
RcPAX Network System

X.75 STE

EM Reference Manual

Keywords:

RcPAX, RC5000 MegaSwitch, RC5000 Network Switch, EM, STE.

Abstract:

Description of EM Operations for X.75.

Date:

November 1991

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PN: 99001417

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1. Introduction

This document describes the Entity Management (EM) Operations for X.75 Software Entity of the RC5000 MegaSwitch and the RC5000 Network Switch.

The EM operations described are implemented by X.75 version 6.45.

Later versions will normally be backward compatible.

The kernel EM Operations are described in:

- RcPAX Operating System
- Entity Management Kernel
- EM Reference Manual
- PN: 99001421

and are therefore not described in this document.

A number of the EM operations use the non-standard status bits (11-16). If an EM operation uses one or more of these bits, the precise usage is documented in the help text for the **request** of the operation.

The operations using non-standard status bits are listed below:

12, 14, 16, 28, 36, 45, 52, 60, 64, 113, 152, 252

2. Survey of all EM Operations.

Operations

<u>Number</u>	<u>Name</u>
0	x75 request survey
1	Create STE
4	set event bit mask
5	get event bit mask
6	get logical channel statistic
7	order events
8	restart STE
9	get STE survey
11	counterorder events
12	restart STE
14	get HDLC line statistics
15	set snoop criteria
16	reset logical channel
17	sense timeout values
18	Get HDLC buffer statistics
20	set timeout value
24	set default credit
25	sense logical channel range
28	create PVC
29	sense flow control neg.
36	open HDLC line
40	close HDLC line
41	get current tariff
45	sense HDLC state
49	Get STE buf-configuration
52	initialize STE
55	read em zone a
56	set default window size
59	read em zone b
60	set default packet size
63	read em zone old to new
64	set flow control negotiation
65	sense ats zone
67	read em zone mask
68	cancel flow cntr negotiation
71	read program version
72	set throughput class neg.
75	read incarnation parameters
76	cancel throughput class neg.

79	read snoop criteria
80	set default throughput class
83	get events ordered
87	get event groups
100	set fast select
104	cancel fast select
113	sense logical channel
116	set reverse charging
120	cancel reverse charging
144	change current tariff
148	create account record event
149	get lc survey from index
152	measure transit delay
156	Set STE buf-configuration
176	Set transit delay
180	Set called adr modified notif
184	Cancel called adr mod notif
188	Set redirection notification
192	Cancel redirection notific
200	set reachable DNIC
204	cancel reachable DNIC
208	set CNIC notification
209	sense poolhandler zone
212	cancel CNIC notification
216	Set test mode on/off
228	Set 80/84 vars
229	Get 80/84 vars
252	init address translation
253	ats pnuc activate

Events

<u>Number</u>	<u>Name</u>
23	call connected from STE-X
27	clear confirmation from STE-X
31	indication establish lic
39	HDLC line up
43	HDLC line up
47	SCC indication answer
51	HDLC line warning
55	measured transit delay
59	address translation respond
63	incoming call to STE-X
67	call connected to STE-X
71	establish lic request
163	A-end Account record
167	B-end Account record
203	restart request from STE-X
207	call request from STE-X
211	clear request from STE-X
215	reset confirmation from STE-X
219	restart conf. from STE-X
223	reset request from STE-X
227	logical channel cleared
231	logical channel reset
235	restart indic. sent to STE-X
249	snoop event

253	trace event
254	exception event
255	events-lost event

3. Control Operations.

3. 1. restart STE (8)

Request and Answer data

None.

Function

The operation performs a soft restart of the X75 module.

All unused buffres are returned to the HDLC.
Output queues towards the STE-X are emptied.
All active channels are either cleared (virtual calls)
or reset (permanent virtual calls).
During these actions cause is 'network congestion' and
diagnostic is 'ncc originated' (D128).
Having done these actions a restart request is issued on the
line, if the HDLC-state is connected.

3. 2. restart STE (12)

Request data

None.

Answer data

<u>Field name</u>	<u>Datatype</u>
logical channel number	num16

Function

The operation cleares a specified logical channel.

It is checked if the specified logical channel is in active
state and if so, the channel is cleared with cause
'network congestion' and diagnostic 'diag_ncc_orig' ie.
D5 and D128 in the clear indication to the STE-X.

Both SVCs and PVC can be cleared.

