PAD and X.25 Connection Setup Commands

This chapter describes the commands used for configuring an internal packet assembler/disassembler (PAD) application to make connections with remote devices using the X.25 protocol.

You can configure an internal PAD in the following ways:

- Use the **x28** EXEC command to access and use the X.28 standard interface. After the **x28** command is issued, you enter X.28 mode and the router prompt changes to an asterisk (*). From this mode, you can set X.3 PAD parameters.
- Issue the **pad** EXEC command, which is Cisco's proprietary interface. Use the **resume** EXEC command or **x3** EXEC command to set X.3 parameters.

Note For configuration tasks and examples, refer to the chapter "Configuring the Cisco PAD Facility for X.25 Connections" in the *Dial Solutions Configuration Guide*.

pad

To log on to a PAD, use the **pad** user EXEC command.

pad {*x121-address* | *hostname*} [**/cud** *text*] [**/debug**] [**/profile** *name*] [**/quiet** *message*] [**/reverse**] [**/use-map**]

Syntax Description

x121-address	Specifies the X.121 address of the X.25 host.
hostname	Specifies the X.25 host name if the host-to-address mapping has been set with the **X.25 host** command.
/cud *text*	(Optional) Includes the specified *text* in the Call User Data field of the outgoing Call Request Packet.
/debug	(Optional) Displays the informational level of logging messages whenever the remote host changes an X.3 parameter setting or sends any other X.29 control packet.
/profile *name*	(Optional) Sets X.3 PAD parameters for the *name* script. This is the same as issuing the **x29 profile** global configuration command when translating X.25.
/quiet *message*	(Optional) Suppresses information messages. Replace the argument *message* with the actual message that you want to suppress.
/reverse	(Optional) Causes reverse-charge calls to be accepted on a per-call (rather than a per-interface) basis.
/use-map	(Optional) Applies **x25 map pad** command entry options (such as CUD and idle) and facilities (such as packet in, packet out, win in, and win out) to the outgoing PAD call. This function occurs only if a matching X.121 destination address exists in a **x25 map pad** command entry.

Command Mode

User EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.2.

The **pad** command supports one-word connections. You do not have to enter the **pad** command; just entering the address is enough to start the connection. A PAD can also be accessed and X.3 parameters configured with the **x28** EXEC command, which uses the standard X.28 user interface.

You can have several PAD connections open at the same time and switch between them. You also can exit a connection and return to the user EXEC prompt at any point. To open a new connection, first exit the current connection by entering the escape sequence (**Ctrl-Shift-6** then **x** [**Ctrl^x**] by default) to return to the EXEC prompt, then open the new connection.

If the **/use-map** option is selected on the outgoing **pad** command, the **x25 map pad** command entries are searched for a matching X.121 destination address. If a match is found, the **x25 map pad** command entry options (such as CUD and idle) and facilities (such as packet in, packet out, win in, and win out) are applied to the outgoing PAD call.

To display information about packet transmission and X.3 PAD parameter settings, enter the **show x25 pad** command.

To exit a session, simply log off the remote system. Then, terminate the active session by entering the **exit** command.

Examples

Use the **?** command to display **pad** command options, as shown in this example:

```
router# pad / ?
  /cud      Call user data
  /debug    Debugging option
  /profile  Use a defined X.3 profile
  /quiet    Suppress informational messages
  /reverse  X25 Address reverse
  /use-map  Use x25 map pad command facilities for outgoing Calls
  <cr>
```

The following example starts a PAD session:

```
router> pad 123456789
Trying 123456789...Open
router>
```

You can also access a PAD using standard X.28 commands. The following example enters X.28 mode with the **x28** EXEC command and configures a PAD with the **set** X.3 parameter command. The **set** command sets the idle time delay to 40 seconds.

```
router# x28
* set 4:40
```

