only the 6130 IOP supports both 2 and 4 SYN characters; other AS/400 IOPs send 2 SYN characters regardless of the value specified for this parameter. For the AS/400 9402 System Unit and 9404 System Unit, you must use the default 2.

You can change this parameter using the CHGLINBSC command when the line is varied off.

TEXT (Text 'description'):

All Line Types: The *description* briefly describes (in no more than 50 characters and enclosed in apostrophes) the line and its location.

You can use the appropriate change line description command to change the text description at any time.

THRESHOLD (Error threshold level):

Asynchronous, BSC, Ethernet, SDLC, Token-Ring Network, and X.25 Lines: The level of the error threshold that is monitored by the system. Valid levels are:

*OFF (The default) No threshold counters are maintained.

*MIN Error threshold levels are set to minimum monitoring.

*MED Error threshold levels are set to medium monitoring.

*MAX Error threshold levels are set to maximum monitoring.

See the *Communications Management Guide* for more information about using this parameter.

You can change this parameter at any time using the appropriate change line description command.

The change takes effect the next time the line is varied on.

IDLC Lines: This parameter specifies the overall level of error threshold monitoring done by the system. Possible values are:

*OFF (The default) Error threshold monitoring is not done for any error types.
*MIN Minimum error threshold monitoring is done for all error types.
*MED Medium error threshold monitoring is done for all error types.
*MAX Maximum error threshold monitoring is done for all error types. The system sends a message to the QSYSOPR message queue for each error that occurs.
*SELECT
Allows error threshold monitoring to be individually set for any or all of the following parameters:

CRCRCV	CRC errors received
ABORTS	Frame aborts
OVERRUN	Receive overrun errors
SHORTFRAME	Short frame
UNDERRUN	Transmit underrun errors

You can change this parameter when the network interface is varied off using the CHGLINIDLC command.

TKNRTTTIME (Token rotation time):

DDI Lines: Specifies the token rotation time requested by the system. This value is used when the station bids on the network; the lowest value of all stations on the ring is the value used. Possible values are the default, *CALC, which indicates that the system calculates the requested token rotation time, or a value in the range 4 through 167 milliseconds.

For lines attached to the frame relay network interface descriptions (RSRCNAME(*NWID)), *CALC must be specified.

You can use the CHGLINDDI command to change this parameter when the line is varied off.

TMTRTY (Transmit TTD or WACK retry)

BSC Lines: The number of times that a temporary-text-delay (TTD) or wait-before-transmit-positive acknowledgement (WACK) control character is sent to hold up the line when the AS/400 system is not ready to respond to the remote end. If the limit is reached, the session fails. This value is not used for an application type of *RJE. The values can be from 0, which indicates no retries, to 65534 retries, or *NOMAX, which indicates retrying indefinitely; 60 retries is the default.

You can change this parameter using the CHGLINBSC command when the line is varied off.

TRNINFBCN (Token-ring inform of beacon):

Token-Ring Network Lines: Specifies whether the token-ring network manager for this line is to provide notification of beaconing on the ring to the system operator. If the default *YES is specified, notification is sent to the QSYSOPR message queue; if *NO is specified, notification is logged in the history log, QHST.

You can change this parameter at any time, using the CHGLINTRN command. The change takes place immediately.

TRNLOGLVL (TRLAN manager logging level):

Token-Ring Network Lines: The logging level to be used by the token-ring network manager. The token-ring network manager monitors the token-ring network for error conditions that may degrade performance of the network or that may lead to error conditions. Valid values are:

*OFF (The default) Stops all logging by the token-ring network manager on the specified line.
*MIN Starts the minimum logging level of the token-ring network manager, which reports conditions that indicate degraded performance and beaconing.
*MED Starts the medium logging level of the token-ring network manager, which reports conditions that indicate potential degraded performance as well as the minimum logging level information.
*MAX Starts the maximum logging level of the token-ring network manager, which reports all error conditions, including the

information that would be reported for the *MIN and *MED reporting levels.

See the *Local Area Network Guide* for more information about the token-ring network manager.

You can change this parameter at any time using the CHGLINTRN command. The change takes effect immediately.

TRNMGRMODE (TRLAN manager mode):

Token-Ring Network Lines: Specifies whether the token-ring network manager for this line is operating in observing or controlling mode.

Possible values are *OBSERVING (the default), or *CONTROLLING. See the *Local Area Network Guide* for more information.

You can change this parameter at any time, using the CHGLINTRN command. The change takes place immediately.

UNDERRUN (Transmit underrun):

IDLC Lines: This parameter specifies the level of error threshold monitoring done by the system for transmit underrun errors. Possible values are:

*OFF (The default) Error threshold monitoring is not done for transmit underrun errors.

*MIN Minimum error threshold monitoring. The system will send a message to the QSYSOPR message queue if 2 or more transmit underrun errors occur in the first 90 seconds, or 20 errors in any 900-second (15-minute) time period.

*MED
Medium error threshold monitoring. The system will send a message to the QSYSOPR message queue if 2 or more transmit underrun errors occur in the first 300 seconds, or 6 errors in any 900-second (15-minute) time period.

*MAX
Maximum error threshold monitoring. The system will send a message to the QSYSOPR message queue for each transmit underrun error.

threshold-value
Specify a value in the range 1 to 3000, representing the number of transmit underrun errors in a 15-minute (900-second) period. The system sends a message to the QSYSOPR message queue if the number of errors specified occurs in any 15-minute time period.

You can change this parameter when the network interface is varied off using the CHGLINIDLC command.

USRDFN1, USRDFN2, USRDFN3 (User-defined 1, 2, and 3):

DDI, Ethernet, Frame Relay, IDLC, SDLC, Token-Ring Network, and X.25 Lines: These user-defined fields are used to describe any unique characteristics of the line that you want to control. These parameters are used only if the attached APPC or SNA host controller descriptions specify APPN(*YES). (The fields may be used by APPN for route selection processing; otherwise they are ignored.) Valid values for this parameter are 0 through 255; 128 is the default.

Note: Attached controller descriptions may also specify these parameters. The default value for controller description user-defined parameters, *LIND, indicates that the controller uses the line description values. If the controller description specifies a value other than *LIND, the line description value is overridden for that controller. You can change this parameter at any time using the appropriate change line description command. The change for the line description takes effect immediately.

VRYWAIT (Vary on wait):

Asynchronous, BSC, DDI, Ethernet, Frame Relay, IDLC, SDLC, Token-Ring Network, and X.25 Lines: Specifies whether the line is varied on synchronously or asynchronously. A wait time (synchronous vary on) should be specified for switched, token-ring, Ethernet, or X.25 lines when an application will open/acquire an ICF file immediately after issuing a vary on of the communications descriptions. For example, when a batch program contains CL commands used to vary on line, controller, and device descriptions, followed by an open/acquire of a communications file, a wait time can be specified to prevent the program from attempting to use the line before the vary on is complete.

The following values may be specified:

- *NOWAIT: Do not wait for the line to vary on; the line is varied on asynchronously.
- *wait-time*: Specify a value from 15 to 180 in 1 second intervals. The system waits until the vary on is completed before ending the VRYCFG command, or until the number of seconds specified (wait timer) expires.

Notes:

1. If ONLINE(*YES) is specified, specifying a wait time in the line description will increase the system IPL time by the amount of time it takes to synchronously vary on the line or reach the wait time value.
2. Normal vary on time ranges from 5 to 45 seconds, but can be longer, depending on the system, line protocol used, and other factors. The time required to vary on a line includes time taken to put tasks in place to manage the line, activate the communications I/O processor, and establish communications with the data circuit-terminating equipment (DCE).
3. Line vary on time does not include telephone dialing time; however, a powered-down modem can prevent vary on completion and cause the wait time to end. An informational message (CPI2603) will be sent if the timer ends, followed by a completion message for the VRYCFG command. If the line fails to vary on, an inquiry message will be sent indicating the reason for the failure.

WSC (Attached work station controller)

TDLC Lines: The name of the controller description for the 5394 work station controller or the work station controller to which the personal computer is attached.

XOFFCHAR (XOFF character):

Asynchronous Lines: If you specify *YES for the FLOWCNTL parameter, specify the hexadecimal value (01 through FF) of the XOFF character for this parameter, which tells your line to stop sending data. The default is 13.

The XOFF character must not be the same as the XON character, and it must match that of the remote system.

You can change this parameter using the CHGLINASC command when the line is varied off.

XONCHAR (XON character):

Asynchronous Lines: If you specify *YES for the FLOWCNTL parameter, specify the hexadecimal value (01 through FF) of the XON character for this parameter, which tells your line to start sending data. The default is 11.

The XON character must not be the same as the XOFF character, and it must match that of the remote system.

You can change this parameter using the CHGLINASC command when the line is varied off.

X25DCE (X.25 DCE support):

X.25 Lines: Allows an AS/400 system to communicate directly with another system without going through an X.25 network. The default value for this parameter is *NO.

If you specify *YES for this parameter, you can connect your AS/400 system to other DTEs, including another AS/400 system, System/38, or System/36, using a modem eliminator or its equivalent. On your AS/400 system, specify *YES for this parameter and *LOCAL for the CNNINIT parameter. The remote system must specify *NO for X.25 DCE support and *WAIT or *REMOTE for connection starting, or their equivalents for non-AS/400 systems.

With each line configured as described, either line can be varied on first. The remote system (the one with *WAIT, *REMOTE, or non-AS/400 equivalent specified for the connection starting) waits for your system to contact it. Your system with X.25 DCE support (*YES) and *LOCAL for connection starting polls the remote system indefinitely (or until the remote system responds). You can vary the line off if you do not want to establish the connection.

The logical channel entries in the line descriptions for the two systems must match the logical channel identifiers and types. Normally, it is adequate to define one or more permanent virtual circuits in each system. If you desire, you can also support switched virtual circuits by having both systems insert the caller's address in packets (for

example, ADRINSERT(*YES) or its non-AS/400 equivalent).

Figure 6-19 is an example of the logical channel entries specified for two systems, System A acting as the DCE (X25DCE(*YES)), System B as the DTE (X25DCE(*NO)).

Figure 6-19. Example of Logical Channel Entry Assignments

System A		System B	
Logical Channel Identifier	**Logical Channel Type**	**Logical Channel Identifier**	**Logical Channel Type**
003	*SVCOUT	003	*SVCIN
004	*SVCBOTH	004	*SVCBOTH
005	*SVCBOTH	005	*SVCBOTH
006	*SVCIN	006	*SVCOUT

If there is no need to restrict the number of incoming or outgoing SVCs allowed, all can be configured as *SVCBOTH.

You can change this parameter when the line is varied off using the CHGLINX25 command.

Chapter 7. Communications Controller Descriptions

This chapter describes the prompts and parameters that are used to configure communications and remote work station controllers on the AS/400 system.

The prompts described in this chapter are seen when working with the configuration prompt displays; the parameter names associated with these prompts are used when entering commands on the command line or in a CL program.

This chapter provides two discussions of controller description prompts and parameters:

- A set of tables, one for each Create Controller Description display. These tables list the prompts for each display (in the order they appear on the displays) and the associated parameter name. For each prompt, the tables also include:
  - Values that can be specified for the prompt (or parameter)
  - Dependencies and requirements for specifying prompts (or parameters) and values
- Detailed descriptions of each prompt used by the create controller description commands, with considerations for use of the prompt for various controller types. Descriptions of the prompts are listed in alphabetical order by *parameter name*.

Specifying Controller Description Prompts and Parameters

The following tables list basic information for the prompts and parameters that can be specified for each of the create controller description (CRTCTL*xxx*) commands. The tables are shown in alphabetical order by *command* name and contain the following information:

Prompt
Prompt text. Prompts are listed in the order shown on the configuration displays. Depending on values you select, not all of the prompts will be shown.

Parameter
Equivalent parameter name

Values
Values that can be specified for the prompt or parameter

- Default values are underlined
- For prompts requiring a numeric value selected from a continuous range of values, the range is shown in parentheses
- For prompts on which a number of values may be specified, the maximum number of values that can be specified is shown in the *Dependencies* column.

Dependencies
Dependencies between parameters and values. This column indicates whether or not the parameter is required, if any conditions exist for specifying parameters and values, and so on.

Many dependencies are described using parameter names or parameter names with values. For example, the format ONLINE(*NO) is used in the tables (and in CL programs); it is equivalent to specifying *NO for the *Online at IPL* prompt on the configuration displays.

Some parameters list general dependencies; for example, some parameter dependencies may state that another parameter must be specified. Unless otherwise qualified, this restriction applies only to the specification of values other than the default for that parameter.

More complex parameters and dependencies are discussed in the detailed parameter descriptions under "Parameter and Prompt Descriptions" on page 7-46. Detailed descriptions in that topic are listed in alphabetical order by *parameter* name.

APPC Controller Description Prompts

Figure 7-1 (Page 1 of 10). APPC Controller Description Prompts

CRTCTLAPPC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Controller description name	CTLD	*controller-description-name*	Required parameter; cannot be QCTL
Link type	LINKTYPE	*FR, *IDLC, *LAN, *LOCAL, *SDLC, *TDLC, *X25	Required parameter Controller description is automatically created for type *TDLC
Online at IPL	ONLINE	*YES, *NO	None
Controller type	TYPE	*BLANK, *controller-type*	Do not specify if APPN(*YES) Used for SNA pass-through configuration of finance, retail, and remote work station controllers See detailed description
Switched connection	SWITCHED	*NO, *YES	Specify *YES if line is switched, token-ring, Ethernet, X.21 short-hold mode, or X.25 SVC connection If LINKTYPE is *LAN or *FR, SWITCHED must be *YES or not specified Specify *NO if LINKTYPE(*TDLC) or LINKTYPE(*LOCAL) SWITCHED and SNBU cannot both be *YES
Short hold mode	SHM	*NO, *YES	Can be specified only if LINKTYPE(*SDLC) and SWITCHED(*YES)
Switched network backup	SNBU	*NO, *YES	Specify SNBU(*NO) if LINKTYPE is *LAN, *LOCAL, *TDLC, or *X25 SWITCHED and SNBU cannot both be *YES
APPN capable	APPN	*YES, *NO	If *YES, attached devices must also specify *YES and use ICF files. Specify *YES if LINKTYPE(*TDLC) Specify *NO if LINKTYPE(*LOCAL)
Attached non-switched line name	LINE	*nonswitched-line-name*	Do not specify if LINKTYPE is *LAN, *FR, or *LOCAL Specify only if SWITCHED(*NO) is also specified

Figure 7-1 (Page 2 of 10). APPC Controller Description Prompts

CRTCTLAPPC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Switched line list	SWTLINLST	*switched-line-name*	Lines specified must already exist and be compatible with specified link type Up to 64 lines can be specified Can be specified only if SWITCHED(*YES) or SNBU(*YES) is specified or if LINKTYPE is *LAN or *FR If MDLCTL(*YES) is specified, only one line description can be specified for this parameter
Attached device names	DEV	*device-name*	Use only if device description created before controller description. Up to 254 devices can be specified Not valid if MDLCTL(*YES) is specified
Character code	CODE	*EBCDIC, *ASCII	None
Maximum frame size	MAXFRAME	*LINKTYPE, *maximum-frame-size* (265-16393)	For LINKTYPE(*SDLC), 265, 521, 1033, 2057, or *LINKTYPE can be specified For LINKTYPE(*IDLC), MAXFRAME can be any value in the range 265-8196 or *LINKTYPE For LINKTYPE(*LAN), MAXFRAME can be any value in the range 265-16393 or *LINKTYPE For LINKTYPE(*FR), MAXFRAME can be any value in the range 265-8182 or *LINKTYPE For LINKTYPE(*X25), 256, 512, 1024, 2048, 4096, or *LINKTYPE can be specified Must be *LINKTYPE for LINKTYPE(*TDLC) Do not specify for LINKTYPE(*LOCAL) See detailed description for additional considerations
Remote network identifier	RMTNETID	*NETATR, *NONE, *ANY *remote-network-identifier*	Required if APPN(*YES) or SHM(*YES) is specified, unless MDLCTL(*YES) is specified Cannot be *NONE if APPN(*YES) or SHM(*YES) is specified, unless MDLCTL(*YES) is specified If *ANY is specified, RMTCPNAME(*ANY) must also be specified

Figure 7-1 (Page 3 of 10). APPC Controller Description Prompts

CRTCTLAPPC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Remote control point name	RMTCPNAME	*remote-control-point-name*, *ANY	Cannot be specified if RMTNETID(*NONE) Required if RMTNETID is not *NONE, unless RMTNETID(*NETATR) and APPN(*NO), or MDLCTL(*YES) is specified Cannot be *ANY if LINKTYPE(*SDLC) or LINKTYPE(*IDLC) and SWITCHED(*YES) or SNBU(*YES) are specified Cannot be *ANY if APPN(*NO), NODETYPE(*LENNODE), or MDLCTL(*YES) is specified See detailed description
Exchange identifier	EXCHID	*exchange-identifier*	If SHM is not *YES, EXCHID is required for the following conditions: If LINKTYPE(*SDLC) and either SWITCHED or SNBU is *YES, *and* one of the following is true (except for short-hold mode): • APPN(*YES) and NODETYPE(*LENNODE) are specified • APPN(*NO) is specified and RMTCPNAME is not specified Must be specified as `056xxxxx` if remote system is an AS/400 system. See detailed description.
System service control point identifier	SSCPID	050000000000, *SSCP-identifier* (000000000001-FFFFFFFFFFFF)	Do not specify for LINKTYPE(*LOCAL) See detailed description
Initial connection	INLCNN	*DIAL, *ANS	SWITCHED(*YES), SNBU(*YES), LINKTYPE(*LAN) or LINKTYPE(*FR) must be specified Do not specify for LINKTYPE(*LOCAL) See detailed description
Dial initiation	DIALINIT	*LINKTYPE, *IMMED, *DELAY	INLCNN(*DIAL) must be specified

Figure 7-1 (Page 4 of 10). APPC Controller Description Prompts

CRTCTLAPPC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Connection number	CNNNBR	*ANY, *DC, *connection-number*	Required if SWITCHED or SNBU is *YES and LINKTYPE is not *LAN or *FR, unless LINKTYPE(*SDLC) and INLCNN(*ANS) *ANY is valid only if LINKTYPE(*X25), SWITCHED(*YES), and INLCNN(*ANS) are also specified *DC is valid only for X.21 circuit-switched lines with LINKTYPE(*SDLC) and SHM(*NO) Up to 32 characters can be specified, with the following restrictions: • If SHM(*YES), CNNNBR cannot be longer than 14 characters • If LINKTYPE(*X25) and NETLVL(1980) or NETLVL(1984), CNNNBR cannot be longer than 15 characters • If LINKTYPE(*X25) and NETLVL(1988), CNNNBR cannot be longer than 17 characters SWITCHED or SNBU must be *YES Cannot be specified if LINKTYPE is *LAN or *FR
Answer number	ANSNBR	*CNNNBR, *ANY	LINKTYPE(*X25) and SWITCHED(*YES) must be specified CNNNBR parameter must be specified if ANSNBR(*CNNNBR) is used
Outgoing connection list	CNNLSTOUT	*connection-list-name*	LINKTYPE(*IDLC), SWITCHED(*YES), and INLCNN(*DIAL) must be specified
Connection list entry	CNNLSTOUTE	*connection-list-entry*	LINKTYPE(*IDLC), SWITCHED(*YES), and INLCNN(*DIAL) must be specified
IDLC default window size	IDLCWDWSIZ	*LIND, *window-size* (1-31)	LINKTYPE(*IDLC) must be specified
IDLC frame retry	IDLCFRMRTY	*LIND, *frame-retry* (0-100)	LINKTYPE(*IDLC) must be specified
IDLC response timer	IDLCRSPTMR	*LIND, *response-timer* (10-100)	LINKTYPE(*IDLC) must be specified
IDLC connect retry	IDLCCNNRTY	*LIND, *NOMAX, *connect-retry-count* (1-100)	LINKTYPE(*IDLC) must be specified

Figure 7-1 (Page 5 of 10). APPC Controller Description Prompts

CRTCTLAPPC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Predial delay	PREDIALDLY	6, *predial-delay* (0-254)	Does not apply to X.21 circuit-switched networks Can be specified only if SWITCHED(*YES) or SNBU(*YES) is specified and SHM is *NO Valid only for LINKTYPE(*SDLC)
Redial delay	REDIALDLY	120, *redial-delay* (0-254)	Does not apply to X.21 circuit-switched networks Can be specified only if SWITCHED(*YES) or SNBU(*YES) is specified and SHM is *NO Valid only for LINKTYPE(*SDLC)
Dial retries	DIALRTY	2, *dial-retry* (0-254)	Does not apply to X.21 circuit-switched networks Can be specified only if SWITCHED(*YES) or SNBU(*YES) is specified and SHM is *NO Valid only for LINKTYPE(*SDLC)
Switched disconnect	SWTDSC	*YES, *NO	Can be specified only if SWITCHED(*YES) or if LINKTYPE is *LAN or *FR Cannot be specified if MINSWTSTS(*VRYON) is also specified
Disconnect timer	DSCTMR	170 30 or *minimum-connect-timer* (0-65535) *disconnect-delay-timer* (0-65535)	Valid only if SWTDSC(*YES)
Data link role	ROLE	*NEG, *PRI, *SEC	Specify *NEG if LINKTYPE is *LAN, *IDLC, or *FR If LINKTYPE(*TDLC), specify *SEC or do not specify a value
Short hold mode disconnect limit	SHMDSCLMT	10, *NOMAX, *SHM-disconnect-limit* (1-254)	SHM(*YES) and ROLE(*SEC) or ROLE(*NEG) must be specified
Short hold mode disconnect timer	SHMDSCTMR	50, *SHM-disconnect-timer* (2-3000)	SHM(*YES) and ROLE(*SEC) or ROLE(*NEG) must be specified

Figure 7-1 (Page 6 of 10). APPC Controller Description Prompts

CRTCTLAPPC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Station address	STNADR	*station-address* (01-FE)	Required for LINKTYPE(*SDLC) and LINKTYPE(*TDLC) Specify only for SDLC and TDLC lines Must match line description STNADR for switched lines with ROLE(*SEC) or ROLE(*NEG) specified on the line description If ROLE(*SEC), specify the remote system station address If ROLE(*PRI) or ROLE(*NEG), specify the local system station address For remote System/36 considerations, see the detailed description
SDLC poll priority	POLLPTY	*NO, *YES	Specify only for controllers on multipoint lines Use only if LINKTYPE(*SDLC) and controller ROLE is *SEC or *NEG and SHM(*NO) Value specified is used only if AS/400 system role is primary
SDLC poll limit	POLLLMT	0, *poll-limit* (0-4)	Specify only for controllers on multipoint lines LINKTYPE(*SDLC) and SHM(*NO) must be specified Controller ROLE must be *SEC or *NEG; value specified is used only if AS/400 system role is primary
SDLC out limit	OUTLMT	*POLLLMT, *out-limit* (0-4)	Specify only for controllers on multipoint lines LINKTYPE(*SDLC) and SHM(*NO) must be specified Controller ROLE must be *SEC or *NEG; value specified is used only if AS/400 system role is primary
SDLC connect poll retry	CNNPOLLRTY	*CALC, *NOMAX, *connect-poll-retry* (0-65534)	Use only if LINKTYPE(*SDLC) and controller ROLE is *SEC or *NEG and SHM(*NO)
SDLC NDM poll timer	NDMPOLLTMR	*CALC, *NDM-poll-timer* (0-3000)	Use only if LINKTYPE(*SDLC) and controller ROLE is *SEC or *NEG and SHM(*NO)
LAN remote adapter address	ADPTADR	*adapter-address* (000000000000-FFFFFFFFFFFF)	Required if LINKTYPE(*LAN) is specified, unless MDLCTL(*YES) is also specified See detailed description

Figure 7-1 (Page 7 of 10). APPC Controller Description Prompts

CRTCTLAPPC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Destination service access point	DSAP	04, *destination-service-access-point* (04-9C)	Valid only for LINKTYPE(*LAN) and LINKTYPE(*FR) Value must equal SSAP specified for remote controller Value specified (in range 04-9C) must be divisible by 4
Source service access point	SSAP	04, *source-service-access-point* (04-9C)	Valid only for LINKTYPE(*LAN) and LINKTYPE(*FR) Value must equal DSAP specified for remote controller Value specified (in range 04-9C) must be divisible by 4 Value specified must be included in the SSAP parameter of all line descriptions included in the SWTLINLST for this controller
LAN frame retry	LANFRMRTY	*CALC, *LAN-frame-retry* (0-254)	LINKTYPE must be *LAN or *FR
LAN connection retry	LANCNNRTY	*CALC, *LAN-connection-retry* (0-254)	LINKTYPE must be *LAN or *FR
LAN response timer	LANRSPTMR	*CALC, *LAN-response-timer* (1-254)	LINKTYPE must be *LAN or *FR
LAN connection timer	LANCNNTMR	*CALC, *LAN-connection-timer* (1-254)	LINKTYPE must be *LAN or *FR
LAN acknowledgement timer	LANACKTMR	*CALC, *LAN-acknowledgement-timer* (0-254)	LINKTYPE must be *LAN or *FR If LANACKTMR(0) is specified, LANACKFRQ(0) must also be specified If a nonzero value is specified for this parameter, a nonzero value must also be specified for LANACKFRQ
LAN inactivity timer	LANINACTMR	*CALC, *LAN-inactivity-timer* (1-255)	LINKTYPE must be *LAN or *FR
LAN acknowledgement frequency	LANACKFRQ	*CALC, *LAN-acknowledgement-frequency* (0-127)	LINKTYPE must be *LAN or *FR If LANACKFRQ(0) is specified, LANACKTMR(0) must also be specified If a nonzero value is specified for this parameter, a nonzero value must also be specified for LANACKTMR
LAN maximum outstanding frames	LANMAXOUT	*CALC, *LAN-maximum-outstanding-frames* (1-127)	LINKTYPE must be *LAN or *FR

Figure 7-1 (Page 8 of 10). APPC Controller Description Prompts

CRTCTLAPPC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
LAN access priority	LANACCPTY	*CALC, *LAN-access-priority* (0-3)	LINKTYPE must be *LAN or *FR
LAN window step	LANWDWSTP	2, *NONE, *LAN-window-step* (1-127)	LINKTYPE must be *LAN or *FR Value specified must not be greater than LANMAXOUT value
X.25 network level	NETLVL	1980, 1984, 1988	Required for LINKTYPE(*X25)
X.25 link protocol	LINKPCL	*QLLC, *ELLC	Valid only for LINKTYPE(*X25)
X.25 logical channel ID	LGLCHLID	*logical-channel-ID* (001-FFF)	Valid only for controllers on X.25 lines using PVCs (LINKTYPE(*X25), SWITCHED(*NO)) Specify 3 hex digits in the format *gcc*, where: *g* = logical channel group number *cc* = logical channel number Value specified must be one of the PVC identifiers specified on the X.25 line description
X.25 connection password	CNNPWD	*X.25-connection-password*	Valid only for switched (SVC) controllers on X.25 lines (LINKTYPE(*X25), SWITCHED(*YES)) See detailed description
X.25 switched line selection	SWTLINSLCT	*FIRST, *CALC	Valid only for switched (SVC) controllers on X.25 lines (LINKTYPE(*X25), SWITCHED(*YES)) See detailed description
Default packet size	DFTPKTSIZE	*LIND *LIND, 64, 128, 256, 512, 1024, 2048, 4096, *TRANSMIT	Valid only for LINKTYPE(*X25) See detailed description
Default window size	DFTWDWSIZE	*LIND *LIND, *X.25-window-size* (1-15), *TRANSMIT	Valid only for LINKTYPE(*X25) Values 1-7 are valid for modulus 8 networks Values 1-15 are valid for modulus 128 networks See detailed description
X.25 user group ID	USRGRPID	*X.25-user-group-ID* (00-99)	Valid only for LINKTYPE(*X25), SWITCHED(*YES), and INLCNN(*DIAL) See detailed description
X.25 reverse charging	RVSCRG	*NONE, *REQUEST, *ACCEPT, *BOTH	Valid only for LINKTYPE(*X25) Must be *NONE unless LINKTYPE(*X25) and SWITCHED(*YES)
X.25 frame retry	X25FRMRTY	7, *X.25-frame-retry* (0-21)	Valid only for LINKTYPE(*X25)

Figure 7-1 (Page 9 of 10). APPC Controller Description Prompts

CRTCTLAPPC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
X.25 connection retry	X25CNNRTY	7, *X.25-connection-retry* (0-21)	Valid only for LINKTYPE(*X25) X25DLYTMR must be *CALC ROLE must be *SEC or *NEG with AS/400 in primary role
X.25 response timer	X25RSPTMR	300, *X.25-response-timer* (1-2550)	Valid only for LINKTYPE(*X25)
X.25 connection timer	X25CNNTMR	300, *X.25-response-timer* (1-2550)	Valid only for LINKTYPE(*X25) X25DLYTMR must be *CALC ROLE must be *SEC or *NEG with AS/400 in primary role
X.25 delayed connection timer	X25DLYTMR	*CALC, *X.25-delayed-connection-timer* (1-32767)	Valid only for LINKTYPE(*X25) and SWITCHED(*NO) ROLE must be *SEC or *NEG with AS/400 in primary role
X.25 acknowledgement timer	X25ACKTMR	20, *X.25-acknowledgement-timer* (0-2550)	Valid only for LINKTYPE(*X25) and LINKPCL(*ELLC) See detailed description
X.25 inactivity timer	X25INACTMR	1050, *X.25-inactivity-timer* (1-2550)	Valid only for LINKTYPE(*X25) and LINKPCL(*ELLC) See detailed description
User facilities	USRFCL	*user-facilities*	Valid only for LINKTYPE(*X25) and SWITCHED(*YES) Values determined by network supplier
APPC CP session support	CPSSN	*YES, *NO	Valid only for APPN(*YES)
APPN node type	NODETYPE	*ENDNODE, *LENNODE, *NETNODE, *CALC	Valid only for APPN(*YES) See detailed description
APPN transmission group number	TMSGRPNBR	1, *CALC, *transmission-group-number* (1-20)	Valid only for APPN(*YES) See detailed description
APPN minimum switched status	MINSWTSTS	*VRYONPND, *VRYON	Valid only if SWITCHED(*YES) and APPN(*YES) are specified If MINSWTSTS(*VRYON) is specified, SWTDSC(*NO) must also be specified
Autodelete device	AUTODLTDEV	1440, *NO, *wait-time*	APPN(*YES) must be specified
User-defined 1, 2, and 3	USRDFN1 USRDFN2 USRDFN3	*LIND, *user-defined-value* (0-255)	APPN(*YES) must be specified
Recovery limits	CMNRCYLMT	2 5, *count-limit time-interval*, *SYSVAL	None
Model controller description	MDLCTL	*NO, *YES	APPN(*YES) and Valid only for LINKTYPE(*LAN)

Figure 7-1 (Page 10 of 10). APPC Controller Description Prompts

CRTCTLAPPC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Connection network network identifier	CNNNETID	*NETATR, *NONE, *connection-network-network-identifier*	Valid only if MDLCTL(*YES) is specified
Connection network CP name	CNNCPNAME	*connection-network-control-point-name*	Valid only if MDLCTL(*YES) is specified Required if CNNNETID is specified
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than 50-character description enclosed in apostrophes

Asynchronous Controller Description Prompts

Figure 7-2 (Page 1 of 3). Asynchronous Controller Description Prompts

CRTCTLASC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Controller description name	CTLD	*controller-description-name*	Required parameter; cannot be QCTL
Link type	LINKTYPE	*ASYNC, *X25	Required parameter Cannot be *X25 if SNBU(*YES)
Online at IPL	ONLINE	*YES, *NO	None
Switched connection	SWITCHED	*NO, *YES	Specify *YES for switched asynchronous lines and X.25 SVC connections SWITCHED and SNBU cannot both be *YES
Switched network backup	SNBU	*NO, *YES	Not used for X.25 lines SWITCHED and SNBU cannot both be *YES
Attached non-switched line name	LINE	*nonswitched-line-name*	Specify only if SWITCHED(*NO)
Switched line list	SWTLINLST	*switched-line-name*	Lines specified must already exist and be compatible with specified link type Up to 64 lines can be specified Specify only if SWITCHED(*YES) or SNBU(*YES)
Attached device names	DEV	*device-name*	Use only if device description created before controller description. Up to 254 devices can be specified
Initial connection	INLCNN	*DIAL, *ANS	Specify only if SWITCHED(*YES) or SNBU(*YES) See detailed description
Connection number	CNNNBR	*ANY, *connection-number*	Required if SWITCHED or SNBU is *YES unless LINKTYPE(*ASYNC) and INLCNN(*ANS) *ANY is valid only if LINKTYPE(*X25), SWITCHED(*YES), and INLCNN(*ANS) If LINKTYPE(*X25) is specified and the line to which the controller is attached specifies NETLVL(1988) and EXNNETADR(*YES), CNNNBR can be up to 17 characters long. Otherwise, CNNNBR can be no longer than 15 characters.
Answer number	ANSNBR	*CNNNBR, *ANY	LINKTYPE(*X25) and SWITCHED(*YES) must be specified CNNNBR parameter must be specified if ANSNBR(*CNNNBR) is used

Figure 7-2 (Page 2 of 3). Asynchronous Controller Description Prompts

CRTCTLASC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Predial delay	PREDIALDLY	6, *predial-delay* (0-254)	LINKTYPE(*ASYNC) must be specified Can be specified only if SWITCHED(*YES) or SNBU(*YES)
Redial delay	REDIALDLY	120, *redial-delay* (0-254)	LINKTYPE(*ASYNC) must be specified Can be specified only if SWITCHED(*YES) or SNBU(*YES)
Dial retries	DIALRTY	2, *dial-retry* (0-254)	LINKTYPE(*ASYNC) must be specified Can be specified only if SWITCHED(*YES) or SNBU(*YES)
Switched disconnect	SWTDSC	*NO, *YES	Valid only if SWITCHED(*YES)
File transfer acknowledgement timer	ACKTMR	16, *file-transfer-acknowledgement-timer* (16-65535)	None
File transfer retry	RETRY	7, *file-transfer-retry* (1-255)	None
Remote verify	RMTVFY	*NO, *YES	Specify *YES if generic controller and device are configured to accept calls from any X.25 network address
Local location name	LCLLOCNAME	*local-location-name*	Must match remote location name specified in remote system's remote location list Required if RMTVFY(*YES) Specify only if RMTVFY(*YES)
Local identifier	LCLID	*local-identifier*	Must match identifier specified in remote system's remote location list Required if RMTVFY(*YES) Specify only if RMTVFY(*YES)
PAD emulation	PADEML	*NO, *YES	*YES is valid only if LINKTYPE(*X25), SWITCHED(*YES), and INLCNN(*DIAL)
X.25 logical channel ID	LGLCHLID	*logical-channel-ID* (001-FFF)	Required for X.25 lines using PVCs (LINKTYPE(*X25), SWITCHED(*NO)) Specify 3 hex digits in the format *gcc*, where: *g* = logical channel group number *cc* = logical channel number Value specified must be one of the PVC identifiers specified on the X.25 line description
X.25 switched line selection	SWTLINSLCT	*FIRST, *CALC	Valid only for switched (SVC) controllers on X.25 lines (LINKTYPE(*X25) and SWITCHED(*YES)) See detailed description

Figure 7-2 (Page 3 of 3). Asynchronous Controller Description Prompts

CRTCTLASC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Default packet size	DFTPKTSIZE	*LIND *LIND, 64, 128, 256, 512, 1024, 2048, 4096, *TRANSMIT	Valid only for LINKTYPE(*X25) See detailed description
Default window size	DFTWDWSIZE	*LIND *LIND, *X.25-window-size* (1-15), *TRANSMIT	Valid only for LINKTYPE(*X25) Values 1-7 are valid for modulus 8 networks Values 1-15 are valid for modulus 128 networks See detailed description
X.25 user group ID	USRGRPID	*X.25-user-group-ID* (00-99)	Valid only for LINKTYPE(*X25), SWITCHED(*YES), and INLCNN(*DIAL) See detailed description
X.25 reverse charging	RVSCRG	*NONE, *REQUEST, *ACCEPT, *BOTH	Valid only for LINKTYPE(*X25) Must be *NONE unless LINKTYPE(*X25) and SWITCHED(*YES) are specified
User facilities	USRFCL	*user-facilities*	Valid only for LINKTYPE(*X25) and SWITCHED(*YES) Values determined by network supplier
Recovery limits	CMNRCYLMT	2 5, *count-limit time-interval*, *SYSVAL	None
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than 50-character description enclosed in apostrophes

Binary Synchronous Communications (BSC) Controller Description Prompts

Figure 7-3 (Page 1 of 2). Binary Synchronous Communications (BSC) Controller Description Prompts

CRTCTLBSC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Controller description name	CTLD	*controller-description-name*	Required parameter; cannot be QCTL
Online at IPL	ONLINE	*YES, *NO	None
Connection type	CNN	*NONSWTPP, *SWTPP, *MPTRIB	If APPTYPE(*EML), CNN must be *MPTRIB If APPTYPE(*RJE), CNN must *not* be *MPTRIB This value must match that specified for the CNN parameter on the CRTLINBSC command.
Switched network backup	SNBU	*NO, *YES	Must be *NO if CNN is *MPTRIB or *SWTPP
Attached non-switched line name	LINE	*nonswitched-line-name*	Specify only if CNN is *not* *SWTPP
Switched line list	SWTLINLST	*switched-line-name*	Lines specified must already exist and be compatible with specified link type. Up to 64 lines can be specified Specify only if CNN(*SWTPP) or SNBU(*YES)
Attached device names	DEV	*device-name*	Use only if device description created before controller description. Maximum devices vary by connection and application type: • 32 for CNN(*MPTRIB) with APPTYPE(*EML) • 24 for CNN(*MPTRIB) with APPTYPE(*RJE) • 1 for CNN(*SWTPP) or CNN(*NONSWTPP)
Application type	APPTYPE	*PGM, *RJE, *EML	Must match APPTYPE specified for line description *RJE and *EML must match values specified for the device description APPTYPE *PGM must match *BSCEL, *BSC38, or *RPGT specified for the device description APPTYPE
Initial connection	INLCNN	*DIAL, *ANS	Specify only if CNN(*SWTPP) or SNBU(*YES)

Figure 7-3 (Page 2 of 2). Binary Synchronous Communications (BSC) Controller Description Prompts

CRTCTLBSC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Connection number	CNNNBR	*connection-number*	Required if CNN(*SWTPP) or SNBU(*YES) unless INLCNN(*ANS) Must be a telephone number; format is dependent on modem and physical interface used Up to 32 characters can be specified Specify only if CNN(*SWTPP) or SNBU(*YES)
Predial delay	PREDIALDLY	6, *predial-delay* (0-254)	Can be specified only if CNN(*SWTPP) or SNBU(*YES)
Redial delay	REDIALDLY	120, *redial-delay* (0-254)	Can be specified only if CNN(*SWTPP) or SNBU(*YES)
Dial retries	DIALRTY	2, *dial-retry* (0-254)	Can be specified only if CNN(*SWTPP) or SNBU(*YES)
Local identifier	LCLID	*NOID, *local-ID*	Required if CNN(*SWTPP) or SNBU(*YES) Identifier must be 4-30 hex characters in length Must contain even number of characters; if length is 4, first and second pair must be the same
Remote identifiers	RMTID	*remote-ID*, *NOID, *ANY	Required if CNN(*SWTPP) or SNBU(*YES) Identifier must be 4-30 hex characters in length Must contain even number of characters; if length is 4, first and second pair must be the same *ANY can be specified only for the last remote ID Up to 64 identifiers can be specified
RJE host type	RJEHOST	*RES, *JES2, *JES3, *RSCS	Required if APPTYPE(*RJE)
RJE host 'signon'/'logon'	RJELOGON	*RJE-host-logon*	Required if APPTYPE(*RJE)
Recovery limits	CMNRCYLMT	2 5, *count-limit time-interval*, *SYSVAL	None
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than 50-character description enclosed in apostrophes

Finance Controller Description Prompts

Figure 7-4 (Page 1 of 7). Finance Controller Description Prompts

CRTCTLFNC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Controller description name	CTLD	*controller-description-name*	Required parameter; cannot be QCTL
Controller type	TYPE	3694, 4701, 4702, 4730, 4731, 4732, 4736, *FBSS	Required parameter
Controller model	MODEL	0	Required parameter; specify 0 for this prompt
Link type	LINKTYPE	*SDLC, *X25, *LAN	Required parameter *X25 can be specified for TYPEs 4701, 4702, or *FBSS only *LAN can be specified for TYPE *FBSS only For SDLC link types, the SDLC line description must specify ROLE(*PRI) or ROLE(*NEG)
Online at IPL	ONLINE	*YES, *NO	None
Switched connection	SWITCHED	*NO, *YES	Specify *YES for switched SDLC lines and X.25 SVC connections If LINKTYPE(*LAN), specify SWITCHED(*YES) or do not specify SVC connection. If TYPE 4730, 4731, 4732, or 4736, specify SWITCHED(*NO) SWITCHED and SNBU cannot both be *YES
Short hold mode	SHM	*NO, *YES	Valid only for X.21 connections. LINKTYPE(*SDLC), SWITCHED(*YES), and TYPE(4701) or TYPE(4702) must be specified
Switched network backup	SNBU	*NO, *YES	Specify *NO if LINKTYPE(*X25) or LINKTYPE(*LAN), or if TYPE is 4730, 4731, 4732, or 4736 SWITCHED and SNBU cannot both be *YES
Attached non-switched line name	LINE	*nonswitched-line-name*	Specify only if SWITCHED(*NO) and LINKTYPE is not *LAN
Switched line list	SWTLINLST	*switched-line-name*	Lines specified must already exist and be compatible with specified link type. Up to 64 lines can be specified Can be specified only if SWITCHED(*YES), SNBU(*YES), or LINKTYPE(*LAN) is specified

Figure 7-4 (Page 2 of 7). Finance Controller Description Prompts

CRTCTLFNC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Attached device names	DEV	*device-name*	Use only if device description created before controller description. The maximum number of devices that can be specified for each TYPE is as follows: **4** 3694 **255** 4701,4702,*FBSS **3** 4730 **2** 4731, 4732, 4736 See detailed description for information about the type of devices that can be attached and the number of attached devices that can be active at one time.
Character code	CODE	*EBCDIC, *ASCII	None
Maximum frame size	MAXFRAME	*LINKTYPE, *maximum-frame-size* (265-1033)	For all finance controllers, the default (*LINKTYPE) uses MAXFRAME(265) For TYPEs 4701, 4702, and *FBSS with LINKTYPE(*SDLC) or LINKTYPE(*X25), MAXFRAME can be *LINKTYPE, 256, 512, or 1024 For TYPEs 3694, 4730, 4731, 4732, and 4736, use MAXFRAME(*LINKTYPE) For TYPE(*FBSS) with LINKTYPE(*LAN), MAXFRAME can be *LINKTYPE or any value in the range 265-521
Exchange identifier	EXCHID	*exchange-identifier*	Required if LINKTYPE(*SDLC) and either SWITCHED or SNBU is *YES Must be specified as xxxyyyyy, where *xxx* is the block number of the remote system and *yyyyy* is the identifier of the remote system. The following block numbers are assigned: **02F** 3694 **057** 4701, 4702 **043** 4730, 4731, 4732, 4736 **016** 3601 configured as 4701 **000-FFF** *FBSS
System service control point identifier	SSCPID	050000000000, *SSCP-identifier* (000000000001-FFFFFFFFFFFF)	See detailed description
Initial connection	INLCNN	*DIAL, *ANS	SWITCHED(*YES), SNBU(*YES), or LINKTYPE(*LAN) must be specified See detailed description

Figure 7-4 (Page 3 of 7). Finance Controller Description Prompts

CRTCTLFNC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Connection number	CNNNBR	*ANY, *DC, *connection-number*	Required if SWITCHED or SNBU is *YES and LINKTYPE is not *LAN, unless LINKTYPE(*SDLC) and INLCNN(*ANS) Not valid for LINKTYPE(*LAN) SWITCHED(*YES) or SNBU(*YES) must be specified *ANY is valid only if LINKTYPE(*X25), SWITCHED(*YES), and INLCNN(*ANS) are also specified *DC is valid only for X.21 circuit-switched lines with LINKTYPE(*SDLC) and SHM(*NO) Up to 32 characters can be specified, with the following restrictions: • If SHM(*YES), CNNNBR cannot be longer than 18 characters • If LINKTYPE(*X25) and NETLVL(1980) or NETLVL(1984), CNNNBR cannot be longer than 15 characters • If LINKTYPE(*X25) and NETLVL(1988), CNNNBR cannot be longer than 17 characters
Answer number	ANSNBR	*CNNNBR, *ANY	LINKTYPE(*X25) and SWITCHED(*YES) must be specified CNNNBR parameter must be specified if ANSNBR(*CNNNBR) is used
Predial delay	PREDIALDLY	6, *predial-delay* (0-254)	Does not apply to X.21 circuit-switched networks Can be specified only if SWITCHED(*YES) or SNBU(*YES) is specified and SHM is *NO Valid only for LINKTYPE(*SDLC)
Redial delay	REDIALDLY	120, *redial-delay* (0-254)	Does not apply to X.21 circuit-switched networks Can be specified only if SWITCHED(*YES) or SNBU(*YES) is specified and SHM is *NO Valid only for LINKTYPE(*SDLC)
Dial retries	DIALRTY	2, *dial-retry* (0-254)	Does not apply to X.21 circuit-switched networks Can be specified only if SWITCHED(*YES) or SNBU(*YES) is specified and SHM is *NO Valid only for LINKTYPE(*SDLC)

Figure 7-4 (Page 4 of 7). Finance Controller Description Prompts

CRTCTLFNC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Switched disconnect	SWTDSC	*NO, *YES	Can be specified only if SWITCHED(*YES) or LINKTYPE(*LAN)
Short hold mode disconnect limit	SHMDSCLMT	10, *NOMAX, *SHM-disconnect-limit* (1-254)	SHM(*YES) must be specified
Short hold mode disconnect timer	SHMDSCTMR	50, *SHM-disconnect-timer* (2-3000)	SHM(*YES) must be specified
Station address	STNADR	*station-address* (01-FE)	Valid only for LINKTYPE(*SDLC) Required if LINKTYPE(*SDLC)
SDLC poll priority	POLLPTY	*NO, *YES	Valid only if LINKTYPE(*SDLC) and SHM(*NO) Specify only for controllers on multipoint lines
SDLC poll limit	POLLLMT	0, *poll-limit* (0-4)	Specify only for controllers on multipoint lines LINKTYPE(*SDLC) and SHM(*NO) must be specified
SDLC out limit	OUTLMT	*POLLLMT, *out-limit* (0-4)	Specify only for controllers on multipoint lines LINKTYPE(*SDLC) and SHM(*NO) must be specified
SDLC connect poll retry	CNNPOLLRTY	*CALC, *NOMAX, *connect-poll-retry* (0-65534)	Valid only if LINKTYPE(*SDLC) and SHM(*NO)
SDLC NDM poll timer	NDMPOLLTMR	*CALC, *NDM-poll-timer* (0-3000)	Valid only if LINKTYPE(*SDLC) and SHM(*NO)
LAN remote adapter address	ADPTADR	*adapter-address* (000000000000-FFFFFFFFFFFF)	Required for LINKTYPE(*LAN) See detailed description
Destination service access point	DSAP	04, *destination-service-access-point* (04-9C)	Valid only for LINKTYPE(*LAN) is specified Value must equal SSAP specified for remote controller Value specified (in range 04-9C) must be divisible by 4

Figure 7-4 (Page 5 of 7). Finance Controller Description Prompts

CRTCTLFNC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Source service access point	SSAP	04, *source-service-access-point* (04-9C)	Valid only for LINKTYPE(*LAN) is specified Value must equal DSAP specified for remote controller Value specified (in range 04-9C) must be divisible by 4 Value specified must be included in the SSAP parameter of all line descriptions included in the SWTLINLST for this controller
LAN frame retry	LANFRMRTY	*CALC, *LAN-frame-retry* (0-254)	Valid only for LINKTYPE(*LAN)
LAN connection retry	LANCNNRTY	*CALC, *LAN-connection-retry* (0-254)	Valid only for LINKTYPE(*LAN)
LAN response timer	LANRSPTMR	*CALC, *LAN-response-timer* (1-254)	Valid only for LINKTYPE(*LAN)
LAN connection timer	LANCNNTMR	*CALC, *LAN-connection-timer* (1-254)	Valid only for LINKTYPE(*LAN)
LAN acknowledgement timer	LANACKTMR	*CALC, *LAN-acknowledgement-timer* (0-254)	Valid only for LINKTYPE(*LAN) If LANACKTMR(0) is specified, LANACKFRQ(0) must also be specified If a nonzero value is specified for this parameter, a nonzero value must also be specified for LANACKFRQ
LAN inactivity timer	LANINACTMR	*CALC, *LAN-inactivity-timer* (1-255)	Valid only for LINKTYPE(*LAN)
LAN acknowledgement frequency	LANACKFRQ	*CALC, *LAN-acknowledgement-frequency* (0-127)	Valid only for LINKTYPE(*LAN) If LANACKFRQ(0) is specified, LANACKTMR(0) must also be specified If a nonzero value is specified for this parameter, a nonzero value must also be specified for LANACKTMR
LAN maximum outstanding frames	LANMAXOUT	*CALC, *LAN-maximum-outstanding-frames* (1-127)	Valid only for LINKTYPE(*LAN)
LAN access priority	LANACCPTY	*CALC, *LAN-access-priority* (0-3)	Valid only for LINKTYPE(*LAN)
LAN window step	LANWDWSTP	2, *NONE, *LAN-window-step* (1-127)	Valid only for LINKTYPE(*LAN) Value specified must not be greater than LANMAXOUT value
X.25 network level	NETLVL	1980, 1984, 1988	Required for LINKTYPE(*X25)

Figure 7-4 (Page 6 of 7). Finance Controller Description Prompts

CRTCTLFNC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
X.25 link protocol	LINKPCL	*QLLC, *ELLC	Valid only for LINKTYPE(*X25) Use *QLLC for all finance controllers
X.25 logical channel ID	LGLCHLID	*logical-channel-ID* (001-FFF)	Required for X.25 lines using PVCs (LINKTYPE(*X25)and SWITCHED(*NO)) Specify 3 hex digits in the format *gcc*, where: *g* = logical channel group number *cc* = logical channel number Value specified must be one of the PVC identifiers specified on the X.25 line description
X.25 connection password	CNNPWD	*X.25-connection-password*	Valid only for controllers on X.25 lines using SVCs (LINKTYPE(*X25) and SWITCHED(*YES)) See detailed description
X.25 switched line selection	SWTLINSLCT	*FIRST, *CALC	Valid only for switched (SVC) controllers on X.25 lines (LINKTYPE(*X25) and SWITCHED(*YES)) See detailed description
Default packet size	DFTPKTSIZE	*LIND *LIND, 64, 128, 256, 512, 1024, 2048, 4096, *TRANSMIT	Valid only for LINKTYPE(*X25) See detailed description
Default window size	DFTWDWSIZE	*LIND *LIND, *X.25-window-size* (1-15), *TRANSMIT	Valid only for LINKTYPE(*X25) Values 1-7 are valid for modulus 8 networks Values 1-15 are valid for modulus 128 networks See detailed description
X.25 user group ID	USRGRPID	*X.25-user-group-ID* (00-99)	Specify only if LINKTYPE(*X25), SWITCHED(*YES), and INLCNN(*DIAL) See detailed description
X.25 reverse charging	RVSCRG	*NONE, *REQUEST, *ACCEPT, *BOTH	Valid only for LINKTYPE(*X25) Must be *NONE unless LINKTYPE(*X25) and SWITCHED(*YES)
X.25 frame retry	X25FRMRTY	7, *X.25-frame-retry* (0-21)	Valid only for LINKTYPE(*X25)
X.25 connection retry	X25CNNRTY	7, *X.25-connection-retry* (0-21)	Valid only for LINKTYPE(*X25) X25DLYTMR must be *CALC
X.25 response timer	X25RSPTMR	100, *X.25-response-timer* (1-2550)	Valid only for LINKTYPE(*X25)
X.25 connection timer	X25CNNTMR	100, *X.25-connection-timer* (1-2550)	Valid only for LINKTYPE(*X25) X25DLYTMR must be *CALC

Figure 7-4 (Page 7 of 7). Finance Controller Description Prompts

CRTCTLFNC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
X.25 delayed connection timer	X25DLYTMR	*CALC, *X.25-delayed-connection-timer* (1-32767)	Valid only for LINKTYPE(*X25) SWITCHED(*NO)
X.25 acknowledgement timer	X25ACKTMR	20, *X.25-acknowledgement-timer* (0-2550)	Valid only for LINKTYPE(*X25) and LINKPCL(*ELLC) See detailed description
X.25 inactivity timer	X25INACTMR	350, *X.25-inactivity-timer* (1-2550)	Not valid for finance controllers See detailed description
User facilities	USRFCL	*user-facilities*	Valid only for LINKTYPE(*X25) and SWITCHED(*YES) Values determined by network supplier
Recovery limits	CMNRCYLMT	2 5, *count-limit time-interval*, *SYSVAL	None
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than 50-character description enclosed in apostrophes

SNA Host Controller Description Prompts

Figure 7-5 (Page 1 of 8). SNA Host Controller Description Prompts

CRTCTLHOST Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Controller description name	CTLD	*controller-description-name*	Required parameter; cannot be QCTL
Link type	LINKTYPE	*FR, *IDLC, *LAN, *SDLC, *X25	Required parameter
Online at IPL	ONLINE	*YES, *NO	None
Switched connection	SWITCHED	*NO, *YES	Specify *YES if line is switched, token-ring, Ethernet, or X.25 SVC connection SWITCHED and SNBU cannot both be *YES If LINKTYPE is *LAN or *FR, SWITCHED must be *YES or not specified
Short hold mode	SHM	*NO, *YES	Can be specified only if LINKTYPE(*SDLC) and SWITCHED(*YES)

Figure 7-5 (Page 2 of 8). SNA Host Controller Description Prompts

CRTCTLHOST Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Switched network backup	SNBU	*NO, *YES	If SNBU(*YES), LINKTYPE(*SDLC) and SWITCHED(*NO) must also be specified Specify *NO if LINKTYPE is not *SDLC
APPN capable	APPN	*YES, *NO	If SHM(*YES), APPN must be *NO See detailed description
Attached non-switched line name	LINE	*nonswitched-line-name*	Specify only if SWITCHED(*NO), and LINKTYPE is not *LAN or *FR
Switched line list	SWTLINLST	*switched-line-name*	Lines specified must already exist and be compatible with specified link type. Up to 64 lines can be specified Can be specified only if SWITCHED(*YES) or SNBU(*YES) is specified or if LINKTYPE is *LAN or *FR
Attached device names	DEV	*device-name*	Use only if device description created before controller description. Up to 254 devices can be specified
Character code	CODE	*EBCDIC, *ASCII	None
Maximum frame size	MAXFRAME	*LINKTYPE, *maximum-frame-size* (265-16393)	For LINKTYPE(*SDLC), 265, 521, 1033, 2057, or *LINKTYPE can be specified For LINKTYPE(*IDLC), MAXFRAME can be any value in the range 265-8196 or *LINKTYPE For LINKTYPE(*LAN), MAXFRAME can be any value in the range 265-16393 or *LINKTYPE For LINKTYPE(*FR), MAXFRAME can be any value in the range 265-8182 or *LINKTYPE For LINKTYPE(*X25), 256, 512, 1024, 2048, 4096, or *LINKTYPE can be specified See detailed description for additional considerations

Figure 7-5 (Page 3 of 8). SNA Host Controller Description Prompts

CRTCTLHOST Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Remote network identifier	RMTNETID	*NETATR, *NONE, *ANY *remote-network-identifier*	Required for APPN(*YES) Cannot be *NONE if APPN(*YES) Cannot be specified if SHM(*YES) RMTCPNAME must be also specified If *ANY is specified, RMTCPNAME(*ANY) must also be specified See detailed description
Remote control point name	RMTCPNAME	*remote-control-point-name*, *ANY	Cannot be specified if RMTNETID(*NONE) or SHM(*YES) Required if RMTNETID is not *NONE, unless RMTNETID(*NETATR) and APPN(*NO) Cannot be *ANY if LINKTYPE is *SDLC or *IDLC, SWITCHED(*YES) or SNBU(*YES) is specified, and ADJLNKSTN is not specified Cannot be *ANY if APPN(*NO) or NODETYPE(*LENNODE) is specified See detailed description
Adjacent link station	ADJLNKSTN	*NONE, *ANY, *adjacent-link-station-name*	Required if RMTCPNAME(*ANY), LINKTYPE is *SDLC or *IDLC, and SWITCHED(*YES) or SNBU(*YES) is specified
System service control point identifier	SSCPID	*SSCP-identifier*	SSCPID is required for the following conditions: If LINKTYPE(*SDLC) and either SWITCHED or SNBU is *YES *and* one of the following is true: • APPN(*YES) and NODETYPE(*LENNODE) are specified • APPN(*NO) is specified and RMTCPNAME is not specified See detailed description
Local exchange identifier	LCLEXCHID	*LIND, *local-exchange-identifier*	Specify only for parallel connections with host systems
Initial connection	INLCNN	*DIAL, *ANS	SWITCHED(*YES), SNBU(*YES), LINKTYPE(*LAN), or LINKTYPE(*FR) must be specified
Dial initiation	DIALINIT	*LINKTYPE, *IMMED, *DELAY	INLCNN(*DIAL) must be specified

Figure 7-5 (Page 4 of 8). SNA Host Controller Description Prompts

CRTCTLHOST Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Connection number	CNNNBR	*ANY, *DC, *connection-number*	Required if SWITCHED or SNBU is *YES and LINKTYPE is not *LAN or *FR, unless LINKTYPE(*SDLC) and INLCNN(*ANS) Not valid if LINKTYPE is *LAN, *FR, or *IDLC SWITCHED(*YES) or SNBU(*YES) must be specified *ANY is valid only if LINKTYPE(*X25), SWITCHED(*YES), and INLCNN(*ANS) are also specified *DC is valid only for X.21 circuit-switched lines with LINKTYPE(*SDLC) and SHM(*NO) Up to 32 characters can be specified, with the following restrictions: • If SHM(*YES), CNNNBR cannot be longer than 18 characters • If LINKTYPE(*X25) and NETLVL(1980) or NETLVL(1984), CNNNBR cannot be longer than 15 characters • If LINKTYPE(*X25) and NETLVL(1988), CNNNBR cannot be longer than 17 characters
Answer number	ANSNBR	*CNNNBR, *ANY	LINKTYPE(*X25) and SWITCHED(*YES) must be specified CNNNBR parameter must be specified if ANSNBR(*CNNNBR) is used
Outgoing connection list	CNNLSTOUT	*connection-list-name*	LINKTYPE(*IDLC), SWITCHED(*YES), and INLCNN(*DIAL) must be specified
Connection list entry	CNNLSTOUTE	*connection-list-entry*	LINKTYPE(*IDLC), SWITCHED(*YES), and INLCNN(*DIAL) must be specified
IDLC default window size	IDLCWDWSIZ	*LIND, *window-size* (1-31)	LINKTYPE(*IDLC) must be specified
IDLC frame retry	IDLCFRMRTY	*LIND, *frame-retry* (0-100)	LINKTYPE(*IDLC) must be specified
IDLC response timer	IDLCRSPTMR	*LIND, *response-timer* (10-100)	LINKTYPE(*IDLC) must be specified
IDLC connect retry	IDLCCNNRTY	*LIND, *NOMAX, *connect-retry-count* (1-100)	LINKTYPE(*IDLC) must be specified

Figure 7-5 (Page 5 of 8). SNA Host Controller Description Prompts

CRTCTLHOST Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Predial delay	PREDIALDLY	6, *predial-delay* (0-254)	Does not apply to X.21 circuit-switched networks Can be specified only if SWITCHED(*YES) or SNBU(*YES) is specified and SHM is *NO Valid only for LINKTYPE(*SDLC)
Redial delay	REDIALDLY	120, *redial-delay* (0-254)	Does not apply to X.21 circuit-switched networks Can be specified only if SWITCHED(*YES) or SNBU(*YES) is specified and SHM is *NO Valid only for LINKTYPE(*SDLC)
Dial retries	DIALRTY	2, *dial-retry* (0-254)	Does not apply to X.21 circuit-switched networks Can be specified only if SWITCHED(*YES) or SNBU(*YES) is specified and SHM is *NO Valid only for LINKTYPE(*SDLC)
Switched disconnect	SWTDSC	*NO, *YES	Valid only if SWITCHED(*YES) or if LINKTYPE(*LAN) or LINKTYPE(*FR) is specified Cannot be specified if MINSWTSTS(*VRYON) is also specified
Disconnect timer	DSCTMR	170 30 or *minimum-connect-timer* (0-65535) *disconnect-delay-timer* (0-65535)	Valid only if SWTDSC(*YES)
Station address	STNADR	*station-address* (01-FE)	Valid only for LINKTYPE(*SDLC) For switched lines, this value must match the line description STNADR
LAN remote adapter address	ADPTADR	*adapter-address* (000000000000-FFFFFFFFFFFF)	Required for LINKTYPE(*LAN) See detailed description
Destination service access point	DSAP	04, *destination-service-access-point* (04-9C)	LINKTYPE must be *LAN or *FR Value must equal SSAP specified for remote controller Value specified (in range 04-9C) must be divisible by 4

Figure 7-5 (Page 6 of 8). SNA Host Controller Description Prompts

CRTCTLHOST Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Source service access point	SSAP	04, *source-service- access-point* (04-9C)	LINKTYPE must be *LAN or *FR Value must equal DSAP specified for remote controller Value specified (in range 04-9C) must be divisible by 4 Value specified must be included in the SSAP parameter of all line descriptions included in the SWTLINLST for this controller
LAN frame retry	LANFRMRTY	*CALC, *LAN-frame-retry* (0-254)	LINKTYPE must be *LAN or *FR
LAN connection retry	LANCNNRTY	*CALC, *LAN-connection-retry* (0-254)	LINKTYPE must be *LAN or *FR
LAN response timer	LANRSPTMR	*CALC, *LAN-response-timer* (1-254)	LINKTYPE must be *LAN or *FR
LAN connection timer	LANCNNTMR	*CALC, *LAN-connection-timer* (1-254)	LINKTYPE must be *LAN or *FR
LAN acknowledge-ment timer	LANACKTMR	*CALC, *LAN-acknowledgement-timer* (0-254)	LINKTYPE must be *LAN or *FR If LANACKTMR(0) is specified, LANACKFRQ(0) must also be specified If a nonzero value is specified for this parameter, a nonzero value must also be specified for LANACKFRQ
LAN inactivity timer	LANINACTMR	*CALC, *LAN-inactivity-timer* (1-255)	LINKTYPE must be *LAN or *FR
LAN acknowledge-ment frequency	LANACKFRQ	*CALC, *LAN-acknowledgement-frequency* (0-127)	LINKTYPE must be *LAN or *FR If LANACKFRQ(0) is specified, LANACKTMR(0) must also be specified If a nonzero value is specified for this parameter, a nonzero value must also be specified for LANACKTMR
LAN maximum out-standing frames	LANMAXOUT	*CALC, *LAN-maximum-outstanding-frames* (1-127)	LINKTYPE must be *LAN or *FR
LAN access priority	LANACCPTY	*CALC, *LAN-access-priority* (0-3)	LINKTYPE must be *LAN or *FR
LAN window step	LANWDWSTP	2, *NONE, *LAN-window-step* (1-127)	LINKTYPE must be *LAN or *FR

Figure 7-5 (Page 7 of 8). SNA Host Controller Description Prompts

CRTCTLHOST Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Valid only for LINKTYPE(*LAN) Value specified must not be greater than LANMAXOUT value			
X.25 network level	NETLVL	1980, 1984, 1988	Required for LINKTYPE(*X25)
X.25 link protocol	LINKPCL	*QLLC, *ELLC	Valid only for LINKTYPE(*X25)
X.25 logical channel ID	LGLCHLID	*logical-channel-ID* (001-FFF)	Valid only for X.25 lines using PVCs (LINKTYPE(*X25) and SWITCHED(*NO)) Specify 3 hex digits in the format *gcc*, where: *g* = logical channel group number *cc* = logical channel number Value specified must be one of the PVC identifiers specified on the X.25 line description
X.25 connection password	CNNPWD	*X.25-connection-password*	Valid only for controllers on X.25 lines using SVCs (LINKTYPE(*X25) and SWITCHED(*YES)) See detailed description
X.25 switched line selection	SWTLINSLCT	*FIRST, *CALC	Valid only for switched (SVC) controllers on X.25 lines (LINKTYPE(*X25) and SWITCHED(*YES)) See detailed description
Default packet size	DFTPKTSIZE	*LIND *LIND, 64, 128, 256, 512, 1024, 2048, 4096, *TRANSMIT	Valid only for LINKTYPE(*X25) See detailed description
Default window size	DFTWDWSIZE	*LIND *LIND, *X.25-window-size* (1-15), *TRANSMIT	Valid only for LINKTYPE(*X25) Values 1-7 are valid for modulus 8 networks Values 1-15 are valid for modulus 128 networks See detailed description
X.25 user group ID	USRGRPID	*X.25-user-group-ID* (00-99)	Valid only for LINKTYPE(*X25) with SWITCHED(*YES) and INLCNN(*DIAL) See detailed description
X.25 reverse charging	RVSCRG	*NONE, *REQUEST, *ACCEPT, *BOTH	Valid only for LINKTYPE(*X25) Must be *NONE unless LINKTYPE(*X25) and SWITCHED(*YES)
X.25 frame retry	X25FRMRTY	7, *X.25-frame-retry* (0-21)	Valid only for LINKTYPE(*X25)

Figure 7-5 (Page 8 of 8). SNA Host Controller Description Prompts

CRTCTLHOST Command			
Prompt	**Parameter**	**Values**	**Dependencies**
X.25 response timer	X25RSPTMR	300, *X.25-response-timer* (1-2550)	Valid only for LINKTYPE(*X25)
X.25 acknowledgement timer	X25ACKTMR	20, *X.25-acknowledgement-timer* (0-2550)	Valid only for LINKTYPE(*X25) Specify only if LINKPCL(*ELLC) See detailed description
X.25 inactivity timer	X25INACTMR	1050, *X.25-inactivity-timer* (1-2550)	Valid only for LINKTYPE(*X25) with LINKPCL(*ELLC) See detailed description
User facilities	USRFCL	*user-facilities*	Valid only for LINKTYPE(*X25) with SWITCHED(*YES) Values determined by network supplier
APPC CP session support	CPSSN	*YES, *NO	Valid only for APPN(*YES)
APPN node type	NODETYPE	*ENDNODE, *LENNODE, *NETNODE, *CALC	Valid only for APPN(*YES) See detailed description
APPN transmission group number	TMSGRPNBR	1, *CALC, *transmission-group-number* (1-20)	Valid only for APPN(*YES) See detailed description
APPN minimum switched status	MINSWTSTS	*VRYONPND, *VRYON	Valid only if APPN(*YES) and either SWITCHED(*YES) or LINKTYPE(*LAN) is specified If MINSWTSTS(*VRYON) is specified, SWTDSC(*NO) must also be specified
Autodelete device	AUTODLTDEV	1440, *NO, *wait-time*	APPN(*YES) must be specified
Autocreate device	AUTOCRTDEV	*ALL, *DEVINIT, *NONE	APPN(*YES) must be specified
User-defined 1, 2, and 3	USRDFN1 USRDFN2 USRDFN3	*LIND, *user-defined-value* (0-255)	APPN(*YES) must be specified
Recovery limits	CMNRCYLMT	2 5, *count-limit time-interval*, *SYSVAL	None
Recontact at vary off	RECONTACT	*YES, *NO	SWITCHED(*NO) and LINKTYPE(*SDLC) or LINKTYPE(*X25) must be specified
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than 50-character description enclosed in apostrophes

Network Controller Description Prompts

Figure 7-6. Network Controller Description Prompts

CRTCTLNET Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Controller description name	CTLD	*controller-description-name*	Required parameter; cannot be QCTL
Online at IPL	ONLINE	*YES, *NO	None
Attached line	LINE	*attached-line-name*	Use only if line description created before controller description
Attached device names	DEV	*device-name*	Use only if device description created before controller description Up to 255 devices can be specified
Connection response timer	CNNRSPTMR	170, *connection-response-timer* (1-3600)	Used only for X.25 connections
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	See the *TCP/IP Guide*, *OSI Configuration and Administration Guide*, or *System Programmer's Interface Reference* for information about security considerations for network controllers
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than 50-character description enclosed in apostrophes

Retail Controller Description Prompts

Figure 7-7 (Page 1 of 5). Retail Controller Description Prompts

CRTCTLRTL Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Controller description name	CTLD	*controller-description-name*	Required parameter; cannot be QCTL
Controller type	TYPE	3651, 3684, 4680, 4684	Required parameter
Controller model	MODEL	0	Required parameter; specify 0 for retail controller models
Link type	LINKTYPE	*SDLC, *X25, *LAN	Required parameter *X25 or *LAN can be specified only for TYPE(4684) and TYPE(4680)
Online at IPL	ONLINE	*YES, *NO	None
Switched line	SWITCHED	*NO, *YES	Specify *YES for switched SDLC lines and X.25 SVC connections SWITCHED and SNBU cannot both be *YES
Switched network backup	SNBU	*NO, *YES	Specify *NO if LINKTYPE(*X25) SWITCHED and SNBU cannot both be *YES
Attached non-switched line name	LINE	*nonswitched-line-name*	Specify only if SWITCHED(*NO)
Switched line list	SWTLINLST	*switched-line-name*	Lines specified must already exist and be compatible with specified link type Up to 64 lines can be specified SWITCHED(*YES) or SNBU(*YES) must be specified
Attached device names	DEV	*device-name*	Use only if device description created before controller description. The maximum number of attached devices that can be specified for each TYPE is as follows: **14** 3651 **2** 3684 **84** 4680 **254** 4684
Character code	CODE	*EBCDIC, *ASCII	None
Maximum frame size	MAXFRAME	*LINKTYPE, 256, 265, 512, 521	None

Figure 7-7 (Page 2 of 5). Retail Controller Description Prompts

CRTCTLRTL Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Exchange identifier	EXCHID	*exchange-identifier*	Required if LINKTYPE(*SDLC) and either SWITCHED or SNBU is *YES Must be specified as xxxyyyyy, where *xxx* is the block number of the remote system and *yyyyy* is the identifier of the remote system. The following block numbers are assigned: 005 for 3651 005 for 3684 04D for 4680 005 or 05D for 4684
System service control point identifier	SSCPID	050000000000, *SSCP-identifier* (000000000001-FFFFFFFFFFFF)	See detailed description
Initial connection	INLCNN	*DIAL, *ANS	SWITCHED(*YES) or SNBU(*YES) must be specified See detailed description
Connection number	CNNNBR	*connection-number*	Required if SWITCHED(*YES) or SNBU(*YES) unless INLCNN(*ANS) Up to 32 characters can be specified, with the following restrictions: • If LINKTYPE(*X25) and NETLVL(1980) or NETLVL(1984), CNNNBR cannot be longer than 15 characters • If LINKTYPE(*X25) and NETLVL(1988), CNNNBR cannot be longer than 17 characters *DC cannot be specified for retail controllers
Answer number	ANSNBR	*CNNNBR, *ANY	LINKTYPE(*X25) and SWITCHED(*YES) must be specified CNNNBR parameter must be specified if ANSNBR(*CNNNBR) is used
Predial delay	PREDIALDLY	6, *predial-delay* (0-254)	Does not apply to X.21 circuit-switched networks Can be specified only if SWITCHED(*YES) or SNBU(*YES)
Redial delay	REDIALDLY	120, *redial-delay* (0-254)	Does not apply to X.21 circuit-switched networks Can be specified only if SWITCHED(*YES) or SNBU(*YES)

Figure 7-7 (Page 3 of 5). Retail Controller Description Prompts

CRTCTLRTL Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Dial retries	DIALRTY	2, *dial-retry* (0-254)	Does not apply to X.21 circuit-switched networks Can be specified only if SWITCHED(*YES) or SNBU(*YES)
Switched disconnect	SWTDSC	*NO, *YES	Can be specified only if SWITCHED(*YES)
Station address	STNADR	*station-address* (01-FE)	Required parameter
SDLC poll priority	POLLPTY	*NO, *YES	Specify only for controllers on multipoint lines
SDLC poll limit	POLLLMT	0, *poll-limit* (0-4)	Specify only for controllers on multipoint lines LINKTYPE(*SDLC) must be specified
SDLC out limit	OUTLMT	*POLLLMT, *out-limit* (0-4)	Specify only for controllers on multipoint lines LINKTYPE(*SDLC) must be specified
SDLC connect poll retry	CNNPOLLRTY	*CALC, *NOMAX, *connect-poll-retry* (0-65534)	Valid only for LINKTYPE(*SDLC)
SDLC NDM poll timer	NDMPOLLTMR	*CALC, *NDM-poll-timer* (0-3000)	Valid only for LINKTYPE(*SDLC)
LAN remote adapter address	ADPTADR	*adapter-address* (000000000000-FFFFFFFFFFFF)	Required for LINKTYPE(*LAN) See detailed description
Destination service access point	DSAP	04, *destination-service-access-point* (04-9C)	Required for LINKTYPE(*LAN) Value must equal SSAP specified for controller Value specified (in range 04-9C) must be divisible by 4
Source service access point	SSAP	04, *source-service-access-point* (04-9C)	Required for LINKTYPE(*LAN) Value must equal DSAP specified for controller Value specified (in range 04-9C) must be divisible by 4 Value specified must be included in the SSAP parameter of all line descriptions included in the SWTLINLST for this controller
LAN frame retry	LANFRMRTY	*CALC, *LAN-frame-retry* (0-254)	Valid only for LINKTYPE(*LAN)
LAN connection retry	LANCNNRTY	*CALC, *LAN-connection-retry* (0-254)	Valid only for LINKTYPE(*LAN)
LAN response timer	LANRSPTMR	*CALC, *LAN-response-timer* (1-254)	Valid only for LINKTYPE(*LAN)

Figure 7-7 (Page 4 of 5). Retail Controller Description Prompts

CRTCTLRTL Command			
Prompt	**Parameter**	**Values**	**Dependencies**
LAN connection timer	LANCNNTMR	*CALC, *LAN-connection-timer* (1-254)	Valid only for LINKTYPE(*LAN)
LAN acknowledgement timer	LANACKTMR	*CALC, *LAN-acknowledgement-timer* (0-254)	Valid only for LINKTYPE(*LAN) If LANACKTMR(0) is specified, LANACKFRQ(0) must also be specified If a nonzero value is specified for this parameter, a nonzero value must also be specified for LANACKFRQ
LAN inactivity timer	LANINACTMR	*CALC, *LAN-inactivity-timer* (1-255)	Valid only for LINKTYPE(*LAN)
LAN acknowledgement frequency	LANACKFRQ	*CALC, *LAN-acknowledgement-frequency* (0-127)	Valid only for LINKTYPE(*LAN) If LANACKFRQ(0) is specified, LANACKTMR(0) must also be specified If a nonzero value is specified for this parameter, a nonzero value must also be specified for LANACKTMR
LAN maximum outstanding frames	LANMAXOUT	*CALC, *LAN-maximum-outstanding-frames* (1-127)	Valid only for LINKTYPE(*LAN)
LAN access priority	LANACCPTY	*CALC, *LAN-access-priority* (0-3)	Valid only for LINKTYPE(*LAN)
LAN window step	LANWDWSTP	2, *NONE, *LAN-window-step* (1-127)	Valid only for LINKTYPE(*LAN) Value specified must not be greater than LANMAXOUT value
X.25 network level	NETLVL	1980, 1984, 1988	Required for LINKTYPE(*X25)
X.25 logical channel ID	LGLCHLID	*logical-channel-ID* (001-FFF)	Required for X.25 lines using PVCs (LINKTYPE(*X25)and SWITCHED(*NO)) Specify 3 hex digits in the format *gcc*, where: *g* = logical channel group number *cc* = logical channel number Value specified must be one of the PVC identifiers specified on the X.25 line description
X.25 connection password	CNNPWD	*X.25-connection-password*	Valid only for controllers on X.25 lines using SVCs (LINKTYPE(*X25) and SWITCHED(*YES)) See detailed description
X.25 switched line selection	SWTLINSLCT	*FIRST, *CALC	Valid only for switched (SVC) controllers on X.25 lines (LINKTYPE(*X25) and SWITCHED(*YES)) See detailed description

Figure 7-7 (Page 5 of 5). Retail Controller Description Prompts

CRTCTLRTL Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Default packet size	DFTPKTSIZE	*LIND *LIND, 64, 128, 256, 512, 1024, 2048, 4096, *TRANSMIT	Valid only for LINKTYPE(*X25) See detailed description
Default window size	DFTWDWSIZE	*LIND *LIND, *X.25-window-size* (1-15), *TRANSMIT	Valid only for LINKTYPE(*X25) Values 1-7 are valid for modulus 8 networks Values 1-15 are valid for modulus 128 networks See detailed description
X.25 user group ID	USRGRPID	*X.25-user-group-ID* (00-99)	Specify only if LINKTYPE(*X25), SWITCHED(*YES), and INLCNN(*DIAL) See detailed description
X.25 reverse charging	RVSCRG	*NONE, *REQUEST, *ACCEPT, *BOTH	Valid only for LINKTYPE(*X25) Must be *NONE unless LINKTYPE(*X25) and SWITCHED(*YES)
X.25 frame retry	X25FRMRTY	7, *X.25-frame-retry* (0-21)	Valid only for LINKTYPE(*X25)
X.25 connection retry	X25CNNRTY	7, *X.25-connection-retry* (0-21)	Valid only for LINKTYPE(*X25) X25DLYTMR must be *CALC
X.25 response timer	X25RSPTMR	100, *X.25-response-timer* (1-2550)	Valid only for LINKTYPE(*X25)
X.25 connection timer	X25CNNTMR	100, *X.25-connection-timer* (1-2550)	Valid only for LINKTYPE(*X25) X25DLYTMR must be *CALC
X.25 delayed connection timer	X25DLYTMR	*CALC, *X.25-delayed-connection-timer* (1-32767)	Valid only for LINKTYPE(*X25) SWITCHED(*NO)
User facilities	USRFCL	*user-facilities*	Valid only for LINKTYPE(*X25) and SWITCHED(*YES) Values determined by network supplier
Recovery limits	CMNRCYLMT	2 5, *count-limit time-interval*, *SYSVAL	None
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than 50-character description enclosed in apostrophes

Remote Work Station Controller Description Prompts

Figure 7-8 (Page 1 of 7). Remote Work Station Controller Description Prompts

CRTCTLRWS Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Controller description name	CTLD	*controller-description-name*	Required parameter; cannot be QCTL
Controller type	TYPE	3174, 3274, 5251, 5294, 5394, 5494	Required parameter
Controller model	MODEL	0, 1, 2, 12, K01	Required parameter Specify MODEL shown for TYPEs listed below: 3174 0 3274 0 5251 12 5294 1 or K01 5394 1 or 2 5494 1 or 2
Link type	LINKTYPE	*IDLC, *LAN, *SDLC, *X25, *NONE	Required parameter Must be TYPE(3174) for LINKTYPE(*LAN) or LINKTYPE(*IDLC) TYPE must be 5394 or 5494 for LINKTYPE(*NONE)
Online at IPL	ONLINE	*YES, *NO	None
Switched connection	SWITCHED	*NO, *YES	Specify *YES if line is switched, token-ring, or X.25 SVC connection Must be *YES or not specified if LINKTYPE(*LAN) Do not specify for LINKTYPE(*NONE)
Short hold mode	SHM	*NO, *YES	Can be specified only if LINKTYPE(*SDLC) and SWITCHED(*YES) Cannot be specified if TYPE(5251)
Switched network backup	SNBU	*NO, *YES	Specify *NO if LINKTYPE(*LAN) or LINKTYPE(*X25) is specified SWITCHED and SNBU cannot both be *YES Do not specify for LINKTYPE(*NONE)
Attached non-switched line name	LINE	*nonswitched-line-name*	Specify only if SWITCHED(*NO) and LINKTYPE is *SDLC, *X25, or *IDLC
Switched line list	SWTLINLST	*switched-line-name*	Lines specified must already exist and be compatible with specified link type Up to 64 lines can be specified Specify only if SWITCHED(*YES), SNBU(*YES), LINKTYPE(*LAN)

Figure 7-8 (Page 2 of 7). Remote Work Station Controller Description Prompts

CRTCTLRWS Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Attached device names	DEV	*device-name*	Use only if device description created before controller description. Maximum number of attached devices for 3174 and 3274 controllers is 254; maximum number of devices for other controllers is as follows: **5251** 9 **5294** 8 **5394** 16 **5494** 56
Character code	CODE	*EBCDIC, *ASCII	Do not specify for LINKTYPE(*NONE)
Device wait timer	DEVWAITTMR	120, *device-wait-timer* (2-600)	None
Maximum frame size	MAXFRAME	*LINKTYPE, *maximum-frame-size* (265-1994)	TYPE(3174) or TYPE(5394) must be specified For LINKTYPE(*LAN) or LINKTYPE(*IDLC), any value in the range 265-1994 can be specified (TYPE(3174) only) For TYPE(3174) with LINKTYPEs *SDLC or *X25, specify *LINKTYPE For TYPE(5394), 256, 261, 512, 517, or *LINKTYPE can be specified Do not specify for LINKTYPE(*NONE)
Remote location name	RMTLOCNAME	*remote-location-name*	LINKTYPE(*NONE) must be specified Required for LINKTYPE(*NONE)
Local location name	LCLLOCNAME	*NETATR, *local-location-name*	LINKTYPE(*NONE) must be specified
Remote network identifier	RMTNETID	*NETATR, *NONE, *remote-network-identifier*	LINKTYPE(*NONE) must be specified
Exchange identifier	EXCHID	*exchange-identifier*	Required for LINKTYPE(*SDLC) if SWITCHED or SNBU is *YES See detailed description
System service control point identifier	SSCPID	050000000000, *SSCP-identifier* (000000000001-FFFFFFFFFFFF)	Do not specify for types (TYPE) 5251, 5294, 5394. 5494
Initial connection	INLCNN	*DIAL, *ANS	SWITCHED(*YES), SNBU(*YES), or LINKTYPE(*LAN) must be specified
Dial initiation	DIALINIT	*LINKTYPE, *IMMED, *DELAY	INLCNN(*DIAL) must be specified

Figure 7-8 (Page 3 of 7). Remote Work Station Controller Description Prompts

CRTCTLRWS Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Connection number	CNNNBR	*ANY, *DC, *connection-number*	Required if SWITCHED or SNBU is *YES and LINKTYPE is not *LAN, unless LINKTYPE(*SDLC) and INLCNN(*ANS) Not valid for LINKTYPE(*LAN) SWITCHED(*YES) or SNBU(*YES) must be specified *ANY is valid only if LINKTYPE(*X25), SWITCHED(*YES), and INLCNN(*ANS) are also specified *DC is valid only for X.21 circuit-switched lines with LINKTYPE(*SDLC) and SHM(*NO) Up to 32 characters can be specified, with the following restrictions: • If SHM(*YES), CNNNBR cannot be longer than 18 characters • If LINKTYPE(*X25) and NETLVL(1980) or NETLVL(1984), CNNNBR cannot be longer than 15 characters • If LINKTYPE(*X25) and NETLVL(1988), CNNNBR cannot be longer than 17 characters
Answer number	ANSNBR	*CNNNBR, *ANY	LINKTYPE(*X25) and SWITCHED(*YES) must be specified CNNNBR parameter must be specified if ANSNBR(*CNNNBR) is used
Outgoing connection list	CNNLSTOUT	*connection-list-name*	LINKTYPE(*IDLC), SWITCHED(*YES), and INLCNN(*DIAL) must be specified
Connection list entry	CNNLSTOUTE	*connection-list-entry*	LINKTYPE(*IDLC), SWITCHED(*YES), and INLCNN(*DIAL) must be specified
IDLC default window size	IDLCWDWSIZ	*LIND, *window-size* (1-31)	LINKTYPE(*IDLC) must be specified
IDLC frame retry	IDLCFRMRTY	*LIND, *frame-retry* (0-100)	LINKTYPE(*IDLC) must be specified
IDLC response timer	IDLCRSPTMR	*LIND, *response-timer* (10-100)	LINKTYPE(*IDLC) must be specified
IDLC connect retry	IDLCCNNRTY	*LIND, *NOMAX, *connect-retry-count* (1-100)	LINKTYPE(*IDLC) must be specified
Predial delay	PREDIALDLY	6, *predial-delay* (0-254)	Does not apply to X.21 circuit-switched networks Can be specified only if SWITCHED(*YES) or SNBU(*YES) is specified and SHM is *NO Valid only for LINKTYPE(*SDLC)

Figure 7-8 (Page 4 of 7). Remote Work Station Controller Description Prompts

CRTCTLRWS Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Redial delay	REDIALDLY	120, *redial-delay* (0-254)	Does not apply to X.21 circuit-switched networks Can be specified only if SWITCHED(*YES) or SNBU(*YES) is specified and SHM is *NO Valid only for LINKTYPE(*SDLC)
Dial retries	DIALRTY	2, *dial-retry* (0-254)	Does not apply to X.21 circuit-switched networks Can be specified only if SWITCHED(*YES) or SNBU(*YES) is specified and SHM is *NO Valid only for LINKTYPE(*SDLC)
Short hold mode disconnect limit	SHMDSCLMT	10, *NOMAX, *SHM-disconnect-limit* (1-254)	SHM(*YES) must be specified
Short hold mode disconnect timer	SHMDSCTMR	50, *SHM-disconnect-timer* (2-3000)	SHM(*YES) must be specified
Station address	STNADR	*station-address* (01-FE)	Required for LINKTYPE(*SDLC)
SDLC poll priority	POLLPTY	*NO, *YES	Specify only for controllers on multi-point lines Use only if LINKTYPE(*SDLC) and SHM(*NO)
SDLC poll limit	POLLLMT	0, *poll-limit* (0-4)	Specify only for controllers on multi-point lines LINKTYPE(*SDLC) and SHM(*NO) must be specified
SDLC out limit	OUTLMT	*POLLLMT, *out-limit* (0-4)	Specify only for controllers on multi-point lines LINKTYPE(*SDLC) and SHM(*NO) must be specified
SDLC connect poll retry	CNNPOLLRTY	*CALC, *NOMAX, *connect-poll-retry* (0-65534)	Use only if LINKTYPE(*SDLC) and SHM(*NO)
SDLC NDM poll timer	NDMPOLLTMR	*CALC, *NDM-poll-timer* (0-3000)	Use only if LINKTYPE(*SDLC) and SHM(*NO)
LAN remote adapter address	ADPTADR	*adapter-address* (000000000000-FFFFFFFFFFFF)	Required for LINKTYPE(*LAN) See detailed description
Destination service access point	DSAP	04, *destination-service-access-point* (04-9C)	Required for LINKTYPE(*LAN) Value must equal SSAP specified for remote controller Value specified (in range 04-9C) must be divisible by 4

Figure 7-8 (Page 5 of 7). Remote Work Station Controller Description Prompts

CRTCTLRWS Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Source service access point	SSAP	04, *source-service-access-point* (04-9C)	Required for LINKTYPE(*LAN) Value must equal DSAP specified for remote controller Value specified (in range 04-9C) must be divisible by 4 Value specified must be included in the SSAP parameter of all line descriptions included in the SWTLINLST for this controller
LAN frame retry	LANFRMRTY	*CALC, *LAN-frame-retry* (0-254)	Valid only for LINKTYPE(*LAN)
LAN connection retry	LANCNNRTY	*CALC, *LAN-connection-retry* (0-254)	Valid only for LINKTYPE(*LAN)
LAN response timer	LANRSPTMR	*CALC, *LAN-response-timer* (1-254)	Valid only for LINKTYPE(*LAN)
LAN connection timer	LANCNNTMR	*CALC, *LAN-connection-timer* (1-254)	Valid only for LINKTYPE(*LAN)
LAN acknowledgement timer	LANACKTMR	*CALC, *LAN-acknowledgement-timer* (0-254)	Valid only for LINKTYPE(*LAN) If LANACKTMR(0) is specified, LANACKFRQ(0) must also be specified If a nonzero value is specified for this parameter, a nonzero value must also be specified for LANACKFRQ
LAN inactivity timer	LANINACTMR	*CALC, *LAN-inactivity-timer* (1-255)	Valid only for LINKTYPE(*LAN)
LAN acknowledgement frequency	LANACKFRQ	*CALC, *LAN-acknowledgement-frequency* (0-127)	Valid only for LINKTYPE(*LAN) If LANACKFRQ(0) is specified, LANACKTMR(0) must also be specified If a nonzero value is specified for this parameter, a nonzero value must also be specified for LANACKTMR
LAN maximum outstanding frames	LANMAXOUT	*CALC, *LAN-maximum-outstanding-frames* (1-127)	Valid only for LINKTYPE(*LAN)
LAN access priority	LANACCPTY	*CALC, *LAN-access-priority* (0-3)	Valid only for LINKTYPE(*LAN)
LAN window step	LANWDWSTP	2, *NONE, *LAN-window-step* (1-127)	Valid only for LINKTYPE(*LAN) Value specified must not be greater than LANMAXOUT value
X.25 network level	NETLVL	1980, 1984, 1988	Required for LINKTYPE(*X25)
X.25 link protocol	LINKPCL	*QLLC, *ELLC	Valid only for LINKTYPE(*X25)

Figure 7-8 (Page 6 of 7). Remote Work Station Controller Description Prompts

CRTCTLRWS Command			
Prompt	**Parameter**	**Values**	**Dependencies**
X.25 logical channel ID	LGLCHLID	*logical-channel-ID* (001-FFF)	Valid only for controllers on X.25 lines using PVCs (LINKTYPE(*X25) and SWITCHED(*NO)) Specify 3 hex digits in the format *gcc*, where: *g* = logical channel group number *cc* = logical channel number Value specified must be one of the PVC identifiers specified on the X.25 line description
X.25 connection password	CNNPWD	*X.25-connection-pass-word*	Valid only for controllers on X.25 lines using SVCs (LINKTYPE(*X25) and SWITCHED(*YES)) See detailed description
X.25 switched line selection	SWTLINSLCT	*FIRST, *CALC	Valid only for switched (SVC) controllers on X.25 lines (LINKTYPE(*X25) and SWITCHED(*YES)) See detailed description
Default packet size	DFTPKTSIZE	*LIND *LIND, 64, 128, 256, 512, 1024, 2048, 4096, *TRANSMIT	Valid only for LINKTYPE(*X25) See detailed description
Default window size	DFTWDWSIZE	*LIND *LIND, *X.25-window-size* (1-15), *TRANSMIT	Valid only for LINKTYPE(*X25) Values 1-7 are valid for modulus 8 networks Values 1-15 are valid for modulus 128 networks See detailed description
X.25 user group ID	USRGRPID	*X.25-user-group-ID* (00-99)	Valid only for LINKTYPE(*X25) with SWITCHED(*YES) and INLCNN(*DIAL) See detailed description
X.25 reverse charging	RVSCRG	*NONE, *REQUEST, *ACCEPT, *BOTH	Valid only for LINKTYPE(*X25) Must be *NONE unless LINKTYPE(*X25) and SWITCHED(*YES)
X.25 frame retry	X25FRMRTY	7, *X.25-frame-retry* (0-21)	Valid only for LINKTYPE(*X25)
X.25 connection retry	X25CNNRTY	7, *X.25-connection-retry* (0-21)	Valid only for LINKTYPE(*X25) X25DLYTMR must be *CALC
X.25 response timer	X25RSPTMR	100, *X.25-response-timer* (1-2550)	Valid only for LINKTYPE(*X25)
X.25 connection timer	X25CNNTMR	100, *X.25-connection-timer* (1-2550)	Valid only for LINKTYPE(*X25) X25DLYTMR must be *CALC

Figure 7-8 (Page 7 of 7). Remote Work Station Controller Description Prompts

CRTCTLRWS Command			
Prompt	**Parameter**	**Values**	**Dependencies**
X.25 delayed connection timer	X25DLYTMR	*CALC, *X.25-delayed-connection-timer* (1-32767)	Valid only for LINKTYPE(*X25) and SWITCHED(*NO)
X.25 acknowledgement timer	X25ACKTMR	20, *X.25-acknowledgement-timer* (0-2550)	Valid only for LINKTYPE(*X25) with LINKPCL(*ELLC) See detailed description
X.25 inactivity timer	X25INACTMR	350, *X.25-inactivity-timer* (1-2550)	Valid only for LINKTYPE(*X25) with LINKPCL(*ELLC) See detailed description
User facilities	USRFCL	*user-facilities*	Valid only for LINKTYPE(*X25) and SWITCHED(*YES) Values determined by network supplier
Allocation retry timer	ALCRTYTMR	5, *allocation-retry-timer* (1-9999)	LINKTYPE(*NONE) must be specified
Recovery limits	CMNRCYLMT	2 5, *count-limit time-interval*, *SYSVAL	None
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than 50-character description enclosed in apostrophes

Virtual Work Station Controller Description Prompts

Figure 7-9. Virtual Work Station Controller Description Prompts

CRTCTLVWS Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Controller description name	CTLD	*controller-description-name*	Required parameter; cannot be QCTL
Online at IPL	ONLINE	*YES, *NO	None
Attached device names	DEV	*device-name*	Use only if device description created before controller description. Up to 255 devices can be specified
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than 50-character description enclosed in apostrophes

Parameter and Prompt Descriptions

This topic contains detailed descriptions of all the parameters that can be specified using the create controller description commands. The prompts for these parameters (shown on the configuration displays) are shown in parentheses following the parameter name. **Parameters are listed in alphabetical order.** If you do not know the parameter name associated with a certain prompt, see the tables in the preceding topic; equivalent parameter names are listed for each prompt.

