



PFA Products V4.0

Command Survey

First Edition, September 1998
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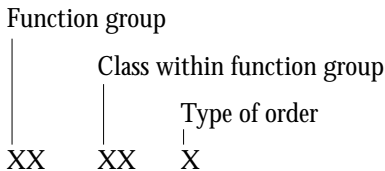
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Introduction

Command code build up

The MML command code (Man Machine Language), identifying the function to be executed consists of five alphanumeric characters and is built up in the following way:



The commands are functional, i.e. every command belongs to a function group, pointed out by the two leftmost characters in the command code. These two characters represent commands concerned with the following areas:

| | | | |
|----|-------------------|----|------------------------|
| AC | Access Control | MP | Multilink Protocol |
| AN | ANalysis | NA | Node Administration |
| CD | Charging Data | PS | Packet Switching |
| FR | Frame Relay | SA | Session Administration |
| IP | Internet Protocol | ST | STatistics |
| LI | Line Interface | UI | User Interface |

The next two letters designate the class within the function group, i.e. it specifies the exact subject to be actioned in the function group, e.g. for address modification the abbreviation AM is used to give ANAMx.

The last letter (i.e., x) is the initial of the activating verbs, as listed below, which are used to execute the commands:

| | |
|------------------------|---------------|
| B = Block | R = Reset |
| D = Deblock | S = Set |
| I = Initialise | T = Terminate |
| P = Printout (Display) | |

Example:

LILPP;

Where: LI = Line Interface Function Group
LP = Link Protocol
P = Printout

This command will therefore print out a link protocol for a line.

Special Characters for Command Lines

An MML command, e.g. PSROI, is followed by one or several special characters for it to be accepted, i.e.

PSROI:ROT=95,NP=1-1-1-3&1-1-1-4,TOS=HOME;

All the possible special characters encountered with MML commands are listed below.

- : The MML command and any parameters associated with the command are separated by a colon (:).
- = The parameter is given in the format "parameter name=parameter value". The parameter name and the parameter value are separated by an equal sign (=).
- , If more than one parameter is possible, the parameters are separated by a comma (,).
- & To speed up configuration, an ampersand (&) can be used to delimit multiple parameter values during input. The (&) is also used to delimit HEX patch data when configuring patches for implementation on the unit.
- ; All MML commands must be terminated by a semicolon (;).

Special Characters for Command Survey

The following characters are only shown in this Command Survey to explain the command usage more fully. They should not be input at the command line.

- () With a bracket () those parameters or parameter values are indicated of which only one value should be used.
- <> Parameters enclosed in angle brackets are optional.
- <...> The symbol indicates that the parameter preceding <...> can have multiple parameter values set, e.g. NP=1-1-1-1&1-1-1-2 or ROT=34&35.

AC - Access Control Commands

| | |
|---|---------------------|
| ACNPP: <,NTN=ntn> <,CUG=code(-dnic)>; | Print CUGs |
| ACNPS: NTN=ntn, CUG=code(-dnic), INDEX=index; | Set CUG list |
| ACNPT: NTN=ntn <,INDEX=index>; | Termination of CUGs |

AN - Analysis Commands

| | |
|---|---|
| ANAMI: TABLE=table <,EXTENSION=yesno>; TABLE=table, INTADDR=intaddr, LOCADDR=locaddr <,CUD=cud> <,PID=pid>; | Initialise address modification table/record |
| ANAMP <:TABLE=table> <,INTADDR=intaddr> <,LOCADDR=locaddr> <,LOCAL=local> | Print data for address modification table |
| ANAMS: TABLE=table <,INTPREF=intpref> <,OWNADDR=ownaddr> <,MAPCODE=mapcode> <,DNIC=dnic> <,DCC=dcc> <,ADDRFORM=addrform> <,SUBADDRLEN=subaddrlen> <,NEXTTABLE=nexttable>; | Set address modification table parameters |

| | |
|---|---|
| ANAMT: TABLE=table; TABLE=table, INTADDR=intaddr; | Terminate an address modification table/record |
| ANDAP <:ND=nd>; | Print Number Directions |
| ANGNI: GTN=gtn,NTN=ntn<...> <,TOS=tos>; | Initialise Hunt Group |
| ANGNP <:GTN=gtn>; | Print Hunt Group |
| ANGNT: GTN=gtn; | Terminate Hunt Group |
| ANNAI: NAME=name, NTN=ntn <,PROT=prot> <,FAC="fac"> <,PID=pid> <,CUD="cud"> <,TPROFILE=tprofile> <,ORIG=orig>; | Initialise asynchronous addressing |
| ANNAI: NAME=name, PROT=prot, DEST=dest; | Initialise TELNET/SNMP management station addressing |
| ANNAS: NAME=name <,NTN=ntn> <,PROT=prot> <,FAC="fac"> <,PID=pid> <,CUD="cud"> <,TPROFILE=tprofile> <,ORIG=orig>; | Set asynchronous addressing |
| ANNAS: NAME=name <,DEST=dest> <,PROT=prot>; | Set TELNET/SNMP management station addressing |
| ANNAP <:NAME=name> <,DETAIL=detail>; | Print asynchronous/TELNET/ SNMP manager addressing |

| | |
|--|--|
| ANNAT: NAME=name; | Terminate asynchronous/ TELNET/SNMP manager addressing |
| ANRAI: ND=nd,RC=rc; | Initialise Number Direction |
| ANRAT: ND=nd; | Terminate Number Direction |
| ANRCI: RC=rc,ROT=rot<...> <,TOS=tos>; | Initialise routing case |
| ANRCP <.RC=rc>; | Print routing case |
| ANRCT: RC=rc; | Terminate routing case |

CD - Charging Data Commands

| | |
|--|---|
| CDAAB; | Block Call Accounting Administrator |
| CDAAC <.BUFSIZE=bufsize> <.NEWCALLS=newcalls> <.NEWRECORD=newrecord> <.EXCEEDBUFF=exceedbuff> <.TRAPS=traps> <.TRAPID=trapid> <.BUFFTRAP=bufstrap> <.CALLREJTRAP=callrejtrap> <.DELETETRAP=deletetrap> <.RECSLOSTTRAP> <.CAASTATUSTRAP=caastatustrap>; | Change Call Accounting Administrator |
| CDAAD; | Deblock Call Accounting Administrator |
| CDAAI; | Initialise Call Accounting Administrator |
| CDAAP; | Print Call Accounting Administrator |

| | |
|--|---|
| CDAAR; | Delete Completed accounting records from CAA Buffer |
| CDAAS <:LONGCALL=longcall> <,DTECOL=dtecol>; | Set Call Accounting Administrator |
| CDAAT; | Terminate Call Accounting Administrator |
| CDCRP: BUFFTYPE=bufftype, RANGE=range <,FORMAT=format> <,SEARCH=search> <,VALUE=value>; | Print Call Accounting records |
| CDFTS <:TRAPID=trapid> <,FTPTRAP=ftptrap>; | Set Call Accounting FTP server parameters |
| CDFTP; | Print Call Accounting FTP server set-up |
| CDIPI: HOSTIP=hostip; | Initialise IP hosts permitted to access Call Accounting records |
| CDIPT: HOSTIP=hostip; | Terminate Call Accounting IP host |
| CDIPP; | Print IP hosts allowed to access Call Accounting records |
| CDRTS: TABLE=table, START=start, END=end, RATE=rate; | Set Call Accounting Rate Tables |
| CDRTP <:TABLE=table>; | Print Call Accounting Rate Tables |
| CDRTR: TABLE=table; | Reset (clear) Call Accounting Rate Table |
| CSDSP <:DATE=date> <,MONTH=month> <,TABLE=table>; | Print Call Accounting Special Days |

| | |
|---|--|
| CSDSI: TABLE=table, DATE=date<...>; | Initialise Call Accounting Special Day |
| CSDST: DATE=date<...>; | Terminate Call Accounting Special Days |
| CDWDP; | Print default Week Days for Call Accounting Rate Tables |
| CDWDS: DAY=day<...>, TABLE=table; | Set default Week Days for Call Accounting Rate Tables |

DIRECTORY

DIRIP;

FR - Frame Relay Commands

| | |
|--|---|
| FRECI: NTN=ntn; | Initialise Frame Relay Echo Port |
| FRECP; | Print Frame Relay Echo Port Parameters |
| FRECT; | Terminate Frame Relay Echo Port |
| FRPCB: NTN=ntn <,DLCI=dlci> <,PVCID=pvcid>; | Block Frame Relay PVC |
| FRPCS: NTN=ntn <,DLCI=dlci> <,PVCID=pvcid> <,BC=bc> <,BE=be> <,TC=tc>; | Set Frame Relay PVC Parameters |

| | |
|--|--|
| FRPCD: NTN=ntn <,DLCI=dlci> <,PVCID=pvcid>; | Deblock Frame Relay PVC |
| FRPCI: SIDEA=FR, NTNA=ntna, DLCIA=dlcia, NTNBN=ntnb, DLCIB=dlcib <,BC=bc> <,BE=be> <TC=tc>; <,TRAPID=trapid> <,PVCTRAP=pvctrap>; | Initialise Frame Relay PVC for frame relay switching |
| FRPCI: SIDEA=FTI, NTNA=ntna, NTNBN=ntn, <,BC=bc> <,BE=be> <,TC=tc> <,TRAPID=trapid> <,PVCTRAP=pvctrap>; | Initialise Frame Relay PVC for FTI port |
| FRPCI: SIDEA=IP, NTNA=ntna, PVCID=pvcid, NTNBN=ntnb, DLCIB=dlcib <,BC=bc> <,BE=be> <,TC=tc> <,TRAPID=trapid> <,PVCTRAP=pvctrap>; | Initialise Frame Relay PVC for IP over frame relay |
| FRPCI: SIDEA=X25, NTNA=ntna, NTNBN=ntnb, DLCIB=dlcib <,BC=bc> | Initialise Frame Relay PVC for X.25/X.75 over frame relay |