The following example uses the **/use-map** option to configure a larger window and packet size than the default specified on the interface, and it sets the VC idle time to 2 seconds. Notice that the map values are used rather than the interface default values.

```
Router-A(config-if)# x25 map pad 2194441 cud gmcmilla windowsize 7 7 packetsize 1024 1024
idle 2
Router-A(config-if)# end
Router-A#
%SYS-5-CONFIG_I: Configured from console by console.
Router-A# pad 2194441 /cud gmcmillla /use-map
Trying 2194441....Open

06:31:12: pad_open_connection: found a matching x25 map pad
06:31:12: Serial1: X.25 O R1 Call (22) 8 lci 1024
06:31:12:   From(7): 2191111 To(7): 2194441
06:31:12:   Facilities: (6)
06:31:12:     Packet sizes: 1024 1024
06:31:12:     Window sizes: 7 7
06:31:12:   Call User Data (12): 0x01000000 (pad)
06:31:12: Serial1: X.25 I R1 Call Confirm (5) 8 lci 1024
06:31:12:   From(0):  To(0):
06:31:12:   Facilities: (0)
06:31:12: PAD0: Call completed
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

translate x25

resume (setting X.3 PAD parameters)

To set X.3 parameters, use the **resume** EXEC command as follows:

resume [*connection*] [**/set** *parameter:value*]

Syntax Description

connection (Optional) The name or number of the connection; the default is the most recent connection.

/set *parameter*:*value* (Optional) Sets the X.3 connection options and PAD parameters for the Cisco IOS software. Refer to Table 90 for PAD parameters.

Refer to the chapter "Configuring the Cisco PAD Facility to Make X.25 Connections" of the *Dial Solutions Configuration Guide* for a list of these connection options.

Table 90 PAD Parameters

Parameter	Action	Value	Description
1	Escape from data transfer		Not supported.
2	Local echo mode	**0**	No local echo (incoming PAD connection default).
		1	Local echo on (outgoing connection default).
3	Data forward character	**0**	None—full packet.
		1	Forward packet on receipt of an alphanumeric character.
		2	Forward packet on receipt of a RETURN (outgoing connection default).
		4	Forward packet on receipt of ESCAPE, BEL, ENQ, or ACK. Forward packet on receipt of DEL, CAN, or DC2.
		8	Forward packet on receipt of ETX or EOT.
		16	Forward packet on receipt of HT, LT, VT, or FF.
		32	All other characters in the ASCII chart.
		64	
4	Idle timer	**0**	No timer.
		1-255	Delay value in twentieths of a second (default for both connection types is 1).
5	Device control		Transmits flow control characters during data transfer to the terminal, which controls the terminal and data flow.
6	PAD service signals		Not supported.

Table 90 PAD Parameters (Continued)

Parameter	Action	Value	Description
7	Receipt of break	**0**	Ignore the Break signal.
		1	Transmit an INTERRUPT packet to notify the remote host or another PAD that the Break signal was generated.
			Transmit a RESET packet to reset the virtual circuit.
		2	Transmit an X.29 break indication to the remote host, or to a
		4	PAD (outgoing connection default).
			Escape from data transfer mode.
		8	Discard output to the terminal by setting parameter 8 to a value
		16	of 1.
			Combination of values 1, 4, and 16 (incoming connection
		21	default).
8	Discard output	**0**	Normal data delivery to the terminal (outgoing connection default).
		1	Discard all output to the terminal; set by parameter 7.
9	Return padding		Determines if PAD can provide padding (insert filler characters) upon receipt of a Return character from the terminal.
10	Line folding		Not supported.
11	Baud rate	**10**	50 baud.
		5	75 baud.
		9	100 baud.
		0	110 baud.
		1	134.5 baud.
		6	150 baud.
		8	200 baud.
		2	300 baud.
		4	600[1] baud.
		3	1200 baud.
		7	1800 baud.
		11	75/1200[2] baud.
		12	2400 baud.
		13	4800 baud.
		14	9600 baud.
		15	19200 baud.
		16	48000 baud.
		17	56000 baud.
		18	64000 baud.
12	Input flow control		Determines whether or not the terminal can transmit ASCII XON/XOFF (transmission on and off) characters to PAD during the data transfer mode.

Table 90 PAD Parameters (Continued)

Parameter	Action	Value	Description
13	Line feed insertion	**0**	Do not insert (outgoing connection default).
		1	Insert after transmitting RETURN to the terminal.
		2	Insert after echoing RETURN to the terminal.
		4	Insert after echoing RETURN to the remote host.
14	Line feed padding		Determines if PAD can provide padding (insert filler characters) upon receipt of a LINE FEED character from the terminal.
15	Local editing	**0**	Disables editing capabilities.
		1	Enables editing capabilities.
16	Character delete	**0-127**	Select one ASCII character. Default is ASCII 127 (Del).
17	Line delete	**0-127**	Select one ASCII character. Default is ASCII 21 (Ctrl-U).
18	Line display	**0-127**	Select one ASCII character. Default is ASCII 18 (Ctrl-R).
19	Editing PAD service signals		Not supported.
20	Echo mask		Not supported.
21	Parity treatment		Not supported.
22	Page wait		Not supported.

1. 600 is the beginning of values that are PAD-type dependent.
2. 75 is from PAD; 1200 is to PAD.

Default

For outgoing connections, the X.3 parameters default to the following:

```
2:1, 3:2, 4:1, 7:4, 16:127, 17:21, 18:19
```

All other parameters default to zero, but can be changed using the **/set** switch option with either the **resume** command or the **x3** command.

For incoming PAD connections, the software sends an X.29 SET PARAMETER packet to set only the following parameters:

```
2:0, 4:1, 7:21, 15:0
```

Command Mode

EXEC

Usage Guidelines

This command first appeared in a release prior to Cisco IOS Release 10.0.

The **resume** [*connection*] command first appeared in Cisco IOS Release 9.1.

The **/set** switch sets the X.3 parameters defined by parameter number and value, separated by a colon. You set one or more X.3 PAD parameters, as follows:

Step 1 Escape out of the current session by pressing the escape sequence (**Ctrl-Shift-6** then **x** [**Ctrl^x**] by default) and return to the EXEC prompt.

Step 2 Issue the **where** command, to list the open sessions. All open sessions associated with the current terminal line are displayed.

Step 3 Enter the **resume** command, followed by the parameter, a colon, and then the value to be set.

Example

The following example specifies that local echo mode be turned on for a connection to the device Swift (which is session number 3). As shown in Table 90, "local echo on" uses the parameter 2 and the value 1 (represented as 2:1 in this example):

```
Swift% ^^X
router> resume 3 /set 2:1
Swift%
```

service pad

To enable all packet assembler/disassembler (PAD) commands and connections between PAD devices and access servers, use the **service pad** global configuration command. Use the **no** form of this command to not accept incoming and outgoing PAD connections.

service pad [**cmns**] [**from-xot** | **to-xot**]
no service pad [**cmns**] [**from-xot** | **to-xot**]

Syntax Description

cmns	(Optional) Specifies sending and receiving PAD calls over CMNS.
from-xot	(Optional) Accept XOT to PAD connections.
to-xot	(Optional) Allow outgoing PAD calls over XOT.

Default

All PAD commands and associated connections are enabled. PAD services over XOT or CMNS are not enabled.

Command Mode

Global configuration

Usage Guidelines

The **service pad** command first appeared in Cisco IOS Release 10.0. The options **cmns**, **from-xot**, and **to-xot** first appeared in Cisco IOS Release 11.3.

The options **from-xot** and **to-xot** enable PAD calls to destinations that are not reachable over physical X.25 interfaces, but instead over TCP tunnels. This feature is known as PAD over XOT (X.25 over TCP).

Examples

If the **service pad** command is disabled, the EXEC **pad** command and all PAD-related configurations, such as X.29, are unrecognized, as shown in the following example:

```
router(config)# no service pad
router(config)# x29 ?
% Unrecognized command
router(config)# exit
router# pad ?
% Unrecognized command
```

If the **service pad** command is enabled, the EXEC **pad** command and access to an X.29 configuration is granted, as shown in the following example:

```
router# config terminal
Enter configuration commands, one per line. End with CNTL/Z.
router(config)# service pad
router(config)# x29 ?
access-list       Define an X.29 access list
inviteclear-time  Wait for response to X.29 Invite Clear message
profile           Create an X.3 profile
```

```
router# pad ?
WORD   X121 address or name of a remote system
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

x29 access-list
x29 profile

show x25 pad

To display information about current open connections, including packet transmissions, X.3 parameter settings, and the current status of virtual circuits, use the **show x25 pad** user EXEC command.

show x25 pad

Syntax Description

This command has no arguments or keywords.