See Chapter 12 for more information about matching configuration parameters and values for other systems and controllers.

ACKTMR (File transfer acknowledgement timer):

Asynchronous Controllers: The time allowed, in seconds, for an acknowledgement when using file transfer support. Possible values are from 16 seconds to 65535 seconds; 16 seconds is the default.

You can change this parameter using the CHGCTLASC command.

ADJLNKSTN (Adjacent link station):

SNA Host Controllers: Specifies the link station name of the adjacent system. This parameter is used when selecting a switched controller description for connection to a System/370 or System/390 host system running VTAM Version 4 Release 1 and NCP Version 6 Release 2 or later. Possible values are:

*NONE (The default) No adjacent link station name is specified.

*ANY Specify this value to allow the AS/400 system to use this controller to establish a connection with a host system without matching the adjacent link station name. A varied-on controller that specifies *ANY can be selected by the AS/400 system if no controller with the correct link station name is varied on.

adjacent-link-station
Specify the link station name of the adjacent host system. The name specified must match the name of the PU macro statement specified in the switched major node definition on the host system.

This parameter is required if RMTCPNAME(*ANY), SWITCHED(*YES) or SNBU(*YES), and LINKTYPE(*SDLC) or LINKTYPE(*IDLC) are specified.

You can change this parameter when the controller is varied off using the CHGCTLHOST command.

ADPTADR (LAN remote adapter address):

APPC, Finance, SNA Host, Remote Work Station, and Retail Controllers: The adapter address of the remote controller. This is the address the system will send data to when it communicates with the remote controller. You can obtain this value from the remote controller's configuration record. This parameter is required if LINKTYPE(*LAN) is specified, except for APPC controllers with MDLCTL(*YES) specified.

Possible values are 12-digit hexadecimal values from 000000000001 through FFFFFFFFFFFF.

See Appendix B for information about specifying adapter addresses in configurations using the 8209 LAN Bridge.

You can change this parameter using the appropriate change controller description command.

ALCRTYTMR (Allocation retry timer):

Remote Work Station Controllers: Specifies the amount of time to wait between attempts to activate devices associated with this remote work station controller. This parameter is valid only if LINKTYPE(*NONE) is specified. Valid values are 1 through 9999 seconds; 5 (5 seconds) is the default.

See the *Remote Work Station Guide* for more information about support of 5394 remote work station controllers as type 2.1 nodes.

You can change this parameter when the controller is varied off using the CHGCTLRWS command.

ANSNBR (Answer number):

APPC, Asynchronous, Finance, SNA Host, Retail, and Remote Work Station Controllers: Specifies the X.25 network addresses from which this controller can accept calls. Possible values are:

*CNNNBR
: (The default) Calls are accepted from the X.25 network address specified for the connection number (CNNNBR) parameter. If this value is used, the CNNNBR parameter must also be specified.

*ANY
: Calls are accepted from any X.25 network address.

This parameter is valid only for switched X.25 connections.

You can change this parameter using the appropriate change controller description command.

APPN (APPN capable):

APPC Controllers: Use the default *YES to obtain APPN functions on the local AS/400 system. If *YES is specified, the local AS/400 system appears to the adjacent system as either a network node or an end node, depending on the value specified for the node type (NODETYPE parameter) in the local system network attributes. If *NO is specified, the local system appears to the adjacent system as a low-entry networking node.

If APPN(*YES) is specified for the controller description, all attached APPC device descriptions must also specify APPN(*YES). APPN(*YES) must be specified if the LINKTYPE is *TDLC. For non-ICF communications and for local APPC communications (LINKTYPE(*LOCAL)), specify APPN(*NO) for both the controller and device descriptions.

See the *APPN Guide* for more information about APPN.

You can change this parameter using the CHGCTLAPPC command.

SNA Host Controllers: This parameter describes how the local AS/400 system treats the connection to the remote station; it does not describe the capabilities of the remote station. Specify *YES if you are attached to an APPN network; specify *NO for X.21 short-hold mode lines (SHM(*YES)).

If *YES is specified, the local AS/400 system appears on this connection as either an end node or a network node, according to the node type (NODETYPE) value specified in the network attributes. If *NO is specified, the local AS/400 system appears as a low-entry networking node on this controller regardless of the (NODETYPE) value specified in the network attributes.

The following considerations also apply to this parameter:

- Devices specifying APPN(*NO) can be attached only to controllers specifying APPN(*NO).
- Controllers specifying APPN(*NO) can be attached only to devices specifying APPN(*NO).
- One AS/400 system can support controllers that specify *YES and *NO.
- Device descriptions are automatically created and varied on to controllers that specify *YES when the local address is hex 00.
- Device descriptions must be manually created and varied on for controller descriptions that specify *NO when the local address is hex 00.

You can change this parameter using the CHGCTLHOST command.

APPTYPE (Application type):

BSC Controllers: The type of application that this controller is to be used for. The default is *PGM for user-written application programs; the other choices are *RJE for remote job entry and *EML for 3270 device emulation.

Notes:

1. The value specified for this parameter must match the value specified for the APPTYPE parameter on the CRTLINBSC command.
2. Values specified for this parameter must also be coordinated with the value specified for the APPTYPE parameter on the CRTDEVBSC command as follows:
   - If *RJE is specified for this parameter, *RJE must be specified for the APPTYPE

parameter on the CRTDEVBSC command.
- If *EML is specified for this parameter, *EML must be specified for the APPTYPE parameter on the CRTDEVBSC command.
- If *PGM is specified for this parameter, *BSCEL, *BSC38, or *RPGT must be specified for the APPTYPE parameter on the CRTDEVBSC command.

You cannot change this parameter using the CHGCTLBSC command.

AUT (Authority):

All Controller Types: The level of public authority for this line description. Allowed values are:

*LIBCRTAUT
: (Default) The system determines authority for the object using the value specified for the create authority prompt (CRTAUT parameter) specified for the library in which the object will be created.

*CHANGE
: Combines the object operational authority and all data authorities (read, add, update, and delete).

*ALL
: Combines all the object authorities and data authorities. Users who are not explicitly authorized can control the object's existence, specify the security for the object, change the object, and transfer ownership of the object.

*USE
: Combines object operational authority and read authority. Users who are not explicitly authorized can display the object.

*EXCLUDE
: Prevents users who are not explicitly authorized from accessing the object.

authorization-list-name
: Specify the name of an existing authorization list. Users included in the authorization list are granted authority as specified by the list.

See the manual *Security Reference* for general information about the AS/400 system security.

Note: Authority cannot be changed using the change controller description commands, but can be changed using the system security commands and menus.

AUTOCRTDEV (Autocreate device):

SNA Host Controllers: Specifies which devices should be created automatically.

This parameter can be specified only if APPN(*YES) is also specified.

Possible values are:

*ALL
: (The default) The system automatically creates all devices that can be automatically created.

*DEVINIT
: Device-initiated session printer and display device descriptions are automatically created.

*NONE
: Devices are not automatically created.

You can change this parameter when the controller is varied off using the CHGCTLHOST command.

AUTODLTDEV (Autodelete device):

APPC and SNA Host Controllers: Specifies the number of minutes an automatically created device can remain in an idle state with no bound sessions and no active conversations on the device. When the specified time expires, the system automatically varies off and deletes the device description.

This parameter can be specified only if APPN(*YES) is also specified.

Possible values are:

1440
: (The default) The system automatically varies off and deletes automatically created device descriptions that have been idle for 24 hours (1440 minutes).

*NO
: The system does not automatically vary off and delete automatically configured device descriptions.

wait-time
: Specify the number of minutes automatically created device descriptions can be idle before being varied off and deleted. Valid values are 1 to 10000 minutes.

You can change this parameter when the controller is varied off using the appropriate change controller description command.

CMNRCYLMT (Recovery limits):

APPC, Asynchronous, BSC, Finance, SNA Host, Retail, and Remote Work Station Controllers: Allows second-level communications recovery limits to be specified for each controller description. This parameter consists of two parts:

count-limit
: Specifies the number of second-level recovery attempts to be automatically performed by the system. Valid values are 0 (no recovery attempted) to 99.

time-interval
: Specifies the length of time (in minutes) in which the specified number of second-level recoveries can be attempted. Possible values are 0 to 120 in 1 minute intervals. The value 0 specifies infinite recovery if the *count-limit* value is not also 0.

Possible values are:

- `2 5`: The system-supplied default values for the count limit and time interval provided for each controller type.
- *count-limit time-interval*: Specify count and time limits in the ranges indicated above. When specifying this parameter in a CL command, separate the values with a blank: `CMNRCYLMT(10 15)`.
- *SYSVAL: The recovery limits specified in the system value QCMNRCYLMT are used for this controller description.

You can change this parameter at any time using the appropriate change controller description command. The changed values will take effect on the next error sequence.

See the *Communications Management Guide* for more information about error recovery and the QCMNRCYLMT system value.

CNN (Connection type):

BSC Controllers: The type of connection this BSC controller will be used on. Valid types are:

*NONSWTPP (The default) Nonswitched point-to-point
*SWTPP Switched point-to-point
*MPTRIB Multipoint tributary

If the application type is emulation (*EML), the connection type must be multipoint tributary (*MPTRIB). If the application type is remote job entry (*RJE), the connection type must not be multipoint tributary (*MPTRIB).

The value specified for this parameter must match the value specified for the CNN parameter on the CRTLINBSC command.

You cannot change this parameter using the CHGCTLBSC command.

CNNCPNAME (Connection network CP name):

APPC Controllers: Specifies the name of the connection network control point.

A connection network is defined to allow controller descriptions to be automatically created for incoming or outgoing connections. This parameter is valid only if MDLCTL(*YES) is specified; it is required if CNNNETID is specified.

See the *APPN Guide* for more information about using APPN connection networks.

You can change this parameter when the controller is varied off using the CHGCTLAPPC command.

CNNLSTOUT (Connection list):

APPC, SNA Host, and Remote Work Station Controllers: For switched controllers attached to IDLC lines, this parameter specifies the name of a connection list containing the network-assigned numbers used for outgoing calls on this controller.

You can change this parameter when the controller is varied off using the appropriate change controller description command.

CNNLSTOUTE (Connection list entry):

APPC, SNA Host, and Remote Work Station Controllers: For switched controllers attached to IDLC lines, this parameter specifies the name of the connection list entry containing the network-assigned numbers used for outgoing calls on this controller. The name of the connection list containing this entry must be specified on the CNNLSTOUT parameter.

You can change this parameter when the controller is varied off using the appropriate change controller description command.

CNNNBR (Connection number):

APPC, Finance, SNA Host, Remote Work Station, and Retail Controllers: The number (for a switched connection or a nonswitched connection with switched network backup) of the remote controller that is called from the AS/400 system to establish a connection.

For LINKTYPEs other than *LAN, *FR, and *IDLC this parameter is required if SWITCHED(*YES) or SNBU(*YES) is specified unless INLCNN(*ANS) is specified. (For LINKTYPE(*LAN) the connection number for the controller is specified in the ADPTADR parameter.)

The format of this field is dependent on the exact type of physical interface and modem used. See the user's manual for the modem you are using for the exact format.

Valid values are:

- *ANY: For switched X.25 connections, *ANY can be specified to answer calls from any network address. To use this value, LINKTYPE(*X25), SWITCHED(*YES), and INLCNN(*ANS) must also be specified.
- *DC: The X.21 direct-call user facility must be used for connecting to the remote controller. *DC is valid only for system calls over an X.21 circuit-switched line with LINKTYPE(*SDLC) and SHM(*NO) specified.
- *connection-number*: A telephone number, an X.25 network address of the remote controller (DTE), or an X.21 connection number depending on the type of controller and line it is attached to. If the number is an X.25 network address, the connection number and the X.25 connection password are used to provide a unique identifier for the remote DTE.

  Up to 32 characters can be specified for the connection number, with the following restrictions:

  - If SHM(*YES) is specified for this controller description, up to 14 characters can be specified for APPC controllers, and up to 18 characters for finance, SNA host, and remote work station controllers.
  - If LINKTYPE(*X25) and NETLVL(1980) or NETLVL(1984) is specified for this controller description, up to 15 characters can be specified.
  - If LINKTYPE(*X25) and NETLVL(1988) is specified for this controller description, up to 17 characters can be specified. If 17 characters are used, EXNNETADR(*YES) must be specified on the attached X.25 line description.

If automatic calling is used, the number is sent to the automatic call unit or modem. If manual calling is used, the number is displayed to the system operator when it is time to make the call.

You can change this parameter, after the controller has been varied off, using the appropriate change controller description command.

V.25bis Considerations: The following considerations apply only for asynchronous, BSC, or SDLC lines with DIALCMD(*V25BIS) specified.

V.25bis allows special characters to be included in the telephone number for additional dialing control. The following special characters are defined by the CCITT V.25bis recommendation:

: *Wait Tone*: The modem will wait a specified length of time for a tone. This is useful with certain private branch exchanges (PBXs) where a second dial tone is needed for outside calls.

< *Pause*: Causes the modem to pause before dialing the next number. The use and duration of the pause is country-dependent.

= *Separator 3*: The use of this parameter is country-dependent.

> *Separator 4*: The use of this parameter is country-dependent.

P *Pulse Mode*: Causes the modem to dial the number string that follows in *pulse* (rather than *tone*) mode.

T *Tone Mode*: Causes the modem to dial the number string that follows in *tone* (rather than *pulse*) mode.

& *Flash*: The use of this parameter is country-dependent.

Note that your modem may not support all of the above special characters or may support other special characters in addition to those listed. Refer to the documentation for your modem for more information about which special characters and which functions are supported.

X.21 Short-Hold Mode Considerations: The following considerations apply only to SDLC lines (LINKTYPE(*SDLC)) with SHM(*YES) specified.

- For APPC controllers, specify the complete connection number of the remote system, including the data network identification code (DNIC) or data country code (DCC). The AS/400 system will automatically discard the network identification if the remote system is attached to the same network.
- For finance, SNA host, and remote work station controllers, specify only as much of the remote system connection number as is required. If the remote system is attached to the same network as the AS/400 system, do not specify the DNIC or DCC.

Asynchronous Controllers: The number (for a switched connection, X.25 switched virtual circuit, or a nonswitched connection with switched network backup) of the remote controller that is called from the AS/400 system to establish a connection. This number can be a telephone number or an X.25 network address of the remote controller's data terminal equipment (DTE) depending on the type of controller and line it is attached to.

If automatic calling is used, the number is sent to the automatic call unit. If manual calling is used, the number is displayed to the system operator when it is time to make the call.

The format of this field is dependent on the exact type of physical interface and modem used. Refer to the user's manual for the modem you are using for the exact format.

A value must be specified for the switched connection number if the switched connection (SWITCHED parameter) line or switched network backup (SNBU parameter) is *YES.

Note: The default value for asynchronous controllers, *ANY, can be specified if LINKTYPE(*X25), SWTCNN(*YES), and INLCNN(*ANS) are specified. The initial connection can accept incoming calls from any X.25 network address that supplies a local location and local location identifier that matches an entry in the asynchronous communications remote location list.

You can change this parameter after the controller has been varied off or while a vary on is pending using the CHGCTLASC command.

BSC Controllers: The number (for a switched connection or a nonswitched connection with switched network backup) of the remote controller. This number must be a telephone number. The switched connection number must be specified if switched line or switched network backup is *YES.

If automatic calling is used, the number is sent to the automatic call unit. If manual calling is used, the number is displayed to the system operator when it is time to make the call.

The format of this field depends on the exact type of physical interface and modem used. See the user's manual for the modem you are using for the exact format.

You can change this parameter after the controller has been varied off or a vary on is pending by using the CHGCTLBSC command.

CNNNETID (Connection network network identifier):

APPC Controllers: Specifies the name of the connection network network identifier.

Allowed values are:

- *NETATR (the default): The name of the connection network network identifier is the same as the local system's network identifier (LCLNETID), which is defined using the CHGNETA command. See the *APPN Guide* for more information about changing network attributes.
- *NONE: The connection network network identifier is not defined. This value is not valid

if a CNNCPNAME is specified and MDLCTL is *YES.

- *connection-network-network-identifier*. The name of the connection network network identifier.

This parameter is valid only if MDLCTL(*YES) is also specified. See the *APPN Guide* for more information about using APPN connection networks.

You can change this parameter when the controller is varied off using the CHGCTLAPPC command.

CNNPOLLRTY (SDLC connect poll retry):

APPC, Finance, Remote Work Station, and Retail Controllers: The connect poll is the first SDLC exchange identifier (XID) or Set Normal Response Mode (SNRM) command used to make initial contact with a remote controller after it is powered on. This parameter specifies the number of connect poll retries that will be attempted before the AS/400 system indicates an error in contacting the remote system. Valid values are:

- *CALC (the default): 7 retries for a controller on a switched line and *NOMAX (no maximum) retries for a controller on a non-switched line.
- 0: No retries.
- 1 through 65534: The number of retries.
- *NOMAX: Indefinite retries.

This parameter is valid only if LINKTYPE(*SDLC) and SHM(*NO) are specified. For APPC controllers, ROLE(*SEC) or ROLE(*NEG) must be specified.

You can change this parameter using the appropriate change controller description command.

CNNPWD (X.25 connection password):

APPC, Finance, SNA Host, Remote Work Station, and Retail Controllers: The password used to allow connection to this controller (limited to switched virtual controllers). This 8-byte identifier for each controller can consist of any alphameric characters represented by the hexadecimal range from hex 40 through hex FF. This value is concatenated to the connection number to uniquely identify the controller to the system.

If the password contains characters other than uppercase alphameric characters (for example, blanks, '/', or 'a'), the entire password should be enclosed with apostrophes (for example, 'string'). If this is not done, an error may be flagged or automatic-case conversion may produce undesirable results. For example, if the string 'AaAA' was entered, the password would be AaAA, but the string AaAA (without delimiters) would be changed to AAAA. The string 'Password' would be acceptable, but Pass Word (without delimiters) would cause an error.

Notes:

1. Any apostrophes (') occurring within the password must be doubled.
2. The X.25 connection password is case-sensitive; for example, if the password has lowercase characters, it must always be entered in lowercase.

Because an 8-byte password is always sent on calls for SNA controllers by the AS/400 system, password values having less than 8 characters are padded on the right with blanks (EBCDIC hex 40). If the controller description is created with no value supplied for this parameter, or if the value is changed to *NONE, a password of 8 blanks is sent.

You can change this parameter using appropriate change controller description command.

CNNRSPTMR (Connection response timer):

Network Controllers: The amount of time to wait for a response to an incoming connection request. Possible values (in seconds) are: 170 (the default), or a specified wait time in the range 1 to 3600.

CODE (Character code):

APPC, Finance, SNA Host, Remote Work Station, and Retail Controllers: The character code used to send remote work station data stream information over the communications line. The code can be either extended binary-coded decimal interchange code (*EBCDIC) or the Amer-

ican National Standard Code for Information Interchange (*ASCII). For APPC, finance, and retail controllers, specify *EBCDIC.

For remote work station controllers, if you specify *ASCII, the AS/400 system will translate the ASCII data stream either to or from EBCDIC for the application program.

The default for this parameter is *EBCDIC.

You can change this parameter using the appropriate change controller description command.

CPSSN (APPN CP session support):

APPC and SNA Host Controllers: If this controller supports control point-to-control point sessions, use the default *YES. CPSSN(*YES) can only be specified if APPN-capable (APPN(*YES)) is also specified. Specify *NO if this controller does not support control point-to-control point sessions.

See the *APPN Guide* for more information about this parameter.

You can change this parameter using the appropriate change controller description command.

CTLD (Controller description name):

All Controller Types: The name that will be used when you are working with the Vary Configuration (VRYCFG) and Work with Configuration Status (WRKCFGSTS) commands. The controller description name must follow the AS/400 naming conventions, but it can be as descriptive as you choose. Examples are NYC370 and PLU003. See the *CL Reference* for information about naming the AS/400 objects.

You can use the RNMOBJ command (or option 7 on the Work with Controller Descriptions display) to change the name of a controller description.

DEV (Attached device names):

APPC Controllers: The name of one or more devices to be attached to this controller. Up to 254 devices can be attached. Each device name must be the same as that specified when the associated device description was created. Use this parameter only when the associated device descriptions have been created before this controller description.

Notes:

1. If you specify APPN(*YES), the system automatically creates APPC device descriptions.
2. This parameter is not valid for model controllers (MDLCTL(*YES)).

You cannot change this parameter using the CHGCTLAPPC command.

Asynchronous Controllers: The name of the device to be attached to this controller. Asynchronous communications supports only one device attached to each controller. This device name must be the same as that specified when the associated device description was created. Use this parameter only when the associated device descriptions have been created before this controller description.

You cannot change this parameter using the CHGCTLASC command.

BSC Controllers: The name of one or more devices to be attached to this controller. Up to 32 devices can be attached. The maximum values depend on the application and connection type:

- 32 for multipoint tributary and 3270 device emulation
- 23 for RJE (only 17 devices can be active at one time)
- 1 for point-to-point

Each device name must be the same as that specified when the associated device description was created. Use this parameter only when the associated device descriptions have been created before this controller description. Otherwise, specify this controller when you create the device descriptions; the system automatically changes this information.

You cannot change this parameter using the CHGCTLBSC command.

Finance Controllers: The name of one or more devices to be attached to this controller. The maximum number of devices that can be attached to finance controllers depends on the controller type, as shown:

3694 Up to 4 devices, TYPEs 3694 or *FNCICF only

4701, 4702
Up to 255 devices can be attached, TYPEs 3277, 3278, 3279, 3287, 3624, 4704, and *FNCICF; up to 120 devices can be active at one time.

***FBSS** Up to 255 devices can be attached, TYPE(*FNCICF) only; up to 240 devices can be active at one time.

4730 Up to 3 devices, TYPE(*FNCICF) only

4731, 4732, 4736
Up to 2 devices, TYPE(*FNCICF) only

Note: For 3694, 4701, and 4702 controllers, LOCADR(01) is restricted to devices specified as TYPE(*FNCICF).

Each device name must be the same as that specified when the associated device description was created. Use this parameter only when the associated device descriptions have been created before this controller description.

You cannot change this parameter using the CHGCTLFNC command.

Network Controllers: The names of up to 255 devices attached to this controller. The device descriptions specified must already exist.

You cannot change this parameter using the CHGCTLNET command.

SNA Host Controllers: The name of one or more APPC, SNUF, DHCF, or HOST devices to be attached to this controller. Up to 254 devices can be attached. Each device name must be the same as that specified when the associated device description was created. Use this parameter only when the associated device descriptions have been created before this controller description.

You cannot change this parameter using the CHGCTLHOST command.

Retail Controllers: The maximum number of devices that can be attached to a retail controller varies by controller type.

3651 Up to 14 retail devices
3684 Up to 2 retail devices
4680 Up to 84 retail or 3270 devices; up to 40 active at one time
4684 Up to 254 retail or 3270 devices can be attached; up to 32 active at one time

Each device name must be the same as that specified when the associated device description was created. Use this parameter only when the associated device descriptions have been created before this controller description.

You cannot change this parameter using the CHGCTLRTL command.

Remote Work Station Controllers: The name of one or more devices to be attached to this controller. Each device name must be the same as that specified when the associated device description was created. Use this parameter only when the associated device descriptions have been created before this controller description.

The maximum number of devices that can be attached to a remote work station controller varies by controller type:

3174 Up to 254 devices
3274 Up to 254 devices
5251 Up to 4 devices for 4-port controllers; up to 8 devices for 8-port controllers
5294 Up to 4 devices for 2-port controllers; up to 8 devices for 4-port controllers
5394 Up to 4 devices for Models 1A and 2A; up to 16 devices for Models 1B and 2B. In 5294 emulation mode, up to 8 devices can be attached.
5494 Up to 56 devices can be attached.

You cannot change this parameter using the CHGCTLRWS command.

Virtual Work Station Controllers: The name of one or more devices to be attached to this controller. Up to 255 devices can be attached. Each device name must be the same as that specified when the associated device description was created. Use this parameter only when the associated device descriptions have been created before this controller description.

You cannot change this parameter using the CHGCTLVWS command.

DEVWAITTMR (Device wait timer):

Remote Work Station Controllers: The device wait time-out value. This value is used to limit the amount of time that the subsystem or user job waits for some work station I/O to complete. In other words, when the subsystem or user job sends messages to devices attached to this controller, it waits up to the length of time designated here for an acknowledgement that the message was received.

The time-out value specified is used for all remote work stations attached to this controller.

Specify a value, 2 through 600, to indicate the maximum number of seconds that the system is to wait. The default value is 10 seconds for a local controller and 120 seconds for a remote controller.

You can change this parameter using the CHGCTLRWS command.

DFTPKTSIZE (Default packet size):

APPC, Asynchronous, Finance, SNA Host, Remote Work Station, and Retail Controllers: Specifies the default packet size to use on the virtual circuit represented by this controller. The AS/400 system supports packets of 64, 128, 256, 512, 1024, 2048, and 4096 bytes.

This parameter contains two elements, the *transmit* packet size, and the *receive* packet size. The default value (*LIND *LIND), indicates that the transmit packet size is set to the same value as the transmit packet size specified on the DFTPKTSIZE parameter for the attached X.25 line description; the receive packet size is set to the same value as the receive packet size on the line description.

For outgoing calls on switched virtual circuits (SVCs), a value other than that specified in the line description results in flow negotiation for the packet size using values coded in the facility field of the call request; for example, hex 420*p*0*p* where 2 to the power of *p* (6<=*p*<= hex C) represents the requested incoming and outgoing packet sizes.

Note: The system does not allow controllers to call out on lines where the default packet size of the controller exceeds the maximum packet size of the line description.

Incoming switched calls are accepted at the packet size represented by the minimum of that received in the facility field of the call (if any), the X.25 default packet size in the answering controller description (or line description if *LIND), and the X.25 maximum packet size allowed by the line description. If the minimum value calculated is different from that received in the incoming call, then the packet size flow control negotiation facility is included on the call accept packet.

Note: The negotiated packet size value in use for an active SVC controller can be displayed using the Display Controller Description (DSPCTLD) command.

You can change this parameter using the appropriate change controller description command.

DFTWDWSIZE (Default window size):

APPC, Asynchronous, Finance, SNA Host, Remote Work Station, and Retail Controllers: Specifies the default window size to use on the virtual circuit represented by this controller. Values of 1 through 7 are valid for networks that use modulus 8 packet numbering; values of 1 through 15 are valid for networks that use modulus 128 packet numbering.

This parameter contains two elements, the *transmit* window size, and the *receive* window size. The default value (*LIND *LIND), indicates that the transmit window size is set to the same value as the transmit window size specified on the DFTPKTSIZE parameter for the attached X.25 line description; the receive window size is set to the same value as the receive window size on the line description.

For outgoing calls on switched virtual circuits (SVCs), a value other than that specified in the line description results in flow negotiation for the window size using values coded in the facility field of the call request; for example, 430*w*0*w*, where *w* is the incoming and outgoing packet-level window size depending on the modulus, 1<=*w*<= hex F.

Note: The system does not allow controllers with a default window size greater than 7 to call out on lines having the modulus defined as 8.

Incoming switched calls are accepted at the window size represented by the minimum of that received in the facility field of the call (if any), the

X.25 default window size in the answering controller description (or line description if *LIND), and 7 for line descriptions having the modulus set to 8 (or 15 for a modulus of 128). If the minimum value calculated is different from that received in the incoming call, then the window size flow control negotiation facility will be included on the call accept packet.

Note: The negotiated window size value in use for an active SVC controller can be displayed using the Display Controller Description (DSPCTLD) command. You can change this parameter using the appropriate change controller description command.

DIALINIT (Dial initiation):

APPC, SNA Host, and Remote Work Station Controllers: For switched connections, this parameter specifies whether or not the system should dial the remote system or controller immediately when this controller description is varied on. This parameter is valid only if INLCNN(*DIAL) is specified. Possible values are:

*LINKTYPE
: (The default) Dial initiation is immediate or deferred, based on the type of connection. For controllers that specify LINKTYPE(*LAN), LINKTYPE(*FR), and for SDLC short-hold mode connections (LINKTYPE(*SDLC) and SHM(*YES)), dial initiation is made when the controller description is varied on. Dial initiation is delayed for all other link types.

*IMMED
: The system dials the remote system or controller immediately when this controller description is varied on.

*DELAY
: Dialing is delayed until a job is initiated that requires connection to the remote system or controller.

You can change this parameter using the appropriate change controller description command.

DIALRTY (Dial retries):

APPC, Asynchronous, BSC, Finance, SNA Host, Remote Work Station, and Retail Controllers: The number of times to retry dialing the number before considering the dialing unsuccessful. The number of retries can be from 0 (no retries) to 254; 2 retries is the default.

Dial retries can only be specified if SWITCHED(*YES) or SNBU(*YES) is specified. The following link or connection types must be also specified:

- For APPC, finance, SNA host, and remote work station controllers, LINKTYPE must be *SDLC
- For asynchronous controllers, LINKTYPE must be *ASYNC
- For BSC controllers, CNN (connection type) must be *SWTPP

Notes:

1. This parameter is not used for calls over an X.21 circuit-switched network; delays and retries are controlled by the SHORTTMR, LONGTMR, SHORTRTY, and LONGRTY parameters of the CRTLINSDLC command.
2. The defaults meet most countries' requirements relative to call retries and call delays. Ensure the default or any new value you use is in accordance with your country's requirements.

   If you are not aware of your country's requirement, your IBM representative or IBM-approved remarketer can provide this information.
3. See the topic "Dial Retry Limitations" on page C-10 for more considerations for using this parameter.

You can change this parameter using the appropriate change controller description command.

DSAP (LAN destination service access point):

APPC, Finance, SNA Host, Remote Work Station, and Retail Controllers: The logical address that this system will send to when it communicates with the remote controller. This address allows the controller and the system to correctly route the data that comes from this system. It must be equal to the value assigned to the SSAP (*LAN source service access point*) parameter in the remote controller's configuration record.

Possible values are any hexadecimal number 04 through 9C that is divisible by 4. Hex 04 is the default SNA SSAP and is the one most commonly used in SNA configurations.

You can change this parameter using the appropriate change controller description command.

DSCTMR (Disconnect timer):

APPC and SNA Host Controllers: This parameter is used to specify options for automatic disconnection. It consists of two parts:

minimum-connect-timer
: Specifies the minimum length of time the link stays active after the connection has been made, regardless of session activation or deactivation. Possible values are 0 to 65535 in seconds. 170 (170 seconds) is the default.

disconnect-delay-timer
: Specifies the length of time the system delays disconnection after the last session for the controller is ended. Possible values are 0 to 65535 in seconds. 30 (30 seconds) is the default.

This parameter is valid only if SWTDSC(*YES) is also specified. If you do not want the line to drop, specify *NO for the SWTDSC parameter.

For SNA host controllers, the DISCNT parameter on the GROUP macroinstruction in the NCP/VTAM* definition can be used if the host system is to determine the disconnect characteristics.

You can change this parameter using the CHGCTLAPPC or CHGCTLHOST command.

EXCHID (Exchange identifier):

APPC Controllers: This is an 8-digit hexadecimal value (using hexadecimal digits 0 through F) that is used to identify the remote controller. This value is specified as *yyyxxxxx*, where *yyy* is the block number of the remote system and *xxxxx* is the node identifier of the remote system. This value is used to identify the remote control point during exchange identifier processing.

- If the remote system is an AS/400 system, the block number is always 056; the identifier is specified in the line description and can be defined when the line description is created or automatically created by the system.
- If the remote system is a System/38, the block number is 022; the identifier is specified in the Create Line Description (CRTLIND) command or automatically created by the system.
- If the remote system is a System/36, the block number is 03E, and the identifier is the value specified on the local system station XID (exchange identifier) from CNFIGICF display 12.0, option 6 (Local system's station XID in hexadecimal).
- For other systems, the block numbers are:
  - 03A for a Displaywriter
  - 031 for a 5520
  - 021 for a Series/1*
  - 050 for a personal computer

This parameter is required for SDLC switched lines if SHM(*NO) is specified and one of the following is true:

- APPN(*YES) is specified and the remote system is a low-entry networking node (*LENNODE)
- APPN(*NO) is specified and a remote control point name (RMTCPNAME) is not specified

For other line types, or SDLC lines with SHM(*YES) specified, this parameter is optional because the initial identification of the adjacent system will have already been made, using other methods, prior to or during exchange identifier processing.

For incoming X.21 short-hold mode connections, station identification is made by comparing the received network identifier and control point name to that in the appropriate controller description.

For incoming token-ring network or Ethernet connections, unique station identification is made by comparing the received SSAP, DSAP, and remote medium access control address to that in the appropriate controller description.

For incoming X.25 switched virtual circuit connections, station identification is made by comparing the received password and the remote network address to that in the appropriate controller description.

Note: If an EXCHID is specified, it is always used to verify that the received exchange identifier matches. If they do not match, the connection is not established. If no EXCHID is specified, then no exchange identifier verification is performed.

When the controller is connected through an SDLC switched line with SHM(*NO) specified, this parameter, combined with the station address (STNADR), must be unique among all the other controllers on an SDLC switched line unless you have either of the following conditions:

- The APPC controller is defined with APPN(*YES) and the remote system type (NODETYPE) is not *LENNODE.
- The APPC controller description has APPN(*NO) specified, but a remote network ID (RMTNETID) and remote control point name (RMTCPNAME) are specified.

You cannot change this parameter using the CHGCTLAPPC command.

Finance Controllers: This is an 8-digit hexadecimal value that is used to identify the remote controller. This value is specified as *yyyxxxxx*, where *yyy* is the block number of the remote system and *xxxxx* is the identifier of the remote system. Following are the assigned block numbers you need to use:

- 016 for 3601 (configured as a 4701)
- 02F for 3694
- 043 for 4730, 4731, 4732, and 4736
- 057 for 4701 and 4702
- 000-FFF for *FBSS controllers (FBSS and 4737)

This parameter is required if LINKTYPE is *SDLC and either SWITCHED or SNBU is *YES.

You cannot change this parameter using the CHGCTLFNC command.

Retail Controllers: This is an 8-digit hexadecimal value that is used to identify the remote controller. This value is specified as *yyyxxxxx*, where *yyy* is the block number of the remote system and *xxxxx* is the identifier of the remote system. Following are the assigned block numbers you need to use:

- 005 for 3651
- 005 for 3684
- 04D for 4680
- 005 or 05D for 4684

This parameter is required if SWITCHED or SNBU is *YES.

You cannot change this parameter using the CHGCTLRTL command.

Remote Work Station Controllers: The exchange identifier of the remote controller. This is the exchange identifier that the controller sends (exchanges) to the AS/400 system when a connection is established. This parameter is required if you specify SWITCHED(*YES) or SNBU(*YES) and LINKTYPE(*SDLC).

Following are the assigned block numbers you need to use:

- Any value in the range 001-0FE for 3174 and 3274 controllers
- 020 for 5251
- 045 for 5294, or 5394 configured as 5294
- 05F for 5394
- 073 for 5494

Notes:

1. For 5251 controllers, the EXCHID must be specified as 020000xx, where xx is the station address (STNADR) of the controller.
2. For 5294 controllers, and 5394 controllers configured as 5294s, the EXCHID must be specified as 045000xx, where xx is the station address (STNADR) of the controller.
3. For 5394 controllers, the EXCHID must be specified as 05F000xx, where xx is the station address (STNADR) of the controller.
4. If an EXCHID is specified, it is always used to verify that the received exchange identifier matches. If they do not match, the connection is not established.

   If no EXCHID is specified, processing is based on the controller type:

   - For 5250-type controllers (5251, 5294, and 5394), the block number reported by the remote controller is compared to the block number expected for the type of controller (TYPE parameter) configured. If the block numbers do not match, the connection will not be established.

- For other controller types, if no EXCHID is specified, no exchange identifier verification is performed.
- For controllers that specify LINKTYPE(*NONE), the EXCHID parameter is not allowed.

You cannot change this parameter using the CHGCTLRWS command.

IDLCCNNRTY (IDLC connect retry):

APPC, SNA Host, and Remote Work Station Controllers: For controllers attached to IDLC lines, this parameter specifies the number of times to retry a transmission at connection time.

Possible values are *LIND (the default), which uses the value specified for the attached IDLC line description; any number of retries in the range 1 through 100, or *NOMAX, indicating indefinite retries. *NOMAX can be specified only for nonswitched controllers.

You can change this parameter when the controller is varied off using the appropriate change controller description command.

IDLCFRMRTY (IDLC frame retry):

APPC, SNA Host, and Remote Work Station Controllers: For controllers attached to IDLC lines, this parameter specifies the maximum number of transmissions to attempt before reporting an error. This parameter represents the CCITT N200 retry counter.

Possible values are *LIND (the default), which uses the value specified for the attached IDLC line description, or any number of retries in the range 0 through 100.

You can change this parameter when the controller is varied off using the appropriate change controller description command.

IDLCRSPTMR (IDLC response timer):

APPC, SNA Host, and Remote Work Station Controllers: For controllers attached to IDLC lines, this parameter specifies the length of time to wait before retransmitting a frame when an acknowledgement is not received. This parameter represents the CCITT T200 timer.

Possible values are *LIND (the default), which uses the value specified for the attached IDLC line description, or any value in the range 10 through 100, in 0.1-second intervals. Allow at least one second of response time for every 2048 bytes specified for the line description maximum frame size (MAXFRAME parameter). The following expression can be used to determine an appropriate value for the IDLC response timer:

```
IDLCRSPTMR >= (MAXFRAME / 2048) * 10
```

Figure 7-10. Calculation for IDLC response timer

You can change this parameter when the controller is varied off using the appropriate change controller description command.

IDLCWDWSIZ (IDLC window size):

APPC, SNA Host, and Remote Work Station Controllers: For controllers attached to IDLC lines, this parameter specifies the default window size used for this line description.

Possible values are *LIND (the default), which uses the value specified for the attached IDLC line description, or any value in the range 1 through 31.

You can change this parameter when the controller is varied off using the appropriate change controller description command.

INLCNN (Initial connection):

APPC, Finance, SNA Host, Remote Work Station, and Retail Controllers: For switched connections, X.25 switched virtual circuits, local area network and frame relay connections, and nonswitched connections with switched network backup, the initial switched connection is made either by the system when it answers an incoming call (*ANS or *DIAL) or by a call started from the system (*DIAL). In general, switched connection attempts are made when the first open file of an application program requires a session to this controller. This parameter must be coordinated with the remote system.

The default, *DIAL, allows both dialing and answering a call. *ANS only allows a call to be answered.

For controller descriptions that specify INLCNN (*DIAL) and LINKTYPE (*LAN) or SHM(*YES), the system starts the connection with the remote controller when the controller description is varied on. A file does not need to be opened to force the start of this connection.

See the *APPN Guide* to determine when a connection is started for controllers that specify APPN(*YES).

You can change this parameter using the appropriate change controller description command.

Asynchronous Controllers: The initial switched connection is made either by the system when it answers an incoming call (*ANS) or by a call started from the system (*DIAL) for switched connections, X.25 switched virtual circuits, and non-switched connections with switched network backup.

*DIAL (the default) allows both dialing and answering a call. *ANS only allows a call to be answered.

You can change this parameter using the CHGCTLASC command.

BSC Controllers: The initial switched connection is made either by the system when it answers an incoming call (*ANS) or by a call started from the system (*DIAL) for switched connections and non-switched connections with switched network backup. *DIAL is the default.

When the BSC, mixed, or ICF file is opened for a switched line, it points to a device description, which points to a controller description. The system then attempts to make a connection based on this parameter.

You can change this parameter using the CHGCTLBSC command.

LANACCPTY (LAN access priority):

APPC, Finance, SNA Host, Remote Work Station, and Retail Controllers: The priority set in the actual frames that the system will send to the remote controller. This priority is used to determine how soon a frame can be sent on the local area network. The higher the number, the higher the priority.

Possible values are *CALC (the default), or 0 through 3. If *CALC is specified, you can display the value calculated by the system using the Display Controller Description (DSPCTLD) command when the controller is active.

Note: The system ignores this parameter if the controller is attached to an Ethernet line. You can change this parameter using the appropriate change controller description command.

LANACKFRQ (LAN acknowledgement frequency):

APPC, Finance, SNA Host, Remote Work Station, and Retail Controllers: The maximum number of frames the system can receive before sending an acknowledgement to the remote controller.

Possible values are *CALC (the default), or 0 to 127. If 0 is specified for this parameter, LANACKTMR(0) must also be specified; if a nonzero value is specified for this parameter, LANACKTMR must also be nonzero. If *CALC is specified, you can display the value calculated by the system using the Display Controller Description (DSPCTLD) command when the controller is active.

You can change this parameter using the appropriate change controller description command.

LANACKTMR (LAN acknowledgement timer):

APPC, Finance, SNA Host, Remote Work Station, and Retail Controllers: The length of time the system will delay before sending an acknowledgement to the remote controller for a received data frame.

Possible values are *CALC (the default), or 0 (no waiting) to 254 in 0.1 second intervals. If 0 is specified for this parameter, LANACKFRQ(0) must also be specified; if a nonzero value is specified for this parameter, LANACKFRQ must also be nonzero. If *CALC is specified, you can display the value calculated by the system using the Display Controller Description (DSPCTLD) command when the controller is active.

You can change this parameter using the appropriate change controller description command.

LANCNNRTY (LAN connection retry):

APPC, Finance, SNA Host, Remote Work Station, and Retail Controllers: The number of times a frame will be retransmitted during the connection establishment if there is no acknowledgement from the remote controller in the time period specified by the LANCNNTMR parameter.

Possible values are *CALC (the default), or 0 (no retry) to 254. If *CALC is specified, you can display the value calculated by the system using the Display Controller Description (DSPCTLD) command when the controller is active.

You can change this parameter using the appropriate change controller description command.

LANCNNTMR (LAN connection timer):

APPC, Finance, SNA Host, Remote Work Station, and Retail Controllers: The length of time to wait for an acknowledgement from the remote controller during the connection establishment before retransmitting a frame. If the frame has already been retransmitted the number of times specified on the LANCNNRTY parameter, you will be notified that contact with the remote controller was unsuccessful.

Possible values are *CALC (the default), or 1 to 254 in 0.1 second intervals. If *CALC is specified, you can display the value calculated by the system using the Display Controller Description (DSPCTLD) command when the controller is active.

You can change this parameter using the appropriate change controller description command.

LANFRMRTY (LAN frame retry):

APPC, Finance, SNA Host, Remote Work Station, and Retail Controllers: The number of times a frame will be retransmitted if there is no acknowledgement from the remote controller in the time period specified by the LANRSPTMR parameter. This value is only used after a successful connection is made.

Possible values are *CALC (the default), or 0 (no retries) to 254. If *CALC is specified, you can display the value calculated by the system using the Display Controller Description (DSPCTLD) command when the controller is active.

You can change this parameter using the appropriate change controller description command.

LANINACTMR (LAN inactivity timer):

APPC, Finance, SNA Host, Remote Work Station, and Retail Controllers: The length of time that the system will wait for a frame from the remote controller before requesting data with a frame of its own. This timer is used only after a connection is successfully established.

If no response to the frame is received within the time that you specified on the LANRSPTMR parameter, the requesting frame is retransmitted, up to the number of times you specified on the LANFRMRTY parameter, before the link to the controller is disconnected. You will be notified of the disconnection.

Possible values are *CALC (the default), or 1 (no waiting) to 255 in 0.1 second intervals. If *CALC is specified, you can display the value calculated by the system using the Display Controller Description (DSPCTLD) command when the controller is active.

You can change this parameter using the appropriate change controller description command.

LANMAXOUT (LAN maximum outstanding frames):

APPC, Finance, SNA Host, Remote Work Station, and Retail Controllers: The maximum number of outstanding frames that the system sends to the remote controller before it waits for an acknowledgement.

Possible values are *CALC (the default), or 1 through 127. If *CALC is specified, you can display the value calculated by the system using the Display Controller Description (DSPCTLD) command when the controller is active.

You can change this parameter using the appropriate change controller description command.

LANRSPTMR (LAN response timer):

APPC, Finance, SNA Host, Remote Work Station, and Retail Controllers: The length of time to wait for an acknowledgement from the remote controller before retransmitting a data frame. If the frame has already been retransmitted the number of times specified in the LANFRMRTY parameter, the link will be disconnected and the user will be notified. This value is used only after a connection is successfully established.

Possible values are *CALC (the default), or 1 to 254 in 0.1 second intervals. If *CALC is specified, you can display the value calculated by the system using the Display Controller Description (DSPCTLD) command when the controller is active.

You can change this parameter using the appropriate change controller description command.

LANWDWSTP (LAN window step):

APPC, Finance, SNA Host, Remote Work Station, and Retail Controllers: This parameter specifies whether the number of outstanding frames (frames sent without receiving an acknowledgement from the remote system) should be reduced during periods of network congestion.

Possible values are: *NONE, indicating that the number of outstanding frames is not reduced during network congestion, or any value 1 through 127, indicating the number of frames that must be received successfully before the number of outstanding frames can be restored to the value specified by the LANMAXOUT parameter. The default is 2.

The value specified for this parameter cannot be greater than the value specified for the LANMAXOUT parameter.

You can change this parameter using the appropriate change controller description command.

LCLEXCHID (Local exchange identifier)

SNA Host Controllers: This is an 8-digit hexadecimal value used to identify the local system to the remote system. This value is specified as *yyyxxxxx*, where *yyy* is the block number of the local system (`056` for AS/400 systems) and *xxxxx* is the identifier of the system. A local exchange identifier should be specified only if parallel connections between the AS/400 system and the host system are required.

Possible values are:

*LIND
: (The default) The value specified for the line description exchange identifier (EXCHID parameter) is used.

local-exchange-identifier
: Specify an 8-digit hexadecimal exchange identifier beginning with `056`. This value is used in place of the exchange identifier specified on the line description to enable parallel connections with a host system.

You cannot change this parameter using the CHGCTLHOST command.

LCLID (Local identifier):

Asynchronous Controllers: The identifier that, when combined with the local location name, identifies your controller to a remote system. This identifier must be the same as that specified by the remote system in its remote location list. This parameter is required if you specified *YES on the RMTVFY parameter. See the topic "Asynchronous Communications Remote Location List" on page 10-3 for information about asynchronous communications remote location lists.

You can change this parameter using the CHGCTLASC command.

BSC Controllers: For BSC switched lines or nonswitched lines with switched network backup, the name to be used as the AS/400 identifier. This identifier will be sent to the remote system. Values can be from 4 to 30 hexadecimal characters in length. If only 4 characters are specified, the first 2 must be the same as the last 2; for example, C1C1. This identifier must have an even number of characters. Use *NOID to specify a null identifier.

You can change this parameter using the CHGCTLBSC command.

LCLLOCNAME (Local location name):

Asynchronous Controllers: The name which, when combined with the local identifier, identifies your controller to a remote system. This name must be the same name as that specified by the remote system in its remote location list. This parameter is required if you specified remote verification (RMTVFY(*YES)). See "Asynchronous Communications Remote Location List" on page 10-3 for information about asynchronous communications remote location lists. .

You can change this parameter using the CHGCTLASC command.

Remote Work Station Controllers: The name by which the local AS/400 system is known to the network. This parameter is valid only if LINKTYPE(*NONE) is specified. Allowed values are:

*NETATR
: (The default) The local location name specified in the network attributes is used. You can use the DSPNETA command to display this value.

local-location-name
: A user-specified name of up to 8 characters.

You can change this parameter using the CHGCTLRWS command.

LGLCHLID (X.25 logical channel ID):

APPC, Finance, SNA Host, Remote Work Station, and Retail Controllers: If using a permanent virtual circuit (PVC), the logical channel identifier that is to be used for this controller. Values must be 3 hexadecimal digits in the format *gcc*, where:

g = the logical channel group number
**.cc* = the logical channel number

The logical channel identifier must be one of the PVC logical channel identifiers defined in the X.25 line description. There is no default value for this parameter.

You can change this parameter using the change controller description commands.

LINE (Attached line):

Network Controllers: The name of the line description that connects the network to the AS/400 system. Specify this parameter only if the line description was created before this controller description.

You cannot change this parameter using the CHGCTLNET command.

LINE (Attached nonswitched line):

APPC, Asynchronous, BSC, Finance, SNA Host, Remote Work Station, and Retail Controllers: The name of the line description that connects the remote system controller to the AS/400 system. You cannot change this parameter using the change controller description commands.

APPC, Asynchronous, Finance, SNA Host, and Remote Work Station Controllers: This parameter can only be specified if you also specify SWITCHED(*NO).

If this controller is attached by an X.25 permanent virtual circuit (PVC), specify the name of the line on which that PVC is configured.

APPC, SNA Host, and Remote Work Station Controllers: This parameter cannot be specified if LINKTYPE is *LAN, *FR, or *LOCAL.

BSC Controllers: This parameter cannot be specified if connection type (CNN) is switched point-to-point (*SWTPP).

LINKPCL (X.25 link protocol):

APPC, Finance, SNA Host, and Remote Work Station Controllers: The logical link protocol to be used to communicate with the remote DTE represented by this controller description. Valid protocols are qualified logical link control (*QLLC, the default) or extended logical link control (*ELLC).

Note: All finance controllers must specify *QLLC.

You can change this parameter using the appropriate change controller description command.

LINKTYPE (Link type):

APPC, Asynchronous, Finance, SNA Host, Remote Work Station, and Retail Controllers: The type of line this controller will be attached to.

You cannot change this parameter using the change controller description commands.

Valid link types are:

*ASYNC Asynchronous communications.
*FR Frame relay network.
*IDLC ISDN data link control.
*LAN Local area network (used for controllers attached to token-ring, Ethernet, and DDI lines).
*LOCAL Local communications (APPC controllers used for communications between source and target programs on the same AS/400 system).
*NONE Used for remote work station controller descriptions that are paired with APPC controller descriptions: 5394 controllers using the type 2.1 node support (RPQ 8Q0775) and 5494 remote controllers.
*SDLC Synchronous data link control.
*TDLC Twinaxial data link control For TDLC lines, the APPC controller description will be automatically created by the AS/400 system. Therefore, it is recommended that you do not manually create the APPC controller description.
*X25 X.25 line.

Link types can be specified for the various controller types as shown in Figure 7-11:

Figure 7-11. Valid LINKTYPEs for Controllers

Controller Type	LINKTYPE Value						
	*ASYNC	*FR	*IDLC	*LAN	*NONE	*SDLC	*X25
APPC controllers [1]		X	X	X		X	X
Asynchronous controllers	X						X
SNA host controllers		X	X	X		X	X
Remote work station controllers			X	X	X[5]	X	X
Retail controllers				X[2]		X	X[2]
Finance controllers				X[3]		X	X[4]

Notes:

1 LINKTYPE(*LOCAL) and LINKTYPE(*TDLC) are also valid for APPC controllers
2 Controller TYPE must be 4680 or 4684
3 Controller TYPE must be *FBSS
4 Controller TYPE must be 4701, 4702, or *FBSS
5 Controller TYPE must be 5394 or 5494. 5494 controllers must specify LINKTYPE(*NONE).

MAXFRAME (Maximum frame size):

APPC, Finance, SNA Host, Remote Work Station, and Retail Controllers: The maximum path information unit (PIU) size that the controller can send or receive. This value is used to calculate request unit (RU) sizes for non-APPC devices attached to SNA host, remote work station, and retail controllers. (APPC devices use the negotiated maximum frame size to calculate RU sizes.) The maximum frame size that the controller can send or receive is negotiated at exchange identifier time, so the maximum frame size that is used at run time may be different.

For X.25, the MAXFRAME parameter includes the size of the logical link header.

Figure 7-12 shows the values that can be specified for each link type (LINKTYPE parameter) and the value used for each link type when the default MAXFRAME value (*LINKTYPE) is used.

Note: This parameter is not used for APPC controllers with LINKTYPE(*LOCAL).

Figure 7-12. Valid MAXFRAME Values and Ranges

LINKTYPE	Valid MAXFRAME Values and Ranges	Value Used for MAXFRAME(*LINKTYPE)
*FR	265 - 8182, *LINKTYPE	1590
*IDLC	265 - 8196, *LINKTYPE	2048
*LAN	265 - 16393[a], 265 - 1994[b], 265 - 521[c], *LINKTYPE	16393[a], 1994[b], 521[c]
*SDLC	265, 521, 1033, 2057, *LINKTYPE	521, 265[c]
*TDLC	*LINKTYPE	4105
*X25	256, 512, 1024, 2048, 4096, *LINKTYPE	1024, 256[c]

Notes:

a Values used for APPC and SNA host controllers
b Values used for retail and remote work station controllers
c Values used for finance controllers

Notes:

1. For APPC controllers that specify a TYPE value other than *BLANK, the MAXFRAME value specified must be valid for the controller type and link type. APPC controllers configured as TYPE(3274) must specify MAXFRAME(*LINKTYPE). This value uses a maximum frame size of 265 for SDLC connections, 256 for X.25 connections.
2. For remote work station controllers, MAXFRAME can be specified only if TYPE(3174) or TYPE(5394) is specified.
3. For 3174 remote control units: if LINKTYPE(*SDLC) is specified, valid values are *LINKTYPE and 265; if LINKTYPE(*X25) is specified, valid values are *LINKTYPE and 256.
4. For 3174 remote control units that specify LINKTYPE(*LAN), this value should be less than or equal to the MAXFRAME value specified for the AS/400 system on the CRTLINTRN command.
5. For 5394 remote work station controllers, valid values are: 261, 517, or *LINKTYPE for SDLC lines; 256, 512, or *LINKTYPE for X.25 lines. *LINKTYPE uses MAXFRAME(517) for SDLC, and MAXFRAME(512) for X.25 connections.
6. For retail controllers with LINKTYPE(*SDLC), *LINKTYPE, 265, or 521 can be specified; for retail controllers with LINKTYPE(*X25), *LINKTYPE, 256, 512, 1024, 2048, or 4096 can be specified.
7. For SNA host controllers, this parameter must match the corresponding value on the host system.

You can change this parameter using the appropriate change controller description command.

MDLCTL (Model controller):

APPC Controllers: Specifies whether this controller description is to be used as a model controller for automatically created controller descriptions associated with the line description specified on the SWTLINLST parameter.

Model controller descriptions are used to specify values (such as timers and retry counts) to be used in automatically created controller descriptions. If a model controller exists for a token-ring network or Ethernet line description specifying AUTOCRTCTL(*YES), the values specified in the model controller description will override the system-supplied defaults when a new controller description is automatically created for that line.

Possible values are *YES or *NO; *NO is the default. MDLCTL(*YES) can be specified only if APPN(*YES) and LINKTYPE(*LAN) are also specified.

If MDLCTL(*YES) and both CNNCPNAME and CNNNETID parameters are specified, this controller description is used to define the connection network.

See the *APPN Guide* for more information about model controllers and APPN connection networks.

You can change this parameter when the controller is varied off using the CHGCTLAPPC command.

MINSWTSTS (APPN minimum switched status):

APPC and SNA Host Controllers: For controllers that specify APPN(*YES) and SWITCHED(*YES), this parameter specifies the minimum status required for this controller description to be considered eligible for APPN routing.

Possible values are:

*VRYONPND
: Specifies that APPN will consider this controller available for routing if the status of the controller description is varied on pending, varied on, or active. This is the default value.

*VRYON
: Specifies that APPN will consider this controller available for routing only if the status of the controller description is varied on or active. SWTDSC(*NO) must be specified to use this value.

See the *APPN Guide* for more information about APPN routing services.

You can change this parameter when the controller is varied off using the CHGCTLAPPC command.

MODEL (Controller model):

Finance, Remote Work Station, and Retail Controllers: The model number of the controller. Specify `0` for finance, retail, 3174, and 3274 controllers. For 5251, 5294, 5394, and 5494 controllers, use the following table.

Actual Device TYPE	Actual Device MODEL	Configured as TYPE	Configured as MODEL
5251	12	Same	Same
5294	1	Same	Same
5294	K01 (DBCS controller for Japan)	Same	Same
5294	S01 (DBCS controller for Korea and China)	Same	K01
5394	01A, 01B	Same	1
5394	02A, 02B	Same	2
5494	1, 2	Same	Same

You cannot change this parameter using change controller description commands.

NDMPOLLTMR (SDLC NDM poll timer):

APPC, Finance, Remote Work Station, and Retail Controllers: The minimum interval at which a secondary station should be polled if a poll from the primary to the secondary station (which is in normal disconnect mode) does not result in receiving the appropriate response. This interval is added to the delay specified by the CNNPOLLTMR parameter on the line description.

This timer allows infrequent polling of inactive (offline or powered-off) controllers on a multipoint line. Because each poll to an inactive controller normally results in a connect poll time-out, the NDMPOLLTMR parameter should be used to limit the effect of these time-outs on other (active) controllers on the line.

Values are from 0 to 3000 in 0.1 second intervals or *CALC, the default. The value *CALC means the system calculates a value at the time the controller is varied on, based on the maximum number of controllers (MAXCTL) and the connect poll timer (CNNPOLLTMR) in the line description. If *CALC is used, the value for the NDM poll timer is determined as follows:

Maximum Controllers	NDM Poll Timer
1	5 (0.5 seconds)
2 - 5	5 multiplied by CNNPOLLTMR

Maximum Controllers	NDM Poll Timer
6 or more	MAXCTL multiplied by CNNPOLLTMR, with a maximum value of 300 seconds

For APPC controllers, LINKTYPE(*SDLC), SHM(*NO), and ROLE(*SEC) or ROLE(*NEG) must be specified.

You can change this parameter using the appropriate change controller description command.

NETLVL (X.25 network level):

APPC, Finance, SNA Host, Remote Work Station, and Retail Controllers: The level of the support by the X.25 network and the remote data terminal equipment (DTE) represented by this controller description. The value specified for this parameter represents the year of the CCITT standard (1980, 1984, or 1988) used by the network.

Possible values are 1980, 1984, or 1988. There is no default for this parameter; it is required for LINKTYPE(*X25).

Note: It is suggested that you use the lower value of the remote DTE or the network level; for example, if the remote DTE is using the CCITT standard of 1980 and the network 1984, specify 1980 for this parameter.

You can change this parameter using appropriate change controller description command.

NODETYPE (APPN node type):

APPC and SNA Host Controllers: The type of node that this controller represents. This parameter is used only if this controller is APPN-capable. Possible values are:

*ENDNODE (The default) An end node in an APPN network.
*LENNODE A low-entry networking node in an APPN network.
*NETNODE A network node in an APPN network.
*CALC The OS/400 APPN support will attempt to determine the remote system type during the exchange identification processing. *CALC should only be used if the remote station is an *ENDNODE or *NETNODE.

If the adjacent system being defined is a low-entry networking node, then you must specify NODETYPE(*LENNODE). If this is not done, the connection may not be established because errors could be detected during exchange identifier processing.

This parameter is used when a switched controller is varied on and a connection does not need to be started when the controller is varied on. It allows the AS/400 system to treat the remote system as a network node (*NETNODE), an end node (*ENDNODE), or a low-entry networking node (*LENNODE) without establishing the switched connection.

Note: When the connection is established, the remote system identifies its node type. The information received from the remote system overrides the configured value. If *CALC is specified for the NODETYPE parameter, then the AS/400 system treats the remote system as an end node until the connection is established.

If the remote system is:

- A System/36 using an APPC subsystem, specify *LENNODE.
- A System/36 using an APPN subsystem, specify *NETNODE.
- A System/38, specify *LENNODE.
- An AS/400 system not using APPN (APPN(*NO) specified on the controller and device descriptions), specify *LENNODE.
- An AS/400 system using APPN (APPN(*YES) specified on the controller and device descriptions), specify the same value as specified in the remote system's network attribute for NODETYPE or *CALC.

You can change this parameter using the appropriate change controller description command.

ONLINE (Online at IPL):

All Controller Types: The controller is varied on automatically when the system is turned on if you use the default *YES; specify *NO if you want to vary it on manually by using the Vary Configuration (VRYCFG) command. You can use the VRYCFG command to change the status of the

controller at any time after the initial program load (IPL).

You can change this parameter at any time using the appropriate change controller description command.

OUTLMT (SDLC out limit):

APPC, Finance, Remote Work Station, and Retail Controllers: This parameter specifies the number of additional frame sequences the AS/400 system will send to the controller before polling the next station in the poll list. The number of frames sent in each sequence is determined by the maximum outstanding frames (MAXOUT parameter) specified on the line description.

OUTLMT can be used to ensure that the AS/400 system sends complete displays or printer pages to the remote devices attached to this controller before polling the next controller sharing this communications line.

Possible values are *POLLLMT (the default, which sets this parameter value equal to that specified for the POLLLMT parameter), or a value 0 through 4.

For retail controllers, this parameter is valid only if LINKTYPE(*SDLC) is specified; for all other controller types, LINKTYPE(*SDLC) and SHM(*NO) must be specified.

For APPC controllers, the controller role must be secondary (ROLE(*SEC)) or negotiable (ROLE(*NEG)). This parameter is used only if the AS/400 system takes on a primary role (the controller is secondary).

Out limit should only be specified for controllers on multipoint lines. It offers no advantages in point-to-point configurations.

You can change this parameter using the appropriate change controller description command.

PADEML (PAD emulation):

Asynchronous Controllers: If this controller is to emulate an X.25 packet assembler/disassembler (PAD), specify *YES. This PAD emulation follows the X.3, X.28, and X.29 CCITT recommendations. The default is *NO.

PAD emulation is valid only for asynchronous controllers having the initial connection (INLCNN) set to *DIAL.

Note: Refer to the *Asynchronous Communications Programmer's Guide* for a complete discussion of asynchronous PAD support.

You can change this parameter using the CHGCTLASC command.

POLLLMT (SDLC poll limit):

APPC, Finance, Remote Work Station, and Retail Controllers: This parameter controls the number of additional consecutive polls that the AS/400 system will send to a controller when that controller responds by sending a number of frames equal to the maximum outstanding frames (MAXOUT parameter) specified on the line description.

Possible values are 0 through 4; 0 is the default value and specifies normal polling.

If the value specified for POLLLMT is not 0, the AS/400 system continues polling this controller when either of the following is true:

- The number of information frames received from the remote controller equals the maximum frames outstanding count (specified for the MAXOUT parameter on the line description or from a received SDLC XID command).
- The AS/400 system has more data to send to the remote controller.

The AS/400 system stops polling this controller when either of the following is true:

- The AS/400 system has already polled the remote controller the number of times specified by the POLLLMT parameter.
- The remote controller responds to the last AS/400 system poll with fewer frames than the maximum outstanding frames value *and* the AS/400 system has no more data to send to the controller.

This parameter is valid only if LINKTYPE(*SDLC) and SHM(*NO) are specified.

For APPC controllers, the controller role must be secondary (ROLE(*SEC)) or negotiable (ROLE(*NEG)). This parameter is used only if the AS/400 system takes on a primary role (the controller is secondary).

Poll limit should only be specified for controllers on multipoint lines. It offers no advantages in point-to-point configurations.

You can change this parameter using the appropriate change controller description command.

POLLPTY (SDLC poll priority):

APPC, Finance, Remote Work Station, and Retail Controllers: If this controller should have priority when being polled, specify *YES. If not, use the default (*NO). Those stations that specify *YES will be polled twice as often as those stations that specify *NO.

This parameter is valid only if LINKTYPE(*SDLC) and SHM(*NO) are specified.

For APPC controllers, the controller role must be secondary (ROLE(*SEC)) or negotiable (ROLE(*NEG)). This parameter is used only if the remote system is secondary or negotiated to secondary.

Poll priority should only be specified for controllers on multipoint lines. Poll priority offers no advantages in a point-to-point configuration.

You can change this parameter using the appropriate change controller description command.

PREDIALDLY (Predial delay):

APPC, Asynchronous, BSC, Finance, SNA Host, Remote Work Station, and Retail Controllers: The length of time to wait before dialing the number to establish a connection to the specified controller. The time is specified in 0.5 second intervals from 0 (no waiting) through 254 (127 seconds); 6 (3 seconds) is the default.

Predial delay can only be specified if SWITCHED(*YES) or SNBU(*YES) is specified. For APPC, finance, SNA host, remote work station, and retail controllers, LINKTYPE(*SDLC) and SHM(*NO) (if applicable) must be specified.

For asynchronous controllers, LINKTYPE(*ASYNC) must be specified.

Notes:

1. This parameter is not applicable to calls over an X.21 circuit-switched network; delays and retries are controlled by the SHORTTMR, LONGTMR, SHORTRTY, and LONGRTY parameters of the CRTLINSDLC command.
2. The defaults meet most countries' requirements relative to call retries and call delays. Ensure the default or any new value you use is in accordance with your country's requirements.

   If you are not aware of your country's requirement, your IBM representative or IBM-approved remarketer can provide this information.
3. See the topic "Dial Retry Limitations" on page C-10 for more considerations for using this parameter.

You can change this parameter using the appropriate change controller description command.

RECONTACT (Recontact on vary off):

SNA Host Controllers: The RECONTACT parameter specifies whether a request for recontact will be sent to the host system when a normal vary off of the AS/400 controller description is done.

*YES (the default) specifies that when the controller description is varied off, the status of the AS/400 system at the host system is pending connection (PCTD2). Communications with the host system can be reestablished (by varying on the AS/400 controller description) without requiring another vary on by the host system.

*NO specifies that when the controller description is varied off, the status of the AS/400 system at the host system is set to inactive (INACT). To reestablish communications with the AS/400 system, the host system must issue another vary on of the connection.

*YES can be specified only if SWITCHED(*NO) and LINKTYPE(*IDLC), LINKTYPE(*SDLC), or LINKTYPE(*X25) are also specified.

You can change this parameter using the CHGCTLHOST command.

REDIALDLY (Redial delay):

APPC, Asynchronous, BSC, Finance, SNA Host, Remote Work Station, and Retail Controllers: The length of time to wait before redialing the number to establish a connection to the specified controller if the previous attempt was unsuccessful. The time is specified in 0.5 second intervals from 0 (no waiting) through 254 (127 seconds); 120 (60 seconds) is the default.

Redial delay can only be specified if SWITCHED(*YES) or SNBU(*YES) is specified. For APPC, finance, SNA host, remote work station, and retail controllers, LINKTYPE(*SDLC) and SHM(*NO) (if applicable) must be specified. For asynchronous controllers, LINKTYPE(*ASYNC) must be specified.

Notes:

1. This parameter is not applicable to calls over an X.21 circuit-switched network; delays and retries are controlled by the SHORTTMR, LONGTMR, SHORTRTY, and LONGRTY parameters of the CRTLINSDLC command.
2. The defaults meet most countries' requirements relative to call retries and call delays. Ensure the default or any new value you use is in accordance with your country's requirements.

   If you are not aware of your country's requirement, your IBM representative or IBM-approved remarketer can provide this information.
3. See the topic "Dial Retry Limitations" on page C-10 for more considerations for using this parameter.

You can change this parameter using the appropriate change controller description command.

RETRY (File transfer retry):

Asynchronous Controllers: The number of attempts to transmit a frame after an unsuccessful transmission when using file transfer support. From 1 through 255 retries can be made; 7 retries is the default.

You can change this parameter using the CHGCTLASC command.

RJEHOST (RJE host type):

BSC Controllers: The name of the host system used by remote job entry. Possible values are:

*RES	Remote entry subsystem
*JES2	Job entry subsystem 2
*JES3	Job entry subsystem 3
*RSCS	Remote Spooling Communications Subsystem

This parameter is required if you specify APPTYPE(*RJE). See the *RJE Guide* for information about remote job entry.

You can change this parameter using the CHGCTLBSC command.

RJELOGON (RJE host 'signon'/'logon'):

BSC Controllers: The logon information required by the host system if you specified remote job entry as the application type.

See the *RJE Guide* for information about remote job entry.

You can change this parameter using the CHGCTLBSC command.

RMTCPNAME (Remote control point name):

APPC and SNA Host Controllers: The name of the remote control point. Possible values are the name of the remote control point or *ANY. This parameter is required if the RMTNETID parameter is specified as anything except *NONE or *NETATR.

The value *ANY indicates that the system dynamically determines the control point name of the adjacent system. This value is allowed only if APPN(*YES) and, for APPC controllers, MDLCTL(*NO) are specified. RMTCPNAME(*ANY) cannot be specified if SWITCHED(*YES) or SNBU(*YES) are specified and LINKTYPE is *SDLC or *IDLC.

If *ANY is specified, you can use the DSPCTLD command to display the control point name (*Current remote control point*) and network identifier (*Current remote network identifier*) of the system with which this controller is communicating. The value shown is current only if the controller status is varied on or has changed from varied on to vary on pending.

For APPC controllers, this parameter is required if SHM(*YES) is specified. For SNA host controllers, this parameter cannot be specified if SHM(*YES) is also specified.

APPC Controllers: The RMTCPNAME and RMTNETID parameters describe the adjacent system's network identifier and control point name for APPN. Both are required if APPN(*YES) is specified, unless MDLCTL(*YES) is also specified.

If MDLCTL(*YES) is specified, RMTCPNAME, RMTNETID, and ADPTADR become optional parameters. For model controllers, this parameter is used to specify the control point name of the system that the local AS/400 system should establish a connection to. The local system will automatically create and vary on a separate APPC controller description that may be used for CP-to-CP sessions.

When the RMTCPNAME and RMTNETID parameters are specified, their values are checked during identifier exchange to ensure they match the values received from the adjacent controller.

Note: This verification does not occur if the local AS/400 system specifies APPN(*YES) and the adjacent system is a low-entry networking node (NODETYPE(*LENNODE)). However, the remote network identifier and the remote control point name are needed so APPN routing can be performed, and so directory entries made through the location lists (using the Create Configuration List (CRTCFGL) command) can be associated with a particular controller. The names are not used for identification, but are used for directory and routing control by the OS/400 APPN support.

In addition, only one controller can be varied on with a given remote network identifier or remote control point name if the remote system is a low-entry networking node (NODETYPE(*LENNODE)).

If the adjacent system is an AS/400 system, the values specified for RMTNETID and RMTCPNAME must match those specified for the local network identifier (LCLNETID) and local control point name (LCLCPNAME) in the network attributes for the remote AS/400 system.

If the adjacent system is a System/36 that is using an APPN subsystem, these values must match those specified at the System/36 for the local network identifier and local location name (these values are specified during the System/36 SSP-ICF configuration).

If APPN(*NO) is specified, this parameter should be specified if the connection to the adjacent APPC controller is over an SDLC or IDLC switched line and that controller does not include the block number and the identifier number in its exchange identifier.

Note: When the local system places an outgoing call on an SDLC or IDLC switched line, it does not send the exchange identifier if APPN(*YES) is specified for the remote controller and the NODETYPE parameter is not *LENNODE. This allows multiple controllers to share the same line description and still be able to uniquely identify a controller. See the *APPN Guide* for more information about this parameter.

You can change this parameter using the CHGCTLAPPC command.

SNA Host Controllers: If RMTCPNAME(*ANY) and SWITCHED(*YES) or SNBU(*YES) are specified for LINKTYPE *SDLC or *IDLC, an adjacent link station name (ADJLNKSTN parameter) must be specified.

If APPN(*NO) is specified, then the only time that RMTNETID and RMTCPNAME should be specified is when the connection to the adjacent host controller is over an SDLC switched line and that host does not provide a system services control point (SSCPID) on the activate physical unit (ACTPU) request. Currently, no host products do this.

Note: When the local system places an outgoing call on an SDLC or IDLC switched line, it does not send the EXCHID if APPN(*YES) is specified for the remote controller and the NODETYPE parameter is not *LENNODE. This allows multiple controllers to share the same line description and still be able to uniquely identify a controller. When you are running to a host system, this means that

if the host is dependent on the exchange identifier received from the AS/400 system to identify the correct PU on a switched line, the CPNAME parameter needs to be specified on the PU creation at the host.

You can change this parameter using the CHGCTLHOST command.

RMTID (Remote identifiers):

BSC Controllers: For BSC switched lines or BSC nonswitched lines with switched network backup, a list of up to 64 identifiers of remote BSC controllers. Each entry can be from 4 to 30 hexadecimal characters in length. If only 4 characters are specified, the first 2 must be the same as the last 2; for example, C1C1. This identifier must have an even number of characters.

An entry of *NOID specifies that the AS/400 system accepts a null identifier; an entry of *ANY specifies that the AS/400 system accepts any identifier sent by the remote controller. If *ANY is specified, it must be the last or only identifier in the list.

You can change this parameter using the CHGCTLBSC command.

RMTLOCNAME (Remote location name):

Remote Work Station Controllers: The name by which the remote work station controller is known to the network. This parameter is required if LINKTYPE(*NONE) is specified; it is valid only if LINKTYPE(*NONE) is specified.

You can change this parameter using the CHGCTLRWS command.

RMTNETID (Remote network identifier):

APPC and SNA Host Controllers: The name of the remote network in which the adjacent control point resides. See also the description of the RMTCPNAME parameter.

For APPC controllers, this parameter is required if SHM(*YES) is specified. For SNA host controllers, this parameter cannot be specified if SHM(*YES) is also specified.

If MDLCTL(*YES) is specified, RMTCPNAME, RMTNETID, and ADPTADR become optional parameters. For model controllers, this parameter is used to specify the network identifier of the system that the local AS/400 system should establish a connection to. The local system will automatically create and vary on a separate APPC controller description that may be used for CP-to-CP sessions.

Allowed values are:

*NETATR
: (The default) The name of the remote network is the same as the local system's network identifier (LCLNETID), which is defined by the CHGNETA command. See the *APPN Guide* for more information about changing network attributes.

*NONE
: The network has no name. This value is valid only if APPN(*NO) or APPN(*YES) and MDLCTL(*YES) are specified for this controller description.

*ANY
: The system dynamically determines the network identifier of the adjacent system. *ANY is allowed only if RMTCPNAME(*ANY) is also specified.

remote-network-id
: Specify the name of the remote network.

The RMTNETID and RMTCPNAME parameters describe the adjacent system's network identifier and control point name. Both are required if APPN(*YES) is specified, unless MDLCTL(*YES) is also specified.

When the controller is connected on a switched SDLC or IDLC line, this parameter, when combined with the RMTCPNAME and (for SDLC only) STNADR parameters, must be unique among all controllers attached on a switched line that have either of the following conditions:

- The APPC controller is defined with APPN(*YES) and the remote system type (NODETYPE) is not LENNODE.
- The APPC controller description has APPN(*NO) specified, but a remote network identifier (RMTNETID) and remote control point name (RMTCPNAME) are specified.

See the *APPN Guide* for more information about this parameter.

You can change this parameter using the appropriate change controller description command.

SNA Host Controllers: When you are running with APPN(*YES), the following apply to the configuration:

- For RMTNETID, use the value specified for the NETID parameter of the VTAM start option list. This list is the partitioned data set member ATCSTR*yy* of the host VTAMLST.
- For RMTCPNAME, use the value specified for the SSCPNAME parameter of the VTAM start option list. This list is the partitioned data set member ATCSTR*yy* of the host VTAMLST.

The host equivalents of RMTNETID and RMTCPNAME are found in the host NCP parameters. The BUILD macroinstruction contains the NETID parameter that should be configured with the AS/400 network attribute LCLNETID. The PU macroinstruction contains the CPNAME parameter that should be configured with the AS/400 network attribute LCLCPNAME parameter.

Remote Work Station Controllers: The name of the network to which the remote work station controller is attached. This parameter is valid only if LINKTYPE(*NONE) is specified. Allowed values are:

*NETATR
: (The default) The name of the remote network is the same as the local system's network identifier (LCLNETID) defined in the network attributes. Use the DSPNETA command to display this value.

*NONE
: The network has no name.

remote-network-id
: A user-specified name of up to 8 characters.

RMTVFY (Remote verify):

Asynchronous Controllers: If the remote system requires verification of the local location name and local identifier, specify *YES. The default is *NO. The remote system requires verification if a generic controller and device are configured to accept calls from any X.25 network address.

You can change this parameter using the CHGCTLASC command.

ROLE (Data link role):

APPC Controllers: Indicates if the remote system is primary (*PRI), secondary (*SEC), or dynamically negotiates its role (*NEG). *NEG is the default.

The primary station is the controlling station, and the secondary stations are the responding stations. The primary station controls the data link by sending commands to the secondary station, and the secondary station responds to the commands.

For LINKTYPEs *LAN, *FR, and *IDLC, specify ROLE(*NEG). For LINKTYPE(*TDLC), specify ROLE(*SEC).

For X.25, this represents the logical link station role of the remote data terminal equipment (DTE).

You cannot change this parameter using the CHGCTLAPPC command.

RVSCRG (X.25 reverse charging):

APPC, Asynchronous, Finance, SNA Host, Remote Work Station, and Retail Controllers: For incoming calls, if reverse charging will be accepted and for outgoing calls, if reverse charging will be requested. No reverse charging (*NONE) is the default. Use *REQUEST if the system will request reverse charging on outgoing calls; use *ACCEPT for incoming calls. Use *BOTH if the system can both place calls and answer calls and is to request reverse charging on outgoing calls and accept charges on incoming calls.

You can change this parameter using the appropriate change controller description command.

SHM (Short hold mode):

APPC, Finance, SNA Host, and Remote Work Station Controllers: Whether this controller is used for X.21 short-hold mode. To specify *YES, LINKTYPE(*SDLC) and SWITCHED(*YES) must also be specified. *NO is the default.

Note: Finance controllers must be TYPE 4701 or 4702 to specify this parameter. You cannot change this parameter using the change controller description commands.