| | | |
|---------------|--|--------------------------------------|
| | <,BE=be> <,TC=tc> <,TRAPID=trapid> <,PVCTRAP=pvctrap>; | |
| FRPCP: | NTN=ntn <,DLCI=dhci> <,PVCID=pvcid> <,ALL=all>; | Print Frame Relay PVC |
| FRPCT: | NTN=ntn <,DLCI=dhci> <,PVCID=pvcid>; | Terminate Frame Relay PVC |
| FRTEI: | NTN=ntn, FP=fp; NTN=ntn, LP=lp; | Initialise Frame Relay NTN |
| FRTEP | <:NTN=ntn> <:TYPE=type>; | Print status for Frame Relay NTNs |
| FRTET: | NTN=ntn; | Terminate Frame Relay NTNs |
| FRTPI: | PVCID=pvcid <,DATALEN=datalen> <,DATAINT=dataint> <,BURSTSIZ=burstsiz> <,ECHO=echo>; | Initialise Frame Relay TP PVC |
| FRTPP | <:PVCID=pvcid>; | Print Frame Relay TP PVC |
| FRTPS: | PVCID=pvcid <,DATALEN=datalen> <,DATAINT=dataint> <,BURSTSIZ=burstsiz> <,ECHO=echo>; | Set Frame Relay TP PVC parameters |
| FRTPT: | PVCID=pvcid; | Terminate Frame Relay TP PVC |
| FRTRB; | | Block Frame Relay Traffic Port |
| FRTRD; | | Deblock Frame Relay Traffic Port |

| | | |
|---------------|-----------------|-------------------------------------|
| FRTRI: | NTN=ntn; | Initialise Frame Relay Traffic Port |
| FRTRP; | | Print Frame Relay Traffic Port |
| FRTRT; | | Terminate Frame Relay Traffic Port |

HELP

| | | |
|-------------|------------------------------|-----------------------------------|
| HELP | <command name>; | Online HELP for MML Command Usage |
|-------------|------------------------------|-----------------------------------|

IP - Internet Protocol Commands

| | | |
|---------------|---|--|
| IPDBB; | | Block IP Directed Broadcast |
| IPDBD; | | Deblock IP Directed Broadcast |
| IPDBP; | | Print IP Directed Broadcast |
| IPDGI: | DGATE=dgate <,METRIC=metric>; | Initialise Default Gateway |
| IPDGP; | | Print Default Gateway |
| IPDGT; | | Terminate Default Gateway |
| IPGAI: | REMIP=remip, LOCIP=locip, REMNTN=remntn <,BUFFER=buffer> <,REVIN=revin> <,REVOUT=revout> <,LC=lc> <,INACT=inact> <,RETRY=retry>; | Initialise IP Remote Gateway Entries for X.25/X.75 |

| | | |
|---------------|---|---|
| IPGAI: | REMIP=remip, LOCIP=locip, PVCID=pvcid <,BUFFER=buffer>; | Initialise IP Remote Gateway Entries for Frame Relay |
| IPGAP | <:REMIP=remip> <:LOCIP=locip>; | Print IP Remote Gateway Entries |
| IPGAS: | REMIP=remip <,REMNTN=remntn> <,REVIN=revin> <,REVOUT=revout> <,LC=lc> <,INACT=inact> <,RETRY=retry>; | Set IP Remote Gateway Parameters |
| IPGAT: | REMIP=remip; | Terminate IP Remote Gateway |
| IPHAB; | | Block IP Helper Address table |
| IPHAD; | | Deblock IP Helper Address table |
| IPHAI: | DEST=dest, SERVER=server; | Initialise IP Helper Address |
| IPHAP | <:DEST=dest>; | Print IP Helper Address |
| IPHAT: | DEST=dest, SERVER=server; | Terminate IP Helper Address |
| IPNIB: | LOCIP=locip; | Block Network Interface |
| IPNID: | LOCIP=locip; | Deblock Network Interface |
| IPNII: | TYPE=ETHER, LOCIP=locip, LA=la, MASK=mask, <,TRAPID=trapid> <,TRAPS=traps> <,LINKTRAP=linktrap> <,OBJTRAP=objtrap> <,CONFTRAP=conftrap>; | Initialise Ether Network Interface |

| | | |
|--------|---|---|
| IPNII: | TYPE=X25, LOCIP=locip, LOCNTN=locntn, MASK=mask, <,MTU=mtu> <,TRAPID=trapid> <,TRAPS=traps> <,OBJTRAP=objtrap> <,CONFTRAP=conftrap> <,SH=sh>; | Initialise X.25/X.75 Network Interface |
| IPNII: | TYPE=SLIP, LOCIP=locip, PP=pp, MASK=mask, <,MTU=mtu> <,COMPRESSION=compression> <,BUFFER=buffer> <,TRAPID=trapid> <,TRAPS=traps> <,LINKTRAP=linktrap> <,OBJTRAP=objtrap> <,CONFTRAP=conftrap>; | Initialise SLIP Network Interface |
| IPNII: | TYPE=FR, LOCIP=locip, LOCNTN=locntn, MASK=mask, <,MTU=mtu> <,RATEENF=rateenf> <,INVARP=invarp> <,BUFFER=buffer> <,TRAPID=trapid> <,TRAPS=traps> <,OBJTRAP=objtrap> <,CONFTRAP=conftrap> <,SH=sh>; | Initialise Frame Relay Network Interface |

| | | |
|---------------|---|--------------------------------------|
| IPNII: | TYPE=VNI, LOCIP=locip, BR=br, MASK=mask, <,MTU=mtu> <,TRAPID=trapid> <,TRAPS=traps> <,LINKTRAP=linktrap> <,OBJTRAP=objtrap> <,CONFTRAP=conftrap>; | Initialise Virtual Network Interface |
| IPNIP | <:LOCIP=locip>; | Print Network Interface Parameters |
| IPNIS: | LOCIP=locip <,MTU=mtu> <,LOCNTN=locntn> <,COMPRESSION=compression> <,BUFFER=buffer> <,RATEENF=rateenf> <,INVARP=invarp> <,SH=sh> <,TRAPID=trapid> <,TRAPS=traps> <,OBJTRAP=objtrap> <,CONFTRAP=conftrap> <,LINKTRAP=linktrap>; | Set Network Interface Parameters |
| IPNIT: | LOCIP=locip; | Terminate Network Interface |
| IPPIP: | DEST=dest <,WAIT=wait>; | Print PING request status |
| IPRGI: | GATE=gate <,RXMODE=rxmode> <,TXMODE=txmode> <,DEFGATE=defgate> <,RXAUTH=rxauth> <,TXAUTH=txauth>; | Initialise RIP Gateway |

| | | |
|--------|---|-----------------------|
| IPRGP | <:GATE=gate>; | Print RIP Gateway |
| IPRGS: | GATE=gate <,RXMODE=rxmode> <,TXMODE=txmode> <,DEFGATE=defgate> <,RXAUTH=rxauth> <,TXAUTH=txauth>; | Set RIP Gateway |
| IPRGT: | GATE=gate; | Terminate RIP Gateway |
| IPROI: | DEST=dest, MASK=mask, GATE=gate <,METRIC=metric>; | Initialise IP Route |
| IPROP | <:DEST=dest> <,LOCIP=locip>; | Print IP Routes |
| IPROS: | DEST=dest, MASK=mask <,GATE=gate> <,METRIC=metric>; | Set IP Route |
| IPROT: | DEST=dest, MASK=mask <,GATE=gate>; | Terminate IP Route |
| IPRPB; | | Blocks RIP |
| IPRPD; | | Deblocks RIP |
| IPRPP; | | Print RIP |
| IPRPS | <:UPDATE=update> <,TIMEOUT=timeout> <,GARBAGE=garbage> <,HOLD=hold> <,POISON=poison> <,TAG=tag> <,DEFGATE=defgate>; | Set RIP |
| IPRPT; | | Terminate RIP |

| | | |
|---------------|---|---|
| IPTPB: | TIP=tip; | Block TIP |
| IPTPD: | TIP=tip; | Deblock TIP |
| IPTPI: | TIP=tip, SIDE=side, REMIP=remip; | Initialise TIP |
| IPTPP | <:TIP=tip>; | Print TIP |
| IPTPS: | TIP=tip <,SIDE=side> <,REMIP=remip>; | Set TIP |
| IPTPT: | TIP=tip; | Terminate TIP |
| IPTSI: | REMIP=remip, ENTRY=entry <,ADJUST=adjust> <,INTERVAL=interval> <,RETRIES=retries>; | Initialise Remote IP Time Server (PFA660 only) |
| IPTSP | <:ENTRY=entry>; | Printout of Remote IP Time Server Table (PFA660 only) |
| IPTSS: | ENTRY=entry <,REMIP=remip> <,ADJUST=adjust> <,INTERVAL=interval> <,RETRIES=retries>; | Set parameters of Remote IP Time Server (PFA660 only) |
| IPTST: | ENTRY=entry; | Terminate a remote IP Time Server (PFA660 only) |