Command Mode

User EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.2.

Sample Display

The following is sample output from the **show x25 pad** command:

```
router# show x25 pad

tty2, Incoming PAD connection
Total input: 61, control 6, bytes 129. Queued: 0 of 7 (0 bytes).
Total output: 65, control 6, bytes 696.
Flags: 1,   State: 3,   Last error: 1
 ParamsIn:  1:1, 2:0, 3:2, 4:1, 5:1, 6:0, 7:21,
    8:0, 9:0, 10:0, 11:14, 12:0, 13:0, 14:0, 15:1,
    16:127, 17:21, 18:18, 19:0, 20:0, 21:0, 22:0,
 ParamsOut:  1:1, 2:1, 3:2, 4:1, 5:0, 6:0, 7:4,
    8:0, 9:0, 10:0, 11:14, 12:0, 13:0, 14:0, 15:0,
    16:127, 17:21, 18:18, 19:0, 20:0, 21:0, 22:0,
 LCI: 1,  State: D1,  Interface: Serial0
 Started 0:11:10, last input 0:00:16, output 0:00:16
 Connected to 313700540651
 Window size input: 7, output: 7
 Packet size input: 512, output: 512
 PS: 1  PR: 5  ACK: 5  Remote PR: 1  RCNT: 0  RNR: FALSE
 Retransmits: 0  Timer (secs): 0  Reassembly (bytes): 0
 Held Fragments/Packets: 0/0
 Bytes 696/129 Packets 65/61 Resets 0/0 RNRs 0/0 REJs 0/0 INTs 0/0
```

Table 91 describes significant fields shown in the output in the display.

Table 91 Show X.25 Pad Field Descriptions

Field	Description
Total input/output	Number of packets received or sent for the connection.
control	Number of packets with Qbit set (X.29 control packets).
bytes	Number of bytes in each direction.
Queued	Number of unread packets waiting for the connection.

Table 91 Show X.25 Pad Field Descriptions (Continued)

Field	Description
Waiting to send	Local data packet bit not sent (part of a line).
Flags, State, Last error	Displays data for detecting errors and tracing initialization status. Only useful to your Cisco-certified technical support personnel.
ParamsIn	Parameters read from the PAD at the start of the connection.
ParamsOut	Active X.3 parameters.
LCI, State, Interface	Status of the X.25 virtual circuit associated with the PAD connection. This is the same display that the **show x25 vc** command shows.

where

To list the open sessions, use the **where** EXEC command.

where

Syntax Description

This command has no arguments or keywords.

Command Mode

EXEC

Usage Guidelines

This command first appeared in a release prior to Cisco IOS Release 10.0.

The **where** command displays all open sessions associated with the current terminal line.

The **Ctrl^x**, **where**, and **resume** commands are available with all supported connection protocols.

Example

The following is sample output from the **where** command:

```
router# where
Conn Host                 Address          Byte    Idle  Conn Name
   1 MATHOM               192.31.7.21         0       0  MATHOM
*  2 CHAFF                131.108.12.19       0       0  CHAFF
```

The asterisk (*) indicates the current terminal session.

Table 92 describes significant fields shown in the display.

Table 92 Where Field Descriptions

Field	Description
Conn	Name or address of the remote host to which the connection is made.
Host	Remote host to which the router is connected through a Telnet session.
Address	IP address of the remote host.
Byte	Number of unread bytes for the user to see on the connection.
Idle	Interval (in minutes) since data was last sent on the line.
Conn Name	Assigned name of the connection.