SHMDSCLMT (SHM disconnect limit):

APPC, Finance, and Remote Work Station Controllers: The number of consecutive nonproductive responses (RR or RNR) that are required from the remote station before the connection can be suspended for this X.21 short-hold mode connection. This parameter is valid only if SHM(*YES) is specified.

Possible values are: 10 (the default), *NOMAX, or a specified number of nonproductive responses in the range 1 to 254. If *NOMAX is specified, the short-hold mode connection is not dropped.

You can change this parameter using the appropriate change controller description command.

SHMDSCTMR (SHM disconnect timer):

APPC, Finance, and Remote Work Station Controllers: The minimum length of time that the primary station will maintain the connection to the remote system for this X.21 short-hold mode controller, in tenths of a second. This parameter is valid only if SHM(*YES) is specified.

The short-hold mode connection is suspended when both of the following are true:

- The connection has been maintained for longer than the length of time specified by the SHMDSCTMR parameter
- The number of consecutive nonproductive polls specified on the SHMDSCLMT parameter have occurred

Possible values are: 50 (the default) or a specified time in the range 2 to 3000 (in tenths of a second).

You can change this parameter using the appropriate change controller description command.

SNBU (Switched network backup):

APPC, Asynchronous, BSC, Finance, SNA Host, Remote Work Station, and Retail Controllers:

Specify *YES if you want the switched network backup capability; if not, use the default (*NO). To use this function, either the modem must have the switched network backup feature, or the modem must be replaced with a modem capable of supporting a switched connection.

The switched network backup feature can be activated or deactivated, allowing you to bypass an inoperable nonswitched connection by converting the line to a switched line operation.

Use SNBU(*NO) for controllers that specify LINKTYPEs other than *SDLC.

If you specify *YES for this parameter, the controller description is subject to the same dependencies as a switched controller. For controllers attached to SDLC lines that specify either SWITCHED(*YES) or SNBU(*YES), the following restrictions apply:

- For APPC and SNA host controllers, the combination of STNADR, RMTNETID, and RMTCPNAME must be unique.
- For APPC controllers, if RMTCPNAME is not specified, the combination of STNADR and EXCHID must be unique.
- For SNA host controllers that specify RMTCPNAME(*ANY), the combination of STNADR and ADJLNKSTN must be unique.
- For SNA host controllers, if RMTCPNAME is not specified, the combination of STNADR and SSCPID must be unique.
- For finance, retail, and remote work station controllers, the combination of STNADR and EXCHID must be unique.

Note: If you are using IBM 386x, 586x, or 786x modems, the switched network backup function cannot be specified using this parameter. For connections using these modems, activate the switched network backup feature using the modem operator interface (panel or switch). Do not use the ACTSNBU parameter on the change line description or change controller description commands.

For other modem types that support switched network backup, use the SNBU parameter to show that the modem is SNBU-capable. Use the

ACTSNBU parameter on the change line description and change controller description commands, and the modem panel or switch, to activate the switched network backup feature.

You cannot change the SNBU parameter using the change controller description commands.

SSAP (LAN source service access point):

APPC, Finance, SNA Host, Remote Work Station, and Retail Controllers: The logical address this system will use when it sends data to the remote controller. This address allows the remote controller and the system to correctly route the data that comes from this system. It must be equal to the value assigned to the DSAP parameter in the remote controller's configuration record.

The value specified here must be included in the SSAP list parameter on any line description that this controller description has in its switched line list (SWTLINLST).

Possible values are any hexadecimal number 04 through 9C that is divisible by 4. The default value of hex 04 is the default SNA SSAP and is the one most commonly used in configurations.

You can change this parameter using the appropriate change controller description command.

SSCPID (SSCP identifier):

APPC Controllers: The system service control point identifier (SSCPID) that the AS/400 system sends to the remote system in the activate physical unit (ACTPU) request. Valid values are 000000000001 through FFFFFFFFFFFF.

The SSCPID parameter for APPC controllers is used as follows:

- If an SSCPID is specified, the AS/400 system will send that value to the remote system.
- If no SSCPID is specified but the remote system requires the AS/400 system to send an ACTPU request, the AS/400 system will send an SSCPID of hex 050000000000. If the remote system does not require an ACTPU request, no SSCPID will be sent.
- Do not specify this parameter for controllers using LINKTYPE(*LOCAL).

If the remote system requires the AS/400 system to send an ACTPU request, this value must be coordinated with the value specified by the remote system.

You can change this parameter using the appropriate change controller description command.

Finance, Remote Work Station, and Retail Controllers: The system service control point identifier (SSCPID) that the AS/400 system sends to the remote controller in the activate physical unit (ACTPU) request. Valid values are from 000000000001 through FFFFFFFFFFFF. If an SSCPID is not specified, then the default SSCPID of hex 050000000000 is used. If the remote controller is dependent on the SSCPID that is received on the ACTPU request to establish the connection, then this SSCPID value must be coordinated with the value specified at the remote controller.

Note: This parameter is not valid for 5251, 5294, or 5394 remote work station controllers. You can change this parameter using the appropriate change controller description command.

SNA Host Controllers: The value used to identify the host controller when a connection is established and the host system sends an activate physical unit request (ACTPU) to the AS/400 system. The system service control point identifier is a 12-character hexadecimal value; the first 2 characters are hex 05.

This value is required for switched SDLC lines if one of the following is true:

- APPN(*YES) is specified and the remote system is a low-entry networking node (*LENNODE).
- APPN(*NO) is specified and no remote control point name (RMTCPNAME) is specified.

For other line types (nonswitched SDLC, X.25, token-ring network, and Ethernet lines), this parameter is optional because the initial identification of the adjacent system is made, using the network address, before the ACTPU request is received.

The value must be obtained from the host system administrator (it is specified in the Start procedure for ACF/NCP/VTAM), and is entered in this parameter as a 12-character value. The first char-

acter is always 0; the second character is the physical unit type of the host (05). The last 10 characters are host-dependent. For ACF/NCP/VTAM, the last 10 characters are in the form *000000xxxx*, where *xxxx* can be from 0000 through FFFF.

The AS/400 system allows a nonzero value specified in the third character of the SSCPID to have a special meaning. If an ACTPU request is received from a host system over an SDLC or IDLC switched line and no controller is varied on that has a matching SSCPID, the AS/400 system determines if one or more host controllers are varied on that have a nonzero value for the third character of its SSCPID. If an available host controller is found that has the line description that the ACTPU request was received on in its switched line list (SWTLINLST), then the connection is established using that host controller. This function allows the AS/400 system to attach to a remote host system without matching the received SSCPID. If more than one host controller is varied on that has its SSCPID configured with this function, then these two controllers and attached devices should be created with identical attributes because the choice of a host controller on a received ACTPU request is randomly selected.

Note: If an SSCPID is specified in a host controller that has its first 3 characters set to 050, then it is always used to verify that the received SSCPID matches the SSCPID value of the local system. If they do not match, the connection is not established. If no SSCPID is specified (for other than SDLC switched lines), then no SSCP verification is performed.

You can change this parameter using the CHGCTLHOST command.

STNADR (Station address):

APPC Controllers: The station address to be used when communicating with the remote system using SDLC. Specify this address as a 2-character hexadecimal value from 01 to FE.

For an APPC controller with a role of secondary (ROLE(*SEC)), this is the station address of the remote system. For an APPC controller with ROLE(*PRI) or ROLE(*NEG) specified, this is the local station address.

This parameter must match the STNADR parameter specified for the line description for switched lines with ROLE(*SEC) or ROLE(*NEG) specified.

This value is used in all SDLC cases except for switched or switched network backup lines when the AS/400 system answers the switched call and the AS/400 system's role is secondary or negotiable. In these cases, the station address specified in the SDLC line description is used; however, this address must match the address specified in the line description.

You can change this parameter using the CHGCTLAPPC command.

Finance and Retail Controllers: Specify the SDLC station address as 2 hexadecimal digits (01 through FE); this is the station address of the remote system that the AS/400 system uses to poll the secondary station.

This parameter is required for retail controller descriptions and for finance controllers with LINKTYPE(*SDLC). You can change this parameter using the appropriate change controller description command.

SNA Host Controllers: Specify the SDLC station address as 2 hexadecimal digits (01-FE); this is the station address that the primary station uses to poll the AS/400 system. For a host controller, this is the address of the AS/400 system. This information is specified on the ADDR parameter of the PU macroinstruction at the host configuration.

This value is used for all SDLC connections except for switched or switched network backup lines when the AS/400 system answers a call. In these cases, the station address specified in the SDLC line description is used; however, this address must match that in the line description.

You can change this parameter using the CHGCTLHOST command.

Remote Work Station Controllers: The SDLC station address to be used when communicating with the remote system. Specify this address as a 2-character hexadecimal value from 01 to FE.

Because the remote work station controller is always secondary, this is the station address of the remote controller.

You can change this parameter using the CHGCTLRWS command.

SWITCHED (Switched connection):

APPC, Asynchronous, Finance, SNA Host, Remote Work Station, Retail Controllers: If this controller is attached to a switched line or local area network, or if the controller has an X.25 switched virtual circuit (SVC) connection, specify *YES. The default (*NO) indicates that this controller is attached to a nonswitched line or that the controller has an X.25 permanent virtual circuit (PVC) connection.

If LINKTYPE(*LAN) or SHM(*YES) is specified, specify SWITCHED(*YES). If LINKTYPE(*TDLC) or LINKTYPE(*LOCAL) is specified, specify SWITCHED(*NO).

4730, 4731, 4732, and 4736 finance controllers must specify SWITCHED(*NO).

You cannot change this parameter using the change controller description commands.

SWTDSC (Switched disconnect):

APPC Controllers: The switched connection is dropped when the last session is unbound and the disconnect timer (DSCTMR) has ended if you use the default *YES. Specify *YES to automatically disconnect from the adjacent system when there are no end point (synchronous conversations) or intermediate sessions active on the link. This parameter may be ignored if you specify *YES for the CPSSN parameter.

The *APPN Guide* contains detailed information and examples of APPN configurations. Review the SWTDSC parameter on the Create Controller Description (APPC) (CRTCTLAPPC) command to understand the conditions of a switched line's disconnection. Be aware of the effect that using a command such as STRMOD, ENDMOD, or CHGSSNMAX with SWTDSC(*YES) for switched APPN connections can have on a line. Depending on the setting of the APPN disconnect timer (DSCTMR parameter), multiple disconnections and connections can occur. If the value is set to an adequate amount of time (the default is 170 seconds), the system can complete processing of a command without a disconnection.

This parameter is valid only if one of the following is specified:

- SWITCHED(*YES)
- SNBU(*YES)
- LINKTYPE(*LAN) or LINKTYPE(*FR)

Specify *NO to keep this connection active when the last session is unbound. If MINSWTSTS(*VRYON) is specified, you must specify SWTDSC(*NO).

You can change this parameter using the CHGCTLAPPC command.

Asynchronous Controllers: If you specify SWTDSC(*YES), the switched connection will be dropped when all active sessions on the attached device are ended. This parameter is valid only if SWITCHED(*YES) or SNBU(*YES) is specified.

You can change this parameter using the CHGCTLASC command.

Finance and Retail Controllers: For retail and finance controllers, switched disconnection is dependent on the types of devices attached to the controller, as follows:

1. Finance and retail devices only

   If SWTDSC(*YES) is specified on the controller description, the switched connection is disconnected when the last active session ends (retail devices) or the last SNA session ends (finance devices).

2. 3270 devices only

   The switched connection is disconnected when the last 3270 device is signed off and any of the following are true:

   - SWTDSC(*YES) is specified on the controller description
   - DROP(*YES) is specified on the 3270 SIGNOFF command
   - DROP(*DEVD) is specified on the 3270 SIGNOFF command and DROP(*YES) is specified on the device description.

3. 3270 devices with either retail or finance devices

   The switched connection is disconnected depending on the device type associated with the last active session:

- If all 3270 devices attached to this controller are signed off, the switched connection is disconnected as described under number 1.
- If all active sessions (retail devices) or SNA session (finance devices) have ended, switched connection is disconnected as described under number 2.

You can change this parameter using the appropriate change controller description command.

SNA Host Controllers: The SWTDSC parameter is valid only if one of the following is specified:

- SWITCHED(*YES)
- SNBU(*YES)
- LINKTYPE(*LAN)

If the default value *YES is specified, the link is disconnected when all of the following are true:

- The last session is unbound on the APPC devices
- The last SNUF or LU1 program has ended
- The last DHCF device has been disconnected
- The last 3270 device emulation session has ended
- The last RJE session has ended
- The disconnect timer (DSCTMR parameter) has ended

Specify *NO to keep the connection active even if the above conditions are met, or if the host is configured to drop the switched connection. If MINSWTSTS(*VRYON) is specified, you must specify SWTDSC(*NO).

Note: The DISCNT parameter of the GROUP macroinstruction in the NCP/VTAM definition can be used if the host system is to determine the disconnection characteristics.

You can change this parameter using the CHGCTLHOST command.

SWTLINLST (Switched line list):

APPC, Asynchronous, BSC, Finance, SNA Host, Remote Work Station, and Retail Controllers: A list of up to 64 line names that can be connected to the specified controller for switched connections, X.25 switched virtual circuits (SVCs), local area network and frame relay connections, and nonswitched connections with switched network backup. The line names specified here must have already been created by using the appropriate create line description command, and the line description type must be compatible with the value specified for the LINKTYPE parameter in this controller description.

This list is used when dialing. The first line description in the list that has the correct status is selected. If a line description from the list is deleted, it is removed from the list. If the line description is created again, the list must be updated, using the appropriate change controller description command.

For APPC controller descriptions that specify APPN(*YES), the LINKSPEED values for all lines listed on this parameter must be the same. If both token-ring network and Ethernet lines are to be included in the switched line list, the default LINKSPEED values for both line types (token-ring network—4M; Ethernet—10M) cannot be used.

Note: For APPC model controller descriptions (MDLCTL(*YES)), only one line description name can be specified.

You can change this parameter when the controller is varied off, or when a vary on is pending and APPN(*NO) is specified, using the appropriate change controller description command.

SWTLINSLCT (X.25 switched line selection):

APPC, Asynchronous, Finance, SNA Host, Remote Work Station, and Retail Controllers: For controllers attached to X.25 lines, this parameter specifies which of the lines listed on the SWTLINLST parameter will be selected for making the switched connection. Possible values are:

*FIRST (The default) The first line description listed in the SWTLINLST parameter is selected.

*CALC The system selects the line description representing the minimum cost. Selection is made in the following order:

1. Nonswitched line descriptions with available outgoing channels
2. Connected switched line descriptions with available outgoing channels

3. Disconnected switched line descriptions with outgoing channels configured

This parameter is used only if LINKTYPE(*X25) and SWITCHED(*YES) are also specified.

You can change this parameter using the change controller description commands.

TEXT (Text 'description')

All Controller Types: The *description* briefly describes (in no more than 50 characters and enclosed in apostrophes) the controller and its location.

You can change this parameter using the appropriate change controller description command.

TMSGRPNBR (APPN transmission group number):

APPC and SNA Host Controllers: The value to be used by the APPN support for transmission group negotiation with the remote system. This parameter allows the APPN support to distinguish between multiple connections to the same remote system (control point). Valid values are:

- *CALC: The AS/400 system determines the value for the transmission group number. If you use *CALC, the value used is from 21 through 239.
- *transmission-group-number*: A value from 1 (the default) through 20. This same number must be specified at the adjacent system. If both systems do not specify the same transmission group number, then the first session activation attempt may fail because of a transmission group number mismatch.

Note: If the adjacent system is a System/36, you can specify any number from 1 through 20 because the System/36 allows only one transmission group between adjacent systems and accepts any transmission group number specified by the local AS/400 system. If the adjacent system is not a low-entry networking node, then the TMSGRPNBR parameter is used to determine if a switched connection needs to be started by the AS/400 system when the controller is varied on.

This parameter is negotiated with the adjacent system, and, if the value specified here does not match the value specified at the remote system, the transmission group number used can be different. If there are parallel transmission groups, this could cause the vary on of the controller to fail because a parallel transmission group may already be active with the same configured or negotiated transmission group number on another line.

This parameter is valid only if the controller is APPN-capable. See the *APPN Guide* for more information about this parameter.

You can change this parameter using the appropriate change controller description command.

TYPE (Controller type):

APPC, Finance, Remote Work Station, and Retail Controllers: The type of controller being described. Controller descriptions for finance, retail, and remote work station controllers using the SNA pass-through support should be created using the CRTCTLAPPC command.

APPC Controllers: APPC controller descriptions can be used by SNA pass-through to represent PU type 2.0 controllers. This parameter can be specified only if APPN(*NO) is also specified.

Specify the type of PU type 2.0 controller represented by this controller description. Allowed values are:

***BLANK** (Default) No type 2.0 controller specified
3174 3174 Remote Control Unit
3274 3274 Remote Control Unit
3651 3651 Store Controller
3684 3684 Retail Point of Sale Control Unit
4680 4680 Retail Store System
4684 4684 Retail Point of Sale Terminal
3694 3694 Document Processor
4701 4701 Finance Communications Controller
4702 4702 Branch Automation Processor
4730 4730 Personal Banking Machine
4731 4731 Personal Banking Machine
4732 4732 Personal Banking Machine
4736 4736 Personal Banking Machine
***FBSS** Financial Branch System Services and 4737 Self-Service Transaction Station

Finance Controllers: Allowed values are:

3694 3694 Document Processor
4701 4701 Finance Communications Controller
4702 4702 Branch Automation Processor
4730 4730 Personal Banking Machine
4731 4731 Personal Banking Machine
4732 4732 Personal Banking Machine
4736 4736 Personal Banking Machine
***FBSS** Financial Branch System Services and 4737 Self-Service Transaction Station

Retail Controllers: Allowed values are:

3651 3651 Store Controller
3684 3684 Retail Point of Sale Control Unit
4680 4680 Retail Store System
4684 4684 Retail Point of Sale Terminal

Remote Work Station Controllers: Allowed values are:

3174 3174 Controller
3274 3274 Controller
5251 5251 Controller
5294 5294 Controller
5394 5394 Controller
5494 5494 Controller

You cannot change this parameter using the change controller description commands.

USRDFN1, USRDFN2, USRDFN3 (User-defined 1, 2, and 3):

APPC and SNA Host Controllers: These user-defined fields are used to describe any unique characteristics of this connection that you want to control. These parameters can be specified only if APPN-capable (APPN parameter) is *YES. The fields may be used by APPN for route selection processing; otherwise, they are ignored.

Valid values for this parameter are *LIND (the default), indicating that the user-defined value on the associated line description is used, or any value 0 through 255.

You can change this parameter when the controller is varied off using the appropriate change controller description command.

USRFCL (User facilities):

APPC, Asynchronous, Finance, SNA Host, Remote Work Station, and Retail Controllers: For X.25, this parameter allows network subscribers to request network-supplied facilities that are not available through the AS/400 parameters. Values entered in this field are determined by the supplier of the network subscription. The AS/400 system allows up to 218 hexadecimal characters.

Note: Do not include coding of facilities specified using parameters: packet size, window size, user group identifier, and reverse charging.

You can change this parameter using the appropriate change controller description command.

USRGRPID (X.25 user group ID):

APPC, Asynchronous, Finance, SNA Host, Remote Work Station, and Retail Controllers: A decimal value, from 0 through 99, that is supplied as a unique identifier by the network if the closed user group facility is subscribed to. If a value is specified, it is coded into the facility field of call request packets made using this controller. This coding is as follows: 03*gg*, where *gg* is the binary coded decimal equivalent of the value for the USRGRPID parameter. The network allows your controller access to an addressee that has requested this service as part of his subscription to the X.25 network, only if this is the correct identifier for that addressee.

This value can only be specified if the link type is *X25, if the switched line is specified, and if the initial connection is *DIAL.

You can change this parameter using the appropriate change controller description command.

X25ACKTMR (X.25 acknowledgement timer):

APPC, Finance, SNA Host, and Remote Work Station Controllers: This value represents the ELLC LT2 acknowledgement timer, which is only used for controllers that have the X.25 link protocol (LINKPCL) set to *ELLC. This timer is the maximum time allowed between the receipt of an LLC protocol data unit and the transmission of a corresponding acknowledgement. This value is used by ELLC to maximize piggybacking acknowledgements on outgoing LLC protocol data units. The value selected must be such that the remote stations X.25 response timer (X25RSPTMR) value or equivalent will not run out before the delayed

acknowledgement arrives (for example, LT2 < LT1). Valid values are:

- 1 through 2550 in 0.1 second intervals; 20 (2 seconds) is the default.
- 0, to specify no waiting (acknowledge immediately).

You can change this parameter using the appropriate change controller description command.

X25CNNRTY (X.25 connection retry):

APPC, Finance, Remote Work Station, and Retail Controllers: This parameter is identical to the X25FRMRTY parameter, except that it applies only to logical link control (LLC) connection establishment, such as LSABME-LUA LLC protocol data units for ELLC and QSM-QUA for QLLC LLC protocol data units. Values are 0 (no retries) through 21; 7 is the default.

This parameter is valid only if:

- X25DLYTMR is *CALC.
- LINKTYPE is *X25 and ROLE is *SEC or *NEG. It is used only if the AS/400 system takes on the primary role.

You can change this parameter using the appropriate change controller description command.

X25CNNTMR (X.25 connection timer):

APPC, Finance, Remote Work Station, and Retail Controllers: This parameter is identical to the X25RSPTMR parameter, except that it applies only to LLC connection establishment, such as LSABME-LUA LLC protocol data units for ELLC and QSM-QUA LLC protocol data units for QLLC. Values are 1 through 2550 in 0.1 second intervals. The default for APPC controllers is 300 (30 seconds); the default for finance and remote work station controllers is 100 (10 seconds).

This parameter is valid only if:

- X25DLYTMR is *CALC.
- LINKTYPE is *X25 and ROLE is *SEC or *NEG. It is used only if the AS/400 system takes on the primary role.

You can change this parameter using the appropriate change controller description command.

X25DLYTMR (X.25 delayed connection timer):

APPC, Finance, Remote Work Station, and Retail Controllers: The time between retries of polling exchange identifier commands when the system is trying to establish a connection to the remote DTE represented by the controller description. If the initial attempt to establish a connection is not successful, periodic attempts are made to contact the remote DTE. This timer helps to minimize peer system coordination at vary-on time.

Possible values are from 1 to 32767 in 0.1 second intervals or the default (*CALC), which means the AS/400 system uses the values specified for the X.25 connection retry and X.25 connection timer (LT1, LN2) to try to establish the connection. Values other than *CALC result in the AS/400 system attempting to establish a connection indefinitely by using the specified value as the time-out between retries.

This parameter can be specified only if the link type is X.25, if the data link role specified in the controller description is secondary or negotiable (that is, the AS/400 system takes a primary role), and if the switched line is *NO. If the switched line parameter is *YES for X.25 switched virtual circuits, only the default *CALC is valid, and cannot be changed.

You can change this parameter using the appropriate change controller description command.

X25FRMRTY (X.25 frame retry):

APPC, Finance, SNA Host, Remote Work Station, and Retail Controllers: The number of times that a data or logical link disconnection protocol data unit (PDU) can be retransmitted if no acknowledgement is received from the adjacent logical link station in the remote DTE in the time specified by the X.25 response timer (X25RSPTMR).

This parameter applies principally to controllers specifying LINKTYPE(*ELLC), and represents the ELLC PDU retry timer (LN2). For controllers specifying LINKTYPE(*QLLC), this parameter applies only to logical link disconnection timing

because data PDUs are never retransmitted DTE to DTE.

Valid values are 0 (no retries) through 21; 7 is the default.

The value used for this parameter depends on the quality of service provided by the network and the connection to that network; that is, the frequency of lost PDUs, and so on.

You can change this parameter using the appropriate change controller description command.

X25INACTMR (X.25 inactivity timer):

APPC, Finance, SNA Host, and Remote Work Station Controllers: This value represents the ELLC LTI inactivity timer, which is only used for controllers that have the X.25 link protocol (LINKPCL) set to *ELLC. This timer is the maximum amount of time that a link station allows the link connection to remain in the "no-traffic" state (both receiving and transmitting) at the logical link level. ELLC uses this timer to detect an inoperable condition in the remote link station or media following link connection establishment. Valid values are 1 through 2550 (255 seconds) in 0.1 second intervals. The default for APPC and SNA host controllers is 1050 (105 seconds); the default for finance and remote work station controllers is 350 (35 seconds).

The value chosen here should exceed the values used by both the remote and local DTEs for the X.25 response, connection, and acknowledgement timers (or their equivalents).

You can change this parameter using the appropriate change controller description command.

X25RSPTMR (X.25 response timer):

APPC, Finance, SNA Host, Remote Work Station, and Retail Controllers: The maximum amount of time allowed between the transmission of a data or logical link disconnection link protocol data unit (PDU) and the receipt of a corresponding acknowledgement from the adjacent link station on the remote DTE.

This parameter applies principally to controllers specifying LINKPCL(*ELLC), and represents the ELLC PDU response timer (LT1). For LINKPCL(*QLLC), this parameter applies only to logical link disconnection timing because QLLC does not provide DTE-to-DTE acknowledgement of PDUs.

Values from 1 through 2550 can be specified in 0.1 second intervals. The default for APPC and SNA host controllers is 300 (30 seconds); the default for finance and remote work station controllers is 100 (10 seconds).

The value specified should take round-trip delay (including any network delays) and data terminal equipment (DTE) processing time into consideration.

You can change this parameter using the appropriate change controller description command.

Chapter 8. Communications Device Descriptions

This chapter describes the prompts and parameters that are used to configure communications devices on the AS/400 system, including remotely attached display stations and printers. See the *Device Configuration Guide* for information about configuring locally attached display stations and printers.

The prompts described in this chapter are seen when working with the configuration prompt displays; the parameter names associated with these prompts are used when entering commands on the command line or in a CL program.

This chapter provides two discussions of device description prompts and parameters:

- A set of tables, one for each Create Device Description display. These tables list the prompts for each display (in the order they appear on the displays) and the associated parameter name. For each prompt, the tables also include:
  - Values that can be specified for the prompt (or parameter)
  - Dependencies and requirements for specifying prompts (or parameters) and values
- Detailed descriptions of each prompt used by the create device description commands, with considerations for use of the prompt for various device types. Descriptions of the prompts are listed in alphabetical order by *parameter name*.

Specifying Device Description Prompts and Parameters

The following tables list basic information for the prompts and parameters that can be specified for each of the create device description (CRTDEV*xxx*) commands. The tables are shown in alphabetical order by *command* name and contain the following information:

Prompt
Prompt text. Prompts are listed in the order shown on the configuration displays.

Depending on values you select, not all of the prompts will be shown.

Parameter
Equivalent parameter name.

Values
Values that can be specified for the prompt or parameter.

- Default values are underlined.
- For prompts requiring a numeric value selected from a continuous range of values, the range is shown in parentheses.
- For prompts on which a number of values may be specified, the maximum number of values that can be specified is shown in the *Dependencies* column.

Dependencies
Dependencies between parameters and values. This column indicates whether or not the parameter is required, if any conditions exist for specifying parameters and values, and so on.

Many dependencies are described using parameter names or parameter names with values. For example, the format ONLINE(*NO) is used in the tables (and in CL programs); it is equivalent to specifying *NO for the *Online at IPL* prompt on the configuration displays.

Some parameters list general dependencies; for example, some parameter dependencies may state that another parameter must be specified. Unless otherwise qualified, this restriction applies only to the specification of values other than the default for that parameter.

More complex parameters and dependencies are discussed in the detailed parameter descriptions under "Parameter and Prompt Descriptions" on page 8-21. Detailed descriptions in that topic are listed in alphabetical order by *parameter* name.

APPC Device Description Prompts

Figure 8-1 (Page 1 of 2). APPC Device Description Prompts

CRTDEVAPPC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Device description name	DEVD	*device-description-name*	Required parameter; cannot be QCONSOLE Device description is automatically created for devices on TDLC lines
Remote location name	RMTLOCNAME	*remote-location-name*	Required parameter Must match local location name specified in remote system configuration See detailed description
Online at IPL	ONLINE	*YES, *NO	None
Local location name	LCLLOCNAME	*NETADR, *local-location-name*	See detailed description
Remote network identifier	RMTNETID	*NETATR, *NONE, *remote-network-ID*	See detailed description
Attached controller name	CTL	*controller-name*	Cannot be QCTL Attached controller description must be of type APPC or SNA host
Mode	MODE	*NETATR, *mode-name*	Up to 14 modes can be specified; see detailed description
Message queue	MSGQ	*LIBL/QSYSOPR, *CURLIB/ or *library-name/* and *message-queue-name*	Specify library name (or default *LIBL) and message queue name (or default QSYSOPR)
Local location address	LOCADR	00, *location-address* (00-FF)	See detailed description
APPN capable	APPN	*YES, *NO	Use *YES for devices associated with TDLC lines or APPC controllers with APPN(*YES) specified Use *NO for devices associated with APPC controllers that specify LINKTYPE(*LOCAL)
Single session	SNGSSN	*NO or *YES and *number-of-conversations* (1-512)	Specify *YES for 5520 and Displaywriter work stations
Locally controlled session	LCLCTLSSN	*NO, *YES	SNGSSN(*YES) must be specified
Pre-established session	PREESTSSN	*NO, *YES	LCLCTLSSN(*YES) must be specified
Location password	LOCPWD	*NONE, *location-password*	Not valid if APPN(*YES) and LOCADR(00) are specified

Figure 8-1 (Page 2 of 2). APPC Device Description Prompts			
CRTDEVAPPC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Secure location	SECURELOC	*NO, *YES	Not valid if APPN(*YES) and LOCADR(00) are specified Ignored if system is set for minimal (level 10) security
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than 50-character description enclosed in apostrophes

Asynchronous Device Description Prompts

Figure 8-2. Asynchronous Device Description Prompts			
CRTDEVASC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Device description name	DEVD	*device-description-name*	Required parameter; cannot be QCONSOLE Device description is automatically created for devices on TDLC lines
Remote location name	RMTLOCNAME	*NONE, *remote-location-name*	Required parameter See detailed description
Online at IPL	ONLINE	*YES, *NO	None
Attached controller name	CTL	*controller-name*	Cannot be QCTL
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than 50-character description enclosed in apostrophes

Binary Synchronous Communications (BSC) Device Description Prompts

Figure 8-3 (Page 1 of 2). Binary Synchronous Communications (BSC) Device Description Prompts

CRTDEVBSC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Device description name	DEVD	*device-description-name*	Required parameter; cannot be QCONSOLE
Local location address	LOCADR	*location-address* (00-FE)	Required parameter Specify 00 for CNN(*PP) See detailed description for valid addresses
Remote location name	RMTLOCNAME	*remote-location-name*	Required parameter
Online at IPL	ONLINE	*YES, *NO	None
Attached controller name	CTL	*controller-name*	Cannot be QCTL
Connection type	CNN	*PP, *MPTRIB	Specify *MPTRIB if APPTYPE(*EML) Specify *PP if APPTYPE(*RJE) See detailed description
Application type	APPTYPE	*BSCEL, *RJE, *EML, *BSC38, *RPGT	Must be compatible with APPTYPE specified for controller description: • *RJE and *EML must match values specified for the controller description APPTYPE • *BSCEL, *BSC38, or *RPGT must have *PGM specified for the controller description APPTYPE
Contention resolution winner	CTNWIN	*SEC, *PRI	Specify *SEC if APPTYPE(*EML)
Blocking type	BLOCK	*NONE, *ITB, *IRS, *NOSEP, *USER, *SEP	Valid only if APPTYPE is *BSCEL or *RPGT Do not specify *NOSEP if TRUNC(*YES) If TRNSPY(*YES), specify *NONE, *NOSEP, or *USER
Separator character	SEPCHAR	'1E', *'record-separator-character'*	Valid only if APPTYPE is *BSCEL or *RPGT, and BLOCK(*SEP) is specified
Remote BSCEL	RMTBSCEL	*YES, *NO	Valid only if APPTYPE is *BSCEL or *RPGT Specify *NO if BLOCK(*USER)
Record length	RCDLEN	512, *record-length* (1-8192)	Valid only if APPTYPE is *BSCEL or *RPGT Value must not exceed BLKLEN specified Value must not exceed MAXBUFFER specified for attached line description

Figure 8-3 (Page 2 of 2). Binary Synchronous Communications (BSC) Device Description Prompts

CRTDEVBSC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Block length	BLKLEN	512, *block-length* (1-8192)	Valid only if APPTYPE is *BSCEL or *RPGT, and BLOCK is not *NONE Value must not exceed MAXBUFFER specified for attached line description
Transmit in trans-parent mode	TRNSPY	*NO, *YES	Valid only if APPTYPE is *BSCEL or *RPGT
Compress and decompress data	DTACPR	*NO, *YES	Valid only if APPTYPE is *BSCEL or *RPGT Specify *NO if TRNSPY(*YES) or TRUNC(*YES)
Truncate trailing blanks	TRUNC	*NO, *YES	Valid only if APPTYPE is *BSCEL or *RPGT Specify *NO if BLOCK(*ITB) or BLOCK(*NOSEP), or if TRNSPY(*YES)
Group separator type	GRPSEP	*EOT, *OFCSYS, *DEV3740	Valid only if APPTYPE is *BSCEL or *RPGT
Emulated device	EMLDEV	3278, 3284, 3286, 3287, 3288, 3289	Valid only if APPTYPE(*EML)
Emulated keyboard	EMLKBD	*UPPER, *LOWER	Valid only if APPTYPE(*EML)
Emulated numeric lock	EMLNUMLCK	*NO, *YES	Valid only if APPTYPE(*EML)
Emulation work station	EMLWRKSTN	*ANY, *emulation-work-station*	Valid only if APPTYPE(*EML)
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than 50-character description enclosed in apostrophes

Display Device Description Prompts

Figure 8-4 (Page 1 of 3). Display Device Description Prompts

CRTDEVDSP Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Device description name	DEVD	*device-description-name*	Required parameter; cannot be QCONSOLE
Device class	DEVCLS	*RMT, *VRT, *SNPT, *LCL	Required parameter For TYPE(5150), DEVCLS cannot be *VRT For TYPE 3277, 3278, and 3279, DEVCLS must be *RMT See the *Device Configuration Guide* for information about local (DEVCLS(*LCL)) devices
Device type	TYPE	*device-type*	Required parameter Valid types differ depending on DEVCLS. See detailed description.
Device model	MODEL	*device-model*	Required parameter; must be valid for TYPE See detailed description
Local location address	LOCADR	*location-address* (00-FE)	Valid for remote (DEVCLS(*RMT)) devices only
Online at IPL	ONLINE	*YES, *NO	None
Attached controller name	CTL	*controller-name*	Cannot be QCTL
Keyboard language type	KBDTYPE	*SYSVAL, *keyboard-language-type*	Used only for display devices specified with DEVCLS(*VRT) or DEVCLS(*RMT) and TYPE 3277, 3278, or 3279.
Drop line at signoff	DROP	*YES, *NO	Valid for remote (DEVCLS(*RMT)) devices only See detailed description
Character identifier	CHRID	*KBDTYPE, *SYSVAL, *graphic-character-set code-page*	Not valid for TYPEs 3277, 3278, 3279, or 5150 See detailed description
Allow blinking cursor	ALWBLN	*YES, *NO	Not valid for TYPEs 3277, 3278, 3279, or 5150
Auxiliary device type	AUXDEV	*auxiliary-device-type auxiliary-device-address*	Valid only for TYPE(5292) MODEL(2) Up to 31 auxiliary devices can be specified
Output queue	OUTQ	*DEV, *LIBL/, *CURLIB/, or *library-name/* and *output-queue-name*	Output queue must already exist
Print device	PRTDEV	*SYSVAL, *device-name*	Printer device description must already exist

Figure 8-4 (Page 2 of 3). Display Device Description Prompts

CRTDEVDSP Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Printer	PRINTER	*device-name*	Valid for TYPEs 3277, 3278, 3279, and 5150 Valid for remote (DEVCLS(*RMT)) devices only Printer device description must already exist Printer and display must be attached to the same controller
Print file	PRTFILE	*LIBL/QSYSPRT, *CURLIB/ or *library-name/* and *print-file-name*	None
Maximum length of request unit	MAXLENRU	*CALC, 241, 247	Valid only for remote (DEVCLS(*RMT)) display stations 241 and 247 can be specified only for devices using X.25
Inactivity timer	INACTTMR	*ATTACH, *NOMAX, *SEC15, *SEC30, *inactivity-timer* (1-30)	Valid only if one of the following is true: • DEVCLS(*SNPT) • APPTYPE is *NRF, *CTLSSN, *DEVINIT, or *APPINIT • Device is attached to ASCII work station controller
Application type	APPTYPE	*NONE, *NRF, *CTLSSN, *DEVINIT, *APPINIT	DEVCLS(*RMT) must be specified MODEL(*DHCF) cannot be specified
DBCS feature	IGCFEAT	*device-features last-code-point*	TYPE must be 3277, 3278, 3279, or 5555 Required for TYPE(5555)
Work station customizing object	WSCST	*NONE, *LIBL/, *CURLIB/, or *library-name/* and *workstation-customizing-object*	Not valid for virtual (DEVCLS(*VRT)) or SNA pass-through (DEVCLS(*SNPT)) display stations See detailed description
Remote location name	RMTLOCNAME	*remote-location-name*	Required for APPTYPE(*APPINIT)
Local location name	LCLLOCNAME	*NETATR, *local-location-name*	Used only for APPTYPE(*APPINIT) and APPTYPE(*CTLSSN) devices
Remote network identifier	RMTNETID	*NETATR, *NONE, *remote-network-id*	Used only for APPTYPE(*APPINIT) devices
Activation timer	ACTTMR	170, *activation-timer* (1-2550)	DEVCLS(*SNPT) must be specified
SNA pass-through device	SNPTDEV	*NONE, *device-name*	DEVCLS(*SNPT) must be specified SNPTDEV and SNPTGRP cannot both be specified

Figure 8-4 (Page 3 of 3). Display Device Description Prompts

CRTDEVDSP Command			
Prompt	**Parameter**	**Values**	**Dependencies**
SNA pass-through group name	SNPTGRP	*NONE, *group-name*	DEVCLS(*SNPT) must be specified SNPTDEV and SNPTGRP cannot both be specified
Host signon/logon command	LOGON	*NONE, *host-logon-command*	APPTYPE(*NRF) or DEVCLS(*SNPT) must be specified Up to 256 characters can be specified
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than 50-character description enclosed in apostrophes

Finance Device Description Prompts

Figure 8-5. Finance Device Description Prompts

CRTDEVFNC Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Device description name	DEVD	*device-description-name*	Required parameter; cannot be QCONSOLE
Device type	TYPE	3624, 3694, 4704, *FNCICF	Required parameter Only TYPE(*FNCICF) devices can be attached to *FBSS or 473x finance controllers
Local location address	LOCADR	*location-address* (01-FF)	Required parameter LOCADR(01) is valid only for TYPE(*FNCICF) See detailed description
Remote location name	RMTLOCNAME	*remote-location-name*	Required for TYPE(*FNCICF); cannot be specified for other TYPEs Specified name must be unique
Online at IPL	ONLINE	*YES, *NO	None
Attached controller name	CTL	*controller-name*	Cannot be QCTL
Maximum length of request unit	MAXLENRU	*CALC, *maximum-length-request-unit* (8-4096)	See detailed description
Device class	DEVCLS	*NONE, *SNPT	Valid only for TYPE(*FNCICF)
Inactivity timer	INACTTMR	*NOMAX, *SEC15, *SEC30, *inactivity-timer* (1-30)	DEVCLS(*SNPT) must be specified
Activation timer	ACTTMR	170, *activation-timer* (1-2550)	DEVCLS(*SNPT) must be specified
SNA pass-through device	SNPTDEV	*NONE, *device-name*	DEVCLS(*SNPT) must be specified SNPTDEV and SNPTGRP cannot both be specified
SNA pass-through group name	SNPTGRP	*NONE, *group-name*	DEVCLS(*SNPT) must be specified SNPTDEV and SNPTGRP cannot both be specified
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than 50-character description enclosed in apostrophes

SNA Host Device Description Prompts

Figure 8-6. SNA Host Device Description Prompts

CRTDEVHOST Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Device description name	DEVD	*device-description-name*	Required parameter; cannot be QCONSOLE
Local location address	LOCADR	*location-address* (01-FF)	Required parameter Hexadecimal LOCADR must match decimal host local location address (LOCADDR) specified for NCP LU macro-instruction
Remote location name	RMTLOCNAME	*remote-location-name*	Required parameter Must match local location name specified in remote system configuration See detailed description
Online at IPL	ONLINE	*YES, *NO	None
Attached controller name	CTL	*controller-name*	Cannot be QCTL Attached controller description must be of type APPC or SNA host
Application type	APPTYPE	*RJE, *EML, *PGM	None
Maximum length of request unit	MAXLENRU	*CALC, *maximum-length-request-unit*	See detailed description
Emulated device	EMLDEV	3278, 3284, 3286, 3287, 3288, 3289	Valid only if APPTYPE(*EML)
Emulated keyboard	EMLKBD	*UPPER, *LOWER	Valid only if APPTYPE(*EML)
Emulated numeric lock	EMLNUMLCK	*NO, *YES	Valid only if APPTYPE(*EML)
Emulation work station	EMLWRKSTN	*ANY, *emulation-work-station*	Valid only if APPTYPE(*EML)
End session with host	ENDSSNHOST	*UNBIND, *RSHUTD	None
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than 50-character description enclosed in apostrophes

Intrasystem Device Description Prompts

Figure 8-7. Intrasystem Device Description Prompts			
CRTDEVINTR Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Device description name	DEVD	*device-description-name*	Required parameter; cannot be QCONSOLE
Remote location name	RMTLOCNAME	*remote-location-name*	Required parameter
Online at IPL	ONLINE	*YES, *NO	None
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than 50-character description enclosed in apostrophes

Network Device Description Prompts

Figure 8-8. Network Device Description Prompts			
CRTDEVNET Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Device description name	DEVD	*device-description-name*	Required parameter; cannot be QCONSOLE
Device type	TYPE	*TCPIP, *OSI, *USRDFN	Required parameter
Online at IPL	ONLINE	*YES, *NO	None
Attached controller name	CTL	*network-controller-name*	Cannot be QCTL
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	See the *TCP/IP Guide*, *OSI Configuration and Administration Guide*, or *System Programmer's Interface Reference* for information about security considerations for network devices
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than 50-character description enclosed in apostrophes

Printer Device Description Prompts

Figure 8-9 (Page 1 of 4). Printer Device Description Prompts

CRTDEVPRT Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Device description name	DEVD	*device-description-name*	Required parameter; cannot be QCONSOLE
Device class	DEVCLS	*RMT, *VRT, *SNPT, *LCL	Required parameter Specify *RMT for TYPEs 3287, 3820, 3825, 3827, and 3835 See the *Device Configuration Guide* for information about local (DEVCLS(*LCL)) devices
Device type	TYPE	*device-type*	Required parameter Valid types differ depending on DEVCLS. See detailed description.
Device model	MODEL	*device-model*	Required parameter Valid types differ depending on DEVCLS. See detailed description.
Advanced Function Printing*	AFP	*NO, *YES	For *YES, TYPE(*IPDS) and DEVCLS(*RMT) must be specified
AFP attachment	AFPATTACH	*WSC, *APPC	Use for printers configured for Advanced Function Printing (AFP(*YES)) only Specify *WSC for 3812 and 3816 printers attached to local or remote WSCs; use *APPC for 3820, 3825, 3827, or 3835 printers attached using APPC/APPN
Local location address	LOCADR	*location-address* (00-FE)	Required parameter Valid for remote (DEVCLS(*RMT)) devices only Not valid if AFPATTACH(*APPC) is specified
Online at IPL	ONLINE	*YES, *NO	None
Attached controller name	CTL	*controller-name*	Cannot be QCTL Not valid if AFPATTACH(*APPC) is specified
Font identifier	FONT	*font-identifier point-size*	Required for TYPEs *IPDS, 3812, and 5219 See detailed description
Form feed	FORMFEED	*TYPE, *CONT, *CUT, *AUTOCUT	*CUT and *AUTOCUT are valid only if TYPE is *IPDS, 3812, 4214, 5219, or 5553 See detailed description
Separator drawer	SEPDRAWER	*FILE, 1, 2, 3	FORMFEED must be specified

Figure 8-9 (Page 2 of 4). Printer Device Description Prompts

CRTDEVPRT Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Separator exit program	SEPPGM	*NONE, *LIBL/, *CURLIB/, or *library-name/* and *exit-program-name*	None
Printer error message	PRTERRMSG	*INQ, *INFO	None
Message queue	MSGQ	*LIBL/QSYSOPR, *CURLIB/, or *library-name/* and *message-queue-name*	None
Maximum length of request unit	MAXLENRU	*CALC, 241, 247	Valid only for remote (DEVCLS(*RMT)) printers Not valid if AFPATTACH(*APPC) is specified 241 and 247 can be specified only for devices using X.25
Inactivity timer	INACTTMR	*ATTACH, *NOMAX, *SEC15, *SEC30, *inactivity-timer* (1-30)	Valid only if one of the following is true: • DEVCLS(*SNPT) • APPTYPE is *NRF, *DEVINIT, or *APPINIT • Device is attached to ASCII work station controller
Activation timer	ACTTMR	170, *activation-timer* (1-2550)	DEVCLS(*SNPT) must be specified
SNA pass-through device	SNPTDEV	*NONE, *device-name*	DEVCLS(*SNPT) must be specified SNPTDEV and SNPTGRP cannot both be specified
SNA pass-through group name	SNPTGRP	*NONE, *group-name*	DEVCLS(*SNPT) must be specified SNPTDEV and SNPTGRP cannot both be specified
Host signon/logon command	LOGON	*NONE, *host-logon-command*	APPTYPE(*NRF) or DEVCLS(*SNPT) must be specified Required for APPTYPE(*NRF) Up to 256 characters can be specified.
Pacing	PACING	7, *pacing* (1-7)	Not allowed for 3287 printers
Application type	APPTYPE	*NONE, *NRF, *DEVINIT, *APPINIT	DEVCLS(*RMT) and TYPE(3287) must be specified
Maximum pending requests	MAXPNDRQS	6, *maximum-pending-requests* (1-31)	Use for printers configured for Advanced Function Printing only (AFP(*YES))
Print while converting	PRTCVT	*YES, *NO	Use for printers configured for Advanced Function Printing only (AFP(*YES))
Print request timer	PRTRQSTMR	*NOMAX, *print-request-timer* (1-3600)	Use for printers configured for Advanced Function Printing only (AFP(*YES)) FORMFEED must be *CONT

Figure 8-9 (Page 3 of 4). Printer Device Description Prompts

CRTDEVPRT Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Form definition	FORMDF	*LIBL/F1C10110, *LIBL/, *CURLIB/, or *library-name/* and *form-definition-name*	Use for printers configured for Advanced Function Printing only (AFP(*YES))
Character identifier	CHRID	*SYSVAL, *graphic-character-set code-page*	Use for printers configured for Advanced Function Printing (AFP(*YES) and AFPATTACH(*APPC) must be specified) or for host print transform function (TRANSFORM(*YES))
Work station customizing object	WSCST	*NONE, *LIBL/, *CURLIB/, or *library-name/* and *workstation-customizing-object*	Valid only for local (DEVCLS(*LCL)) ASCII printers and for printers using the host print transform function (TRANSFORM(*YES)) See detailed description
Remote location name	RMTLOCNAME	*remote-location-name*	Use only for printers configured for Advanced Function Printing (AFP(*YES) and AFPATTACH(*APPC) must be specified) or if APPTYPE(*APPINIT) is specified Required if APPTYPE(*APPINIT) is specified
Local location name	LCLLOCNAME	*NETATR, *local-location-name*	Use only for printers configured for Advanced Function Printing (AFP(*YES) and AFPATTACH(*APPC) must be specified) or if APPTYPE(*APPINIT) is specified
Remote network identifier	RMTNETID	*NETATR, *NONE, *remote-network-ID*	Use only for printers configured for Advanced Function Printing (AFP(*YES) and AFPATTACH(*APPC) must be specified) or if APPTYPE(*APPINIT) is specified
Mode	MODE	QSPWTR, *NETATR, *mode-name*	Use for printers configured for Advanced Function Printing only (AFP(*YES) and AFPATTACH(*APPC) must be specified)
DBCS feature	IGCFEAT	*device-features last-code-point*	Required for TYPE(5553) and TYPE(5583)
Host print transform	TRANSFORM	*NO, *YES	Valid for ASCII printers only
Manufacturer type and model	MFRTYPMDL	*manufacturer-type-model*	TRANSFORM(*YES) must be specified Required if TRANSFORM(*YES) is specified
Paper source 1	PPRSRC1	*MFRTYPMDL, *LETTER, *LEGAL, *EXECUTIVE, *A4, *A5, *B5, *CONT80, *CONT132, *NONE	TRANSFORM(*YES) must be specified

Figure 8-9 (Page 4 of 4). Printer Device Description Prompts

CRTDEVPRT Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Paper source 2	PPRSRC2	*MFRTYPMDL, *LETTER, *LEGAL, *EXECUTIVE, *A4, *A5, *B5, *NONE	TRANSFORM(*YES) must be specified
Envelope source	ENVELOPE	*MFRTYPMDL, *MONARCH, *NUMBER9, *NUMBER10, *B5, *C5, *DL, *NONE	TRANSFORM(*YES) must be specified
ASCII code page 899 support	ASCII899	*NO, *YES	TRANSFORM(*YES) must be specified
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than 50-character description enclosed in apostrophes

Retail Device Description Prompts

Figure 8-10. Retail Device Description Prompts

CRTDEVRTL Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Device description name	DEVD	*device-description-name*	Required parameter; cannot be QCONSOLE
Local location address	LOCADR	*location-address* (01-FE)	Required parameter LOCADR(01) is valid only if APPTYPE(*OTHER) is specified See detailed description
Remote location name	RMTLOCNAME	*remote-location-name*	Required parameter Specified name must be unique
Online at IPL	ONLINE	*YES, *NO	None
Attached controller name	CTL	*controller-name*	Cannot be QCTL
Pacing value	PACING	7, *pacing-value* (0-7)	None
Maximum length of request unit	MAXLENRU	*CALC, *maximum-length-request-unit* (247-1024)	Must be 256 if LOCADR(01) is specified See detailed description
Application type	APPTYPE	*OTHER, *RCMS, *SBMRTLPGM	None
Device class	DEVCLS	*NONE, *SNPT	None
Inactivity timer	INACTTMR	*NOMAX, *SEC15, *SEC30, *inactivity-timer* (1-30)	DEVCLS(*SNPT) must be specified
Activation timer	ACTTMR	170, *activation-timer* (1-2550)	DEVCLS(*SNPT) must be specified
SNA pass-through device	SNPTDEV	*NONE, *device-name*	DEVCLS(*SNPT) must be specified SNPTDEV and SNPTGRP cannot both be specified
SNA pass-through group name	SNPTGRP	*NONE, *group-name*	DEVCLS(*SNPT) must be specified SNPTDEV and SNPTGRP cannot both be specified
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than 50-character description enclosed in apostrophes

SNA Pass-Through Device Description Prompts

Figure 8-11. SNA Pass-Through Device Description Prompts

CRTDEVSNPT Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Device description name	DEVD	*device-description-name*	Required parameter; cannot be QCONSOLE
Local location address	LOCADR	*location-address* (01-FE)	Required parameter
SNA pass-through class	SNPTCLS	*UP, *DOWN	Required parameter
Online at IPL	ONLINE	*YES, *NO	None
Attached controller name	CTL	*controller-name*	Cannot be QCTL
Activation timer	ACTTMR	170, *activation-timer* (1-2550)	Valid only for switched connections
SNA pass-through device	SNPTDEV	*NONE, *device-name*	SNPTDEV and SNPTGRP cannot both be specified
SNA pass-through group name	SNPTGRP	*NONE, *group-name*	SNPTCLS(*DOWN) must be specified SNPTDEV and SNPTGRP cannot both be specified
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than 50-character description enclosed in apostrophes

SNUF Device Description Prompts

Figure 8-12. SNUF Device Description Prompts

CRTDEVSNUF Command			
Prompt	**Parameter**	**Values**	**Dependencies**
Device description name	DEVD	*device-description-name*	Required parameter; cannot be QCONSOLE
Local location address	LOCADR	*location-address* (01-FF)	Required parameter Hexadecimal LOCADR must match decimal host local location address (LOCADDR) specified for NCP LU macro-instruction
Remote location name	RMTLOCNAME	*remote-location-name*	Required parameter
Online at IPL	ONLINE	*YES, *NO	None
Attached controller name	CTL	*controller-name*	Cannot be QCTL
Program start request capable	PGMSTRRQS	*NO, *YES	None
Special host application	SPCHOSTAPP	*NONE, *FLASH	If *FLASH is specified, PGMSTRRQS(*YES) must also be specified
Application identifier	APPID	*application-ID*	VTAM application identifier of CICS/VS, IMS/VS, or other host subsystem
Host type	HOST	*CICS, *IMS, *IMSRTR, *ADCS	Required if PGMSTRRQS(*NO) PGMSTRRQS(*YES) must be specified for HOST(*ADCS) Must match host type
Record length	RCDLEN	512, *record-length* (1-32767)	Cannot exceed value specified for BLKLEN
Block length	BLKLEN	512, *block-length* (1-32767)	None
Default program name	DFTPGM	LIBL/, *CURLIB/, or *library-name/* and *program-name*	Required if PGMSTRRQS(*YES) is specified Use for program start requests from host not using *EXEC/*EXEX/*TXTC/*TXTX format
HCP emulation	HCPEML	4680, 3651, 3684, 4684, *STRUSRPGM	HOST(*ADCS) must be specified
Authority	AUT	*LIBCRTAUT, *CHANGE, *ALL, *USE, *EXCLUDE, *authorization-list-name*	None
Text 'description'	TEXT	*BLANK, *'description'*	Specify no more than 50-character description enclosed in apostrophes

Parameter and Prompt Descriptions

This topic contains detailed descriptions of all the parameters that can be specified using the create device description commands. The prompts for these parameters (shown on the configuration displays) are shown in parentheses following the parameter name. **Parameters are listed in alphabetical order.** If you do not know the parameter name associated with a certain prompt, see the tables in the preceding topic; equivalent parameter names are listed for each prompt.

See Chapter 12 for more information about matching configuration parameters and values for other systems and controllers.

ACTTMR (Activation timer):

Display, Finance, Printer, Retail, and SNA Pass-through Devices: For switched connections, this parameter specifies the number of seconds the system should wait for the device to respond to an activation request from the host. If the device does not respond within the time specified, it is considered not available. Possible values are 1 to 2550, in seconds. The default activation timer is 170 seconds.

For display, printer, retail, and finance devices, this parameter is valid only if DEVCLS(*SNPT) is specified.

You can change this parameter when the device is varied off by using the appropriate change device description command.

AFP (Advanced Function Printing):

Printer Devices: Specifies whether or not this printer is used for Advanced Function Printing. This parameter is used only if DEVCLS is *LCL or *RMT and TYPE is *IPDS. See the *Device Configuration Guide* for information about attaching local (DEVCLS(*LCL)) devices.

3812 and 3816 printers can be configured as either AFP(*YES) or AFP(*NO); all other LU 6.2-attached printers configured for Advanced Function Printing must be configured as AFP(*YES). The default value for this parameter is *NO.

You can change this parameter when the printer is varied off using the CHGDEVPRT command.

AFPATTACH (AFP attachment):

Printer Devices: Indicates the type of attachment used for printers configured for Advanced Function Printing. Possible values are:

*WSC	3812 or 3816 printers attached to a local or remote work station controller. This is the default value.
*APPC	3820 printer with SDLC attachment or 3820, 3825, 3827, or 3835 printers attached to a token-ring using Remote PrintManager*.

This parameter is used only if AFP is *YES.

You cannot change this parameter using the CHGDEVPRT command.

ALWBLN (Allow blinking cursor):

Display Devices: The blinking cursor is turned off if you specify *NO; otherwise, use the default (*YES) to allow the cursor to blink for display devices.

Display stations that can change the blinking cursor attribute using the keyboard setup feature can override the value specified for this parameter.

You can change this parameter while the device is still active using the CHGDEVDSP command; the change takes effect immediately.

APPID (Application identifier):

SNUF Devices: The VTAM application identifier of the CICS/VS or IMS/VS host subsystem with which the AS/400 system communicates. This identifier is sent with the logon text when the SNUF device is acquired.

You can change this parameter while the device is still active using the CHGDEVSNUF command. The change takes effect the next time the device is varied on.

APPN (APPN capable):

APPC Devices: If APPN is used, specify the default *YES. If APPN is not used, specify *NO. Use the default *YES if this APPC device description is attached using a twinaxial data link control (TDLC) line.

The value specified here must match the value specified in the APPN parameter for the associated controller description.

See the *APPN Guide* for information about using APPN.

You cannot change this parameter using the CHGDEVAPPC command.

APPTYPE (Application type):

BSC, Display, Printer, Retail, and SNA Host Devices: The application type used by this device.

BSC Devices: Allowed values are:

*BSCEL
: (The default) Application communicates with other BSC systems or devices using ICF support.

*RJE
: Application is remote job entry.

*EML
: Application is 3270 device emulation.

*BSC38
: Application is a System/38 operating environment program used when this device uses a BSC device file or a mixed device file.

*RPGT
: Application uses RPG II with BSCA files and telecommunications specifications. The value of the RMTBSCEL parameter is automatically set to *NO if this value is specified.

  This value can also be specified for applications that use ICF support but do not require evoke or program start request capability. If *RPGT is specified and the application requires evoke or program start request capability, unpredictable results will occur.

This parameter is dependent on the value specified for the APPTYPE parameter on the controller description. If the controller specified *PGM, the device must specify *BSCEL, *BSC38, or *RPGT. If the controller specified *RJE, the device must also specify *RJE. If the controller specified *EML, the device must also specify *EML.

You cannot change this parameter using the CHGDEVBSC command.

Display and Printer Devices:

Allowed values are:

*NONE
: (The default) The device is not used for any special application.

*NRF
: The device is used for the network routing facility application.

*CTLSSN
: (Display devices only) The device is used to control sessions with *DEVINIT devices.

*DEVINIT
: The device initiates the session.

*APPINIT
: The application program initiates the session.

You cannot change this parameter using the change device description commands.

Retail Devices: Allowed values are:

*OTHER
: (The default) This device is used to communicate with either the Host Command Processor (HCP) or an application running on the retail controller. LOCADR(01) must be specified for communications with the HCP.

*RCMS
: This device is communicating with a remote change management server (RCMS).

*SBMRTLPGM
: This device is used with the Submit Retail Program (SBMRTLPGM) command to start a program on the retail controller using the Advanced Data Communications for Stores (ADCS) start user program support. This value is required when using the Point-of-Sale Communications Utility licensed program.

You cannot change this parameter using the CHGDEVRTL command.

SNA Host Devices:

Allowed values are:

*RJE
: (The default) The application program is remote job entry.

*EML The application program is 3270 device emulation.
*PGM The application program is written by the user.

You cannot change this parameter using the CHGDEVHOST command.

ASCII899 (ASCII code page 899 support):

Printer Devices: Specifies whether the printer has ASCII code page 899 installed. This parameter is valid only if TRANSFORM(*YES) is specified. Possible values are *NO (the default) or *YES.

You can use the CHGDEVPRT command to change this parameter when the device is varied off.

AUT (Authority):

All Device Types: The level of public authority for this line description. Allowed values are:

*LIBCRTAUT
(Default) The system determines authority for the object using the value specified for the create authority prompt (CRTAUT parameter) specified for the library in which the object will be created.
*CHANGE
Combines the object operational authority and all data authorities (read, add, update, and delete).
*ALL Combines all the object authorities and data authorities. Users who are not explicitly authorized can control the object's existence, specify the security for the object, change the object, and transfer ownership of the object.
*USE Combines object operational authority and read authority. Users who are not explicitly authorized can display the object.
*EXCLUDE
Prevents users who are not explicitly authorized from accessing the object.
authorization-list-name
Specify the name of an existing authorization list. Users included in the authorization list are granted authority as specified by the list.

See the manual *Security Reference* for general information about the AS/400 system security.

Note: Authority cannot be changed using the change device description commands, but can be changed using the system security commands and menus.

AUXDEV (Auxiliary device type):

Display Devices: The device type and address of an auxiliary device (if any) that is attached to the IEEE-488 port on the 5292 Model 2 device.

Up to 31 devices (including the IBM 7371, 7372, and 6180 Plotters) may be attached to the same IEEE-488 AUXDEV port on the IBM 5292 Model 2, but each must have a different IEEE-488 address. Valid auxiliary device addresses are 1 through 31.

You can change this parameter when the device is varied off using the CHGDEVDSP command.

BLKLEN (Block length):

BSC Devices: The maximum block length (in bytes) for data to be transmitted when communicating with this device. This parameter is valid only if the APPTYPE parameter is *BSCEL or *RPGT. Values are from 1 to 8192 bytes; the default is 512 bytes. This value must not exceed the maximum buffer size (MAXBUFFER) specified on the line description that this device is attached to. This value does not include record separator characters when data blocking is used.

You can change this parameter while the device is varied off using the CHGDEVBSC command.

SNUF Devices: The maximum block length (in bytes) for data to be transmitted when communicating with this device. Valid values are from 1 to 32767 bytes; the default is 512 bytes. This value must be greater than or equal to the record length (RCDLEN).

You can change this parameter while the device is still active using the CHGDEVSNUF command. The change takes effect the next time the device is varied on.

BLOCK (Blocking type):

BSC Devices: Whether you or the AS/400 system will block and deblock transmitted records. This parameter is valid only if the APPTYPE parameter is *BSCEL or *RPGT. Allowed values for record formatting are:

*NONE (The default) No blocking or deblocking will be done by the system.

*ITB The records are blocked or deblocked based on the location of an intermediate-text-block (ITB) control character.

*IRS The records are blocked or deblocked based on the location of an interrecord separator (IRS) character.

*NOSEP No record separator is contained within the transmission block sent to or received from the device. The system will block and deblock the records according to a fixed record length, as specified in the DDS format specifications.

*USER Your program provides all control characters, including record separator characters, BSC framing characters, and so forth, necessary to transmit records.

*SEP All the records are blocked or deblocked based on the location of a user-specified record separator character.

You can change this parameter while the device is varied off using the CHGDEVBSC command.

CHRID (Character identifier):

Display Devices: The character identifier (graphic character set and code page) that this display device supports. Values are:

- *KBDTYPE (the default): The graphic character set and code page are selected based on the value specified for the keyboard type (KBDTYPE parameter).
- *SYSVAL: The system determines the graphic character set and code page values for the device from the QCHRID system value when the device is varied on.
- *graphic-character-set code-page:* The graphic character set and code page values that match the attributes of this display device. The graphic character set and code page values must be numbers from 1 through 32767.

The following table shows values that are appropriate for each display station keyboard style. The first 3 digits of the CHRID are the graphic character set, the second 3 digits are the code page.

All characters included in the graphic character sets listed for the *Limited CHRID* values can be both entered at and displayed by the device. All characters associated with the *Full CHRID* values can be entered at the display station (including the use of hexadecimal representations), but all characters may not be displayable by the device.

Values shown in the *Limited CHRID* column should be used for 5291 and 5292 display stations; all other display stations should use the value shown in the *Full CHRID* column. All display stations that are to be used for OfficeVision/400, including 5291 and 5292 display stations, should use the value in the *Full CHRID* column.

Note: When using keyboard type values (KBDTYPE parameter) for devices that support both single-byte and double-byte data (JKB, KOB, RCB, and TAB), the CHRID values listed are for single-byte data only.

Language or Country	Keyboard Type (KBDTYPE)	Limited CHRID	Full CHRID
International and US ASCII	INB	103 038	697 500
Multinational	AGI BLI CAI DMI FAI FNI FQI ICI INI ITI JEI NEI NWI PRI SFI SGI SPI SSI SWI UKI USI		697 500
Arabic	CLB		235 420
Austria/Germany	AGB	265 273	697 273
Belgium Multinational	BLI		697 500
Brazil	BRB		697 037
Canada/French	CAB	277 260	341 260

Language or Country	Keyboard Type (KBDTYPE)	Limited CHRID	Full CHRID
Cyrillic	CYB		960 880
Denmark/Norway	DMB NWB	281 277	697 277
Finland/Sweden	FNB SWB	285 278	697 278
France	FAB FQB	288 297	697 297
Greece	GNB		925 875
Greece	GKB		218 423
Hebrew	NCB		941 424
Iceland	ICB		697 871
Italy	ITB	293 280	697 280
Japan/English	JEB	297 281	697 281
Japan/Kanji and Uppercase English	JKB (For Personal System/55 and 5295 display stations)		1172 290
Japan/Kanji and US English	JUB		697 037
Japan/Katakana	KAB (For 5251, 5291, 5292, and 3180 Katakana display stations)		332 290
Korea	KOB		1173 833
Latin 2	ROB		959 870
Netherlands	NEB		697 037
Portugal	PRB	301 037	697 037
Simplified Chinese	RCB		1174 836
Spain	SPB	305 284	697 284
Spanish Speaking	SSB	309 284	697 284
Thailand	THB		938 838
Traditional Chinese	TAB		1175 037
Turkey	TKB		1152 1026
United Kingdom/English	UKB	313 285	697 285
United States/English	USB	101 037	697 037
Languages of the former Yugoslavia	YGI		959 870

You can change this parameter when the device is varied off using the CHGDEVDSP command.

Printer Devices: For printers configured for Advanced Function Printing or using the host print transform function, this parameter specifies the character identifier (graphic character set and code page) to be used by the printer.

- *SYSVAL (the default): The system determines the graphic character set and code page values for the device from the QCHRID system value.
- *graphic-character-set code-page:* The graphic character set and code page values that match the attributes of this printer. The graphic character set and code page values must be numbers from 1 through 32767.

Tables listing character identifier values that can be specified for 3820, 3825, 3827, and 3835 printers are included in the *Guide to Programming for Printing* and in the description of the CRTPRTF command in the *CL Reference*.

This parameter is used only for printers configured to use Advanced Function Printing (AFP(*YES) and AFPATTACH(*APPC)) or the host print transform function (TRANSFORM(*YES)).

CNN (Connection type):

BSC Devices: For BSC point-to-point communications, the connection type is *PP (the default). For BSC multipoint tributary, the connection type is *MPTRIB. If the application type is emulation (*EML), the connection type must be *MPTRIB.

You cannot change this parameter using the CHGDEVBSC command.

CTL (Attached controller name):

All Device Types: The name of the controller description to which this device is attached. This value cannot be QCTL.

Note: APPC device descriptions can only be associated with APPC or SNA host controller descriptions. APPC model controllers (MDLCTL(*YES)) cannot be specified on the CTL parameter.

You cannot change this parameter using the change device description commands.

CTNWIN (Contention resolution winner):

BSC Devices: Which BSC system is to be the primary unit (*PRI, the contention winner) and which is to be the secondary (*SEC, contention loser) for contention resolution on a BSC line. *SEC is the default. This parameter is ignored for application types *EML and *RJE.

Contention occurs when both ends attempt to send data at the same time. If contention occurs and *SEC is specified, the application program attempting to use the device receives a return code indicating the error. The application program should then perform the appropriate operation to receive the data.

You can change this parameter while the device is varied off using the CHGDEVBSC command.

DEVCLS (Device class):

Display and Printer Devices: Specifies the device class that you want to use.

- Specify *RMT for devices attached to remote work station controllers.
- Specify *VRT for devices attached to 5250 display station pass-through virtual controllers.
- Specify *SNPT for SNA pass-through devices attached to downstream APPC controllers.

See the *Communications: Remote Work Station Guide*, SC41-0002, for more information about both display station pass-through and SNA pass-through.

See the *Device Configuration Guide* for information about locally attached (DEVCLS(*LCL)) devices.

You cannot change this parameter using the change device description commands.

Finance and Retail Devices: Specifies whether or not this device will use SNA pass-through support. Possible values are *NONE (the default) or *SNPT for devices attached to SNA pass-through downstream controllers. For finance devices, DEVCLS(*SNPT) can be specified only if TYPE(*FNCICF) is also specified.

You cannot change this parameter using the change device description commands.

DEVD (Device description name):

All Device Types: This is the name that will be used when you are working with the Vary Configuration (VRYCFG) and Work with Configuration Status (WRKCFGSTS) commands. The name you give the device description must follow the AS/400 naming conventions, but it can be as descriptive as you choose. Examples are NYC370 and CUSINQ. Refer to the *CL Reference* for information about naming the AS/400 objects.

You can use the RNMOBJ command (or option 7 on the Work with you can use the WRKDEVD command to copy the original Device Descriptions display) to change the name of a device description.

DFTPGM (Default program name):

SNUF Devices: The program name to be called if a program start request is received from a host system that is not using an *EXEC/*EXEX/*TXTC/*TXTX format.

You can change this parameter while the device is still active using the CHGDEVSNUF command.

The change takes effect the next time the device is varied on.

DROP (Drop line at signoff):

Display Devices: For display stations attached to controllers on switched lines, this parameter specifies whether the line is to be disconnected by the system when all work stations on the line are no longer being used. When more than one work station is attached to the same controller, the line is disconnected only if all of the following are true:

- The device description for this device specifies DROP(*YES) or DROP(*YES) is specified on the SIGNOFF command when you sign off at the device.
- All of the other display stations connected to the controller are signed off.
- All printers attached to the controller are not in use.

If you use the default, DROP(*YES), the switched line to the controller to which this device is attached will be disconnected when this device and all other attached devices are no longer in use.

If you specify DROP(*NO), the switched line will not be disconnected from the controller when all of its attached devices are no longer in use.

The value specified in the device description can be overridden when signing off at the device by specifying DROP(*NO) on the SIGNOFF command.

You cannot change this parameter using the CHGDEVDSP command.

DTACPR (Compress and decompress data):

BSC Devices: Specify *YES to have blanks in BSC data compressed for output and decompressed for input; otherwise, use the default (*NO). This parameter is valid only if the APPTYPE parameter is *BSCEL or *RPGT.

You can change this parameter while the device is varied off using the CHGDEVBSC command.

EMLDEV (Emulated device):

BSC and SNA Host Devices: The type of 3270 device that is to be emulated. This parameter is valid only if the APPTYPE parameter is *EML. Values are:

3278 (The default) Display device
3284 Printer device
3286 Printer device
3287 Printer device
3288 Printer device
3289 Printer device

You can change this parameter while the device is still active using the appropriate change device description command. The change takes effect the next time an emulation session is started for this device description.

EMLKBD (Emulated keyboard):

BSC and SNA Host Devices: The type of 3278 display keyboard to be emulated. This parameter is valid only if the APPTYPE parameter is *EML. Possible values are:

- *UPPER (the default): Emulated with only uppercase characters for input.
- *LOWER: Emulated with uppercase and lowercase characters for input.

You can change this parameter while the device is still active using the appropriate change device description command. The change takes effect the next time an emulation session is started for this device description.

EMLNUMLCK (Emulated numeric lock):

BSC and SNA Host Devices: Specifies whether numeric input fields allow only numeric data on a 5250 keyboard. This parameter is valid only if APPTYPE(*EML) is also specified. Possible values are:

*NO (The default) 3270 device emulation allows any data to be typed in the numeric input fields.

*YES 3270 device emulation allows only numeric data to be typed in the numeric input fields. Numeric data includes characters 0 through 9 and the following symbols: + (plus sign), - (minus sign), , (comma), . (period), and blank.

You can change this parameter while the device is still active using the appropriate change device description command. The change takes effect the next time an emulation session is started for this device description.

EMLWRKSTN (Emulation work station):

BSC and SNA Host Devices: The name of an emulated device associated with a real display station or printer device. If the default (*ANY) is used, any work station can use the emulation device on a first-come, first-served basis. This parameter is valid only if the APPTYPE parameter is *EML.

You can change this parameter while the device is still active using the appropriate change device description command. The change takes effect the next time an emulation session is started for this device description.

ENDSSNHOST (End session with host):

SNA Host Devices: Specifies the command sent by the device when ending the session with the host system. Possible values are the default, *UNBIND, and *RSHUTD.

You can change this parameter while the device is still active using the CHGDEVHOST command. The change takes effect immediately.

ENVELOPE (Envelope source):

Printer Devices: Specifies the type of envelope used in the third paper source. This parameter is valid only if TRANSFORM(*YES) is specified. Possible values are:

*MFRTYPMDL
: The system determines the envelope type used based on the manufacturer, type, and model of the printer.

*MONARCH
: Monarch-sized envelopes (3.875 x 7.5 inches).

*NUMBER9
: Number 9-sized envelopes (3.875 x 8.875 inches).

*NUMBER10
: Number 10-sized envelopes (4.125 x 9.5 inches).

*B5
: B5-sized envelopes (176mm x 250mm).

*C5
: C5-sized envelopes (162mm x 229mm).

*DL
: DL-sized envelopes (110mm x 220mm).

*NONE
: No envelope source is defined.

You can use the CHGDEVPRT command to change this parameter when the device is varied off.

FONT (Font identifier):

Printer Devices: Specifies the font identifier and point size used by *IPDS, 3812, or 5219 printers. This parameter consists of two elements:

font-identifier
: Specifies the font identifier used by this printer. Tables listing fonts that can be specified for this parameter are included in the *Guide to Programming for Printing* and in the description of the CRTPRTF command in the *CL Reference*.

point-size
: Specifies the point size used by this printer. Possible values are *NONE (the default), or any value in the range 000.1 through 999.9.

You can change this parameter while the device is still active using the CHGDEVPRT command. This change takes effect when the next file is opened for printing.

FORMDF (Form definition):

Printer Devices: Specifies the library and form definition to be used for print requests that do not specify a form definition. The default for this parameter, *LIBL/F1C10110, will work for all printers configured for Advanced Function Printing. Other form definitions may be specified using *LIBL/, *CURLIB/, or a specific *library-name/* followed by the *form-definition-name*.

This parameter is used only if AFP(*YES) is specified.

You can change this parameter when the printer is varied off using the CHGDEVPRT command.

FORMFEED (Form feed):

Printer Devices: The mode in which forms are fed into the printer. Valid values are:

*TYPE (The default) The system selects the form feed value based on the printer device type.
*CONT Continuous forms are used by the printer (the tractor-feed attachment must be installed).
*CUT Single sheets are used by the printer. Each sheet must be manually loaded.
*AUTOCUT Single-cut sheets are automatically fed into the printer (the sheet-feed attachment must be installed).

Note: For printers that specify TRANSFORM(*YES), the value specified for the PPRSRC1 parameter overrides the value specified for the FORMFEED parameter. You can change this parameter while the device is still active using the CHGDEVPRT command. This change takes effect when the next file is opened for printing.

GRPSEP (Group separator):

BSC Devices: A separator for groups of data (data sets, documents, and so forth). This parameter is valid only if the APPTYPE parameter is *BSCEL or *RPGT. Possible values are:

*EOT (The default) An end-of-transmission (EOT) control character follows the last data record.
*OFCSYS An end-of-text (ETX) control character follows the last data record.
*DEV3740 A null record (STXETX) follows the last data record.

You can change this parameter while the device is varied off using the CHGDEVBSC command.

HCPEML (HCP emulation):

SNUF Devices: For devices that specify HOST(*ADCS), this parameter specifies the type of Host Command Processor emulated session that this device description will be used for.

Possible values are:

4680 (The default) 4680 Host Command Processor emulated session.
3651 3651 Host Command Processor emulated session.
3684 3684 Host Command Processor emulated session.
4684 4684 Host Command Processor emulated session.
*STRUSRPGM Start user program emulated session.

You can change this parameter while the device is still active using the CHGDEVSNUF command. The change takes effect the next time the device is varied on.

HOST (Host type):

SNUF Devices: The host type matches the type of host system with which the device will communicate. Possible values are:

*CICS (The default) Customer Information Control System
*IMS Information Management System
*IMSRTR Information Management System with Ready to Receive
*ADCS Advanced Data Communications for Stores

You can change this parameter while the device is still active using the CHGDEVSNUF command. The change takes effect the next time the device is varied on.

IGCFEAT (DBCS feature)

Display and Printer Devices: The double-byte character set table to be used by this device. Figure 8-13 shows the values that should be specified for DBCS display stations and printers.

You can change this parameter while the device is varied off using the appropriate change device description command.

Figure 8-13 (Page 1 of 2). DBCS Feature Values for DBCS Devices

Language/Device	Actual DBCS Device Type	Configured as TYPE-MODEL	IGCFEAT Parameter Value
Japanese Display Stations	5295-001 Display Station	5555-B01, C01	2424J4 55FE
	5295-002 Display Station	5555-B01, C01	2424J4 68FE
	5578-001 Display Station	3279-0	2424J0
	3472-J DBCS Work Station	3279-0	2424J0
	InfoWindow* 3477-J	5555-B01, C01	2424J4 68FE
	Personal System/55 running 5250PC	5555-B01, C01, G01, G02	2424J4 68FE
	Personal System/55 running 5250PC/2 AD	5555-E01, F01	2424J0
	Personal System/55 running OS/2* 5250 Work Station Feature	5555-B01, C01	2424J0
	Personal System/55 running 3270PC	3279-0	2424J0
Japanese 24x24 Printers	Attached to 5295-001 Display Stations	5553-B01	2424J1 55FE
	Attached to 5295-002 or InfoWindow 3477-J Display Stations	5553-B01	2424J1 68FE
	Attached to Personal System/55	5553-B01	2424J1 68FE
	5227-001 Printer	5553-B01	2424J2 55FE
	5327-001 Printer	5553-B01	2424J2 68FE
Japanese 32x32 Printers	5585-H01 Printer	5553-B01	2424J1 68FE
	5587-G01 Printer	5553-B01	2424J1 68FE
	5337-001 Printer	5553-B01	3232J0
	5583-200 Printer	5583-200	3232J0
Japanese Multi-Purpose Printer	5582-P01 Printer	5553-B01	2424J1 68FE
Korean Display Stations	Personal System/55 running 3270PC	3279-0	2424K0
	All other display stations	5555-B01	2424K0
Korean 24x24 Printers	Attached to 5295 Display Stations	5553-B01	2424K0
	Attached to Personal System/55	5553-B01	2424K0
	5227-002 Printer	5553-B01	2424K2 52FE
	5327-002 Printer	5553-B01	2424K2 52FE
Traditional Chinese Display Stations	Personal System/55 running 3270PC	3279-0	2424C0
	All other display stations	5555-B01	2424C0
Traditional Chinese 24x24 Printers	Attached to 5295 or InfoWindow 3477-T Display Stations	5553-B01	2424C0
	Attached to Personal System/55	5553-B01	2424C0
	5227-003 Printer	5553-B01	2424C2 5CFE
	5327-003 Printer	5553-B01	2424C2 5CFE

Figure 8-13 (Page 2 of 2). DBCS Feature Values for DBCS Devices

Language/Device	Actual DBCS Device Type	Configured as TYPE-MODEL	IGCFEAT Parameter Value
Simplified Chinese Display Stations	Personal System/55 running 3270PC	3279-0	2424S0
	All other display stations	5555-B01	2424S0
Simplified Chinese 24x24 Printers	Attached to 5295 Display Stations	5553-B01	2424S0
	Attached to Personal System/55	5553-B01	2424S0
	5227-005 Printer	5553-B01	2424S2 6FFE
Simplified Chinese 32x32 Printer	5337-R05 Printer	5553-B01	3232S0

INACTTMR (Inactivity timer):

Display, Finance, Printer, and Retail Devices:
This parameter specifies the amount of time the device can be inactive before the session is ended. This parameter is valid only for devices attached to ASCII work station controllers, SNA pass-through devices (DEVCLS(*SNPT)), and display or printer devices that specify an application type (APPTYPE is *NRF, *CTLSSN, *DEVINIT, or *APPINIT). Possible values are:

*ATTACH Default value for display and printer devices.
- For devices that specify DEVCLS(*SNPT) and printers that specify APPTYPE(*DEVINIT), *ATTACH (the default) provides no inactivity timer (same as *NOMAX).
- For devices that specify APPTYPE(*NRF), printers that specify APPTYPE(*APPINIT), and display devices that specify an APPTYPE of *CTLSSN, *DEVINIT, or *APPINIT, *ATTACH provides an inactivity timer of 1 minute.

*NOMAX No maximum inactivity time. The device can idle indefinitely. This value is the default for finance and retail devices.

*SEC15 The inactivity timer is set to 15 seconds.

*SEC30 The inactivity timer is set to 30 seconds.

inactivity-timer
Specify a value from 1 to 30 minutes.

You can change this parameter when the device is varied off using the appropriate change device description command.

KBDTYPE (Keyboard language type):

Remote Display Devices—DEVCLS(*RMT):
The 3-character keyboard type identified for TYPE 3277, 3278, or 3279 display stations. The default, *SYSVAL, uses the keyboard type specified in the system value QKBDTYPE. If the default is not used, use Figure 8-14 to determine the correct keyboard type for this display station.

You can change this parameter when the device is varied off using the CHGDEVDSP command.

Figure 8-14 (Page 1 of 2). KBDTYPE Values for Remote Display Devices

Language or Country	Keyboard Type
Austria/Germany Multinational	AGI
Belgium Multinational	BLI
Canadian French Multinational	CAI
Denmark Multinational	DMI
Finland Multinational	FNI
France (Azerty) Multinational	FAI
Italy Multinational	ITI
Norway Multinational	NWI
Portugal Multinational	PRI
Spain Multinational	SPI
Spanish Speaking Multinational	SSI
Sweden Multinational	SWI

Figure 8-14 (Page 2 of 2). KBDTYPE Values for Remote Display Devices	
Language or Country	**Keyboard Type**
United States/Canada English	USB
United States/Canada Multinational	USI

Virtual Display Devices—DEVCLS(*VRT): The 3-character keyboard type identified for this display station. The default, *SYSVAL, uses the keyboard type specified in the system value QKBDTYPE. If the default is not used, use Figure 8-15 to determine the correct keyboard type for this display station.

You can change this parameter when the device is varied off using the CHGDEVDSP command.

Figure 8-15 (Page 1 of 2). KBDTYPE Values for Virtual Display Devices	
Language or Country	**Keyboard Type**
Arabic X/Basic	CLB
Austria/Germany	AGB
Austria/Germany Multinational	AGI
Belgium Multinational	BLI
Brazil	BRB
Canada/French	CAB
Canada/French Multinational	CAI
Cyrillic	CYB
Denmark	DMB
Denmark Multinational	DMI
Finland/Sweden	FNB
Finland/Sweden Multinational	FNI
France (Azerty)	FAB
France (Azerty) Multinational	FAI
France (Qwerty)	FQB
France (Qwerty) Multinational	FQI
Greece	GNB [1]
Hebrew	NCB
Iceland	ICB
Iceland Multinational	ICI
International	INB
International Multinational	INI

Figure 8-15 (Page 1 of 2). KBDTYPE Values for Virtual Display Devices	
Language or Country	**Keyboard Type**
Italy	ITB
Italy Multinational	ITI
Japan/English	JEB
Japan/English Multinational	JEI
Japan/Kanji	JKB [2]
Japan/Katakana	KAB [3]
Japan/US Basic	JUB
Korea	KOB
Latin 2	ROB
Netherlands	NEB
Netherlands Multinational	NEI
Norway	NWB
Norway Multinational	NWI
Portugal	PRB
Portugal Multinational	PRI
Simplified Chinese	RCB
Spain	SPB
Spain Multinational	SPI
Spanish Speaking	SSB
Spanish Speaking Multinational	SSI
Sweden	SWB
Sweden Multinational	SWI
Switzerland/French Multinational	SFI
Switzerland/German Multinational	SGI
Thailand	THB
Traditional Chinese	TAB
Turkey	TKB
United Kingdom/English	UKB
United Kingdom Multinational	UKI
United States/Canada English	USB
United States/Canada Multinational	USI

Figure 8-15 (Page 2 of 2). KBDTYPE Values for Virtual Display Devices

Language or Country	Keyboard Type
Languages of the former Yugoslavia—Multinational	YGI

Notes:

1 Keyboard type GKB can also be specified

2 For PS/55 and 5295 display stations

3 For 3180, 5251, 5291, and 5292 Katakana display stations

You can change this parameter when the device is varied off using the CHGDEVDSP command.

LCLCTLSSN (Locally controlled session):

APPC Devices: Whether the single session is locally or remotely controlled. Use the default *NO if the single session is controlled by the remote system. Specify *YES if the single session is controlled by the local system.

Note: This parameter is valid only if *YES is specified for the SNGSSN (*Single session*) parameter.

You can change this parameter while the device is varied off using the CHGDEVAPPC command.

LCLLOCNAME (Local location name):

APPC Devices: The name by which the local AS/400 system is known to other devices in the network. Each location (logical unit) in the network must have a unique name. Allowed values are:

- *NETATR (the default): The local location name is retrieved from the network attributes, which can be changed using the Change Network Attributes (CHGNETA) command. See the *APPN Guide* for more information about the CHGNETA command.
- *local-location-name:* A user-specified name of up to 8 characters.

Your location is considered to be the **local** location. This name is also used by the remote locations to identify your location and must match one of the remote location names specified in the remote system configuration.

If the remote system is:

- A System/36, the local location must be the same as the *Remote location name* specified on display 29.0 during APPC/APPN configuration at the System/36.
- A System/38, the local location must match the value specified for the RMTLU parameter of the Create Device Description (CRTDEVD) command.
- An AS/400 system not using APPN (APPN(*NO) specified for the controller and device descriptions), the local location must match the value specified for the RMTLOCNAME parameter in the device description.
- An AS/400 system using APPN (APPN(*YES) specified for the controller and device descriptions), the local location can match a value specified as a remote location name in an APPN remote location list. However, because you do not need to define remote locations on an AS/400 system using APPN, your system's local location name does not need to be defined as a remote location name on a remote AS/400 system. See "APPN Location Lists" on page 10-3 for information on remote location lists and when remote location names need to be defined.