LI - Line Interface Commands

| | | |
|--------------|---|---------------------|
| LIATI | <:PORT=port> <,BUF_SIZE=buf_size> <,MAX_ABR=max_abr> <,FD_CONN=fd_conn> <,TX_CONN=tx_conn> | Initialise ATM port |
|--------------|---|---------------------|

| | | |
|--------|---|----------------------------|
| | <pre> <,RX_CONN=rx_conn> <,ENCODING=encoding> <,LINE_LENGTH=line_length> <,BUFFERS=buffers> <,TRAPID=trapid> <,TRAPS=traps> <,LINKTRAP=linktrap> <,OBJTRAP=objtrap> <,CONFTRAP=conftrap>; </pre> | |
| LIATS | <pre> <:PORT=port> <,BUF_SIZE=buf_size> <,MAX_ABR=max_abr> <,FD_CONN=fd_conn> <,TX_CONN=tx_conn> <,RX_CONN=rx_conn> <,ENCODING=encoding> <,LINE_LENGTH=line_length> <,BUFFERS=buffers> <,TRAPID=trapid> <,TRAPS=traps> <,LINKTRAP=linktrap> <,OBJTRAP=objtrap> <,CONFTRAP=conftrap>; </pre> | Set ATM port |
| LIATD | <pre> <:PORT=port>; </pre> | Deblock ATM port |
| LIATB | <pre> <:PORT=port>; </pre> | Block ATM port |
| LIATT | <pre> <:PORT=port>; </pre> | Terminate ATM port |
| LIATP | <pre> <:PORT=port>; </pre> | Print ATM port parameters |
| LIBPI: | <pre> BR=br, LA=la; </pre> | Initialise Bridge LAN port |
| LIBPB: | <pre> BR=br, LA=la; </pre> | Block Bridge LAN port |
| LIBPD: | <pre> BR=br, LA=la; </pre> | Deblock Bridge LAN port |

| | | |
|---------------|--|---|
| LIBPP: | <BR=br>; | Print Bridge LAN port information |
| LIBPT: | BR=br, LA=la; | Terminate Bridge LAN port |
| LIBRI: | BR=br, LOCNTN=locntn <,PVCFWD=pvcfwd> <,REMOTEMACS=remotemacs> <,BUFFER=buffer> <,PRIORITY=priority>; | Initialise Ethernet Bridging Group |
| LIBRS: | BR=br <,PVCFWD=pvcfwd> <,REMOTEMACS=remotemacs> <,BUFFER=buffer> <,PRIORITY=priority>; | Set Ethernet Bridging Group parameters |
| LIBRB: | BR=br; | Block Ethernet Bridging Group |
| LIBRD: | BR=br; | Deblock Ethernet Bridging Group |
| LIBRP | <:BR=br>; | Prints Ethernet Bridging Group parameters |
| LIBRT: | BR=br; | Terminate Ethernet Bridging Group |
| LIFPB: | FP=fp; | Block Frame Relay port |
| LIFPD: | FP=fp; | Deblock Frame Relay port |
| LIFPI: | FP=fp, PROT=prot <,TRAPID=trapid> <,TRAPS=traps> <,OBJTRAP=objtrap> <,CONFTRAP=conftrap>; | Initialise Frame Relay port |
| LIFPP: | FP=fp; | Print Frame Relay port parameters |

| | | |
|---------------|--|--|
| LIFPS: | FP=fp <,ACCCIR=accir> <,CONN=conn> <,LLM=llm> <,N391=n391> <,N392=n392> <,N393=n393> <,T391=t391> <,T392=t392> <,PVCSTATUS=pvcstatus>; | Set Frame Relay port parameters |
| LIFPT: | FP=fp; | Terminate Frame Relay port |
| LISS: | PP=port <,V25STRING=v25string> <,WAIT=wait>; | Sends V25bis string (for ISDN POP PAK configuration) |
| LILAB: | LA=la; | Block LAN1 port |
| LILAD: | LA=la; | Deblock LAN1 port |
| LILAI: | LA=la, TYPE=ETHER <,TRAPID=trapid> <,TRAPS=traps> <,LINKTRAP=linktrap> <,OBJTRAP=objtrap> <,CONFTRAP=conftrap> <,POPTRAP=poptrap>; | Initialise LAN1 port |
| LILAS: | LA=la <,TRAPID=trapid> <,TRAPS=traps> <,LINKTRAP=linktrap> <,OBJTRAP=objtrap> <,CONFTRAP=conftrap> <,POPTRAP=poptrap>; | Set LAN1 port |
| LILAP | <:LA=la>; | Print LAN1 port |
| LILAT: | LA=la; | Terminate LAN1 port |
| LILCB: | LCP=lcp; | Block PPP link control layer |

| | | |
|---------------|--|---------------------------------------|
| LILCD: | LCP=lcp; | Deblock PPP link control layer |
| LILCI: | LCP=lcp, MP=mp <,LQP=lqp> <,QTIME=qtime> <,QSAMPLE=qsample> <,QNUMBER=qnumber> <,RSTIMER=rstimer> <,MAXTERM=maxterm> <,MAXCONF=maxconf> <,MAXFAIL=maxfail> <,CONPREF=conpref> <,TXWIN=txwin> <,TRAPS=traps> <,TRAPID=trapid> <,LINKTRAP=linktrap> <,OBJTRAP=objtrap> <,CONFTRAP=conftrap>; | Initialise PPP link control layer |
| LILCP | <:LCP=lcp>; | Print PPP link control layer |
| LILCS: | LCP=lcp <,MP=mp> <,LQP=lqp> <,QTIME=qtime> <,QSAMPLE=qsample> <,QNUMBER=qnumber> <,RSTIMER=rstimer> <,MAXTERM=maxterm> <,MAXCONF=maxconf> <,MAXFAIL=maxfail> <,CONPREF=conpref> <,TXWIN=txwin> <,TRAPS=traps> <,TRAPID=trapid> <,LINKTRAP=linktrap> <,OBJTRAP=objtrap> <,CONFTRAP=conftrap>; | Set PPP link control layer parameters |

| | | |
|---------------|--|--|
| LILCT: | LCP=lcp; | Terminate PPP link control layer |
| LILPB: | LP=port; | Block Link port |
| LILPD: | LP=port; | Deblock Link port |
| LILPI: | LP=port, PROT=prot <,ADDR=address> <,TRAPID=trapid> <,TRAPS=traps> <,LINKTRAP=linktrap> <,OBJTRAP=objtrap> <,CONFTRAP=conftrap> <,DISTTRAP=distrap> <,FRMRTRAP=frmrrap> <,HDLCTRAP=hdlctrap>; | Initialise link port |
| LILPP: | LP=port; | Print link port configuration |
| LILPS: | LP=port <,TPROFILE=tprofile> <,HPROFILE=hprofile> <,PROMPT="prompt"> <,CALLTEXT="calltext"> <,CLEARTEXT="cleartext"> <,BREAKTEXT="breaktext"> <,FORCENUI=forcenui> <,DESTID=destid>; | Set link port parameters for asynchronous/ X.28_or_TELNET |
| LILPS: | LP=port, DESTID=destid; | Set link port parameters for TPAD |
| LILPS: | LP=port <,MODULO=modulo> <,K=window> <,T1=timeout> <,N2=retries> <,DXE=dx> <,T2=timeout> | Set link port parameters for X.25 |

<,TP=timeout>
<,LINK=link>
<,ACL=acl>
<,LIM=lim>
<,DESTID=destid>
<,TRAPID=trapid>
<,TRAPS=traps>
<,LINKTRAP=linktrap>
<,OBJTRAP=objtrap>
<,CONFTRAP=conftrap>
<,DISTTRAP=distrtrap>
<,FRMRTRAP=frmrttrap>
<,HDLCTRAP=hdlctrtrap>;

LILPS: LP=port Set link port parameters
 <,MODULO=modulo> for X.75

<,K=window>
<,T1=timeout>
<,N2=retries>
<,T2=timeout>
<,TP=timeout>
<,LINK=link>
<,ACL=acl>
<,LIM=lim>
<,DESTID=destid>
<,TRAPID=trapid>
<,TRAPS=traps>
<,LINKTRAP=linktrap>
<,OBJTRAP=objtrap>
<,CONFTRAP=conftrap>
<,DISTTRAP=distrtrap>
<,FRMRTRAP=frmrttrap>
<,HDLCTRAP=hdlctrtrap>;

LILPS: LP=port Set link port parameters
 <,K=window> for SNA/SDLC
 <,T1=timeout>
 <,N2=retries>

<,ADDR=address>
<,TL=timeout>
<,T1TEST=timeout>
<,N2TEST=retries>
<,TEST=frame>
<,DATMODE=datmode>
<,LINK=link>
<,ACL=acl>
<,LIM=lim>
<FIDTYPE=fidtype>
<,DESTID=destid>
<,TRAPID=trapid>
<,TRAPS=traps>
<,LINKTRAP=linktrap>
<,OBJTRAP=objtrap>
<,CONFTRAP=conftrap>
<,DISTTRAP=disttrap>
<,FRMRTRAP=frmrttrap>
<,HDLCTRAP=hdlctrtrap>;

| | | |
|--------|--|---|
| LILPT: | LP=port; | Terminate link port |
| LILTB: | LP=port; | Block line test link port |
| LILTD: | LP=port; | Deblock line test port |
| LILTI: | LP=port,LOOP=loop, DELAY=delay, DURATION=duration; | Initialise link test |
| LILTP: | LP=port; | Print serial line test configuration |
| LILTT: | LP=port; | Terminate line test link port |
| LIMPB: | MP=mp; | Block an MP bundle |
| LIMPD: | MP=mp; | Deblock an MP bundle |
| LIMPI: | MP=mp, BOD=bod <,MODE=mode> | Initialise an MP bundle |