Use of non-standard status bits in answer:
15: Logical channel zero.

3. 3. reset logical channel (16)

Request and Answer data

<u>Field name</u>	<u>Datatype</u>
logical channel number	num16

Function

The operation resets a specified logical channel.

The channel is checked if it is active. If so a reset-procedure is initiated.

During this procedure cause 'network congestion' (D5) and diagnostic 'ncc-originated' (D128) are used in the reset indication to the STE-X.

Use of non-standard status bits in answer:
15: Logical channel zero.

Parameters

logical channel number

Min-max: 1-4095 Std: 1

3. 4. set timeout value (20)

Request and Answer data

<u>Field name</u>	<u>Datatype</u>
timeout identifier	num16
new timeout value (seconds)	num16

Function

The operation sets the value of a specified timer.

ID (input)	TIMER	EXPLANATION
0	T30	restart indication
1	T31	incoming call
2	T32	reset indication
3	T33	clear indication
4	RR	receiver ready
5	estab.lic	call request
6	rem.lic	clear request
7	res.lic	reset request
8	conf.es.lic	accept incoming call
9	sen.mes.lic	interrupt
10	sen.dat.lic	data

Parameters

timeout identifier

Min-max: 0-10 Std: 0

new timeout value (seconds)

Min-max: 0-65535 Std: 60

3. 5. set default credit (24)

Request data

<u>Field name</u>	<u>Datatype</u>
Logical channel no	num16
Start credit	num16
Free queue	num16
Accumulation limit	num16

Answer data

<u>Field name</u>	<u>Datatype</u>
logical channel no. (0: all)	num16
Start credit	num16
Free queue	num16
Accumulation limit	num16

Function

The operation sets the net credit (the window valid internally in the network) for all logical channels.

Parameters

Logical channel no

Must be 0 meaning all logical channels.

Min-max: 0-0 Std: 0

Start credit

The value will only be used if the byte count is 4, and then it will be as close as possible to the old "Set Lic Start Credit" operation.
Start credit = number of credits sent to the remote end at start up.

Min-max: 0-16 Std: 7

Free queue

Number of buffers used to send data from the net to the DTE.

Min-max: 1-16 Std: 7

Accumulation limit

Credits are accumulated up to this limit before they are send.

Min-max: 0-16 Std: 2

Start credit

The value will only be used if the byte count is 4, and then it will be as close as possible

to the old Set Lic start credit operation.
 Start credit = number of credit there is send
 to the remote end at start up.

Free queue

Number of buffers used to send data from the
 net to the DTE.

Accumulation limit

Credit are accumulated up to this limit before
 they are send.

3. 6. create PVC (28)

Request and Answer data

<u>Field name</u>	<u>Datatype</u>
logical channel number	num16
remote net number	num8
remote region number	num8
remote node number	num8
remote extension number	num16
remote logical channel number	num16
window size to DTE	num8
window size from DTE	num8
remote window size to DTE	num8
remote window size from DTE	num8
packet size to DTE (2**x)	num8
packet size from DTE (2**x)	num8
throughput class to DTE	num8
throughput class from DTE	num8
priority of the PVC	num8
charging at remote end	num8

Function

The operation sets up a permanent virtual circuit (PVC).
 Apart from specifying the endpoints of the connection
 the following can be specified:

- window sizes
- packet sizes
- throughput classes
- HDLC priority

Use of non-standard status bits in answer:

- 13: Packet size greater than max. packet size in buffers.
- 14: Channel state not p1.

Parameters

logical channel number

Min-max: 1-4095 Std: 1

remote net number

Min-max: 1-255 Std: 1

remote region number

Min-max: 1-255 Std: 1

remote node number

Min-max: 1-255 Std: 1

remote extension number

Min-max: 1-65535 Std: 1

remote logical channel number

Min-max: 1-4095 Std: 1

window size to DTE

Min-max: 1-7 Std: 2

window size from DTE

Min-max: 1-7 Std: 2

remote window size to DTE

Min-max: 1-7 Std: 2

remote window size from DTE

Min-max: 1-7 Std: 2

packet size to DTE (2x)**

Min-max: 4-8 Std: 7

packet size from DTE (2x)**

Min-max: 4-8 Std: 7

throughput class to DTE

Min-max: 3-15 Std: 15

throughput class from DTE

Min-max: 3-15 Std: 15

priority of the PVC

The specified value is converted via div 32
to a valid HDLC-priority in the range (0-7).