You cannot change this parameter using the CHGDEVAPPC command.

Display and Printer Devices: Specifies the name by which the local system (the system to which the printer is attached) is known to remote systems. Allowed values are:

- *NETATR (the default): The local location name is retrieved from the network attributes, which can be changed using the Change Network Attributes (CHGNETA) command. See the *APPN Guide* for more information about the CHGNETA command.
- *local-location-name:* A user-specified name of up to 8 characters. For devices that specify APPTYPE(*APPINIT), this value

For display devices, this parameter is valid only if APPTYPE(*APPINIT) is specified. For printer devices, this parameter is valid only if APPTYPE(*APPINIT) is specified or if AFP(*YES) and AFPATTACH(*APPC) are specified.

You can change this parameter when the device is varied off by using the appropriate change device description command.

LOCADR (Local location address):

APPC Devices: The address assigned to this location can be specified as any 2-digit hexadecimal value. Valid location addresses are from hex 00 (the default) through hex FF. Addresses other than hexadecimal 00 must be unique for all devices attached to the same host controller. Multiple devices can be defined with an address of 00.

When the APPC device being defined is attached to an APPC controller, specify hex 00 for the location address.

When the APPC device is attached to a host controller, specify this parameter as follows:

- If the local location is dependent on the host system to send an activation command before sessions can be established, specify a value other than hex 00. This indicates that the dependent local location cannot send session activation requests to the host system and that a session limit of 1 is enforced for this device description. In this case, the SNGSSN parameter must be specified as *YES.
- If either the local or remote location can establish the sessions, meaning that the locations are independent, specify a value of 00. See Appendix E for host line-sharing examples of both dependent and independent locations.

Note: Only host systems with VTAM Version 3 Release 2 and ACF/NCP Version 4 Release 3 (or later) can support independent locations. You can change this parameter while the device is varied off using the CHGDEVAPPC command.

BSC Devices: The location address must be unique for each device that can be attached to the same controller. It can be specified as any hexadecimal value from 00 to FE.

For point-to-point communications, a value of 00 is required. For multipoint tributary and 3270 communications, specify the device address desired (01 to FE). If the application type is *EML, the address must be from the following group: 40, 4A-4F, 50, 5A-5F, C1-C9, or D1-D9.

You can change this parameter while the device is varied off using the CHGDEVBSC command.

Display, Finance, SNA Host, Printer, Retail, SNA Pass-Through, and SNUF Devices: The location address must be unique for each device that is to be attached to the same controller. This parameter is required for remote (DEVCLS(*RMT)) display and printer devices.

Hexadecimal values that can be specified are:

- Display and printer devices: 00-FE

  For displays and printers attached to 5294, 5394, or 5494 Remote Control Units, use the following figure to determine the value to use for the LOCADR parameter. The value specified is based on the port number (on the back of the controller) and the device address. For example, if the device is attached to port number 2, device address 0, specify LOCADR(0E).

Figure 8-16. LOCADR Values for Devices Attached to 5x94 Controllers

Port Number	Device Address						
	0	1	2	3	4	5	6
0	00	01	02	03	04	05	06
1	07	08	09	0A	0B	0C	0D
2	0E	0F	10	11	12	13	14
3	15	16	17	18	19	1A	1B
4	1C	1D	1E	1F	20	21	22
5	23	24	25	26	27	28	29
6	2A	2B	2C	2D	2E	2F	30
7	31	32	33	34	35	36	37

  For SPLS displays and printers that specify APPTYPE(*APPINIT) or APPTYPE(*DEVINIT), LOCADR must be 00. For display devices that specify APPTYPE(*CTLSSN), LOCADR cannot be 00.

- SNA pass-through devices: 01-FE
- SNA host and SNUF devices: 01-FF. This hexadecimal value must match the decimal local location address (LOCADDR) specified on the LU macroinstruction in the host system's Network Control Program (NCP) generation.

- Finance devices: For all finance devices attached to 4701 and 4702 finance controllers, LOCADR(01) is valid only for TYPE(*FNCICF). It is used to identify the system monitor session.

  01-04 Devices attached to 3694 controllers
  01-FF Devices attached to 4701, 4702, and *FBSS controllers
  01-03 Devices attached to 4730 controllers (devices must be TYPE(*FNCICF))
  01-02 Devices attached to 4731, 4732, and 4736 controllers (devices must be TYPE(*FNCICF))

- Retail devices: Valid location addresses for retail devices depend on the type of controller to which the device is attached:

  01-0E Devices attached to 3651 controllers
  01-02 Devices attached to 3684 controllers
  01-54 Devices attached to 4680 controllers
  01-FE Devices attached to 4684 controllers

  For devices attached to 4684 controllers, a device with APPTYPE(*OTHER) should specify LOCADR(01); devices with APPTYPE(*RCMS) should use location addresses 02 through FE.

You can change this parameter when the device is varied off using the appropriate change device description command.

LOCPWD (Location password):

APPC Devices: Specifies the use of a password to validate session establishment. When validation is required and specified by this parameter, you can type a hexadecimal password of up to 16 characters. Allowed values are:

- *NONE (the default): No location password is required to validate a session activation request.
- *location-password:* You must type the hexadecimal equivalent of the password characters; therefore, an even number of characters must be specified. The value can be any combination of 0 through 9 and A through F.

This parameter is not applicable if APPN(*YES) and LOCADR(00) are specified. In this case, the information is obtained from the APPN remote location configuration list.

For information about APPC security use and for creating a random hexadecimal password, see the *APPC Programmer's Guide*.

You can change this parameter while the device is varied off using the CHGDEVAPPC command.

LOGON (Host signon/logon command):

Display and Printer Devices: Specifies the logon string that is sent to the host network at file open time. Possible values are the default, *NONE, or up to 256 characters. If the text contains blanks or special characters, it must be enclosed in apostrophes.

This parameter is valid only if DEVCLS(*SNPT) or APPTYPE(*NRF) is specified.

You can change this parameter when the device is varied off using the appropriate device description command.

MAXLENRU (Maximum length of request unit):

SNA Host Devices: The default maximum size of the request/response unit (RU) that can be sent or received by the local system if the maximum size is not specified in the bind command received from the host system.

Possible values depend on the type of line to which the device is attached:

- For SDLC lines, possible values are *CALC, 256, 512, 1024, 2048, or 4096.
- For token-ring network and Ethernet lines, possible values are *CALC, 256, 512, or 1024.
- For X.25 lines, possible values are *CALC, 241, 247, 497, 503, 1009, 1015, 2033, 2039, 4081, or 4087.

If *CALC (the default) is specified, the system selects the best value, based on the MAXFRAME parameter specified in the controller description. Figure 8-17 shows the values calculated if MAXLENRU is specified.

You can change this parameter while the device is still active using the CHGDEVHOST command.

Display, Finance, Printer, and Retail Devices: The maximum request unit (RU) length allowed for the remote device. *CALC is the default for all device types. *CALC uses the value specified for the maximum frame size (MAXFRAME) parameter from the appropriate controller description to calculate a value for MAXLENRU. The default value for MAXFRAME in the controller description is *LINKTYPE. *LINKTYPE provides a value for MAXFRAME that is based on the line protocol used. You can also specify a numeric value as described below:

- Valid values for display and printer devices are *CALC, 241, or 247. Values 241 and 247 are valid only for devices using X.25 lines.
- Valid values for finance devices depend on the TYPE of controller and on the type of line to which the device is attached. Devices attached to controller TYPEs 3694, 4730, 4731, 4732, and 4736 must specify 256 or *CALC. For devices attached TYPEs 4701, 4702, and *FBSS, specify values based on the line type, as follows:
  - For SDLC lines, possible values are *CALC, or any value 256 through 4096 in increments of 256.
  - For token-ring network lines (devices attached to *FBSS controllers), possible values are *CALC, or any value in the range 8 through 4096.
  - For X.25 lines, possible values are *CALC, 247, 503, 1015, 2039, and 4087.
- Valid values for retail devices depend on the TYPE of controller and on the type of line to which the device is attached. The value 256 is required for retail devices with LOCADR(01) specified. Devices attached to controller TYPEs 3651, 3684, and 4680 must specify 256, 512 or *CALC. For devices attached to 4684 controllers, specify values based on the line type, as follows:
  - For SDLC lines, possible values are *CALC, 256, 512, or 1024.
  - For X.25 lines, possible values are *CALC, 247, 503, and 1015.

Figure 8-17 shows the relationship between the line protocol, controller description MAXFRAME value, and the value calculated for MAXLENRU if *CALC is specified:

*Figure 8-17. Values Calculated by MAXLENRU(*CALC)*

Line Protocol	MAXFRAME from Controller Description	MAXLENRU Calculated by *CALC
SDLC	*LINKTYPE	512
	261	256
	265	256
	517	512
	521	512
	1033	1024
	2057	2048
Token-ring and Ethernet networks	*LINKTYPE	1985
	265	256
	521	512
	1033	1024
	1994	1985
	4060	4051
	8156	8147
	Values in the range 265-8156	MAXLENRU equals MAXFRAME – 9
X.25 (QLLC)	*LINKTYPE	1015
	265	247
	521	503
	1033	1015
	2048	2039
	4096	4087
X.25 (ELLC)	*LINKTYPE	1009
	265	241
	521	497
	1033	1009
	2048	2033
	4096	4081
TDLC	*LINKTYPE	4096

You can change this parameter while the device is varied off using the appropriate change device description command.

MAXPNDRQS (Maximum pending requests):

Printer Devices: Indicates the maximum number of print requests that can be queued for printers configured for Advanced Function Printing. Possible values are any number of requests between 1 and 31; the default is 6.

This parameter is used only if AFP is *YES.

You can change this parameter when the printer is varied off using the CHGDEVPRT command.

MFRTYPMDL (Manufacturer type and model):

Printer Devices: Specifies the manufacturer, type, and model of the printer using the host print transform function. This parameter is required if TRANSFORM(*YES) is specified, and is valid only if TRANSFORM(*YES) is specified.

See the *Guide to Programming for Printing* or the *CL Reference* for a list of allowed values for this parameter.

You can use the CHGDEVPRT command to change this parameter when the device is varied off.

MODE (Mode):

APPC Devices: The names used by the local AS/400 system and the remote system to refer to the group of sessions between the local and remote locations with the same characteristics. A list of up to 14 mode names can be specified. Valid values are:

- *NETATR (the default): The mode name is specified in the network attributes.
- *mode-name*: A user-specified name of up to 8 characters. Do not use the reserved name CPSVCMG.

The following mode descriptions are already created on the AS/400 system: BLANK, #BATCH, #INTER, #BATCHSC, and #INTERSC. See the topic "Mode Descriptions" on page 9-2 for information about the system-supplied modes. Use the Display Mode Description (DSPMODD) command to determine the values defined for mode description parameters.

Note: If APPN(*YES) and LOCADR(00) are specified for this device description, no modes should be added to the device description The APPN support automatically adds modes to the device when a session establishment request is received on a mode currently not attached to the device. If the remote system is:

- A System/36, the mode name is specified as the session-group name in the CNFIGICF procedure. A session-group name of *BLANK on the System/36 is equivalent to BLANK on the AS/400 system.
- A System/38, the mode name is specified as the mode value on the Add Device Mode Entry (ADDDEVMODE) command. A mode name of *BLANK on the System/38 is equivalent to BLANK on the AS/400 system.
- An AS/400 system not using APPN, the mode name is specified in the MODE parameter in the device description.
- An AS/400 system using APPN, the mode name must be configured using the Create Mode Description (CRTMODD) command, but need not be specified in a device description.

You can change this parameter while the device is varied off using the CHGDEVAPPC command.

Printer Devices: Specifies the name of the mode used to define the session limits and session characteristics for this device. Valid values are:

- QSPWTR (the default): This mode is available specifically for use with printers configured for Advanced Function Printing.
- *NETATR: The mode name is specified in the network attributes.
- *mode-name*: A user-specified name of up to 8 characters. Do not use the reserved name CPSVCMG.

This parameter is used only if AFP(*YES) and AFPATTACH(*APPC) are specified.

You can change this parameter when the printer is varied off using the CHGDEVPRT command.

MODEL (Device model):

Display Devices: The model number of the device, which indicates to the system the operational capabilities of the device. Allowed TYPE and MODEL numbers for single- and double-byte character set display stations are shown in Figure 8-18 and Figure 8-19 on page 8-38. You

cannot change this parameter using the CHGDEVDSP command.

Figure 8-18. SBCS Display Station TYPE and MODEL Numbers

Actual Device TYPE	Actual Device MODEL	Configured as TYPE	Configured as MODEL
3179	2 (Color)	Same	Same
3180	2	Same	Same
3196	A1, A2, B1, B2	Same	Same
3197	C1 (Color), C2 (Color), D1, D2, W1, W2	Same	Same
3197	D4	Same	D1
3277	0, *DHCF	Same	Same
3278	0, 4, *DHCF	Same	Same
3279	0, *DHCF	Same	Same
3476	EA, EG	Same	EA
3476	EC	Same	Same
3477	FA, FC, FD, FE, FG, FW	Same	Same
3486	BA, BG	Same	BA
3487	HA, HC, HG, HW	Same	Same
5150	1, 2	Same	Same
5251	11	Same	Same
5291	1, 2	Same	Same
5292	1 (Color)	Same	Same
5292	2 (Graphics)	Same	Same
Personal Computer running 5250 Emulation Program Version 2.10, 2.1, or 2.12	5150, 5160, 5170	5291 5292	2 2
Personal Computer running PC Support/400	5150, 5160, 5170	5150	1
Personal System/2* running 5250 Emulation Program Version 2.12	8530	5291 5292	2 2
Personal System/2 running PC Support/400	8530	5150	1
Personal System/2 running Work Station Emulation Program Version 1	8550, 8560, 8580	3196 5292	A2 2
Personal System/2 running PC Support/400	8550, 8560, 8580	5150	2

Figure 8-19 (Page 1 of 2). DBCS Display Station TYPE and MODEL Numbers

Actual Device TYPE	Actual Device MODEL	Configured as TYPE	Configured as MODEL
3477	Monochrome models	5555	B01
3477	Color models	5555	C01
5295	001, LK1	5555	B01
5295	002, 0C2, 0H2	5555	C01
Personal System/55 running 5250PC or 5250 Work Station Feature	Monochrome	5555	B01
Personal System/55 running 5250PC or 5250 Work Station Feature	Color	5555	C01
Personal System/55 running 5250PC or 5250 Work Station Feature	Graphics (monochrome text)	5555	G01
Personal System/55 running 5250PC or 5250 Work Station Feature	Graphics (color text)	5555	G02
Personal System/55 running 5250PC/2 AD	Monochrome models	5555	E01
Personal System/55 running 5250PC/2 AD	Color models	5555	F01
Personal System/55 running 3270PC	All models	3279	0

Printer Devices: The model number of the device, which indicates to the system the operational capabilities of the device. Allowed TYPE and MODEL numbers for single- and double-byte character set printers are shown in Figure 8-20 and Figure 8-21.

You cannot change this parameter using the CHGDEVPRT command.

Figure 8-20 (Page 1 of 2). SBCS Printer TYPE and MODEL Numbers

Actual Device TYPE	Actual Device MODEL	Configured as TYPE	Configured as MODEL
3287	0	Same	0
3812 (non-IPDS)	1, 2	Same	1
3812 (IPDS)	2	*IPDS	0
3816 (non-IPDS)	01S	3812	01
3816 (IPDS)	01S	*IPDS	0
3820	01	*IPDS	0
3825	01	*IPDS	0
3827	01	*IPDS	0
3835	01	*IPDS	0
4210	1	4214	2
4214	2	Same	Same
4224	101, 102, 1E2, 1C2, 1E3	*IPDS	0

Figure 8-20 (Page 2 of 2). SBCS Printer TYPE and MODEL Numbers

Actual Device TYPE	Actual Device MODEL	Configured as TYPE	Configured as MODEL
4234	2	Same	Same
4234	12	*IPDS	0
4245	T12, T20	Same	Same
5219	D01, D02	Same	D1, D2
5224	1, 2	Same	Same
5225	1, 2, 3, 4	Same	Same
5256	1, 2, 3	Same	Same
5262	1	5256	1
6252	T08	Same	Same

Figure 8-21. DBCS Printer TYPE and MODEL Numbers

Actual Device TYPE	Actual Device MODEL	Configured as TYPE	Configured as MODEL
5227	001, 002, 003, 005	5553	B01
5317	001	5553	B01
5327	001, 002, 003	5553	B01
5337	001, R05	5553	B01
5553	B01, B02	5553	B01
5557	B01	5553	B01
5563	B02, H02	5553	B01
5572	B01	5553	B01
5575	B01, B02, F01, F02	5553	B01
5577	B01, F01, F02, G01	5553	B01
5582	P01	5553	B01
5583	200	5583	200
5587	G01	5553	B01

MSGQ (Message queue):

APPC and Printer Devices: The message queue to which operational messages for this device are to be sent. Possible values are:

QSYSOPR
: (The default) Messages are sent to the system operator message queue.

message-queue-name
: Specify the qualified name of the message queue to which messages for this device are to be sent.

You can change this parameter at any time using the appropriate change device description command. The change takes place immediately.

ONLINE (Online at IPL):

All Device Types: This is the name that will be used when you are working with the Vary Configuration (VRYCFG) and Work with Configuration Status (WRKCFGSTS) commands. The name you give the device description must follow the AS/400 naming conventions, but it can be as descriptive as you choose. Examples are NYC370 and CUSINQ. See the *CL Reference* for information about naming the AS/400 objects.

If you want to change the name of an existing device description, you must delete the original device description (using the DLTDEVD command), then create a new one.

The device is varied on automatically when the system power is turned on if you use the default *YES; specify *NO if you want to vary it on manually using the Vary Configuration (VRYCFG) command. You can use the VRYCFG command to change the status of the device at any time after the initial program load (IPL).

You can change this parameter while the device is still active using the appropriate change device description command. The change takes effect the next time the device is varied on.

OUTQ (Output queue):

Display Devices: This parameter specifies the name of the output queue to be used for printed output associated with this display device. Possible values are:

*DEV (The default) The output queue associated with the printer device specified on the PRTDEV parameter is used.

output-queue-name
Specify the qualified name of the output queue to be used.

You can change this parameter at any time using the CHGDEVDSP command.

PACING (Pacing):

Printer and Retail Devices: This parameter specifies the number of request units (RUs) that can be sent or received before a pacing response must be sent or received. Valid values are 1 through 7 for printer devices and 0 through 7 for retail devices. The default value for both device types is 7.

You can change this parameter when the device is varied off using the appropriate change device description command.

PGMSTRRQS (Program start request capable):

SNUF Devices: Specify *YES to have this device reserved for program start requests. Except for distributed systems node executive (DSNX), the device cannot be acquired by a program on the local system. *NO is the default.

You can change this parameter while the device is still active using the CHGDEVSNUF command. The change takes effect the next time the device is varied on.

PPRSRC1 (Paper source 1):

Printer Devices: Specifies the type of paper used in paper source 1. This parameter is valid only if TRANSFORM(*YES) is specified. Possible values are:

*MFRTYPMDL
The system determines the paper type used based on the manufacturer, type, and model of the printer.

*LETTER
Letter-sized paper (8.5 x 11 inches).

*LEGAL Legal-sized paper (8.5 x 14 inches).

*EXECUTIVE
Executive-sized paper (7.25 x 10.5 inches).

*A4 A4-sized paper (210mm x 297mm).

*A5 A5-sized paper (148mm x 210mm).

*B5 B5-sized paper (182mm x 257mm).

*CONT80
Continuous-form paper, 8.0 inches wide.

*CONT132
Continuous-form paper, 13.2 inches wide.

*NONE No paper source is defined.

Note: The value specified for this parameter overrides the value specified for the FORMFEED parameter.

You can use the CHGDEVPRT command to change this parameter when the device is varied off.

PPRSRC2 (Paper source 2):

Printer Devices: Specifies the type of paper used in paper source 2. This parameter is valid only if TRANSFORM(*YES) is specified. Possible values are:

*MFRTYPMDL
: The system determines the paper type used based on the manufacturer, type, and model of the printer.

*LETTER
: Letter-sized paper (8.5 x 11 inches).

*LEGAL
: Legal-sized paper (8.5 x 14 inches).

*EXECUTIVE
: Executive-sized paper (7.25 x 10.5 inches).

*A4
: A4-sized paper (210mm x 297mm).

*A5
: A5-sized paper (148mm x 210mm).

*B5
: B5-sized paper (182mm x 257mm).

*NONE
: No paper source is defined.

You can use the CHGDEVPRT command to change this parameter when the device is varied off.

PREESTSSN (Pre-established session):

APPC Devices: Whether the single session is to be established when connection with the remote system is established. Use the default *NO if the session is not to be established when the connection is made. Specify *YES if the single session is established at connection time.

Note: This parameter is valid only if *YES is specified for the SNGSSN and LCLCTLSSN parameters.

You can change this parameter while the device is varied off using the CHGDEVAPPC command.

PRINTER (Associated printer device):

Display Devices: The device name of the printer to be associated with the display device. The device description of the work station printer named in this parameter must have already been created in another create device command and must currently exist on the system. Both the printer and the display must be attached to the same controller.

You can change this parameter while the device is still active using the CHGDEVDSP command.

PRTCVT (Print while converting):

Printer Devices: This parameter allows printers configured as AFP(*YES) to begin printing a spooled file while that file is being converted to an Advanced Function Printing data stream (AFPDS). Possible values are *YES (the default) or *NO.

You can change this parameter when the device is varied off using CHGDEVPRT command.

PRTDEV (Printer device):

Display Devices: This parameter specifies the name of the printer device to be used for printed output from this display device. Possible values are:

- *SYSVAL (the default): The printer device specified in the system value QPRTDEV is used.
- *printer-device-name*: Specify the printer device description name to be used for printed output from this display device.

You can change this parameter at any time using the CHGDEVDSP command.

PRTERRMSG (Printer error message):

Printer Devices: The printer will have inquiry messages or informational messages sent for recoverable errors. You must respond with action to inquiry messages; informational messages are information for you to use (no action required). Values are:

- *INQ (the default): Inquiry messages are sent for recoverable errors.
- *INFO: Informational messages are sent for recoverable errors.

You can change this parameter while the device is still active using the CHGDEVPRT command. This change takes effect when the next file is opened for printing.

PRTFILE (Print file):

Display Devices: The alternative printer device file to be used when no associated work station printer exists or when an error occurs during an attempt to use the work station printer. Specify the *print-file-name* of the device file that will do default system printing. The default value uses QSYSPRT.

You can change this parameter while the device is still active using the CHGDEVDSP command.

PRTRQSTMR (Print request timer):

Printer Devices: Specifies the number of seconds to wait after a print request has been sent to a continuous forms printer before the last printed output is forced into the output hopper. The default, *NOMAX, specifies an indefinite wait.

Possible values are the default, *NOMAX, or a specified number of seconds in the range 1 to 3600.

This parameter is used only if AFP is *YES and FORMFEED is *CONT.

You can change this parameter when the printer is varied off using the CHGDEVPRT command.

RCDLEN (Record length):

BSC Devices: The maximum record length allowed when communicating with this device. This parameter is valid only if the APPTYPE parameter is *BSCEL or *RPGT. Values are from 1 to 8192 bytes; the default is 512 bytes. This value must not exceed the maximum buffer size (MAXBUFFER) specified on the line description that this device is attached to. The value also must not exceed the value used for the BLKLEN parameter for this device.

You can change this parameter while the device is varied off using the CHGDEVBSC command.

SNUF Devices: The maximum record length allowed when communicating with this device. Valid values are from 1 to 32767 bytes; the default is 512 bytes.

You can change this parameter while the device is still active using the CHGDEVSNUF command. The change takes effect the next time the device is varied on.

RMTBSCEL (Remote BSCEL):

BSC Devices: Whether this device will communicate with a remote system that can recognize BSCEL commands and messages. This parameter is valid only if the APPTYPE parameter is *BSCEL.

*YES (the default) indicates that the remote system can recognize BSCEL transaction starting and ending commands and BSCEL online messages. *NO indicates that the remote system or device cannot recognize BSCEL commands or messages, but ICF support is desired (for example, an ICF file is used in place of a System/38 BSC or mixed device file).

Note: If you are using RPG T-specification support, you must specify *NO for this parameter. The *System/36-Compatible RPG II User's Guide and Reference* contains more information about RPG T-specifications.

You can change this parameter while the device is varied off using the CHGDEVBSC command.

RMTLOCNAME (Remote location name):

APPC Devices: The name of the remote location with which your system will be communicating. The location name can be up to 8 characters in length.

This parameter must match the local location name specified in the remote system's configuration definition because it is used by the local location to identify the remote location.

If the remote system is:

- A System/36, the name must be the same as the local location name specified on display 22.0 during APPC/APPN configuration at the System/36.
- A System/38, the name must match the value specified for the LCLLU parameter of the Create Device Description (CRTDEVD) command.
- An AS/400 system not using APPN (APPN(*NO) specified in the controller and device descriptions), the name must match the value specified for the LCLLOCNAME parameter in the remote AS/400 device description.
- An AS/400 system using APPN (APPN(*YES) specified in the controller and device descriptions), the name must match a local location name specified in the local configuration list (defined by the CRTCFGL command), the default local location name (defined by the CHGNETA command), or the local control

point name (defined by the CHGNETA command). See the *APPN Guide* for information about APPN and the CHGNETA command.

You cannot change this parameter using the change device description commands.

Asynchronous Devices: The name of the remote location with which your system will be communicating. This name is used by the local location to identify the remote location. The location name can be up to 8 characters in length.

You can use a remote location name of *NONE (the default) in the following situations:

- You are using asynchronous communications on an X.25 line and this device is attached to a generic controller (a controller able to accept calls from any network address). The remote controller must configure remote verification and supply a local location name and identifier that matches an entry in the asynchronous remote location configuration list for the call to be accepted. The remote location name is available when the incoming call is accepted. The local location name configured on the remote system becomes the remote location name of this device.
- You are using asynchronous communications and this device is only used to start programs from a remote system. No local programs can acquire this device.

You cannot change this parameter using the CHGDEVASC command.

BSC Devices: The name of the remote location with which your system will be communicating. The location name can be up to 8 characters in length.

This name is used by the AS/400 system to match the RMTLOCNAME parameter on the Add Intersystem Communications Function Device Entry (ADDICFDEVE) or the Override Intersystem Communications Function Device Entry (OVRICFDEVE) command. It is also used for reporting certain error conditions and status information through messages when ICF support is used.

You cannot change this parameter using the CHGDEVBSC command.

Display and Printer Devices: Specifies the name of the remote location. This parameter is valid only if APPTYPE(*APPINIT) is specified or, for printers, if AFP(*YES) and AFPATTACH(*APPC) are specified.

You can change this parameter when the device is varied off using the appropriate change device description command.

Finance, SNA Host, Retail, and SNUF Devices: The name of the remote location with which your system will be communicating. The location name can be up to 8 characters in length.

Notes:

1. For finance devices, this parameter can be specified only if TYPE(*FNCICF) is also specified.
2. The remote location names specified for RJE devices (SNA host device descriptions with APPTYPE(*RJE)) must be unique. The device description is not created if an existing device specifies the same remote location name.

You cannot change this parameter using the change device description commands.

Intrasystem Devices: The name of the remote location with which your program will be communicating. The location name can be up to 8 characters in length.

This name is used by the AS/400 system to match the RMTLOCNAME parameter on the Add Intersystem Communications Function Device Entry (ADDICFDEVE) or the Override Intersystem Communications Function Device Entry (OVRICFDEVE) command. It is also used for reporting certain error conditions and status information through messages when ICF support is used.

You cannot change this parameter using the CHGDEVINTR command.

RMTNETID (Remote network identifier)

APPC Devices: The 8-character name of the remote network in which the location resides. Allowed values are:

- *NONE (the default): The remote network identifier is not specified.
- *NETATR: The remote network identifier is the same as the local network identifier, which is specified in the network attributes.
- *remote-network-identifier:* A user-specified name of up to 8 characters.

If the remote system is:

- A System/36 using the APPN feature, this parameter must match the network ID specified on display 22.0 during APPN configuration at the System/36.
- An AS/400 system, this parameter must match the local network identifier, which is specified in the network attributes at the remote AS/400 system.

You cannot change this parameter using the CHGDEVAPPC command.

Display and Printer Devices: Specifies the name of the remote network. This parameter is valid only if APPTYPE(*APPINIT) is specified or, for printers, if AFP(*YES) and AFPATTACH(*APPC) are specified.

The default, *NETATR, gets the remote network name from the network attributes. Other possible values are *NONE, which uses hex 40 as the remote network identifier, or a specified remote network identifier.

You can change this parameter when the device is varied off using the appropriate change device description command.

SECURELOC (Secure location):

APPC Devices: Whether the local location allows the remote location to verify user passwords and to send a verified indicator with the program start request. *NO (the default) indicates that password verification will not be allowed. *YES indicates that password verification will be accepted.

This parameter is not applicable if APPN(*YES) and LOCADR(00) are specified. In this case, the information is obtained from the APPN remote location configuration list.

For information about APPC security, see the *APPC Programmer's Guide*. For information about APPN remote location configuration lists, refer to "APPN Location Lists" on page 10-3.

Note: The LOCPWD (*Location password*) and SECURELOC (*Secure location*) parameters are ignored if the system is a minimal security system (level 10 security).

You can change this parameter while the device is varied off using the CHGDEVAPPC command.

SEPCHAR (Separator character):

BSC Devices: If you specified *SEP for the blocking type, you need to specify the separator character used. This parameter is valid only if the APPTYPE parameter is *BSCEL or *RPGT. Values are:

- Hexadecimal 1E: The default separator character.
- *record separator character:* A 1-byte unique character (00 through FF). *Do not* use the following: 01-03, 10, 1D, 1F, 26, 2D, 32, 37, and 3D.

You can change this parameter while the device is varied off using the CHGDEVBSC command.

SEPDRAWER (Separator drawer):

Printer Devices: Use this parameter to select the sheet feeding drawer for file and job separators. Possible values are *FILE (the default), indicating that separator pages should be taken from the drawer specified in the printer file, or the drawer number (1, 2, or 3).

This parameter is valid only if FORMFEED is also specified.

You can change this parameter at any time using the CHGDEVPRT command.

SEPPGM (Separator exit program):

Printer Devices: Specifies the name of the exit program that is called when printing job and file separator pages. Possible values are:

*NONE (The default) No exit program is called.

exit-program-name
Specify the qualified name of the exit program called when printing job and file separator pages.

See the *System Programmer's Interface Reference* for a description of the exit program interface.

You can change this parameter at any time using the CHGDEVPRT command. The change takes place immediately.

SNGSSN (Single session):

APPC Devices: Specifies whether or not communications with the remote location is limited to one session. The default *NO indicates that multiple sessions over one or more attached modes are allowed.

*YES specifies that this device description is for a single session remote location and is limited to one mode with a session limit of one. If *YES is specified, the maximum number of conversations for the session can also be specified. The number of conversations specified can be any number in the range 1 through 512; the default is 10.

Some devices, including the 5520 and the Displaywriter work stations, require that single sessions be specified.

You can change this parameter while the device is varied off using the CHGDEVAPPC command.

SNPTCLS (SNA pass-through class):

SNA Pass-Through Devices: Specify whether this device is to be used as an upstream or downstream pass-through device. Possible values are *UP for upstream attachments to SNA host and APPC controllers, or *DOWN for downstream attachments to APPC controllers.

You cannot change this parameter using the CHGDEVSNPT command.

SNPTDEV (SNA pass-through device description):

Display, Finance, Printer, Retail, and SNA Pass-Through Devices: Specifies the name of the pass-through device with which this device is associated. This parameter is valid only for SNA pass-through devices and display, printer, retail, and finance devices that specify DEVCLS(*SNPT).

- For devices attached to host controllers or upstream APPC controllers, specify the name of the downstream device with which it is to be associated.
- For downstream devices attached to APPC controllers, specify the name of the upstream SNA pass-through device with which it is to be associated.

Possible values are *NONE (the default) or an associated SNA pass-through device name. This parameter and an SNA pass-through group name (SNPTGRP parameter) cannot both be specified.

You can change this parameter when the device is varied off using the appropriate change device description command.

SNPTGRP (SNA pass-through group name):

Display, Finance, Printer, Retail, and SNA Pass-Through Devices: Specifies the name of a group of upstream SNA pass-through devices with which this device can be associated. This parameter is allowed only for downstream SNA pass-through devices (SNPTCLS(*DOWN)) and display, printer, retail, and finance devices that specify DEVCLS(*SNPT).

The name specified for this parameter must match the *group name* configured for an SNA pass-through configuration list entry. Use of this parameter allows this downstream device to make a connection using any available upstream device in the group.

Possible values are *NONE (the default) or a group name. This parameter and an SNA pass-through device (SNPTDEV parameter) cannot both be specified.

You can change this parameter when the device is varied off using the appropriate change device description command.

SPCHOSTAPP (Special host application):

SNUF Devices: Specifies whether this device is used to communicate with a special host application. Possible values are:

*NONE (The default) No special host application is specified.
*FLASH The device is used to communicate with the FLASH application program. If this value is specified, PGMSTRRQS(*YES) must also be specified.

You can change this parameter while the device is still active using the CHGDEVSNUF command. The change takes effect the next time the device is varied on.

TEXT (Text 'description'):

All Device Types: The *description* briefly describes (in no more than 50 characters and enclosed in apostrophes) the device and its location.

You can use the appropriate change device description command to change the text description at any time.

TRANSFORM (Host print transform):

Printer Devices: Specifies whether the printer will use the host print transform function to generate ASCII printer data. Possible values are *NO (the default) or *YES.

See the *Guide to Programming for Printing* for more information about using the host print transform function.

You can use the CHGDEVPRT command to change this parameter when the device is varied off.

TRNSPY (Transmit in transparent mode):

BSC Devices: If transparency is to be used by this device, specify *YES; otherwise, use the default (*NO). This parameter is valid only if the APPTYPE parameter is *BSCEL or *RPGT.

You can change this parameter while the device is varied off using the CHGDEVBSC command.

TRUNC (Truncate trailing blanks):

BSC Devices: Trailing blanks are not removed from the output records if you use the default (*NO). Specify *YES if the trailing blanks are to be removed.

This parameter is valid only if the APPTYPE parameter is *BSCEL or *RPGT. Do not specify *YES if the blocking type is *NOSEP or *ITB.

You can change this parameter while the device is varied off using the CHGDEVBSC command.

TYPE (Device type):

Display Devices: Specify the display device type. Allowed device types are:

3179 Display station
3180 Display station
3196 Display station
3197 Display station
3277 Display station
3278 Display station
3279 Display station
3476 Display station
3477 Display station
3486 Display station
3487 Display station
5150 Personal computer
5251 Display station
5291 Display station
5292 Display station
5555 Display station (for DBCS systems)

See the table given for the MODEL parameter for more information about configuring these devices.

You cannot change this parameter using the CHGDEVDSP command.

Finance Devices: Allowed finance device types are:

*FNCICF
Specify *FNCICF when using ICF finance communications. Actual device numbers are not specified when using the ICF file interface.

Only TYPE(*FNCICF) devices can be attached to 4730, 4731, 4732, 4736, 4737, and FBSS controllers.

3624, 3694, 4704
Specify the 3624, 3694, and 4704 device types only when using non-ICF finance communications. The following lists the control-

lers to which each of these devices can be attached.

- 3624 Consumer Transaction Facility (CTF) can be attached only to 4701 and 4702 controllers.
- 3694 Document Processor can be attached only to the 3694 controller.
- 4704 Finance Communications Display Station can be attached only to 4701 and 4702 controllers.

Note: Devices other than those listed for the CRTDEVFNC command can be used as finance devices; however, the devices must be configured as one of the above types. For example, the 4710 printer can be used if configured as TYPE(*FNCICF).

3270 Displays and Printers
3270 displays and printers can also be attached to finance controllers.

- 3277, 3278, and 3279 displays can be configured using the CRTDEVDSP command with device class specified as remote (DEVCLS(*RMT)).
- 3287 printers can be configured using the CRTDEVPRT command with the device class specified as remote (DEVCLS(*RMT)).

You cannot change this parameter using the change device description commands.

Network Devices: Specifies the device type associated with this device. This parameter is required for network devices.

Possible values are:

*TCPIP TCP/IP communications
*OSI OSI communications
*USRDFN User-defined communications applications

You cannot change this parameter using the CHGDEVNET command.

Printer Devices: Specify the printer type. Allowed device types are:

3812 Printer
3287 Printer
4214 Printer
4234 Printer
4245 Printer
5219 Printer
5224 Printer
5225 Printer
5256 Printer
5262 Printer
5553 Printer (for DBCS systems)
5583 Printer (for DBCS systems)
6252 Printer
*IPDS Printers

See the table given for the MODEL parameter for more information about configuring these devices.

You cannot change this parameter using the CHGDEVPRT command.

WSCST (Work station customizing object):

Display and Printer Devices: Specifies the name of the object containing pointers to the work station customizing tables for this device. This parameter is valid only for local or remote ASCII and twinaxial devices using the work station customization function, and for printers using the host print transform function.

Possible values are: *NONE (the default), or the library and work station customizing object name. Specify the object name as *LIBL/, *CURLIB/, or a specific *library-name/* followed by the *work-station-customizing-object-name*. The object name specified must exist at the time the device description is varied on.

See the *Workstation Customization Function Programmer's Guide* for more information about work station customization; see the *Guide to Programming for Printing* for information about using the host print transform function.

You can change this parameter when the device is varied off using the appropriate change device description command.

Chapter 9. Modes and Class-of-Service Descriptions

This chapter describes how to define the AS/400 mode and class-of-service descriptions. Mode descriptions are used by advanced program-to-program communications (APPC) and Advanced Peer-to-Peer Networking (APPN) to describe session limits. Class-of-service descriptions tell the system which network nodes and transmission groups should be used when a session is established to a remote system in an APPN network.

Mode Descriptions

The mode description describes the session characteristics and number of sessions that will be used to negotiate the allowable values between the local and remote locations. A mode with the same name must exist at both end points (the local location and the remote location) of a session. The mode does not need to exist for an intermediate session except at the network node server for a low-entry networking node.

The following mode descriptions are shipped with the AS/400 system:

BLANK The default mode name specified in the network attributes when the system is shipped. Using this mode results in a mode name of blanks (hex 40). This mode is equivalent to the *BLANK session group name on a System/36 and to the *BLANK mode name parameter of the Add Device Mode Entry (ADDDEVMODE) command on a System/38.

#BATCH A mode tailored for batch communications.

#BATCHSC The same as #BATCH except that the associated class-of-service description requires a data link security level of at least *PKTSWTNET.

#INTER A mode tailored for interactive communications.

#INTERSC The same as #INTER except that the associated class-of-service description requires a data link security level of at least *PKTSWTNET.

QRMTWSC A mode tailored for use with the 5494 remote work station controller.

QSPWTR A mode used for advanced function printing (AFP).

See Figure 9-1 on page 9-7 for the values in the IBM-supplied mode descriptions. Every local location on your local system will use global mode limits (values for a given mode are used system wide) to negotiate session limits with every remote location. After session limit negotiation, the limits are kept between each local location and remote location.

Note: For single session devices, the values for the mode parameters MAXSSN, MAXCNV, LCLCTLSSN, and PREESTSSN are not used. The maximum number of conversations (MAXCNV value) for single session devices is specified on the SNGSSN parameter of the device description and can be any number in the range 1 through 512; the default value is 10. The values for MAXSSN, LCLCTSSN, and PREESTSSN come from the device description for configurations not using APPN and from the APPN remote location list for configurations using APPN.

Mode Description Parameters

This topic contains detailed descriptions of all the parameters that can be specified using the Create Mode Description (CRTMODD) command. Prompts for these parameters are shown in parentheses following the parameter name. **Parameters are listed in the order shown on the command prompt display.**

MODD (Mode description): Specify a 1- to 8-character name of the mode being created. The first character of the name must be uppercase A through Z, or special character $, #, or @ and cannot contain blanks, plus signs (+), periods (.), or underscores (_).

mode-name: Specify the mode name.

Note: When you specify BLANK it results in a mode name of 8 blank characters.

The value CPSVCMG is reserved for use by the system and cannot be specified here.

COS (Class-of-service): Specify the 1- to 8-character name of an existing class-of-service description. A class-of-service description is created using the Create Class-of-Service Description (CRTCOSD) command. The first character must be uppercase A through Z, or special character $, #, or @ and cannot contain blanks, plus signs (+), periods (.), or underscores (_). Allowed values are:

- #CONNECT (the default): Specifies that the #CONNECT class of service is to be used.
- #BATCH: Specifies that the #BATCH class of service is to be used.
- #INTER: Specifies that the #INTER class of service is to be used.
- #BATCHSC: Specifies that the #BATCHSC class of service is to be used.
- #INTERSC: Specifies that the #INTERSC class of service is to be used.
- *class-of-service-name*: Specify the class-of-service name.

MAXSSN (Maximum sessions): Specify the maximum number of sessions (1 through 512) that can be active at once for this mode. Allowed values are:

- 8 (the default): The maximum number of active sessions allowed is 8.
- *maximum-number-of-sessions*: Specify a value, 1 through 512, to specify the maximum number of sessions.

The value specified here should be at least as large as the value specified for the locally controlled session (LCLCTLSSN) parameter plus the number of locally controlled sessions specified at the remote system. When the mode is started, the maximum number of sessions is negotiated with the remote system, so the number of sessions will be less than or equal to this value.

Notes:

1. Each session configured here requires system storage resources. You should not configure more sessions than you will need so that you can maximize use of the system resources.
2. For a device description that is attached to a controller description and configured with APPN(*NO), the total session count for all modes attached to that device description cannot exceed 512.

   For a configuration with the controller description configured with APPN(*YES), the total session count for all modes that can be active between a local location and a remote location cannot exceed 512.

MAXCNV (Maximum conversations): Specify the maximum number of conversations that can be active at one time with the remote system that is allowed by this mode.

- 8 (the default): A maximum of eight conversations is allowed.
- *maximum-number-of-conversations:* Specify a value, 1 through 512, to specify the maximum number of conversations. The total number of conversations cannot exceed 512.

A **conversation** is the temporary connection of a program to a session, and can be either synchronous (both the source and target system are communicating) or asynchronous (the source has completed and detached from the session, but the target is still attached and has access to all the data sent by the source program). The value specified for the MAXCNV parameter is the sum of the synchronous and asynchronous conversations. The value specified here must be at least as large as the value specified for the MAXSSN parameter.

Notes:

1. Each conversation requested requires system storage resources. To maximize the use of the system resources, you should not configure more conversations than you will need.
2. For a device description that is attached to a controller description and configured with APPN(*NO), the total conversation count for all modes attached to that device description cannot exceed 512.

   For a configuration with the controller description configured with APPN(*YES), the total conversation count for all modes that can be active between a local location and a remote location cannot exceed 512.

LCLCTLSSN (Locally controlled sessions): Specify the minimum number of locally controlled sessions that need to be established and owned by source programs on this system for this mode.

- 4 (the default): A minimum of four sessions is used as locally controlled sessions for this mode entry.
- *locally-controlled-sessions:* Specify a value, 0 through 512, to specify the number of locally controlled sessions to be used. The total must be less than or equal to the value specified for the maximum number of sessions (MAXSSN parameter) active at the same time. This value must also be greater than or equal to the value specified for the pre-established sessions (PREESTSSN) parameter.

  It is possible for the number of active sessions shown on the Mode Status display to exceed the number specified in this parameter if all locally controlled sessions are in use.

PREESTSSN (Pre-established sessions): Specifies the number (0 through 512) of concurrent sessions that are to be established when the mode is started. When the mode is started, additional sessions can be established as needed.

- 0 (the default): No session is established when the connection is made. For switched lines, a value of 0 allows the AS/400 system to automatically disconnect the line when there are no active sessions (no synchronous conversations).
- *number-of-pre-established-sessions:* Specify a value, 0 through 512, to specify the maximum number of pre-established sessions that can be established when the connection is made. The value specified here must be less than or equal to the value specified for the maximum number of locally controlled sessions (LCLCTLSSN) parameter. A value greater than 0 keeps the line active until the device is varied off.

INPACING (Inbound pacing value):
Specifies the pacing value to be used for incoming request or response units (RUs).

- 7 (the default): A value of seven is used as the pacing value.
- *inbound-pacing-value:* Specify a value, 0 through 63, used as the limiting value.

This parameter is used as follows:

- If the adjacent location does not support adaptive pacing, then the value specified here is used to negotiate the maximum number of RUs that is to be received on a session before a response is sent to the adjacent system.
- If the adjacent location does support adaptive pacing, then the value specified here is the suggested minimum number of RUs that is to be received on a session before a response is sent to the adjacent system. The value is not negotiated with the adjacent system. This parameter can be used to tune performance.

OUTPACING (Outbound pacing value): Specifies the pacing to be suggested for outgoing request or response units (RUs).

- 7 (the default): A value of seven is used as the pacing value.
- *outbound-pacing-value:* Specify a value, 0 through 63, used as the limiting value.

This parameter is used as follows:

- If the adjacent location does not support adaptive pacing, then the value specified here is used to negotiate the maximum number of RUs that is to be sent on a session before a response is received from the adjacent system.
- If the adjacent location does support adaptive pacing, then the value specified here is the suggested minimum number of RUs that is to be sent on a session before a response is received from the adjacent system. The value is not negotiated with the adjacent system.

At a remote AS/400 system, the matching value is specified by the INPACING value in the corresponding mode description. This parameter can be used to tune performance.

MAXLENRU (Maximum length of request unit): Specifies the length of the request or response units as follows:

- The value specified is used as the maximum size of request or response units that can be sent and received by the local system.
- The value specified is used to negotiate (at session establishment) the maximum value the remote system can send and receive.
- *CALC (the default): The AS/400 system will select a MAXLENRU value close to the most efficient value for this link. This is the recommended value to use.
- *maximum-length-unit:* Specify a value, 241 through 16384, used as the maximum length for incoming and outgoing request units.

At a remote AS/400 system, the matching value is specified by the MAXLENRU value in the corresponding mode description. In general, performance improves if the request unit size is a multiple of the frame size minus the SNA and line protocol headers. Some systems perform better if this is a large multiple. *CALC will generate a multiple of one.

If you are using a system that performs better with a larger multiple, use the following method for determining the MAXLENRU size.

1. Find the line with the smallest frame size that this mode will use. Look at the frame size for the lines this mode will use on the local system, remote system, and (for APPN networks) any intermediate systems. This frame size value represents the maximum size in bytes of higher layer SNA headers and user data that can be transported in one transmission from the AS/400 system to the remote system by the particular link layer protocol in use; for example, SDLC, token-ring, Ethernet, or the logical link layer (LLC) selected for X.25.

   Note: For X.25, this value represents the maximum LLC frame size that can be transmitted DTE to DTE, and should not be confused with the high-level data link control (HDLC) frame or packet size in use from one DTE to the X.25 network. These LLC frames can span multiple packets and also HDLC frames.

   The maximum outbound frame size is determined dynamically by the AS/400 system at connection initiation time to be the minimum and maximum frame that can be received by the remote system. These two frame sizes can be determined as follows:

   - The maximum frame size supported by the AS/400 system is configurable for SDLC and X.25 through the MAXFRAME parameter in the line description and can be displayed by using the Display Line Description (DSPLIND) command.

     The maximum frame size supported for a token-ring network is configurable through the MAXFRAME parameter in the line description. Ethernet does not have a MAXFRAME parameter on the line description. For Ethernet, the maximum frame size is set to 1496. Both token-ring and Ethernet line descriptions can also configure the maximum frame size on a SAP (service access point) basis. In addition, a controller description also has a MAXFRAME size. At run time, the actual frame size used is the smaller of the three values: line MAXFRAME, SSAP MAXFRAME, and the controller MAXFRAME.

   - The maximum received frame size supported by the remote system is received by the AS/400 system in the XID data from the remote system or from the MAXFRAME parameter for SNA host controller descriptions; for example, on the CRTCTLHOST command.

     For X.25, because the LLC frames are carried in packets, and because some X.25 networks can tariff each packet sent, the AS/400 system can adjust this maximum frame size value supported by the remote system to a slightly smaller, more efficient value. This adjusted value, when combined with the appropriate LLC header (0 bytes for QLLC or 6 bytes for ELLC), can be transported to the remote system with efficient packet use.

2. Subtract 9 bytes for the higher layer SNA headers from the frame size determined in the previous step.

   Note: These header sizes take the entire SNA header into account (6-byte transmission

header and 3-byte request header). If segmentation is done by the SNA transport layer (for example, the RU size exceeds the frame size), the 3-byte request header is only included in the first frame of the request unit.

3. If this mode is used to send large amounts of data, then a larger multiple of the frame size minus the header is recommended. If small amounts of data are being sent, a small multiple is recommended. Choose a multiple of the size from the previous step. Add three for each multiple except the first multiple because the request header is only sent on the first frame.

The previous steps used for determining a MAXLENRU size can be shown in the following equation. With a frame size of F, a header size of H, and the multiple chosen being M, the equation for determining the MAXLENRU size is:

$M(F - H) + 3(M - 1) \leq 16384.$

Note: This calculation assumes the remote system supports 16384-byte request units.

For example, a mode communicating to a system across a token-ring line with a frame size of 1977 bytes and sending large amounts of data can use an RU size of 15765. This takes into account the largest multiple (8) of 1977 (frame size) minus the SNA and token-ring line protocol headers that fit into 16384 (the largest RU size that the AS/400 system supports).

*CALC uses the negotiated maximum frame size to calculate a value for MAXLENRU. The protocol header is subtracted from the negotiated maximum frame size.

Line Protocol	Protocol Header Size
SDLC	9
TRLAN	9
Ethernet	9
X.25 (QLLC)	9
X.25 (ELLC)	15

Note: If the negotiated maximum frame size causes a small X.25 packet to be transmitted, the maximum RU size is further reduced to eliminate the small X.25 packet.

DTACPR (Data compression): Specifies whether data compression is used. Possible values are:

***NETATR**
(The default) The value specified in the network attributes is used for this mode description.

***NONE**
Data compression is not allowed for the session.

***ALLOW**
Data compression is allowed for the session, but not requested. The other session end node and intermediate nodes can request data compression.

Allowed compression levels for inbound and outbound data cannot be higher than the levels specified for the INDTACPR and OUTDTACPR parameters.

***REQUEST**
Data compression is requested for the session. The local system requests that data be compressed for sessions using this mode description. The remote system may or may not allow data compression.

If the remote system requests data compression, the compression levels used by the session are the lower of the requested levels and the levels specified on the INDTACPR and OUTDTACPR parameters.

***REQUIRE**
Data compression is required for the session. The local system requests that data be compressed for sessions using this mode description. If the remote system does not allow the request, the session is unbound.

If the remote system requests data compression, the compression levels used by the session are the lower of the requested levels and the levels specified on the INDTACPR and OUTDTACPR parameters.

line-speed
Specify a line speed below which data should be compressed. Possible values are 1 to 2147483647 bps; data traffic over connections using a line speed slower than the value specified will be compressed.

INDTACPR (Inbound data compression): Specifies the level of compression used for inbound data. This parameter is not used if DTACPR(*NONE) is specified.

Note: Adaptive dictionary-based compression is a dynamic compression algorithm, similar to Lempel-Ziv, that compresses previously seen strings to 9-, 10-, and 12-bit codes. This algorithm is referred to as LZ in the following value descriptions.

Possible values are:

***RLE** (The default) The run-length encoding (RLE) algorithm is used. RLE substitutes a 1- or 2-byte sequence in the data stream for each repeated run of the same character. This algorithm requires no storage and the least amount of processing time.

***LZ9** The LZ algorithm with a 9-bit code for repeated substrings is used. The LZ codes require storage and extra processing time to compress data. LZ9 requires the least storage and processing time of the LZ algorithms; however, it provides the least data compression.

***LZ10**
The LZ algorithm with a 10-bit code for repeated substrings is used. LZ10 requires more storage and processing time than LZ9 but less than LZ12; its compression ratio is better than LZ9 but worse than LZ12.

***LZ12**
The LZ algorithm with a 12-bit code for repeated substrings is used. LZ12 requires more storage and processing time than LZ9 or LZ10; its compression ratio is better than LZ10 or LZ12.

***NONE**
No compression is used.

OUTDTACPR (Outbound data compression): Specifies the level of compression used for outbound data. Possible values are the same as those that can be specified for the INDTACPR parameter.

IBM-Supplied Mode Descriptions

Figure 9-1 shows the values defined in the IBM-supplied mode descriptions.

Figure 9-1. IBM-Supplied Mode Description Values

Parameter	BLANK	#INTER	#INTERSC	#BATCH	#BATCHSC	QRMTWSC	QSPWTR
COS	#CONNECT	#INTER	#INTERSC	#BATCH	#BATCHSC	#CONNECT	#CONNECT
MAXSSN	8	8	8	8	8	57	8
MAXCNV	8	8	8	8	8	57	8
LCLCTLSSN	4	4	4	4	4	56	4
PREESTSSN	0	0	0	0	0	0	0
INPACING	3	7	7	3	3	7	63
OUT-PACING	3	7	7	3	3	7	63
MAXLENRU	*CALC	*CALC	*CALC	*CALC	*CALC	*CALC	*CALC
DTACPR	*NETATR	*NETATR	*NETATR	*NETATR	*NETATR	*NETATR	*NETATR
INDTACPR	*RLE	*RLE	*RLE	*RLE	*RLE	*RLE	*RLE
OUTDTACPR	*RLE	*RLE	*RLE	*RLE	*RLE	*RLE	*RLE

Class-of-Service Descriptions

A class-of-service description is used to select the nodes and transmission groups (TGs) that can be included in session routes. Selection of TGs and nodes is made based on how well their characteristics match those specified by the class-of-service definition.

TGs and nodes are selected at session request time using the class-of-service description specified by the mode description. The APPN route selection algorithm compares actual TG and node characteristics with those specified in the selected class-of-service definition, then assigns a relative weight to each node and link for this session request. TGs and nodes that collectively offer the

least weight between the session origin control point and the session destination control point are used as the session route.

The *APPN Guide* contains an example of a user-defined class-of-service description used to select a specific route.

The following predefined class-of-service descriptions are shipped with the AS/400 system:

#CONNECT The default class of service.

#BATCH A class of service tailored for batch communications.

#BATCHSC The same as #BATCH except a data link security level of at least *PKTSWTNET is required.

#INTER A class of service tailored for interactive communications.

#INTERSC The same as #INTER except that a data link security level of at least *PKTSWTNET is required.

The #CONNECT, #BATCH, and #INTER predefined class-of-service descriptions select any line description (link) that can be configured, or the defaults are used. If you need to force a particular route to be selected, a user class-of-service description (COSD) can be created.

The Create Class-of-Service Description (CRTCOSD) command is used to define the attributes such as link speed, cost per connect time, cost per byte, and security. Each set of attributes is assigned a weighting factor that indicates the preference for each set (the lower the weighting value, the more desirable the set). The initial values for a new class-of-service being created are the same values used by #CONNECT class of service.

Eight sets of values, or rows, must be defined for each class-of-service description. Each row is a set of characteristics that the chosen link and intermediate node must satisfy to be considered as part of the route. The route taken depends on the weights of each row. The rows are in ascending order by weight from row 1, the smallest, through row 8, the largest. The characteristics of a row should make preceding rows more desirable than the next row. As an example, the values specified in row 1 should make that row preferable to the values in row 2.

The higher values for link speed, security, and the three user-defined fields are preferable whereas the lower the values for cost per byte, cost per connection, propagation delay, route addition resistance, and congestion are preferable.

Class-of-Service Description Parameters

This topic contains detailed descriptions of all the parameters that can be specified using the Create Class-of-Service Description (CRTCOSD) command. Prompts for these parameters are shown in parentheses following the parameter name. **Parameters are listed in the order shown on the command prompt display.**

COSD (Class-of-service description):

Specify the name (1 to 8 characters) of the class-of-service description to be created. No default can be specified.

class-of-service-description-name: Specify the class-of-service name. The first character must be uppercase A through Z, or special character $, #, or @ and cannot contain blanks, plus signs (+), periods (.), or underscores (_). The value CPSVCMG cannot be used.

TMSPTY (Transmission priority):

Specify the transmission priority (low, medium, or high) for this class-of-service description.

*MED (The default) Specifies medium transmission priority for this class-of-service description.

*LOW Specifies the lowest transmission priority for this class-of-service description.

*HIGH Specifies the highest transmission priority for this class-of-service description.

Note: TMSPTY cannot be specified if the class-of-service description name (COSD parameter) is SNASVCMG.

ROWnLINE (Row n for lines): Specify the rows of line-related values, row 1 through row 8, for the class-of-service description. The rows must be defined in sequence (row 1 first, then row 2, and so on).

The row describes the attributes of the line con-

nection between two nodes in the APPN network. The rows are examined in sequence to attempt to define a network routing path. The values specified for the minimum attributes must be less than or equal to the maximum attributes for the same row.

The row values are the following:

Line row weight: Specify the relative weight of this row for line connections. The weight can range from 0 to 255. The weight indicates the relative cost of a line connection. More desirable line connections should be assigned lower weights.

The value specified here is dependent on the row you are specifying. The value for row 1 must always be the lowest, row 2 is next, then row 3, and so on, with the last row specified always the highest.

Figure 9-2. Default Values for Line Row Weight

Row	Default Weight
1	30
2	60
3	90
4	120
5	150
6	180
7	210
8	240

Link speed (minimum and maximum): Specify the minimum and maximum link speeds for a line connection that can be accepted by this row. Valid values are *MIN, 1200, 2400, 4800, 7200, 9600, 14400, 19200, 48000, 56000, 64000, 112000, 128000, 168000, 192000, 224000, 256000, 280000, 320000, 336000, 384000, 448000, 499000, 576000, 614000, 691000, 768000, 845000, 922000, 998000, 1075000, 1152000, 1229000, 1382000, 1536000, 1690000, 1843000, 1997000, 4M, 10M, 16M, or *MAX bps.

Figure 9-3. Default Link Speed Values for Line Rows

Row	Default Minimum	Default Maximum
1	4M bps	*MAX
2	56000 bps	*MAX
3	19200 bps	*MAX
4	9600 bps	*MAX
5	19200 bps	*MAX
6	9600 bps	*MAX
7	4800 bps	*MAX
8	*MIN	*MAX

Cost/connect time (minimum and maximum): Specify the relative minimum and maximum cost per connect time that can be accepted by this row. More desirable costs are assigned lower values. Valid costs range from 0 to 255.

Figure 9-4. Default Cost per Connect Time Values for Line Rows

Row	Default Minimum	Default Maximum
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	128
7	0	196
8	0	255

Cost/byte (minimum and maximum): Specify the relative minimum and maximum cost per byte that can be accepted by this row. More desirable costs are assigned lower values. Valid costs range from 0 to 255.

Figure 9-5. Default Cost per Byte Values for Line Rows

Row	Default Minimum	Default Maximum
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	128
7	0	196
8	0	255

Security (minimum and maximum): Specify the minimum and maximum types of security protection available on the line.

Valid values in order of least secure to most secure are:

*NONSECURE No security on the line.
*PKTSWTNET In this packet-switching data network, the line is secure in that there is no fixed route the data traffic will take.
*UNDGRDCBL This is an underground cable (secure).
*SECURECND A secure conduit, but not guarded; for example, a pressurized pipe.
*GUARDCND The line is a guarded conduit protected against physical tapping.
*ENCRYPTED Data flowing on the line is encrypted.
*MAX This is a guarded conduit, protected against physical and radiation tapping.

The default values are *NONSECURE for minimum security, *MAX for maximum security.

Figure 9-6. Default Security Values for Line Rows

Row	Default Minimum	Default Maximum
1	*NONSECURE	*MAX
2	*NONSECURE	*MAX
3	*NONSECURE	*MAX
4	*NONSECURE	*MAX
5	*NONSECURE	*MAX
6	*NONSECURE	*MAX
7	*NONSECURE	*MAX
8	*NONSECURE	*MAX

Propagation delay (minimum and maximum): Specify the minimum and maximum propagation delay that can be accepted by this row. Propagation delay is the time required for a signal to travel from one end of a link to the other end.

Valid values in order from shortest to longest propagation delay are:

*MIN The minimum propagation delay.
*LAN A local area network delay of less than 0.48 milliseconds.
*TELEPHONE A telephone network with a delay of between 0.48 milliseconds and 49.152 milliseconds.
*PKTSWTNET A packet-switching data network with a delay of between 49.152 milliseconds and 245.76 milliseconds.
*SATELLITE A satellite delay of more than 245.76 milliseconds.
*MAX The maximum propagation delay.

Figure 9-7. Default Propagation Values for Line Rows

Row	Default Minimum	Default Maximum
1	*MIN	*LAN
2	*MIN	*TELEPHONE
3	*MIN	*TELEPHONE
4	*MIN	*TELEPHONE
5	*MIN	*PKTSWTNET
6	*MIN	*PKTSWTNET
7	*MIN	*MAX
8	*MIN	*MAX

User-defined 1, 2, 3 (minimum and maximum): Specify your own minimum and maximum line connection values from 0 through 255 for the user-defined parameters. The default values are 0 for minimum, 255 for maximum.

The values specified for the user-defined parameters are used when all other values selected for a row are equal. These values allow you to determine which row will be used.

ROWnNODE (Row n for nodes): Specify the rows of node-related values of the class-of-service description. Each row describes the attributes of a node in the APPN network. Row 1 is the first node row examined to attempt to define a network routing path, then row 2, and so on, with row 8 being the last examined. cannot be greater than the maximum values. All of the row values have defaults. The row values are as follows:

Node row weight: Specify the relative weight of this row for nodes. The weight can range from 0 to 255. The weight indicates the relative cost of passing through a node in the network. More desirable nodes are assigned lower weights.

The value specified here is dependent on the row you are specifying. The value for row 1 must always be the lowest, row 2 is next, and so on, with the last row specified always the highest.

Figure 9-8. Default Values for Node Row Weight

Row	Default
1	5
2	10
3	20
4	40
5	80
6	100
7	120
8	150

Route addition resistance (minimum and maximum): Specify the minimum and maximum route addition resistance that can be accepted by this row. Valid values are 0 to 255.

Figure 9-9. Default Route Addition Resistance Values for Node Rows

Row	Default Minimum	Default Maximum
1	0	31
2	0	63
3	0	95
4	0	127
5	0	159
6	0	191
7	0	223
8	0	255

Congestion for node (minimum and maximum): Specify the minimum and maximum values describing the level of congestion allowed for the node. Valid values are *LOW or *HIGH.

Figure 9-10. Default Congestion for Node Values for Node Rows

Row	Default Minimum	Default Maximum
1	*LOW	*LOW
2	*LOW	*LOW
3	*LOW	*LOW
4	*LOW	*LOW
5	*LOW	*LOW
6	*LOW	*LOW
7	*LOW	*HIGH
8	*LOW	*HIGH

IBM-Supplied Class-of-Service Descriptions

Figure 9-11 shows the values used by the IBM-supplied class of service descriptions. Minimum and maximum values are shown for parameters that allow both to be specified. Values for the user-defined parameters are not shown; all are set to 0 for minimum, 255 for maximum.

Figure 9-11 (Page 1 of 3). IBM-Supplied Class-of-Service Description Values

		Class-of-Service Description				
Element	**Parameter**	**#BATCH**	**#BATCHSC**	**#CONNECT**	**#INTER**	**#INTERSC**
Transmission priority	TMSPTY	*LOW	*LOW	*MED	*HIGH	*HIGH
Line row weight	ROW1LINE	30	30	30	30	30
	ROW2LINE	60	60	60	60	60
	ROW3LINE	90	90	90	90	90
	ROW4LINE	120	120	120	120	120
	ROW5LINE	150	150	150	150	150
	ROW6LINE	180	180	180	180	180
	ROW7LINE	210	210	210	210	210
	ROW8LINE	240	240	240	240	240
Link speed	ROW1LINE	56000 *MAX	56000 *MAX	4M *MAX	4M *MAX	4M *MAX
	ROW2LINE	19200 *MAX	19200 *MAX	56000 *MAX	56000 *MAX	56000 *MAX
	ROW3LINE	19200 *MAX	19200 *MAX	19200 *MAX	56000 *MAX	56000 *MAX
	ROW4LINE	9600 *MAX	9600 *MAX	9600 *MAX	19200 *MAX	19200 *MAX
	ROW5LINE	9600 *MAX	9600 *MAX	19200 *MAX	19200 *MAX	19200 *MAX
	ROW6LINE	9600 *MAX	9600 *MAX	9600 *MAX	9600 *MAX	9600 *MAX
	ROW7LINE	4800 *MAX	4800 *MAX	4800 *MAX	9600 *MAX	9600 *MAX
	ROW8LINE	*MIN *MAX	*MIN *MAX	*MIN *MAX	*MIN *MAX	*MIN *MAX
Cost per connect time	ROW1LINE	0 0	0 0	0 0	0 0	0 0
	ROW2LINE	0 0	0 0	0 0	0 0	0 0
	ROW3LINE	0 128	0 128	0 0	0 128	0 128
	ROW4LINE	0 0	0 0	0 0	0 0	0 0
	ROW5LINE	0 128	0 128	0 0	0 128	0 128
	ROW6LINE	0 196	0 196	0 0	0 128	0 128
	ROW7LINE	0 196	0 196	0 196	0 128	0 196
	ROW8LINE	0 255	0 255	0 255	0 255	0 255
Cost per byte	ROW1LINE	0 0	0 0	0 0	0 0	0 0
	ROW2LINE	0 0	0 0	0 0	0 0	0 0
	ROW3LINE	0 128	0 128	0 0	0 128	0 128
	ROW4LINE	0 0	0 0	0 0	0 0	0 0
	ROW5LINE	0 128	0 128	0 0	0 128	0 128
	ROW6LINE	0 196	0 196	0 128	0 0	0 0
	ROW7LINE	0 196	0 196	0 196	0 196	0 196
	ROW8LINE	0 255	0 255	0 255	0 255	0 255

Figure 9-11 (Page 2 of 3). IBM-Supplied Class-of-Service Description Values

Class-of-Service Description						
Element	**Parameter**	**#BATCH**	**#BATCHSC**	**#CONNECT**	**#INTER**	**#INTERSC**
Security	ROW1LINE	*NONSECURE *MAX	*PKTSWTNET *MAX	*NONSECURE *MAX	*NONSECURE *MAX	*PKTSWTNET *MAX
	ROW2LINE	*NONSECURE *MAX	*PKTSWTNET *MAX	*NONSECURE *MAX	*NONSECURE *MAX	*PKTSWTNET *MAX
	ROW3LINE	*NONSECURE *MAX	*PKTSWTNET *MAX	*NONSECURE *MAX	*NONSECURE *MAX	*PKTSWTNET *MAX
	ROW4LINE	*NONSECURE *MAX	*PKTSWTNET *MAX	*NONSECURE *MAX	*NONSECURE *MAX	*PKTSWTNET *MAX
	ROW5LINE	*NONSECURE *MAX	*PKTSWTNET *MAX	*NONSECURE *MAX	*NONSECURE *MAX	*PKTSWTNET *MAX
	ROW6LINE	*NONSECURE *MAX	*PKTSWTNET *MAX	*NONSECURE *MAX	*NONSECURE *MAX	*PKTSWTNET *MAX
	ROW7LINE	*NONSECURE *MAX	*PKTSWTNET *MAX	*NONSECURE *MAX	*NONSECURE *MAX	*PKTSWTNET *MAX
	ROW8LINE	*NONSECURE *MAX	*PKTSWTNET *MAX	*NONSECURE *MAX	*NONSECURE *MAX	*PKTSWTNET *MAX
Propagation delay	ROW1LINE	*MIN *MAX	*MIN *MAX	*MIN *MAX	*MIN *MAX	*MIN *MAX
	ROW2LINE	*MIN *MAX	*MIN *MAX	*MIN *TELEPHONE	*MIN *TELEPHONE	*MIN *TELEPHONE
	ROW3LINE	*MIN *MAX	*MIN *MAX	*MIN *TELEPHONE	*MIN *TELEPHONE	*MIN *TELEPHONE
	ROW4LINE	*MIN *MAX	*MIN *MAX	*MIN *TELEPHONE	*MIN *TELEPHONE	*MIN *TELEPHONE
	ROW5LINE	*MIN *MAX	*MIN *MAX	*MIN *PKTSWTNET	*MIN *PKTSWTNET	*MIN *PKTSWTNET
	ROW6LINE	*MIN *MAX	*MIN *MAX	*MIN *PKTSWTNET	*MIN *PKTSWTNET	*MIN *PKTSWTNET
	ROW7LINE	*MIN *MAX	*MIN *MAX	*MIN *MAX	*MIN *MAX	*MIN *MAX
	ROW8LINE	*MIN *MAX	*MIN *MAX	*MIN *MAX	*MIN *MAX	*MIN *MAX
Node row weight	ROW1NODE	5	5	5	5	5
	ROW2NODE	10	10	10	10	10
	ROW3NODE	20	20	20	20	20
	ROW4NODE	40	40	40	40	40
	ROW5NODE	60	60	60	60	60
	ROW6NODE	80	80	80	80	80
	ROW7NODE	120	120	120	120	120
	ROW8NODE	160	160	160	160	160
Route addition resistance	ROW1NODE	0 31	0 31	0 31	0 31	0 31
	ROW2NODE	0 63	0 63	0 63	0 63	0 63
	ROW3NODE	0 95	0 95	0 95	0 95	0 95
	ROW4NODE	0 127	0 127	0 127	0 127	0 127
	ROW5NODE	0 159	0 159	0 159	0 159	0 159
	ROW6NODE	0 191	0 191	0 191	0 191	0 191
	ROW7NODE	0 223	0 223	0 223	0 223	0 223
	ROW8NODE	0 255	0 255	0 255	0 255	0 255

Figure 9-11 (Page 3 of 3). IBM-Supplied Class-of-Service Description Values

Class-of-Service Description						
Element	**Parameter**	**#BATCH**	**#BATCHSC**	**#CONNECT**	**#INTER**	**#INTERSC**
Congestion	ROW1NODE	*LOW *LOW	*LOW *LOW	*LOW *LOW	*LOW *LOW	*LOW *LOW
	ROW2NODE	*LOW *LOW	*LOW *LOW	*LOW *LOW	*LOW *LOW	*LOW *LOW
	ROW3NODE	*LOW *LOW	*LOW *LOW	*LOW *LOW	*LOW *LOW	*LOW *LOW
	ROW4NODE	*LOW *LOW	*LOW *LOW	*LOW *LOW	*LOW *LOW	*LOW *LOW
	ROW5NODE	*LOW *LOW	*LOW *LOW	*LOW *LOW	*LOW *LOW	*LOW *LOW
	ROW6NODE	*LOW *LOW	*LOW *LOW	*LOW *LOW	*LOW *LOW	*LOW *LOW
	ROW7NODE	*LOW *HIGH	*LOW *HIGH	*LOW *HIGH	*LOW *HIGH	*LOW *HIGH
	ROW8NODE	*LOW *HIGH	*LOW *HIGH	*LOW *HIGH	*LOW *HIGH	*LOW *HIGH

Chapter 10. Configuration Lists

You can create several types of AS/400 configuration lists using the Create Configuration List (CRTCFGL) command:

- For asynchronous communications using X.25 lines, you can configure a packet assembler/disassembler (PAD) network address list (see "Asynchronous Communications PAD Network Address Lists") and a remote location list (see "Asynchronous Communications Remote Location List" on page 10-3).
- For APPN, you can configure a local location list and a remote location list (see "APPN Location Lists" on page 10-3).
- For retail communications, you can configure a SNUF device to be used with a corresponding retail communications session to pass through to a host System/370 (see "Retail Pass-Through Configuration Lists" on page 10-4).
- For SNA pass-through communications, you can configure groups of upstream SNA pass-through devices from which a downstream pass-through device can select a corresponding device for a pass-through session to a host System/370 (see "SNA Pass-Through Configuration Lists" on page 10-4).

The following commands can be used to create, change, display, or delete configuration lists. See "Configuration List Parameter Descriptions" on page 10-4 for descriptions of the parameters that can be specified for these commands.

CRTCFGL	Create Configuration List
CHGCFGL	Change Configuration List
CPYCFGL	Copy Configuration List
DLTCFGL	Delete Configuration List
DSPCFGL	Display Configuration List
WRKCFGL	Work with Configuration Lists
ADDCFGLE	Add Configuration List Entries
CHGCFGLE	Change Configuration List Entries
RMVCFGLE	Remove Configuration List Entries

Notes:

1. When using the command prompt display for the WRKCFGL or CHGCFGL command to add or remove entries from a configuration list, specify *PROMPT to show all existing entries for the list. If you add entries but do not specify *PROMPT, all existing entries are replaced with the new entries specified.
2. The CPYCFGL command and the option used to copy configuration lists on the WRKCFGL display can be used only for asynchronous PAD network address lists. Only one each of the other configuration list types can exist on the system at a time (TYPEs *APPNLCL, *APPNRMT, *ASYNCLOC, *RTLPASTHR, and *SNAPASTHR).
3. The CHGCFGLE command can be used only for SNA pass-through configuration lists.

Asynchronous Communications Lists

Both the PAD network address list and the remote location list are used when asynchronous communications is running over an X.25 line.

The PAD network address list is used to create a list of network addresses that are called (that is, attempts are made to establish a virtual circuit) when the name of the list is entered in response to the PAD command prompt.

The remote location list is used to identify the location name and identifier pairs that a system, with generic asynchronous communications controllers configured, accepts calls from.

For more information about asynchronous communications (not including list information), refer to the *Asynchronous Communications Programmer's Guide*.

Asynchronous Communications PAD Network Address Lists

In asynchronous communications, the rotary dial function of the AS/400 PAD support automatically calls X.25 network addresses specified in a sequentially ordered network address list. This function continues calling the address for a specific number of times or until a successful connection is made.

If the connection fails and the number of retries is completed, the next number in the list is tried. If all attempts with each number in the list fail, the PAD sends a service signal to the application program as data available on the next read operation. The *Asynchronous Communications*

Programmer's Guide gives a description of the service signals.

To use the rotary dial function, you must vary on an X.25 line, and the attached asynchronous device and controller with PAD emulation configured as PADEML(*YES) on the Create Controller Description (Asynchronous) (CRTCTLASC) command. You must also create an asynchronous PAD network address list by using the Create Configuration List (CRTCFGL) command during configuration.

Rotary dial is called by the application program sending the name of the list (CFGL) to the internal PAD as data on a write operation. The PAD must be in the command state to start the dial operation required by this support. You can also use the interactive terminal facility (ITF) to supply the name of the list to the PAD. If the dial operation fails, verify the network address you are attempting to call and try the operation again.

Asynchronous Communications Remote Location List

You can create a remote location list to set up a list of names and IDs of remote locations from which you will accept calls (that is, attempts to establish a virtual circuit started by the remote system). Only one of this list type resides on the system. This list is given a system name of QASYNCLOC and resides in the QSYS library.

This list consists of entries configured on the remote system controllers as the local location name and local location ID. The list must include an entry for every remote controller you want your system to accept calls from.

The local location name and ID are sent as data packets by the remote system. If the name and ID are in your remote location list and the name is not currently the remote location name in an existing asynchronous device, the link is disconnected. Otherwise, the remote location name specified in the list becomes the remote location name (RMTLOCNAME) in the generic device.

APPN Location Lists

APPN location lists are used to define the names of local locations and to describe special characteristics of remote locations. APPN location lists are used only by APPN configurations (APPN(*YES) specified in the controller description); however, not all APPN users need to create location lists. The following topics describe when you need location lists.

See the *APPN Guide* for more information about APPN location lists.

APPN Local Location List

The local location list defines the names of the locations that are defined on the local system. Only one of this list type resides on the system. This list is given a system name of QAPPNLCL and resides in the QSYS library. Each system in a network has one local network identifier and one control point (CP) name. The local CP name is also a local location name (automatically defined to the system). In addition, each system has a default local location name. This can be the same as the control point name but does not have to be.

You can specify up to 476 *additional* local locations that can be associated with the local control point by using a configuration list. You define the local CP name, the local network identifier, and the default local location name by using the Change Network Attributes (CHGNETA) command. The *APPN Guide* contains information about the CHGNETA command.

APPN Remote Location List

Only one APPN remote location list resides on the system. This list is given a system name of QAPPNRMT and resides in the QSYS library. Not all remote locations need to be defined in the remote location list. Any remote location that meets one or more of the following conditions, *must* be defined in the remote location list:

- Single-session connections between a local location and a remote location.
- Location passwords between a local location and a remote location.
- User IDs that are to be sent on LU-LU session type 6.2 evoke functions when using APPC

programs on distributed data management (DDM).
- Remote locations that require a directory entry. A directory entry is required when the local control point is unable to dynamically determine the control point where the remote location exists. This occurs when the adjacent control point does not support a control point session over which this information can be exchanged. A directory entry is identified by specifying the remote control point name that is providing the network function for the remote location.

Retail Pass-Through Configuration Lists

Retail communications supports retail devices running in a pass-through mode to a host system using a SNUF device. Retail devices are capable of using pass-through if they are paired with a corresponding SNUF device. The communications session can be started by either the host system or the retail controller.

On communications sessions started by the retail controller, the SNA INIT-SELF command may or may not contain a host program name that requests the session to be started. If there is not a program name, a default program on the host system is started instead. The pairing information and the default program name are stored in a configuration list type of *RTLPASTHR. Only one configuration list with a type of *RTLPASTHR is allowed on the AS/400 system at one time.

Note: If you change an entry in the retail configuration list with an active session, you must vary the device off and on to make the change effective.

SNA Pass-Through Configuration Lists

The SNA pass-through configuration list allows you to specify groups of upstream SNA pass-through devices for communications with downstream display, printer, finance, retail, or SNA pass-through devices.

The SNA pass-through configuration list, QSNAPASTHR, can be created using the CRTCFGL command. Configuration list entries are added using the ADDCFGLE command. Each entry consists of a group name, text description of the group, and the names of up to 254 upstream (SNPTCLS(*UP)) SNA pass-through device descriptions. Downstream pass-through devices that specify an SNA pass-through group name (SNPTGRP parameter) can then be paired with any available upstream device associated with the configuration list entry (group name) for SNA pass-through communications.

Only one configuration list with a type of *SNAPASTHR is allowed on the system at one time. The list is given the system name QSNAPASTHR.

The CHGCFGL command can only be used to change the text for an SNA pass-through configuration list. Use the CHGCFGLE command to change entries.

Configuration List Parameter Descriptions

This topic contains descriptions of parameters that can be specified using the CRTCFGL and CHGCFGL commands, plus the SNAPASTHRE parameter that can be specified with the ADDCFGLE and CHGCFGLE commands. The prompts for these parameters are shown in parentheses following the parameter name. **Parameters are listed in alphabetical order**. Many parameters apply only to one type of configuration list; the type of configuration list that uses each parameter is shown below the parameter name.

APPNLCLE (APPN local location entry):

APPN Local Location Lists (*APPNLCL): Specifies a local location to the APPN support on the system. You can specify up to 50 entries directly with this command, or you can specify *PROMPT, which causes an entry display to appear where you can specify up to 476 entries. Each entry consists of the following parts:

Local location name
The name of the local location used by APPN to determine if requests being received are for the local system or for another system in the network.

Entry description
A short description (with a maximum of 20 characters and enclosed in apostrophes) of the local location entry. *BLANK is the default.

All of the information within an APPN local location list entry can be changed by using the CHGCFGL command. This parameter is used only if *APPNLCL is specified for the configuration list type (TYPE parameter).

APPNRMTE (APPN remote location entry):

APPN Remote Location Lists (*APPNRMT): A remote location to the APPN support on the system. You can specify up to 50 entries directly using this command, or you can specify *PROMPT, which causes an entry display to appear where you can enter up to 1898 entries. Each entry consists of the following elements:

Remote location
The name of the remote location, which can be:

- The full name of the remote location.
- A generic name (ends with an asterisk [*]): One directory entry can be defined for all locations that begin with the characters that precede the asterisk (*). As with any directory entry, the control point name must also be specified.
- *ANY: All remote locations not specifically identified as existing on a control point in the network are assumed to be in the control point associated with the *ANY entry.

Remote network identifier
The network ID of the remote location. *NETATR is the default.

Local location
The location name on the local system. *NETATR is the default.

The local location name is used by APPN to match a local and remote location pair entry. The local location name parameter has no effect on APPN directory entries; however, it does affect password and single session location entries.

Note: Any time you use the default *NETATR in the following prompts, the current value specified for the corresponding prompt on the Change Network Attributes (CHGNETA) command is used. Changing a value in the network attributes will not cause the existing location entries to change in the configuration list.

Specify the following information for directory entries:

Remote control point
The name of the control point that provides the network functions for the remote location. *NONE is the default. You must enter a control point name if you use a generic name or *ANY for the *Remote location* prompt.

Remote network identifier
The network ID of the control point. *NETATR is the default.

Specify the following information to define passwords:

Location password
The password used to validate incoming binds for session establishment for both the local and remote locations. You can use the default (*NONE) if a password is not required. If a password validation is required and specified by this prompt, you can specify a hexadecimal password of a maximum of 16 characters. Allowed values are:

*NONE A password is not required to validate incoming binds.
location-password You must specify the hexadecimal equivalent of the password characters; therefore, an even number must be specified. The value can be any combination of 0 through 9 and A through F.

For more information about APPN security, see the *APPN Guide*.

Secure location
Specifies whether the local location (logical unit) accepts password verification by the remote location (logical unit). Specify *YES to allow the remote location to verify user passwords when sending a program start request to the local location. If you use *NO, the default, the local location does not allow the remote location to verify passwords.

Location password and secure location are ignored if the system is a minimal security system (level 10 security).

Specify the following information for single-session connections:

Single session location
Specify *YES if the connection between the local location and the remote location is a single-session connection. *NO is the default.

Locally controlled session
Specify *YES if the single session is to be a locally controlled session between the remote and local locations. *NO is the default.

Pre-established sessions
Specify *YES to automatically bind the single session between the local location and the remote location when the mode is started. *NO is the default.

Number of conversations
For single-session locations, specify the number of conversations for the connection. You can specify 1 to 512 conversations; 10 is the default.

Entry description
A short description (with a maximum of 20 characters and enclosed in apostrophes) of the remote location entry. *BLANK is the default.

ASYNCADRE (Asynchronous network address entry):

Asynchronous Communications PAD Network Address Lists (*ASYNCADR): This parameter is used to specify network addresses for the PAD command prompt when using asynchronous communications. Up to 50 addresses can be specified directly. You can also specify *PROMPT, which causes an entry display to appear where you can specify up to 294 entries. Each asynchronous communications network address entry consists of three elements:

Network address
The remote network address used by asynchronous support to establish communications. If the X.25 line description used for communications specifies extended network addressing (EXNNETADR(*YES)), this value can be up to 17 characters; otherwise, up to 15 characters can be specified.

This address is available from the network subscription of the remote system.

Dial retry
The number of dial retries (1 through 255) for the remote network address; 2 is the default.

Entry description
A short description (up to 20 characters, enclosed in apostrophes) of the network address entry. *BLANK is the default.

All of the information within an asynchronous network address entry can be changed by using the CHGCFGL command. This parameter is used only if *ASYNCADR is specified for the configuration list type (TYPE parameter).

ASYNCLOCE (Asynchronous remote location entry):

Asynchronous Communications Remote Location Lists (*ASYNCLOC): A maximum of 50 asynchronous remote location entries can be specified directly, or you can specify *PROMPT, which causes an entry display to appear where you can specify up to 4995 entries. Each entry consists of three elements:

Remote location
The name of the remote location. This name must be the same as the local location name specified on the remote controller from which your system accepts calls.

Remote location identifier
The identifier of the remote location. This identifier must be the same as the local location identifier specified on the remote controller that your system accepts calls from.

Entry description
A short description (with a maximum of 20 characters and enclosed in apostrophes) of the remote location entry. *BLANK is the default.

All of the information within an asynchronous remote location entry can be changed by using the CHGCFGL command. This parameter is used only if *ASYNCLOC is specified for the configuration list type (TYPE parameter).

AUT (Authority):

All Configuration List Types: The level of public authority for this configuration list. Allowed values are:

*LIBCRTAUT
(Default) The system determines authority for the object using the value specified for the create authority prompt (CRTAUT parameter) specified for the library in which the object will be created.

*CHANGE
Combines the object operational authority and all data authorities (read, add, update, and delete).

*ALL
Combines all the object authorities and data authorities. Users who are not explicitly authorized can control the object's existence, specify the security for the object, change the object, and transfer ownership of the object.

*USE
Combines object operational authority and read authority. Users who are not explicitly authorized can display the object.

*EXCLUDE
Prevents users who are not explicitly authorized from accessing the object.

authorization-list-name
Specify the name of an existing authorization list. Users included in the authorization list are granted authority as specified by the list.

See the manual *Security Reference* for general information about the AS/400 system security.

Note: Authority cannot be changed using the CHGCFGL command, but can be changed using the system security commands and menus.

CFGL (Configuration list):

All Configuration List Types: The name you wish to give the asynchronous network address list that you are creating. This and other configuration lists you create reside in the QSYS library.

RTLPASTHRE (Retail pass-through entry):

Retail Pass-Through Configuration Lists (*RTLPASTHR): A maximum of 50 entries can be specified directly. You can also specify *PROMPT, which causes an entry display to appear where you can specify up to 450 entries. Each entry consists of the following elements:

Retail device
The retail device created with the CRTDEVRTL command that will be communicating with the host system.

SNUF device
The SNUF device created with the CRTDEVSNUF command through which the retail device will be communicating with the host system.