| | | |
|--------|--|---------------------------------------|
| | <pre> <,RATEENFIN=rateenfin> <,RATEENFOUT=rateenfout> <,TRAPID=trapid> <,TRAPS=traps> <,LINKTRAP=linktrap> <,OBJTRAP=objtrap> <,CONFTRAP=conftrap>; </pre> | |
| LIMPP | <pre> <:MP=mp>; </pre> | Print MP bundle details |
| LIMPS: | <pre> MP=mp <,BOD=bod> <,MODE=mode> <,RATEENFIN=rateenfin> <,RATEENFOUT=rateenfout> <,TRAPID=trapid> <,TRAPS=traps> <,LINKTRAP=linktrap> <,OBJTRAP=objtrap> <,CONFTRAP=conftrap>; </pre> | Set an MP bundle |
| LIMPT: | <pre> MP=mp; </pre> | Terminate an MP bundle |
| LIMRP | <pre> <:LEVEL=level> <,SEQNO=seqno> <,LC=lc> <,DLCIFILTER=dlcifilter> <,PPFILTER=ppfilter>; </pre> | Print decoded frames for port monitor |
| LINPB: | <pre> NP=port; </pre> | Block network port |
| LINPD: | <pre> NP=port; </pre> | Deblock network port |
| LINPI: | <pre> NP=port, PROT=prot <,TRAPID=trapid> <,TRAPS=traps> <,LINKTRAP=linktrap> <,OBJTRAP=objtrap> <,CONFTRAP=conftrap>; </pre> | Initialise network port |

| | | |
|---------------|--|---|
| LINPP: | NP=port; | Print network port parameters |
| LINPS: | NP=port <,PACKSIZE=packsize> <,CUD=cud>; | Set network port parameters for asynchronous |
| LINPS: | NP=port <,VERSION=version> <,DXE=dxe> <,PC=pc> <,IC=ic> <,OC=oc> <,TC=tc> <,MODULO=modulo> <,WSN=wsn> <,MWS=mws> <,DWS=dws> <,PSN=psn> <,MPS=mps> <,DPS=dps> <,FAST=fast> <,CLAMN=clamn> <,DTEFAC=dtefac> <,ADDRMOD=addrmod> <,CTIMER=ctimer> <,RESTIMER=restimer> <,RSTTIMER=rsttimer> <,CLRTIMER=clrtimer> <,TCN=tcn> <,DTC=dtc> <,ZEROCAUSE=zerocause> <,ACCADDR=accaddr> <,NUI=nui> <,TRAPID=trapid> <,TRAPS=traps> <,LINKTRAP=linktrap> <,OBJTRAP=objtrap> <,CONFTRAP=conftrap>; | Set network port parameters for X.25 |

LINPS: NP=port Set network port parameters
<,VERSION=version> for X.75
<,PC=pc>
<,IC=ic>
<,OC=oc>
<,TC=tc>
<,MODULO=modulo>
<,WSN=wsn>
<,MWS=mws>
<,DWS=dws>
<,PSN=psn>
<,MPS=mps>
<,DPS=dps>
<,FAST=fast>
<,CLAMN=clamn>
<,DTEFAC=dtefac>
<,ADDRMOD=addrmod>
<,CTIMER=ctimer>
<,RESTIMER=restimer>
<,RSTTIMER=rsttimer>
<,CLRTIMER=clrtimer>
<,NETTYPE=nettype>
<,TNIC=tnic>
<,CNIC=cnic>
<,EXTERNAL=external>
<,TCN=tcn>
<,DTC=dtc>
<,TRAPID=trapid>
<,TRAPS=traps>
<,LINKTRAP=linktrap>
<,OBJTRAP=objtrap>
<,CONFTRAP=conftrap>;

LINPS: NP=port Set network port parameters
<,LOCUP=locup> for QLLC
<,XIDSTRING=xidstring>
<,TESTINT=testint>
<,XIDMODE=xidmode>

| | | |
|--------|--|-----------------------------|
| | <,PACKSIZE=packsize> | |
| | <,TRAPID=trapid> | |
| | <,TRAPS=traps> | |
| | <,OBJTRAP=objtrap> | |
| | <,CONFTRAP=conftrap>; | |
| LINPT: | NP=port; | Terminate network port |
| LIPMB; | | Block port monitor |
| LIPMD; | | Deblock port monitor |
| LIPMI: | PP=port, LP=port, MP=port; | Initialise port monitor |
| LIPMP; | | Print port monitor setup |
| LIPMS: | <TRIGGER=trigger> <,RFILTER=rfilter> <,DLCIFILTER=dlcifilter> <,FRAMESAFTER=framesafter> <,PPFILTER=ppfilter>; | Set port monitor parameters |
| LIPMT; | | Terminate port monitor |
| LIPOB: | PORT=port; | Block all port levels |
| LIPOD: | PORT=port; | Deblock all port levels |
| LIPOI: | PORT=port, PROT=prot <,ADDR=addr> <,DXE=dxe> <,SIDE=side> <,MODE=mode> <,MP=mp>; | Initialise all port levels |
| LIPOP | <,PORT=port>; | Print status of all ports |
| LIPOT: | PORT=port; | Terminate all port levels |
| LIPPB: | PP=port; | Block physical port |
| LIPPD: | PP=port; | Deblock physical port |

| | | |
|---------------|--|--|
| LIPPI: | PP=port <,TYPE=type> <,MODE=mode> <,TRAPID=trapid> <,TRAPS=traps> <,LINKTRAP=linktrap> <,OBJTRAP=objtrap> <,CONFTRAP=conftrap> <,POPTRAP=poptrap>; | Initialise physical port |
| LIPPP: | PP=port; | Print physical port parameters |
| LIPPR: | PP=port; | Reset PP (for ISDN POP PAK only) |
| LIPPS: | PP=port <,RATE=rate> <,PARITY=parity> <,ENCODING=encoding> <,DCDMODE=dcdmode> <,MODEMFLOW=modemflow> <,XONFLOW=xonflow> <,CHARBITS=charbits> <,STOPBITS=stopbits> <,ACCESS=access> <,DUPLEX=duplex> <,MODEMSTRING=modemstring> <,STARTSTRING=startstring> <,DCDMODE=dcdmode> <,ACNTL=acntl> <,ACL=acl> <,ALARMTIM=alarmtim> <,DESTID=destid> <,TRAPID=trapid> <,TRAPS=traps> <,LINKTRAP=linktrap> <,OBJTRAP=objtrap> <,CONFTRAP=conftrap> <,POPTRAP=poptrap>; | Set physical port parameters for asynchronous |

LIPPS: PP=port<,N1=n1> Set physical port parameters
 <,TIMING=timing> for X.25/X.75/SDLC/TPAD
 <,RATE=rate>
 <,ENCODING=encoding>
 <,IFM=ifm>
 <,ACCESS=access>
 <,DUPLEX=duplex>
 <,MODEMSTRING=modemstring>
 <,DCDMODE=dcdmode>
 <,ACNTL=acntl>
 <,ACL=acl>
 <,ALARMTIM=alarmtim>
 <,DESTID=destid>
 <,STARTCHAR=startchar> for TPAD Bisync only
 <,TRAILCHAR=trailchar> for TPAD Bisync only
 <,PACKSIZE=packsize> for TPAD Bisync only
 <,TRAPID=trapid>
 <,TRAPS=traps>
 <,LINKTRAP=linktrap>
 <,OBJTRAP=objtrap>
 <,CONFTRAP=conftrap>
 <,POPTRAP=poptrap>
 <,CASMODE=casmode>
 <,TCONN=tconn>;

LIPPS: PP=port<,N1=n1> Set physical port parameters
 <,TIMING=timing> for Frame Relay
 <,RATE=rate>
 <,ENCODING=encoding>
 <,IFM=ifm>
 <,ACCESS=access>
 <,DUPLEX=duplex>
 <,MODEMSTRING=modemstring>
 <,DCDMODE=dcdmode>
 <,RATEENFIN=rateenfin>
 <,RATEENFOUT=rateenfout>
 <,CRC=crc>
 <,BUFFERS=buffers>

```

    <,ACNTL=acntl>
    <,ACL=acl>
    <,ALARMTIM=alarmtim>
    <,DESTID=destid>
    <,TRAPID=trapid>
    <,TRAPS=traps>
    <,LINKTRAP=linktrap>
    <,OBJTRAP=objtrap>
    <,CONFTRAP=conftrap>
    <,POPTRAP=poptrap>
    <,CASMODE=casmode>
    <,TCONN=tconn>;

LIPPT:  PP=port;                               Terminate physical port

LIVPI:  VP=vp,                                  Initialise virtual port
        VCC=vcc                                  parameters
        <,TYPE=type>
        <,TRAPID=trapid>
        <,TRAPS=traps>
        <,LINKTRAP=linktrap>
        <,OBJTRAP=objtrap>
        <,CONFTRAP=conftrap>;

LIVPS:  VP=vp                                   Set virtual port parameters
        <,VCC=vcc>
        <,MAXPDU=maxpdu>
        <,RATEENFIN=rateenfin>
        <,RATEENFOUT=rateenfout>
        <,RATEMODE=ratemode>
        <,MAPMODE=mapmode>
        <,CLP=clp>
        <,GCRA_I=gcra_i>
        <,GCRA_L=gcra_l>
        <,ATMTXBUFFS=atmtxbufs>
        <,ACNTL=acntl>
        <,ACL=acl>
        <,DESTID=destid>
        <,TRAPID=trapid>

```

<,TRAPS=traps>
<,LINKTRAP=linktrap>
<,OBJTRAP=objtrap>
<,CONFTRAP=conftrap>;

LIVPD: VP=vp; Deblock virtual port
LIVPB: VP=vp; Block virtual port
LIVPT: VP=vp; Terminate virtual port
LIVPP: VP=vp; Print virtual port parameters