The PVC is established using this HDLC-priority

Min-max: 0-255 Std: 0

charging at remote end

Specifies which end of the PVC is to be charged.

Min-max: 0-1 Std: 0

3. 7. open HDLC line (36)**Request and Answer data**

Field name	Datatype
0,0,-s,-poll,inf,ecm,fin,auto	bit8
retransm. timer, T1 (ms)	num16
no. of retransmissions (N2)	num16
no. of outstand. frames (k)	num16
min. flags between frames	num16
min. flags after abort	num16
connect ident (ms)	num16
n-poll	num16

Function

Explanation of mode field (the first field of the request):

mode =(rnr_disc,auto_return,no_s_command,no_poll,
delay_inf,extended_connect_message,final_alarm,
auto_connect)

rnr_disc: if false then line_state is not changed at
rnr_timeout.

auto_return: recommended true ie. all output messages are
returned when linestate is disc- og connecting.

no_s_commands: recommended false ie no sub-cmds when
timeout

no_poll: poll_bit or sup-cmds are not xmitted when timeout

delay_inf: after rej-frame received and after a linereset

only one i-frame is xmitted until ack is received

extended_connect_message: if true the value for polling is
read from the field 'n_poll'.

final_alarm: frmr is transmitted if an unsolicited response
with f_bit set is received.

auto_connect: recommended true ie no disconnects at error

Use of non-standard status bits in answer:

Illegal_State +11: Problems with get_hdlc_line

Illegal_State +12: get_hdlc_line - no reservation

Illegal_State +11,14: Problems with HDLC sense version

Illegal_State +11,15: Problems with disconnect immediately

Illegal_State +11,16: Problems with return all

Illegal_State +11,12,13: Problems with sense status

Illegal_State +11,12,14: Problems with get event

Illegal_State +11,12,15: Cannot clear COM204 event queue

Illegal_State +11,12,16: HDLC mem layout - persistent error

Illegal_State +11,12,13,14: HDLC mem layout - prot. not im-
plem

Illegal_State +11,12,13,15: HDLC mem layout - other errors

Illegal_State +11,12,13,16: HDLC control event

No_Free_Resources +11: Cannot allocate pool

Out_Of_Range +11: HDLC mem layout - invalid parameter

Out_Of_Range +12: HDLC connect - invalid parameter

Parameters

0,0,-s,-poll,inf,ecm,fin,auto
Mode field

Std: 01000111

retransm. timer, T1 (ms)

Min-max: 0-65535 Std: 2000

no. of retransmissions (N2)

Min-max: 0-65535 Std: 4

no. of outstand. frames (k)

Min-max: 1-127 Std: 7

min. flags between frames

Min-max: 0-65535 Std: 4

min. flags after abort

Min-max: 0-65535 Std: 4

connect ident (ms)

For the MegaSwitch only the values 0 and 1 are
allowed: 0 for DTE role and 1 for DCE role on
the link layer.

Min-max: 0-65535 Std: 1000

n-poll

See expl (X75,36,r)

Min-max: 0-65535 Std: 10

3. 8. close HDLC line (40)

Request and Answer data

None.

Function

The operation disconnects the HDLC-link.

A HDLC-disconnect message is issued to the HDLC and the
flow of input buffers is stopped.

A hard wait is performed for the return of the HDLC-
disconnect message.

3. 9. initialize STE (52)

Request and Answer data

<u>Field name</u>	<u>Datatype</u>
number of PVC's	num16
lower two ways channel	num16
higher two ways channel	num16
use of log. chan.,lower start	num8
open HDLC line	num8

Function

The operation initialises the X75 module.

The operation is MANDATORY before using the X75 module.

Parameters

number of PVC's

Min-max: 0-4095 Std: 0

lower two ways channel

Min-max: 0-4095 Std: 1

higher two ways channel

Min-max: 0-4095 Std: 10

use of log. chan.,lower start

Min-max: 0-1 Std: 1

open HDLC line

Min-max: 0-1 Std: 1

3. 10. set default window size (56)

Request and Answer data

<u>Field name</u>	<u>Datatype</u>
def. window size to STE-X	num8
def. window size from STE-X	num8

Function

The operation sets alternative default values for the window sizes for the local STE-X,STE-Y interface (both directions).