Default host program
The program to be started on the host system if the program name is not present in the SNA command (INIT-SELF) that requests that a session be started.

Entry description
A short description (with a maximum of 20 characters and enclosed in apostrophes) of the retail pass-through entry. *BLANK is the default.

All of the information within a retail pass-through configuration list entry can be changed by using the CHGCFGL command.

SNAPASTHRE (SNA pass-through entry):

SNA Pass-Through Configuration Lists (*SNAPASTHR): SNA pass-through entries must be added using the ADDCFGLE command; this parameter does not appear on the CRTCFGL command. A maximum of 254 entries can be specified using the ADDCFGLE command. Each entry consists of the following elements:

Group name
Specify the name of this group of SNA pass-through devices. This name can be specified as the SNA pass-through group name (SNPTGRP parameter) on SNA pass-through device descriptions.

SNA pass-through device
Specify the names of one or more upstream SNA pass-through devices to be included in the entry.

Entry description
A short description (with a maximum of 50 characters and enclosed in apostrophes) of the retail pass-through entry. *BLANK is the default.

All of the information within an SNA pass-through configuration list entry can be changed by using the CHGCFGLE command.

TEXT (Text 'description'):

All Configuration List Types: Specifies a brief description of the configuration list. The description must be no more than 50 characters, enclosed in apostrophes.

You can use the CHGCFGL command to change the text description at any time.

TYPE (Configuration list type):

All Configuration List Types: The type of configuration list that you want to use. Possible values are:

*ASYNCADR	Asynchronous communications network address list.
*ASYNCLOC	Asynchronous communications remote location list.
*APPNLCL	APPN local location list
*APPNRMT	APPN remote location list
*RTLPASTHR	Retail pass-through configuration list
*SNAPASTHR	SNA pass-through configuration list

Chapter 11. Connection Lists

Connection lists are used to manage calls sent to and received from an ISDN network. Each connection list object contains connection list entries that provide ISDN call information for incoming and outgoing calls. The line and controller descriptions used by the ISDN configuration reference the connection list and connection list entries as follows:

- For incoming calls, the IDLC line description specifies the connection list to be used on the CNNLSTIN parameter. The system determines which of the connection list entries to use. The default value for the CNNLSTIN parameter, *NETATR, uses the value specified for the default ISDN connection list (DFTCNNLSTI parameter) in the network attributes.

  When the system is shipped, the default ISDN connection list network attribute is set to QDCCNNLANY. This connection list contains two connection list entries, ANYSWT and ANYSEMI. These entries are provided to allow incoming calls over switched or semi-permanent connections from any remote ISDN location. You can change the default ISDN connection list using the Change Network Attributes (CHGNETA) command.

  "IBM-Supplied Connection List and Connection List Entries" on page 11-8 shows the values specified for the IBM-supplied connection list (QDCCNNLANY) and connection list entries (ANYSWT and ANYSEMI).

- For outgoing calls, the controller description specifies both the connection list (CNNLSTOUT parameter) and the connection list entry (CNNLSTOUTE parameter) used to make the call.

The following commands can be used to create, change, display, or delete connection lists. See "Connection List Parameter Descriptions" for descriptions of the parameters that can be specified for these commands.

CRTCNNL Create Connection List
CHGCNNL Change Connection List
DSPCNNL Display Connection List
DLTCNNL Delete Connection List
WRKCNNL Work with Connection Lists

Once a connection list is created, the following commands can be used to add, change, remove, or rename entries in the connection list. See "Connection List Entry Parameter Descriptions" on page 11-4 for descriptions of the parameters that can be specified for these commands.

ADDCNNLE
Add Connection List Entry
CHGCNNLE
Change Connection List Entry
RMVCNNLE
Remove Connection List Entry
RNMCNNLE
Rename Connection List Entry
WRKCNNLE
Work with Connection List Entries

Connection List Parameter Descriptions

This topic contains descriptions of parameters that can be specified using the CRTCNNL and CHGCNNL commands. The prompts for these parameters are shown in parentheses following the parameter name. **Parameters are listed in the order shown on the command prompt displays.**

CNNL (Connection list):

This parameter specifies the name of the connection list being created (CRTCNNL) or changed (CHGCNNL).

NETTYPE (Network type):

This parameter specifies the type of ISDN network the connection list is used to attach to. The value specified for this parameter is used to determine the default values (*NETTYPE) used for several of the connection list entry parameters.

Possible values are:

*NETATR (The default) The network type specified by the DFTNETTYPE (default network type) parameter in the network attributes is used. You can display the default network type using the DSPNETA command, or change it using the CHGNETA command.

*ATT5E42 Use this value when attaching to an ISDN in the US or Canada that uses AT&T 5ESS Release 5E4.2 switching equipment.

*ATT5E5 Use this value when attaching to an ISDN in the US or Canada that uses AT&T 5ESS Release 5E5 switching equipment.

*ATT5E6 Use this value when attaching to an ISDN in the US or Canada that uses AT&T 5ESS Release 5E6 switching equipment.

*BTNR191 Use this value when attaching to an ISDN in the United Kingdom controlled by British Telecomm.

*CCITT88 The default values recommended by the 1988 CCITT standard are used.

*DBP1TR6 Use this value when attaching to the ISDN controlled by the Deutsche Bundespost.

*ETSI Use this value when attaching to an ISDN that uses the European Telecommunications Standards Institute (ETSI) standard.

*FTVN2 Use this value when attaching to the ISDN controlled by France Telecom (Numeris VN2).

*INSNET64 Use this value when attaching to the INSNET64 controlled by Nippon Telephone and Telegraph (NTT).

*NISDN Use this value when attaching to an ISDN that conforms to the Bellcore National ISDN standards for North America.

*NT100B29 Use this value when attaching to an ISDN in the US or Canada that uses Northern Telecom DMS100 Version BCS-29 or BCS-31 switching equipment.

You can use the CHGCNNL command to change this parameter when there are no active references to the connection list. However, all other parameters that were created using the *NETTYPE value will not be updated automatically to reflect the new network type. These parameters must also be changed to allow the system to recalculate the value of *NETTYPE for the new network type.

TEXT (Text 'description'):

Specifies a brief description of the connection list. The description must be no more than 50 characters, enclosed in apostrophes.

You can use the CHGCNNL command to change the text description at any time.

RMVCHR (Characters to remove):

This parameter specifies characters to remove from local and remote numbers (LCLNBR and RMTNBR parameters) before these numbers are sent to or received from the network.

For example, the local number can be specified with delimiters that make the number easier to read; for example, `LCLNBR('(507) 111-2222')`. By specifying `RMVCHR('(')'' ''-')`, the system will remove the left and right parentheses, blank, and hyphen before sending the local number to the network. In this example, the actual number sent to the network will be `5071112222`. Possible values are:

*NETTYPE
: The default value for the network type specified by the NETTYPE parameter is used.

*NONE
: No characters are removed.

'character'
: Specify up to 10 characters, each enclosed in apostrophes, that are to be removed from local and remote numbers.

AUT (Authority):

The level of public authority for this connection list. Allowed values are:

*LIBCRTAUT
: (Default) The system determines authority for the object using the value specified for the create authority prompt (CRTAUT parameter) specified for the library in which the object will be created.

*CHANGE
: Combines the object operational authority and all data authorities (read, add, update, and delete).

*ALL Combines all the object authorities and data authorities. Users who are not explicitly authorized can control the object's existence, specify the security for the object, change the object, and transfer ownership of the object.

*USE Combines object operational authority and read authority. Users who are not explicitly authorized can display the object.

*EXCLUDE
Prevents users who are not explicitly authorized from accessing the object.

authorization-list-name
Specify the name of an existing authorization list. Users included in the authorization list are granted authority as specified by the list.

See the manual *Security Reference* for general information about AS/400 system security.

Note: Authority cannot be changed using the CHGCNNL command, but can be changed using the system security commands and menus.

Connection List Entry Parameter Descriptions

This topic contains descriptions of parameters that can be specified using the ADDCNNLE and CHGCNNLE commands. The prompts for these parameters are shown in parentheses following the parameter name. **Parameters are listed in the order shown on the command prompt displays.**

You can change these parameters using the CHGCNNLE command when there are no active references to the connection list.

CNNL (Connection list):

This parameter specifies the name of the connection list that contains the entry to be changed (CHGCNNLE) or to which an entry is to be added (ADDCNNLE).

ENTRY (Entry):

This parameter specifies the name of this connection list entry. Each entry name in the connection list must be unique. When using the CHGCNNLE command, this parameter indicates the name of the entry to be changed.

You can use the RNMCNNLE command to change the connection list entry name.

RMTNBR (Remote number):

This parameter specifies the network-assigned number of the system.

- For incoming calls, this parameter specifies the remote number to be received in the Calling Party Number IE for calls accepted using this connection list entry.
- For outgoing calls, the system will use the number specified for this parameter to generate a Called Party Number or Keypad Facility IE.

Possible values are:

*ANY (The default) For incoming calls, this value indicates that calls from any remote system number can be accepted. This value cannot be used for outgoing calls.

remote-number
Specify up to 40 characters, enclosed in apostrophes, for the number of the remote system. Outgoing calls will be made using the specified remote number; incoming calls will be accepted only from the remote number specified.

TEXT (Text 'description'):

Specifies a brief description of the connection list entry. The description must be no more than 50 characters, enclosed in apostrophes.

RMTNBRTYPE (Remote number type):

This parameter specifies the type of remote number specified on the RMTNBR parameter. Possible values are:

*NETTYPE
The default value for the network type specified by the NETTYPE parameter

on the connection list (CRTCNNL command) is used.

*UNKNOWN
Remote number type is not known.

*INTERNATL
Remote number is an international number type.

*NATIONAL
Remote number is a national number type.

*NETSPECIFIC
Remote number is specific to the network.

*SUBSCRIPTION
Remote number is a subscription number.

*LCLDIRNBR
Remote number is a remote directory number. This value indicates the same numbering type as *SUBSCRIPTION.

*BLKDIAL
Remote number is a block dial type. This value indicates the same numbering type as *UNKNOWN—that is, the remote numbering type is not known.

*ABR Remote number is an abbreviated number.

RMTNBRPLAN (Remote numbering plan):

This parameter specifies the numbering plan used for the remote number specified on the RMTNBR parameter. Possible values are:

*NETTYPE The default value for the network type specified by the NETTYPE parameter on the connection list (CRTCNNL command) is used.

*UNKNOWN
Numbering plan is not known.

*ISDN ISDN/telephony numbering plan.

*DATA Data numbering plan.

*TELEX Telex numbering plan.

*NATIONAL National numbering plan.

*PRIVATE Private numbering plan.

RMTSUBADR (Remote subaddress):

This parameter specifies the subaddress of the remote system for both incoming and outgoing calls.

- For incoming calls, this parameter specifies the remote subaddress to be received in the Calling Party Subaddress IE for calls accepted using this connection list entry.
- For outgoing calls, the system will use the number specified for this parameter to generate the Called Party Subaddress IE, if any.

*ANY (The default) For incoming calls, this value indicates that calls from any remote system subaddress be accepted; for outgoing calls, no remote subaddress is used.

remote-subaddress
Specify up to 40 hexadecimal characters for the remote subaddress. Outgoing calls will be made using the specified remote subaddress; incoming calls will be accepted only from the remote subaddress specified.

If RMTSUBTYPE(*USER) is specified, the subaddress should be an even number of characters in length. Each pair of characters represents one byte.

If RMTSUBTYPE(*NSAP) is specified, the first two characters of the subaddress must be the Authority and Format Identifier (AFI) byte. The AFI byte specifies the format of the characters that follow. For example, if the AFI byte is `50`, the characters that follow should be a hexadecimal representation of International Alphabet 5 (IA5) characters.

RMTSUBTYPE (Remote subaddress type):

This parameter specifies the remote subaddress type.

*NETTYPE
The default value for the network type specified by the NETTYPE parameter on the connection list (CRTCNNL command) is used.

*NSAP The remote subaddress type is NSAP-encoded (X.213).

*USER The remote subaddress is user-specified.

LCLNBR (Local number):

This parameter specifies the network-assigned number of the local system.

- For incoming calls, this parameter specifies the local number to be received in the Called Party Number IE for calls accepted using this connection list entry.
- For outgoing calls, the system will use the number specified for this parameter to generate a Calling Party Number IE, if any.

Possible values are:

*ANY (The default) For incoming calls, this value indicates that calls to any local system number can be accepted. For outgoing calls, no local number is used.

*NWID For incoming calls, this value indicates that calls to any local system number can be accepted. For outgoing calls, the local number specified for the network interface description is used.

local-number
Specify up to 40 characters, enclosed in apostrophes, for the number of the local system. Outgoing calls will be made using the specified local number; incoming calls will be accepted only for the local number specified.

LCLNBRTYPE (Local number type):

This parameter specifies the type of local number specified on the LCLNBR parameter. Possible values are:

*NETTYPE
The default value for the network type specified by the NETTYPE parameter on the connection list (CRTCNNL command) is used.

*UNKNOWN
Local number type is not known.

*INTERNATL
Local number is an international number type.

*NATIONAL
Local number is a national number type.

*NETSPECIFIC
Local number is specific to the network.

*SUBSCRIPTION
Local number is a subscription number.

*LCLDIRNBR
Local number is a local directory number. This value indicates the same numbering type as *SUBSCRIPTION.

*BLKDIAL
Local number is a block dial type. This value indicates the same numbering type as *UNKNOWN—that is, the remote numbering type is not known.

*ABR Local number is an abbreviated number.

LCLNBRPLAN (Local numbering plan):

This parameter specifies the numbering plan used for the local number specified on the LCLNBR parameter. Possible values are:

*NETTYPE
The default value for the network type specified by the NETTYPE parameter on the connection list (CRTCNNL command) is used.

*UNKNOWN
Numbering plan is not known.

*ISDN ISDN/telephony numbering plan.

*DATA Data numbering plan.

*TELEX Telex numbering plan.

*NATIONAL
National numbering plan.

*PRIVATE
Private numbering plan.

LCLNBRPSN (Local number presentation):

This parameter specifies what local number information is to be shown to the called user. This parameter can be specified only if a local number is specified for the LCLNBR parameter and applies only to outgoing calls. Possible values are:

*NONE (The default) The local number presentation is not encoded. The network determines whether the local number is presented to the called user.

*ALLOW Presentation of the local number to the called user is allowed.

*RESTRICT
Presentation of the local number to the called user is restricted by the network.

LCLSUBADR (Local subaddress):

This parameter specifies the subaddress of the local system for both incoming and outgoing calls.

- For incoming calls, this parameter specifies the local subaddress to be received in the Called Party Subaddress IE, if any, for calls accepted using this connection list entry.
- For outgoing calls, the system will use the number specified for this parameter to generate the Calling Party Subaddress IE, if any.

*ANY (The default) For incoming calls, this value indicates that calls to any local subaddress are accepted. For outgoing calls, no local subaddress is used.

*NWID For incoming calls, this value indicates that calls to any local subaddress are accepted. For outgoing calls, the local subaddress specified on the network interface description is used.

local-subaddress

Specify up to 40 hexadecimal characters for the local subaddress. Outgoing calls will be made using the specified local subaddress; incoming calls will be accepted only for the local subaddress specified.

If LCLSUBTYPE(*USER) is specified, the subaddress should be an even number of characters in length. Each pair of characters represents one byte.

If LCLSUBTYPE(*NSAP) is specified, the first two characters of the subaddress must be the Authority and Format Identifier (AFI) byte. The AFI byte specifies the format of the characters that follow. For example, if the AFI byte is 50, the characters that follow should be a hexadecimal representation of International Alphabet 5 (IA5) characters.

LCLSUBTYPE (Local subaddress type):

This parameter specifies the local subaddress type.

*NETTYPE

The default value for the network type specified by the NETTYPE parameter on the connection list (CRTCNNL command) is used.

*NSAP The local subaddress type is NSAP-encoded (X.213).

*USER The local subaddress is user-specified.

NETSPFINF (Network specific information):

This parameter can be used to request network-specific facilities on outgoing calls or for the network to inform the local system of special facilities on incoming calls. Up to four network-specific facility fields can be specified.

Support of these facilities varies by network. Contact your network provider for information about which facilities are supported and how to encode the facilities. The AS/400 system encodes bytes 1 and 2 of each network specific facility field.

*ALLANY (The default) All four network specific facility fields are treated as *ANY. If this value is used, it must be specified only once (for example, NETSPFINF(*ALLANY)).

*ANY For incoming calls, any network-specific facilities can be specified. No network-specific information is sent on outgoing calls.

*NONE No network-specific information can be specified on incoming calls. No network-specific information is sent on outgoing calls.

network-specific-facilities

Specify the network-specific information, starting with byte 3 (the AS/400 system encodes bytes 1 and 2). Up to 60 hexadecimal characters can be specified; the number of characters specified must be even. Contact your network provider for information about specifying these facilities.

TRSNETSEL (Transit network selections):

This parameter can be used to identify intermediate ISDN networks that must be traversed to communicate with the remote user. Up to four transit networks can be specified; each selection contains three elements, as described below.

Network identifier:

*NONE (The default) No transit network selection is used for outgoing calls. If this value is used, it must be specified only once (for example, TRSNETSEL(*NONE)). *NONE is assumed for all four transit network selections.

transit-network-identifier
Specify the transit network identifiers, starting with byte 3 (the AS/400 system encodes bytes 1 and 2). Up to 30 characters can be specified; contact your network provider for information about how to encode transit network selections.

Network type:

*NETTYPE
The default value for the network type specified by the NETTYPE parameter on the connection list (CRTCNNL command) is used.

*USER The transit network is a user-specified type.

*NATIONAL
The transit network is a national type.

*INTERNATL
The transit network is an international type.

Network plan:

*NETTYPE
The default value for the network type specified by the NETTYPE parameter on the connection list (CRTCNNL command) is used.

*UNKNOWN
The transit network plan is unknown.

*CARRIER
The transit network uses a carrier identification code plan.

*DATA The transit network uses a data plan.

INFTRFTYPE (Information transfer type):

For outgoing calls, this parameter specifies how data is to be encoded for the channel associated with this connection list entry. Possible information transfer types are:

*UNRESTRICTED
(The default) Data channel traffic is unrestricted. No encoding is done by the physical layer. Each B-channel operates at 64K bps.

*V110 Channel uses CCITT V-Series Recommendation 110. Each B-channel operates at 56K bps.

*IVTHDLC
Channel uses inverted HDLC data encoding. Each B-channel operates at 64K bps. Use of this value is not recommended.

For incoming calls, the system adapts to the information transfer type of the call.

CNN (Connection type):

This parameter specifies the type of switched connection used by this entry.

*CIRCUIT (The default) Circuit-switched connection.

*SEMIPERM
Semi-permanent connection. The value is supported only by the Deutsche Bundespost (NETTYPE(*1TR6)).

IBM-Supplied Connection List and Connection List Entries

Figure 11-1 shows the values specified for the IBM-supplied connection list, QDCCNNLANY, and connection list entries, ANYSWT and ANYSEMI.

```
CRTCNNL CNNL(QDCCNNLANY) NETTYPE(*CCITT88) +
          RMVCHR(' ' '(' ')' '/' '-' '+' '.') +
          TEXT('This ISDN CNNL is IBM Supplied')
ADDCNNLE CNNL(QDCCNNLANY) ENTRY(ANYSWT) RMTNBR(*ANY) +
          TEXT('Accept any incoming circuit switched calls') +
          RMTNBRTYPE(*UNKNOWN) RMTNBRPLAN(*UNKNOWN) RMTSUBADR(*ANY) +
          RMTSUBTYPE(*USER) LCLNBR(*ANY) LCLNBRTYPE(*UNKNOWN) +
          LCLNBRPLAN(*UNKNOWN) LCLSUBADR(*ANY) LCLSUBTYPE(*USER) +
          NETSPFINF(*ALLANY) TRSNETSEL(*NONE) +
          INFTRFTYPE(*UNRESTRICTED) CNN(*CIRCUIT)
ADDCNNLE CNNL(QDCCNNLANY) ENTRY(ANYSEMI) RMTNBR(*ANY) +
          TEXT('Accept any incoming semi-permanent calls') +
          RMTNBRTYPE(*UNKNOWN) RMTNBRPLAN(*UNKNOWN) RMTSUBADR(*ANY) +
          RMTSUBTYPE(*USER) LCLNBR(*ANY) LCLNBRTYPE(*UNKNOWN) +
          LCLNBRPLAN(*UNKNOWN) LCLSUBADR(*ANY) LCLSUBTYPE(*USER) +
          NETSPFINF(*ALLANY) TRSNETSEL(*NONE) +
          INFTRFTYPE(*UNRESTRICTED) CNN(*SEMIPERM)
```

Figure 11-1. Source for QDCCNNLANY Connection List

Chapter 12. Matching Configuration Parameters

Configuring the AS/400 system for communications with another AS/400 system, a non-AS/400 system, or a remote controller requires the coordination of configuration parameters and values specified for the AS/400 system with configuration values specified for the other system or controller.

The purpose of this chapter is to provide a reference for those AS/400 communications configuration parameters that must match or be otherwise compatible with the configuration prompts and parameters specified for:

- System/38
- System/36
- Host systems (including System/370, 9370, 30xx and 43xx processors)
- Personal computers running DOS
- 5294, 5394, and 5494 Remote Control Units
- 3174 and 3274 Remote Control Units
- Finance controllers (including 4701, 4702, and Financial Branch System Services controllers)
- Retail controllers (including 3651, 3684, 4680 and 4684 controllers)

Each of these systems and controllers is discussed separately; each configuration is viewed with the AS/400 system as the local system.

This chapter describes only those configuration prompts and parameters that require coordination of *both* the AS/400 and the non-AS/400 system values. The listed dependencies for matching parameters may not include all matches required by your configuration. Also, some of the parameters listed may not apply to your particular configuration.

Note: For configurations using X.25 DCE support (that is, communicating directly, rather than through an X.25 packet-switching data network), most X.25-related configuration parameters require coordination. These parameters are not included for most systems and controllers described in this chapter.

Chapter 6 through Chapter 8 of this manual contain detailed descriptions of line, controller, and device description parameters specified for the AS/400 system. For more information about specifying AS/400 mode descriptions, see Chapter 9.

Matching Parameters for a Remote AS/400 System

Communications configuration parameters that must be coordinated between local and remote AS/400 systems are described in the following figures.

AS/400 Line Description Parameters for a Remote AS/400 System

The following figure shows those prompts and parameters that must be coordinated when specifying line descriptions for the local and remote AS/400 systems.

Figure 12-1 (Page 1 of 2). Matching Line Description Parameters for Remote AS/400 System

AS/400 Prompt	AS/400 Parameter	Remote AS/400 Parameter	Notes
Local adapter address	ADPTADR	ADPTADR	Adapter address of the local system (specified on the line description) must be matched at the remote system in the controller description ADPTADR parameter. See Appendix B for special considerations when using Ethernet with the 8209 LAN bridge.
Insert network address in packets	ADRINSERT	ADRINSERT	If X.25 DCE support is specified (X25DCE(*YES)), ADRINSERT(*YES) should be specified for both systems.
Data bits per character	BITSCHAR	BITSCHAR	Values specified for each system must match.
Connection initiation	CNNINIT	CNNINIT	If X.25 DCE support is specified (X25DCE(*YES)) for either system, CNNINIT(*LOCAL) should also be specified on that system's line description. The other system (with X25DCE(*NO) specified) should specify CNNINIT(*REMOTE) or CNNINIT(*WAIT). See also the considerations for the X25DCE parameter.
Duplex	DUPLEX	DUPLEX	Depending on the type of communications used, the values specified for the DUPLEX parameters may need to be coordinated. See the description of the DUPLEX parameter in Chapter 6.
Ethernet standard	ETHSTD	ETHSTD	Values specified for each system must be coordinated. Both systems must specify the same standard (*ETHV2 or *IEEE8023) or at least one system must specify *ALL. See Appendix B for more information.
Exchange identifier	EXCHID	EXCHID	Remote AS/400 controller description EXCHID must match the local AS/400 line description EXCHID. The first 3 digits of the exchange identifier—the block number— will be 056 for the AS/400 line. You can use the WRKLIND command to determine this value.
Logical channel entries	LGLCHLE	LGLCHLE	If X.25 DCE support is specified (X25DCE(*YES)), logical channel types and channel number must be coordinated. See also the considerations for the X25DCE parameter.
Line speed	LINESPEED	LINESPEED	For asynchronous lines, the line speeds specified for each system must match.
Modem data rate select	MODEMRATE	MODEMRATE	Modem data rates specified for each system must match.

Figure 12-1 (Page 2 of 2). Matching Line Description Parameters for Remote AS/400 System

AS/400 Prompt	AS/400 Parameter	Remote AS/400 Parameter	Notes
Modulus	MODULUS	MODULUS	If X.25 DCE support is specified (X25DCE(*YES)), modulus values specified for each system must match. The values specified for this parameter should match for all communications types.
Local network address	NETADR	CNNNBR	For switched virtual circuits (SVCs), the NETADR parameter on the local system line description must match the CNNNBR parameter on the *controller description* for the remote system.
NRZI data encoding	NRZI	NRZI	Values specified for each system must match (*YES or *NO).
Data link role	ROLE	ROLE	Value specified for the local system line description ROLE parameter should match the controller description ROLE parameter specified at the remote system.
Number of stop bits	STOPBITS	STOPBITS	Values specified for each system must match.
Switched connection type	SWTCNN	SWTCNN	Values specified for each system must be compatible. (*DIAL or *ANS must not be specified for *both* systems.)
X.25 DCE support	X25DCE	X25DCE	If X.25 DCE support is used (X25DCE(*YES)), only one of the AS/400 line descriptions should specify *YES. The system specifying X25DCE(*YES) should also specify CNNINIT(*LOCAL); the other AS/400 system should specify X25DCE(*NO) and CNNINIT(*REMOTE) or CNNINIT(*WAIT).

AS/400 Controller Description Parameters for a Remote AS/400 System

The following figure shows those prompts and parameters that must be coordinated when specifying controller descriptions for the local and remote AS/400 systems.

Figure 12-2 (Page 1 of 2). Matching Controller Description Parameters for Remote AS/400 System

AS/400 Prompt	AS/400 Parameter	Remote AS/400 Parameter	Notes
LAN remote adapter address	ADPTADR	ADPTADR	Adapter address specified on the local system controller description must match the line description ADPTADR parameter specified by the remote system. See Appendix B for special considerations when using Ethernet with the 8209 LAN bridge.
Connection number	CNNNBR	NETADR	For switched virtual circuits (SVCs), the CNNNBR parameter on the local system controller description must match the NETADR parameter on the line description for the remote system.
Connection password	CNNPWD	CNNPWD	For switched virtual circuits (SVCs), passwords specified for each system must match.
Destination service access point	DSAP	SSAP	DSAP specified for the local AS/400 system must match the SSAP specified in the remote AS/400 controller description.
Exchange identifier	EXCHID	EXCHID	If used, the local AS/400 controller description EXCHID must match the remote AS/400 line description EXCHID. The first 3 digits of the exchange identifier—the block number— will be 056 for the AS/400 line. You can use the WRKLIND command to determine this value.
Initial connection	INLCNN	INLCNN	Values specified for each system must be coordinated; INLCNN(*ANS) must not be specified for both systems.
Link protocol	LINKPCL	LINKPCL	For X.25 connections, values specified for each system must match; both must be *QLLC or *ELLC.
Remote control point name	RMTCPNAME	LCLCPNAME	RMTCPNAME specified on the local AS/400 system controller description must match the local control point name specified in the network attributes of the remote AS/400 system.
Remote network identifier	RMTNETID	LCLNETID	RMTNETID specified on the local AS/400 system controller description must match the local network ID specified in the network attributes of the remote AS/400 system.
Data link role	ROLE	ROLE	Value specified for the local AS/400 controller description ROLE parameter must match the remote AS/400 line description ROLE value.
X.25 reverse charging	RVSCRG	RVSCRG	Values specified for each system must be coordinated.
Switched network backup	SNBU	SNBU	Values specified for each system must match.
Source service access point	SSAP	DSAP	SSAP specified for the local AS/400 system must match the DSAP specified in the remote AS/400 controller description.

Figure 12-2 (Page 2 of 2). Matching Controller Description Parameters for Remote AS/400 System

AS/400 Prompt	AS/400 Parameter	Remote AS/400 Parameter	Notes
Station address	STNADR	STNADR	Values specified for each system must match, unless both controller descriptions specify ROLE(*NEG).

Note: For asynchronous controllers (CRTCTLASC command), if the remote system controller description specifies RMTVFY(*YES), the local system controller description must specify a local identifier (LCLID parameter) and local location name (LCLLOCNAME parameter). The remote system must also create a configuration list using the LCLID and LCLLOCNAME values from the local system controller description.

AS/400 Device Description Parameters for a Remote AS/400 System

The following figure shows those prompts and parameters that must be coordinated when specifying device descriptions for the local and remote AS/400 systems.

Figure 12-3. Matching Device Description Parameters for a Remote AS/400 System

AS/400 Prompt	AS/400 Parameter	Remote AS/400 Parameter	Notes
Local location name	LCLLOCNAME	RMTLOCNAME	For systems not using APPN (APPN(*NO) specified for the controller and device descriptions), this value must match the value specified by the RMTLOCNAME parameter on the remote system device description. APPC device descriptions are automatically created as needed by AS/400 APPN support if APPN(*YES) is specified for the controller description.
Mode	MODE	MODE	For systems not using APPN (APPN(*NO) specified for the controller and device descriptions), this value must match the value specified by the MODE parameter on the remote device description. For systems using APPN (APPN(*YES) specified for the controller and device descriptions), the specified mode description must exist on the remote system. The mode description name need not be specified in the remote device description.
Remote location name	RMTLOCNAME	LCLLOCNAME	For systems not using APPN (APPN(*NO) specified for the controller and device descriptions), this value must match the value specified by the LCLLOCNAME parameter on the remote device description. APPC device descriptions are automatically created as needed by AS/400 APPN support if APPN(*YES) is specified for the controller description.
Remote network identifier	RMTNETID	LCLNETID	RMTNETID specified on the local AS/400 system device description must match the local network ID specified in the network attributes of the remote AS/400 system.

Matching Parameters for System/38

System/38 communications configuration parameters that must match AS/400 values are described in the following figures. For information about configuring the System/38, see the System/38 *Data Communications Programmer's Guide*.

AS/400 Line Description Parameters for System/38

AS/400 line descriptions used to communicate with a System/38 can be specified using the CRTLINSDLC or CRTLINX25 commands.

The following figure shows those prompts and parameters that must be coordinated in specifying line descriptions for the AS/400 system. System/38 line descriptions are created using the Create Line Description (CRTLIND) command; System/38 controller descriptions are created using the Create Control Unit Description (CRTCUD) command.

Figure 12-4 (Page 1 of 2). Matching AS/400 Line Description Parameters for System/38

AS/400 Prompt	AS/400 Parameter	System/38 Parameter	Notes
Insert network address in packets	ADRINSERT	LCLNETADR	If X.25 DCE support is used (X25DCE(*YES)), and the AS/400 line description specifies ADRINSERT(*YES), the System/38 must supply the local network address on the LCLNETADR parameter of the CRTLIND command.
Connection initiation	CNNINIT	X25NETTYPE	If X.25 DCE support is specified for the AS/400 system (X25DCE(*YES)), CNNINIT(*LOCAL) should also be specified on the AS/400 line description. For this configuration, the System/38 line description should specify X25NETTYPE(01**2**x) (where x indicates the modulus used for packet numbering). See also the considerations for the X25DCE and MODULUS parameters.
Exchange identifier	EXCHID	EXCHID	System/38 controller description EXCHID (CRTCUD command) must match the AS/400 line description EXCHID. The first 3 digits of the exchange identifier—the block number— will be 056 for the AS/400 line. You can use the AS/400 WRKLIND command to determine this value.
Logical channel entries	LGLCHLE	LGLCHLE	If X.25 DCE support is used (X25DCE(*YES)), logical channel types and channel numbers must be coordinated. See also the considerations for the X25DCE parameter.
Maximum frame size	MAXFRAME	NETMAXPIU	System/38 uses 521 as the default maximum frame size. 265 can also be specified.
Modem data rate select	MODEMRATE	RATETYPE	Modem data rates specified for each system must match.

Figure 12-4 (Page 2 of 2). Matching AS/400 Line Description Parameters for System/38

AS/400 Prompt	AS/400 Parameter	System/38 Parameter	Notes
Modulus	MODULUS	X25NETTYPE	If X.25 DCE support is used (X25DCE(*YES)), the modulus specified for each system must match as follows: • AS/400 MODULUS(8) must be matched with System/38 X25NETTYPE(01x**1**), where x represents the character used to define the connection initiation type used. • AS/400 MODULUS(128) must be matched with System/38 X25NETTYPE(01x**2**).
Local network address	NETADR	TELNBR	For switched virtual circuits (SVCs), the AS/400 NETADR parameter must match System/38 *controller description* TELNBR parameter.
NRZI data encoding	NRZI	NONRTNZ	Values specified for each system must match (*YES or *NO).
X.25 DCE support	X25DCE	TYPE	If X.25 DCE support is used (X25DCE(*YES)), only one of the line descriptions should specify the support: • If X25DCE(*YES) is specified for the AS/400 line description, TYPE(*X25) should be specified on the System/38 CRTLIND command. • If X25DCE(*NO) is specified for the AS/400 line description, the System/38 should specify TYPE(*X25DCE) if this support is to be used. See also the considerations for the CNNINIT parameter.

AS/400 Controller Description Parameters for System/38

The following figure shows those prompts and parameters that must be coordinated in specifying controller descriptions for the AS/400 system. System/38 line descriptions are created using the Create Line Description (CRTLIND) command; System/38 controller descriptions are created using the Create Control Unit Description (CRTCUD) command.

Figure 12-5 (Page 1 of 2). Matching AS/400 Controller Description Parameters for System/38

AS/400 Prompt	AS/400 Parameter	System/38 Parameter	Notes
Connection number	CNNNBR	LCLNETADR	AS/400 CNNNBR parameter must match System/38 LCLNETADR specified on CRTLIND command.
Connection password	CNNPWD	NETCNNPWD	For switched virtual circuits (SVCs), passwords specified for each system must match.
Exchange identifier	EXCHID	EXCHID	System/38 line description EXCHID (CRTLIND command) must match AS/400 controller description EXCHID. The first 3 digits of the exchange identifier—the block number— will be 022 for the System/38 line. You can use the System/38 DSPLIND command to determine this value.
Initial connection	INLCNN	INLCNN	Values specified for each system must be coordinated as follows: • INLCNN(*ANS) must not be specified for both systems. • If the AS/400 controller description specifies INLCNN(*ANS), the System/38 must specify INLCNN(*CALL).
Link protocol	LINKPCL	NETPCL	For X.25 connections, values specified for each system must match; both must be *QLLC or *ELLC. (System/38 *PSH value is not supported by the AS/400 system.)
X.25 logical channel ID	LGLCHLID	X25ADR	For permanent virtual circuits (PVCs) using X.25 DCE support (X25DCE(*YES)), the value specified for the AS/400 LGLCHLID parameter must be matched in the System/38 X25ADR parameter as follows: • AS/400 parameter is specified as LGLCHLID(*gcc*), where *gcc* are the logical group and channel numbers. • System/38 parameter is specified as X25ADR(*0gccpp*). The values specified in *gcc* must match those specified for the AS/400 parameter.
Maximum frame size	MAXFRAME	MAXLENPIU	Values specified for each system must match.

Figure 12-5 (Page 2 of 2). Matching AS/400 Controller Description Parameters for System/38

AS/400 Prompt	AS/400 Parameter	System/38 Parameter	Notes
Data link role	ROLE	LINKTYPE	Values specified for the AS/400 and System/38 controller descriptions must be coordinated as follows: • If the AS/400 controller description specifies ROLE(*PRI), the System/38 controller description must specify LINKTYPE(*X25LLS) for X.25 lines or LINKTYPE(*SDLCSEC) for SDLC lines. • If the AS/400 controller description specifies ROLE(*SEC) or ROLE(*NEG), the System/38 controller description must specify LINKTYPE(*X25LLP) for X.25 lines or LINKTYPE(*SDLCPRI) for SDLC lines.
X.25 reverse charging	RVSCRG	NETRVSCRG	Values specified for each system must be coordinated.
Station address	STNADR	STNADR	If the AS/400 controller description specifies ROLE(*PRI), the System/38 line description STNADR parameter must match AS/400 controller description STNADR. Use the System/38 DSPLIND command to determine this value.
		CTLADR	If the AS/400 controller description specifies ROLE(*SEC), the AS/400 STNADR must match the first 2 digits of the System/38 controller description CTLADR parameter (specified as zzyy, where zz is the *operational unit number*). Use the System/38 DSPCUD command to determine this value.

AS/400 Device Description Parameters for System/38

The following figure shows those prompts and parameters that must be coordinated in specifying device descriptions for the AS/400 system. System/38 device descriptions are created using the Create Line Description (CRTDEVD) command.

Figure 12-6. Matching AS/400 Device Description Parameters for System/38

AS/400 Prompt	AS/400 Parameter	System/38 Parameter	Notes
Local location name	LCLLOCNAME	RMTLU	Values specified for each system must match.
Mode	MODE	MODE	AS/400 value must match mode name specified for System/38 Add Device Mode Entry (ADDDEVMODE) command. AS/400 default BLANK is equivalent to System/38 *BLANK.
Remote location name	RMTLOCNAME	LCLLU	Values specified for each system must match.

Matching Parameters for System/36

System/36 communications configuration prompts that must match AS/400 values are described in the following figures. For information about using the System/36 CNFIGICF and SETCOMM procedures, see *Using System/36 Communications*.

AS/400 Line Description Parameters for System/36

The following figure shows those prompts and parameters that must be coordinated in specifying the line description for an AS/400 system communicating with a System/36.

Figure 12-7 (Page 1 of 3). Matching AS/400 Line Description Parameters for System/36

AS/400 Prompt	AS/400 Parameter	System/36 Procedure and Display	System/36 Prompt
Local adapter address	ADPTADR	CNFIGICF(13.5)	*Remote adapter address* System/36 *Remote adapter address* must match the ADPTADR parameter specified on the AS/400 CRTLINTRN command. If the System/36 is attached through an 8209 LAN Bridge to an AS/400 system on an Ethernet network, the System/36 value must be coordinated with the ADPTADR parameter specified on the AS/400 CRTLINETH command. See Appendix B for more information.
Data bits per character	BITSCHAR	—	See description for PARITY (*Type of parity*) parameter
Default packet size	DFTPKTSIZE	CNFIGX25(6.0)	*Packet size* If X.25 DCE support is specified for the AS/400 system (X25DCE(*YES)), values specified for each system must match.
Default window size	DFTWDWSIZE	CNFIGX25(6.0)	*Packet window* If X.25 DCE support is specified for the AS/400 system (X25DCE(*YES)), values specified for each system must match.

Figure 12-7 (Page 2 of 3). Matching AS/400 Line Description Parameters for System/36

AS/400 Prompt	AS/400 Parameter	System/36 Procedure and Display	System/36 Prompt
Duplex	DUPLEX	CNFIGICF(12.2)	*Full duplex ?* Values specified for each system must match as follows: • If the AS/400 system specifies DUPLEX(*FULL), the System/36 must specify `Y` for this prompt. • If the AS/400 system specifies DUPLEX(*HALF), the System/36 must specify `N` for this prompt.
		SETCOMM	*Use continuous carrier feature* Values specified for each system must match as follows: • If the AS/400 system specifies DUPLEX(*FULL), the System/36 must specify `CONCAR` for this prompt. • If the AS/400 system specifies DUPLEX(*HALF), the System/36 must specify `NOCONCAR` for this prompt. See the description of the DUPLEX parameter in Chapter 6 for more information.
Echo support	ECHO	CNFIGICF(12.2)	*Local echo supported ?* Should not be supported by both systems.
Exchange identifier	EXCHID	CNFIGICF(13.0)	*Remote system's block ID, Remote system's station XID* Block number portion of the AS/400 line description EXCHID (always `056`) must match the System/36 *Remote system's block ID* prompt. Remaining 5 digits of AS/400 EXCHID (usually based on AS/400 machine serial number) must match the System/36 *Remote system's station ID* prompt.
Flow control	FLOWCNTL	CNFIGICF(12.2)	*Local XON/XOFF supported ?* If used, XON and XOFF characters specified for each system must match. AS/400 default values for XON (hex `11`) and XOFF (hex `13`) are the same as the values used for System/36. These values cannot be changed on the System/36.
Line speed	LINESPEED	CNFIGICF(12.1)	*Line rate (BPS)* Line speeds specified for each system must match.
Modem data rate select	MODEMRATE	ALTERCOM	*Modem speed* Values specified for each system must match.
Local network address	NETADR	CNFIGX25(8.0)	*Remote network address* For switched virtual circuits (SVCs), values specified for each system must match.

Figure 12-7 (Page 3 of 3). Matching AS/400 Line Description Parameters for System/36

AS/400 Prompt	AS/400 Parameter	System/36 Procedure and Display	System/36 Prompt
NRZI data encoding	NRZI	SETCOMM	*NRZI data encoding* Values specified for each system must match.
Type of parity	PARITY	CNFIGICF(12.1)	*Type of parity* Values specified for each system must match as follows: • If the System/36 specifies even or odd parity, the AS/400 line description must match that value (PARITY(*EVEN) or PARITY(*ODD)), and BITSCHAR(7) must be specified. • If the System/36 specifies no parity, the AS/400 line description must specify PARITY(*NONE) and BITSCHAR(8).
Data link role	ROLE	CNFIGICF(12.0)	*Data link protocol* Values specified for each system must not be the same unless both are negotiable (*NEG and *3-Negotiated*). *PRI for the AS/400 system and *1-Primary* for the System/36, or *SEC and *2-Secondary*, must not be specified.
Station address	STNADR	CNFIGICF(13.0)	*Remote system's station address* Values specified for each system must match.
Number of stop bits	STOPBITS	CNFIGICF(12.1)	*Number of stop bits* Values specified for each system must match.
Switched connection type	SWTCNN	CNFIGICF(12.0)	*Switch type at ENABLE* Values specified for each system must be compatible. If System/36 specifies *4-Manual call*, the AS/400 SWTCNN parameter must be *ANS or *BOTH; if the System/36 specifies *2-Autoanswer* or *3-Manual answer*, SWTCNN must be *DIAL or *BOTH.
		CNFIGICF(13.0)	*Switch type for session initiation* Values specified for each system must be compatible. If System/36 specifies *1-Call*, the AS/400 SWTCNN parameter must be *ANS or *BOTH; if the System/36 specifies *2-Autoanswer* or *3-Manual answer*, SWTCNN must be *DIAL or *BOTH.

Note: For asynchronous controllers, if the remote system (AS/400 system or System/36) requires remote verification, the local system must configure a local identifier and local location name (AS/400 LCLID and LCLLOCNAME parameters on the CRTCTLASC command, System/36 *Local ID* and *Location name* prompts on CNFICICF(25.0) display). The AS/400 system specifies remote verification by specifying RMTVFY(*YES) on the controller description; System/36 uses CNFIGICF(60.0) prompt.

If remote verification is required, the remote system must use the local identifier and local location name values for one of the following:

- AS/400 configuration list (CRTCFGL command)
- System/36 DEFINLOC procedure

AS/400 Controller Description Parameters for System/36

The following figure shows those prompts and parameters that must be coordinated in specifying the controller description for an AS/400 system communicating with a System/36.

Figure 12-8 (Page 1 of 2). Matching AS/400 Controller Description Parameters for System/36

AS/400 Prompt	AS/400 Parameter	System/36 Procedure and Display	System/36 Prompt
LAN remote adapter address	ADPTADR	SETCOMM	*IBM Token-Ring Network adapter address override* System/36 value must match the ADPTADR parameter specified on the AS/400 controller description. If the System/36 is attached through an 8209 LAN Bridge to an AS/400 system on an Ethernet network, the System/36 value must be coordinated with the AS/400 value. See Appendix B for more information.
Connection number	CNNNBR	CNFIGX25(8.0)	*Local network address* For switched virtual circuits (SVCs), values specified for each system must match.
Connection password	CNNPWD	CNFIGX25(8.0)	*Connection password* For switched virtual circuits (SVCs), passwords specified for each system must match.
LAN destination service access point	DSAP	CNFIGICF(12.0)	*Source service access point (SSAP) value* AS/400 DSAP must match SSAP specified for System/36.
Exchange identifier	EXCHID	CNFIGICF(12.0)	*Local system's station XID in hexadecimal* System/36 line member prompt must match AS/400 controller description EXCHID. The first 3 digits of the exchange identifier—the block number— will be 03E for the System/36 line member and the AS/400 controller.
Initial connection	INLCNN	CNFIGICF(13.0)	*Switch type for session initiation* If System/36 specifies *2-Autoanswer* or *3-Manual answer*, the AS/400 INLCNN parameter must not be *ANS.
Link protocol	LINKPCL	CNFIGX25(6.0)	*Protocol* For X.25 connections, values specified must be matched (LINKPCL(*QLLC) for the AS/400 system and Q for the System/36, or LINKPCL(*ELLC) and E).
Reverse charging	RVSCRG	CNFIGX25(8.0)	*Reverse charge* Values specified for each system must be coordinated.
LAN source service access point	SSAP	CNFIGICF(12.0)	*Destination service access point (DSAP) value* AS/400 SSAP must match DSAP specified for System/36.

Figure 12-8 (Page 2 of 2). Matching AS/400 Controller Description Parameters for System/36

AS/400 Prompt	AS/400 Parameter	System/36 Procedure and Display	System/36 Prompt
Station address	STNADR	CNFIGICF(13.0)	*Remote system's station address* If AS/400 controller description specifies ROLE(*PRI), AS/400 STNADR must match the System/36 *Remote system's station address*.
		CNFIGICF(12.0)	*Local system's station address* If AS/400 controller description specifies ROLE(*SEC), AS/400 STNADR must match the System/36 *Local system's station address*.

AS/400 Device Description Parameters for System/36

The following figure shows those prompts and parameters that must be coordinated in specifying the device description for an AS/400 system communicating with a System/36.

Figure 12-9. Matching AS/400 Device Description Parameters for System/36

AS/400 Prompt	AS/400 Parameter	System/36 Procedure and Display	System/36 Prompt
Local location name	LCLLOCNAME	CNFIGICF(29.0)	*Remote location name* Values specified for each system must match.
Mode	MODE	CNFIGICF(42.0)	*Session group name* Values specified for each system must match.
Remote location name	RMTLOCNAME	CNFIGICF(22.0)	*Local location name* Values specified for each system must match.
Remote network identifier	RMTNETID	CNFIGICF(22.0)	*Network ID* Values specified for each system must match.

Matching Parameters for Host Systems

Host system communications configuration parameters that must match AS/400 values are described in the following figures. For information about configuring host systems, see the manuals *VTAM Installation and Resource Definition*, and *Network Control Program Resource Definition Reference*.

Some host system parameters can be specified on multiple definition statements, such as the GROUP, LINE, PU, and LU. The following figures list only the lowest level definition statement used by the host system.

AS/400 Line Description Parameters for Host Systems

Figure 12-10 (Page 1 of 2). Matching AS/400 Line Description Parameters for Host Systems

AS/400 Prompt	AS/400 Parameter	Host Definition Statement	Host Parameter
Local adapter address	ADPTADR	PATH	DIALNO Host DIALNO parameter is a concatenation of: SSAP/DSAP/*remote-adapter-address*. AS/400 CRTLINTRN command ADPTADR value must match the *remote-adapter-address* portion of the host DIALNO parameter. The DSAP portion of the DIALNO parameter must correspond to the SSAP value specified on the AS/400 controller description.
		PU	MACADDR For 9370/LAN only, the AS/400 line description ADPTADR must match the host MACADDR parameter. MACADDR can be coded as an 8- or 12-digit hexadecimal number; the 8-digit variation assumes `4000` in the first four positions (`4000xxxxxxxx`).
Connection type	CNN	GROUP	DIAL If the AS/400 line description CNN parameter is *SWTPP or *SHM, DIAL=YES must be specified for the host system; if CNN is *MP or *NONSWTPP, DIAL=NO must be specified. If CNN(*MP) is specified, the SERVICE macroinstruction must be used to specify the sequence in which stations are served.
Exchange identifier	EXCHID	PU	IDBLK, IDNUM The AS/400 block number (digits 1-3 of the EXCHID) is always `056`. The remaining 5 digits (based on the system serial number if *SYSGEN is used) are specified in the IDNUM parameter.
Line speed	LINESPEED	LINE	SPEED Line speeds specified for each system must match.
Maximum frame size	MAXFRAME	PU	MAXDATA Values specified for each system must match.

Figure 12-10 (Page 2 of 2). Matching AS/400 Line Description Parameters for Host Systems

AS/400 Prompt	AS/400 Parameter	Host Definition Statement	Host Parameter
NRZI data encoding	NRZI	LINE	NRZI Values specified for each system must match.
Station address	STNADR	PU	ADDR AS/400 system station address must be unique within host PU definitions. (Ignored within 9370/LAN environment.)

AS/400 Controller Description Parameters for Host Systems

Figure 12-11 (Page 1 of 2). Matching AS/400 Controller Description Parameters for Host Systems

AS/400 Prompt	AS/400 Parameter	Host Definition Statement	Host Parameter
Adjacent link station	ADJLNKSTN	PU	*name* AS/400 adjacent link station name must match the name assigned to the PU macroinstruction in the host system switched major node definition. This match is required if AS/400 host controller description specifies RMTCPNAME(*ANY), SWITCHED(*YES) or SNBU(*YES), and LINKTYPE is *SDLC or *IDLC. This parameter should be specified only if the host system is running VTAM Version 4 Release 1 or later and NCP Version 6 Release 2 or later.
LAN remote adapter address	ADPTADR	LINE	LOCADD Values specified for each system must match. If LOCADD is specified, ECLTYPE=PHYSICAL must also be specified on the GROUP definition statement.
		PORT	MACADDR For 9370/LAN only, the AS/400 controller description ADPTADR must match the host MACADDR parameter. MACADDR can be coded as an 8- or 12-digit hexadecimal number; the 8-digit variation assumes `4000` in the first four positions (`4000xxxxxxxx`).
Destination service access point	DSAP	PORT	SAPADDR For 9370/LAN only, the AS/400 controller description DSAP must match the host SAPADDR parameter. Note that the host SAPADDR is a decimal value (4-252); the AS/400 value is specified as a 2-digit hexadecimal number. See Appendix A for information about converting decimal to hexadecimal numbers.

Figure 12-11 (Page 2 of 2). Matching AS/400 Controller Description Parameters for Host Systems

AS/400 Prompt	AS/400 Parameter	Host Definition Statement	Host Parameter
Local exchange identifier	LCLEXCHID	PU	IDBLK, IDNUM For parallel connections only. Required if the AS/400 system specifies RMTCPNAME(*ANY), SWITCHED(*YES), and LINKTYPE is *SDLC or *IDLC. The LCLEXCHID specified must match the values specified in the switched major node definition PU macroinstruction.
Maximum frame size	MAXFRAME	GROUP	MAXDATA Values specified for each system must match.
Remote control point name	RMTCPNAME	VTAMLST	SSCPNAME Required only if APPN(*YES). AS/400 controller description value must match SSCPNAME specified in the VTAM start options list (ATCSTR*yy*).
Remote network identifier	RMTNETID	VTAMLST	NETID Required only if APPN(*YES). AS/400 controller description value must match NETID specified in the VTAM start options list (ATCSTR*yy*).
Source service access point	SSAP	PU	SAPADDR For 9370/LAN only, the AS/400 controller description DSAP must match the host SAPADDR parameter. Note that the host SAPADDR is a decimal value (4-252); the AS/400 value is specified as a 2-digit hexadecimal number. See Appendix A for information about converting decimal to hexadecimal numbers.
SSCP identifier	SSCPID	VTAMLST	SSCPID Required if APPN(*YES) or if RMTCPNAME is not specified. AS/400 controller description value must match SSCPID specified in the VTAM start options list (ATCSTR*yy*). Note that the host SSCPID is a decimal value (0-65535); the AS/400 value is specified as a 12-digit hexadecimal number, of which the first 2 digits are `05`. See Appendix A for information about converting decimal to hexadecimal numbers.
Station address	STNADR	PU	ADDR AS/400 system station address must be unique within host PU definitions. (Controller description STNADR must match the value specified in the line description.)

AS/400 Device Description Parameters for Host Systems

Figure 12-12. Matching AS/400 Device Description Parameters for Host Systems

AS/400 Prompt	AS/400 Parameter	Host Definition Statement	Host Parameter
Local location name	LCLLOCNAME	DFHTCT	NETNAME AS/400 LCLLOCNAME value must match CICS/VS terminal control table NETNAME parameter and the label used on the LU definition statement.
Local location address	LOCADR	LU	LOCADDR Values specified for each system must match. The host LOCADDR parameter is a decimal value (0-255); the AS/400 value is specified as a 2-digit hexadecimal number. See Appendix A for information about converting hexadecimal to decimal numbers.
Location password	LOCPWD	DFHTCT	BINDPWD Values specified for each system must match.
Mode description name	MODE	MODEENT	LOGMODE AS/400 mode description name must be defined in the host logon mode table using the LOGMODE parameter on the MODEENT macroinstruction. The mode name must also be included in the CICS/VS terminal control table (DFHTCT) MODENAM parameter.
Remote location name	RMTLOCNAME	LU	LOGAPPL Values specified for each system must match.
Remote network identifier	RMTNETID	BUILD	NETID Values specified for each system must match.

AS/400 Mode and Class-of-Service Description Parameters for Host Systems

Figure 12-13 (Page 1 of 2). Matching AS/400 Mode and Class-of-Service Description Parameters for Host Systems

AS/400 Prompt	AS/400 Parameter	Host Definition Statement	Host Parameter
Mode description name	MODD	MODEENT	LOGMODE AS/400 mode description name specified on the AS/400 CRTMODD command (MODD parameter) must be defined in the host logon mode table using the LOGMODE parameter on the MODEENT macroinstruction. The mode name must also be included in the CICS/VS terminal control table (DFHTCT) MODENAM parameter.

Figure 12-13 (Page 2 of 2). Matching AS/400 Mode and Class-of-Service Description Parameters for Host Systems

AS/400 Prompt	AS/400 Parameter	Host Definition Statement	Host Parameter
Class-of-service description name	COSD	MODEENT	COS AS/400 class-of-service description name specified on the AS/400 CRTCOSD command (COSD parameter) and CRTMODD command (COS parameter) must be defined in the host logon mode table using the COS parameter on the MODEENT macro-instruction. The class-of-service description must also be defined in the VTAM class-of-service table.

Matching Parameters for PC Support/400

Configuring personal computers running DOS for PC Support/400 requires certain identifiers specified in the CONFIG.PCS file to match those specified in the AS/400 line and controller descriptions. The following figures list these requirements for personal computers running DOS and using:

- Local area networks (IBM Token-Ring Network and Ethernet)
- Synchronous data link control (SDLC)
- Twinaxial data link control (TDLC) for System/36 or System/38 work station emulation or enhanced 5250 emulation.
- PC Support/400 for asynchronous communications

Note: AS/400 values that include the leading asterisk (*) must be specified in the CONFIG.PCS file without the leading asterisk. For example, the AS/400 connection type (CNN parameter) value *SWTPP must be specified as `SWTPP` in the CONFIG.PCS file.

For more information about matching configuring personal computers using DOS, see the *PC Support/400: DOS Installation and Administration Guide*, SC41-0006. For information about configuration for the OS/2 communications manager, see the *PC Support/400: OS/2 Installation and Administration Guide*, SC41-0007.

Local Area Network Router Identifiers

When configuring personal computers to run PC Support/400 on a local area network, the CONFIG.SYS file must include the name of the appropriate device driver for the type of network being used:

dxmc0mod.sys IBM Token-Ring Network
dxme0mod.sys Ethernet and Network Driver Interface Specification (NDIS) Adapters

In addition, the adapter address of the personal computer can be included in the CONFIG.SYS file. If an adapter address is not specified, the preset address of the adapter card is used. This value must be coordinated with the value specified for the AS/400 controller description ADPTADR parameter.

The values specified for the adapter addresses of both the personal computer and the AS/400 system are dependent on several factors:

- The type of local area network (Ethernet or token-ring)
- Whether an 8209 LAN Bridge is used between the personal computer and the host AS/400 system
- Whether preset or locally administered addresses are used

See Appendix B and the *Local Area Network Guide* for information about local area network addressing.

The following figure shows those identifiers that must be coordinated with AS/400 configuration parameters when running CFGPCS to create the CONFIG.PCS file for the local area network router. For both the IBM Token-Ring Network and Ethernet, the RTYP identifier must be specified as `ITRN`.

Note: If the AS/400 line description specifies AUTOCRTCTL(*YES), the APPC controller description for the personal computer is automatically created.

Figure 12-14. Matching AS/400 Parameters for PC Support/400 Token-Ring Network Router

CONFIG.PCS Identifier	AS/400 Values Used to Specify Identifier
TRLI	TRLI identifier is specified as: `TRLI bbb,aaa,ee,ggg` Where: • `bbb` is the link name. This value must match the value specified for the AS/400 LCLLOCNAME network attribute. Use the AS/400 DSPNETA command to determine the AS/400 value. • `aaa` is the local area network adapter address. This value represents the adapter address of the AS/400 system and must be coordinated with the value specified for the ADPTADR parameter on the CRTLINTRN or CRTLINETH command. If the AS/400 system and the personal computer are both on the token ring, this value must match the value specified on the CRTLINTRN command. Use the WRKLIND command to determine the AS/400 value. See Appendix B for information about specifying the adapter address in Ethernet and bridged (Ethernet to token-ring) configurations. • `ee` is the destination service access point. This value is optional and should be specified only if the AS/400 controller description does not use the default values. This value must match that specified for the SSAP parameter on the CRTCTLAPPC command. The value must be a hexadecimal number in the range 04 to FC, divisible by four. Use the WRKCTLD command to determine the AS/400 value. • `ggg` is your user ID. This value is optional. If specified, the user ID must be a name specified on the USER parameter of the Add Directory Entry (ADDDIRE) command. The user will be prompted for a password if this value is specified.
TRSS	TRSS is the service access point. This value is optional and should be specified only if the AS/400 controller description does not use the default values. This value must match that specified for the DSAP parameter on the CRTCTLAPPC command. The value must be a hexadecimal number in the range 04 to FC, divisible by four. Use the WRKCTLD command to determine the AS/400 value.
RTLN	RTLN is specified as: `RTLN nnnn.dddd` Where: • `nnnn` is the network identifier. This value must match the value specified for the RMTNETID parameter on the AS/400 CRTCTLAPPC command. The default value is APPN. • `dddd` is the APPN location name. This value must match the RMTCPNAME parameter specified on the AS/400 CRTCTLAPPC command. Use the WRKCTLD command to determine the AS/400 value.

Note: The following nondefault values should be specified for the AS/400 APPC controller description when configuring for PC Support/400 using the local area network router:

- LANCNNRTY(2)
- LANRSPTMR(30)
- LANCNNTMR(2)
- LANACKTMR(1)
- LANINACTMR(10)
- LANACKFRQ(1)

See Chapter 7 for detailed descriptions of these parameters.

SDLC Router Identifiers

The following figure shows those identifiers that must be coordinated with AS/400 configuration parameters when running CFGPCS to create the CONFIG.PCS file for the synchronous data link control (SDLC) router. The RTYP identifier must be specified as SDLC.

Figure 12-15. Matching AS/400 Parameters for PC Support/400 SDLC Router

CONFIG.PCS Identifier	AS/400 Values Used to Specify Identifier
SDLI	SDLI identifier is specified as: SDLI bbb,cc,ggg where: • bbb is the link name. This value must match the value specified for the AS/400 LCLLOCNAME network attribute. Use the AS/400 DSPNETA command to determine the AS/400 value. • cc is the local station address. This value must match the value specified for the STNADR parameter on the CRTCTLAPPC command. Use the WRKCTLD command to determine the AS/400 value. • ggg is your user ID. This value is optional. If specified, the user ID must be a name specified on the USER parameter of the Add Directory Entry (ADDDIRE) command. The user will be prompted for a password if this value is specified.
SDLT	SDLT selects the SDLC line type. This value must match the value specified for the CNN parameter on the CRTLINSDLC command. Use the WRKLIND command to determine the AS/400 value.
SDLF	SDLF indicates whether or not the modem supports duplex data transmission. This value must match the value specified for the DUPLEX parameter on the CRTLINSDLC command. Use the WRKLIND command to determine the AS/400 value.
SDDE	SDDE indicates whether or not non-return-to-zero (NRZI) data encoding will be used. This value must match the value specified for the NRZI parameter on the CRTLINSDLC command. Use the WRKLIND command to determine the AS/400 value.
RTLN	RTLN is specified as: RTLN nnnn.dddd Where: • nnnn is the network identifier. This value must match the value specified for the RMTNETID parameter on the AS/400 CRTCTLAPPC command. The default value is APPN. • dddd is the APPN location name. This value must match the RMTCPNAME parameter specified on the AS/400 CRTCTLAPPC command. Use the WRKCTLD command to determine the AS/400 value.

Twinaxial Router Identifiers

The following figure shows those identifiers that must be coordinated with AS/400 configuration parameters when running CFGPCS to create the CONFIG.PCS file for the 5250 (twinaxial) router. The RTYP identifier must be specified as 5250.

Figure 12-16. Matching AS/400 Parameters for PC Work Station Emulation

CONFIG.PCS Identifier	AS/400 Values Used to Specify Identifier
EMLI	EMLI identifier is specified as: `EMLI bbb,a,ggg` Where: • bbb is the link name. This must match the value specified for the AS/400 LCLLOCNAME network attribute. Use the AS/400 DSPNETA command to determine the AS/400 value. • a is the work station address. This value must match the SWTSET parameter specified for the CRTDEVDSP command. Use the WRKDEVD command to determine the AS/400 value for the device description name associated with the personal computer, if needed. **Note:** This match is not required when automatic configuration is used for twinaxial emulation. • ggg is your user ID. This value is optional. If specified, the user ID must be a name specified on the USER parameter of the Add Directory Entry (ADDDIRE) command. The user will be prompted for a password if this value is specified.
RTLN	RTLN is specified as: `RTLN nnnn.dddd` Where: • nnnn is the network identifier. This value must match the value specified for the RMTNETID parameter on the AS/400 CRTCTLAPPC command. The default value is APPN. • dddd is the APPN location name. This value must match the RMTCPNAME parameter specified on the AS/400 CRTCTLAPPC command. Use the WRKCTLD command to determine the AS/400 value. **Note:** This match is not required when automatic configuration is used.

Asynchronous Router Identifiers

The following figure shows those identifiers that must be coordinated with AS/400 configuration parameters when running CFGPCS to create the CONFIG.PCS file for the asynchronous router. The RTYP identifier must be specified as ASYN.

Figure 12-17. Matching AS/400 Parameters for Asynchronous Router

CONFIG.PCS Identifier	AS/400 Values Used to Specify Identifier
SDLI	SDLI identifier is specified as: `SDLI bbb,cc,ggg` Where: • bbb is the link name. This must match the value specified for the AS/400 LCLLOCNAME parameter on the AS/400 CHGNETA command. Use the AS/400 DSPNETA command to determine the AS/400 value. • cc is the station address of the personal computer, specified as a hexadecimal value in the range 01 through FE. There is no matching parameter for the AS/400 system. • ggg is your user ID. This value is optional. If specified, the user ID must be a name specified on the USER parameter of the Add Directory Entry (ADDDIRE) command. The user will be prompted for a password if this value is specified.
ASBR	ASBR specifies the baud rate. This value must match the value specified for the LINESPEED parameter on the CRTDEVDSP command; if LINESPEED(*CALC) is specified for the AS/400 system, no match is required. Use the WRKDEVD command to determine the AS/400 value.
SDLT	SDLT indicates the type of attachment used by the personal computer. This value must be coordinated with the value specified for the ATTACH parameter on the CRTDEVDSP command as follows: • If the AS/400 device description specifies ATTACH(*DIRECT), select NONSWTPP for the SDLT identifier. • If the AS/400 device description specifies ATTACH(*MODEM) or ATTACH(*PTT), select SWTPP for the SDLT identifier. Use the WRKDEVD command to determine the AS/400 value.
ASSB	ASSB indicates the number of stop bits used for asynchronous communications. Either 1 or 2 stop bits can be specified. This value must match the value specified for the STOPBITS parameter on the AS/400 CRTDEVDSP command. The default value for both the ASSB and the STOPBITS parameter (*TYPE) is 1 stop bit.
RTLN	RTLN is specified as: `RTLN nnnn.dddd` Where: • nnnn is the network identifier. This value must match the value specified for the RMTNETID parameter on the AS/400 CRTCTLAPPC command. The default value is APPN. • dddd is the APPN location name. This value must match the RMTCPNAME parameter specified on the AS/400 CRTCTLAPPC command. Use the WRKCTLD command to determine the AS/400 value. **Note:** This match is not required when automatic configuration is used.

Matching Parameters for 5294, 5394, and 5494 Remote Control Units

The 5294, 5394, and 5494 remote work station controllers require coordination of several parameter values specified for the AS/400 system and for the control unit configuration. The following figures list those AS/400 parameters that must match values specified in the configuration for the control units.

AS/400 Configuration Parameters for 5294 Remote Control Units

The following figures list those parameters that must be coordinated between the AS/400 line and controller descriptions and the configuration displays for the 5294 Remote Control Unit.

AS/400 parameters are listed in alphabetical order; the related fields and subfields from the 5294 configuration display are listed next, followed by the AS/400 configuration value and the matching 5294 value to be entered in the display subfield.

For more information about configuring the 5294, see the *IBM 5294 Remote Control Unit Setup Procedure*.

Figure 12-18. Matching AS/400 Line Description Parameters for 5294 Remote Control Units

AS/400 Prompt	AS/400 Parameter	5294 Field	5294 Subfield	AS/400 Value	5294 Value	Notes
Connection type	CNN	3	1	*NONSWTPP *MP	0	Used for SDLC communications only.
				*SWTPP	1	
			3	*MP	0	
				*NONSWTPP *SWTPP	1	
Duplex	DUPLEX	3	2	*HALF	0	Used for SDLC communications only.
				*FULL	1	
NRZI data encoding	NRZI	3	4	*YES	0	Used for SDLC communications only.
				*NO	1	

Figure 12-19 (Page 1 of 2). Matching AS/400 Controller Description Parameters for 5294 Remote Control Units

AS/400 Prompt	AS/400 Parameter	5294 Field	5294 Subfield	AS/400 Value	5294 Value	Notes
Connection number	CNNNBR	A	—	—	—	Used for X.21 switched communications only. Values specified in the AS/400 controller description and for the 5294 Remote Control Unit must match. If the AS/400 CRTCTLRWS command specifies CNNNBR(*DC), the X.21 direct-call user facility must be used to make the connection.

Figure 12-19 (Page 2 of 2). Matching AS/400 Controller Description Parameters for 5294 Remote Control Units

AS/400 Prompt	AS/400 Parameter	5294 Field	5294 Subfield	AS/400 Value	5294 Value	Notes
X.25 link protocol	LINKPCL	6	2,3	*QLLC	0 1	Used for X.25 communications only.
				*ELLC	1 0	
Station address	STNADR	2	—	—	—	Values specified in the AS/400 controller description and for the 5294 Remote Control Unit must match. This value must also be specified as the last 2 digits of the AS/400 controller description EXCHID parameter.

Note: For X.25 lines, the 5294 supports only the 1980 (CCITT) network level (specified on the NETLVL parameter of the CRTCTLRWS command).

AS/400 Configuration Parameters for 5394 Remote Control Units

The following figures list those parameters that must be coordinated between the AS/400 line and controller descriptions and the configuration displays for the 5394 Remote Control Unit.

AS/400 parameters are listed in alphabetical order; the related fields and subfields from the 5394 configuration display are listed next, followed by the AS/400 configuration value and the matching 5394 value to be entered in the display subfield.

For more information about configuring the 5394, see the *IBM 5394 Remote Control Unit User's Guide*.

Figure 12-20. Matching AS/400 Line Description Parameters for 5394 Remote Control Units

AS/400 Prompt	AS/400 Parameter	5394 Field	5394 Subfield	AS/400 Value	5394 Value	Notes
Connection type	CNN	3	1	*NONSWTPP *MP	0	Used for SDLC communications only.
				*SWTPP	1	
			3	*MP	0	
				*NONSWTPP *SWTPP	1, 2	
Duplex	DUPLEX	3	2	*HALF	0	Used for SDLC communications only.
				*FULL	1	
NRZI data encoding	NRZI	3	4	*YES	0	Used for SDLC communications only.
				*NO	1	

Figure 12-21. Matching AS/400 Controller Description Parameters for 5394 Remote Control Units

AS/400 Prompt	AS/400 Parameter	5394 Field	5394 Sub-field	AS/400 Value	5394 Value	Notes
Connection number	CNNNBR	A	—	—	—	Used for X.21 switched communications only. Values specified in the AS/400 controller description and for the 5394 Remote Control Unit must match. If the AS/400 CRTCTLRWS command specifies CNNNBR(*DC), the X.21 direct-call user facility must be used to make the connection.
Default packet size	DFTPKTSIZE	5	1	64	0	Used for X.25 communications only.
				128	1	
				256	2	
				512	3	
X.25 link protocol	LINKPCL	6	2, 3	*QLLC	01	Used for X.25 communications only.
				*ELLC	10	
Link type	LINKTYPE	AA	—	*SDLC	0, 2	Select 0 for communications using SDLC lines other than X.21 switched connections. Select 1 for communications using X.25 lines. Select 2 for X.21 switched connections (specified using INTERFACE(*X21) on the CRTLINSDLC command).
				*X25	1	
X.25 network level	NETLVL	6	6	1984	0	Used for X.25 communications only.
				1980	1	
Station address	STNADR	2	—	—	—	Values specified in the AS/400 controller description and for the 5394 Remote Control Unit must match. This value must also be specified as the last 2 digits of the AS/400 EXCHID parameter.
Controller type	TYPE	BB	—	5394	0	Specifies the operating mode of the 5394 Remote Control Unit. Select 0 (5394) for use with the AS/400 system; select 1 (5294 emulation mode) for use with System/36 or System/38.
				5294	1	

AS/400 Configuration Parameters for 5494 Remote Control Units

The following figures list those parameters that must be coordinated between the AS/400 line and controller descriptions and the configuration displays for the 5494 Remote Control Unit.

AS/400 parameters are listed in alphabetical order; the related fields and subfields from the 5494 configuration display are listed next, followed by the AS/400 configuration value and the matching 5494 value to be entered in the display subfield.

For more information about configuring the 5494, see the *IBM 5494 Remote Control Unit Planning Guide*, the *IBM 5494 Remote Control Unit User's Guide* and the *Remote Work Station Guide*.

Figure 12-22. Matching AS/400 Line Description Parameters for 5494 Remote Control Units

AS/400 Prompt	AS/400 Parameter	5494 Field	5494 Sub-field	AS/400 Value	5494 Value	Notes
Local adapter address	ADPTADR	H1	5	—	—	Used for token-ring network lines only. Values specified in the AS/400 line description (CRTLINTRN command) and for the 5494 Remote Control Unit must match.
Connection type	CNN	3	1	*NONSWTPP *MP	0	Used for SDLC communications only.
				*SWTPP	1, 2	
			3	*MP	0	
				*NONSWTPP *SWTPP	1	
Duplex	DUPLEX	3	2	*HALF	0	Used for SDLC communications only.
				*FULL	1	
NRZI data encoding	NRZI	3	4	*YES	0	Used for SDLC communications only.
				*NO	1	

Figure 12-23 (Page 1 of 3). Matching AS/400 Controller Description Parameters for 5494 Remote Control Units

AS/400 Prompt	AS/400 Parameter	5494 Field	5494 Sub-field	AS/400 Value	5494 Value	Notes
LAN remote adapter address	ADPTADR	15	—	—	—	Used for token-ring network lines only. Values specified for the AS/400 CRTCTLAPPC command and for the 5494 Remote Control Unit must match.

Figure 12-23 (Page 2 of 3). Matching AS/400 Controller Description Parameters for 5494 Remote Control Units

AS/400 Prompt	AS/400 Parameter	5494 Field	5494 Sub-field	AS/400 Value	5494 Value	Notes
Connection number	CNNNBR	15	—	—	—	Used for X.21 switched communications only. Values specified in the AS/400 controller description and for the 5494 Remote Control Unit must match. If the AS/400 CRTCTLRWS command specifies CNNNBR(*DC), the X.21 direct-call user facility must be used to make the connection.
Default packet size	DFTPKTSIZE	5	1	64	0	Used for X.25 communications only.
				128	1	
				256	2	
				512	3	
Destination service access point	DSAP	F	—	—	—	Used for token-ring network lines only. Values specified in the AS/400 controller description and for the 5494 Remote Control Unit must match.
Local location name	LCLLOCNAME	H1	1	—	—	Values specified for the AS/400 CRTCTLRWS command and for the 5494 Remote Control Unit must match.
X.25 link protocol	LINKPCL	6	2	*QLLC	01	Used for X.25 communications only.
				*ELLC	10	

Figure 12-23 (Page 3 of 3). Matching AS/400 Controller Description Parameters for 5494 Remote Control Units

AS/400 Prompt	AS/400 Parameter	5494 Field	5494 Sub-field	AS/400 Value	5494 Value	Notes
Link type	LINKTYPE	AA	—	*SDLC	0, 2, 3	5494 configuration values must match the values specified for the LINKTYPE parameter on the CRTCTLAPPC command. For APPC controllers that specify LINKTYPE(*SDLC), the value specified in the 5494 configuration must be compatible with the physical interface (INTERFACE parameter) specified on the CRTLINSDLC command. Select 0 for communications using SDLC lines other than X.21 connections. Select 1 for communications using X.25 lines. Select 2 for X.21 switched connections (specified using INTERFACE(*X21) on the CRTLINSDLC command). Select 3 for X.21 nonswitched connections (specified using INTERFACE(*X21) on the CRTLINSDLC command). Select 4 for token-ring network connections.
				*X25	1	
				*LAN	4	
X.25 network level	NETLVL	6	5	1988	0	Used for X.25 communications only.
				1984	1	
				1980	2	
Remote control point name	RMTCPNAME	13	—	—	—	Values specified for the AS/400 CRTCTLAPPC command and for the 5494 Remote Control Unit must match.
Remote network identifier	RMTNETID	11	3	—	—	Values specified for the AS/400 CRTCTLAPPC and CRTCTLRWS commands and for the 5494 Remote Control Unit must match.
Remote location name	RMTLOCNAME	12	—	—	—	Values specified for the AS/400 CRTCTLRWS command and for the 5494 Remote Control Unit must match.
Station address	STNADR	2	—	—	—	Values specified in the AS/400 controller description and for the 5494 Remote Control Unit must match. This value must also be specified as the last 2 digits of the AS/400 EXCHID parameter.

Matching Parameters for 3174 and 3274 Control Units

The following figures describe the AS/400 configuration parameters that must match the configuration questions and sequence numbers used to configure the 3174 and 3274 control units.

For more information about configuring the 3174 and 3274 control units, see the *3174 Subsystem Control Unit Customizing Guide* or the *3274 Control Unit Planning, Setup, and Customizing Guide*.

Matching Parameters for 3174 Control Units

Figure 12-24 (Page 1 of 3). Matching AS/400 Parameters for 3174 Control Units

AS/400 Prompt	AS/400 Parameter	3174 Configuration Questions	Notes
LAN remote adapter address[1]	ADPTADR	106	*Token-Ring Network Address of the 3174* If the AS/400 system uses a token-ring network line to connect to the 3174 controller, values specified for question 106 and for the ADPTADR parameter on the CRTCTLRWS command must match. If the AS/400 system uses an Ethernet line through an 8209 LAN Bridge to connect to the 3174, see Appendix B for information about specifying the ADPTADR parameter.
Local adapter address	ADPTADR	107	*Token-Ring Network Address of the Gateway* If the AS/400 system uses a token-ring network line to connect to the 3174 controller, values specified for question 107 and for the ADPTADR parameter on the CRTLINTRN command must match. If the AS/400 system uses an Ethernet line through an 8209 LAN Bridge to connect to the 3174, see Appendix B for information about specifying the ADPTADR parameter on the CRTLINETH command.
Connection number	CNNNBR	423	*Host DTE Address (HNAD)* For X.25 lines, the numbers specified on the CRTLINX25 command and in question 423 must match.
		368	*X.21 Switched Short-Hold Mode Dial Number* For X.21 short-hold mode connections, the numbers specified on the CRTCTLRWS command and in question 368 must match.
		424	*3174 DTE Address* For X.25 SVCs, the connection number specified on the CRTCTLRWS command and in question 424 must match.
Destination service access point	DSAP	940	*Ring Address Assignment* The value specified for the DSAP parameter on the CRTCTLRWS command must match the SAP@ specified for the 3174 on the Ring Address Assignment display.

Figure 12-24 (Page 2 of 3). Matching AS/400 Parameters for 3174 Control Units

AS/400 Prompt	AS/400 Parameter	3174 Configuration Questions	Notes
Exchange identifier	EXCHID	215	*Physical Unit Identification* For switched connections, the 5-digit hexadecimal value specified for question 215 must match the last 5 digits of the exchange identifier specified on the CRTCTLRWS command.
Link type	LINKTYPE	101	*Host Attachment* (3174) Values specified on the CRTCTLRWS command and for question 101 must match as follows: • LINKTYPE(*SDLC), 101 = 2 • LINKTYPE(*X25), 101 = 3 • LINKTYPE(LAN) or LINKTPE(*TRLAN), 101 = 7
Modem data rate select	MODEMRATE	318	*Full- or Half-Speed Transmission* The values specified for the MODEMRATE parameter on the CRTLINSDLC and CRTLINX25 commands must match question 318 as follows: • If MODEMRATE(*FULL), 318 = 0 • If MODEMRATE(*HALF), 318 = 1
Local network address	NETADR	423	*Host DTE Address (HNAD)* For X.25 SVCs, the network address specified on the CRTLINX25 command and in question 423 must match.
NRZI data encoding	NRZI	313	*NRZ or NRZI Encoding* For SDLC lines only, the values specified on the CRTLINSDLC command and in question 313 must match as follows: • If NRZI(*NO), 313 = 0 • If NRZI(*YES), 313 = 1
Source service access point	SSAP	940	*Ring Address Assignment* The value specified for the SSAP parameter on the CRTCTLRWS command must match the SAP@ associated with the Ring@ (adapter address) of the AS/400 system on the Ring Address Assignment display.
Short-hold mode	SHM	367	*X.21 Switched Short-Hold Mode* Values specified on the CRTCTLRWS command and in question 367 match as follows: • If SHM(*NO), 367 = 0 • If SHM(*YES), 367 = 2
Station address	STNADR	104	*Control Unit Address* Value specified for question 104 must match the STNADR specified on the CRTCTLRWS command.

Figure 12-24 (Page 3 of 3). Matching AS/400 Parameters for 3174 Control Units

AS/400 Prompt	AS/400 Parameter	3174 Configuration Questions	Notes
Switched connection	SWITCHED	317	*Telecommunication Facilities* Values specified on the CRTLINSDLC command and in question 317 match as follows: • If SWITCHED(*NO), 317 = 0 • If SWITCHED(*YES), 317 = 1

Note:

1 If you are using a 3174 Model 1L Gateway to connect an AS/400 system to a host system on a token-ring, the value specified for item 900 (*Token-Ring Network Address of the Gateway*) must match the value specified for the ADPTADR parameter on the CRTCTLHOST command.

Matching Parameters for 3274 Control Units

Figure 12-25. Matching AS/400 Parameters for 3274 Control Units

AS/400 Prompt	AS/400 Parameter	3274 Sequence Number	Notes
Connection number	CNNNBR	411	*3274 DTE Address* For X.25 SVCs, the connection number specified on the CRTCTLRWS command and in sequence number 411 must match.
Exchange identifier	EXCHID	215	*Physical Unit Identification* For switched connections, the 5-digit hexadecimal value specified for sequence number 215 must match the last 5 digits of the exchange identifier specified on the CRTCTLRWS command.
X.25 link protocol	LINKPCL	403	*Logical Link Control* For X.25 connections, values specified must match. Specify LINKPCL(*QLLC) on the CRTCTLRWS command; specify 1 (QLLC) for sequence number 403.
Link type	LINKTYPE	331	*BSC/SDLC/X.25 Protocol* Values specified on the CRTCTLRWS command and in sequence number 331 must match as follows: • If LINKTYPE(*SDLC), 331 = 1 • If LINKTYPE(*X25), 331 = 2
Local network address	NETADR	410	*Host DTE Address (HNAD)* For X.25 SVCs, the network address specified on the CRTLINX25 command and in sequence number 410 must match.
Modem data rate select	MODEMRATE	318	*Full- or Half-Speed Transmission* The values specified for the MODEMRATE parameter on the CRTLINSDLC and CRTLINX25 commands must match sequence number 318 as follows: • If MODEMRATE(*FULL), 318 = 0 • If MODEMRATE(*HALF), 318 = 1
NRZI data encoding	NRZI	313	*NRZ or NRZI Encoding* For SDLC lines only, the values specified must match as follows: • If NRZI(*NO), 313 = 0 • If NRZI(*YES), 313 = 1
Short-hold mode	SHM	362	*X.21 Switched Options* If SHM(*YES) is specified on the CRTCTLRWS command, digit 7 or 8 of question 362 must be set to 1. (For example, xxxxxx10 indicates that the DCE is supported for direct calls.)
Station address	STNADR	302	*Control Unit Address* Value specified for item 302 must match that specified on the CRTCTLRWS command.

Matching Parameters for Finance Controllers

Controllers used for finance communications require coordination of several parameter values specified for the AS/400 system and in the controller configuration. The following figures list those AS/400 parameters that must match values specified in the configuration for 4701, 4702, and Financial Branch System Services (FBSS) finance controllers.

AS/400 Configuration Parameters for 4700 Finance Controllers

The following figure lists those parameters that must be coordinated between the AS/400 configuration and the configuration (CPGEN) for the 4701 and 4702 finance controllers.

AS/400 prompts are listed in alphabetical order by parameter name; the AS/400 commands on which the parameters are specified are included in the rightmost column of the figure.

For more information about configuring the 4700 controllers, see Volume 6 of the *4700 Finance Communication System Controller Programming Library*.

Figure 12-26 (Page 1 of 2). Matching AS/400 Parameters for 4700 Finance Controllers

AS/400 Prompt	AS/400 Parameter	4700 Macro	4700 Parameter
Connection type	CNN	COMLINK	ACB For SDLC finance communications, if the line is switched (CNN(*SWTPP) on the CRTLINSDLC command or SWITCHED(*YES) on the CRTCTLFNC command), include the SWM value on the ACB parameter (ACB = SWM).
Exchange identifier	EXCHID	X25CKT	XID The values specified for the 4700 and the AS/400 system must match. The block number for the 4700 (first 3 digits of the AS/400 EXCHID parameter) must be 057. The 4700 parameter values are decimal numbers; the AS/400 values are hexadecimal. See Appendix A for information about converting decimal to hexadecimal numbers.
X.25 link protocol	LINKPCL	X25CKT	LLC For X.25 finance communications, the LLC parameter must specify QLLC for the type of logical link control. LINKPCL(*QLLC) must also be specified on the AS/400 CRTCTLFNC command.
Link type	LINKTYPE	COMLINK	TYPE 4700 TYPE parameter must match the LINKTYPE parameter specified on the AS/400 CRTCTLFNC command. • If LINKTYPE(*SDLC), specify TYPE = 4502. • If LINKTYPE(*X25), specify TYPE = 1424.

Figure 12-26 (Page 2 of 2). Matching AS/400 Parameters for 4700 Finance Controllers

AS/400 Prompt	AS/400 Parameter	4700 Macro	4700 Parameter
Local location address	LOCADR	STATION	ID If the optional LUA parameter is not specified, the value specified for the 4700 ID parameter must match the value specified for the LOCADR parameter on the AS/400 create device description command. If LUA is specified, the LUA parameter value must match the LOCADR parameter. The 4700 parameter values are decimal numbers; the AS/400 values are hexadecimal. See Appendix A for information about converting decimal to hexadecimal numbers.
Maximum frame size	MAXFRAME	COMLINK	CNL Value specified for the 4700 CNL parameter must be coordinated with the value specified for the AS/400 MAXFRAME parameter on the CRTCTLFNC command. Because the MAXFRAME parameter includes transmission and request header lengths, MAXFRAME should be 9 bytes longer than the 4700 CNL parameter.
			MWL Value specified for the 4700 MWL parameter must be coordinated with the value specified for the AS/400 MAXFRAME parameter on the CRTCTLFNC command. Because the MAXFRAME parameter includes transmission and request header lengths, MAXFRAME should be 9 bytes longer than the 4700 MWL parameter. If the AS/400 maximum length of request unit (MAXLENRU parameter) specified for device descriptions attached to the 4700 controller is larger than the MAXFRAME parameter specified for the controller description, the 4700 should also specify OPTIONS=(SEGMENT).
NRZI data encoding	NRZI	COMLINK	ACB For SDLC finance communications, if the line does not use NRZI data encoding (NRZI(*NO) on the CRTLINSDLC command), include the DCE value on the ACB parameter (ACB = DCE).
Station address	STNADR	X25CKT	CUA The values specified for the AS/400 STNADR parameter on the CRTCTLFNC command must match the physical address (CUA) parameter specified for the 4700.

Matching Parameters for FBSS Finance Controllers

Financial Branch System Services (FBSS) finance controllers require coordination of several parameter values specified for the AS/400 system and in the controller configuration. Figure 12-27 shows those AS/400 configuration parameters that must match values specified on the SDLC, token-ring, or X.25DLC configuration displays for FBSS controllers.