MP - Multilink Protocol Commands

MPBDI: BOD=bod Initialise MP bandwidth-on-
 <,TSAMPLE=tsample> demand table
 <,SMOOTH=smooth>
 <,CON1=con1 >
 <,DIS1=dis1 >
 <,CON2=con2 >
 <,DIS2=dis2 >
 <,CON3=con3 >
 <,DIS3=dis3 >
 <,CON4=con4 >
 <,DIS4=dis4 >
 <,CON5=con5 >
 <,DIS5=dis5 >
 <,CON6=con6 >
 <,DIS6=dis6 >
 <,CON7=con7 >
 <,DIS7=dis7 >;

MPBDP <:BOD=bod>; Print MP bandwidth-on-
 demand table

MPBDS: BOD=bod Set MP bandwidth-on-demand
 <,TSAMPLE=tsample> table
 <,SMOOTH=smooth>

<,CON1=con1>
<,DIS1=dis1>
<,CON2=con2>
<,DIS2=dis2>
<,CON3=con3>
<,DIS3=dis3>
<,CON4=con4>
<,DIS4=dis4>
<,CON5=con5>
<,DIS5=dis5>
<,CON6=con6>
<,DIS6=dis6>
<,CON7=con7>
<,DIS7=dis7>;

MPBDT: BOD=bod;

Terminate MP bandwidth-on-demand table

NA - Node Administration Commands

NAALP <:ACL=acl< ... >>;

Print alarm list

NAALR;

Reset (clear) spontaneous alarm
Print queue

NACCI: CONFIG=config;

Stores the current config into
FLASH (PFA660 only)

NACCP;

Print current status of config
area

NACCR: CONFIG=config;

Reset the config area

**NACCS <:PENDING=pending>
<,REMERR=delete>;**

Sets config area to be loaded
on restart

**NACDI: CONFIG=config,
TRANSFER=state;**

Initialise the config area

NACDP <:CONFIG=config>;

Print current or selected
configuration

| | |
|--|---|
| NACGI: COMM=comm, STRING="string", TYPE=type; | Initialise SNMP Community Instance |
| NACGP <:COMM=comm> <,STRING="string"> <,TYPE=type>; | Print SNMP Community Instance |
| NACGS: COMM=comm <,STRING="string"> <,TYPE=type>; | Set SNMP Community Instance |
| NACGT: COMM=comm; | Terminate Community Instance |
| NACLP; | Print date and time |
| NACLS: DATE=date, TIME=time; | Set date and time |
| NADCB: NAME=name <,DIR=dir>; | Node Administration Directory Control: Blocks username |
| NADCD: NAME=name <,DIR=dir>; | Node Administration Directory Control. Deblocks username |
| NADCI: NAME=name, PASSWORD=pw, AUTH=auth <,DIR=dir>; | Node Administration Directory Control. Initialise users |
| NADCP: <,NAME=name> <,DIR=dir>; | Node Administration Directory Control. Print of usernames |
| NADCS: NAME=name <,PASSWORD=pw> <,AUTH=auth> <,DIR=dir>; | Node Administration Directory Control. Change passwords and authorities |
| NADCT: NAME=name <,DIR=dir>; | Node Administration Directory Control. Terminate Username |

| | |
|---|--|
| NADNP; | Print DNIC and default call priority |
| NADNS <:DNIC=dnic> <,DEFPRI=defpri> <,PREFTIME=preftime> <,CFGRATE=cfgrate>; | Set Default Node settings |
| NAHSP; | Print hardware status |
| NAHWP; | Print PFA660 hardware-related information. |
| NAHWS <:TRAPID=trapid> <,TRAPS=traps> <,FANFAILTRAP=fanfailtrap> <,PSUFAILTRAP=psufailtrap>; | Set PFA660 hardware-related information |
| NALOP; | Print load control settings/ statistics |
| NALOR; | Reset load control statistics |
| NALOS <:LLSPS=limit> <,LLSMOOTH=smooth> <,TRAPID=trapid> <,LOWMEM=lowmem> <,LOWMEMTRAP=lowmemtrap>; | Set load control limits |
| NAMSI: NMS=nms <,COMM=comm1& comm2&comm3 &commn>; | Initialise SNMP Manager associations |
| NAMSP <:NMS=nms> <,COMM=comm>; | Print SNMP Manager associations |
| NAMSS: NMS=nms <,COMM=comm1& comm2&comm3 &commn>; | Set SNMP Manager associations |
| NAMST: NMS=nms; | Terminate SNMP Manager associations |

| | |
|--|---|
| NANMP <:NAME=name>; | Print SNMP subsystem |
| NANMS: NAME=SYSCONTACT, VALUE=syscontact; | Set SNMP subsystem |
| NANMS: NAME=SYSLOCATION, VALUE=syslocation; | |
| NANMS: NAME=COLDSTARTDEL, VALUE=coldstartdel; | |
| NANMS: NAME=AUTHTRAP, VALUE=authtrap; | |
| NANMS: NAME=TRAPID, VALUE=trapid; | |
| NANMS: NAME=TOPOLOGYTRAP, VALUE=topologytrap; | |
| NANOP; | Print Node Name and ID |
| NANOS: <NODE=node> <,NODEID=nodeid>; | Set Node Name and ID |
| NAPDB: NAME=name; | Block Printout Destination |
| NAPDD: NAME=name; | Deblock Printout Destination |
| NAPDI: NAME=name, DESTTYPE=desttype, NTN=ntn,QLIM=qlim, HBINT=hbint <,QLEN=qlen> <,DESTID=destid<...>>; | Initialise Printout Destination |
| NAPDP <:NAME=name>; | Print Printout Destinations |
| NAPDS: NAME=name <,DESTTYPE=desttype> <,NTN=ntn> <,QLIM=qlim> <,HBINT=hbint> <,QLEN=qlen> <,DESTID=destid<...>>; | Setting parameters of Printout Destination |
| NAPDT: NAME=name; | Terminate Printout Destination |

NAPRI: PROFILE=name,PROT=prot Initialise asynchronous USER profile
 <,ESC=esc> or <,P1=esc>
 <,ECH=ech> or <,P2=ech>
 <,FOR=for> or <,P3=for>
 <,IDL=idl> or <,P4=idl>
 <,DEV=dev> or <,P5=dev>
 <,SIG=sig> or <,P6=sig>
 <,BRE=bre> or <,P7=bre>
 <,DIS=dis> or <,P8=dis>
 <,CRP=crp> or <,P9=crp>
 <,FOL=fol> or <,P10=fol>
 <,FLO=flo> or <,P12=flo>
 <,LFI=lfi> or <,P13=lfi>
 <,LFP=lfp> or <,P14=lfp>
 <,EDI=edi> or <,P15=edi>
 <,CDEL=cdel> or <,P16=cdel>
 <,LDEL=ldel> or <,P17=ldel>
 <,LDIS=ldis> or <,P18=ldis>
 <,ESIG=esig> or <,P19=esig>
 <,MAS=mas> or <,P20=mas>
 <,PAR=par> or <,P21=par>
 <,PAG=pag> or <,P22=pag>
 <,PMASK=pmask>
 <,CONC=conc>
 <,HOST=host>
 <,TABS=tabs>
 <,TTAB=ttab>
 <,HTAB=htab>
 <,HPAR=hpar>
 <,YEAR=year>
 <,AWAKE=awake>;

NAPRP <:PROFILE=name> Print asynchronous profile
 <,STYLE=style>;

NAPRS: PROFILE=name Set asynchronous profile
 <,ESC=esc> or <,P1=esc>
 <,ECH=ech> or <,P2=ech>

<,FOR=for> or <,P3=for>
<,IDL=idl> or <,P4=idl>
<,DEV=dev> or <,P5=dev>
<,SIG=sig> or <,P6=sig>
<,BRE=bre> or <,P7=bre>
<,DIS=dis> or <,P8=dis>
<,CRP=crp> or <,P9=crp>
<,FOL=fol> or <,P10=fol>
<,FLO=flo> or <,P12=flo>
<,LFI=lfi> or <,P13=lfi>
<,LFP=lfp> or <,P14=lfp>
<,EDI=edi> or <,P15=edi>
<,CDEL=cdel> or <,P16=cdel>
<,LDEL=ldel> or <,P17=ldel>
<,LDIS=ldis> or <,P18=ldis>
<,ESIG=esig> or <,P19=esig>
<,MAS=mas> or <,P20=mas>
<,PAR=par> or <,P21=par>
<,PAG=pag> or <,P22=pag>
<,PMASK=pmask>
<,CONC=conc>
<,HOST=host>
<,TABS=tabs>
<,TTAB=ttab>
<,HTAB=htab>
<,HPAR=hpar>
<,YEAR=year>
<,AWAKE=awake>;

| | | |
|--------|--|--|
| NAPRT: | PROFILE=profile; | Terminate asynchronous profile |
| NAREI; | | Reloads PFA software |
| NATPI: | LOCNAME=locname, REMADDR="remaddr", REMNAME="remname"; | Initialise SNMP Topology Table Instance |
| NATPP | <:LOCNAME=locname>; | Print SNMP Topology Table Instance |

| | |
|---|--|
| NATPT: LOCNAME=locname; | Terminate SNMP Topology Table Instance |
| NATSB; | Block Node Time Administrator (PFA660 only) |
| NATSD; | Deblock Node Time Administrator (PFA660 only) |
| NATSI <:UPDATE=update> <,TRAPID=trapid> <,TIMEFAILTRAP=timefailtrap>; | Initialise Node Time Administrator (PFA660 only) |
| NATSP; | Display Node Time Administrator (PFA660 only) |
| NATSS: <UPDATE=update> <,TRAPID=trapid> <,TIMEFAILTRAP=timefailtrap> <,ACL=acl> <,ACNTL=acntl> <,DESTID=destid>; | Set Node Time Administrator (PFA660 only) |
| NATST; | Terminate Node Time Administrator (PFA660 only) |