Related Commands

You can use the master indexes or search online to find documentation of related commands.

resume
show sessions

x3

To set X.3 PAD parameters, use the **x3** EXEC command.

x3 *parameter*:*value*

Syntax Description

parameter:*value*	Sets the PAD parameters. (See Table 90.)

Default Values

For outgoing connections, the X.3 parameters default to the following:

```
2:1, 3:2, 4:1, 7:4, 16:127, 17:21, 18:19
```

All other parameters default to zero, but can be changed using the **/set** switch keyword with either the **resume** command or the **x3** command.

For incoming PAD connections, the software sends an X.29 SET PARAMETER packet to set only the following parameters:

```
2:0, 4:1, 7:21, 15:0
```

For a complete description of the X.3 PAD parameters, refer to the appendix "X.3 PAD Parameters."

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.2.

You can have several PAD connections open at the same time and switch between them. You can also exit a connection and return to the user EXEC prompt at any point.

To open a new connection, first suspend the current connection by pressing the escape sequence (**Ctrl-Shift-6** then **x** [**Ctrl^x**] by default) to return to the system command prompt, then open the new connection with the **pad** command.

You can have several concurrent sessions open and switch back and forth between them. The number of PAD sessions that can be open is defined by the **session-limit** command.

To switch between sessions you must escape one session and resume a previously opened session. Use the **Ctrl^x**, **where**, and **resume** commands, which are available with all supported connection protocols, to do this.

You can issue any of the following commands to terminate a terminal session:

exit
quit
logout

To display information about packet transmission and X.3 PAD parameter settings, use the **show x25 pad** command.

Example

The following example shows how to change a local X.3 PAD parameter from a remote X.25 host using X.29 messages, which is a secure way to enable a remote host to gain control of local PAD. The local device is Router-A. The remote host is Router-B. The parameters listed in the ParamsIn field are incoming parameters, which are sent by the remote PAD. The parameters listed in the ParamsOut field are parameters sent by the local PAD.

```
Router-A# pad 123456
Trying 123456...Open

Router-B> x3 2:0
Router-B>
Router-A# show x25 pad

tty0, connection 1 to host 123456

Total input: 12, control 3, bytes 35. Queued: 0 of 7 (0 bytes).
Total output: 10, control 3, bytes 64.
Flags: 1,   State: 3,   Last error: 1
 ParamsIn:  1:0, 2:0, 3:0, 4:0, 5:0, 6:0, 7:0,
    8:0, 9:0, 10:0, 11:0, 12:0, 13:0, 14:0, 15:0,
    16:0, 17:0, 18:0, 19:0, 20:0, 21:0, 22:0,
 ParamsOut:  1:1, 2:0, 3:2, 4:1, 5:1, 6:0, 7:21,
    8:0, 9:1, 10:0, 11:14, 12:1, 13:0, 14:0, 15:0,
    16:127, 17:21, 18:18, 19:0, 20:0, 21:0, 22:0,
Router-A#
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

resume

x25 subaddress

To append either a physical port number or a value specified for a line as a subaddress to the X.121 calling address, use the **x25 subaddress** line configuration command. Use the **no** form of this command to disable subaddressing.

x25 subaddress {**line** | *number*}
no x25 subaddress {**line** | *number*}

Syntax Description

line	The physical port number for the indicated line will be appended to the X.121 address as the subaddress.
number	Numeric variable assigned to a specific line.

Command Mode

Line configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.2F.

Use the **x25 subaddress** line command to create a unique X.121 calling address by adding either a physical port number or a numeric value for a line as a subaddress to the X.121 calling address.

Examples

The following example shows how to configure subaddressing on vty lines 10 through 20 by appending the line number as a subaddress to the X.121 calling address:

```
line vty 10 20
x25 subaddress line
```

The following example shows how to configure subaddressing on the first five tty lines by appending the value “09” as a subaddress to the X.121 calling address of an X.28 connection originating on these lines:

```
line 1 5
x25 subaddress 9
autocommand x28
```

Related Command

You can use the master indexes or search online to find documentation of related commands.

line

x28

To enter X.28 mode and access an X.25 network or set X.3 PAD parameters, use the **x28** EXEC command.

x28 [**escape** *character-string*] [**noescape**] [**nuicud**] [**profile** *file-name*] [**reverse**] [**verbose**]
no x28 [**escape** *character-string*] [**noescape**] [**nuicud**] [**profile** *file-name*] [**reverse**] [**verbose**]

Syntax Description

escape *character-string*	(Optional) Specifies a character string to use to exit X.28 mode and return to EXEC mode. The character string can be any string of alphanumeric characters. The **Ctrl** key can be used in conjunction with the character string.
noescape	(Optional) Specifies that no escape character string is defined (user cannot return to EXEC mode). On the console line, the **noescape** option is ignored, and the default escape sequence is used (**exit** command).
nuicud	(Optional) Specifies the network user identification (NUI) data to not be placed in the network user identification facility of the call request. Instead it is placed in the call user data (CUD) area of the call request packet.
profile *file-name*	(Optional) Specifies using a user-configured profile of X.3 parameters. A profile is created with the **x29 profile** EXEC command.
reverse	(Optional) Specifies reverse charges for outgoing calls made from the local router to the destination device.
verbose	(Optional) Displays optional service signals such as the called DTE address, facility block, and CUD.

Default

Disabled. X.28 mode uses standard X.28 command syntax.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.2 F.

If both the **escape** and **noescape** options are not set, the default escape sequence is used (**exit** command).

X.28 mode is identified with an asterisk (*) router prompt. After you enter this mode, the standard X.28 user interface (with the exception of the escape sequence) is available. From this interface, you can configure a PAD device using X.3 parameters, or you can access an X.25 network.

In X.28 mode, you can set PAD command signals using standard or extended command syntax. For example, you can enter the **clr** command or **clear** command to clear a virtual call. A command specified with standard command syntax is merely an abbreviated version of the extended syntax version.

Table 93 lists the commands available in both standard and extended command syntax.

Table 93 Available PAD Command Signals

Standard Syntax	Extended Syntax	Description
break		Simulate an asynchronous break.
call		Place a virtual call to a remote device.
clr	**clear**	Clear a virtual call.
command-signal[1]		Specifies a call request without using a standard X.28 command, which is entered with the following syntax: *facilities*-*x121-address*D*call-user-data*
help		Display help information. (See Table 94.)
iclr	**iclear**	Request the remote device to clear the call.
int	**interrupt**	Send an Interrupt Packet.
par? **par**	**parameter** **read**	Show the current values of local parameters (see Table 94).
prof	**profile** *file-name*	Load a standard or a named profile.
reset		Reset the call.
rpar?	**rread**	Show the current values of remote parameters.
rset?	**rsetread**	Set and then read the values of remote parameters.
set		Change the values of local parameters. (See Table 94.)
set?	**setread**	Change and then read values of parameters.
stat	**status**	Request the status of a connection.
selection pad		Set up a virtual call.

1. Here is an example of issuing a call request command: the **R,G23,P2-234234Duser1** command.

Table 94 lists the different types of parameters you can set using the **set** *parameter-number***:** *new-value* PAD command signal from X.28 mode.

Table 94 Supported X.3 PAD Parameters

Parameter Number	Parameter Name	Description
1	Escape from data transfer	PAD recall using a character. Minimum value: 0; maximum value: 126; default: 1.
2	Local echo mode	Minimum value: 0; maximum value: 1; default: 1.
3	Data forward character	Selection of data forwarding characters. Minimum value: 0; maximum value: 255; default: 126.
4	Idle timer	Selection of idle timer delay. Minimum value: 0; maximum value: 255; default: 0.
5	Device control	Ancillary device control. Minimum value: 0; maximum value: 2; default: 1.
6	PAD service signals	Control of PAD service signals. Minimum value: 0; maximum value: 255; default: 2.
7	Action upon receipt of a BREAK signal	Operation on receipt of bread signal. Minimum value: 0; maximum value: 31; default: 2.