AS/400 prompts are listed in alphabetical order by parameter name; the AS/400 commands on which the parameters are specified are included in the rightmost column of the figure.

For more information about configuring FBSS controllers, see the *IBM Financial Branch System Services Installation Planning and Administration Guide*.

Figure 12-27 (Page 1 of 3). Matching AS/400 Parameters for FBSS Controllers

AS/400 Prompt	AS/400 Parameter	FBSS Configuration Display	FBSS Prompt
LAN adapter address	ADPTADR	Token Ring Communications	*PC address* If the AS/400 system uses a token-ring network line to connect to the FBSS controller, values specified for the FBSS and on the ADPTADR parameter on the CRTCTLFNC command must match. If the AS/400 system uses an Ethernet line through an 8209 LAN Bridge to connect to the FBSS controller, see Appendix B for information about special considerations for specifying the ADPTADR parameter on the CRTCTLFNC command.
			Host/37xx/4700 address If the AS/400 system uses a token-ring network line to connect to the FBSS controller, values specified for the FBSS and on the ADPTADR parameter on the CRTLINTRN command must match. If the AS/400 system uses an Ethernet line through an 8209 LAN Bridge to connect to the FBSS controller, see Appendix B for information about special considerations for specifying the ADPTADR parameter on the CRTLINETH command.
Connection type	CNN	SDLC Communications	*Switched line* Values specified for the FBSS and AS/400 configurations must match: • If the FBSS response is `Yes`, CNN(*SWTPP) must be specified for the CRTLINSDLC command and SWITCHED(*YES) for the CRTCTLFNC command. • If the FBSS response is `No`, CNN(*NONSWTPP) or CNN(*MP) must be specified for the CRTLINSDLC command and SWITCHED(*NO) for the CRTCTLFNC command.
Destination service access point	DSAP	Token Ring Communications	*Service access point for PC* Values specified for the FBSS and for the DSAP parameter on the CRTCTLFNC command must match.

Figure 12-27 (Page 2 of 3). Matching AS/400 Parameters for FBSS Controllers

AS/400 Prompt	AS/400 Parameter	FBSS Configuration Display	FBSS Prompt
Duplex	DUPLEX	SDLC Communications	*Line mode* Values specified for the FBSS and AS/400 configurations must match: • If the FBSS response is `Turn. required`, DUPLEX(*HALF) must be specified for the CRTLINSDLC command. • If the FBSS response is `CRTS` (Continuous request to send), DUPLEX(*FULL) must be specified for the CRTLINSDLC command.
Exchange identifier	EXCHID	SDLC Communications	*Identification block* and *Identification number* The values specified for the FBSS controller must match the value specified in the EXCHID parameter of the CRTCTLFNC command. The EXCHID parameter must be specified as: `xxxyyyyy`, where `xxx` matches the FBSS *Identification block* and `yyyyy` matches the FBSS *Identification number*.
Link type	LINKTYPE	Communication Servers	*Data Link Control* Values specified for the FBSS and AS/400 configurations must match: • If the FBSS response is `SDLC`, LINKTYPE(*SDLC) must be specified for the CRTCTLFNC command. • If the FBSS response is `TRDLC`, LINKTYPE(*LAN) must be specified for the CRTCTLFNC command. • If the FBSS response is `X25DLC`, LINKTYPE(*X25) must be specified for the CRTCTLFNC command.
Local location address	LOCADR	Session-Id and LU Assignments	*Host Logical Unit Numbers* FBSS logical unit number must match the LOCADR parameter value specified on the CRTDEVFNC command. The FBSS logical unit assignments are decimal numbers; the AS/400 values must be hexadecimal. See Appendix A for information about converting decimal to hexadecimal numbers.
		LU Assignments for Display Emulators LU Assignments for 3287 Printer Emulator	*Host Logical Unit Numbers* FBSS logical unit number must match the LOCADR parameter value specified on the CRTDEVDSP or CRTDEVPRT command for 3270 devices attached to the FBSS controller. The FBSS logical unit assignments are decimal numbers; the AS/400 values must be hexadecimal. See Appendix A for information about converting decimal to hexadecimal numbers.
NRZI data encoding	NRZI	SDLC Communications	*N.R.Z.I.* Values specified for the AS/400 CRTLINSDLC command and the FBSS controller must match.
Source service access point	SSAP	Token Ring Communications	*Service access point for Host/37xx/4700* Values specified for the FBSS and for the SSAP parameter on the CRTCTLFNC command must match.

Figure 12-27 (Page 3 of 3). Matching AS/400 Parameters for FBSS Controllers

AS/400 Prompt	AS/400 Parameter	FBSS Configuration Display	FBSS Prompt
SSCP identifier	SSCPID	SSCP Names	*SSCP namexx* If used, the value specified for the FBSS controller must match the last 10 digits of the SSCPID parameter on the CRTCTLFNC command.
Station address	STNADR	SDLC Communications	*Station address* Values specified for the AS/400 CRTCTLFNC command and the FBSS controller must match.

Matching Parameters for Retail Controllers

Retail controllers for retail communications require coordination of several parameter values specified for the AS/400 system and in the controller configuration. The following figures list those AS/400 parameters that must match values specified in the configuration for the 3651, 3684, 4680, and 4684 retail controllers.

For more information and examples of configurations for the retail communications controllers, see the *Retail Communications Programmer's Guide*. See "Matching Parameters for Host Systems" on page 12-16 for information about matching parameters for VTAM definition statements.

AS/400 Configuration Parameters for 3651 Store Controllers

The following figure lists those parameters that must be coordinated between the AS/400 system and the 3651 Store Controller.

AS/400 parameters are listed in alphabetical order; the commands on which the parameters are specified are included in the rightmost column of the figure.

For more information about configuring the 3651 controller, see the *IBM Programmable Store System Language and Host Services: Macro Reference* and the *Retail Communications Programmer's Guide*.

Figure 12-28 (Page 1 of 2). Matching AS/400 Parameters for 3651 Store Controllers

AS/400 Prompt	AS/400 Parameter	3651 Definition Statement	3651 Parameter
Connection type	CNN	QFHOST	SDLCLIN Value specified for the AS/400 CNN parameter on the CRTLINSDLC command must match the values specified for bits 2 and 3 of the 3651 SDLCLIN parameter. See "Specifying the 3651 SDLCLIN Parameter" on page 12-43.
Duplex	DUPLEX	QFHOST	SDLCLIN Value specified for the AS/400 DUPLEX parameter on the CRTLINSDLC command must match the value specified for bit 6 of the 3651 SDLCLIN parameter. See "Specifying the 3651 SDLCLIN Parameter" on page 12-43.
Exchange identifier	EXCHID	QFHOST	SENDID 3651 SENDID parameter must match the last 5 digits of the EXCHID parameter specified on the AS/400 CRTLINSDLC command. (This parameter is used only for switched line communications.)
			RECVID 3651 RECVID parameter must match the last 5 digits of the EXCHID parameter specified on the AS/400 CRTCTLRTL command.

Figure 12-28 (Page 2 of 2). Matching AS/400 Parameters for 3651 Store Controllers

AS/400 Prompt	AS/400 Parameter	3651 Definition Statement	3651 Parameter
Modem data rate	MODEMRATE	QFHOST	SDLCLIN Value specified for the AS/400 MODEMRATE parameter on the CRTLINSDLC command must match the value specified for bit 5 of the 3651 SDLCLIN parameter. See "Specifying the 3651 SDLCLIN Parameter" on page 12-43.
NRZI data encoding	NRZI	QFHOST	SDLCLIN Value specified for the AS/400 NRZI parameter on the CRTLINSDLC command must match the value specified for bit 1 of the 3651 SDLCLIN parameter. See "Specifying the 3651 SDLCLIN Parameter" on page 12-43.
SSCP identifier	SSCPID	QFHOST	SSCPID 3651 SSCPID parameter must match the SSCPID parameter specified on the AS/400 CRTCTLRTL command.
Station address	STNADR	QFHOST	SDLCPOL 3651 SDLCPOL parameter must match the STNADR parameter specified on the AS/400 CRTCTLRTL command.
Switched connection	SWITCHED	QFHOST	SDLCLIN Value specified for the AS/400 SWITCHED parameter on the CRTCTLRTL command must match the values specified for bits 2 and 3 of the 3651 SDLCLIN parameter. See "Specifying the 3651 SDLCLIN Parameter" on page 12-43.

Note: For the AS/400 system, the 3651 QFHOST definition must specify DIRATT=NO.

Specifying the 3651 SDLCLIN Parameter

The following figure describes how to coordinate values specified for parameters on the AS/400 CRTLINSDLC and CRTCTLRTL commands with bits specified for the 3651 SDLCLIN parameter.

The SDLCLIN parameter is specified as a series of 8 bits, designated 0 through 7 (01234567). The default value for the SDLCLIN parameter when used with an SDLC line is 01100001, or hex 61.

The default value for each bit is underlined in the *Bit Value* column.

Figure 12-29. Specifying the SDLCLIN Parameter for 3651 Store Controllers

SDLCLIN Bit	Bit Value	AS/400 Parameter and Value	Notes
0	0	None	Data terminal ready. There is no equivalent parameter for the AS/400 system. Specify 0 to indicate that the data terminal ready (DTR) signal is on when the controller is powered on, or 1 to indicate that the DTR is off when the controller is powered on. This bit should be set to 1 only if the configuration being defined includes IBM world trade data communications equipment (DCE) in a switched network.
	1	None	
1	0	NRZI(*NO)	Specify 1 if the data communications equipment (DCE) provides the clocking or if NRZI data encoding is used.
	1	NRZI(*YES)	
2 and 3	00	SWITCHED(*YES) CNN(*SWTPP)	Bit 2: Specify 1 if using nonswitched communications, or 0 if using switched communications. If switched, the SENDID parameter must also be specified. Bit 3: Specify 1 if using a multipoint communications protocol, or 0 if not. 01 is an invalid combination for these bits.
	01	Invalid	
	10	SWITCHED(*NO) and CNN(*NONSWTPP)	
	11	SWITCHED(*NO) and CNN(*MP)	
4	0	None (See **Notes**)	Direct attachment. This bit must be set to 0 for communications with the AS/400 system. There is no equivalent parameter for the AS/400 system.
	1	None	
5	0	MODEMRATE(*FULL)	Modem data rate.
	1	MODEMRATE(*HALF)	
6	0	DUPLEX(*HALF)	Data carrier setting.
	1	DUPLEX(*FULL)	
7	0	None	Answer tone generation. There is no equivalent parameter for the AS/400 system. Specify 0 to indicate that the modem generates the answer tone, or 1 to indicate that the controller generates the answer tone.
	1	None	

AS/400 Configuration Parameters for 3684 Point of Sale Control Units

The following figure lists those parameters that must be coordinated between the AS/400 system and the 3684 Point of Sale Control Unit.

AS/400 parameters are listed in alphabetical order; the commands on which the parameters are specified are included in the rightmost column of the figure.

For more information about configuring the 3684, see *IBM Programmable Store System Language and Host Services: 3680 Macro Reference* and the *Retail Communications Programmer's Guide*.

Figure 12-30 (Page 1 of 2). Matching AS/400 Parameters for 3684 Controllers

AS/400 Prompt	AS/400 Parameter	3684 Definition Statement	3684 Parameter
Connection type	CNN	QFSFGLNK	LINECON Value specified for the AS/400 CNN parameter on the CRTLINSDLC command must match the values specified for bits 2 and 3 of the 3684 LINECON parameter. See "Specifying the 3684 LINECON Parameter" on page 12-46.
Duplex	DUPLEX	QFSFGLNK	LINECON Value specified for the AS/400 DUPLEX parameter on the CRTLINSDLC command must match the value specified for bit 6 of the 3684 LINECON parameter. See "Specifying the 3684 LINECON Parameter" on page 12-46.
Exchange identifier	EXCHID	QVSFGLNK	SENDID 3684 SENDID parameter must match the last 5 digits of the EXCHID parameter specified on the AS/400 CRTCTLRTL command.
			RECVID 3684 RECVID parameter must match the last 5 digits of the EXCHID parameter specified on the AS/400 CRTLINSDLC command. (This parameter is used only for switched line communications.)
Modem data rate	MODEMRATE	QFSFGLNK	LINECON Value specified for the AS/400 MODEMRATE parameter on the CRTLINSDLC command must match the value specified for bit 5 of the 3684 LINECON parameter. See "Specifying the 3684 LINECON Parameter" on page 12-46.
NRZI data encoding	NRZI	QFSFGLNK	LINECON Value specified for the AS/400 NRZI parameter on the CRTLINSDLC command must match the value specified for bit 1 of the 3684 LINECON parameter. See "Specifying the 3684 LINECON Parameter" on page 12-46.

Figure 12-30 (Page 2 of 2). Matching AS/400 Parameters for 3684 Controllers

AS/400 Prompt	AS/400 Parameter	3684 Definition Statement	3684 Parameter
Switched network backup	SNBU	QFSFGLNK	LINECON Value specified for the AS/400 SNBU parameter on the CRTLINSDLC command must match the value specified for bit 4 of the 3684 LINECON parameter. See "Specifying the 3684 LINECON Parameter" on page 12-46.
SSCP identifier	SSCPID	QVSFGLNK	SSCPID 3684 SSCPID parameter must match the SSCPID parameter specified on the AS/400 CRTCTLRTL command.
Station address	STNADR	QVSFGLNK	POLCHAR 3684 POLCHAR parameter must match the 2-digit hexadecimal address specified for the STNADR parameter on the AS/400 CRTCTLRTL command. Allowed values are in the range 01 through FE.
Switched connection	SWITCHED	QFSFGLNK	LINECON Value specified for the AS/400 SWITCHED parameter on the CRTCTLRTL command must match the values specified for bits 2 and 3 of the 3684 LINECON parameter. See "Specifying the 3684 LINECON Parameter" on page 12-46.

Note: For the AS/400 system, the 3684 QVSFGLNK, QVSFCOMM, and QVSFSESN definitions must each specify DATALNK=SDLC.

Specifying the 3684 LINECON Parameter

The following figure describes how to coordinate values specified for parameters on the AS/400 CRTLINSDLC and CRTCTLRTL commands with bits specified for the 3684 LINECON parameter.

The LINECON parameter is specified as a series of 8 bits, designated 0 through 7 (01234567). The default value for the LINECON parameter when used with an SDLC line is 01000001, or hex 41.

The default value for each bit is underlined in the *Bit Value* column.

Figure 12-31. Specifying the LINECON Parameter for 3684 Store Controllers

LINECON Bit	Bit Value	AS/400 Parameter and Value	Notes
0	0	None	Enabled at IML. There is no equivalent parameter for the AS/400 system. Specify 0 to indicate that the controller is enabled at IML, or 1 to indicate that the controller is not enabled at IML.
	1	None	
1	0	NRZI(*NO)	Specifies NRZI data encoding with leading pads (1) or non-NRZI without leading pads (0).
	1	NRZI(*YES)	
2 and 3	00	SWITCHED(*YES) and CNN(*SWTPP)	Bit 2: Specify 1 if using nonswitched communications, or 0 if using switched communications. If switched, the SENDID parameter must also be specified. Bit 3: Specify 1 if using a multipoint communications protocol, or 0 if not. 01 is an invalid combination for these bits.
	01	Invalid	
	10	SWITCHED(*NO) and CNN(*NONSWTPP)	
	11	SWITCHED(*NO) and CNN(*MP)	
4	0	SNBU(*NO)	Switched network backup.
	1	SNBU(*YES)	
5	0	MODEMRATE(*FULL)	Data rate select speed.
	1	MODEMRATE(*HALF)	
6	0	DUPLEX(*HALF)	Data carrier setting.
	1	DUPLEX(*FULL)	
7	0	None	Answer tone generation. There is no equivalent parameter for the AS/400 system. Specify 0 to indicate that the controller generates the answer tone, or 1 to indicate that the answer tone is omitted.
	1	None	

AS/400 Configuration Parameters for 4680 Store System

The following figures list those parameters that must be coordinated between the AS/400 system and the 4680 Store System controller. The 4680 requires configuration of SDLC/SNA line and link parameters using a series of displays. Separate figures are provided below for line and link configurations.

AS/400 parameters are listed in alphabetical order; the commands on which the parameters are specified are included in the rightmost column of the figures.

For more information about configuring the 4680, see the *IBM 4680 Store System: Programming Guide* and the *Retail Communications Programmer's Guide*.

Figure 12-32. Matching AS/400 Parameters for 4680 Line Parameters

AS/400 Prompt	AS/400 Parameter	4680 Line Parameter
Connection type	CNN	4680 CONNECTION TYPE parameter value must be coordinated with the values specified for the AS/400 CNN and SWTCNN parameters on the CRTLINSDLC command and with the SWITCHED and INLCNN parameters on the CRTCTLRTL command. • If CNN(*NONSWTPP) and SWITCHED(*NO) are specified for the AS/400 system, specify CONNECTION TYPE = 1 for the 4680. • If CNN(*MP) and SWITCHED(*NO) are specified for the AS/400 system, specify CONNECTION TYPE = 2 for the 4680. • If CNN(*SWTPP), SWITCHED(*YES), INLCNN(*DIAL), and either SWTCNN(*DIAL) or SWTCNN(*BOTH) are specified for the AS/400 system, specify CONNECTION TYPE = 3 for the 4680. • If CNN(*SWTPP), SWITCHED(*YES), INLCNN(*DIAL), and either SWTCNN(*DIAL) or SWTCNN(*BOTH) are specified for the AS/400 system, specify CONNECTION TYPE = 4 for the 4680. This configuration allows the 4680 to manually answer calls from the AS/400 system or to manually call the AS/400 system. • If CNN(*SWTPP), SWITCHED(*YES), INLCNN(*ANS), and either SWTCNN(*ANS) or SWTCNN(*BOTH) are specified for the AS/400 system, specify CONNECTION TYPE = 4 for the 4680. This configuration requires the 4680 to manually call the AS/400 system.
Initial connection	INLCNN	See description for the CNN (*Connection type*) parameter.
Modem data rate select	MODEMRATE	4680 DATA RATE parameter must match the MODEMRATE parameter specified on the AS/400 CRTLINSDLC command.
NRZI data encoding	NRZI	4680 NRZI MODE parameter must match the NRZI parameter specified on the AS/400 CRTLINSDLC command.
Station address	STNADR	4680 STATION ADDRESS parameter must match the STNADR parameter specified on the AS/400 CRTCTLRTL command.
Switched connection	SWITCHED	See description for the CNN (*Connection type*) parameter.
Switched connection	SWTCNN	See description for the CNN (*Connection type*) parameter.

Figure 12-33. Matching AS/400 Parameters for 4680 Link Parameters

AS/400 Prompt	AS/400 Parameter	4680 Link Parameter
Exchange identifier	EXCHID	For switched lines only, the 4680 EXCHANGE ID parameter must match the EXCHID parameter specified on the AS/400 CRTCTLRTL command.
Local location address	LOCADR	4680 SESSION ADDRESS parameter must match the LOCADR parameter specified on the AS/400 CRTDEVRTL command. Session address 01 is reserved for host command processor sessions.
SSCP identifier	SSCPID	4680 SSCP ID parameter must match the SSCPID parameter specified on the AS/400 CRTCTLRTL command.

AS/400 Configuration Parameters for 4684 Retail Point of Sale Terminals

The following figure lists those parameters that must be coordinated between the AS/400 system and the 4684 Point of Sale Terminal when running IBM Retail Industry Programming Support Services (RIPSS).

AS/400 parameters are listed in alphabetical order; the commands on which the parameters are specified are included in the rightmost column of the figure.

For more information about configuring for RIPSS on the 4684, see the *IBM Retail Industry Programming Support Services: Planning and Installation Guide*.

Figure 12-34 (Page 1 of 2). Matching AS/400 Parameters for 4684 Controllers

AS/400 Prompt	AS/400 Parameter	RIPSS Configuration Display	RIPSS Prompt
LAN remote adapter address	ADPTADR	TRDLC Server Data	*Local node (Hex)* For token-ring connections, the values specified for the RIPSS configuration and for the AS/400 CRTCTLRTL command must match.
Local adapter address	ADPTADR	TRDLC Server Data	*Remote node (Hex)* For token-ring connections, the values specified for the RIPSS configuration and for the AS/400 CRTLINTRN command must match.
Destination service access point	DSAP	TRDLC Server Data	*Local SAP (Hex)* For token-ring connections, the values specified for the RIPSS configuration and for the AS/400 CRTCTLRTL command must match.
Duplex	DUPLEX	SDLC Server Data	*4-wire constant RTS?* For SDLC connections, the values specified for RIPSS and AS/400 configurations must match: • If the RIPSS response is N, DUPLEX(*HALF) must be specified for the CRTLINSDLC command. • If the RIPSS response is Y, DUPLEX(YES) must be specified for the CRTLINSDLC command.

Figure 12-34 (Page 2 of 2). Matching AS/400 Parameters for 4684 Controllers

AS/400 Prompt	AS/400 Parameter	RIPSS Configuration Display	RIPSS Prompt
Exchange identifier	EXCHID	SDLC Server Data	*Block number (hex)* and *XID (hex)* For SDLC connections, the values specified for the RIPSS configuration must match the value specified in the EXCHID parameter of the CRTCTLRTL command. The EXCHID parameter must be specified as: xxxyyyyy, where xxx matches the RIPSS *Block number* and yyyyy matches the RIPSS *XID*. For switched connections, the block number must be 005.
Local location address	LOCADR	SNA Server Data, Session Data	*LOC Address (Dec)* The values specified for the RIPSS configuration must match the values specified on the LOCADR parameter of the CRTDEVRTL command. Note that the RIPSS *LOC Address* is a decimal value; the AS/400 value is a 2-digit hexadecimal number. See Appendix A for information about converting decimal to hexadecimal numbers.
NRZI data encoding	NRZI	SDLC Server Data	*Data coding/decoding* For SDLC connections, the values specified for the AS/400 CRTLINSDLC command and the RIPSS configuration must match: • If the RIPSS response is NRZI, NRZI(*YES) must be specified for the CRTLINSDLC command. • If the RIPSS response is NRZ, NRZI(*NO) must be specified for the CRTLINSDLC command.
SSCP identifier	SSCPID	HST Server Data	*SSCP Name* For SDLC connections, if used, the value specified by the RIPSS configuration must match the last 10 digits of the SSCPID parameter specified on the CRTCTLRTL command.
Station address	STNADR	SDLC Server Data	*Poll address (hex)* For SDLC connections, values specified for the AS/400 CRTCTLRTL command and the RIPSS configuration must match.

Part 3. Appendixes

Appendix A. Decimal and Hexadecimal Conversions

You can use the following table to convert a decimal number to a hexadecimal number, or to convert a hexadecimal number to a decimal number. Examples of how to use the table are included.

Figure A-1. Decimal and Hexadecimal Conversion

Position 4		Position 3		Position 2		Position 1	
Decimal	**Hex**	**Decimal**	**Hex**	**Decimal**	**Hex**	**Decimal**	**Hex**
0	0	0	0	0	0	0	0
4096	1	256	1	16	1	1	1
8192	2	512	2	32	2	2	2
12288	3	768	3	48	3	3	3
16384	4	1024	4	64	4	4	4
20480	5	1280	5	80	5	5	5
24576	6	1536	6	96	6	6	6
28672	7	1792	7	112	7	7	7
32768	8	2048	8	128	8	8	8
36864	9	2304	9	144	9	9	9
40960	A	2560	A	160	A	10	A
45056	B	2816	B	176	B	11	B
49152	C	3072	C	192	C	12	C
53248	D	3328	D	208	D	13	D
57344	E	3584	E	224	E	14	E
61440	F	3840	F	240	F	15	F

Hexadecimal to Decimal Example

To find the decimal value of hex 1FA, you find in the previous table that:

1. In position 3, hex 1 equals decimal 256
2. In position 2, hex F equals decimal 240
3. In position 1, hex A equals decimal 10

By adding these three decimal numbers together, you have the decimal value of hex 1FA.

```
256 + 240 + 10 = 506.
```

Decimal to Hexadecimal Example

To find the hexadecimal value of decimal 538, you find in the previous table that:

1. The next lower decimal number is 512 in position 3. This is equal to hex 2.
2. Then subtract 512 from 538 and use the difference to find the next hexadecimal value.

   ```
   538 - 512 = 26
   ```

3. The next lower number from 26 is 16 in position 2. This is equal to hex 1.
4. Then subtract 16 from 26 and use the difference to find the next hexadecimal value.

   ```
   26 - 16 = 10
   ```

5. The remaining 10 is found in position 1. This is equal to hex A.

You then combine the positions of the hexadecimal values. Thus, decimal 538 equals hex 21A.

Appendix B. Token-Ring and Ethernet Addressing Considerations

Every system, controller, or personal computer that is attached to a local area network has a physical address for its attachment adapter. This physical level is called the medium access control (MAC), and the IEEE architecture has defined the 48-bit (or 6-byte) MAC address formats used for IEEE 802.5 token-ring and IEEE 802.3 Ethernet LANs.

MAC addresses are configured on the AS/400 system using the adapter address (ADPTADR) parameters on the line and controller description commands. This appendix describes:

- Physical address formats used by token-ring and Ethernet networks
- Considerations for specifying adapter addresses in bridged environments connecting both token-ring and Ethernet networks

See the *Local Area Network Guide* for more information about configuring local area networks, including bridged frame relay connections to remote LANs using token-ring, DDI, and Ethernet lines.

Token-Ring Physical Address Format Considerations

Figure B-1 and Figure B-2 show the format of MAC addresses used for the token-ring LANs. The order of bit transmission on the medium starts with byte 0, bit 0 and ends with byte 5, bit 7. This order of transmission is called most significant bit transmission because the most significant bit of each byte is transmitted first.

MAC Destination Address Format:

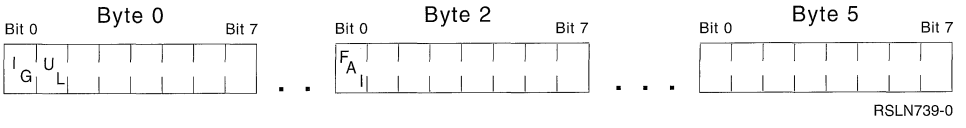


Figure B-1. Token-Ring MAC Destination Address Format

- Bit 0 of byte 0 (called the I/G bit) indicates whether the destination address is an individual address (B'0') or group address (B'1').
- Bit 1 of byte 0 (called the U/L bit) indicates whether the destination address is universally administered ('B'0') or locally administered (B'1').
- Bit 0 of byte 2 (called the functional address indicator (FAI)) indicates whether a locally administered group address is a functional address (B'0') or a group address (B'1').

MAC Source Address Format

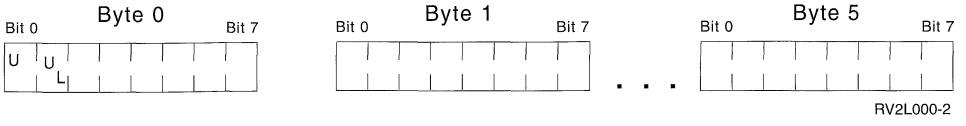


Figure B-2. Token-Ring MAC Source Address Format

- Because source addresses are always individual addresses, bit 0 of byte 0 is used to indicate whether or not the frame contains a routing information field (B'1' if the frame contains a routing information field).
- Bit 1 of byte 0 indicates whether the source address is universally (B'0') or locally administered (B'1').

Also note the following:

- Byte 0, bit 0 = 0. This assignment limits the values of the local adapter address (ADPTADR parameter on the CRTLINTRN command) to the range of hex 7FFFFFFFFFFF and below. The remaining addresses (when byte 0, bit 1 = 1) are group addresses.
- Locally assigned addresses with byte 0, bit 1 = 1, are further restricted to values in the range hex 400000000000 to hex 7FFFFFFFFFFF. IEEE restrictions preclude the use of adapter preset addresses with values in the range of hex 000000000000 to hex 3FFFFFFFFFFF.

Ethernet Physical Address Format Considerations

Figure B-3 shows the format of MAC addresses used for Ethernet LANs. The order of bit transmission on the medium starts with byte 0 from bit 7 to bit 0, then byte 1, from bit 7 to bit 0 until byte 5, bit 0 is reached. This order of transmission is called least significant bit because the least significant bit is transmitted first. This ordering for Ethernet differs from the ordering for token ring, described in "Token-Ring Physical Address Format Considerations" on page B-1.

Figure B-3 shows the physical address format specified by IEEE 802.3.

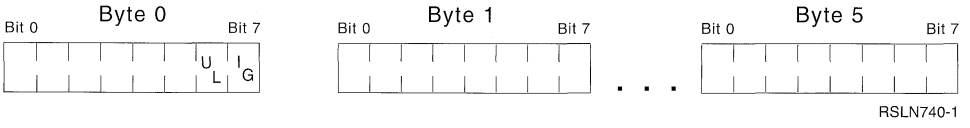


Figure B-3. Ethernet Physical Address Format

- Bit 7 of byte 0 (called the I/G bit) indicates whether the destination address is an individual address (B'0') or group address (B'1').
- Bit 6 of byte 0 (called the U/L bit) indicates whether the address is universally administered (B'0') or locally administered (B'1').

Also note the following:

- Byte 0, bit 7 = 0. This assignment limits the values of the local adapter address (ADPTADR parameter on the CRTLINETH command) to the range of individual addresses where byte 0 must be an even number.
- Byte 0, bit 6 =1 further restricts locally assigned addresses resulting in the address range of hex 020000000000 through hex FEFFFFFFFFFF. The second digit must be 2, 6, A, or E.
- IEEE standards reserve a range of adapter addresses for use as preset addresses. This results in byte 0, bit 6 = 0 occupying the remaining even values in the range of hex 000000000000 to FFFFFFFFFFFF.

Bridged LAN Considerations

Because the bit order used to transmit physical addresses in token-ring and Ethernet networks is reversed, address conversion is required when a bridge is used to connect local area networks of different types.

The AS/400 system uses the ADPTADR parameter on the token-ring or Ethernet line description to specify the adapter address of the local system; the ADPTADR parameter on the controller descriptions specifies the addresses of remote systems in the network. When all stations in the network use the same local area network type, the controller description ADPTADR value specified to identify a remote AS/400 system will be the same as the line description ADPTADR value that the remote system specifies to identify itself. For any two systems attached to the same network or to the same type of local area network (for example, two token-ring networks connected by a bridge), no address conversion is required.

However, when a bridge is used to connect unlike local area network types, the line or controller description adapter addresses configured on opposite sides of the bridge must be converted to accommodate the different addressing formats used. Figure B-4 shows an example of a bridged network.

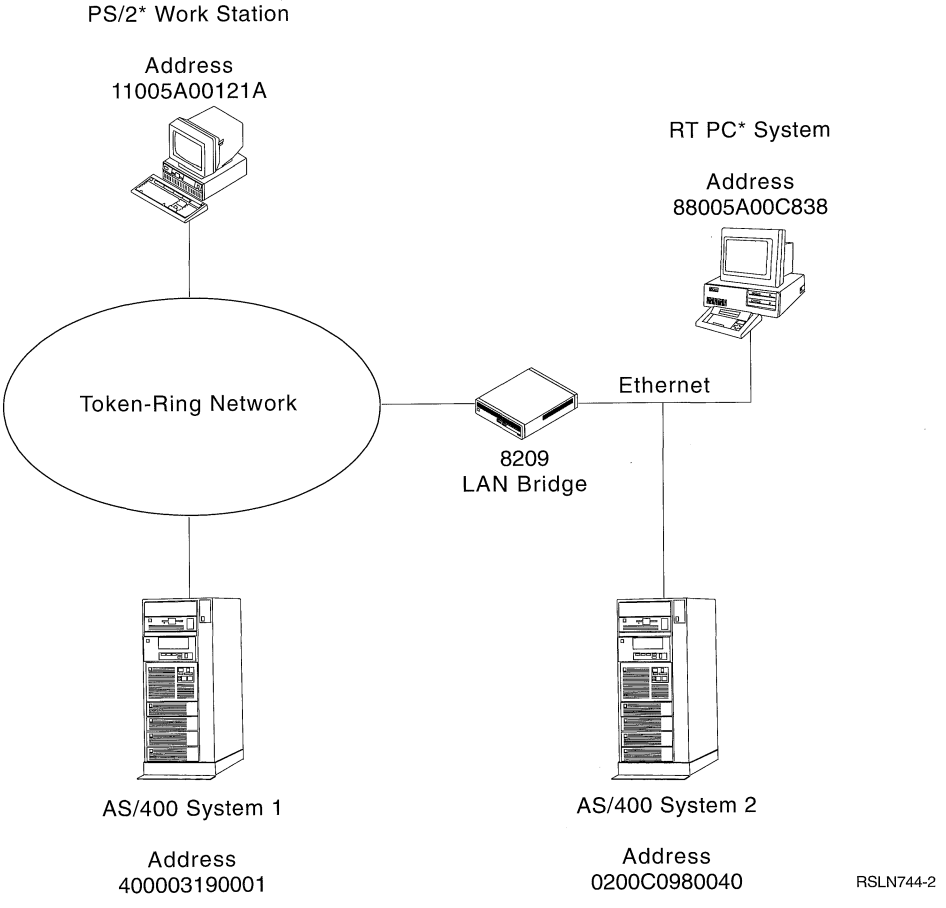


Figure B-4. 8209 LAN Bridge Addressing

Figure B-5 shows how the adapter addresses for the bridged environment shown in Figure B-4 would be specified on the AS/400 controller descriptions. The controller

description adapter addresses (ADPTADR parameters) identify the remote systems in a local area network.

Figure B-5. Controller Description (CTLD) Addresses Specified by AS/400 Systems

System	Local Adapter Address	AS/400 System 1 CTLD Adapter Addresses	AS/400 System 2 CTLD Adapter Addresses
AS/400 System 1	400003190001	—	0200C0980080
AS/400 System 2	0200C0980040	400003190002	—
PS/2 Work Station	11005A00121A	11005A00121A	88005A004858
RT PC* System	88005A00C838	11005A00131C	88005A00C838

Token-Ring to Ethernet Address Conversion

The bit order of the 48-bit (12-hexadecimal digits) IEEE MAC address is reversed between the token-ring and Ethernet LANs. Some protocols that use this MAC address may not adjust for the inverted bits when communicating between LANs. Therefore, you must manually convert the address bit order. Use the following procedure and Figure B-6 to convert an address. For an example of how to convert an address, see "Example of Converting an Address" on page B-5.

1. Write the 12-hexadecimal-digit MAC address.

   Note: Separate the 12-hexadecimal digits into pairs. Use the first character of each pair as the row coordinate and the second character as the column coordinate.

2. Locate a bit order inverted pair in Figure B-6.
3. Combine the 6 pairs into a 12-hexadecimal-digit address.

Figure B-6. Example Conversion Table

2nd Char → (Column) 1st Char ↓ (Row)	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	80	40	C0	20	A0	60	E0	10	90	50	D0	30	B0	70	F0
1	08	88	48	C8	28	A8	68	E8	18	98	58	D8	38	B8	78	F8
2	04	84	44	C4	24	A4	64	E4	14	94	54	D4	34	B4	74	F4
3	0C	8C	4C	CC	2C	AC	6C	EC	1C	9C	5C	DC	3C	BC	7C	FC
4	02	82	42	C2	22	A2	62	E2	12	92	52	D2	32	B2	72	F2
5	0A	8A	4A	CA	2A	AA	6A	EA	1A	9A	5A	DA	3A	BA	7A	FA
6	06	86	46	C6	26	A6	66	E6	16	96	56	D6	36	B6	76	F6
7	0E	8E	4E	CE	2E	AE	6E	EE	1E	9E	5E	DE	3E	BE	7E	FE
8	01	81	41	C1	21	A1	61	E1	11	91	51	D1	31	B1	71	F1
9	09	89	49	C9	29	A9	69	E9	19	99	59	D9	39	B9	79	F9
A	05	85	45	C5	25	A5	65	E5	15	95	55	D5	35	B5	75	F5
B	0D	8D	4D	CD	2D	AD	6D	ED	1D	9D	5D	DD	3D	BD	7D	FD
C	03	83	43	C3	23	A3	63	E3	13	93	53	D3	33	B3	73	F3
D	0B	8B	4B	CB	2B	AB	6B	E8	1B	9B	5B	DB	3B	BB	7B	FB
E	07	87	47	C7	27	A7	67	E7	17	97	57	D7	37	B7	77	F7
F	0F	8F	4F	CF	2F	AF	6F	EF	1F	9F	5F	DF	3F	BF	7F	FF

Example of Converting an Address

Figure B-7 shows how token-ring address 10005A4DBC96 is converted into a bit-inverted Ethernet address of 08005AB23D69.

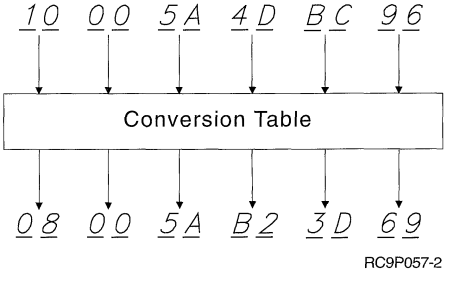


Figure B-7. An Example of Token-Ring Address Conversion

See the *Local Area Network Guide* for more information about LAN configuration.

Appendix C. Switched Line Considerations

This appendix discusses the information needed to configure and operate the AS/400 system when using a switched line connection. The switched line connection can use a voice-grade telephone network or an X.21 digital network using asynchronous, BSC, ISDN data link control, or SDLC protocols, a switched telephone line to an X.25 packet-switching data network, or a switched network backup to a nonswitched line. A switched line connection is one that is established "on demand" between two systems.

The disconnection of switched lines for SDLC and BSC protocols and APPC and APPN environments is also discussed in this chapter.

You should review all parameters on any command. Parameters have dependencies. Therefore, any one of several parameters can be affected by a change to the value of another parameter.

Calling from the AS/400 System

You can establish the connection from the AS/400 system by manually dialing, or by using the automatic dial feature on your line modem or an automatic call unit to automatically dial. If a call attempt fails, an error message is sent to the QSYSOPR message queue.

If the remote system starts the connection by calling the AS/400 system, the connection can be established by the AS/400 system automatically answering the call or the AS/400 system operator manually answering the call.

Manually Dialing from the AS/400 System

If the connection is through a voice-grade telephone network, the operator can make the call manually. The operator dials manually whenever the system starts the switched line connection and the automatic dial capability does not exist for the line, or it is necessary to talk with the remote operator before allowing communications to occur. Consider the following when using manual dial:

- Ensure that the correct party is called and is ready to use the system.
- Find the system resources the remote system wants to use and ensure that those resources are available.
- Inform the remote operator about any special system problems that may be encountered (if the remote system is in manual answer mode).

A manual dial connection can be established if the line description is created with manual dial capabilities. The following parameter values are required to indicate these capabilities:

- Automatic dial (AUTODIAL parameter) is specified as *NO
- Switched connection (SWTCNN parameter) is specified as *BOTH or *DIAL

If the controller description is created with the initial connection (INLCNN) parameter specified as *DIAL, dialing occurs when an application program opens a file or requests input or output from the file (depending on the communications protocol). The INLCNN setting does not prevent a controller from being contacted by an

incoming call; however, if AUTOANS is set to *NO only a manual answer is allowed. Manual dial is performed as follows:

1. The operator prepares the system for work with remote locations. This includes:
   a. Ensuring that the modem power is on and the modem is ready.
   b. Ensuring that the system operator message queue (QSYSOPR) is in break delivery mode.
   c. Varying on the line description, controller descriptions, and device descriptions.
   d. Starting any user-defined or system-supplied subsystems used by remote locations.
2. The user starts an application program that opens a file to a remote device or starts a command such as the Start Pass-Through (STRPASTHR) command. The program can be an interactive or batch job. For BSC communications, the program opens a file and performs its first input/output operation, and attempts to establish a session using a switched device.
3. If no problems occur, the system sends message CPA5806 to the system operator. This message tells the operator which line to use and which telephone number to dial.
4. The system operator uses the telephone attached to the line and dials the remote location. The system operator verifies that the correct site was called and is now ready.
5. If further discussion with the remote operator is not needed, the system operator types a G (Go) reply to the message. If anything is not correct, the system operator types a C (Cancel) reply to the message and the manual dial function ends. The application program requesting the link is notified of the cancellation.
6. The local operator returns to the telephone and instructs the remote operator to go to data mode. The local operator waits for the answer tone and then places the local modem or telephone in data mode. Because different methods can be used for placing the call in data mode, refer to the modem's user's guide for more information about the equipment you are using.
7. If the remote system has automatic answer capabilities, a remote operator may not be available. Type a G reply to the CPA5806 message, dial the remote location, wait for the answer tone, and then place the local modem or telephone in data mode.

The connection procedure varies with the type of modems used. However, if the system successfully completes the switched connection with the remote system, the system operator always receives the CPF5908 message.

Note: If the connection is not successful, the system operator receives an error message. The program that sent the open or acquire operation command is suspended until either the call is successful or the operator gives the C (Cancel) response to an error message. A C response sends a file open fail condition to the program.

The system reply list support can provide an automatic response to the message. Entries are added to the list by using the Add Reply List Entry (ADDRPYLE) command.

Automatically Dialing from the AS/400 System

The system uses automatic dialing for a switched line connection whenever it must start the switched line connection and the automatic dial (AUTODIAL) parameter is set to *YES. You may decide to use automatic dialing for any of the following reasons:

- The remote location is always ready to use the system.
- An unauthorized user does not have access to the remote location.
- Special system information is not needed for the remote system operator.
- The remote system is running unattended by operational personnel.
- The remote modem is automatic answer, and the system is configured for automatic answer.
- The local system is running unattended by operational personnel.

An automatic dial connection can be established if the line description is created with automatic dial capabilities. The following parameter values are required to indicate automatic dial capabilities:

- Automatic dial (AUTODIAL parameter) is specified as *YES
- Switched connection (SWTCNN parameter) is specified as *BOTH or *DIAL

If the controller description is created with the initial connection (INLCNN) parameter specified as *DIAL, dialing occurs when an application program opens a file or requests input or output from the file (depending on the communications protocol). The INLCNN setting does not prevent a controller from being contacted by a call; however, if AUTOANS is set to *NO, only a manual answer is allowed. You can perform an automatic dial for a switched line connection as follows:

1. The local operator prepares the system for work with remote locations. This includes:
   a. Ensuring that the modem power is on and the modem is ready.
   b. Varying on the line description, controller descriptions, and device descriptions.
   c. Starting any user-defined or system-supplied subsystems used by remote locations.
2. The user starts an application program that opens a file to a remote device or starts a command (such as the Start Pass-Through (STRPASTHR) command). The program can be an interactive or batch job. For BSC lines, the dial function is delayed until the first program input/output operations.
3. If no problems occur, the system dials the remote location by using the telephone number in the controller description. For IDLC, the telephone number used is in the connection list entry pointed to by the controller description.
4. The remote system performs an automatic answer connection and its telephone answers automatically if the modem and system are automatic answer. Otherwise, the remote system operator answers and places the device in data mode.

When the system completes the switched connection with the remote location, the system operator receives the CPF5908 message.

Note: If the connection is not successful, the system operator receives an error message, such as CPA5712. The program that sent the open file command or an acquire operation is suspended until either the call is successful or the operator gives the C (Cancel) response to an error message. A C response sends a file open fail condition to the program.

The system reply list support can provide an automatic response to the message. Entries are added to the list by using the Add Reply List Entry (ADDRPYLE) command.

X.21 Considerations

This topic discusses the INTERFACE and DIALCMD parameter considerations when AUTODIAL(*YES) is specified for the CRTLINSDLC command.

The X.21 recommendation defines the interface between data terminal equipment (DTE) and public data networks for digital nonswitched and circuit-switched synchronous services. The following parameter values are needed for the CRTLINSDLC example for the X.21 recommendation:

- INTERFACE(*X21)
- SWTCNN(*DIAL)
- AUTODIAL(*YES)
- DIALCMD(*NONE)

Note: There is no manual dial for X.21 circuit-switched connections. DIALCMD(*V25BIS) is valid only when INTERFACE(*RS232V24) is specified. CNN(*SWTPP) does not support INTERFACE(*V35) or (*X21BISV35). INTERFACE(*X21BISV24) does not support AUTODIAL(*YES).

Asynchronous Automatic Dial Considerations

If AUTODIAL(*YES) is specified for a Create Line Description (Asynchronous) (CRTLINASC) command or a modem with an automatic dial feature is used, specify the following parameter values:

- SWTCNN(*DIAL)
- AUTODIAL(*YES)
- DIALCMD(*V25BIS) or DIALCMD(*OTHER)

Note: When using the DIALCMD parameter, specify either value depending on whether your modem uses the *V25BIS dial command or the *OTHER serial dial command (the telephone number in the CNNNBR parameter of the controller description is not used).

Automatic Call Unit Considerations

A connection can also be established automatically using a V.25 automatic call unit for an asynchronous, BSC, SDLC, or X.25 connection. The following figure shows a network with an automatic call unit.

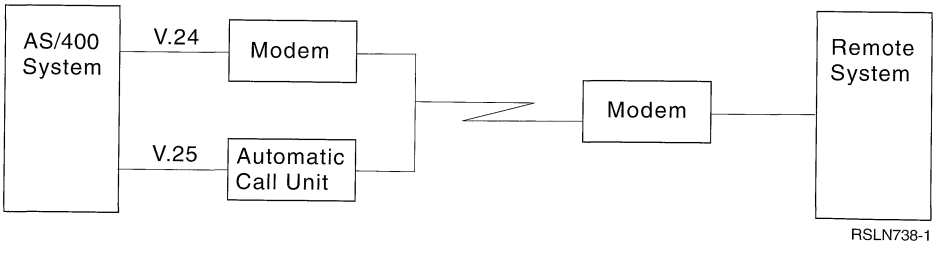


Figure C-1. AS/400 System Equipped with Automatic Call Unit

When creating a line description that supports an automatic call unit, the following considerations apply:

- The AUTOCALL parameter must be specified as *YES if the user intends to use the automatic call feature of a separate automatic call unit. The automatic

call unit is used on another port that is referred to by using the ACRSRCNAME parameter.

Both resource names for the line and the automatic call unit must refer to port addresses residing on the same I/O processor.

AUTOCALL requires a special cable (see RPQ 843567 for 9406 and RPQ 843568 for 9404) to connect the separate automatic call unit when you specify AUTOCALL(*YES).

- The AUTODIAL parameter specifies if the system automatically calls a remote location (AUTODIAL(*YES)).
- The DIALCMD parameter specifies the dial command used to establish a connection. The value *NONE is specified when a separate automatic call unit is used.

V.25bis Considerations: If you are using V.25bis on an asynchronous, bisynchronous, SDLC, or X.25 line, you should specify the following:

- AUTODIAL(*YES)
- AUTOCALL(*NO)
- DIALCMD(*V25BIS)

APPC and APPN Considerations for Dialing

SDLC or X.25 switched lines can be used anywhere in an APPN network; however, line expenses can be costly due to control-point sessions between adjacent network nodes. If you choose to use a switched line between network nodes, both systems can be set up as SWTCNN(*DIAL).

Because network nodes exchange network topology information, switched connections are established at vary-on time prior to opening any program files.

If switched connections are used as logically nonswitched connections (for example, when control-point-to-control-point sessions are established), the APPN minimum switched status (MINSWTSTS parameter) should be *VRYON. Specifying MINSWTSTS(*VRYON) prevents APPN from choosing the controller for APPN routing purposes when it is in varied on pending status.

The *APPN Guide* contains additional information about switched lines. If you are using a System/36, refer to the *System/36 Advanced Peer-to-Peer Networking Guide*.

Answering Calls on the AS/400 System

You can establish the connection between systems by having the AS/400 system automatically answer the call or having the AS/400 system operator manually answer the call. For a program that attempts to establish a session with a device attached to a remote system with INLCNN(*ANS) specified, the file operation is suspended until a successful call is received or the job is canceled.

Manually Answering on the AS/400 System

When a remote system requires that a connection be started, the local operator may need to speak with the remote operator before allowing communications to start. This would occur if the local system uses manual answer and the remote system uses manual call with a switched line connection. To use the manual answer function, the following must be done:

- Ensure the calling party is an authorized user of the system at this specific time of the day.
- Inquire about what system resources the calling party wants to use and ensure that those resources are available now.
- Inform the calling party about any special system problems that occur.

A manual answer connection is performed if the line description is created with manual answering capabilities (AUTOANS(*NO) and SWTCNN(*BOTH) or (*ANS)). You can perform a manual answer on a switched line connection as follows:

1. The operator prepares the system to accept work from remote locations. This includes:
   a. Ensuring that the modem power is on and the modem is ready.
   b. Ensuring that the system operator message queue (QSYSOPR) is in break delivery mode.
   c. Varying on the line description, controller descriptions, and device descriptions.
   d. Starting any user-defined or system-supplied subsystems used by active remote locations. Subsystems are always ready to receive jobs started by using automatic or manual answer.
2. The remote operator places a call to the local system.
3. The local operator answers the call and speaks to the remote operator. If the remote operator is authorized and the system and all the needed resources are available, the local operator continues with the manual answer connection. If not, the local operator can hang up the telephone to end the manual answer procedure.
4. The local operator enters the Answer Line (ANSLIN) command. See the *Operator's Guide* for more information on how to answer the line.
5. If no problems occur, the local system operator receives a CPA5880 message explaining how to complete the manual answer sequence. When you are ready and if no more discussion with the remote operator is necessary, type a G (Go) for a reply.
6. The local operator returns to the telephone, instructs the remote operator to wait for the answer tone, and then places the local modem in data mode, after which the remote operator places the remote modem in data mode.

The connection procedure varies with the modem used. However, the system operator always receives a CPF5908 message if the system successfully completes the switched connection. The system operator receives an error message if the connection is not established successfully.

You can use different methods with different modems to place them in data mode. Refer to the user's guide for your modem for more information.

Automatically Answering at the AS/400 System

An automatic answer on a switched line connection is used whenever the remote location starts the connection, and the local operator does not need to speak with the remote operator before allowing communications to occur. Some of the possible reasons for using automatic answer follow:

- The users of the remote system are restricted to using only one device type.
- The security requirements of the system do not require the system operator to verify the calling user.
- The user at the remote system does not require special resources.

An automatic answer connection can be performed if the line modem has an automatic answer feature and if the description is created with automatic answer capabilities (AUTOANS(*YES) and SWTCNN(*BOTH) or (*ANS)). If the controller description is created with the INLCNN parameter of *ANS, the controller cannot make contact by dialing. If the INLCNN parameter is (*DIAL), then dialing occurs when an application program opens a file. The INLCNN parameter does not prevent a controller from being contacted by a call; however, if AUTOANS is *YES, only an automatic answer is possible. An automatic answer on a switched line connection is done as follows:

1. The operator prepares the system to accept work from remote locations. This includes:
   - Ensuring that the modem power is on and the modem is ready.
   - Varying on the line description, controller descriptions, and device descriptions.
   - Starting any user-defined or system-supplied subsystems used by the remote locations.
2. The remote operator places a call to the local system.
3. The telephone on the system answers and a high-pitched tone signals the remote operator to place the modem in data mode.

When the system successfully completes the switched line connection with the remote location, the system operator receives a CPF5908 message. If the connection is not established successfully, the system operator receives an error message.

Considerations for Switched Lines

This topic discusses additional switched line considerations on the AS/400 system.

Subsystem Support for Communications

When a call is successful, the remote system may begin a session with a correctly configured subsystem monitor. Before program start requests are accepted by an AS/400 system, a subsystem that supports communications must be started.

Subsystem monitors support the answer function from remote systems. If the call function is desired, a user program must make the call manually or cause the connection to be established by opening a file or acquiring a device on an associated controller that specifies INLCNN(*DIAL).

See *Communications: Management Guide*, SC41-0024 for more information about the work management activity description and the *Work Management Guide* for more information about subsystem monitoring.

Switched Connection Number (CNNNBR)

The CNNNBR parameter provides the number used to dial the connection to this controller. This can be a telephone number, an X.25 network address, or an X.21 connection number depending on the line to which it is attached. The controller description created using the CRTCTLAPPC, CRTCTLFNC (for 4701 and 4702 finance controllers), CRTCTLHOST, and CRTCTLRWS commands may specify a number or the value *DC if the link type is *SDLC. The value *DC indicates that the X.21 direct call function should be used.

The CNNNBR parameter of the controller descriptions with LINKTYPE(*X25) and INLCNN(*ANS) can identify a specific number or can specify CNNNBR(*ANY). CNNNBR(*ANY) allows the controller to answer calls from any network address.

For switched X.25 lines, the CNNNBR parameter on the line description specifies the number of the remote DCE (packet-switching data network) that can be contacted. The CNNNBR parameter on a controller description attached to a switched X.25 line specifies the X.25 network address of the remote controller (DTE). This X.25 network address is used with the X.25 connection password to give a unique identifier for the remote DTE. Asynchronous controllers do not have a connection password.

The CNNNBR parameter of the CRTCTLBSC, CRTCTLRTL, and CRTCTLFNC (for the 3694, 473x, and FBSS finance controllers) commands can only specify a telephone number. It does not allow other special values.

V.25bis Calling Number (CALLNBR)

Each line description on the AS/400 system is associated with a port (identified by the RSRCNAME parameter of the line description). A cable connects the port to a telephone line. The CALLNBR parameter is the telephone number of the telephone line that the port is connected to.

If the DIALCMD parameter is *V25BIS, then when the system attempts to make the connection to the controller, it sends the CNNNBR parameter to the modem followed by a semi-colon (;) and a CALLNBR parameter.

The CALLNBR parameter is required by some telephone companies to identify the calling party.

Switched Controller List Considerations

The switched controller list is used when answering incoming calls. The first controller in the list with the correct status is selected. The switched controller list (SWTCTLLST) parameter must be specified when creating line descriptions using the Create Line (Asynchronous) (CRTLINASC), Create Line (BSC) (CRTLINBSC), or Create Line (X.25) (CRTLINX25) commands.

You can specify up to 64 existing controller descriptions. Use the appropriate change line description command to add names to the switched controller list after the controller description is created. If you are using an X.25 protocol, the SWTCTLLST parameter is used only for asynchronous communications over an X.25 line that is using a switched virtual circuit to receive call requests.

Switched Line List Considerations

When you are creating controller descriptions for dial or answer, refer to the specific create command in the *CL Reference* manual for more detailed information about the SWTLINLST parameter for that specific command.

You should specify a line description allowing a dial connection if you are creating a dial controller description. If you are creating an answer controller description, you should specify a line description allowing an answer connection.

You can specify up to 64 existing line descriptions. Use the appropriate change controller command to change this list if the controller is VARY OFF or is in VARY ON PENDING status.

If you are using a switched X.25 line description, the SVC outgoing call function includes the automatic selection of a line included in the switched line list.

Switched Network Backup Considerations

IBM 386x, 586x, and 786x modems: To select switched network backup (SNBU parameter) on the IBM* 386x, 586x, and 786x modems, you must use the modem operator interface (panel or switch). In addition, the line must be varied on as non-switched (CNN(*NONSWTPP) or CNN(*MP)).

When using 4-wire switched network backup with the above modems, no changes are made to any configuration objects. However, the following is required before communications are established.

- Two telephone connections are required. Refer to the appropriate modem operator guide for instructions on how to establish telephone connections.
- If your network is multipoint, only a single tributary can be connected to the AS/400 system at a time.

When using 2-wire switched network backup with these modems, DUPLEX (*HALF) must be specified for the line description. Note that both local and remote systems may need to be changed. For the System/36, this value is controlled by the CONCAR and NOCONCAR parameters. On the System/38, the WIRE parameter in the line description needs to be changed.

Modems other than IBM 386x, 586x, and 786x: If you are using modems other than the IBM 386x, 586x, and 786x, when creating line and controller descriptions, the switched network backup (SNBU) parameter allows a backup switched line to be configured. If necessary, this feature can be activated to change from a non-switched line to a switched line environment.

To create the controller and line descriptions, consider the following for switched network backup:

- The SNBU line parameter can be specified as *YES if the following are true:
  - The connection type is specified as nonswitched or multipoint, CNN(*NONSWTPP) or CNN(*MP).
  - INTERFACE(*RS232V24) is specified.
  - Local and remote switched modems are available.
- The SNBU controller parameter can be specified as *YES if the following are true:

- The link type supports the switched network.
- The SWITCHED parameter is *NO.
- A remote switched modem is available.

If the nonswitched line becomes nonoperational and you want to make the switched network line operational, follow the modem instructions while referring to the SNBU functions along with the following steps:

1. Vary off the line, controller, and device description.
2. Set the activate switched network backup (ACTSNBU) parameter to *YES, using the appropriate change commands for your controller and line descriptions. An example of this is CHGLINSDLC ACTSNBU(*YES).
3. Vary on the line, controller, and device descriptions and follow the modem instructions to start the switched line connection.

When you change back to the nonswitched line, follow the same steps. However, specify *NO for the ACTSNBU parameter on the change commands and follow the instructions for starting the nonswitched line connection.

Dial Retry Limitations

Regulations in many countries limit the number of times an automatic dial operation can be tried again without operator intervention. You should check the regulations for your country. If contention among calling systems is possible, try setting the number of retries to 10 (if local regulations permit this value).

Non-X.21 Switched Lines

The dial retry (DIALRTY) parameter on the Create Controller Description (APPC) (CRTCTLAPPC) command should be set to a value greater than 0 if two systems in a network may attempt to call each other at the same time, or two or more systems may attempt to call the same system or controller at the same time. When the first dial operation encounters a "busy" condition, the system automatically dials again after waiting the specified time in the redial delay parameter. This repetition continues until the number of specified dial retries is reached or a successful connection is made. Using dial retries provides a successful connection in many of these situations.

The redial delay (REDIALDLY) parameter should be set to a value greater than 0 if the dial retry is set to 1 or more. If systems may be dialing each other at the same time, it is advisable to set the redial delay parameters to different values to avoid dial retries at the same time. Regulations in many countries specify a minimum time to pause before an automatic dial operation can be tried again without operator intervention. You should check the regulations for your country. If the number of dial retries is set to 1 or more, the redial delay parameter should be set to a minimum of 2 seconds (if local regulations permit this value).

X.21 Switched Lines

An equivalent function for the number of dial retries and the redial delay time is provided when creating a line description using the Create Line (SDLC) (CRTLINSDLC) command. Four parameters short timer (SHORTTMR), long timer (LONGTMR), short retry (SHORTRTY), long retry (LONGRTY) are provided to describe the dial retry effort. Figure C-2 on page C-11 shows the relationship between the parameters.

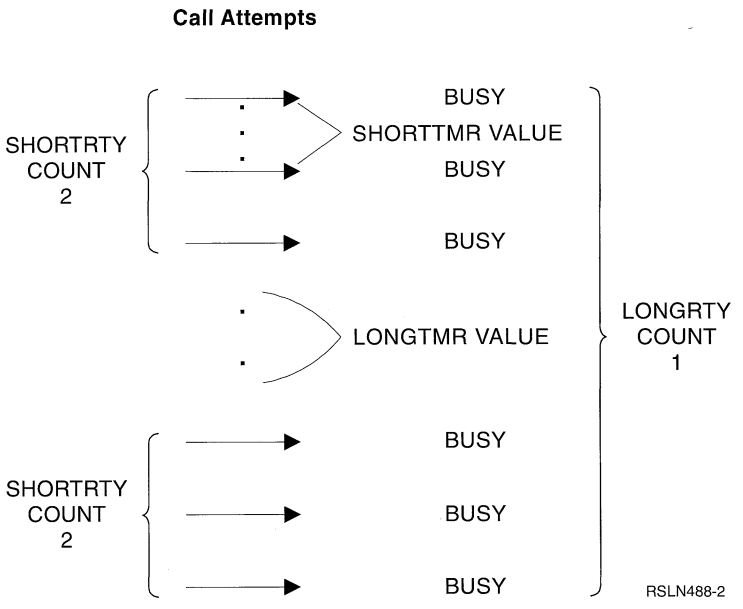


Figure C-2. Redial Considerations for X.21 Switched Lines

Considerations for BSC Switched or Automatic Call Line Connections

The manual call or automatic call descriptions for an SDLC communications line apply to BSC with the following exceptions:

- When using BSC, the program file having the first input/output operation (following the open operation) starts the switched line connection.

  If the first operation on a switched line is write (zero length) with the INVITE keyword active, the program is suspended until the line connection is made.

- The INACTTMR parameter on the CRTLINBSC command disconnects the switched line if neither the remote nor the local system bids for the line in the parameter value specified.

Application Program Considerations for Line Connection

A user program can use the acquire operation instead of the file open operation to begin a switched line connection with a remote system. In a switched line network, the open or acquire operation is suspended until either of the following occurs:

- The call is successful (the associated controller specifies INLCNN(*DIAL)).
- The program is canceled or the operator responds to a message with a C (Cancel) reply.

A program may send the open or acquire operation as part of an error recovery routine. If this is done within a job that started from a remote work station by using sign-on procedures or a remote system program start request, the program becomes responsible for all security information processing when the switched line connection is established again.

Line Disconnection Function on the AS/400 System

Switched lines are a limited resource on the system. It is important that these lines do not remain connected for a longer time than necessary. Line expenses also can be more costly than necessary if connections do not disconnect correctly.

Switched Line Disconnection

You can manually disconnect the switched line or the system can automatically disconnect the switched line. For example, if you communicate with a host using SNA upline facility (SNUF) or the 3270 device emulation, the host should end the connection. The last file that closes is usually associated with the side causing the disconnection. The system records device use, and uses this information to determine when to disconnect the line.

The information is used in different ways depending on the line protocol. To help make this function more understandable, example protocols and the way they are used are discussed separately in the following topics.

Manually Disconnecting Switched Lines

The system operator performs the following steps to manually disconnect a switched line:

1. Ensures all previously active jobs on the line are finished
2. Cancels all jobs using devices on the line that are not finished
3. Varies off all of the devices
4. Varies off the controller

The switched line is disconnected after the controller is varied off.

Finance or Retail Controller Line Disconnection

If a switched line is connected to a finance controller that supports switched lines (3694, 4701, 4702, or FBSS) or a retail controller (3651, 3684, 4680, or 4684), the AS/400 system determines when to automatically disconnect the line. To make this determination, one of the following must occur.

For a finance controller:

- A session to a finance device TYPE(*FNCICF) attached to a 3694 controller ends.
- A session to a finance device TYPE(*FNCICF) attached to a 4701, 4702, or FBSS controller ends in which the device did not send an INIT-SELF command before the session was started.
- An UNBIND command to a finance device TYPE(*FNCICF) is sent in response to a TERM-SELF received from the device.
- A file to a finance device TYPE(4704, 3624, or 3694) is closed.
- A file to an attached 3270 device is closed.
- A finance device TYPE(*FNCICF) is varied off.

For a retail controller:

- A session to a retail device attached to a retail controller ends.
- A file to an attached 3270 device closes.
- A retail device is varied off.

When one of the above events occurs, the AS/400 system drops the line only if all of the following are true:

- There are no jobs associated with any of the attached retail or finance devices.
- There are no finance devices in an ACTIVE state. This state can be displayed on the Work with Configuration Status display.
- The sign on display appears on all of the attached 3270 displays.
- No spooled writer or user application program has an open file to an attached printer.
- No user has an outstanding Allocate Object (ALCOBJ) command to any of the attached devices.
- The controller description, the 3270 device description, or the SIGNOFF command indicates the line should be dropped.

A retail or finance controller description indicates the line should be dropped if the switched disconnect (SWTDSC) parameter is specified as *YES.

The corresponding parameter on the 3270 device description and on the SIGNOFF command is the DROP parameter. If this parameter is specified as *YES, the line will drop if all other conditions are met. The DROP parameter is used only in the case where closing a file to an attached 3270 device caused the AS/400 system to determine whether to drop the line. If the device description DROP parameter is specified as *NO, the AS/400 system will not drop the line regardless of the value on the controller SWTDSC parameter for the first sign-off. If the next user signs off with DROP(*YES) specified, the line will disconnect.

SDLC Primary-to-Remote Work Station Line Disconnection

The AS/400 system controls a synchronous data link control (SDLC) primary line connected to a work station controller. The system controls the starting and ending of communications, as well as the disconnecting of the switched line. A remote work station controller can still dial, but that call may be considered premature by the AS/400 system and, therefore, can be disconnected. The AS/400 system controls the connection in this situation.

If a switched line is connected to a 5250 controller (5251 Model 12, 5294, 5394, 5494, or an emulation of one of these products), the line is automatically disconnected by the AS/400 system if all of the following are true:

- At least one job with one of the attached devices was active and ended or closed a file to one of the devices.
- Only a subsystem monitor has an open file to any of the attached display devices. The Sign On display shows on all display devices allocated to a subsystem monitor. No user program has an open file to an attached display device. No spooled writer or a user application program has an open file to an attached printer device.
- No user has an outstanding Allocate Object (ALCOBJ) command to one of the attached devices.
- All users sign off and the last person to sign off specifies DROP(*YES).

Premature Calls for Primary Lines: A premature call can occur for primary line types if the remote location attempts to make a switched connection with the system before a user does one of the following:

- Opens a file to the switched device
- Allocates the device with the ALCOBJ command

- Starts a subsystem using the switched device

The system disconnects the switched line and notifies the system operator that a premature connection occurred. This helps prevent inefficient use of the system's resources. You can prevent premature calls by ensuring that at least one of the three points listed above is true for at least one of the devices attached to the controller at the remote location.

SDLC Secondary Lines Using Host Controller-to-System/370 Line Disconnection

The secondary SDLC host controller indicates that the remote primary system (System/370 or equivalent) is responsible for controlling the communications line. The remote primary system controls the starting of the communications, the ending of the communications, and the disconnecting of the switched line. However, the AS/400 system can cause the line to disconnect with the SWTDSC parameter on the controller description.

An AS/400 system switched line is used to connect a controller that is under control of the remote System/370. Refer to the host manuals for more information.

A secondary switched line should be disconnected if all the following are true:

- The remote system correctly ended all communications sessions on the line.
- All files opened to a device attached to the controller are closed.
- The remote system sent a disconnect command to the AS/400 system or the AS/400 system caused the line to disconnect after the disconnect timer ended.

The system operator performs the following steps to manually disconnect a switched line:

1. Cancels all jobs using switched devices on the line
2. Varies off all the devices
3. Varies off the controller

Depending on the setting of the disconnect timer (DSCTMR parameter), multiple disconnections and connections can occur. If the value is set to an adequate amount of time (the default is 170 seconds), the system can complete the processing of a command without a disconnection. The setting of DSCTMR is valid only for connections with the SWTDSC value set to *YES.

The switched line is disconnected after the controller is varied off.

Premature Calls for Secondary Lines: Premature calls cannot occur for secondary lines. The host system controls the establishment of the data link; therefore, the call is never considered to be premature.

APPC/APPN Line Disconnection

The *APPC Programmer's Guide* and *APPN Guide* contain detailed information and examples for creating configurations. Review the SWTDSC parameter on the Create Controller Description (APPC) (CRTCTLAPPC) command to understand the conditions of a switched line's disconnection. Using the Start Mode (STRMOD), End Mode (ENDMOD), or Change Session Maximum (CHGSSNMAX) command with SWTDSC (*YES) for switched connections can degrade the performance of a line. Depending on the setting of the disconnect timer (DSCTMR), multiple discon-

nections and connections can occur. If the value is set to an adequate amount of time (the default is 170 seconds), the system can complete processing of a command without a disconnection. The setting of DSCTMR is valid only for connections with the SWTDSC value set to *YES.

Premature Calls for APPC and APPN Connections: Premature calls cannot occur for APPC or APPN connections.

BSC APPTYPE (*PGM) Line Disconnection

When APPTYPE(*BSC38) or APPTYPE(*RPGT) is specified for CRTDEVBSC: The BSC APPTYPE(*PGM) line indicates that either the AS/400 system or the remote system can control the communications line. The system can control the starting and ending of communications as well as the disconnecting of the switched line. The remote location can dial the AS/400 system; however, that call may be considered premature and, therefore, can become disconnected. A BSC APPTYPE(*PGM) switched line is disconnected if the file for a BSC device is closed or the program ends.

The system operator can manually disconnect a switched line by canceling the job that is using the switched device on the line, which causes the file to close.

A BSC switched line also disconnects if there is no activity for the time specified in the inactivity timer (INACTTMR) parameter.

When APPTYPE(*BSCEL) is specified for CRTDEVBSC: The BSC APPTYPE(*PGM) line indicates that either the AS/400 system or the remote system can control the communications line. The system can control the starting of communications, the ending of communications, and the disconnecting of the switched line. If the remote location dials the AS/400 system, the remote location is responsible for disconnecting the line. A BSC APPTYPE(*PGM) switched line is disconnected when the system that dialed ends the communications session.

The AS/400 system operator can force a switched line to disconnect by canceling the job that is using the switched device on the line, which causes the communications session to end abnormally.

A BSC switched line disconnects if there is no activity for the amount of time specified in the inactivity timer (INACTTMR) parameter on the Create Line (BSC) (CRTLINBSC) command. It disconnects if an abnormal end-of-transmission (EOT) control character is received and the value *NO is specified in the RMTBSCEL parameter in the device description, or on program device entry commands, such as ADDICFDEVE, CHGICFDEVE, and OVRICFDEVE.

Premature Calls for BSC APPTYPE(*PGM)

When APPTYPE(*BSC38) or APPTYPE(*RPGT) is specified for CRTDEVBSC: A premature call can occur for a BSC line if the remote location attempts to make a switched line connection with the system before a program opens a file to the device and performs a write or a read operation to the file. The AS/400 system disconnects the switched line and notifies the system operator if a premature call occurred to help prevent inefficient use of the system.

Premature calls can be prevented by ensuring that a file is open and a write or a read operation is performed on the file before attempting to establish the connection.

When APPTYPE(*BSCEL) is specified for CRTDEVBSC: A premature call cannot occur for BSC lines. The system that dials controls the establishment of the data link. Therefore, the call is never considered premature.

BSC APPTYPE(*RJE) Line Disconnection

The BSC remote job entry line type indicates that the remote system controls the disconnection of the switched line. The BSC remote job entry line type supports the System/370. A BSC remote job entry switched line should be disconnected if the following points are true:

- The remote system correctly ended all the communication sessions on the line.
- The remote system sent a disconnect command to the system.
- All files opened to a device attached to the controller are closed.

The system operator can manually disconnect a switched line by canceling the job that is using the switched device on the line, which causes the file to close.

A BSC switched line also disconnects if there is no activity for the amount of time specified in the inactivity timer (INACTTMR) parameter.

Premature Calls for BSC APPTYPE(*RJE): Premature calls cannot occur for BSC remote job entry lines. The remote system controls the establishment of the data link; therefore, the call is never considered premature.

X.25 Considerations

The link between the AS/400 system and an X.25 packet-switching data network is a voice-grade telephone line. That line can be either nonswitched or switched.

If the line is switched, you specify parameters, such as connection number, redial delay, predial delay, and dial retry on the line description rather than the controller description. You must also specify the X.25 switched line selection (SWTLINSLCT) parameter in the controller description to tell the system how to set the line for calling the X.25 network. The line is disconnected when both of the following have occurred:

- The last session over the line ended.
- The timers completed.

Appendix D. X.21 Short-Hold Mode

The AS/400 system supports short-hold mode (SHM) operation for use with X.21 circuit-switched networks. X.21 short-hold mode is characterized by a series of connections and disconnections with a remote controller or system on an X.21 circuit-switched line. When there is no data traffic, the connection is broken, but the SNA sessions remain active. When either side has data to send, the connection is established again.

This reduces connection time and can lower communications costs for those networks that base tariffs on the amount of time a line is in use. You should have an understanding of the tariff structure for your network before deciding to use SHM.

Short-hold mode operation is both application- and network-sensitive. Interactive applications can take greatest advantage of X.21 SHM because these applications normally consist of short bursts of activity followed by longer periods of inactivity.

Multiple Port Sharing

When configured for X.21 SHM, the AS/400 system allows up to six X.21 ports to be shared among a number of remote controllers thereby reducing contention for an available port. This multiple port sharing requires an X.21 network subscription option called *Multiple lines at the same address*.

The term **port group** refers to the X.21 circuit-switched ports that are grouped together in a multiple port sharing arrangement. A port group can consist of from one to six X.21 circuit-switched ports. When an X.21 SHM multiple port sharing configuration is active, communications with any one of a number of remote controllers takes place on a port and, after a disconnection occurs, can resume on any port within the port group depending on availability. The AS/400 system performs the function of short-hold mode and port sharing completely transparent to your application programs.

Capabilities of Multiple Port Sharing

The following topics describe the capabilities of X.21 SHM multiple port sharing.

X.21 Ports in a Port Group

The number of ports that you can configure in a port group is dependent on the communications subsystems you have on your system. The following figure illustrates the possible configurations.

Figure D-1. Ports per Port Group

System Unit	Communications Subsystem	Number of Ports for Each Port Group
9402 (Models x04/x06), 9404, 9406	Multiple Function Input/Output Processor[1]	1
9402 (Model x02)	Input/Output Processor	2
9402, 9404	Three-Line Communications Controller	3
9402, 9404, 9406	Six-Line Communications Controller	6
9406	Base Communication Subsystem[2,3]	6
9406	Base Subsystem Two-Line X.21 Expansion	2
9406	Base Subsystem Four-Line X.21 Expansion	4
9406	Base Subsystem Eight-Line X.21 Expansion[3]	6
9406	Base Subsystem Eight-Line V.24 or X.21 Expansion[3]	4

Notes:

1 With additional X.21 Adapter (Feature 6151).

2 With Base Subsystem Six-Line X.21 Expansion (Feature 6223). Two-line and four-line expansions give two and four ports for each port group, respectively.

3 When X.21 SHM is configured, only six ports of the subsystem can be used regardless of the port group size.

The number of port groups on a system is limited only by the number of communications subsystems allowed.

Remote Controller Considerations

The following remote controller considerations apply when you are configuring short-hold mode.

Number of Active Remote Controllers

While many remote controllers can be configured, only 64 can be active on a communications subsystem using X.21 SHM. For example, an Eight-Line X.21 Subsystem can support a configuration of three 2-port port groups. The total number of remote controllers that can be active across all three port groups on the communications subsystem is 64.

Note: The number of remote controllers that can be supported is highly dependent on the application program being run and the frequency and duration of communications. Generally, a configuration of 64 remote controllers does not allow acceptable performance.

Remote Controllers Coexisting on a Port Group

Multiple controllers of the same type can coexist on the same port group if the controllers are not in conflict with the SHMNODE and ROLE parameters of the CRTLINSDLC command.

For example, the remote work station and finance controllers can share a port group because both controller types require SHMNODE(*T20) and ROLE(*PRI). However, an APPC controller requires SHMNODE(*T21) and ROLE(*NEG), while a host controller requires SHMNODE(*T20) and ROLE(*SEC). Therefore, the APPC and host controllers cannot share a port group.

The following figure illustrates the potential for coexistence among the controller types that the AS/400 system supports with X.21 SHM. Controller types are designated by the last part of the CL command used to create the controller description. An X at the intersection of the row and column means that multiple remote controllers of the same type can coexist on a port group.

Figure D-2. Controller Types Supported by AS/400 System Using X.21 SHM

CRTLINSDLC		Controller Type (CRTCTLxxx)			
SHMNODE	**ROLE**	**APPC**	**RWS**	**FNC**	**HOST**
*T21	*NEG	X			
*T20	*PRI		X	X	
*T20	*SEC				X

Note: The SNA host controller type describes the AS/400 system as a secondary station to a host system that is the primary station. For this configuration only one SNA host controller description and a single X.21 SHM port is supported.

The System/36 supports X.21 short-hold mode with single port sharing using SNA physical unit (PU) type 2.0. Because System/36 does not support PU type 2.1 for short-hold mode, the AS/400 system cannot communicate with a System/36 over ports configured for X.21 short-hold mode using SNA APPC or APPN.

You can connect an AS/400 system to a System/36 using X.21 short-hold mode by configuring the AS/400 system to make the System/36 appear as a remote work station controller and by running 3270 emulation on the System/36.

If you configure a port group for PU type 2.1 (SHMNODE (*T21)), you cannot establish multiple connections to the same remote system on that port group. However, you can have multiple connections to the same system if each connection is in a separate port group.

Improving Port Sharing Performance

Remote controllers in both single and multiple port sharing configurations may appear to hang while awaiting an available port if:

- No SHM disconnection occurs because a single, busy controller is monopolizing the port. Other controllers trying to use the port group will be unable to call in, and calls out will not be made. This situation can be caused by a controller with a fast printer or large number of devices attached.
- SHM disconnections do occur, but heavy outbound traffic to several remote controllers prevents other remote controllers from calling in.

These problems are most likely to occur in single port sharing configurations, but can also occur with multiple port sharing if the number of busy controllers exceeds the number of ports in the port group.

The following topics describe methods used to prevent these problems and improve port sharing performance.

AS/400 Timers Used for Port Sharing

X.21 SHM support includes two timers, the SHM maximum connect timer (SHMMAXCNN parameter) and the SHM answer delay timer (SHMANSDLY parameter), that can be specified on the line description. These timers can be used to improve performance of port sharing connections where the number of remote controllers is greater than the number of available ports in the port group. In these situations, the timers ensure that calls to and from remote controllers will be completed, despite heavy outbound traffic on the port or port group by one or more other remote controllers.

SHM maximum connect timer (SHMMAXCNN parameter)

The SHM maximum connect timer determines how long the AS/400 system remains connected to any one controller. This parameter can be set to values from 1 through 254 (in seconds). The default value is 8 (8.0 seconds).

When SHM maximum connect timer expires, the system attempts to clear the SHM connection, even if there is more data to be sent to or received from that controller. (The connection can be cleared when the last information frame in a sequence has been sent, a Receive Not Ready (RNR) has been sent, and a Receive Ready or RNR has been received in response.)

After clearing the connection, the system delays outgoing calls for the period specified by the SHM answer delay timer, allowing calls from other controllers to be received. When the SHM answer delay timer expires, any outgoing calls that were waiting due to the busy controller will be made before reestablishing the connection to the busy controller.

Note: The SHM maximum connect timer should be set to a value greater than the SHM disconnect timer (SHMDSCTMR parameter on the controller description). If the SHM maximum connect timer is set lower than the SHMDSCTMR value, the system will not disconnect until SHM disconnect timer has completed.

SHM answer delay timer (SHMANSDLY parameter)

The SHM answer delay timer determines how long the AS/400 system keeps a port available for incoming calls and during which outgoing calls

are held. This parameter can be set to values from 1 through 254 (in 0.1-second intervals. The default value is 11 (1.1 seconds).

- After the SHM maximum connect timer expires. This prevents any one controller from monopolizing the port when no SHM disconnection is occurring.
- After a period, calculated by multiplying 2 times the SHM maximum connect timer value, during which no incoming calls were received, and no opportunity for receiving incoming calls occurred. This ensures that an answer window is provided during which a remote controller can call in, even during periods of heavy traffic on the port group in which the outbound connections are brief (shorter than the SHM maximum connect timer value).

When the SHM answer delay timer ends, all outgoing calls that were held are reissued and allowed to complete before the next SHM answer delay window begins.

Ensuring an Answer Window for Incoming Calls

Although, in the above cases, the AS/400 system will delay to provide an opportunity for incoming calls to complete, you may need to change your network subscription or your remote controller configurations to take full advantage of this processing.

Using the Connect When Free Network Option: For best performance, the *Connect when free* network option should be used. With this option, the X.21 network will automatically queue calls for the port group in the order in which they were made. At the next answer opportunity, the oldest call in the queue is routed to the AS/400 system by the network.

The *Connect when free* option, combined with the AS/400 timers described above, can dramatically reduce long response times that might otherwise occur at the remote controller, especially in single port sharing configurations.

Tailoring the Remote Controller Configuration: If you do not want or cannot get the *Connect when free* network option, you can still take advantage of the answer delay window by changing the configuration of the remote controller to set the call retry delay value to a value less than the SHM answer delay timer value. You may also need to increase the number of call retries specified in the remote controller configuration.

For example, the 5394 Remote Control Unit sets the X.21 short-hold mode retry parameters in Field B: Subfield 1 sets the number of retries; subfield 2 sets the time between retries.

Figure D-3 shows an example of how the number of retries and time between retries can be set to take advantage of the SHM answer delay window provided by the AS/400 system.

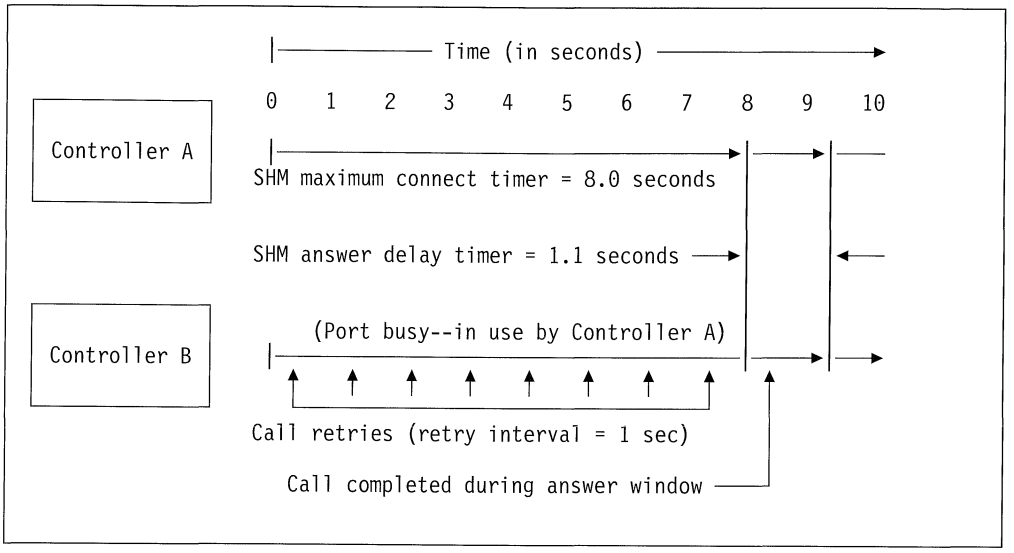


Figure D-3. Ensuring Connection Using Call Retry Timer

With the AS/400 SHM maximum connect timer set to 8 seconds and the SHM answer delay timer set to 1.1 seconds, Controller B uses a call retry interval of 1.0 second and the number of call retries set to a maximum value.

- In general, the number of call retries should be set to a maximum value (for the 5394, at least F0). If several remote controllers are attempting to call in, contention between the controllers makes it unlikely that any one controller will complete its call during the first answer delay window.
- The time between call retries must be set to a value less than the time specified by the SHM answer delay timer to ensure that a call made after the SHM maximum connect timer has expired will fall within the answer delay window.

Connection Number Considerations

To call another station using an X.21 circuit-switched network requires the use of a number that is in accordance with CCITT Recommendation X.121, the International Numbering Plan for Public Data Networks.

The number, called the International Data Number, is a maximum of 14 digits in length and can be one of two formats depending on the country and/or the Post, Telephone, and Telegraph Administration (PTT). Figure D-4 shows the two formats.

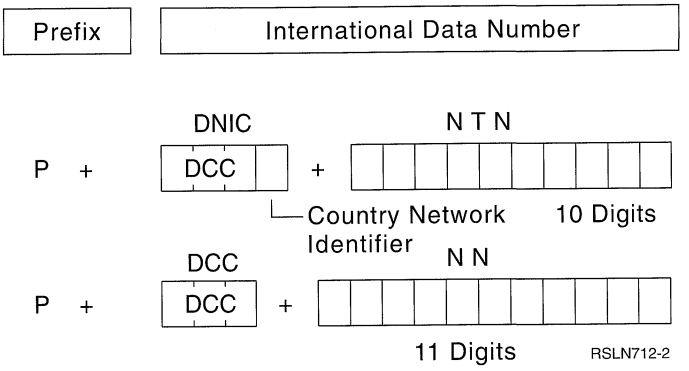


Figure D-4. International Data Number Formats

The terms used in Figure D-4 are defined in X.121 as follows:

Prefix (or Access Code)
This is a nationally assigned code, designated as P in Figure D-4, that is used for making international calls. The AS/400 system allows an access code of 1 to 4 digits.

Data Country Code (DCC)
This is a 3-digit code. Each country has a unique code. For example, Recommendation X.121, Annex D, lists the country code for Norway as 242 and Sweden as 240.

Data Network Identification Code (DNIC)
This is a 4-digit code, the first three of which are the DCC and the fourth of which is a country network identifier.

Network Terminal Number (NTN)
This is the unique number of a station on the X.21 network and is a maximum of 10 digits in length. NTN is used with DNIC for international calls.

National Number (NN)
This is another way of assigning a unique number to a station on an X.21 network. It is a maximum of 11 digits in length and is used with the DCC for international calls.

You should ask the PTT or your network supplier which format, DNIC+NTN or DCC+NN, and the prefix or access code, if applicable, to use on your network.

SNA Physical Unit Type Considerations

The manner in which connection numbers are configured and processed differs depending on the SNA physical unit (PU) type applicable to the port group. The physical unit type is specified using the SHMNODE parameter on the SDLC line description.

- PU type 2.0 controllers include remote work station, finance, and SNA host controllers created using the CRTCTLRWS, CRTCTLFNC, and CRTCTLHOST commands. These controllers must specify SHMNODE(*T20) on the associated CRTLINSDLC command.
- PU type 2.1 controllers are represented by APPC controller descriptions created using the CRTCTLAPPC command. These controllers must specify SHMNODE(*T21) on the CRTLINSDLC command.

The following topics describe connection number processing for each of the physical unit types.