PS - Packet Switching Commands

| | |
|--|-------------------------|
| PSAGI: AG=ag, NP=port<...>, EXTNET=extnet <,DISC=disc> <,TOS=tos>; | Initialise Access Group |
| PSAGP <:AG=ag>; | Print Access Groups |
| PSAGS: AG=ag <,DISC=disc> <,TOS=tos>; | Set Access Group |

| | | |
|---------------|---|---|
| PSAGT: | AG=ag; | Terminate Access Group |
| PSCFP: | NTN=ntn; | Print configurable facilities for NTN's |
| PSCFS: | NTN=ntn <,CF=cf> <,PRI=pri> <,ICB=icb> <,OCB=ocb> <,IAC=iac> <,OAC=oac>; | Set configurable facilities for NTN's |
| PSCFT: | NTN=ntn; | Terminate configurable facilities for NTN's |
| PSECI: | NTN=ntn <,PS=ps> <,WS=ws>; | Initialise Echo Port |
| PSECP; | | Print Echo Port |
| PSECT; | | Terminate Echo Port |
| PSENI: | EXTNET=extnet; | Initialise External Network |
| PSENP | <:EXTNET=extnet>; | Print External Network |
| PSENT: | EXTNET=extnet; | Terminate External Network |
| PSPCI: | NTNA=ntna, NTNB=ntnb <,LCA=lca> <,PRI=pri> <,TRAPID=trapid> <,PVCTRAP=pvctrap>; | Initialise HVC |
| PSPCI: | NTNA=ntna, NTNB=ntnb, LCB=lcb <,LCA=lca> <,PRI=pri> <,TRAPID=trapid> <,PVCTRAP=pvctrap>; | Initialise PVC |

| | | |
|---------------|--|--|
| PSPCP | <:NTNA=ntna> <,LCA=lca>; | Print data for PVCs/HVCs |
| PSPCT: | NTNA=ntna <,LCA=lca>; | Terminate PVC/HVC |
| PSPIP: | DEST=dest <,WAIT=wait> <,PRI=pri>; | Print Packet Switching PING request status |
| PSPRP; | | Print default call priorities |
| PSPRS | <:PID=pid> <,PRI=pri>; | Set default call priorities |
| PSPRT | <:PID=pid>; | Terminate call priority |
| PSROI: | ROT=rot, NP=port<...> <,TOS=tos> <,RCI=rci> <,DISC=disc> <,CC=cc>; | Initialise route (Dedicated) |
| PSROI: | ROT=rot, TIP=tip <,CC=cc>; | Initialise TIP route |
| PSROI: | ROT=rot, AG=ag, EXTNET=extnet, DTE=dte <,RCI=rci> <,NODEID=nodeid> <,MODEMSTRING= modemstring> <,CC=cc>; | Initialise route (Shared Access) |
| PSROP | <:ROT=rot>; | Print data for routes |
| PSROS: | ROT=rot<,NP=port<...>> <,RCI=rci> <,TOS=tos> <,DISC=disc> <,AG=ag> | Set routes |

| | | |
|--------|--|---|
| | <,EXTNET=extnet> <,DTE=dte> <,NODEID=nodeid> <,MODEMSTRING= modemstring> <CC=cc>; | |
| PSROS: | ROT=rot,TIP=tip; | Set TIP route |
| PSROT: | ROT=rot; | Terminate routes |
| PSTEI: | NTN=ntn,NP=port <,INSADDR=insaddr> <,DISC=disc>; | Initialise DTE (Dedicated) |
| PSTEI: | NTN=ntn,DTE=dte, EXTNET=extnet, AG=ag <,MODEMSTRING= modemstring> <,INSADDR=insaddr> <,DB=db>; | Initialise DTE (Shared Access) with Calling Line Identification |
| PSTEI: | NTN=ntn, USER=user, EXTNET=extnet, AG=ag <,DTE=dte> <,MODEMSTRING= modemstring> <,INSADDR=insaddr> <,DB=db>; | Initialise DTE (Shared Access) with X.32 NUI Identification |
| PSTEI: | NTN=ntn, EXTNET=extnet <,INSADDR=insaddr>; | Initialise DTE (Shared Access) with unidentified user access |
| PSTEP | <:NTN=ntn>; | Print data for local DTEs |
| PSTET: | NTN=ntn; | Terminate local DTE |
| PSTRB: | ID=id; | Block Traffic Port |

| | | |
|---------------|---|-----------------------------|
| PSTRD: | ID=id; | Deblock Traffic Port |
| PSTRI: | ID=id, NTN=ntn, ORIG=orig <,USER=user>; | Initialise Traffic Port |
| PSTRP | <:ID=id>; | Print Traffic Port Data |
| PSTRS: | ID=id <,NTN=ntn> <,ORIG=orig> <,ECHO=echo> <,LC=lc> <,DATALEN=datalen> <,CLEARINT=clearint> <,RESETINT=resetint> <,DATAINT=dataint> <,PS=ps> <,WS=ws> <,INTINT=intint> <,PAD=pad> <,PID=pid> <,PRI=pri> <,CALLWAIT=callwait> <,USER=user>; | Set Traffic Port Parameters |
| PSTRT: | ID=id; | Terminate Traffic Port |

SA - Session Administration Commands

| | | |
|---------------|------------------------|-------------------------|
| SASPI: | SP=sp,NTN=ntn; | Initialise Session Port |
| SASPP | <:SP=sp>; | Print Session Port |
| SASPT: | SP=sp; | Terminate Session Port |

ST - Statistics Commands

| | |
|----------------------------------|---|
| STAAP; | Print Call Accounting statistics |
| STAAR; | Reset Call Accounting statistics |
| STARP; | Print ARP cache |
| STARR; | Reset ARP cache |
| STATP <:PORT=port>; | Print ATM port statistics |
| STFPP: FP=fp; | Print Frame Relay Errors |
| STFPP: FP=fp; | Reset Frame Relay Error Statistics |
| STFTP; | Print Call Accounting FTP server transaction statistics |
| STGAP: REMIP=remip; | Print Remote Gateway statistics |
| STGAR: REMIP=remip; | Reset Remote Gateway statistics |
| STLAP <:LA=la>; | Print LAN port statistics |
| STLAR <:LA=la>; | Reset LAN port statistics |
| STLCP <:LCP=lcp>; | Print LCP port statistics |
| STLCR <:LCP=lcp>; | Reset LCP port statistics |
| STLPP <:LP=port>; | Print link port statistics |
| STLPR <:LP=port>; | Reset link port statistics |
| STLTP: LP=port; | Print link test statistics |
| STLTR: LP=port; | Reset link test statistics |
| STMPP: MP=mp; | Prints MP bundle statistics |
| STMPR <:MP=mp>; | Resets MP bundle statistics |

| | | |
|---------------|---|---------------------------------------|
| STNIP: | LOCIP=locip; | Print IP Network Interface statistics |
| STNIR | <:LOCIP=locip>; | Reset IP Network Interface statistics |
| STNPP | <:NP=port>; | Print network port statistics |
| STNPR | <:NP=port>; | Reset network port statistics |
| STPPP | <:PP=port><,DLCI=dhci>; | Print physical port statistics |
| STPPR | <:PP=port>; | Reset physical port statistics |
| STRGP | <:GATE=gate>; | Print RIP gateway statistics |
| STRGR | <:GATE=gate>; | Reset RIP gateway statistics |
| STTPP: | TIP=tip; | Print TIP port statistics |
| STTPR | <:TIP=tip>; | Reset TIP port statistics |
| STVCP | <:VCC=vcc>; | Print ATM VCC statistics |
| STVPR | <:VP=vp>; | Reset virtual port statistics |
| STVPP | <:VP=vp> <,DLCI=dhci>; | Print virtual port statistics |

UI - User Interface Commands

| | | |
|---------------|---------------------|------------------------------------|
| UIDCP: | IMAGE=image; | Check checksum of downloaded image |
| UIDDI: | IMAGE=image; | Cloning current download image |
| UIDII: | IMAGE=image; | Download image |
| UIDIP; | | Display downloaded images |
| UIDIT: | IMAGE=image; | Delete downloaded image |
| UIDMP: | SIZE=size; | Check available memory |

| | |
|--|---|
| UIDPP: IMAGE=image <,PATCH=patch> <,STYLE=style>; | Show patch in downloaded image |
| UIDPS: IMAGE=image, PATCH=patch, ADDRESS=address, LENGTH=length, DATA=data; | Add patch to downloaded image |
| UIDPT: IMAGE=image, PATCH=patch; | Delete patch in downloaded image |
| UIDSP; | Displays current and pending images |
| UIDSS: IMAGE=image <,SLOT=slot>; | Selects image to be loaded on restart |
| UILOP; | Print restart reasons and config errors |
| UILTP; | Prints logon banner text |
| UILTS: TEXT="text"; | Sets new logon banner text |
| UILTR; | Resets logon banner text to default |
| UIMOB; | Disable more prompt |
| UIMOD; | Enable more prompt |
| UIMOP; | Display more prompt status |
| UIPDP <:PARAM=param>; | Print parameter defaults |
| UIPDS: PARAM=param, VALUE=value; | Sets parameter default value |
| UIPDT: PARAM=param; | Terminate parameter value back to factory setting |
| UIPRR; | Resets the prompt to default |
| UIPRS: PROMPT="prompt"; | Sets the prompt |

Command Categories

Category A Commands

All MML Print commands plus UIMOB and UIMOD.