8	Discard option	Minimum value: 0; maximum value: 1; default: 0.
9	Return Padding	Bytes to add after the carriage return. Minimum value: 0; maximum value: 255; default:2.
10[1]	Line folding	Not supported.
11	Baud rate	Binary speed of start-stop mode DTE. Minimum value: 0; maximum value: 18; default: 14.
12	Input flow control	Flow control of the PAD. Minimum value: 0; maximum value: 1; default: 1.
13	LINE FEED insertion	Linefeed insertion after carriage return. Minimum value: 0; maximum value: 7; default: 0.
14	LINE FEED Padding	Minimum value: 0; maximum value: 255; default: 0.
15	Local editing	Minimum value: 0; maximum value: 1; default: 0.
16	Character delete	Minimum value: 0; maximum value: 127; default: 127.
17	Line delete	Minimum value: 0; maximum value: 127; default: 24.
18	Line display	Minimum value: 0; maximum value: 127; default: 18.
19	Editing PAD service signals	Minimum value: 0; maximum value: 126; default: 2.
20	Echo mask	Minimum value: 0; maximum value: 255; default: 0.
21[1]	Parity treatment	Not supported.
22[1]	Page wait	Not supported.

1. These parameters are not supported in Cisco IOS Release 11.2 or 11.3.

Note Abbreviated X.121 addresses are not supported. Such addresses start with a period, are alphanumeric, and are mapped to a full X.121 address by the PAD.

Table 95 lists the options for the X.28 **help** command.

Table 95 Help Command Options

Command	Description
help	Describes the **help** PAD command.
help command	Displays the list of available PAD command signals.
help parameter	Displays the list of available X.3 PAD parameters.
help parameter *number*	Displays the specified X.3 PAD parameter and its current value.
help list	Lists the available help subjects.
help profiles	Lists available profiles.
help profile *name*	Shows the specified parameter's name and current value.
help *any-PAD-command*	Describes the specified PAD command signal.

You can issue call requests from X.28 mode without using standard X.28 commands. To do this, use the following command syntax:

*facilities***-***x121-address***D***call-user-data*

*facilities***-**	Applies X.25 facilities to the outgoing call. the hyphen is mandatory.
x121-address	Specifies the address of the remote X.25 device.
D	Facility request code that specifies call user data for the outgoing call.
call-user-data	Specifies the data that accompanies the call request packet sent to the remote X.25 device.

The following rules apply to all call requests parsed in X.28 mode:

- When an X.121 address specified using standard command syntax is followed by an optional call user data field, the call is placed to the X.121 address.
- While using standard command syntax, one or more facility request codes can be entered, followed by the code value. Additional facility request codes and values can also be entered; separate each entry with a comma, followed by a dash. An X.121 address and optional call user data can follow this entry.
- If an X.28 command is not entered, a call request is assumed.
- Ensure that the call request begins with a facility code letter, and that it contains a dash (-) followed by a string of digits (the X.121 address). The call request can be optionally terminated by an asterisk (*), a "P," or a "D," followed by some data.
- While using extended command syntax, the **call** command uses the facility codes and X.121 address as its operand.
- If facility codes are entered without an X.121 address, remember the codes for the next call. When a call is completed, forget the facility codes until they are once again set.

Table 96 shows examples of parsed call requests.

Table 96 Example X.28 Call Requests

Command	Description
123456789	Calls this X.121 address.
123456789*userdata	Calls this X.121 address, with specified data.
123456789Puserdata	Calls this X.121 address, with specified data.
123456789Duserdata	Calls this X.121 address, with specified data.
Nabcd-123456789	Calls this X.121 address, with NUI set to abcd.
Nabcd,R-123456789	Calls 123456789 with NUI of abcd, and with reverse charging.

Examples

The following example places a virtual call using the **call** PAD command signal in X.28 mode:

```
router# x28

* call 123456
```

The following example enters X.28 mode with the **x28** EXEC command and configures a PAD with the **set** X.3 parameter command. The **set** command sets the idle time delay to 40 seconds.

```
router# x28
* set 4:40
```

Related Commands

You can use the master indexes or search online to find documentation of related commands.

pad