Physical Unit Type 2.0

SHMNODE(*T20) specifies that the X.21 SHM procedures for connecting PU types 4 and 5 with PU type 2.0 devices are used.

When configuring an SDLC line description for X.21 SHM, the calling number (CALLNBR) parameter contains the complete number of the local AS/400 system that must be dialed by the remote controller. The CALLNBR parameter allows a maximum of 18 digits in either the P + International Data Number format for international calls or just the NTN or NN if all calls on the port group are national calls.

When configuring the controller descriptions, the connection number (CNNNBR) parameter contains the number of the remote controller. The CNNNBR parameter allows a maximum of 18 digits in either the P + International Data Number format for international calls or just the NTN or NN for national calls.

All remote PU type 2.0 controllers must use the same number when calling the AS/400 system. (This is the number specified in the CALLNBR parameter of the SDLC line description.) In most cases, controllers requiring an International Data Number and controllers within the national network (NTN or NN calls) cannot be mixed on the same port group. Also, controllers requiring different prefixes (for international calls) cannot be mixed on the same port group.

If your PTT allows all numbers to be in the International Data Number format regardless of location, then it may be possible for the controllers to be configured on the same port group. You should check with the PTT to make sure that calls of this kind are not charged as international calls.

Physical Unit Type 2.1

SHMNODE(*T21) specifies that the X.21 SHM procedures for connecting PU type 2.1 devices are used.

When configuring an SDLC line description for a port group with APPC controllers, use the following parameters of the CRTLINSDLC command to specify the number of the local AS/400 system:

SHM call format (SHMCALLFMT)
Specifies the format used for the calling number (CALLNBR). You can specify *DNIC or *DCC depending on your country network requirements.

SHM access code (SHMACC)
Specifies the value for the access or prefix code. Up to 4 digits are allowed.

Calling number (CALLNBR)
Specifies the International Data Number for your local AS/400 system in either DNIC + NTN or DCC + NN format. Up to 14 digits are allowed.

When configuring the APPC controller descriptions, the connection number (CNNNBR) parameter contains the International Data Number of the remote controller in either DNIC + NTN or DCC + NN format. CNNNBR allows a maximum of 14 digits.

Port groups that are configured for PU type 2.1 allow the mixing of both national and international calls. When the local AS/400 system calls a remote PU type 2.1 controller, a comparison of the DNIC or DCC for the local AS/400 system is made with the DNIC or DCC for the remote controller. If they match, the call is made using the NTN or NN. If they are different, then the local AS/400 system dials the access code (SHMACC) followed by the International Data Number of the remote controller (CNNNBR).

The International Data Number of the local AS/400 system (CALLNBR) is sent to the remote PU type 2.1 controller so that it can follow the same procedure as above for reconnections.

Retry, Recovery, and Security Considerations

The following topics cover the retry and recovery considerations for X.21 calls.

Call Retries and Timers

X.21 circuit-switched call retries are controlled by a group of parameters specified on the SDLC line description (CRTLINSDLC command):

SHORTRTY
Specifies the number of retry attempts that the system makes during a group of call retries. This parameter controls retries when you attempt to make a call over an X.21 circuit-switched network.

LONGRTY
Specifies the number of groups of call retry attempts that the system makes when processing a connection request.

SHORTTMR
Specifies the length of time the system delays between individual call attempts on an X.21 circuit-switched line for call progress signal codes 20 through 23 and 61. See "Call Progress Signals" on page D-10 for more information.

LONGTMR
Specifies the length of time between groups of call retry operations on an X.21 circuit-switched line or between call retries after group 40 or group 70 call progress signal codes.

Figure D-5 summarizes the values that can be specified for each of these parameters:

Figure D-5. Long and Short Timer and Retry Parameters

Parameter	Allowed Values	Default Value
SHORTRTY	0-254 retries	7 retries
LONGRTY	0-254 retries	1 retry
SHORTTMR	10-600 (0.1-second intervals)	50 (5 seconds)
LONGTMR	100-6000 (0.1-second intervals)	600 (60 seconds)

Figure D-6 shows the relationship of these parameters to one another. In this case, the SHORTRTY value is 2 and the LONGRTY value is 1. Each of the individual call retries is delayed by the SHORTTMR interval, and the second retry group is delayed by the LONGTMR interval.

These values can be important because some country networks have rules regarding call attempts.

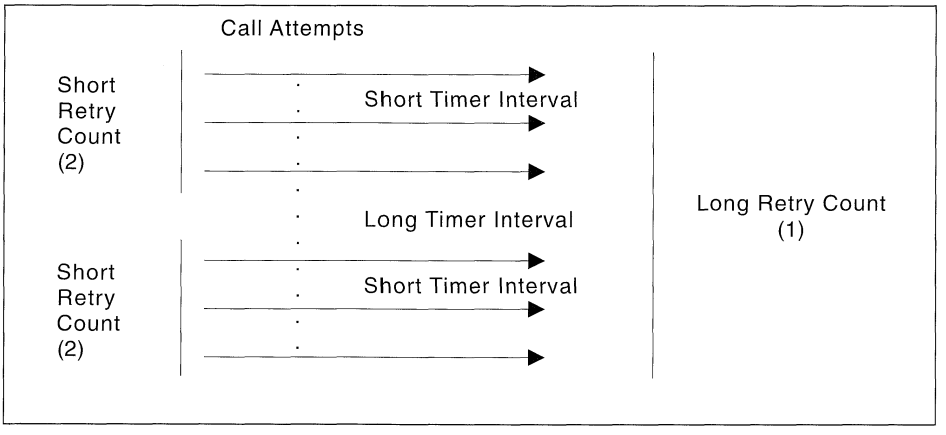


Figure D-6. X.21 Call Retry

Call Progress Signals

When a call attempt is made to an X.21 circuit-switched network, a number of call progress signals can be returned, depending on the condition of the network and/or the called station. Because short-hold mode results in a large increase in call attempts, the ability to specify and control retries is important.

Figure D-7 on page D-11 lists the call progress signals, as defined in CCITT Recommendation X.21, that can be returned by the network when a call attempt fails. Also included for each call progress signal is an indication of whether the AS/400 system will retry call attempts based on the call progress signal and an indication of which of the short and long retry and timer values are used for the retry operation.

You can specify retry for call progress signals 41 through 49, 71, and 72. Call progress signals 20 through 23 and 61 are retried without you having to specify them. An X at a row and column intersection means that the timer or retry parameter is used when the AS/400 system retries the call.

Figure D-7. X.21 Call Progress Signals

CPS[1]	Description	AS/400 System Retry	Short Timer	Short Retry	Long Timer	Long Retry
20	No Connection	Yes	X	X	X	X
21	Number Busy	Yes	X	X	X	X
22	Selection Signals Procedure Error	Yes	X	X	X	X
23	Selection Signals Transmission Error	Yes	X	X	X	X
41	Access Barred	2			X	X
42	Changed Number	2			X	X
43	Not Obtainable	2			X	X
44	Out of Order	2			X	X
45	DTE Inactive Until...	2			X	X
46	Uncontrolled Not Ready	2			X	X
47	DCE Power Down	2			X	X
48	Facility Request Not Valid	2			X	X
49	Network Fault in Local Loop	2			X	X
51	Call Information Service	No				
52	Incompatible User Class of Service	No				
61	Network Congestion	Yes	X	X	X	X
71	Long-Term Network Congestion	2			X	X
72	RPOA[3] Out of Order	2			X	X
81	Registration/Cancellation Confirmed	No				
82	Redirection Activated	No				
83	Redirection Deactivated	No				

1 Call Progress Signal

2 These call progress signals are retried only if they are specified using the CPSRTY parameter on the CRTLINSDLC command.

Call progress signals 41 through 49, 71, and 72 require a longer delay between retries. Therefore, the AS/400 system only uses the long timer and long retry values for these call progress signals.

3 Recognized Private Operating Agency

Call Retry Parameter Guidelines

To ensure that your X.21 SHM configuration operates as efficiently as possible, you should consider the following guidelines:

- No two call retry delays (SHORTTMR parameter on the AS/400 system) should be configured for the same value. The primary station should have the shortest call retry delay.

- If multiple remote controllers are configured on a port group, the number of call retries (SHORTRTY parameter on the AS/400 system) on both the AS/400 system and the remote controllers should be greater than 15.
- The greater the number of remote controllers the larger the call retry value should be to avoid loss of sessions.

Error Recovery Considerations

If one or more ports in the port group cannot be used, an attempt to vary on the line will fail. If a port fails after the line description is varied on, the remaining ports in the group continue to function. The system will make periodic attempts to use the failing port and send a message to notify you of the failed port. The port group must be varied off before diagnostic tests can be run. If all ports in the port group fail, then the line is made inoperative.

Security Considerations

As with any switched connection, communications using an X.21 circuit-switched line is less secure than it would be if a nonswitched line were used. The short-hold mode of operation increases the security risk due to the fact that switched connections are made and broken after the SNA sessions are established.

This increased security exposure along with the sensitivity of your data should be considered when deciding whether to use X.21 SHM.

Appendix E. Host Considerations for Configuring Communications

When the AS/400 system is used as a physical unit (PU) type 2 controller, the host system programmer must consider the AS/400 topics discussed in this appendix so that the host system is configured correctly. An example of this situation is if you are using the Create Controller Description (SNA Host) (CRTCTLHOST) command, in a Systems Network Architecture (SNA) network to communicate with a host system.

In this appendix, the term **host system** is used to refer to any one of the following systems:

- System/370
- System/390
- 30xx processor
- 43xx processor
- 9370 system

Note: To run advanced program-to-program communications (APPC), the host system must be running with both:

- Customer Information Control System (CICS) Version 1.6 or later (not required if Virtual Telecommunications Access Method (VTAM) Version 3 Release 2 is used)
- Advanced Communications Facility/Network Control Program (ACF/NCP) Version 4 Release 2 (V4R2) or later and VTAM Version 3 Release 1.1 (V3R1.1) or later.

These levels of support include dependent logical unit (LU) support. At the dependent LU level of support, a single session per LU and no routing across the SNA backbone are supported. Dependent LUs are identified by LOCADDR values 1 through 254 decimal. Dependent LUs are used for LU session functions, for example, APPC, DDM, DHCF, DSNX, RJE, SNUF, and 3270 device emulation.

The AS/400 system also supports node type 2.1 capabilities for APPC applications to the host system when the host system is running with VTAM V3R2 and ACF/NCP V4R3 or later versions. Independent LU support is described later in the topic "AS/400-to-System/370-to-AS/400 Line-Sharing Example" on page E-21.

Configuring communications at the host system consists of two phases: configuring the Network Control Program/Virtual Telecommunications Access Method (NCP/VTAM) and configuring the online interface system. In the following examples, communications is with Customer Information Control System for Virtual Storage (CICS/VS) and distributed host command facility (DHCF). The host system considerations given here discuss the information needed to correctly set up the host system for communicating with the AS/400 system for the two examples.

Considerations for Configuring ACF/NCP/VTAM

Starting Advanced Communications Function/Network Control Program/Virtual Telecommunications Access Method (ACF/NCP/VTAM) consists of defining the parameters for host-to-NCP transfers and NCP-to-system (logical unit) transfers. The macroinstructions used for the definitions follow:

- GROUP macroinstruction defines the characteristics of the communications lines connected to the host
- LINE macroinstruction defines the characteristics for a particular line
- SERVICE macroinstruction defines the order that the controllers are to be serviced
- PU macroinstruction defines the physical unit
- LU macroinstruction defines the logical unit sessions that can be active from the associated physical unit

The nonswitched line and switched line considerations are presented separately under "ACF/NCP/VTAM Configuration Considerations for Nonswitched Lines" on page E-2 and "ACF/NCP/VTAM Configuration for Switched Lines" on page E-7.

The following VTAM descriptions deal with a VTAM Version 3 Release 1 level.

ACF/NCP/VTAM Configuration Considerations for Nonswitched Lines

The following are examples of configuring ACF/NCP/VTAM for use with a local system on a nonswitched line, physical unit (PU) type 2 network. Examples are given for using the following macroinstructions:

- GROUP
- LINE
- SERVICE
- Physical unit (PU)
- Logical unit (LU)

Defining the GROUP Definition Statement for NCP/VTAM

The GROUP macroinstruction defines characteristics of the type of communications that are to occur between NCP/VTAM and any of the attached physical units and logical units. The following illustrates an example of the GROUP macroinstruction used for the system definition:

```
SAMPGRP  GROUP    LNCTL=SDLC,
                  ANS=CONT,
                  CLOCKING=EXT,
                  DIAL=NO,
                  DISCNT=NO,
                  DUPLEX=HALF,
                  ETRATIO=255,
                  HISPEED=NO,
                  IPL=NO,
                  ISTATUS=INACTIVE,
                  LPDATS=NO,
                  MAXDATA=521,
                  MAXOUT=7,
                  MODE=PRIMARY,
                  NRZI=YES,
                  PACING=(7,1),
                  PASSLIM=7,
                  PAUSE=0.2,
                  PUTYPE=2,
                  REPLYTO=02,
                  SPDSEL=NO,
                  SSCPFM=USSSCS,
                  TRANSFER=16,
                  TYPE=NCP,
                  USE=NCP,
                  VPACING=(8)
```

LNCTL Type of line control that is to be used for this group. This example uses an SDLC nonswitched connection, so the value is LNCTL=SDLC.

ANS Whether the PU should continue or stop if the NCP enters automatic network shutdown. ANS=CONT says to continue.

CLOCKING Whether the modem or the local system provides the data clock for the line. CLOCKING=EXT indicates that the modem must provide the data clocking; CLOCKING=INT specifies that the host system must provide the data clocking.

DIAL The type of line as being a switched line (YES) or a nonswitched line (NO). If the CNN parameter on the command at the local system is specified as *SWTPP (switched line), DIAL=YES must be specified; if the CNN parameter is specified as *MP (multipoint nonswitched) or *NONSWTPP (nonswitched point-to-point), DIAL=NO must be specified.

DISCNT Whether VTAM is to disconnect the physical unit when the last logical session ends. DISCNT=NO allows the local system to remain active when no logical sessions are active; the physical unit is deactivated when the local system ends the data link. DISCNT=YES indicates that when no sessions are active on the line (physical unit), NCP automatically ends the data link.

DUPLEX Whether communications occurs in a half-duplex (DUPLEX=HALF) or duplex (DUPLEX=FULL) mode.

ETRATIO The error-to-transmission ratio on the links under this group. This is done by analyzing programs such as the IBM NetView program.

HISPEED For 3720s, 3725s, or 3745s, this parameter specifies whether or not the data links under this group are running at 230.4KB per second or 256KB per second. HISPEED=NO should be specified when communicating with the AS/400 system.

IPL Whether or not the NCP can be loaded and dumped over the subarea links under this group.

ISTATUS Whether the physical unit should be activated when the major node is activated (ISTATUS=ACTIVE) or activated by an operator command (ISTATUS=INACTIVE).

LPDATS Whether or not the links under this group have synchronous, externally clocked modems attached that support Link Problem Determination Aids (LPDA) commands.

MAXDATA The maximum amount of data, including the transmission header and request or response unit, that the physical unit can receive. The value specified, 521, defines a 512-byte buffer plus 9 bytes for the header information. For values supported by the AS/400 system, see the *CL Reference* manual.

MAXOUT The number of frames that NCP sends to the local system before a link-level response is requested. A value of 1 specifies that a response is required after every frame; a value greater than 1 specifies that no response is required until that number of frames is sent. This value can affect performance on the data link. A value of 7 is recommended for best performance; but a value less than 7 may be required due to buffer limitations at the host or a high line error rate.

MODE This host is the primary station on the connection if MODE=PRIMARY.

NRZI The nonreturn-to-zero (inverted) data transmission method is used if NRZI=YES. The value specified for the NRZI parameter in the Create Line Description (SDLC) (CRTLINSDLC) command on the local system must match the value specified here.

PACING How pacing is handled between NCP and all LUs in this group. The value specified here can affect performance of the data link. It also depends on the amount of buffer space available at the host system. The corresponding AS/400 system parameter is found on the Create Mode Description (CRTMODD) command for APPC communications. The host system selects the pacing values for LU1, LU2, and LU3 communications.

PASSLIM How many frames are sent to a station before NCP goes to the polling list to service one of the other stations on the line. PASSLIM and MAXOUT parameters are used together to determine how many frames are passed to a station. (MAXOUT specifies how many frames are to be sent to a station before an SDLC response is requested.)

For example, if PASSLIM=2 and MAXOUT=7 are specified, NCP sends 2 frames to the station then goes to the polling list to service another station. When 7 frames have been sent to the station, a response is requested from that station.

PAUSE The minimum value for the duration of the polling cycle. This parameter can be a valuable one for performance enhancement on communications lines.

PUTYPE The type of physical units that are included in the group.

REPLYTO The reply time-out values for data links in the group you are defining. If the NCP does not receive a response to a poll, a selection or a message before the time-out error is indicated, error recovery begins.

SPDSEL Whether or not the data rate specified by the DATARATE parameter may be overridden by the access method running on the host.

SSCPFM The type of messages used to communicate with VTAM. SSCPFM=USSSCS specifies character-coded messages using SCS characters as delimiters.

TRANSFER The number of NCP buffers corresponding to the maximum length of the path information unit (PIU) that the NCP sends to the destination processor.

TYPE The type of network control.

USE The program controlling the network. USE=NCP specifies NCP is controlling the network.

VPACING The rate of flow between the host and NCP. Based on the VPACING value, VTAM provides pacing to control the rate of flow between the host and NCP for a given logical unit. This value prevents the NCP from being overloaded by path information units (PIUs) for a given LU when NCP is restricted as to how fast PIUs can be transmitted on the link. The value specified for VPACING is dependent on the rate of pacing between the NCP, the remote LU, and the speed of the link.

Defining the LINE Macroinstruction for NCP/VTAM

The LINE macroinstruction is used to define the characteristics of a line within a group when NCP/VTAM is configured. The following is an example of a LINE macroinstruction used to define the local system when NCP/VTAM is configured.

```
SAMPLNE   LINE     ADDRESS=028,
                   PUTYPE=2,
                   SPEED=9600,
                   ISTATUS=INACTIVE
```

ADDRESS The local address of the line for NCP/VTAM (the 37x5 LIB address).

PUTYPE The type of physical units that are supported on the line.

SPEED The minimum speed for the line. It is recommended that the value specified here be the same as that specified for the LINESPEED parameter in the Create Line Description (SDLC) (CRTLINSDLC) command at the local system.

ISTATUS Whether the line is activated when the NCP major node is activated (ISTATUS=ACTIVE) or activated by operator command (ISTATUS=INACTIVE).

Defining the SERVICE Macroinstruction for a Multipoint Line

The SERVICE macroinstruction defines the order in which multiple controllers on a multipoint line are serviced. This macroinstruction applies only if the local system is a station on a multipoint line and the CNN parameter in the Create Line Description (SDLC) (CRTLINSDLC) command at the local system is specified as *MP. The following is an example of the SERVICE macroinstruction:

```
SERVICE ORDER(SAMPPUA,SAMPPUB,...,SAMPPUX)
```

The SERVICE macroinstruction has only one value:

ORDER A sequence is defined for each multipoint line, with the order being a list of the names of the stations (physical units) in the order they are serviced. The list can be constructed in a manner that favors the more active stations on the line by specifying that station's name more than once in the list.

Defining the Physical Unit (PU) Macroinstruction for NCP/VTAM

The local system must be defined when NCP/VTAM is configured. The PU macroinstruction is used when configuring NCP/VTAM to define the physical units. The following is an example of the PU macroinstruction as used to define the local system:

```
SAMPPUA  PU   ADDR=C1
```

ADDR The SDLC station address of the local system. The value specified here, as 2 hexadecimal digits, must be unique within the PU definitions at the host. This value is used as the station address (STNADR) value in the Create Controller Description (SNA Host) (CRTCTLHOST) command during local system configuration for the applicable controller.

Defining the Logical Unit (LU) Macroinstruction for NCP/VTAM

Each communications session with VTAM corresponds to an SNA logical unit. A logical unit definition for configuring VTAM is required for each session. The following is an example of the LU macroinstruction as it applies to the local system:

```
SAMPLU1   LU     LOCADDR=01
                 USSTAB=ISTINCDT
```

LOCADDR Specifies the local address of the session and is equivalent to a logical unit number. The value entered here must match the LOCADR parameter in the CRTDEVAPPC, CRTDEVHOST, CRTDEVDSP, or CRTDEVSNUF command on the AS/400 system. Note that the local address specified on the AS/400 device description is a hexadecimal value, and the LOCADDR value on the host system is a decimal value. (For example, LOCADDR=10 must be specified on the LU macroinstruction to match LOCADR(0A) specified for the AS/400 device description.)

USSTAB Specifies the Unformatted System Services definition table used for this LU. This parameter can also be specified on the GROUP, LINE, and PU macroinstructions.

For APPC LUs, the USSTAB parameter must reference a table (such as the default VTAM-supplied table, ISTINCDT) that *does not* contain USSMSG10. The AS/400 system does not support USSMSG10; if

the referenced USS table sends this message to the AS/400 system, the session will not bind.

A separate device description must be configured at the AS/400 system (using the appropriate create device description command) and there must be a separate LU macroinstruction for each logical unit-to-logical unit session.

Defining the BUILD Macroinstruction for NCP/VTAM

The BUILD macroinstruction defines NCP characteristics. The following lists the parameters on the BUILD macroinstruction used for independent LUs.

ADDSESS Defines the number of boundary session control blocks that are reserved in a general pool and can be used for any independent LU session. These control blocks are used when the number of sessions for any independent LU exceeds the RESSCB specification for that LU, but is less than the MAXSESS specification. If the RESSCB parameter is not specified for an independent LU, then the session control blocks are obtained.

MAXSESS The maximum number of sessions that any independent LU can have.

AUXADDR Establishes a pool of additional network addresses that may be used by the independent LUs for establishing parallel sessions. The primary LU and secondary LU address pair needs to be unique for each session. For parallel sessions, the address pair is made unique by assigning a new primary LU address for every additional parallel session. These primary LU sessions are obtained from this pool.

NAMETAB Defines the maximum number of entries in the network name table. These entries are for networks, SSCPs, and Type 2.1 nodes.

Notes:

1. The RESSCB parameter on the LU macroinstruction for VTAM 3.2 independent LUs defines the number of boundary session control blocks reserved for each independent LU.
2. The LUDRPOOL macroinstruction contains the NUMILU parameter that defines the number of control blocks that are reserved for independent LUs for use in a switched line network.

ACF/NCP/VTAM Configuration for Switched Lines

The following is an example of configuring ACF/NCP/VTAM for use with a local system on a switched line network. The first macroinstruction statement, VBUILD, must be specified as VBUILD=SWNET. Also notice that the IDBLK and IDNUM parameters (in the PU macroinstruction) must be specified for communications over a switched line.

```
SAMPSWA VBUILD   TYPE=SWNET,
                 MAXNO=5,
                 MAXGRP=5
SAMPPUA PU       ADDR=C1,
                 BATCH=NO,
                 DISCNT=NO,
                 IDBLK=056,
                 IDNUM=00001,
                 MAXDATA=521,
                 MAXOUT=7,
                 PACING=(7),
                 PASSLIM=7,
                 PUTYPE=2,
                 ISTATUS=ACTIVE,
                 MODETAB=AS400,
                 SSCPFM=USSSCS,
                 VPACING=(7)
SAMPLU1   LU     LOCADDR=1,
                 ISTATUS=ACTIVE
SAMPLU2   LU     LOCADDR=2,
                 ISTATUS=INACTIVE
SAMPLU3   LU     LOCADDR=3,
                 ISTATUS=INACTIVE
SAMPLU4   LU     LOCADDR=4,
                 ISTATUS=INACTIVE
```

The following describes the parameters within the PU macroinstruction that are unique for a switched line, or have not yet been described. Those parameters with the PU macroinstruction that are the same as for a nonswitched line are not described. In addition, the parameters for the LU macroinstruction are not described because they are the same as for a nonswitched line.

IDBLK and IDNUM

These parameters make up the SDLC exchange identifier and are specified only for a switched line. These values are specified as the EXCHID parameter on the AS/400 CRTLINSLDC command.

The first 3 digits of the EXCHID parameter represent the block number (IDBLK) and must be 056 for an AS/400 system. The remaining 5 digits of the EXCHID parameter must match the IDNUM parameter on the PU macroinstruction.

If the AS/400 CRTLINSDLC command uses the default value (*SYSGEN), the exchange identifier generated is 056 followed by a binary representation of the AS/400 machine serial number.

MODETAB Defines the configuration of the logon mode table. MODETAB is applicable to both nonswitched and switched connections.

The following Mode Entry (MODEENT) macroinstructions describe sign-on mode table entries for LU1, LU2, APPC, and SNA-attached DHCF display stations.

```
SAMPLU1 MODEENT   LOGMODE=SAMPLU1,      LU1 PGM-TO-PGM EXAMPLE
                  COMPROT=X'3080',
                  FMPROF=X'03',
                  PRIPROT=X'B1',
                  PSNDPAC=X'01',
                  RUSIZES=X'8585',
                  SECPROT=X'B1',
                  SRCVPAC=X'07',
                  SSNDPAC=X'01',
                  TSPROF=X'03'

P6ES2 MODEENT     LOGMODE=SAMPLU2,      3270 DEVICE EMULATION DISPLAY EXAMPLE
                  COMPROT=X'3080',
                  FMPROF=X'03',
                  PRIPROT=X'B1',
                  PSERVIC=X'020000000000000000000200',
                  PSNDPAC=X'00',
                  RUSIZES=X'8785',
                  SECPROT=X'90',
                  SRCVPAC=X'00',
                  SSNDPAC=X'00',
                  TSPROF=X'03'

SAMPLU62 MODEENT  LOGMODE=SAMPLU62      APPC EXAMPLE

FPS1920 MODEENT   LOGMODE=SAMPDHCF,     SNA HCF EXAMPLE
                  COMPROT=X'3080',
                  FMPROF=X'03',
                  PRIPROT=X'B1',
                  RUSIZES=X'A8A8',
                  SECPROT=X'90',
                  TSPROF=X'03',
                  PSERVIC=X'020000000000000000000200'
```

For information on using MODEENT macroinstructions for LUs attached to DHCF display stations, see the *Alerts and DSNX Guide*.

The sign-on mode entries specified contain session parameters for binding LU-LU sessions from the local system to the host. For LU1 and LU2, the bind parameters are used when the sign-on text is sent from the local system. For the Host Command Facility (HCF), the bind parameters are used when the **ACQUIRE command is entered on the HCF display station. For APPC, the bind parameters are a combination of the CICS/VS configuration and the NCP definition of the LU.

Considerations for Configuring CICS/VS

When a CICS/VS system is configured to communicate with a local system using LU1, APPC, or SNUF, entries must be placed in four tables to define the local system as an APPC system. These tables are the terminal control table (TCT), program control table (PCT), processing program table (PPT), and the system initialization table (SIT).

In addition to the tables, certain options must be included for CICS/VS so that it can communicate with the local system APPC. The following must be specified:

```
DFHSG  TYPE=INITIAL,VTAM=YES
DFHSG  PROGRAM=TCP,ACCMETH=VTAM,VTAMDEV=LUTYPE6
DFHSG  PROGRAM=EIP
DFHSG  PROGRAM=ISC
```

Defining the Terminal Control Table for APPC Devices

The terminal control table contains the information used by CICS/VS to define the remote system or terminal.

The following is an example of the DFHTCT macroinstruction used to define the terminal control table for CICS/VS to the AS/400 APPC system.

With later releases of CICS/VS, the resource definition online allows an online technique to create entries in the CICS/VS terminal control table. This documentation does not reflect this fact.

```
DFHTCT  TYPE=SYSTEM,  1
        TRMTYPE=LUTYPE62,
        ACCMETH=VTAM,
        SYSIDNT=AS40,
        FEATURE=SINGLE,
        MODENAM=SAMPLU62,
        NETNAME=SAMPLU62,
        RUSIZE=512,
        BUFFER=512,
        BINDPWD=C1E2F4F0F0,
        TRMSTAT=(TRANSCEIVE)
```

1 The DFHTCT TYPE=SYSTEM macroinstruction has several additional parameters (not shown below) that are not necessary for CICS/VS-to-local system APPC communications. CHNASSY, INDSYS, RECEIVE, SEND, and TIOAL should not be coded for APPC communications.

TYPE An APPC local system is specified.

TRMTYPE The attached system uses APPC when TRMTYPE=LUTYPE62.

ACCMETH The access method used is VTAM when ACCMETH=VTAM.

SYSIDNT A 1-to-4 character, alphanumeric name to identify the AS/400 APPC system to CICS/VS.

FEATURE Only single session support is configured for this APPC system when FEATURE=SINGLE.

MODENAM A 1-to-8 character mode name used with this single session. The name is passed to ACF/VTAM* as the LOGMODE name. On the AS/400 system, this name is specified in the MODD parameter in the Create Mode Description (CRTMODD) command. You cannot use the reserved name CPSVCMG.

NETNAME A 1-to-8 character network name to identify the AS/400 APPC system to ACF/VTAM. On the AS/400 system, this name is specified in the LCLLOCNAME parameter in the Create Device Description (APPC) (CRTDEVAPPC) command. This value must match the label on a logical unit macroinstruction in the NCP.

RUSIZE The size used to receive the request or response unit (RU) from the AS/400 APPC system. On the AS/400 system, the request unit size is specified by the MAXLENRU parameter in the Create Mode

Description (CRTMODD) command. Allowed values are 241 through 16384.

The RUSIZE specified in the CICS terminal control table (DFHTCT) should also be the same as the MAXDATA specified in the VTAM/NCP PU macroinstruction.

BUFFER The size of the request or response unit (RU) to the AS/400 APPC system. The buffer size should be the same as MAXLENRU. On the AS/400 system, the request unit size is specified by the MAXLENRU parameter in the Create Mode Description (CRTMODD) command. Allowed values are 256 through 4096 in 256-byte units.

BINDPWD The password used by CICS/VS for bind verification. If you code less than 16 hexadecimal characters, the password is padded on the left with hexadecimal zeros. This parameter value should match the AS/400 system password that is specified by the location password (LOCPWD) parameter on the Create Device Description (APPC) (CRTDEVAPPC) command.

TRMSTAT Whether the AS/400 APPC system both can transmit and/or receive data. TRMSTAT=TRANSCEIVE specifies that the AS/400 APPC system can both transmit and receive data from the CICS/VS system.

Defining the Terminal Control Table for Parallel Sessions

The following is an example of the DFHTCT macroinstruction used to define the terminal control table entry for a parallel session:

```
DFHTCT   TYPE=SYSTEM,
         TRMTYPE=LUTYPE62,
         ACCMETH=VTAM,
         TRMSTAT=TRANSCEIVE,
         SYSIDNT=AS4A,
         NETNAME=AS4LU00,
         FEATURE=PARALLEL
DFHTCT   TYPE=MODESET,
         SYSIDNT=AS4A,
         MODENAM=SNADS
```

NETNAME A 1-to-8 character network name to identify the AS/400 system to VTAM. This value should match the logical unit name in NCP of LOCADDR 00.

SYSIDNT A 1-to-4 character alphanumeric name used to identify the AS/400 system to CICS/VS. This value connects the MODESET entry to the SYSTEM entry.

MODENAM A 1-to-8 character mode name used with this session. This name is passed to VTAM as the LOGMODE name. This value must match the AS/400 system mode name. You cannot use the reserved name CPSVCMG.

Defining the Terminal Control Table for LU1 Devices

The following is an example of the DFHTCT macroinstruction used to define the terminal control table entry for CICS/VS:

```
DFHTCT   TYPE=TERMINAL,
         TRMIDNT=AS34,
         TRMTYPE=3770I,
         CHNASSY=NO,
         TRMSTAT=TRANSCEIVE,
         TIOAL=256,
         RUSIZE=256,
         PGESIZE=(12,80),
         PGESTAT=AUTOPAGE,
         BUFFER=256,
         BRACKET=YES,
         ACCMETH=VTAM,
         NETNAME=SAMPLU1,
         RELREQ=(YES,YES),
         VF=YES,
         HF=YES,
         TCTUAL=64
```

TYPE The LU1 device type being used. TYPE=TERMINAL specifies a display station.

TRMIDNT Assigns a 4-character identifier to the terminal.

TRMTYPE The type of attached display station. TRMTYPE=3770I specifies that the attached display station is the same type as a 3770. The AS/400 system functions much like the 3770.

CHNASSY Whether or not CICS/VS assembles a complete chain of RUs before passing a logical record to the CICS/VS application program. If CHNASSY=YES is specified, and the local system application program issues successive writes with no intervening reads, it is possible that the CICS/VS buffer will overflow and cause the transaction to end abnormally. To limit the size of an RU chain, the local system application program can issue a READ even though CICS/VS has not issued a WRITE. The read causes the change direction indicator to be sent to CICS/VS, which then returns the indicator to the local system.

CHNASSY=NO specifies that CICS/VS processes a single RU and passes the data to the application program.

TRMSTAT Whether the display station can transmit and/or receive data. TRMSTAT=TRANSCEIVE specifies that the display station can both transmit and receive data.

RUSIZE The size used to receive the request or response unit (RU) from the remote LU1 system. On the local system, the request unit size is specified by the MAXLENRU parameter on the Create Device Description (SNA Host) (CRTDEVHOST) command. The value specified in the CRTDEVHOST command only applies when the host sends hex 00 for the RUSIZE. Otherwise, the value specified in the bind command is used.

BUFFER The size of the request or response unit (RU) to the remote LU1 system. The buffer size should be the same as MAXLENRU. On the local system, the request unit size is specified by the MAXLENRU parameter on the CRTDEVHOST command. The value specified in the CRTDEVHOST command only applies when the host sends hex 00 for the RUSIZE. Otherwise, the value specified in the bind command is used.

ACCMETH The access method being used.

NETNAME The name assigned to the logical unit in the access method resource definition statement.

For other parameters, refer to the appropriate CICS/VS documentation.

Defining the Program Control Table

The program control table contains the information used by CICS/VS for identifying and configuring a transaction. This table is required by CICS/VS to verify the incoming transaction request.

The following are examples of the DFHPCT macroinstructions used to define the program control table for CICS/VS for local system communications:

```
DFHPCT  TYPE=ENTRY,
        TRANSID=SAMP,
        PROGRAM=TESTPROG
```

TYPE A transaction type is used by the CICS/VS system.

TRANSID A 1-to-4 character transaction name that the remote APPC program may call. If the remote program attempts to call a name longer than 4 characters, CICS/VS uses only the first 4 characters to decide which transaction to start. The remaining characters will have no meaning to CICS/VS, but may be retrieved by the CICS/VS application program, using an EXTRACT PROCESS command in an APPC program, and used for application-defined purposes. Input data beyond the 4-character TRANSID value is available to programs using other protocols, such as 3270 device emulation, in an input terminal input/output area.

PROGRAM A 1-to-8 character program name that relates to the program name in the processing program table. This name is not known to the remote APPC program.

```
DFHPCT  TYPE=PROFILE,
        PROFILE=NEWPROF1,
        MODENAM=SAMPMODE
```

TYPE A profile type is used for APPC sessions.

PROFILE A profile name used in the ALLOCATE command by CICS/VS transactions.

MODENAM The mode name used with sessions using this profile. On the local system, this name is specified in the MODD parameter on the Create Mode Description (CRTMODD) command.

```
DFHPCT  TYPE=GROUP,
        FN=(ISC)
```

TYPE A group entry is used by the CICS/VS system.

FN The generic function name that creates the required entries for intercommunications support. FN=(ISC) is required for CICS to communicate with any APPC system, for example, another CICS, personal computers with APPC, or AS/400 system.

Defining the Processing Program Table

The processing program table allows you to describe the control information for all user-written and CICS/VS-supplied application programs.

The following are examples of the DFHPPT macroinstructions used to define the processing program table for CICS/VS for local system communications:

```
DFHPPT  TYPE=ENTRY,
        PROGRAM=TESTPROG,
        PGMLANG=COBOL
```

TYPE A program entry is used by the CICS/VS system.

PROGRAM A 1-to-8 character program name relating to the program name in the program control table.

PGMLANG The language in which the specified program is written.

```
DFHPPT  TYPE=GROUP,
        FN=(ISC)
```

TYPE A group entry is used by the CICS/VS system.

FN The generic function name that creates the required entries for intercommunications support. FN=(ISC) is required for CICS to communicate with any APPC system, for example, another CICS, personal computers with APPC, or AS/400 system.

Defining the System Initialization Table

The system initialization table provide the system initialization program with the information to starts CICS/VS. Information supplied by the table includes:

- Information used to initialize and control system functions, such as storage cushion size and partition/region exit time interval.
- Unit identifiers used to load the user-specified version of CICS control units (modules) and tables, such as DFHFCTxx and DFHFCPxx.
- Special information used to control the initialization process.

If required, most of the parameters can be dynamically changed during initialization. Also, more than one system initialization table can be defined; the appropriate table is selected at initialization time.

System Recovery

The system recovery table and system recovery program should be specified so that the default operating system abnormal ending codes are handled by CICS/VS. This helps to provide recovery procedures for application programs when an abnormal end occurs.

If recovery from line errors is desired, the node error program should be included at the start. You can then select either the standard CICS/VS support or write your own user exits for specific error conditions.

CICS/VS Command Considerations for APPC

The CICS ALLOCATE and CONNECT PROCESS commands are equivalent to the ICF evoke function. The CICS FREE command is equivalent to the ICF detach function.

The SYNCLEVEL parameter on the CICS CONNECT PROCESS command is equivalent to the system SYNLVL DDS keyword. SYNCLEVEL=1 is equivalent to SYNLVL(*CONFIRM), and SYNCLEVEL=0 is equivalent to SYNLVL(*NONE). The AS/400 system does not support SYNCLEVEL=2 (transaction backout).

Note: ICF system-supplied formats always default to the synchronization level of *NONE (SYNCLEVEL=0).

AS/400-to-System/370 Line-Sharing Example

The CL programs and VTAM/NCP configuration definitions shown in this example are used to describe a nonswitched point-to-point SDLC connection between an AS/400 system and a System/370. Example LUs are shown for SNUF, DHCF, APPC, and LU2 (3270 emulation) communications.

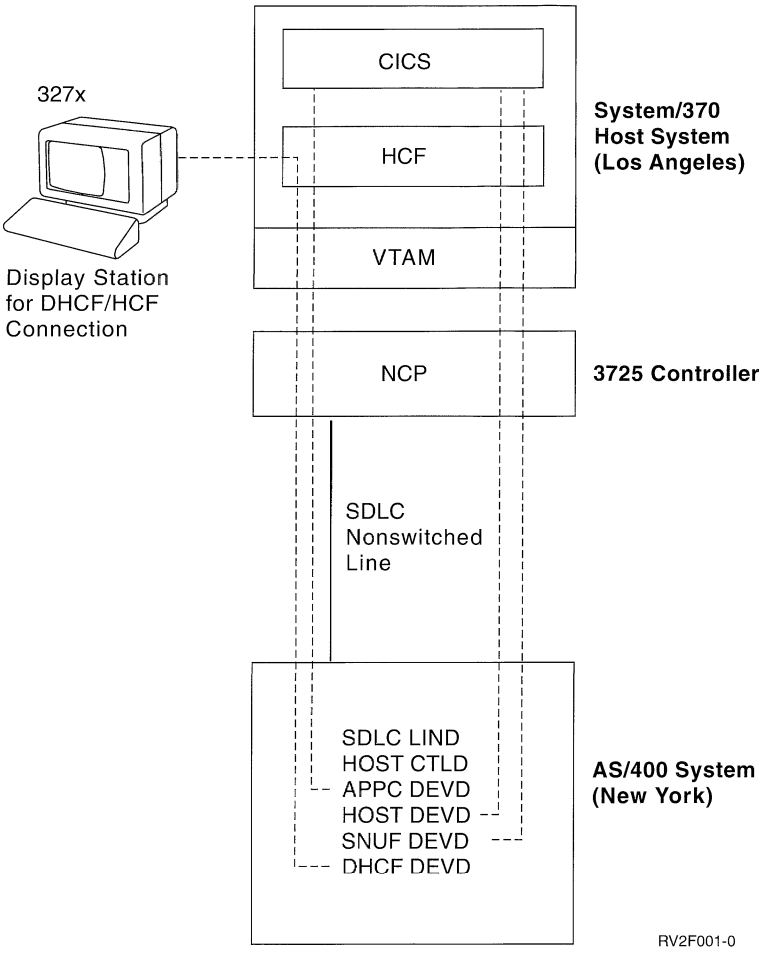


Figure E-1. AS/400-to-System/370 Nonswitched Connection

Configuring the AS/400 System

The following CL program is used to define the configuration for the AS/400 system.

```
/*****************************************************************/
/*                                                               */
/*  MODULE:  PPTOHOST              LIBRARY:  PUBSCFGS            */
/*                                                               */
/*  LANGUAGE:  CL                                                */
/*                                                               */
/*  FUNCTION:  CONFIGURES AN SDLC NONSWITCHED LINE TO THE        */
/*             System/370                                        */
/*                                                               */
/*     LINE                                                      */
/*      CONTROLLER                                               */
/*        APPC DEVICE                                            */
/*        3270 DISPLAY                                           */
/*        SNUF DEVICE                                            */
/*        DHCF DEVICE                                            */
/*                                                               */
/*****************************************************************/
PGM
/*****************************************************************/
/*                 NEWYORK TO LOSANGEL                           */
/*****************************************************************/
         /* Create line description for NEWYORK to LOSANGEL*/
         CRTLINSDLC LIND(LOSANGELLN)  RSRCNAME(LIN011)
         /* Create controller description for NEWYORK to LOSANGEL*/
         CRTCTLHOST CTLD(LOSANGELCT) LINKTYPE(*SDLC) APPN(*NO) +
                      LINE(LOSANGELLN) RMTNETID(*NONE) STNADR(C1)
         /* Create the MODE for the APPC device */
         CRTMODD MODD(SAMPLU62) MAXSSN(1) MAXCNV(1) LCLCTLSSN(0)
         /* Create APPC device description for NEWYORK to LOSANGEL*/
         CRTDEVAPPC DEVD(APPC01) RMTLOCNAME(CICS) LCLLOCNAME(APPC01) +
                    RMTNETID(LA) CTL(LOSANGELCT) MODE(SAMPLU62) +
                    LOCADR(01) APPN(*NO) SNGSSN(*YES)
         /* Create LU2 device description for NEWYORK to LOSANGEL*/
         CRTDEVHOST DEVD(EML02) LOCADR(02) RMTLOCNAME(CICS2) +
                    CTL(LOSANGELCT) APPTYPE(*EML) EMLDEV(3278)
         /* Create SNUF device description for NEWYORK to LOSANGEL*/
         CRTDEVSNUF DEVD(SNUF03) LOCADR(03) RMTLOCNAME(CICS3) +
                    CTL(LOSANGELCT) APPID(SNADRVR) HOST(*CICS)
         /* Create DHCF device description for NEWYORK to LOSANGEL*/
         CRTDEVDSP DEVD(DHCF04) DEVCLS(*RMT) TYPE(3277) +
                   MODEL(*DHCF) LOCADR(04) CTL(LOSANGELCT)
ENDPGM
```

The following list describes considerations for specifying the commands to create the AS/400 configuration.

CRTCTLHOST

- Because this controller does not use the APPN capabilities, APPN(*NO) is specified. All APPC devices attached to this controller must also specify APPN(*NO).
- The LINE parameter specifies the name of the nonswitched line to which this controller is attached.
- The station address (STNADR parameter) value must match the ADDR parameter specified for the PU macroinstruction in the host configuration.

CRTMODD

- The value of the maximum sessions (MAXSSN) parameter be coordinated with the FEATURE parameter in the CICS terminal control table.

MAXSSN(1) is specified, FEATURE=SINGLE must be specified in DFHTCT.
- The value of the locally controlled sessions (LCLCTLSSN) parameter must be less than or equal to the value of the MAXSSN parameter.
- The value of the pre-established sessions (PREESTSSN) parameter must be less than or equal to the value of the LCLCTLSSN parameter.

CRTDEVAPPC

- For APPC devices, the remote location name (RMTLOCNAME parameter) must match the host VTAM APPLID of CICS.
- The local location name (LCLLOCNAME parameter) matches the label on the LU macroinstruction in the NCP, and also the NETNAME in the CICS/VS terminal control table.
- The mode (MODE parameter) matches the MODENAM parameter in the CICS/VS terminal control table associated with this LU.
- Specify *YES for the single session (SNGSSN) parameter for communications to a host system over a dependent LU.
- The local location address (LOCADR) parameter matches the LOCADDR parameter of the LU macroinstruction in the host configuration. The combination of LOCADR and LCLLOCNAME in the AS/400 device description must match the LOCADDR and LU name in the NCP, and the terminal control table NETNAME in CICS/VS.

CRTDEVHOST

- The local location address (LOCADR) parameter matches the LOCADDR parameter of the LU macroinstruction at the host configuration.
- The CTLD parameter specifies the name of the nonswitched controller description to which this device is attached.

CRTDEVSNUF

- The local location address (LOCADR parameter) must match the LOCADDR parameter of the LU macroinstruction in the host configuration.
- The CTLD parameter specifies the name of the nonswitched controller description to which this device is attached.
- The APPID represents the VTAM application identifier of the CICS/VS or IMS/VS host subsystem. This identifier is sent with the logon text when the SNUF device is acquired.

CRTDEVDSP

- The device class (DEVCLS parameter) must be defined as a remote display device because it is communicating through HCF to a remote display. The device model (MODEL parameter) must be *DHCF.
- The local location address (LOCADR parameter) must match the LOCADDR parameter of the LU macroinstruction in the host configuration.

- This device description is part of the configuration specified in the controller description. This value must match the controller name description.

Configuring the System/370

The following example for the host side of an SDLC nonswitched point-to-point network includes GROUP, LINE, PU, and LU macroinstructions for configuring ACF/NCP/VTAM, along with the CICS/VS terminal control table entries.

Note: As in the case of the system CL program, defaults are taken for parameters not specifically defined.

The GROUP macroinstruction defines characteristics of the type of communications that occurs between NCP/VTAM and any of the attached physical units and logical units. The following illustrates an example of the GROUP macroinstruction as used for the system definition:

```
PUBGRP    GROUP    LNTCTL=SDLC,
                   ANS=CONT,
                   CLOCKING=EXT,
                   DIAL=NO,
                   DISCNT=NO,
                   DUPLEX=FULL,
                   ETRATIO=255,
                   HISPEED=NO,
                   IPL=NO,
                   ISTATUS=INACTIVE,
                   LPDATS=NO,
                   MAXDATA=521,
                   MAXOUT=7,
                   MODE=PRIMARY,
                   NRZI=YES,
                   PACING=(7,1),
                   PASSLIM=7,
                   PAUSE=0.2,
                   PUTYPE=2,
                   REPLYTO=02,
                   SPDSEL=NO,
                   SSCPFM=USSSCS,
                   TRANSFER=16,
                   TYPE=NCP,
                   USE=NCP,
                   VPACING=(8)
```

The LINE macroinstruction is used to define the characteristics of a line within a group when starting NCP/VTAM. The following is an example of a LINE macroinstruction used to define the system when starting NCP/VTAM:

```
LOSANGEL  LINE     ADDRESS=028,
                   PUTYPE=2,
                   SPEED=9600,
                   ISTATUS=ACTIVE
```

The following is an example of the PU macroinstruction used to define the system:

```
LAPU      PU       ADDR=C1
```

Finally, the following LU macroinstructions are used to define the four system devices:

```
APPC01    LU       LOCADDR=01
EML02     LU       LOCADDR=02
SNUF03    LU       LOCADDR=03
DHCF04    LU       LOCADDR=04
```

Three of the defined LUs run to CICS/VS on the System/370, and the fourth runs to HCF. No definitions are required in HCF for the DHCF04 LU; however, for the APPC, LU2, and SNUF LUs to run to CICS/VS, terminal control table entries must be defined.

The following is an example of the DFHTCT macroinstruction used to define the terminal control table entry for CICS/VS to local system APPC communications:

```
DFHTCT    TYPE=SYSTEM,
          TRMTYPE=LUTYPE62,
          ACCMETH=VTAM,
          SYSIDNT=AS40,
          FEATURE=SINGLE,
          CONNECT=AUTO,
          MODENAM=SAMPLU62,
          NETNAME=APPC01,
          RUSIZE=512,
          BUFFER=512,
          TRMSTAT=(TRANSCEIVE)
```

The following is an example of the DFHTCT macroinstruction used to define the terminal control table entry for CICS/VS to local system LU2 communications:

```
DFHTCT    TYPE=TERMINAL,
          TRMTYPE=LUTYPE2,
          TRMIDNT=EML2,
          NETNAME=EML02,
          ACCMETH=VTAM,
          TRMSTAT=TRANSCEIVE,
          RUSIZE=256,
          BUFFER=256,
          CHNASSY=YES,
          TIOAL=(256,4096),
          FEATURE=DCKYBD,
          TRMMODL=2,
          GMMSG=YES
```

The final DFHTCT macroinstruction in this example defines the terminal control table entry for CICS/VS to local system SNUF communications:

```
DFHTCT    TYPE=TERMINAL,
          TRMTYPE=3790,
          TRMIDNT=SNUF,
          NETNAME=SNUF03,
          ACCMETH=VTAM,
          TRMSTAT=TRANSCEIVE,
          RUSIZE=256,
          BUFFER=256,
          SESTYPE=USERPROG,
          BRACKET=YES,
          TIOAL=(512, 4096)
```

For definitions of the host parameters, refer to the prior topics in this appendix.

AS/400-to-System/370-to-AS/400 Line-Sharing Example

VTAM V3R2 and NCP V4R3 or NCP V5R2 allow an LU to run as an **independent LU**, or a **dependent LU**. Dependent LUs imply "old" NCP support; that is, the host system must send an Activate Logical Unit (ACTLU) command and establish the user session with a Bind command to the AS/400 LU (device). Only one session is allowed per LU.

With the later versions of VTAM and NCP, independent LUs are allowed to operate on the same line as the dependent LUs. ACTLUs are not received and the AS/400 LU can send the session Bind command to the host system. In addition, multiple (parallel) sessions are allowed on each of the APPC LUs. On the AS/400 system, the characteristics of independent LUs are defined by APPC device descriptions with the LOCADR parameter set to hex 00.

This support is extremely useful in that it not only allows the bind or binds to be routed to the host system, but allows the host system to route the binds through the host network to a remote location. This allows the AS/400 system to run application programs such as DDM, display station pass-through, and SNA distribution services (SNADS) between AS/400 systems without a direct link between those systems. Each AS/400 system only requires one link to the host system, and with the AS/400 line-sharing capabilities, that link can simultaneously run DHCF, SNUF, 3270 emulation, and SNA remote job entry (RJE) to the host system at the same time. Communications can take place to and through the host system over the same link.

APPN is not required for this support and the following example reflects that fact. However, APPN does enhance the connectivity of this support by allowing a network of systems to exist off the host system connection and by allowing sessions to be established from any part of that network through the host system to the other AS/400 system.

Figure E-2 on page E-22 shows an example of a configuration for an AS/400-to-System/370- to-AS/400 line-sharing connection. In this example, SYSA (New York) communicates with HCF (Los Angeles), CICS Version 1.7, and SYSB (Chicago) over the same nonswitched SDLC connection. SYSB (Chicago) can communicate with SYSA (New York) in the same manner. Notice that the 327x display station can have one active session.

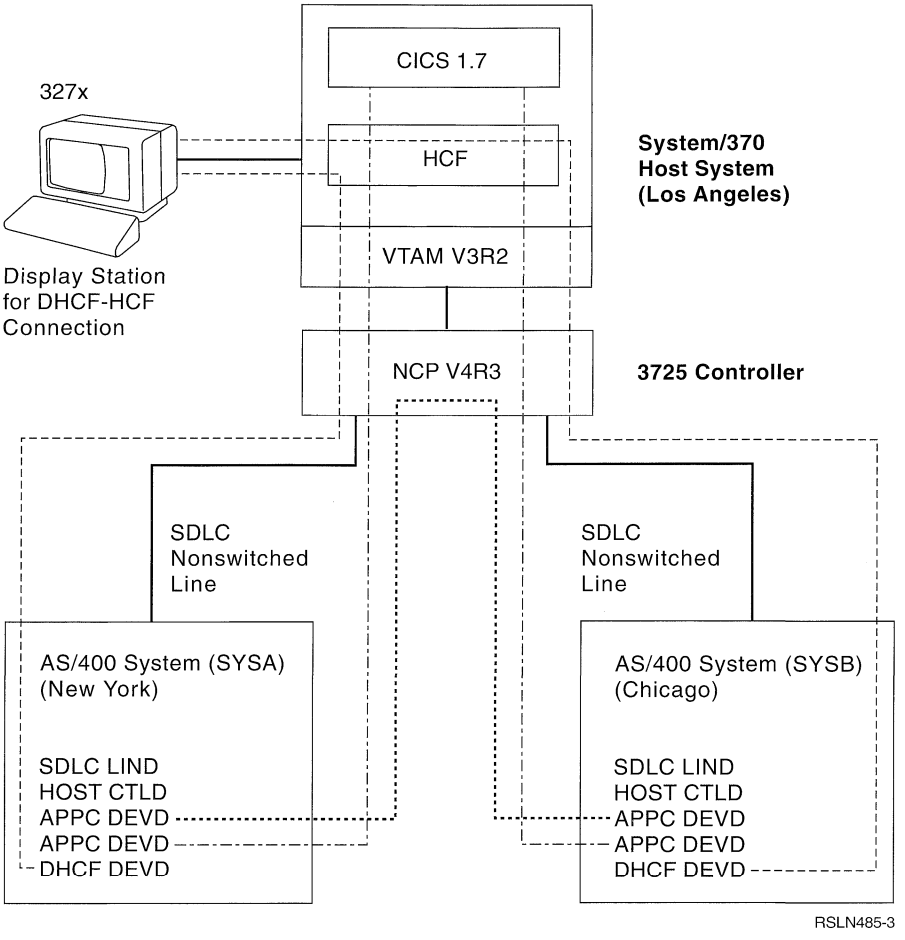


Figure E-2. Line Sharing Example Using Dependent and Independent LUs

The following CL programs are used to configure the AS/400 systems for the environment shown in Figure E-2.

Note: In the following examples, default values are used for all parameters not specifically defined.

```
/*************************************************************/
/*                                                           */
/*  MODULE:   SYSA                    LIBRARY:   PUBSCFGS    */
/*                                                           */
/*  LANGUAGE:  CL                                            */
/*                                                           */
/*  FUNCTION:  CONFIGURES AN SDLC NONSWITCHED LINE TO THE S/370 */
/*             IN LOS ANGELES, WHICH WILL ALSO COMMUNICATE   */
/*             TO AN AS/400 SYSTEM IN CHICAGO.               */
/*                                                           */
/*    LINE (SDLC)                                            */
/*     CONTROLLER (HOST)                                     */
/*       APPC DEVICE (Independent LU connection to AS/400 LU */
/*                    in Chicago)                            */
/*       APPC DEVICE (Independent LU connection to S/370 LU in */
/*                    Los Angeles)                           */
/*       DHCF DEVICE                                         */
/*                                                           */
/*  NOTE:  THIS IS THE CONFIG ON THE NEW YORK AS/400 SYSTEM  */
/*                                                           */
/*************************************************************/
PGM
/*************************************************************/
/*              NEW YORK TO LOS ANGELES TO CHICAGO           */
/*************************************************************/
       /* Create line description for NEWYORK TO LOSANGEL */
       CRTLINSDLC LIND(LOSANGEL) RSRCNAME(LIN011)
       /* Create controller description for NEWYORK to LOSANGEL */
       CRTCTLHOST CTLD(LOSANGEL) LINKTYPE(*SDLC) APPN(*NO) +
                  LINE(LOSANGEL) RMTNETID(*NONE) STNADR(C1)
       /* Create the MODES for the APPC devices */
       CRTMODD MODD(PARALLEL) MAXSSN(4) MAXCNV(4) LCLCTLSSN(2) +
               PREESTSSN(2)
       CRTMODD MODD(PARA2) PREESTSSN(2)
       /* Create APPC device description to CHICAGO through LOSANGEL */
       CRTDEVAPPC DEVD(APPC01) RMTLOCNAME(SYSB) LCLLOCNAME(SYSA) +
                  RMTNETID(LA) CTL(LOSANGEL) MODE(PARALLEL PARA2) +
                  APPN(*NO) SNGSSN(*NO)
       /* Create APPC device description to the LOSANGEL S/370 */
       CRTDEVAPPC DEVD(APPC02) RMTLOCNAME(CICS) LCLLOCNAME(APPC02) +
                  RMTNETID(LA) CTL(LOSANGEL) MODE(PARALLEL) +
                  APPN(*NO) SNGSSN(*NO)
       /* Create DHCF device description for NEWYORK to LOSANGEL */
       CRTDEVDSP DEVD(DHCF04) DEVCLS(*RMT) TYPE(3277) +
                  MODEL(*DHCF) LOCADR(04) CTL(LOSANGEL)
ENDPGM
```

```
/*************************************************************/
/*                                                           */
/*  MODULE:   SYSB                    LIBRARY:   PUBSCFGS    */
/*                                                           */
/*  LANGUAGE:  CL                                            */
/*                                                           */
/*  FUNCTION:  CONFIGURES AN SDLC NONSWITCHED LINE TO THE S/370 */
/*             IN LOS ANGELES, WHICH WILL ALSO COMMUNICATE   */
/*             TO AN AS/400 SYSTEM IN NEW YORK.              */
/*                                                           */
/*    LINE (SDLC)                                            */
/*     CONTROLLER (HOST)                                     */
/*       APPC DEVICE (Independent LU connection to AS/400 LU */
/*                    in New York)                           */
/*       APPC DEVICE (Independent LU connection to S/370 LU in */
/*                    Los Angeles)                           */
/*       DHCF DEVICE                                         */
/*                                                           */
/*  NOTE:  THIS IS THE CONFIG ON THE CHICAGO AS/400 SYSTEM   */
/*                                                           */
/*************************************************************/
PGM
/*************************************************************/
/*              CHICAGO TO LOS ANGELES TO NEW YORK           */
/*************************************************************/
       /* Create line description for CHICAGO TO LOSANGEL */
       CRTLINSDLC LIND(LOSANGEL) RSRCNAME(LIN011)
       /* Create controller description for CHICAGO to LOSANGEL */
       CRTCTLHOST CTLD(LOSANGEL) LINKTYPE(*SDLC) APPN(*NO) +
                  LINE(LOSANGEL) RMTNETID(*NONE) STNADR(C1)
       /* Create the MODES for the APPC devices */
       CRTMODD MODD(PARALLEL) MAXSSN(4) MAXCNV(4) LCLCTLSSN(2) +
               PREESTSSN(2)
       CRTMODD MODD(PARA2) PREESTSSN(2)
       /* Create APPC device description to NEWYORK through LOSANGEL */
       CRTDEVAPPC DEVD(APPC01) RMTLOCNAME(SYSA) LCLLOCNAME(SYSB) +
                  RMTNETID(LA) CTL(LOSANGEL) MODE(PARALLEL PARA2) +
                  APPN(*NO) SNGSSN(*NO)
       /* Create APPC device description to the LOSANGEL S/370 */
       CRTDEVAPPC DEVD(APPC03) RMTLOCNAME(CICS) LCLLOCNAME(APPC03) +
                  RMTNETID(LA) CTL(LOSANGEL) MODE(PARALLEL) +
                  APPN(*NO) SNGSSN(*NO)
       /* Create DHCF device description for CHICAGO to LOSANGEL */
       CRTDEVDSP DEVD(DHCF04) DEVCLS(*RMT) TYPE(3277) MODEL(*DHCF) +
                 LOCADR(04) CTL(LOSANGEL)
ENDPGM
```

The host system configuration is similar to the example shown earlier in this appendix. However, in this case, there are two SDLC lines described: One to New York and one to Chicago. Other changes to the host configuration are shown below:

The APPL macroinstruction must also contain the parameter PARSESS=YES and the MODETAB parameter as follows:

```
CICS     APPL  AUTH=(ACQ,PASS),
               VPACING=3,
               MODETAB=AS400,
               SONSCIP=YES,
               PARSESS=YES,EAS=32
```

The VTAM/NCP definition of the line, PU, and LU macroinstructions look like the following:

```
NEWYORK  LINE  ADDRESS=(006,HALF),
               ISTATUS=INACTIVE,
               RETRIES=(07,05,03),
               SPEED=9600
NYPU     PU    ADDR=C1,XID=YES,ISTATUS=INACTIVE
SYSA     LU    LOCADDR=00,RESSCB=10,DLOGMOD=PARALLEL,ISTATUS=ACTIVE
APPC02   LU    LOCADDR=00,RESSCB=10,DLOGMOD=PARALLEL,ISTATUS=ACTIVE
DHCF1    LU    LOCADDR=04

CHICAGO  LINE  ADDRESS=(009,HALF),
               ISTATUS=INACTIVE,
               RETRIES=(07,05,03),
               SPEED=9600
CHPU     PU    ADDR=C1,XID=YES,ISTATUS=INACTIVE
SYSB     LU    LOCADDR=00,RESSCB=10,DLOGMOD=PARALLEL,ISTATUS=ACTIVE
APPC03   LU    LOCADDR=00,RESSCB=10,DLOGMOD=PARALLEL,ISTATUS=ACTIVE
DHCF2    LU    LOCADDR=04
```

The following LOGMODE additions are identical except for the names used to identify each one. If you are using different sessions, the LOGMODE is used to group the sessions. LOGMODE additions include the following:

```
PARALLEL MODEENT LOGMODE=PARALLEL,FMPROF=X'13',TSPROF=X'07',
              PRIPROT=X'B0',SECPROT=X'B0',COMPROT=X'50B1',TYPE=X'00',
              RUSIZES=X'0100',PSERVIC=X'060200000000000000002F00',
              COS=#CONNECT

PARA2    MODEENT LOGMODE=PARA2,FMPROF=X'13',TSPROF=X'07',
              PRIPROT=X'B0',SECPROT=X'B0',COMPROT=X'50B1',TYPE=X'00',
              RUSIZES=X'0100',PSERVIC=X'060200000000000000002F00',
              COS=#CONNECT

SNASVCMG MODEENT LOGMODE=SNASVCMG,FMPROF=X'13',TSPROF=X'07',
              PRIPROT=X'B0',SECPROT=X'B0',COMPROT=X'D0B1',TYPE=X'00',
              RUSIZES=X'8585',PSERVIC=X'060200000000000000000300',
              ENCR=B'0000',COS=#CONNECT
```

Finally, you need to change the CICS entries in the terminal control table. They include changes to the feature parameter of the DFHTCT TYPE=SYSTEM macroinstruction, and the addition of a DFHTCT TYPE=MODESET macroinstruction. For example:

```
          DFHTCT  TYPE=SYSTEM,
                  TRMTYPE=LUTYPE62,
                  ACCMETH=VTAM,
                  NETNAME=APPC02,
                  SYSIDNT=PRL1,
                  FEATURE=PARALLEL,
                  RUSIZE=256,
                  BUFFER=256,
                  TRMSTAT=TRANSCEIVE

          DFHTCT  TYPE=SYSTEM,
                  TRMTYPE=LUTYPE62,
                  ACCMETH=VTAM,
                  NETNAME=APPC03,
                  SYSIDNT=PRL2,
                  FEATURE=PARALLEL,
                  RUSIZE=256,
                  BUFFER=256,
                  TRMSTAT=TRANSCEIVE

          DFHTCT  TYPE=MODESET,
                  SYSIDNT=PRL1,
                  MODENAM=PARALLEL,
                  MAXSESS=(4,2),
                  CONNECT=AUTO

          DFHTCT  TYPE=MODESET,
                  SYSIDNT=PRL2,
                  MODENAM=PARALLEL,
                  MAXSESS=(4,2),
                  CONNECT=AUTO
```

The following are some notes on operational characteristics of the preceding configuration:

Notes:

1. When the AS/400 system is configured to run to the host system as an SDLC secondary line, it is often best to have the AS/400 configuration varied on, using the Vary Configuration (VRYCFG) or Work with Configuration Status (WRKCFGSTS) command. This allows the AS/400 system to be prepared to receive the host system (primary side) poll when the host line and PU have been varied on.
2. When running with a configuration such as the preceding one that not only communicates with the host system, but also through the host system, it is even more important to have the AS/400 configuration ready for communication. This is because as soon as the host system begins communicating with the AS/400 system, the independent APPC devices attempt to establish sessions to the host system and, more importantly, through the host system. These session binds are rejected if the host system and/or AS/400 configurations are not varied on.

   This frequently results in the AS/400 system that begins communicating first to have its binds rejected and in a CPI5974 or similar CPI59XX message (`Session max not established`) to be logged in the QSYSOPR message queue on that AS/400 system. This is not a serious error because, when the remote AS/400 system begins communicating with the host system, it also attempts to establish sessions through the host system.
3. If the AS/400 configuration has not been varied on but has been varied active on the host system, the host system places the session binds in the queue until the AS/400 configuration is varied on.

When running with APPN(*YES) or SDLC switched line on the CRTCTLHOST command, the following parameters also apply to that command:

RMTNETID The name in the NETID parameter of the VTAM start option list. This list is the partitioned data set member ATCSTR*yy* of the host system VTAMLST.

RMTCPNAME
The name in the SSCPNAME parameter of the VTAM start option list. This list is the partitioned data set member ATCSTR*yy* of the host system VTAMLST.

A VTAM start option list looks like the following. This list is not meant to be all inclusive but is provided only as an example.

```
SSCPID=1,                SYSTEM SERVICES CONTROL POINT ID
SSCPNAME=DENVER,         LOCAL CONTROL POINT NAME
NETID=LA,                HOST NETID
COLD,                    COLD START NCP
CONFIG=00,               DEFAULT CONFIG LIST
DLRTCB=8,                NUMBER OF TCBS USED BY DUMP LOAD RST
HOSTSA=1,                ACF/VTAMS SUBAREA
IOINT=180,               DEFAULT
ITLIM=150,               SESSION INITIATION REQUESTS
LIST=00,                 DEFAULT STARTUP LIST(ATCSTR00)
MAXAPPL=50,              MAX APPLICATIONS TO SIGN-ON
MAXSUBA=7                MAX SUBAREAS TO BE ACTIVE
```

The host system equivalents of RMTNETID and RMTCPNAME are found in the host system network control program parameters. The BUILD macroinstruction contains the parameter NETID, which should be configured with the AS/400 local network ID (LCLNETID) network attribute. The PU macroinstruction contains the parameter CPNAME, which should be configured with the AS/400 local control point name (LCLCPNAME) network attribute.

Appendix F. Operational Assistant Communications Configuration

The Operational Assistant communications configuration menu and displays allow the user to configure an AS/400 system for communications with remote work station controllers, other AS/400 systems, or the System/36. The displays accessed through the CMNCFG menu provide a simpler interface to communications configuration by making assumptions about the types of communications many users want to configure. Because Operational Assistant communications configuration assumes many default values and offers only a subset of OS/400 communications functions, fewer parameters need to be specified when using these displays. In addition, when the local system has been configured, printed instructions for configuring remote AS/400 or System/36 systems are automatically created.

Type `GO CMNCFG` to display the Communications Configuration menu, shown in Figure F-1.

Note: If none of the options are shown on the CMNCFG menu, do the following:

- Verify that your user profile specifies a user class (USRCLS parameter) of *SYSOPR, *PGMR, or *SECADM. If not, use the Change User Profile (CHGUSRPRF) command to change the USRCLS parameter value.
- Verify that program QSYS/QCCWRKCC specifies *USER authority for user profile *PUBLIC. If not, use the Edit Object Authority (EDTOBJAUT) command to change the program authority.

```
CMNCFG                    Communications Configuration
                                                          System:   RCHASL0G
To configure one of the following, type its number below and press Enter:

     1. Remote work station controllers and devices
     2. Remote systems
     3. Remote systems using printed instructions









Type a menu option below
     _

F1=Help   F3=Exit   F9=Command line   F12=Cancel
```

Figure F-1. Communications Configuration (CMNCFG) Menu

The options shown on the Communications Configuration menu allow you to do the following:

Option 1: Remote work station controllers and devices

This option allows you to configure:

- SDLC connections to 3174, 3274, 5294, and 5394 remote work station controllers and attached devices
- Token-ring network connections to 3174 controllers and attached devices

It is recommended that the remote work station controller be configured before the AS/400 system, and that you use a printout of the controller configuration display when using this option.

Option 2: Remote systems

This option allows you to configure:

- APPN communications with another AS/400 system, using SDLC, token-ring network, or Ethernet lines
- APPC or APPN communications with a System/36, using SDLC or token-ring network lines

Option 2 is used to configure the first of two or more systems that you want to communicate with each other; this option can be used to configure communications using new or existing communications line descriptions. For SDLC multipoint connections, the first system configured must be configured as the primary system.

When you have completed configuration of the first (local) system, the system creates printed output containing instructions for configuring the remote systems (AS/400 or System/36). Configure remote AS/400 systems by selecting option 3 (Remote system using printed instructions) from the Communications Configuration menu on that system. For remote System/36s, the printed instructions list the values to specify for CNFIGICF and other displays.

Option 3: Remote systems using printed instructions

This option allows you to configure an AS/400 system using printed instructions created by another AS/400 system that was configured using option 2.

This option creates new line and controller descriptions for APPN communications using SDLC, token-ring network, or Ethernet lines. For SDLC multipoint connections, systems configured using printed instructions are configured as secondary (tributary) systems.

Configuration Objects Created Using Operational Assistant

The displays shown by the Operational Assistant configuration function use the same CL commands to create configuration objects as do the other configuration methods, including command prompting and CL programs. Figure F-2, Figure F-3, and Figure F-4 describe the line, controller, and device description parameter values that are assumed or can be specified using the Operational Assistant configuration function.

Network Attributes

The Operational Assistant configuration function assumes the following is true of the network attributes specified for all systems to be configured:

- All systems in the network must have the same local network identifier (LCLNETID) network attribute
- The local control point name (LCLCPNAME) and default local location (DFTLCLLOC) network attributes must be the same on each system. This value is used as the `System name` on the Operational Assistant configuration displays.

Use the DSPNETA command to verify network attribute values for each system configured.

Line Description Parameter Values

Figure F-2 shows the values assigned by the Operational Assistant communications configuration function to many of the line description parameters. The parameters are listed in alphabetical order.

Figure F-2 (Page 1 of 3). Operational Assistant Line Description Parameter Values

AS/400 Parameter	AS/400 Prompt	Initial Menu Option	Operational Assistant Values for Option
ADPTADR	Local adapter address	All	Token-ring and Ethernet lines only.
		1, 2	A specific adapter address, *ADPT, or *SYSGEN can be specified. If *ADPT is specified (meaning that the system uses the burned-in address of the adapter card), the adapter address is not placed in the line description until the line is varied on. If *SYSGEN is specified, the system generates the adapter address.
		3	A specific adapter address must be specified to match the remote adapter address expected by either the remote work station controller (option 1) or the remote AS/400 system (option 3). Values *ADPT and *SYSGEN are not allowed.
AUTOCALL	Autocall unit	All	Used for switched SDLC lines only. This parameter is not set.
AUTOCRTCTL	Autocreate controller	All	Used for token-ring and Ethernet lines only. AUTOCRTCTL is set to *YES.
AUTODIAL	Autodial	All	For switched SDLC lines only. AUTODIAL is set to *YES.
AUTODLTCTL	Autodelete controller	All	Used for token-ring and Ethernet lines only. AUTODLTCTL is set to 5760 but does affect controllers created by Operational Assistant communications configuration because the control owner (CTLOWN parameter) for controllers created by this function is set to *USER.

Figure F-2 (Page 2 of 3). Operational Assistant Line Description Parameter Values

AS/400 Parameter	AS/400 Prompt	Initial Menu Option	Operational Assistant Values for Option
CALLNBR	Calling number	All	Used for switched SDLC lines only. For lines using INTERFACE(*RS232V24), the CALLNBR parameter is set to the value input by the user for the `Local system telephone number` prompt on the Add Line display. For lines using INTERFACE(*X21), the CALLNBR parameter is set to *NONE. For option 2, if a telephone number is specified for the `Local system telephone number` prompt on the Add Line display, the number specified is used by the system to generate printed instructions for the remote system.
CNN	Connection type	All	Used for SDLC lines only. Values set according to user selection of `Type` on Add Line display: • `SDLC multipoint` = *MP • `SDLC nonswitched point-to-point` = *NONSWTPP • `SDLC switched point-to-point` = *SWTPP
DIALCMD	Dial command type	All	Used for switched SDLC lines only. If INTERFACE(*RS232V24), AUTODIAL(*YES), and AUTOCALL(*NO) are specified, DIALCMD is set to *V25BIS. For all other conditions the default value, *NONE, is used.
DUPLEX	Duplex	All	For SDLC lines only. For switched lines that specify INTERFACE(*X21) or INTERFACE(*RS449V36), DUPLEX is set to *FULL. For all other conditions, DUPLEX is set to *HALF.
INTERFACE	Physical interface	All	Used for SDLC lines only. See the description of the RSRCNAME parameter below for information about how the communications port is selected.
		1, 2	The system determines the physical interface for the communications port selected if there is a cable attached to the port. If no cable is attached to the port, the user selects the physical interface type from the Add Line display.
		3	User selects the physical interface from the Add Line display as shown in the printed instructions.
LINESPEED	Line speed	All	SDLC lines that specify INTERFACE(*RS449V36) are set to 128000 bps (for option 1) or 1536000 (for options 2 and 3). All other SDLC lines are set to the default value, 9600 bps. For token-ring lines, if the communications port (IOP) you select supports only 4M bps, LINESPEED is set to 4M. If the IOP supports both 4M and 16M networks, the user is prompted to select the line speed on the Add Line display.
MAXCTL	Maximum controllers	All	MAXCTL is set to 1 for switched and nonswitched point-to-point SDLC lines, 40 for token-ring and Ethernet lines.
		1, 2	For SDLC multipoint lines, MAXCTL is set to 16.
		3	For SDLC multipoint lines, MAXCTL is set to 1.
MAXFRAME	Maximum frame size	All	For SDLC lines, MAXFRAME is set to 521 For token-ring lines, MAXFRAME is set to 1994 if the line speed (LINESPEED parameter) is 4M, 8156 if the line speed is 16M.

Figure F-2 (Page 3 of 3). Operational Assistant Line Description Parameter Values

AS/400 Parameter	AS/400 Prompt	Initial Menu Option	Operational Assistant Values for Option
MODEMRATE	Modem data rate select	All	Used for SDLC lines that specify the RS-232/V.24 interface (INTERFACE(*RS232V24)) only.
		1, 2	MODEMRATE is set to *FULL.
		3	The value specified in the printed instructions is selected by the system generating the instructions so that the MODEMRATE parameters of the two systems match.
NRZI	NRZI data encoding	All	Used for SDLC lines only.
		1, 2	NRZI is set to *YES.
		3	The value specified in the printed instructions is selected by the system generating the instructions so that the NRZI parameters of the two systems match. For example, if the first system configured uses a line description that specifies NRZI(*NO), the second system must also be NRZI(*NO).
ONLINE	Online at IPL	All	ONLINE is set to *YES unless one of the following is true. The new line description is created with ONLINE(*NO) if: • An existing line description that uses the same communications port (RSRCNAME parameter) specifies ONLINE(*YES) • An existing line description that uses the same communications port has a status of available (varied on), not yet available (vary on pending) or active • No cable is attached to the communications port
ROLE	Data link role	All	For token-ring and Ethernet lines, ROLE is set to *NEG.
		1, 2	For all SDLC line types, ROLE is set to primary (*PRI).
		3	SDLC multipoint lines are set to secondary (*SEC). For switched and nonswitched point-to-point SDLC lines, the value specified in the printed instructions is selected by the system generating the instructions so that the ROLE parameters of the two systems will be compatible. If the first system configured uses a line description that specifies ROLE(*SEC), the second system must be ROLE(*PRI); if the first system configured uses a line description that specifies ROLE(*PRI), the second system must be ROLE(*SEC); if the first system uses ROLE(*NEG), the second will also be ROLE(*NEG).
RSRCNAME	Resource name	All	If only one communications port appropriate for the line type specified exists on the system, the system sets the RSRCNAME to the name of that port. If more than one communications port can be specified, the user selects the resource name from a list of available communications ports on the Add Line display.
STNADR	Station address	3	Used only for switched SDLC lines that specify a data link role (ROLE parameter) of secondary (*SEC) or negotiable (*NEG). The station address specified in the printed instructions will match the controller description station address on the remote system.
TEXT	Text 'description'	All	The text description for line descriptions is set to `'Line created by xxx'`, where `xxx` is the user id of the current user.

Controller Description Parameter Values

Figure F-3 shows the values assigned by the Operational Assistant communications configuration function to many of the controller description parameters. The parameters are listed in alphabetical order.

Figure F-3 (Page 1 of 4). Operational Assistant Controller Description Parameter Values

AS/400 Parameter	AS/400 Prompt	Initial Menu Option	Operational Assistant Values for Option
ADPTADR	LAN remote adapter address	All	Token-ring and Ethernet lines only.
		1, 3	A specific adapter address must be specified to match the local adapter address of either the remote work station controller (option 1) or the remote AS/400 system (option 3).
		2	A specific adapter address or *SYSGEN can be specified. If *SYSGEN is specified, the system will generate the adapter address.
APPN	APPN capable	2, 3	APPN-capable is always set to *YES.
CNNNBR	Connection number	All	Used for connections using SDLC switched lines only. The CNNNBR parameter value used is taken from that specified by the user for the `Remote controller telephone number` prompt on the Add Controller to Line display or the `Remote system telephone number` prompt on the Add Remote System to Line display.
CPSSN	APPN CP session support	2, 3	The system sets CPSSN to *YES if NODETYPE(*CALC) is used; CPSSN is set to *NO for NODETYPE(*LENNODE).
CTLD	Controller description name	1	The controller description name is selected by the user on the Add Controller to Line display.
		2, 3	The system creates the controller description name using the following naming conventions: If the remote system uses APPN, the controller description name uses the form `CPNAMExx`, where `CPNAME` is the value specified for the RMTCPNAME parameter and `xx` is a 2-digit hexadecimal number. If the remote system does not use APPN, the controller description name uses the form `Cxxxxxyy`, where `xxxxx` is the last 5 digits of the specified EXCHID (if any) and `yy` is a 2-digit hexadecimal number. If no EXCHID is specified, the system generates the seven hexadecimal characters used in the controller description name.

Figure F-3 (Page 2 of 4). Operational Assistant Controller Description Parameter Values

AS/400 Parameter	AS/400 Prompt	Initial Menu Option	Operational Assistant Values for Option
EXCHID	Exchange identifier	1	For switched SDLC lines, the EXCHID parameter value is determined by the system. For all other connection types EXCHID is left blank. The AS/400 system determines the exchange identifier for all remote controllers using the form `bbb000xx`, where `bbb` is the block number for the controller type and `xx` is the station address specified on the Add Controller to Line display. The block numbers for the supported controller types are: `017` 3174 and 3274 control units `045` 5294 controllers `05F` 5394 controllers For 5294 and 5394 controllers, the station address specified on the Add Controller to Line display must match the value specified in field 2 of the controller configuration. For 3174 and 3274 control units, the following values must match: • The station address specified on the Add Controller to Line display must match the value specified for the control unit address in field 104 (3174 controllers) or field 302 (3274 controllers) of the controller configuration. • The physical unit identification specified in field 215 of the controller configuration must be in the form `000xx`, where `xx` is the control unit address. If field 215 is not specified as described above, the control unit configuration must be changed; the AS/400 exchange identifier (EXCHID parameter) cannot be changed.
		2	For SDLC connections to System/36s, the EXCHID parameter value is determined by the system. For all other connection types EXCHID is left blank.
		3	The EXCHID parameter is left blank.
LINE	Attached nonswitched line	All	For nonswitched point-to-point and multipoint SDLC lines, the LINE parameter is set to the name of the associated line description. For token-ring, Ethernet, and switched SDLC lines, the LINE parameter is left blank.
LINKTYPE	Link type	All	LINKTYPE value is determined by the type of the associated line (*SDLC for all SDLC lines; *LAN for token-ring and Ethernet lines).
MAXFRAME	Maximum frame size	1	For SDLC connections to 5394 and 3174 controllers, MAXFRAME is set to *LINKTYPE. For 5394 controllers, *LINKTYPE uses 517 as the maximum frame size; for 3174 controllers, *LINKTYPE uses 265. The MAXFRAME parameter is not specified for 5294 and 3274 controllers. For token-ring connections to 3174 controllers, MAXFRAME is set to 1033.
		2, 3	The MAXFRAME parameter is set to *LINKTYPE.

Figure F-3 (Page 3 of 4). Operational Assistant Controller Description Parameter Values

AS/400 Parameter	AS/400 Prompt	Initial Menu Option	Operational Assistant Values for Option
MODEL	Controller model	1	The MODEL parameter is set based on the controller TYPE as follows: 0, if TYPE(3174) or TYPE(3274) 1, if TYPE(5294) and the system is not DBCS-capable, or K01 if TYPE(5294) and the system is DBCS-capable 2, if TYPE(5394)
NODETYPE	APPN node type	2	For connections to System/36s not using APPN, the system sets the NODETYPE parameter to *LENNODE. For connections to System/36 using APPN and all AS/400 systems, NODETYPE is set to *CALC.
		3	NODETYPE is set to *CALC.
ONLINE	Online at IPL	All	ONLINE is set to match the value of the ONLINE parameter in the associated line description.
RMTCPNAME	Remote control point name	2, 3	The system sets the RMTCPNAME parameter to the value specified by the user for the `Remote system name` prompt on the Add Remote System to Line display. This value must be the same as the local control point name (LCLCPNAME) and default local location (DFTLCLLOC) network attributes specified on the remote system.
RMTNETID	Remote network identifier	2, 3	The system uses the default value, *NETATR, to set the RMTNETID parameter to the value of the local network identifier (LCLNETID) network attribute. The LCLNETID network attribute for the local and remote systems must be set to the same value.
ROLE	Data link role	2, 3	The system sets the ROLE parameter to *NEG.

Figure F-3 (Page 4 of 4). Operational Assistant Controller Description Parameter Values

AS/400 Parameter	AS/400 Prompt	Initial Menu Option	Operational Assistant Values for Option
STNADR	Station address	1	Used for SDLC connections only. The station address is specified by the user on the Add Controller to Line display. The value specified must match the value specified in the remote controller configuration. The station address is used by the AS/400 system to determine the exchange identifier (EXCHID parameter on the controller description) used to communicate with all remote work station controllers connected using switched SDLC lines. For 5294 and 5394 controllers, the station address must match the value specified in field 2 of the controller configuration. For 3174 and 3274 control units, the station address must match the value specified for the control unit address in field 104 (3174 controllers) or field 302 (3274 controllers) of the controller configuration. This value must also be included as the last two digits of the physical unit identification specified in field 215. The physical unit identification must be specified in the form `000xx`, where `xx` is the control unit address (station address) of the controller.
		2	For nonswitched point-to-point SDLC connections, STNADR is set to C1. For switched SDLC connections using lines that specify a data link role (ROLE parameter on the line description) of *NEG or *SEC, the controller description STNADR parameter is set to the same value as the line description STNADR parameter. For switched SDLC connections using lines that specify a data link role (ROLE parameter on the line description) of *PRI, the system selects the station address to ensure that the combination of the STNADR and RMTCPNAME parameters is unique among SDLC switched controller descriptions. For multipoint SDLC connections, the system selects a station address that is unique among controller descriptions associated with the line.
		3	The value specified in the printed instructions is selected by the system generating the instructions so that the STNADR parameters of the two systems will be compatible.
SWITCHED	Switched connection	All	SWITCHED is set to *YES for switched SDLC, token-ring, and Ethernet lines; *NO for nonswitched and multipoint SDLC lines.
SWTLINLST	Switched line list	All	For switched SDLC, token-ring, and Ethernet lines, the SWTLINLST parameter is set to the name of the associated line description. For nonswitched and multipoint SDLC lines, SWTLINLST is not specified.
TEXT	Text 'description'	All	The text description for controller descriptions is set to `'Controller created by xxx'`, where `xxx` is the user id of the current user.
TYPE	Controller type	1	For SDLC lines, the TYPE parameter is set based on user selection for the `Type of remote controller` prompt on the Add Controller to Line display. For token-ring connections, TYPE is set to 3174.

Device Description Parameter Values

Figure F-4 shows the values assigned by the Operational Assistant communications configuration function to many of the device description parameters. Device descriptions are automatically created for systems configured using options 2 and 3 on the initial (CMNCFG) configuration menu; the following parameters apply only to configurations using option 1 (Remote work station controllers and devices). The parameters are listed in alphabetical order.

Figure F-4. Operational Assistant Device Description Parameter Values

AS/400 Parameter	AS/400 Prompt	Operational Assistant Values
CTL	Attached controller name	The system sets the CTL parameter to the name of the associated remote work station controller description.
DEVCLS	Device class	DEVCLS is set to *RMT for all device descriptions.
DEVD	Device description name	Device description names are created by the system, using the format `RMTDSPxxxx` for display devices and `RMTPRTxxxx` for printer devices, where `xxxx` is a 4-digit decimal number.
LOCADR	Local location address	For devices attached to 5294 and 5394 controllers, the system sets the local location address based on the port number and device address indicated by the user on the Add Devices to Controller display. See the description of the LOCADR parameter in Chapter 8 for more information. For devices attached to 3174 and 3274 controllers, the system sets the LOCADR parameter to the logical unit address specified by the user on the Add Devices to Controller display.
MODEL	Device model	For devices attached to 5294 and 5394 controllers, the user specifies the device model on the Add Devices to Controller display. For devices attached to 3174 and 3274 controllers, MODEL is set to 0.
ONLINE	Online at IPL	The ONLINE parameter is set to match the value specified for the controller description ONLINE parameter.
TYPE	Device type	For devices attached to 5294 and 5394 controllers, the user specifies the device type on the Add Devices to Controller display. For devices attached to 3174 and 3274 controllers, the system sets the TYPE parameter to 3279 for display devices, 3287 for printer devices.
TEXT	Text 'description'	The text description for device descriptions is set to `'Device created by xxx'`, where `xxx` is the user id of the current user.