Category B Commands

All MML Initialise, Set, Block, Deblock, Terminate and Reset commands plus LILTP and STLTP.

Category C Commands

NALOS NALOR UIDII UIDIT UIDPS UIDPT UIDSS

Category D Commands

LIMRP LIPMB LIPMD LIPMI LIPMS LIPMP LIPMT NACCR
NACCS NACDI NACDP NACGI NACGP NACGS NACGT
NADCB NADCD NADCI NADCP NADCS NADCT NAMSI
NAMSP NAMSS NAMST NANMP NANMS NAREI NATPI
NATPP NATPT UIDDI

Clear and reset causes with diagnostic codes

Clear Causes

| <i>DEC</i> | <i>HEX</i> | <i>MEANING</i> |
|------------|------------|---|
| 0 | 00 | DTE clearing |
| 1 | 01 | Called DTE busy, e.g. all of its LCN's are in use |
| 3 | 03 | Invalid facility request, e.g. caller requesting invalid facility |
| 5 | 05 | Network congestion, e.g. temporary network conditions prevent call |
| 9 | 09 | Out of order, e.g. called DTE out of order |
| 11 | 0B | Access barred Connection between DTE's not permitted, e.g. incompatible Closed User Group |
| 13 | 0D | Not obtainable, e.g. called DTE number not (or no longer) assigned |
| 17 | 11 | Remote Procedure Error, e.g. Remote DTE not following protocol |
| 19 | 13 | Local Procedure Error, e.g. local DTE not following protocol |
| 21 | 15 | Agency out of order |
| 25 | 19 | DTE cannot accept Reverse Charge calls |
| 33 | 21 | DTE incompatible call |
| 41 | 29 | DTE cannot accept Fast Select calls |
| 57 | 39 | Ship absent |

Reset Causes

| | | |
|----|----|--------------------------|
| 0 | 00 | DTE issued the Reset |
| 1 | 01 | Out of order |
| 3 | 03 | Remote Procedure Error |
| 5 | 05 | Local Procedure Error |
| 7 | 07 | Network congestion |
| 9 | 09 | Remote DTE operational |
| 15 | 0F | Network operational |
| 17 | 11 | Incompatible destination |
| 29 | 1D | Network out of order |

CCITT Diagnostic Codes for X.25/X.75

| | | |
|----|----|---|
| 0 | 00 | No Additional Information |
| 1 | 01 | Invalid P(S) |
| 2 | 02 | Invalid P(R) |
| 16 | 10 | Packet Type Invalid |
| 17 | 11 | For state r1 |
| 18 | 12 | For state r2 |
| 19 | 13 | For state r3 |
| 20 | 14 | For state p1 |
| 21 | 15 | For state p2 |
| 22 | 16 | For state p3 |
| 23 | 17 | For state p4 |
| 24 | 18 | For state p5 |
| 25 | 19 | For state p6 |
| 26 | 1A | For state p7 |
| 27 | 1B | For state d1 |
| 28 | 1C | For state d2 |
| 29 | 1D | For state d3 |
| 32 | 20 | Packet not Allowed |
| 33 | 21 | Unidentifiable Packet |
| 34 | 22 | Call on one-way logical channel |
| 35 | 23 | Invalid packet type on PVC |
| 36 | 24 | Packet on unassigned logical channel |
| 37 | 25 | Reject not subscribed to |
| 38 | 26 | Packet too short |
| 39 | 27 | Packet too long |
| 40 | 28 | Invalid general format identifier |
| 41 | 29 | Restart or registration packet with non-zero in bits 1-4 of octet 1, or bits 1-8 of octet 2 |
| 42 | 2A | Packet type not compatible with facility |
| 43 | 2B | Unauthorised interrupt confirmation |
| 44 | 2C | Unauthorised interrupt |
| 45 | 2D | Unauthorised reject |
| 48 | 30 | Timer expired |
| 49 | 31 | For incoming call |

| | | |
|-----|----|--|
| 50 | 32 | For clear indication |
| 51 | 33 | For reset indication |
| 52 | 34 | For restart indication |
| 53 | 35 | For call deflection |
| 64 | 40 | Call setup, call clearing or registration problem |
| 65 | 41 | Facility/registration code not allowed |
| 66 | 42 | Facility parameter not allowed; reverse charging requested when barred |
| 67 | 43 | Invalid called DTE address |
| 68 | 44 | Invalid calling DTE address |
| 69 | 45 | Invalid facility/registration length |
| 70 | 46 | Incoming calls barred |
| 71 | 47 | No logical channel available |
| 72 | 48 | Call collision |
| 73 | 49 | Duplicate facility requested |
| 74 | 4A | Non-zero address length |
| 75 | 4B | Non-zero facility length |
| 76 | 4C | Facility not provided when expected |
| 77 | 4D | Invalid CCITT-specified DTE facility |
| 78 | 4E | Max. number of call redirections or call deflections exceeded |
| 80 | 50 | Miscellaneous; config changes that clear old calls |
| 81 | 51 | Improper cause code from DTE |
| 82 | 52 | Not aligned octet |
| 83 | 53 | Inconsistent Q-bit settings |
| 84 | 54 | NUI problem |
| 96 | 60 | Not assigned |
| 98 | 62 | TNIC mismatch |
| 99 | 63 | Call id mismatch |
| 100 | 64 | Dial back |
| 112 | 70 | International problem |
| 113 | 71 | Remote network problem |

| | | |
|-----|----|--|
| 114 | 72 | International protocol problem |
| 115 | 73 | International link out of order |
| 116 | 74 | International link busy |
| 117 | 75 | Transit network facility problem |
| 118 | 76 | Remote network facility problem |
| 119 | 77 | International routing problem |
| 120 | 78 | Temporary routing problem |
| 121 | 79 | Unknown called DNIC |
| 122 | 7A | Maintenance action |
| 128 | 80 | Reserved for network specific diagnostic information |
| 129 | 81 | Incoming line disconnection |

PFA-specific Diagnostic Codes for X.25/X.75

| | | |
|-----|----|---|
| 64 | 40 | Address modification call setup problems |
| 163 | A3 | DTE resource constraint; no free connections on gateway |
| 165 | A5 | Invalid partially full data packet |
| 166 | A6 | Unexpected D-bit received |
| 246 | F6 | Incoming preferential port available |
| 247 | F7 | Preferential port available |
| 250 | FA | Insufficient priority |
| 252 | FC | No incoming access |
| 253 | FD | No outgoing access |

Diagnostic Codes for SDLC

| | | |
|-----|----|---|
| 12 | 0C | Wrong Protocol ID |
| 80 | 50 | QLLC general error |
| 112 | 70 | SDLC error |
| 115 | 73 | SDLC time-out (retransmission limit exceeded) |
| 120 | 78 | SDLC FRMR received |
| 122 | 7A | XID check failure |
| 123 | 7B | QLLC LLC test timeout |
| 124 | 7C | QLLC LLC XID timeout |
| 160 | A0 | Packet not allowed |
| 161 | A1 | Invalid M-bit sequence |

Diagnostic Codes for Switched Access

| | | |
|-----|----|---------------------------------------|
| 228 | E4 | Engaged tone |
| 229 | E5 | Local DCE busy |
| 230 | E6 | Ring tone timeout |
| 231 | E7 | Abort call timeout |
| 232 | E8 | No answer tone |
| 233 | E9 | Forbidden call |
| 237 | ED | Local DTE timeout |
| 238 | EE | Modem command error |
| 239 | EF | Connection request without addressing |
| 248 | F8 | No switched line available |

Abbreviations

| | |
|---------|---|
| AAL | ATM Adaption Layer |
| AB | Automatically Blocked |
| ABR | Available Bit Rate |
| ACL | Alarm Class |
| ACM | All Contained Module |
| APAD | Asynchronous PAD |
| ARP | Address Resolution Protocol |
| ATM | Asynchronous Transfer Mode |
| Bc | Committed Burst Size |
| Be | Excess Burst Size |
| BECN | Backward Explicit Congestion Notification |
| BOD | Bandwidth-On-Demand |
| BRI | Basic Rate Interface (ISDN) |
| CAA | Call Accounting Administrator |
| CAS | Channel Associated Signalling |
| CB | Conditionally Blocked |
| CCITT | Consultative Committee for International Telegraph and Telephone |
| CIR | Committed Information Rate |
| CM | Computer Module |
| CPU | Central Processor Unit |
| CSMA/CD | Carrier Sense Multiple Access with Collision Detect |
| CUD | Call User Data |
| CUG | Closed User Group |
| DCE | Data Communication Equipment |
| DE | Discard Eligibility |
| DLCI | Data Link Connection Identifier |
| DM | Disconnect Mode |
| DNA | Dynamic Network Administration |
| DTE | Data Terminal Equipment |
| DXE | generic for DTE or DCE |
| EBSN | External Bearer Service Network |
| EOF | End Of File |
| EP | Echo Port |
| EPROMs | Eraseable Programmable Read-Only Memory |

| | |
|---------|---|
| ETSI | European Telecommunications Standards Institute |
| FCS | Frame Check Sequence |
| FDI | Frame Relay DTE Interface |
| FECN | Forward Explicit Congestion Notification |
| FEP | Front End Processor |
| FP | Frame Relay Port |
| FRAM | Ferromagnetic RAM |
| FREP | Frame Relay Echo Port |
| FRMR | Frame Reject Unnumbered Response |
| FRTPT | Frame Relay Traffic Port |
| FTI | Frame Relay Transparent Interface |
| FTP | File Transfer Protocol |
| FUI | Frame Relay User Interface (DCE) |
| GCRA | Generic Cell Rate Algorithm |
| HB | Hardware Blocked |
| HDLC | High-level Data Link Control |
| HVC | Hot Virtual Circuit |
| I | Sequenced I frame |
| IAB | Internet Advisory Board |
| ICMP | Internet Control Message Protocol |
| IDN | International Data Number |
| IE | Information Element |
| IETF | Internet Engineering Task Force |
| I-field | Information Field |
| IP | Internet Protocol |
| ISO | International Standards Organisation |
| ISP | Internet Service Provider |
| IWU | InterWorking Unit |
| LA | LAN |
| LAN | Local Area Network |
| LAPD | Link Access Protocol D |
| LCN | Logical Channel Number |
| LCP | Link Control Protocol |
| LAPB | Link Access Procedure Balanced |
| LIM | Line Interface Module |
| LIU | Line Interface Unit |
| LLP | Logical Link Port |

| | |
|------|-------------------------------------|
| LM | Line Module |
| LMI | Local Management Interface |
| LP | Link Port |
| LU | Line Unit |
| MB | Manually Blocked |
| MIB | Management Information Base |
| MML | Man-Machine Language |
| MP | PPP Multi-link Protocol |
| MTP | Message Transfer Protocol |
| MTU | Maximum Transmission Unit |
| NBMA | Non-Broadcast Multi Access |
| NCP | Network Control Program |
| ND | Number Direction |
| NI | Network Interface |
| NMC | Network Management Centre |
| NMS | Network Management System |
| NN | National Number |
| NNI | Network to Network Interface |
| NPSI | NCP Packet Switching Interface |
| NP | Network Port |
| NT | Network Terminator |
| NTN | Network Terminal Number |
| OAM | Operation And Maintenance |
| OMA | Object Management Applications |
| OSI | Open Systems Interconnection |
| PAD | Packet Assembler Disassembler |
| PAM | Packet frame Access Module |
| PBM | Power Backup Module |
| PDB | Power Distribution Basic Module |
| PDE | Power Distribution Expansion Module |
| PDU | Protocol Data Unit |
| PP | Physical Port |
| PPP | Point-to-Point Protocol |
| PS | Packet Switch |
| PSDN | Packet Switched Data Network |
| PVC | Permanent Virtual Circuit |
| PWM | PoWer Module |

| | |
|----------------|-------------------------------------|
| QLLC | Qualified Logical Link Control |
| RC | Routing Case |
| REJ | Retransmit numbered frame |
| RNR | Receive Not Ready |
| RR | Receive Ready |
| Rx | Receive Clock |
| SABM | Set Asynchronous Balanced Mode |
| SAPI | Service Access Point Identifier |
| SARM | Set Asynchronous Response Mode |
| SDLC | Synchronous Data Link Control |
| SLIP | Serial Line IP |
| SNA | System Network Architecture |
| SNMP | Simple Network Management Protocol |
| SNRM | Set Normal Response Mode |
| SP | Session Port |
| STAI | SDLC Terminal Attachment Interface |
| SVC | Switched Virtual Circuit |
| TA | Terminal Adaptor |
| T _c | Committed Rate Measurement Interval |
| TCP | Transmission Control Protocol |
| TE | Terminal Equipment |
| TI | Test Indicator |
| TIP | TCP Interface Port |
| TP | Traffic Port |
| TPAD | Transparent PAD |
| TTL | Time To Live |
| Tx | Transmit Clock |
| UA | Unnumbered Acknowledgement |
| UBR | Unspecified Bit Rate |
| UDC | Usage Data Collector |
| UDP | User Datagram Protocol |
| UNI | User-to-Network Interface |
| VC | Virtual Circuit |
| VCC | Virtual Channel Connection |
| VCI | Virtual Connection Identifier |
| VCU | Voice Compression Unit |
| VP | Virtual Port |

| | |
|-----|-------------------------|
| VPI | Virtual Path Identifier |
| WO | Working Order |
| XID | Exchange Identification |

X.3 Parameter Table

| Param. No. | X.28 Extended Format | Function | Values supported |
|------------|----------------------|------------------------------------|------------------------|
| 01 | esc | Escape | 0,1,32-126 |
| 02 | ech | Echo | 0,1 |
| 03 | for | Forwarding characters | 0,1,2,4,8,16,32,64 |
| 04 | idl | Forward Timeout | 0-255 |
| 05 | dev | S'ware Flow Control (term>PFA) | 0,1,2 |
| 06 | sig | Suppression of PAD Service Signals | 0,1,5,8,21 |
| 07 | bre | Break action | 01,2,5,8,21 |
| 08 | dis | Data Delivery Suppression | 0,1 |
| 09 | crp | Padding after CR | 0-255 |
| 10 | fol | Line Folding | 0-255 |
| 12 | flo | S'ware Flow Control (PFA>term) | 0,1 |
| 13 | lfi | LF Insertion | 0,1,2,4,5,6,7 |
| 14 | lfp | Padding after LF | 0-255 |
| 15 | edi | Local Editing function | 0,1 |
| 16 | cdel | Character delete chars | 0-127 |
| 17 | ldel | Buffer delete chars | 0-127 |
| 18 | ldis | Buffer display chars | 0-127 |
| 19 | esig | Edit PAD service sigs. | 0,1,2 |
| 20 | mas | Echo mask | 0,1,2,4,8,16,32,64,128 |
| 21 | par | Parity Treatment | 0,1,2,3 |
| 22 | pag | Page wait | 0-255 |
| *PMASK | - | Printmask | 0,1 |
| *CONC | - | Control Chars | 0,1 |
| *HOST | - | Host Message Honoured | 0,1 |
| *TABS | - | Tab Settings | 0-255 |
| *TTAB | - | Tab Chars | 0,1 |
| *HTAB | - | Host Tabs | 0,1 |
| *HPAR | - | Host Parity | 0,1,2,3,4 |
| *YEAR | - | X.28 Year Version | 0,1,2,128,129,130 |
| *AWAKE | - | Autowake | 0,1 |

**Indicates Proprietary Parameters.*

ASCII Character Table

| HEX | DEC | CODE | HEX | DEC | CODE | HEX | DEC | CODE | HEX | DEC | CODE |
|-----|-----|------|-----|-----|------|-----|-----|------|-----|-----|------|
| 00 | 0 | NUL | 20 | 32 | SP | 40 | 64 | @ | 60 | 96 | ' |
| 01 | 1 | SOH | 21 | 33 | ! | 41 | 65 | A | 61 | 97 | a |
| 02 | 2 | STX | 22 | 34 | " | 42 | 66 | B | 62 | 98 | b |
| 03 | 3 | ETX | 23 | 35 | # | 43 | 67 | C | 63 | 99 | c |
| 04 | 4 | EOT | 24 | 36 | \$ | 44 | 68 | D | 64 | 100 | d |
| 05 | 5 | ENQ | 25 | 37 | % | 45 | 69 | E | 65 | 101 | e |
| 06 | 6 | ACK | 26 | 38 | & | 46 | 70 | F | 66 | 102 | f |
| 07 | 7 | BEL | 27 | 39 | ' | 47 | 71 | G | 67 | 103 | g |
| 08 | 8 | BS | 28 | 40 | (| 48 | 72 | H | 68 | 104 | h |
| 09 | 9 | HT | 29 | 41 |) | 49 | 73 | I | 69 | 105 | i |
| 0A | 10 | LF | 2A | 42 | * | 4A | 74 | J | 6A | 106 | j |
| 0B | 11 | VT | 2B | 43 | + | 4B | 75 | K | 6B | 107 | k |
| 0C | 12 | FF | 2C | 44 | , | 4C | 76 | L | 6C | 108 | l |
| 0D | 13 | CR | 2D | 45 | - | 4D | 77 | M | 6D | 109 | m |
| 0E | 14 | SO | 2E | 46 | . | 4E | 78 | N | 6E | 110 | n |
| 0F | 15 | SI | 2F | 47 | / | 4F | 79 | O | 6F | 111 | o |
| 10 | 16 | DLE | 30 | 48 | 0 | 50 | 80 | P | 70 | 112 | p |
| 11 | 17 | XON | 31 | 49 | 1 | 51 | 81 | Q | 71 | 113 | q |
| 12 | 18 | DC2 | 32 | 50 | 2 | 52 | 82 | R | 72 | 114 | r |
| 13 | 19 | XOFF | 33 | 51 | 3 | 53 | 83 | S | 73 | 115 | s |
| 14 | 20 | DC4 | 34 | 52 | 4 | 54 | 84 | T | 74 | 116 | t |
| 15 | 21 | NAK | 35 | 53 | 5 | 55 | 85 | U | 75 | 117 | u |
| 16 | 22 | SYN | 36 | 54 | 6 | 56 | 86 | V | 76 | 118 | v |
| 17 | 23 | ETB | 37 | 55 | 7 | 57 | 87 | W | 77 | 119 | w |
| 18 | 24 | CAN | 38 | 56 | 8 | 58 | 88 | X | 78 | 120 | x |
| 19 | 25 | EM | 39 | 57 | 9 | 59 | 89 | Y | 79 | 121 | y |
| 1A | 26 | SUB | 3A | 58 | : | 5A | 90 | Z | 7A | 122 | z |
| 1B | 27 | ESC | 3B | 59 | ; | 5B | 91 | [| 7B | 123 | { |
| 1C | 28 | FS | 3C | 60 | < | 5C | 92 | \ | 7C | 124 | |
| 1D | 29 | GS | 3D | 61 | = | 5D | 93 |] | 7D | 125 | } |
| 1E | 30 | RS | 3E | 62 | > | 5E | 94 | ^ | 7E | 126 | ~ |
| 1F | 31 | US | 3F | 63 | ? | 5F | 95 | _ | 7F | 127 | DEL |