Glossary

This glossary includes terms and definitions from:

- The *American National Dictionary for Information Systems*, ANSI X3.172-1990, copyright 1990 by the American National Standards Institute (ANSI). Copies may be purchased from the American National Standards Institute, 1430 Broadway, New York, New York 10018. Definitions are identified by the symbol (A) after the definition.
- The *Information Technology Vocabulary*, developed by Subcommittee 1, Joint Technical Committee 1, of the International Organization for Standardization and the International Electrotechnical Committee (ISO/IEC JTC1/SC1). Definitions of published parts of this vocabulary are identified by the symbol (I) after the definition; definitions taken from draft international standards, committee drafts, and working papers being developed by ISO/IEC JTC1/SC1 are identified by the symbol (T) after the definition, indicating that final agreement has not yet been reached among the participating National Bodies of SC1.

ABM. See *asynchronous balanced mode (ABM)*.

ABME. See *asynchronous balanced mode extended (ABME)*.

ACTLU. In SNA, a command used to start a session on a logical unit.

ACTPU. In SNA, a command used to start a session on a physical unit.

ADCS. See *IBM Advanced Data Communications for Stores (ADCS)*.

ADEM. See *advanced data communications for stores emulation (ADEM)*.

advanced data communications for stores emulation (ADEM). A function of the Point-of-Sale Communications Utility/400 licensed program that allows the AS/400 system to appear to the host command processor (HCP) in a point-of-sale system as if the AS/400 system were the System/370 host computer.

Advanced Function Printing (AFP). The ability of programs to use the all-points-addressable concept to print text and images on a printer.

Advanced Peer-to-Peer Networking (APPN). Data communications support that routes data in a network between two or more APPC systems that do not need to be directly connected.

advanced printer function (APF). A function of the AS/400 Application Development Tools licensed program that allows a user to design symbols, logos, special characters, large characters, and forms tailored to a business or data processing application. The function supports printing of any design on the 5224 or 5225 dot matrix printer.

advanced program-to-program communications (APPC). Data communications support that allows programs on an AS/400 system to communicate with programs on other systems having compatible communications support. APPC on the AS/400 system provides an application programming interface to the SNA LU type 6.2 and node type 2.1 architectures.

AFP. See *Advanced Function Printing (AFP)*.

AFP resources. The form definitions, page definitions, fonts, overlays (electronic forms), and page segments (graphic images). With the PrintManager program, resources can either exist in a system library, or be placed inline with a print job as the job is written to the spool.

aggregate line speed. The maximum possible speed that data can be transmitted using a communications controller. The speed is determined using the sum of the speeds of the communications lines attached to the communications controller.

alert. In SNA, a record sent to a focal point to identify a problem or an impending problem.

alert controller description. A controller description that defines the system to which alerts will be sent on an alert controller session. See also *alert controller session*.

alert controller session. A type of SSCP-PU session on which alerts can be sent to a system that is designated as an alert focal point.

alert description. Information in an alert table that defines the contents of a Systems Network Architecture (SNA) alert for a particular message ID.

alert focal point. The system in a network that receives and processes (logs, displays, and optionally forwards) alerts. An alert focal point is a subset of a problem management focal point.

alert table. An object consisting of alert descriptions that define the contents of a Systems Network Architecture (SNA) alert for particular error conditions. The system-recognized identifier for the object type is *ALRTBL.

American National Standard Code for Information Interchange (ASCII). The code developed by the American National Standards Institute for information exchange among data processing systems, data communications systems, and associated equipment. The ASCII character set consists of 7-bit control characters and symbolic characters, plus one parity bit.

American National Standards Institute (ANSI). An organization sponsored by the Computer and Business Equipment Manufacturers Association for establishing voluntary industry standards.

ANSI. See *American National Standards Institute (ANSI)*.

API. See *application program interface (API)*.

APPC. See *advanced program-to-program communications (APPC)*.

application program interface (API). A functional interface supplied by the operating system or a separately orderable licensed program that allows an application program written in a high-level language to use specific data or functions of the operating system or the licensed program.

APPN. See *Advanced Peer-to-Peer Networking (APPN)*.

ASCII. See *American National Standard Code for Information Interchange (ASCII)*.

asynchronous balanced mode (ABM). In communications, an operational mode of a balanced data link in which either combined station can send commands at any time and can initiate transmission of response frames without explicit permission from the other combined station.

asynchronous balanced mode extended (ABME). In communications, an operational mode in which modulus 128 sequence numbers are used. See also *asynchronous balanced mode (ABM)*.

asynchronous communications. A method of communications supported by the operating system that allows an exchange of data with a remote device, using either a start-stop line or an X.25 line. Asynchronous communications includes the file transfer support and the interactive terminal facility support.

asynchronous controller description. A controller description that represents a remote system or device when using asynchronous transmission methods on an asynchronous communications line or when using non-SNA protocols on an X.25 communications line to communicate with the system. See also *generic controller description*.

asynchronous/SDLC. A data-link level communications protocol that allows data to be transmitted over an asynchronous line using a control protocol similar to SDLC.

automatic answer. In data communications, a line type that does not require operator action to receive a call over a switched line. Contrast with *manual answer*.

automatic call. A feature that permits a station to connect with another station over a switched line without operator action. Contrast with *manual call*.

automatic call unit. A common carrier device that allows the AS/400 system to automatically dial a remote location.

automatic dial. A function of the system that allows a system to automatically dial a remote station over a switched line without the assistance of an operator.

B-channel. In ISDN, a duplex channel for transmitting data or digital voice across the network. Contrast with *D-channel*.

backbone. A set of nodes and their interconnecting links providing the primary data path across a network.

basic conversation. In APPC, a temporary connection between an application program and an APPC session in which the user must provide all the information on how the data is formatted. Contrast with *mapped conversation*.

basic information unit (BIU). In SNA, the unit of data and control information passed between the transmission and control layers. It consists of a request or response header followed by a request or response unit.

basic link unit (BLU). In SNA, the unit of data and control information transmitted over a communications line by data link control.

basic rate interface (BRI). In ISDN, an interface that provides two 64 000 bps data channels (B-channels) and one 16 000 bps signaling channel (D-channel). Also known as *2B + D*. Contrast with *primary rate interface (PRI)*.

basic telecommunications access method (BTAM). A System/370-type access method that permits read or write communications with BSC remote devices.

beacon message. A message frame sent repeatedly by an adapter indicating a serious network problem, such as a broken cable. See also *beaconing*.

beaconing. Pertaining to an adapter in a token-ring network that repeatedly sends a frame (beacon message) when it is not receiving a normal signal

because of serious error, such as a line break or power failure. The message frame repeats until the error is corrected or bypassed.

BID. (1) In SNA, a command used to request permission to start a bracket. (2) In BSC, a protocol exchange in preparation for sending and receiving data. The sending station sends an ENQ character and the receiving station acknowledges receipt of the ENQ character by sending an ACK0 control character.

binary synchronous communications (BSC). A data communications line protocol that uses a standard set of transmission control characters and control character sequences to send binary-coded data over a communications line. See also *synchronous data link control (SDLC)*.

binary synchronous communications equivalence link (BSCEL) support. The intersystem communications function (ICF) support on the AS/400 system that provides binary synchronous communications with another AS/400 system, System/36, System/38, and many other BSC computers and devices.

BIND command. In SNA, a command used to start a session and define the characteristics of that session.

bit string. A series of bits consisting of the values 0 and 1.

BIU. See *basic information unit (BIU)*.

BLU. See *basic link unit (BLU)*.

BRI. See *basic rate interface (BRI)*.

bridge. A device that connects two or more networks; for example, an Ethernet-to-Ethernet network or Ethernet to token-ring network. A bridge stores and forwards information in packets between the networks. See also *VM/MVS bridge*.

BSC. See *binary synchronous communications (BSC)*.

BSC 3270 device emulation. A function of the operating system that allows an AS/400 system to appear to a BSC host system as a 3274 Control Unit.

BSCEL support. See *binary synchronous communications equivalence link (BSCEL) support*.

BTAM. See *basic telecommunications access method (BTAM)*.

buffer. (1) A routine or an area of storage that corrects for the different speeds of data flow or timings of events, when transferring data from one device to another. (2) A portion of storage used to hold input or output data temporarily.

Carrier Sense Multiple Access with Collision Detection (CSMA/CD). In Ethernet, a media access method. The bus transmission medium is shared among two or more stations. When a station has data to transmit, it listens to determine if the transmission medium is free, and if so, begins to transmit. If a collision is detected during transmission, the station stops transmitting and waits a random amount of time before attempting to transmit again.

CCITT. The International Telegraph and Telephone Consultative Committee.

CICS/VS. See *IBM CICS/VS*.

CICS/400* Version 2. An IBM licensed program that enables transactions entered at remote work stations to be processed concurrently by user-written application programs. The licensed program includes functions for building, using, and maintaining databases, and for communicating with CICS on other operating systems.

class of service. A set of link and node characteristics, associated with a session or a set of sessions, that determines the quality of the route that is selected for the sessions through an APPN network. See also *class-of-service description*.

class-of-service description. A system object created for advanced peer-to-peer networking (APPN) that provides the information required to assign relative priority to the transmission groups and intermediate routing nodes for an APPN session. The system-recognized identifier for the object type is *COSD.

closed user group. In X.25, one of the packet-switching data network optional user facilities. Users of data terminal equipment that are connected in a group can send and receive information only within that group. Any data terminal equipment can be connected to more than one group. See also *optional user facilities*.

cluster. In SNA, a group of stations that consist of a controller (cluster controller) and the work stations attached to it.

code page. (1) A particular assignment of hexadecimal identifiers to graphic characters. (2) In AFP support, a font file that associates code points and graphic character identifiers.

code-page ID. A 5-digit registered identifier used to specify a particular assignment of code points to graphic characters. The code-page ID is the second part of the QCHRID system value or the CHRID parameter value. See also *graphic character-set ID*.

collision. In Ethernet, a condition where two or more stations transmit at the same time, causing the transmission to be unintelligible.

common carrier. In data communications, any government-regulated company in the United States or Canada that provides communications services to the general public. Examples are: the government-regulated telephone and telegraph companies in the United States, the General Post Office in the United Kingdom, the Bundespost in Germany, and Nippon Telephone and Telegraph Public Corporation in Japan.

Common Programming Interface (CPI) Communications. A call-level interface that provides a consistent application programming interface for applications that use program-to-program communications. The interface makes use of SNA's LU 6.2 architecture to establish a conversation, to send and receive data, to exchange control information, to end a conversation, and to notify a partner program of errors.

communications adapter. A part that electrically or physically connects a computer or device to a data communications network.

communications configuration. The physical placement of communications controllers, the attachment of communications lines, and so forth; and the configuration descriptions that describe the physical configuration to the system and describe how the configuration will be used by the system.

communications feature type. The 4-digit number that IBM assigns to identify the different packages of communications cards and cables available on the AS/400 system.

communications line. The physical link (such as a wire or a telephone circuit) that connects one or more work stations to a communications controller, or connects one controller to another. Contrast with *data link protocol*.

communications side information. In CPI Communications, an object that contains initialization parameters, such as the name of the partner program with which a program can establish a conversation and the name of the logical unit (LU) at the partner program's node, which CPI Communications requires to establish a conversation. The system-recognized identifier for the object type is *CSI.

communications type. A method for application programs to communicate on a local AS/400 system, or between a local AS/400 system and a remote system using the intersystem communications function (ICF). Examples of these communications methods include (a) asynchronous communications, (b) binary synchronous communications (BSC), (c) finance communications. (d) intrasystem communications, (e) retail communications, and (f) Systems Network Architecture (SNA), such as advanced program-to-program communications (APPC) and SNA upline facility (SNUF).

compression. A function that removes repetitive characters, spaces, or strings of characters from the data being processed and replaces the repetitive characters with control characters. Compression reduces the amount of storage space required for the data. See also *decompression*.

concatenate. (1) To link together. (2) To join two character strings.

configuration list. A list of local or remote locations, network addresses, or pass-through device descriptions used by some types of communications descriptions. The system-recognized identifier for the object type is *CFGL.

connection list. An AS/400 communications object for ISDN that provides a list of information used to determine when to accept incoming calls and what information to send with outgoing calls. The system-recognized identifier for the object type is *CNNL.

connection network. A switched network (such as a local area network, X.25, or public-switched dial network) that allows a local node to establish APPN connections to more than one undefined adjacent node.

contention state. In data communications, a type of half-duplex line or data link control in which either user may transmit any time the line or link is available. If both users attempt to transmit at the same time, the protocols or the hardware determines who goes first.

controller description. An object that contains a description of the characteristics of a controller that is either directly attached to the system or attached to a communications line. The system-recognized identifier for the object type is *CTLD.

conversation. In APPC, the communications between the application program and another application program at the remote system. See also *session* and *transaction*.

CRC. See *cyclic redundancy check (CRC)*.

CTLD. See *controller description*.

current release. The latest available release of the system that replaced the licensed internal code and/or the operating system.

cyclic redundancy check (CRC). An error detection technique used by the data link layer to determine if all the bits that were sent were also received.

D-channel. In ISDN, a common channel used for signaling and management of the network. Contrast with *B-channel*.

DACTLU. In SNA, a command used to end a session on a logical unit.

DACTPU. In SNA, a command used to end a session on a physical unit.

data circuit-terminating equipment (DCE). The equipment installed at the user's premises that provides all the functions required to establish, maintain, and end a connection, and the signal conversion and coding between the data terminal equipment and the line. See also *data terminal equipment (DTE)* and *modem*.

data country code (DCC). A 3-digit code, unique to each country, that specifies the X.21 call format used by a network in its International Data Number to call another station.

data link connection identifier (DLCI). The field in a Q.922 frame that is used for frame relay routing. Each DLCI identifies a frame relay virtual circuit.

data link control (DLC). See *high-level data link control (HDLC)*, *synchronous data link control (SDLC)*, and *ISDN data link control (IDLC)*.

data link control (DLC) layer. In communications, the layer that consists of the link stations that schedule data transfer over a link between two nodes and perform error control for the link. Examples of data link control are SDLC and HDLC.

data link protocol. The rules that govern control of the physical connection for sending and receiving data between two or more locations in a network. Examples of data link protocols include (a) asynchronous, (b) binary synchronous communications (BSC), (c) Ethernet, (d) synchronous data link control (SDLC), (e) token-ring network, and (f) X.25. Contrast with *communications line*.

data network identification code (DNIC). A 4-digit code that specifies the X.21 call format used by a network in its International Data Number to call another station. The first three numbers are the data country code, and the last number is the country network identifier. See also *data country code (DCC)*.

data terminal equipment (DTE). (1) That part of a data link that sends data, receives data, and provides the data communications control function according to protocols. (2) In OSI, a physical node on a network.

DBCS. See *double-byte character set (DBCS)*.

DCE. See *data circuit-terminating equipment (DCE)*.

DDI. See *distributed data interface (DDI)*.

DDM. See *Distributed Data Management (DDM) Architecture*.

decompression. A function that exchanges control characters for actual data. See also *compression*.

dependent logical unit. Any logical unit (LU) that is made active by a command from the host system over a data link. Such logical units can be used only as secondary logical units, and can have only one active LU-to-LU session at a time. Contrast with *independent logical unit*.

destination service access point (DSAP). (1) In OSI, a service access point used to receive data. (2) In SNA and TCP/IP, a logical address that allows a system to route data from a remote device to the appropriate communications support.

detected access transmission error (DTSE) in. In Performance Tools/400, the number of times the network termination 1 (NT1) notifies the terminal equipment (TE) of an error in data crossing the U interface of the integrated services digital network (ISDN) from the line transmission termination (LT) to the NT1. The NT1 reports the errors to the TE through the maintenance channel S1.

detected access transmission error (DTSE) out. In Performance Tools/400, the number of times the network termination 1 (NT1) notifies the terminal equipment (TE) of an error in data crossing the U interface of the integrated services digital network (ISDN) from the NT1 to the line transmission termination (LT). The NT1 reports the errors to the TE through the maintenance channel S1.

DEVD. See *device description*.

device description. An object that contains information describing a particular device or logical unit that is attached to the system. The system-recognized identifier for the object type is *DEVD.

device emulation. The programming that allows one device to appear to the user or to a system as another device.

DFU. See *data file utility (DFU)*.

DHCF. See *distributed host command facility (DHCF)*.

DISC. See *disconnect (DISC)*.

disconnect (DISC). In communications, the transmission control character that is part of the sequence for disconnecting a switched line.

disconnected mode (DM). In communications, a response from a secondary station indicating that it is logically disconnected from the link.

display station pass-through. A communications function that allows a user to sign on to one system (either an AS/400 system, System/38, or System/36) from another system (either an AS/400 system, System/38, or System/36) and use that system's programs and data. Sometimes called pass-through.

distributed data interface (DDI). An optical fiber-based LAN using the ANSI X3T9.5 standard for a token-passing ring MAC protocol and its physical attachments. Stations, concentrators, and bridges in a DDI network are physically connected to one or both of a pair of counter-rotating rings operating at 100 Mbps.

Note: The term *DDI* is used to represent all LAN types based on the fiber distributed data interface (FDDI) specifications, regardless of the media used (optical fiber, copper, or shielded twisted pair).

Distributed Data Management (DDM) Architecture. The architecture used by the distributed file management (DFM) and the Distributed Relational Database Architecture* (DRDA*) protocol to define the protocol used for communicating between two systems using the DFM or the DRDA protocol.

distributed host command facility (DHCF). A function of the operating system that supports the data link between a System/370 terminal using an AS/400 application in an HCF (Host Command Facility) environment.

distributed systems node executive (DSNX). A function of the operating system that receives and analyzes requests from the NetView Distribution Manager licensed program on a host system. If the request is directed to the system that receives it, the request is processed on that system or on a personal computer directly attached to that system. If the request is intended for a different system, it is routed toward its destination.

DLCI. See *data link connection identifier (DLCI)*.

DNIC. See *data network identification code (DNIC)*.

double-byte character. An entity that requires two character bytes.

double-byte character set (DBCS). A set of characters in which each character is represented by 2 bytes. Languages such as Japanese, Chinese, and Korean, which contain more symbols than can be represented by 256 code points, require double-byte character sets. Because each character requires 2 bytes, the typing, displaying, and printing of DBCS characters requires hardware and programs that support DBCS. Four double-byte character sets are supported by the system: Japanese, Korean, Simplified Chinese, and Traditional Chinese. Contrast with *single-byte character set*.

DSAP. See *destination service access point (DSAP)*.

DSNX. See *distributed systems node executive (DSNX)*.

DTE. See *data terminal equipment (DTE)*.

DTSE in. See *detected access transmission error (DTSE) in*.

DTSE out. See *detected access transmission error (DTSE) out*.

duplex. Pertaining to communications in which data can be sent and received at the same time. Contrast with *half-duplex*.

EBCDIC. See *extended binary-coded decimal interchange code (EBCDIC)*.

EIA. Electronic Industries Association.

EIA-232. In data communications, a specification of the Electronic Industries Association (EIA) that defines the interface between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) using serial binary data interchange.

electronic customer support. A part of the operating system that allows a customer to access: the question-and-answer (Q & A) function; problem analysis, reporting, and management; IBM product information; and technical information exchange.

ELLC. See *enhanced logical link control (ELLC)*.

emulation. Imitation of one system or device by another.

end node. In SNA, a node in an APPN network that can be a source or target node, but does not provide any routing or session services to any other node.

enhanced logical link control (ELLC). An X.25 protocol that allows the transfer of data link control information between two adjoining SNA nodes that are connected through an X.25 packet-switching data network. ELLC enhances error detection and recovery. Contrast with *physical services header (PSH)* and *qualified logical link control (QLLC)*.

Ethernet. A type of local area network that is supported by the Operating System/400* licensed program. OS/400 Ethernet provides support for the Digital Equipment Corporation*, Intel Corporation*, and Xerox* standard (Ethernet Version 2) and the IEEE 802.3 standard. These local area networks use Carrier Sense Multiple Access with Collision Detection (CSMA/CD) as the media access method.

extended binary-coded decimal interchange code (EBCDIC). A coded character set consisting of 8-bit coded characters.

FBSS. See *IBM Financial Branch System Services (FBSS)*.

File Transfer Protocol (FTP). In TCP/IP, an application protocol used for transferring files to and from host computers. FTP requires a user ID and possibly a password to allow access to files on a remote host system. FTP assumes that the Transmission Control Protocol is the underlying protocol.

file transfer support (FTS). A function of the operating system that moves file members from one system to another by using asynchronous, APPC, or BSCEL communications support.

file transfer, access, and management (FTAM). The OSI standard for transferring files between nodes.

finance communications. The data communications support that allows programs on an AS/400 system to communicate with programs on finance controllers, using the SNA LU session type 0 protocol.

focal point. An APPN network node that is the destination of alerts. A focal point allows a customer to centrally manage a network.

frame relay. A protocol for routing frames through the network based on the address field (data link connection identifier) in the frame and for managing the route or virtual connection.

FTAM. See *file transfer, access, and management (FTAM)*.

FTP. See *File Transfer Protocol (FTP)*.

FTS. See *file transfer support (FTS)*.

full duplex. Synonym for *duplex*.

gateway. (1) A program used to connect two systems that use different communications protocols. (2) In TCP/IP, a device used to connect two systems that use either the same or different communications protocols.

generic controller description. An asynchronous controller description that is reserved for incoming calls on an X.25 packet-switching data network from a remote system or device that does not use SNA transmission protocols and whose location name and identifier are defined in configuration list QASYNCLOC in library QSYS. See also *asynchronous controller description*.

generic name. (1) The characters common to object names that can be used to identify a group of objects. A generic name ends with an asterisk (*). For example, ORD* identifies all objects whose names begin with the characters ORD. (2) In the hierarchical file system, a path name that contains one or more wildcard characters.

graphic character-set ID. A 5-digit registered identifier used to specify a graphic character set. The graphic character-set ID is the first part of the QCHRID system value or the CHRID parameter value. See also *code-page ID*.

group address. In communications, a multidestination address associated with one or more stations on a given network.

half-duplex. Pertaining to data communications that can be sent in only one direction at a time. Contrast with *duplex*.

HCF. See *Host Command Facility (HCF)*.

hexadecimal. Pertaining to a numbering system with a base of 16.

high-level data link control (HDLC). A form of communications line control that uses a specified series of bits rather than control characters to control data transmission over a communications line.

history log. A summary of the system activities, such as system and job information, device status, system operator messages, and a record of program temporary fix (PTF) activity on the system. The history log is identified by the name QHST, and the system-recognized identifier for the object type is *MSGQ.

Host Command Facility (HCF). A feature available on a System/370, 43xx, and 30xx host system that enables a user on the host system to use applications on an AS/400 system or other systems as if they were using remotely attached 5250-type display stations. See also *distributed host command facility (DHCF)*.

host system. (1) The primary or controlling computer in a communications network. (2) In TCP/IP, a computer that is part of a network as a peer system.

IBM Advanced Data Communications for Stores (ADCS). The IBM licensed program that functions on the System/370 host processor for host system to point-of-sale system communications.

IBM AS/400 Communications Utilities Version 2. The IBM licensed program that contains the VM/MVS bridge and the remote job entry function.

IBM CICS/VS. An IBM licensed program that operates on a host system, such as the System/370, 30xx, or 43xx computers, which can be used in a communications network.

IBM Financial Branch System Services (FBSS). The IBM licensed program that provides extensions to the operating system of the personal computer or the Personal System/2 work station to support a finance industry environment.

IBM NetView Distribution Manager. An IBM licensed program available for IBM host systems (System/370, 43xx, and 30xx computers) that allows the host system to use, send, and delete files and programs in a network of computers.

IBM Network Control Program (NCP). An IBM licensed program that provides communications controller support for single domain, multiple domain, and interconnected network capability.

IBM Operating System/2* (OS/2). Pertaining to the IBM licensed program that can be used as the operating system for personal computers. The OS/2 licensed program can perform multiple tasks at the same time.

IBM Operating System/400 Version 2 (OS/400). Pertaining to the IBM licensed program that can be used as the operating system for the AS/400 system.

IBM OSI Communications Subsystem/400 Version 2. The IBM licensed program that provides communications support for open systems interconnection (OSI) on the AS/400 system.

IBM OSI File Services/400 Version 2. The IBM licensed program that provides open systems interconnection (OSI) file transfer, access, and management on the AS/400 system.

IBM OSI Message Services/400 Version 2. The IBM licensed program that provides message services (X.400) for open systems interconnection (OSI) on the AS/400 system.

IBM PC Support/400 Version 2. The IBM licensed program that provides system functions to an attached personal computer.

IBM Point-of-Sale Communications Utility/400 Version 2. The IBM licensed program that provides connectivity between the AS/400 system and retail controllers. In addition, the licensed program provides file conversion capabilities through the retail file conversion system.

IBM TCP/IP Connectivity Utilities/400 Version 2. The IBM licensed program that provides a collective set of industrial communications protocols to support connectivity functions for both local and wide area networks.

ICF. See *intersystem communications function (ICF)*.

ICF file. A device file that allows a program on one system to communicate with a program on another system. There can be one or more sessions with the same or different communications devices at the same time.

IDLC. See *ISDN data link control (IDLC)*.

IEEE. Institute of Electrical and Electronics Engineers.

independent logical unit. A logical unit (LU) that does not require a command from the host system over a data link to be made active. Such logical units can be used as primary logical units (PLU) or secondary logical units (SLU), and can have one or more active LU-to-LU sessions at a time. Contrast with *dependent logical unit*.

information frame (I-frame). In communications, a transmission frame that is sequentially numbered and used to transmit data.

integrated services digital network (ISDN). A CCITT Recommendation that defines an interface to a network that can carry voice, data, and image over the same communications line. See also *basic rate interface (BRI)* and *primary rate interface (PRI)*.

intelligent printer data stream (IPDS). (1) An all-points-addressable data stream that allows users to position text, images, and graphics at any defined point on a printed page. (2) In GDDM, a structured-field data stream for managing and controlling printer processes, allowing both data and controls to be sent to the printer.

interactive terminal facility (ITF). An asynchronous communications function that allows an AS/400 system to communicate with applications that can send and receive data, such as electronic mail, memos, library members, and data files.

Internet Protocol (IP). In TCP/IP, a protocol that routes data from its source to its destination in an internet environment.

intersystem communications function (ICF). A function of the operating system that allows a program to communicate interactively with another program or system.

intrasystem communications. A function that allows two programs that are running in two different jobs on the same system to communicate with each other through an ICF file.

IPDS. See *intelligent printer data stream (IPDS)*.

ISDN. See *integrated services digital network (ISDN)*.

ISDN data link control (IDLC). An asynchronous, balanced data link protocol used between two systems to exchange information over an ISDN B-channel.

ISO. International Organization for Standardization.

ITF. See *interactive terminal facility (ITF)*.

JES. See *Job Entry Subsystem*.

Job Entry Subsystem. A System/370-type licensed program that receives jobs into the system and processes all output data produced by the jobs.

LAN. See *local area network (LAN)*.

LAPB. See *link access protocol-balanced (LAPB)*.

LEN. See *low-entry networking (LEN) node*.

licensed program (LP). A separately orderable program, supplied by IBM, that performs functions related to processing user data. Examples of licensed programs are PC Support/400, SAA COBOL/400, AS/400 Application Development Tools, SAA OfficeVision/400, and so on.

line description. An object that contains information describing a particular communications line that is attached to the system. The system-recognized identifier for the object type is *LIND.

link access protocol-balanced (LAPB). A protocol for using an X.25 network on the data link level. LAPB is a duplex, asynchronous, symmetric protocol used for point-to-point communications. LAPB is the link access protocol recommended by the Consultative Committee on International Telegraphy and Telephone (CCITT). It takes the place of the earlier link access protocol (LAP).

link level. (1) In SNA, the combination of the transmission connection, protocol, devices, and programming joining network nodes. (2) A part of Recommendation X.25 that defines the link protocol used to get data into and out of the network across the duplex line connecting the subscriber's equipment to the network.

Link Problem Determination Aid (LPDA). A set of commands used to operate a modem and to diagnose problems.

Link Problem Determination Aid-1 (LPDA-1). The first version of the LPDA command set. LPDA-1 is not compatible with LPDA-2.

Link Problem Determination Aid-2 (LPDA-2). A second version of the LPDA command set. In addition to all the functions of LPDA-1, LPDA-2 also supports modem configuration, dial command, and an open and close contact command.

link protocol. The rules for sending and receiving data at the link level.

LLC. See *logical link control (LLC)*.

LMI. See *local management interface (LMI)*.

local area network (LAN). The physical connection that allows the transfer of information among devices located on the same premises.

local management interface (LMI). The interface between the frame relay terminal equipment and the frame handler, which provides the status and configuration information about the permanent virtual circuits (PVCs) available at the frame relay network.

logical channel. In a packet-switching data network, a path over which data flows between the network and the sending or receiving data terminal equipment.

logical link control (LLC) protocol. In a local area network, the protocol that governs the assembling of transmission frames and their exchange between data stations independently of the medium access control protocol. For X.25 LLCs, see *enhanced logical link control (ELLC)*, *qualified logical link control (QLLC)*, and *physical services header (PSH)*.

logical unit (LU). In SNA, one of three types of network addressable units that serve as a port through which a user accesses the communications network. See also *physical unit*, and *system services control point (SSCP)*.

logical unit (LU) 6.2. A type of logical unit that supports general communications between programs in a distributed processing environment. LU 6.2 is characterized by (a) a peer relationship between session partners, (b) efficient use of a session for multiple transactions, (c) comprehensive end-to-end error processing, and (d) a generic application program interface (API) consisting of structured verbs that are mapped into a product implementation. Synonym for *advanced program-to-program communications (APPC)*.

low-entry networking (LEN) node. A node in an APPN network that uses the LU session type 6.2 node type 2.1 architecture without the APPN extension.

LPDA. See *Link Problem Determination Aid (LPDA)*.

LPDA-1. See *Link Problem Determination Aid-1 (LPDA-1)*.

LPDA-2. See *Link Problem Determination Aid-2 (LPDA-2)*.

LU. See *logical unit (LU)*.

LU 6.2. See *logical unit (LU) 6.2*.

LU-LU session type 0. In SNA, a type of session between two LU half-sessions using SNA-defined protocols for transmission control and data flow control, but using end-user or product-defined protocols to supplement or replace function management data services protocols. The AS/400 system uses the SNA upline facility support.

LU-LU session type 1. In SNA, a type of session between an application program and single- or multiple-device data processing display stations in an interactive, batch data transfer, or distributed processing environment. The AS/400 system uses the SNA remote job entry (RJE) support.

LU-LU session type 2. In SNA, a type of session between an application program and a single display station in an interactive environment, using the SNA 3270 data stream. The AS/400 system uses the 3270 display emulation support.

LU-LU session type 3. In SNA, a type of session between an application program and a single printer, using the SNA 3270 data stream. The AS/400 system uses the 3270 printer emulation support.

LU-LU session type 4. In SNA, a type of session between (a) an application program and a single-device or multiple-device data processing or word processing display station in an interactive, batch data transfer, or distributed processing environment; or (b) logical units in peripheral nodes. The AS/400 system uses the 5250 printer support.

LU-LU session type 6.2. In SNA, a type of session for communications between peer systems. Synonymous with APPC protocol.

LU-LU session type 7. In SNA, a type of session between an application program and a single display station in an interactive environment. The AS/400 system uses the 5250 display station support.

MAC. For communications, see *medium access control (MAC)*.

manual answer. In data communications, a line type that requires operator actions to receive a call over a switched line. Contrast with *automatic answer*.

manual call. In data communications, a line type requiring operator actions to place a call over a switched line. Contrast with *automatic call*.

mapped conversation. In advanced program-to-program communications (APPC), a temporary connection between an application program and an APPC session in which the system provides all the information on how the data is formatted. Contrast with *basic conversation*.

medium access control (MAC). For local area networks, the method of determining which device has access to the transmission medium at any time.

mode description. A system object created for advanced-program-to-program communications (APPC) devices that describes the session limits and the characteristics of the session, such as the maximum number of sessions allowed, maximum number of conversations allowed, the pacing value for incoming and outgoing request or response units, and other controlling information for the session. The system-recognized identifier for the object type is *MODD.

modem (modulator/demodulator). A device that converts data from the computer to a signal that can be sent over a communications line (modulator), and converts the communications signal received to data for the computer (demodulator). See also *data circuit-terminating equipment (DCE)*.

modulus. In BASIC and communications, a number, such as a positive integer, in a relationship that divides the difference between two related numbers without leaving a remainder. For example, 9 and 4 have a modulus of 5 (9 - 4 = 5; 4 - 9 = -5; and 5 divides both 5 and -5 without leaving a remainder).

multiple port sharing (MPS). An arrangement for short-hold mode operation in which both the first call and a reconnection call (recall) for a population of DTEs are directed to any available port within a port group.

Multiple Virtual Storage/370 (MVS/370). The Multiple Virtual Storage/System Product Version 1 operating on a System/370 processor.

multiplexer. A device that takes several input signals and combines them into a single output signal in such a manner that each of the input signals can be recovered.

multipoint. In data communications, pertaining to a network that allows two or more stations to communicate with a single system on one line.

MVS/370. See *Multiple Virtual Storage/370 (MVS/370)*.

national language support (NLS). The ability for a user to communicate with hardware and software products in a language of choice to obtain results that are culturally acceptable.

NAUN. See *nearest active upstream neighbor (NAUN)*.

NCP. See *IBM Network Control Program (NCP)*.

NDM. See *normal disconnected mode (NDM)*.

nearest active upstream neighbor (NAUN). In the IBM Token-Ring Network, the station sending data directly to another station in the ring.

NetView DM. See *IBM NetView Distribution Manager*.

network interface description. An AS/400 communications object that represents the physical interface to the ISDN. The network interface description must be configured in addition to the line, controller, and device descriptions. The system-recognized identifier for the object type is *NWID.

network node. A node that can define the paths or routes, control route selection, and handle directory services for APPN.

network routing facility (NRF). A function of the operating system running in a Network Control Program that uses a System/370 backbone network. The network routing facility provides primary logical unit support and a path for data between a display station and an application without using the System/370 host system.

network user identification (NUI). In X.25, network-specific information that is used by the network to uniquely identify the data terminal equipment (DTE) originating a switched virtual call.

NLS. See *national language support (NLS)*.

node. (1) One of the systems or devices in a network. (2) A location in a communications network that provides host-processing services. (3) For APPN, see *network node* and *end node*. (4) In OSI, a system that is part of an OSI network. (5) In X.25, a point where packets are received, stored, and forwarded to another location (or data terminal equipment) according to a routing method defined for the network.

normal disconnected mode (NDM). A nonoperational mode of an unbalanced data link in which the secondary station is logically disconnected from the data link and, therefore, cannot transmit or receive information.

normal response mode (NRM). An operational mode of an unbalanced data link in which the secondary station starts transmission only as the result of receiving explicit permission, by polling, from the primary station.

NRF. See *network routing facility (NRF)*.

NRM. See *normal response mode (NRM)*.

NRZI. Non-return-to-zero (inverted) recording.

NUI. See *network user identification (NUI)*.

NUI service facility. In X.25, a facility sent by the data terminal equipment (DTE) to the network in call setup packets that contain a network-assigned identifier, which can be used for billing, security, or network management purposes. The NUI service facility can also be used to select specific optional facilities to be associated with a virtual call.

object distribution. A function that allows a user to send source and data files, save files, job streams, spooled files, and messages to another user, either locally or on an SNADS network.

octet. A byte composed of eight binary elements. (I) (A)

open systems interconnection (OSI). (1) The interconnection of open systems in accordance with specific ISO standards. (T) (2) The set of standards defined by ISO that define how systems from different vendors communicate. (3) The use of standardized procedures to enable the interconnection of data processing systems.

Note: OSI architecture establishes a framework for coordinating the development of current and future standards for the interconnection of computer systems. Network functions are divided into seven layers. Each layer represents a group of related data processing and communication functions that can be carried out in a standard way to support different applications.

OS/2. See *IBM Operating System/2 (OS/2)*.

OS/400. See *IBM Operating System/400 Version 2 (OS/400)*.

OSI. See *open systems interconnection (OSI)*.

pacing. In SNA, a technique by which the receiving system controls the rate of transmission of the sending system to prevent overrun.

packet. (1) In data communications, a sequence of binary digits, including data and control signals, that is transmitted and switched as a composite whole. (I) (2) For TCP/IP, the unit of data passed across the interface between the internet layer and the link layer. A packet includes an IP header and data. A packet can be a complete IP datagram or a fragment of an IP datagram. (3) In X.25, a data transmission information unit. A group of data and control characters, transferred as a unit, determined by the process of transmission. Commonly used data field lengths in packets are 128 or 256 bytes. (4) The field structure and format defined in the CCITT X.25 Recommendation.

packet assembler/disassembler (PAD). A functional unit that enables data terminal equipment (DTE) not equipped for packet switching to use a packet-switched network.

packet window. A specified number of packets that can be sent by the DTE before it receives an acknowledgement from the receiving station.

packet-switching data network (PSDN). A communications network that uses packets to send data.

PAD. See *packet assembler/disassembler (PAD)*.

parity. The state of being either even-numbered or odd-numbered. A parity bit is a binary number added to a group of binary numbers to make the sum of that group either always odd (odd parity) or always even (even parity).

pass-through. See *display station pass-through*.

PC Support. See *IBM PC Support/400 Version 2*.

PC Support asynchronous communications. The support that connects the personal computer or Personal System/2 work station to the ASCII Work Station Controller on the AS/400 system.

PDM. See *programming development manager (PDM)*.

permanent virtual circuit (PVC). A virtual circuit that has a logical channel permanently assigned to it at each data terminal equipment (DTE). A call establishment protocol is not required. The permanent virtual circuit establishes the identity of the called party within the network services contract. Contrast with *switched virtual circuit (SVC)*.

physical services header (PSH). An X.25 protocol used by IBM Systems Network Architecture (SNA) data terminal equipment (DTE). Physical services header provides address services for physically connected systems or devices. The AS/400 system does not support PSH. Contrast with *enhanced logical link control (ELLC)* and *qualified logical link control (QLLC)*.

physical unit (PU). In SNA, one of three types of network addressable units. A physical unit exists in each node of an SNA network to manage and monitor the resources (such as attached links and adjacent link stations) of a node, as requested by a system services control point logical unit (SSCP-LU) session.

physical unit type. In SNA, the classification of a physical unit according to the type of node in which it resides. The physical unit type is the same as its node type; that is, a type 1 physical unit resides in a type 1 node, and so on.

PIU. See *path information unit (PIU)*.

PLU. See *primary logical unit (PLU)*.

point-of-sale system. In retail communications and Point-of-Sale Communications Utility/400, a retail environment system consisting of a store controller and one or more point-of-sale devices.

Point-of-Sale Utility. See *IBM Point-of-Sale Communications Utility/400 Version 2*.

point-to-point. Pertaining to data transmission between two locations without the use of any intermediate display station or computer.

polling. (1) The process whereby stations are invited, one at a time, to transmit. (2) The process whereby a controlling station contacts the attached devices to avoid contention, to determine operational status, or to determine readiness to send or receive data.

polling list. A list of addresses that the host system uses to control the polling of control units or devices on a BSC or SDLC multipoint line. A general polling list contains the addresses of the control units only; a specific polling list contains the addresses of the devices, which include the addresses of the control units.

port. (1) System hardware where the I/O devices are attached. (2) An access point (for example, a logical unit) for data entry or exit. (3) A functional unit of a node through which data can enter or leave a data network. (4) In data communications, that part of a data processor that is dedicated to a single data channel for the purpose of receiving data from or transmitting data to one or more external, remote devices. (5) In TCP/IP, a 16-bit number used to communicate between TCP and a higher-level protocol or application (process). Some protocols, such as FTP and SMTP, use the same port number in all TCP/IP implementations. Those assigned port numbers are called well-known ports.

port group. A group of ports identified by the common carrier with a single DTE address. The network directs incoming calls to the first available port, using a sequential search (rotary) technique.

Post Telephone and Telegraph Administration (PTT). An organization, usually a government department, that provides data communication services in countries other than the USA and Canada. Examples of PTTs are the Bundespost in Germany and the Nippon Telephone and Telegraph Public Corporation in Japan.

previous release. The last required release of the system (such as Release 1.0) prior to the current release (such as Release 2.0), including any modification levels (such as Release 1.0 Modification Level 1 or Modification Level 2) that were not required.

PRI. See *primary rate interface (PRI)*.

primary logical unit (PLU). In SNA, the logical unit that contains the primary half-session for a particular logical unit to logical unit session. See also *logical unit (LU)*. Contrast with *secondary logical unit (SLU)*.

primary rate interface (PRI). In ISDN, an interface that provides 23 (or 30 in Europe) 64 000 bps data channels (B-channels) and one 64 000 bps signaling channel (D-channel). Also known as *23/30B + D*. Contrast with *basic rate interface (BRI)*.

programming development manager (PDM). A part of the AS/400 Application Development Tools licensed program that allows users to perform several operations (such as copy, delete, and rename) from lists of libraries, objects, and members. PDM also allows users to create user-defined options to perform operations.

Programming Request for Price Quotation (PRPQ). A customer request for a price quotation for a licensed program to be designed especially for a particular group of customers or an application. Documentation for the program is provided only to those customers who order the PRPQ. Compare with *Request for Price Quotation (RPQ)*.

program temporary fix (PTF). A temporary solution to, or bypass of, a defect in a current release of a licensed program.

PRPQ. See *Programming Request for Price Quotation (PRPQ)*.

PSDN. See *packet-switching data network (PSDN)*.

PSH. See *physical services header (PSH)*.

PTF. See *program temporary fix*.

PTT. See *Post Telephone and Telegraph Administration (PTT)*.

PU. See *physical unit (PU)*.

public data network. A communication common carrier network that provides data communication services over switched or nonswitched lines.

PVC. See *permanent virtual circuit (PVC)*.

QLLC. See *qualified logical link control (QLLC)*.

qualified logical link control (QLLC). An X.25 protocol that allows the transfer of data link control information between two adjoining SNA nodes that are connected through an X.25 packet-switching data network. The QLLC provides the qualifier "Q" bit in X.25 data packets to identify packets that carry logical link protocol information. Contrast with *enhanced logical link control (ELLC)* and *physical services header (PSH)*.

qualified name. The name of the library containing the object and the name of the object.

receive not ready (RNR). In communications, a data link command or response that indicates a temporary condition of being unable to accept incoming frames.

receive ready (RR). In communications, a data link command or response that indicates that a station is ready to receive protocol data units. Receive ready also acknowledges receipt of protocol data units.

REM. See *ring error monitor (REM)*.

remote job entry (RJE). A function of the AS/400 Communications Utilities licensed program that allows a user to submit a job from a display station on the AS/400 system to a System/370-type host system.

Remote PrintManager (RPM). In AFP support, a personal computer product that allows selected font data, overlays, and page segments that are present in advanced function printing data streams to be available to a locally attached IBM page printer.

Request for Price Quotation (RPQ). A customer request for a price quotation on alterations or additions to the functional capabilities of a hardware product for a computing system or a device. Compare with *Programming Request for Price Quotation (PRPQ)*.

request header (RH). In SNA, a 3-byte header that precedes a request unit. The request header specifies the type of request unit and contains control information associated with that request unit. Contrast with *response header*.

request unit (RU). In SNA, the record transmitted to the other system. This record can contain a request, data, or both. Contrast with *response unit (RU)*.

resource name. A name assigned by the system to a line, controller, or device that is connected to the system.

response header (RH). In SNA, a header, optionally followed by a response unit, that indicates whether the response is positive or negative and that may contain a pacing response. Contrast with *request header*.

response unit (RU). In SNA, the record sent to respond to a request. The response can be either positive or negative and can include control information. Contrast with *request unit (RU)*.

retail communications. The data communications support that allows programs on an AS/400 system to communicate with programs on point-of-sale systems, using SNA LU session type 0 protocol.

retail pass-through. An OS/400 system program that supports routing of user data between a System/370-type host processor and a retail controller using a single AS/400 system. Both the SNA upline

facility and the retail communications support use separate intersystem communications function sessions.

reverse charging. In X.25, a packet-switching data network optional facility, which allows the data terminal equipment (DTE) to request that the cost of a communications session be charged to the DTE that is called. See also *optional user facilities*.

RH. See *request header* or *response header*.

ring error monitor (REM). In communications, a function of the token-ring manager that observes, collects, and analyzes recoverable and irrecoverable error reports sent by token-ring stations on a single token-ring network and assists in fault isolation and correction.

RJE. See *remote job entry (RJE)*.

RNR. See *receive not ready (RNR)*.

rotary dial. On a switched communications line, the dialing method that creates a series of pulses to identify the called station.

RPM. See *Remote PrintManager (RPM)*.

RPQ. See *Request for Price Quotation (RPQ)*.

RR. See *receive ready (RR)*.

RSCS/PROFS bridge. See *VM/MVS bridge*.

RU. See *request unit* or *response unit (RU)*.

SABM. See *set asynchronous balanced mode (SABM)*.

SABME. See *set asynchronous balanced mode extended (SABME)*.

SAP. See *service access point (SAP)*.

SBCS. See *single-byte character set (SBCS)*.

SDLC. See *synchronous data link control (SDLC)*.

secondary logical unit (SLU). In SNA, the logical unit that contains the secondary half-session for one logical unit-to-logical unit (LU-to-LU) session. See also *logical unit (LU)*. Contrast with *primary logical unit (PLU)*.

service access point (SAP). (1) A logical address that allows a system to route data between a remote device and the appropriate communications support. (2) In OSI, a logical port between two layers, at which the service provider in the lower layer provides services to the service user in the higher layer.

session. In communications, the logical connection by which a program or device can communicate with a program or device at a remote location. See also *conversation* and *transaction*.

set asynchronous balanced mode (SABM). In communications, a data link control command used to establish a data link connection with the destination in asynchronous balanced mode. See also *asynchronous balanced mode (ABM)*.

set asynchronous balanced mode extended (SABME). In communications, a data link control command used to initiate data transfer in the extended asynchronous balanced mode of operation with a remote link station. The SABME command uses modulus 128 sequence numbers. See also *asynchronous balanced mode extended (ABME)*.

set normal response mode (SNRM). A data link control command that puts the link connection in normal response mode (NRM). See also *normal response mode (NRM)*.

SHM. See *short-hold mode (SHM)*.

short-hold mode (SHM). In SNA, a mode specified during configuration that allows the DTE to connect or reconnect when no data is being transmitted over an X.21 circuit-switched line, while maintaining the logical connection of the SNA sessions across the circuit.

side information. In OSI, system-defined values that are used as the initial values of certain parameters. In OSI Communications Subsystem/400, side information is a combination of (a) information in the OSI Communications Subsystem/400 information base, and (b) information provided by directory service.

Simple Mail Transfer Protocol (SMTP). In TCP/IP, an application protocol for transferring mail among users in the internet environment. SMTP specifies the mail exchange sequences and message format. SMTP assumes that the Transmission Control Protocol is the underlying protocol.

single port sharing. An arrangement for short-hold mode operation in which each port is shared by a set of DTEs, with the restriction that all reconnection calls (recalls) must use the same port as the first call for that logical connection.

single-byte character set (SBCS). A character set in which each character is represented by a one-byte code. Contrast with *double-byte character set*.

SLU. See *secondary logical unit (SLU)*.

SMTP. See *Simple Mail Transfer Protocol (SMTP)*.

SNA. See *Systems Network Architecture (SNA)*.

SNA backbone. In an SNA network, the set of all interconnected nodes that consist of 37xx products running the Network Control Program.

SNA distribution services (SNADS). An IBM asynchronous distribution service that defines a set of rules to receive, route, and send electronic mail in a network of systems.

SNA pass-through. The AS/400 software processes through which SNA data is passed from source secondary applications to target primary applications. SNA pass-through supports LU session types 0 through 3.

SNA Primary LU2 Support (SPLS). The OS/400 communications support that allows 3270-type displays and 3287-type printers to communicate with AS/400 systems through an SNA network.

SNA upline facility (SNUF). The communications support that allows the AS/400 system to communicate with CICS/VS and IMS/VS application programs on a host system. For example, DHCF communicates with HCF and DSNX communicates with NetView Distribution Manager.

SNA 3270 API. See *SNA 3270 program interface*.

SNA 3270 device emulation. A function of the operating system that allows an AS/400 system to appear to the host system as a 3274 Control Unit.

SNA 3270 program interface. A function that allows an application program to communicate with a System/370, 30xx, or 43xx VTAM program by sending and receiving 3270 data streams. Formerly known as SNA 3270 API.

SNADS. See *SNA distribution services (SNADS)*.

SNBU. See *switched network backup (SNBU)*.

SNRM. See *set normal response mode (SNRM)*.

SNUF. See *SNA upline facility (SNUF)*.

source service access point (SSAP). In SNA and TCP/IP, a logical address that allows a system to send data to a remote device from the appropriate communications support. See also *destination service access point (DSAP)*.

SPLS. See *SNA Primary LU2 Support (SPLS)*.

SSAP. See *source service access point (SSAP)*.

SSCP. See *system services control point (SSCP)*.

SSCP ID. In SNA, a number uniquely identifying a system services control point. The SSCP ID is used in requests sent to physical units and to other system services control points.

subaddress. An extension of an ISDN address used to identify individual users, processors, or groups of users within a large group of users or processors that are identified by a single network number. See also *address*.

SVC. See *switched virtual circuit (SVC)*.

switched network backup (SNBU). A modem feature that allows a nonswitched line to be used alternatively as a switched line or allows a switched line to be used as a nonswitched line depending on the characteristics of the modem.

switched virtual circuit (SVC). (1) A virtual circuit that is requested by a virtual call. It is released when the virtual circuit is cleared. Contrast with *permanent virtual circuit (PVC)*. (2) In OSI, a virtual circuit that is requested by a virtual call. It is released when the virtual circuit is cleared. (3) In OSI, a temporary association between two DTEs that is initiated when one DTE makes a call request to the network.

synchronous data link control (SDLC). (1) A form of communications line control that uses commands to control the transfer of data over a communications line. (2) A communications discipline conforming to subsets of the Advanced Data Communication Control Procedures (ADCCP) of the American National Standards Institute (ANSI) and High-Level Data Link Control (HDLC) of the International Standards Organization (ISO), for transferring synchronous, code-transparent, serial-by-bit information over a communications line. Transmission exchanges may be duplex or half-duplex over switched or nonswitched lines. The configuration of the connection may be point-to-point, multipoint, or loop. Compare with *binary synchronous communications (BSC)*.

system services control point (SSCP). A focal point within an SNA network for managing the other systems and devices, coordinating network operator requests and problem analysis requests, and providing directory routing and other session services for network users.

system services control point identifier. See *SSCP ID*.

Systems Network Architecture distribution services. See *SNA distribution services (SNADS)*.

Systems Network Architecture Management Services (SNA/MS). A set of Operating System/400 application program interfaces (APIs) that provide support for the transport of data between network management applications running in an APPN network and assist-

ance in maintaining the node relationships for network management.

tariff. The fee the packet-switching data network charges a user for sending data. The tariff is usually based on the number of packets sent over the network.

TCP. See *Transmission Control Protocol (TCP)*.

TCP/IP. See *Transmission Control Protocol/Internet Protocol (TCP/IP)*.

TDLC. See *twinaxial data link control (TDLC)*.

TE. See *terminal equipment (TE)*.

TELNET. In TCP/IP, an application protocol that allows a user at one site to access a remote system as if the user's display station were locally attached. TELNET uses the Transmission Control Protocol as the underlying protocol.

terminal equipment (TE). In an ISDN, data terminal equipment (DTE) that provides the function necessary for the operation of the access protocols by the user.

TH. See *transmission header (TH)*.

token-ring network. A local area network that sends data in one direction throughout a specified number of locations by using the symbol of authority for control of the transmission line, called a token, to allow any sending station in the network (ring) to send data when the token arrives at that location.

transaction. In communications, an exchange between a program on a local system and a program on a remote system that accomplishes a particular action or result. See also *conversation* and *session*.

Transmission Control Protocol (TCP). In TCP/IP, a host-to-host protocol that provides transmission in an internet environment. TCP assumes Internet Protocol (IP) as the underlying protocol.

Transmission Control Protocol/Internet Protocol (TCP/IP). A set of vendor-independent communications protocols that support peer-to-peer connectivity functions for both local and wide area networks.

transmission header (TH). In SNA, control information, optionally followed by a basic information unit or a basic information unit segment, that is created and used by path control to route messages within the network.

transparency. For BSC, see *transparent text mode*.

transparent text mode. In binary synchronous communications, a method of transmission in which only transmission control characters preceded by the DLE control character are processed as transmission control characters.

tributary station. In data communications, a secondary device on a multipoint line.

TRLAN. Abbreviation in the commands, parameters, and options for IBM Token-Ring Network. See also *token-ring network*.

truncate. (1) To cut off data that cannot be printed or displayed in the line width specified or available. (2) To cut off data that does not fit in the specified field length in a field definition.

twinaxial data link control (TDLC). A communications function that allows personal computers, which are attached to the work station controller by twinaxial cable, to use advanced program-to-program communications (APPC) or advanced peer-to-peer networking (APPN).

UNBIND command. In SNA, a command used to reset the protocols for a session.

V.24. In data communications, a specification of the CCITT that defines the list of definitions for interchange circuits between data terminal equipment (DTE) and data circuit-terminating equipment (DCE).

V.25. In data communications, a specification of the CCITT that defines the automatic answering equipment and/or parallel automatic calling equipment on the General Switched Telephone Network, including procedures for disabling of echo controlled devices for both manually and automatically established calls.

V.25bis. In data communications, an interim specification of the CCITT that defines the connection of data terminal equipment to a serial-dial interface of a public switched telephone network.

V.35. In data communications, a specification of the CCITT that defines the list of definitions for interchange circuits between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) at data rates of 48 kilobits per second.

vary off. To make a device, controller, line, or network interface unavailable for its normal, intended use.

vary on. To make a device, controller, line, or network interface available for its normal, intended use.

virtual circuit (VC). In a packet-switching data network, a logical end-to-end transmission channel—as opposed to a physical connection—that connects X.25 users. Virtual circuits allow physical transmission facilities to be shared by many users simultaneously. A virtual circuit is a logical connection established

between two DTEs. See also *permanent virtual circuit (PVC)* and *switched virtual circuit (SVC)*.

Virtual Machine Facility (VM/370). A time sharing system control program that consists of: (a) a control program (CP) managing resources of an IBM System/370 computing system so that multiple remote terminal users have a functional simulation of a computing system (a virtual machine) at their disposal, and (b) the conversational monitor system (CMS), which provides general time sharing, program development, and problem solving functions.

Virtual Telecommunications Access Method (VTAM). A set of programs that control communications between terminals and application programs running under the DOS/VS, OS/VS1, and OS/VS2 operating systems.

virtual work station controller. A work station controller description that has the characteristics of a locally attached work station controller but does not exist as hardware.

VM/MVS bridge. A function of the AS/400 Communications Utilities licensed program that provides distribution services between an AS/400 SNADS network and both a VM/370 Remote Spooling Communications Subsystem (RSCS) network and a Multiple Virtual Storage/Job Entry Subsystem (MVS/JES) network. Formerly known as RSCS/PROFS bridge. See also *bridge*, *OfficeVision/VM*, and *Remote Spooling Communications Subsystem (RSCS)*.

VM/370. See *Virtual Machine Facility (VM/370)* .

VTAM. See *Virtual Telecommunications Access Method (VTAM)*.

window. (1) A part of the display screen with visible boundaries in which information is displayed. (2) In data communications, the number of data packets the data terminal equipment (DTE) or data circuit-terminating equipment (DCE) can send across a logical channel before waiting for authorization to send another data packet. The window is the main method of pacing, or flow control, of packets.

window size. The maximum number of sequentially numbered protocol data units that can be outstanding (unacknowledged) at any given time. The window size is usually a value that is determined by agreement between the same protocol layers of adjacent systems. On the AS/400 system, the term window size is used for different layers of communications; for example, X.25 high-level data link control (HDLC), X.25 packet level, and the X.400 reliable transfer server all use the concept of window size to control flow.

X.21. In data communications, a specification of the CCITT that defines the connection of data terminal equipment to an X.21 (public data) network.

X.21bis. In data communications, an interim specification of the CCITT that defines the connection of data terminal equipment (DTE) to an X.21 (public data) network using V-series interchange circuits such as those defined by CCITT V.24 and CCITT V.35.

X.25. A CCITT Recommendation that defines the physical level (physical layer), link level (data link layer), and packet level (network layer) of the OSI reference model. An X.25 network is an interface between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) operating in the packet mode, and connected to public data networks by dedicated circuits. X.25 networks use the connection-mode network service.

X.25 protocol. The connection-mode network service that the CCITT specifies in Recommendation X.25.

X.400. A CCITT Recommendation for international electronic mail (messages).

X.75. In data communications, a specification that defines ways of connecting two X.25 networks.

Bibliography

The IBM publications listed here provide additional information about topics described or referred to in this manual.

AS/400 Communications Manuals

The manuals below are listed with their full title and order number. When these manuals are referred to in this guide, the shortened version of the title is used.

- *Communications: Advanced Peer-to-Peer Networking Guide*, SC41-8188, provides information about the concepts of AS/400 advanced peer-to-peer networking (APPN) and about planning APPN networks. **Short title**: *APPN Guide*.
- *Communications: Advanced Program-to-Program Communications Programmer's Guide*, SC41-8189, describes the advanced program-to-program communications (APPC) support for the AS/400 system and provides the information necessary for developing communications application programs. **Short title**: *APPC Programmer's Guide*.
- *Communications and Systems Management Guide (Alerts and Distributed Systems Node Executive)*, SC41-9661, provides information for configuring an AS/400 system to use the change management support (distributed systems node executive) and the problem management support (alerts). **Short title**: *Alerts and DSNX Guide*.
- *Communications: Asynchronous Communications Programmer's Guide*, SC41-9592, provides the information necessary to define and use the asynchronous communications support and how to start and run the interactive terminal facility (ITF). **Short title**: *Asynchronous Communications Programmer's Guide*.
- *Communications: BSC Equivalence Link Programmer's Guide*, SC41-9593, provides the information necessary to write programs using OS/400 binary synchronous communications equivalence link (BSCEL) with the AS/400 system to communicate with a remote system. **Short title**: *BSC Equivalence Link Programmer's Guide*.
- *Communications: Distribution Services Network Guide*, SC41-9588, provides information about SNA distribution services (SNADS), object distribution, VM/MVS bridge, system distribution directory, and shadowing. **Short title**: *Distribution Services Network Guide*.
- *Communications: Finance Communications Programmer's Guide*, SC41-8099, provides information for using the OS/400 finance support. **Short title**: *Finance Communications Programmer's Guide*.
- *Communications: Integrated Services Digital Network Guide*, SC41-0003, provides information about ISDN support on the AS/400 system. **Short title**: *ISDN Guide*.
- *Communications: Intersystem Communications Function Programmer's Guide*, SC41-9590, provides the information needed to write application programs that use AS/400 communications and the ICF file. It also contains examples of communications programs and describes return codes. **Short title**: *ICF Programmer's Guide*.
- *Communications: Local Area Network Guide*, SC41-0004, describes the AS/400 support for IBM Token-Ring, Ethernet, and distributed data interface (DDI) local area networks and frame relay wide area networks. This manual includes information about bridged local area networks and the use of frame relay networks for connection to remote local area networks. **Short title**: *Local Area Network Guide*.
- *Communications: Management Guide*, SC41-0024, contains information on working with communications status, errors, performance, line speed, and storage requirements. **Short title**: *Communications Management Guide*.
- *Remote Job Entry Guide*, SC09-1373, provides information about using the Communications Utilities remote job entry (RJE) to extend the functions of a large host computer to remote locations through the use of data communications. RJE enables the AS/400 system to submit jobs to an IBM host processor. **Short title**: *RJE Guide*.
- *Communications: Remote Work Station Guide*, SC41-0002, contains information on using display station pass-through, SNA pass-through, network routing facility (NRF), SNA Primary LU2 Support (SPLS), distributed host command facility (DHCF), and 5250 and 3270 remote work station communications. **Short title**: *Remote Work Station Guide*.
- *Communications: Retail Communications Programmer's Guide*, SC41-9858, provides information for using the OS/400 retail support. **Short title**: *Retail Communications Programmer's Guide*.
- *Communications: SNA Upline Facility Programmer's Guide*, SC41-9594, contains the programming information for using the system network architecture (SNA) upline facility with the AS/400 system. This guide describes how to set up the upline facility, how to write application programs for the SNA upline facility, and the return codes that

the SNA upline facility can send to a program. **Short title**: *SNA Upline Facility Programmer's Guide*.

- *Operating System/400 Workstation Customization Function Programmer's Guide*, SC41-0056, provides information for using the work station customizing function. **Short title**: *Workstation Customization Function Programmer's Guide*.
- *Communications: X.25 Network Guide*, SC41-0005, contains information about using an AS/400 system in an X.25 packet-switched network. **Short title**: *X.25 Network Guide*.
- *Communications: 3270 Device Emulation Guide*, SC41-9602, provides information for using the OS/400 binary synchronous communications (BSC) and System Network Architecture (SNA) 3270 device emulation. **Short title**: *3270 Device Emulation Guide*.
- *Point-of-Sale Communications Utility/400 Programmer's Guide*, SC41-9868, provides information for using the Point-of-Sale Utility. **Short title**: *Point-of-Sale Communications Utility/400 Programmer's Guide*.
- *System Programmer's Interface Reference*, SC41-8223, contains information for programmers about the user-defined support on the on the AS/400 system. **Short title**: *System Programmer's Interface Reference*.
- *Transmission Control Protocol/Internet Protocol Guide*, SC41-9875, provides information for using TCP/IP support on the AS/400 system. **Short title**: *TCP/IP Guide*.

Other AS/400 Publications

- *ASCII Work Station Reference and Example*, SA41-9922, describes how to configure devices attached to ASCII work station controllers. **Short title**: *ASCII Work Station Reference and Example*.
- *Advanced Backup and Recovery Guide*, SC41-8079, provides information about ways to recover from system failures. **Short title**: *Advanced Backup and Recovery Guide*.
- *Database Guide*, SC41-9659, provides information about the structures, use, and management of the AS/400 database. **Short title**: *Database Guide*.
- *Device Configuration Guide*, SC41-8106, describes how to configure devices that are locally attached to the AS/400 system, including devices attached to twinaxial local work station controllers and tape controllers. **Short title**: *Device Configuration Guide*.
- *Distributed Data Management Guide*, SC41-9600, provides information for remote file processing. It tells how to create a distributed data management (DDM) file, how to define a remote file to OS/400 DDM, what file utilities are supported through DDM, and defines the requirements of OS/400 DDM as related to other systems. **Short title**: *DDM Guide*.
- *New Products Planning Information for Release 3--General Availability Edition*, GA41-0007-04, provides information about new products for the AS/400 system. **Short title**: *New Products Planning Information--General Availability Edition*.
- *Physical Planning Guide and Reference*, GA41-9571, provides information about planning to install a 9406 System Unit, a 9404 System Unit, or a AS/400 9402 System Unit. **Short title**: *Physical Planning Guide and Reference*.
- *Programming: Concepts and Programmer's Guide for the System/36 Environment*, SC41-9663, provides information about using migrated programs in the System/36 environment. **Short title**: *Concepts and Programmer's Guide for the System/36 Environment*.
- *Programming: Control Language Programmer's Guide*, SC41-8077, provides an overview of CL programming topics, including information about built-in functions and system-supplied programs that can be used by CL programs, program debugging, and how to create and use user-defined messages and commands. **Short title**: *CL Programmer's Guide*.
- *Programming: System Reference for the System/36 Environment*, SC41-9662, provides additional reference information on using migrated programs in the System/36 environment. **Short title**: *System Reference for the System/36 Environment*.
- *Programming: System/38 Environment Programmer's Guide and Reference*, SC41-9755, provides information on using migrated programs in the System/38 environment. **Short title**: *System/38 Environment Programmer's Guide/Reference*.
- *Programming: Work Management Guide*, SC41-8078, provides information about creating and using subsystems. **Short title**: *Work Management Guide*.
- *Publications Guide*, GC41-9678, lists manuals in the AS/400 library and lists tasks that are described in the manuals. **Short title**: *Publications Guide*.
- *System Operator's Guide*, SC41-8082, provides information on starting and stopping the system, using commands, and solving problems. **Short title**: *Operator's Guide*.
- *Systems Application Architecture* OfficeVision/400*: Using OfficeVision/400 Adapted Word Processing Function*, SC41-9879, is a reference guide to be used at display stations that do not have the text-assist function of a work station controller or PC Support/400; for example, 3270 display stations attached to 3274 controllers. **Short title**: *Using*

OfficeVision/400 Adapted Word Processing Function.*

- *System/36 to AS/400 Migration Aid User's Guide and Reference*, SC09-1166, provides information about using the System/36 Migration Aid to move System/36 items to the AS/400 system using menus and displays or commands. **Short title**: *System/36 to AS/400 Migration Aid User's Guide and Reference.*
- *System/38 to AS/400 Migration Aid User's Guide and Reference*, SC09-1165, provides information about using the System/38 Migration Aid to move System/38 objects to the AS/400 system using menus and displays or commands. **Short title**: *System/38 to AS/400 Migration Aid User's Guide and Reference.*

PC Support Publications

The following manuals have information about PC Support, as indicated by the manual titles:

- *PC Support/400: Application Program Interface Reference*, SC41-8254
- *PC Support/400: DOS Installation and Administration Guide*, SC41-0006
- *PC Support/400: DOS Installation and Administration Guide (PS/55)*, SC41-0008
- *PC Support/400: DOS User's Guide*, SC41-8199
- *PC Support/400: DOS User's Guide (PS/55)*, SC41-2414
- *PC Support/400: DOS and OS/2 Technical Reference*, SC41-8091
- *PC Support/400: OS/2 Installation and Administration Guide*, SC41-0007
- *PC Support/400: OS/2 Installation and Administration Guide (PS/55)*, SC41-0009
- *PC Support/400: OS/2 User's Guide*, SC41-8200
- *PC Support/400: OS/2 User's Guide (PS/55)*, SC41-2415

OSI Communications Publications

The following manuals provide information about the OSI Communications Subsystem/400 licensed program configuration and use:

- *OSI Communications Subsystem/400 Configuration and Administration Guide*, SL23-0187
- *OSI Communications Subsystem/400 Operation*, SL23-0189
- *OSI Message Services/400 Guide*, SC41-0026
- *OSI File Services/400 Programming Guide*, SH19-6704
- *OSI File Services/400 User's Guide*, SH19-6703

The following manuals provide more information about OSI, but not specific to the AS/400 OSI support:

- *OSI Communications Subsystem Abstract Syntax Checker Reference*, SL23-0192
- *OSI Communications Subsystem C Language Examples*, SL23-0202
- *OSI Communications Subsystem COBOL Language Examples*, SL23-0201
- *OSI Communications Subsystem Programming Concepts and Guide*, SL23-0191
- *OSI Communications Subsystem Programming Reference*, SL23-0190
- *OSI Communications Subsystem Programming with the Starter Set*, SL23-0193

Other AS/400 Printed Information

The following manuals provide configuration examples for some AS/400 communications functions. These manuals are written for a specific release and modification level of the OS/400 licensed program and may not describe all the functions available on your AS/400 system.

- *Data Communications: Connecting to a System/370 Using 3270 Device Emulation and Remote Job Entry*, SA21-9987
- *Data Communications: Remote Work Station Networking Example*, SA21-9977
- *An Example of Configuring an Advanced Peer-to-Peer Network for Display Station Pass-Through and Object Distribution*, SA21-9582

The following manuals are provided by the International Technical Support Centers. Information in these manuals has not been submitted to any formal IBM test and is distributed on an as is basis without any warranty either express or implied. These manuals are written for a specific release and modification level of the OS/400 licensed program and may not describe all the functions available on your AS/400 system.

- *AS/400 Communication Definition Examples*, GG24-3449
- *AS/400 Communication Definitions Examples, Volume 2*, GG24-3763
- *AS/400 Office in a DIA/SNADS Network*, GG24-3268.
- *AS/400, System/38, and PS/2 as T2.1 Nodes in a Subarea Network*, GG24-3420
- *AS/400—S/370 Connectivity*, GG24-3336

- *IBM AS/400 in Large Networks: A Case Study*, GG24-3447
- *VM–AS/400 Connectivity and Functional Use*, GG24-3430
- *S/3X and AS/400 APPN Nodes Using the SNA/LEN Subarea Network*, GG24-3288
- *Management of AS/400 in SNA Subarea Network Using NetView Products*, GG24-3289.
- *Managing Multiple AS/400s in a Peer Network*, GG24-3614.
- *IBM AS/400 TCP/IP Configuration and Operation*, GG24-3442
- *Getting Started with AS/400 OSI*, GG24-3758
- *PC Support*, GG24-3255
- *PC Support/400 Asynchronous and SDLC Configuration Examples*, GG24-3808
- *AS/400–OS/2 Ethernet Connectivity*, GG24-3496
- *5494 and OS/2 Extended Services: Connecting Remote User Groups to AS/400s*, GG24-3828
- *Communications Migration*, GG24-3253.

The following AS/400 Systems Support Center newsletters contain information that may be helpful for a specific network consideration:

- *Communications Problem Analysis Tips and Techniques*, GC21-8178.
- *Communications with System/36, System/38 System/370: Configuration, Tips, and Techniques*, GC21-8180.
- *Examples of APPC Between AS/400 and CICS Newsletter*, GC21-8183.
- *PC Support Tips*, GC21-8162.
- *Performance and Capacity Planning*, GC21-8175.
- *Performance Information Newsletter*, ZC21-8166.
- *Planning Communications Migration Tips Newsletter*, GC21-8169.
- *System/38 Coexistence*, GC21-8173.

Advanced Communications Function for Telecommunications Access Method (ACF/TCAM)

The following manuals contain detailed information on ACF/TCAM. Refer to these manuals when attaching an AS/400 system to a network with ACF/TCAM.

- *ACF/TCAM Asset Assignments 9001 and 6003 Application Programming*, SC30-3135
- *ACF/TCAM Base Installation Guide*, SC30-3132
- *ACF/TCAM Diagnosis*, SC30-3137
- *ACF/TCAM General Information: Functional Description*, GC30-3131
- *ACF/TCAM Installation Reference*, SC30-3133
- *ACF/TCAM Messages*, SC30-3140
- *ACF/TCAM Operation Asset Assignment 9001 and 6003*, SC30-3136
- *ACF/TCAM Service Facilities System Service Programs and Utilities ACF/TCAM*, SC30-3138

Advanced Communications Function for Virtual Telecommunications Access Method (ACF/VTAM)

The following manuals contain detailed information on ACF/VTAM. Refer to these manuals for information on attaching an AS/400 system to a network with VTAM.

- *VTAM Customization*, LY30-5614
- *VTAM Data Areas for MVS*, LY30-5592
- *VTAM Data Areas for VM*, LY30-5593
- *VTAM Data Areas for VSE*, LY30-5594
- *VTAM Diagnosis*, LY30-5601
- *VTAM Directory of Programming Interfaces for Customers*, GC31-6403
- *VTAM General Information*, GC38-0254
- *VTAM Installation and Resource Definition*, SC23-0111
- *VTAM Operation*, SC23-0113
- *VTAM Messages and Codes*, SC23-0114
- *VTAM Programming*, SC23-0115
- *VTAM Programming for LU 6.2*, SC30-3400
- *VTAM Reference Summary*, LY30-5600

Asynchronous Communications Display Stations

The following manual provides detailed information about the asynchronous display stations supported by the AS/400 system. Refer to this manual for specific information about the asynchronous display stations.

- *3270 Information Display System 3174 Subsystem Control Unit Asynchronous Emulation Adapter Information*, GA23-0331

Binary Synchronous Communications (BSC) Display Stations

The following manuals provide detailed information about the BSC display stations supported by the AS/400 system. Refer to these manuals for specific information about the BSC display stations.

- *Component Description for the 3776 and 3777 Communication Terminals*, GA27-3145
- *General Information Manual for the Displaywriter System*, G544-0851
- *Introduction to the IBM 3770 Data Communication System*, GA27-3144
- *Magnetic Card II 6240 Reference Guide*, S544-0519
- *Office System 6 Information Processors – General Information*, G544-1002
- *46/40 Document Printer – Communicating Programming Guide*, G544-1001
- *3741 Data Station Reference Manual*, GA21-9183
- *3776 Communication Terminal Reference Summary*, GA27-3108
- *3777 Communication Terminal Reference Summary*, GA27-3125
- *5110 General Information and Physical Planning Manual*, GA21-9300
- *5120 Computing System General Information and Site Preparation*, GA34-0130
- *5230 Data Collection System User's Guide*, GA34-0040
- *5260 Retail System Implementation Guide*, GA21-9285
- *5260 Retail System Introduction*, GA21-9284
- *5280 Distributed Data System Communications Reference*, SC34-0247
- *5280 Distributed Data System Planning and Site Preparation Guide*, GA21-9351
- *5520 Administrative System Introduction*, GC23-0702

Binary Synchronous Communications (BSC) Hosts

The following manuals provide detailed information on the host systems supported by BSC. Refer to these manuals for details on attaching an AS/400 network with BSC.

- *DOS/VS BTAM*, GC27-6989
- *OS TCAM Programmer's Guide and Reference*, GC30-2024
- *OS/VS BTAM*, GC27-6980

Binary Synchronous Communications (BSC) Systems

The following manuals provide detailed information about the BSC systems that can communicate with the AS/400 system on a program-to-program basis. Refer to these manuals for system-dependent considerations.

- *Series/1 MULTI-Communication Control Card Custom Feature*, GA34-0312
- *Series/1 Realtime Programming System: Communication User's Guide*, GA34-0165
- *System/3 CCP Programmer's Reference*, GC21-7579
- *System/3 Model 8, 10, and 12 Communications Control Program System Reference*, GC21-7588
- *System/3 Model 15 Communications Control Program System Reference Manual Features 6011, 6012, 6070 and 6071*, GC21-7620
- *System/3 Multiline/Multipoint Binary Synchronous Communications Reference*, GC21-7573
- *System/3 RPG II Telecommunications Programming Reference Manual*, GC21-7507
- *System/32 Data Communications Reference*, GC21-7691
- *System/34 Data Communications Reference Manual*, SC21-7703
- *System/34 Interactive Communications Feature Reference*, SC21-7751
- *System/36 Interactive Communications Feature Reference Feature 6001*, SC21-7910
- *System/36 Programming with RPG II*, SC21-9006
- *System/38 Data Communications Programmer's Guide*, SC21-7825

Communications Controllers

The following manuals contain information about communications controllers.

- *Financial Branch System Services Application Programming*, SC19-5174.
- *Financial Branch System Services Installation, Planning, and Administration Guide*, SC19-5173.
- *Programmable Store System Language and Host Services: 3680 Macro Reference*, GC30-3077
- *Programmable Store System Language and Host Services: 3650 Macro Reference*, GC30-3076

- *Retail Industry Programming Support Services: Host Communication Programmer's Guide*, SC33-0650
- *4680 Store System: Programming Guide*, SC30-3357
- *4700 Finance Communications System Controller Programming Library: Communications Programming*, GC31-2068
- *4700 Finance Communications System Controller Programming Library: Control Program Generation*, GC31-2071
- *4700 Finance Communications System Controller Programming Library: General Controller Programming*, GC31-2066
- *4700 Finance Communications System Controller Programming Library (Volume 6)*, GC31-2071
- *4700 Finance Communications System Controller Programming Library: Work Station Programming*, GC31-2069
- *4700 Finance Communications System: Subsystem Operating Procedures*, GC31-2032
- *4730 Personal Banking Machine Series Customization Image Builder General Information*, GC31-0029
- *4730 Personal Banking Machine Series Network Monitor General Information*, GC31-0033
- *4731, 4732, and 4736 Personal Banking Machines Customization Guide*, GA19-5353
- *5294 Control Unit Setup Procedure*, GA21-9369
- *5394 Remote Control Unit Setup Guide*, GA27-3804
- *5394 Remote Control Unit User's Guide*, GA27-3852
- *5394 Remote Control Unit Type 2.1 Node Support RPQ 8Q0775* , SC30-3531
- *5494 Remote Control Unit Planning Guide*, GA27-3936
- *5494 Remote Control Unit User's Guide*, GA27-3960
- *5494 Remote Control Unit Attachment to Subarea Network RPQ 8Q0932* , SC30-3566

Communications Protocols

The following manuals provide information on the communications protocols: SNA via synchronous data link control (SDLC), token-ring network, or X.25 packet-switched data link and BSC. Refer to these manuals for descriptions of communications protocols.

- *General Information–Binary Synchronous Communications*, GA27-3004
- *Implementation of X.21 Interface: General Information Manual*, GA27-3287
- *SNA Format and Protocol Reference Architecture Logic for LU Type 6.2*, SC30-3269
- *SNA Format and Protocol Reference Architecture Logic for Type 2.1 Nodes*, SC30-3422
- *SNA Format and Protocol Reference Manual: Architectural Logic*, SC30-3112
- *SNA Format and Protocol Reference: SNA Network Interconnection*, SC30-3339
- *SNA Formats*, GA27-3136
- *SNA: Sessions between Logical Units*, GC20-1868
- *SNA Transaction Programmer's Reference Manual for LU Type 6.2*, GC30-3084
- *Synchronous Data Link Control Concepts*, GA27-3093
- *Systems Network Architecture Concepts and Products*, GC30-3072
- *Systems Network Architecture Distribution Services (SNADS) Reference*, SC30-3098
- *Systems Network Architecture File Services Reference*, SC31-6807
- *Systems Network Architecture Management Services Reference*, SC30-3346
- *Systems Network Architecture Technical Overview*, GC30-3073
- *Token-Ring Network Architecture Reference*, SC30-3374
- *Token-Ring Network Problem Determination Guide Kit*, SX27-3710
- *The X.25 Interface for Attaching SNA Nodes to Packet-Switched Data Networks General Information*, GA27-3345
- *X.25 Packet Switching Attachment Working within ACF/NCP/VS*, LY19-6131
- *X.25 1984/1988 DTE/DCE and DTE/DTE Interface: Architecture Reference*, SC30-3409
- *X.25 1984/1988 DTE/DCE and DTE/DTE Interface: General Information Manual*, GA27-3287
- *3710 Network Controller Operator's Guide*, GA27-3429

Customer Information Control System/Virtual Storage (CICS/VS)

The following manuals provide detailed information on CICS/VS. Refer to these manuals for information on communicating with CICS/VS.

- *CICS Distributed Data Management User's Guide*, SC21-8066
- *CICS/DOS/VS Application Programmer's Reference RPG II*, SC33-0085
- *CICS/DOS/VS Messages and Codes*, SC33-0081
- *CICS/DOS/VS Problem Determination Guide*, SC33-0089
- *CICS/OS/VS Installation and Operations Guide*, SC33-0071
- *CICS/VS and Distributed Data Management*, GG24-3157
- *CICS/VS General Information*, GC33-0066
- *CICS/VS Introduction to Program Logic*, SC33-0067
- *CICS/VS System Programmer's Reference*, SC33-0069
- *CICS/VS System/Application Design*, SC33-0068

Information Management System/Virtual Storage (IMS/VS)

The following manuals contain detailed information on IMS/VS. Refer to these manuals for information on communicating with IMS/VS.

- *IMS/VS Application Programming Designing and Coding*, SH20-9026
- *IMS/VS Database Administration Guide*, SH20-9025
- *IMS/VS for Remote SNA Systems Programming Guide*, SH20-9054
- *IMS/VS General Information*, GH20-1260
- *IMS/VS Installation Guide*, SH20-9081
- *IMS/VS Master Index and Glossary*, SH20-9085
- *IMS/VS Messages and Codes*, SH20-9030
- *IMS/VS Operator's Reference*, SH20-9028
- *IMS/VS System Programming Reference*, SH20-9027

System/36 Communications Manuals

The following manuals contain detailed information on System/36 communications. Refer to these manuals for information on System/36 communications.

- *Advanced Peer-to-Peer Networking Guide*, SC21-9471
- *Communications and Systems Management Guide*, SC21-8010
- *Distributed Data Management Guide*, SC21-8011
- *Host and In-Store Processor Support for the IBM 4680, 3650, and 3680 Point-of-Sale Systems PRPQ User's Guide*, SC21-9664
- *Interactive Communications Feature: Base Subsystems Reference*, SC21-9530
- *Interactive Communications Feature: Finance Subsystem Reference*, SC21-9531
- *Interactive Communications Feature: Guide and Examples*, SC21-7911
- *Interactive Communications Feature: Programming for Subsystems and Intra Subsystem Reference*, SC21-9533
- *Interactive Communications Feature: Upline Subsystems Reference*, SC21-9532
- *Multiple Session Remote Job Entry Guide*, SC21-7909
- *Multiple Session Remote Job Entry Messages*, SC21-7944
- *Using System/36 Communications*, SC21-9082
- *Using the Asynchronous Communications Support*, SC21-9143
- *3270 Device Emulation Guide*, SC21-7912
- *3270 Device Emulation Messages*, SC21-7945

System/38 Communications Manuals

The following manuals contain detailed information on System/38 communications. Refer to these manuals for information on System/38 communications.

- *System/38 Communications Administrator's Guide*, SC21-8035
- *System/38 Data Communications Programmer's Guide*, SC21-7825
- *System/38 Distributed Data Management User's Guide*, SC21-8036
- *System/38 Finance Support User's Guide*, SC21-9099

- *System/38 Implementation of IBM Communications Architectures*, SC21-8033
- *System/38 Remote Job Entry Facility Installation Planning Guide*, SC21-7924
- *System/38 Remote Job Entry Facility User's Guide*, SC21-7914
- *System/38 3270 Device Emulation Reference Manual and User's Guide*, SC21-7961

Systems Network Architecture (SNA) Display Stations

The following manuals contain information about the SNA devices that can communicate, as display stations, with the AS/400 system. Refer to these manuals for specific information about the devices.

- *3270 Information Display System: X.25 Operation*, GA23-0178
- *3270 Information Display System, 3174 Subsystem Control Unit Customizing Guide*, GA23-0214
- *3270 Information Display System, 3274 Control Unit Customization Guide, Configuration Support*, GA23-0176
- *3270 Information Display System, 3274 Control Unit Customization Guide*, GA23-0065.
- *3270 Information Display System: 3274 Control Unit Description and Programmer's Guide*, GA23-0061
- *3270 Information Display System: 3274 Control Unit Planning, Setup, and Customizing Guide*, GA27-2827
- *5250 Functions Reference*, SA21-9247
- *5250 Information Display System Introduction*, GA21-9246
- *5250 Information Display System Planning and Site Preparation Guide*, GA21-9337
- *5251 Display Station Models 2 and 12 Operator's Guide*, GA21-9323
- *5256 Printer Operator's Guide*, GA21-9260

Systems Network Architecture (SNA) Hosts

The following manuals provide detailed information about the SNA communications controllers and the network programs. Refer to these manuals for network-dependent information.

- *ACF/NCP/VS NCP (System Support Program) General Information*, SC30-3058
- *ACF/NCP/VS SSP Installation*, SC30-3142
- *Network Control Program Resource Definition Reference*, SC30-3254
- *3704 3705-I and 3705-II Communications Controllers Principles of Operation*, GC30-3004
- *3704/3705 Program Reference Handbook*, GC30-3012

8209 Local Area Network Bridge

The following manuals provide information on using the 8209 LAN Bridge:

- *8209 LAN Bridge: Customer Information*, SA21-9994.
- *8209 LAN Bridge Attachment Module Guide for the IBM Token-Ring Network*, GA27-3915
- *8209 LAN Bridge Attachment Module Guide for Ethernet and IEEE 802.3 LANs*, GA27-3891
- *8209 Local Area Network Bridge: Service Information*, SY31-9077.

Other Printed Information

The following manuals provide detailed information about various communications standards.

- *The International Telegraph and Telephone Consultative Committee, Red Book, Volume VIII - Facscicle VIII.3, Data Communications Networks Interfaces, Recommendations X.20 - X.32, VIIIth Plenary Assembly*, Malaga-Torremolinos, October 8-19, 1984.
- *American National Standards Institute/Institute of Electrical and Electronics Engineers 802.2,1985 - Logical Link Control, International Organization for Standardization/Draft International Standard 8802/2.*
- *American National Standards Institute/Institute of Electrical and Electronics Engineers 802.3,1985 - Carrier Sense Multiple Access with Collision Detection, International Organization for Standardization/Draft International Standard 8802/3.*
- *American National Standards Institute/Institute of Electrical and Electronics Engineers 802.3a, b, d, c, 1988 -Supplements to Carrier Sense Multiple Access with Collision Detection American National Standards Institute/Institute of Electrical and Electronics Engineers Standard 802.3*, 1985.
- *American National Standards Institute/Institute of Electrical and Electronics Engineers 802.5,1985 - Token Passing Ring, International Organization for Standardization/Draft International Standard 8802/5.*

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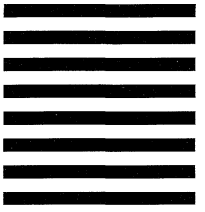

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