Parameters

def. window size to STE-X

Min-max: 1-7 Std: 2

def. window size from STE-X

Min-max: 1-7 Std: 2

3. 11. set default packet size (60)

Request and Answer data

<u>Field name</u>	<u>Datatype</u>
size to STE-X (power of 2)	num8
size from STE-X (power of 2)	num8

Function

The operation sets alternative default values for the packet sizes for the STE-X, STE-Y interface (both directions).

Use of non-standard status bits in answer:
13: Packet size too large.

Parameters

size to STE-X (power of 2)

Min-max: 4-12 Std: 7

size from STE-X (power of 2)

Min-max: 4-12 Std: 7

3. 12. set flow control negotiation (64)

Request and Answer data

<u>Field name</u>	<u>Datatype</u>
max window size to STE-X	num8
max window size from STE-X	num8
max pack size to STE-X	num8
max pack size from STE-X	num8

Function

The operation enables flow control negotiation (of values for window- and packet-sizes) for both directions of a virtual call during the call set up phase.

This operation should only be activated in agreement with the administration operating the other side of the X.75 link.

Use of non-standard status bits in answer:
13: Packet size too large.

Parameters

max window size to STE-X

Min-max: 1-7 Std: 7

max window size from STE-X

Min-max: 1-7 Std: 7

max pack size to STE-X

Min-max: 4-12 Std: 8

max pack size from STE-X

Min-max: 4-12 Std: 8

3. 13. cancel flow cntr negotiation (68)

Request and Answer data

None.

Function

The operation cancels the flow control negotiation.

3. 14. set throughput class neg. (72)

Request and Answer data

None.

Function

The operation enables throughput class negotiation (of values for throughput classes) for both directions of virtual calls, during the call setup phase.

3. 15. cancel throughput class neg. (76)

Request and Answer data

None.

Function

The operation cancels the throughput class negotiation.

3. 16. set default throughput class (80)

Request and Answer data

Field name	Datatype
def through to STE-X, 15 =max	num8

def through from STE-X,15 =max num8

Function

The operation sets alternative default values for the throughput class parameters for this interface (both direction).

Parameters

def through to STE-X,15 =max

Min-max: 0-15 Std: 15

def through from STE-X,15 =max

Min-max: 0-15 Std: 15

3. 17. set fast select (100)

Request and Answer data

None.

Function

The operation enables the X.25 facility 'fast select' to be used across the X.75 interface.

The operation should only be activated in agreement with the administration operating the other side of the X.75 interface.

3. 18. cancel fast select (104)

Request and Answer data

None.

Function

The operation cancels acceptance of fast select facilities in the call setup phase.

The operation should only be activated in agreement with the administration operating the other side of the X.75 interface.

3. 19. set reverse charging (116)

Request and Answer data

None.

Function

The operation activates the reverse charging facility, ie. reverse charge is accepted in the call setup phase.

Bilateral agreement required.

3. 20. cancel reverse charging (120)**Request and Answer data**

None.

Function

The operation cancels the acceptance of reverse charge in the call setup phase.

Bilateral agreement is required.

3. 21. change current tariff (144)**Request and Answer data**

<u>Field name</u>	<u>Datatype</u>
new tariff (1, 2, 3, 4)	num8

Function

The operation changes the current tariff applicable to the interface.

For all active virtual channels, the account information for the present tariff is saved and accounting for the new tariff is started.

Parameters

new tariff (1, 2, 3, 4)

Min-max: 1-4 Std: 0

3. 22. create account record event (148)**Request and Answer data**

<u>Field name</u>	<u>Datatype</u>
lower logical channel	num16
upper logical channel	num16
reset volume information	num8

Function

The operation generates account records for the specified range of logical channels, but only if the channels are not idle.

The account information is reset if specified.

Only one of these requests can be active at any time.

Parameters

lower logical channel

Min-max: 1-4095 Std: 1

upper logical channel

Min-max: 1-4095 Std: 1

reset volume information

Min-max: 0-1 Std: 1

3. 23. measure transit delay (152)

Request data

<u>Field name</u>	<u>Datatype</u>
logical channel number	num16
packet size	num16

Answer data

<u>Field name</u>	<u>Datatype</u>
logical channel number	num16
packet size	num16
event sequence number	num8

Function

The operation measures the network transit delay for one datapacket containing a specified number of databytes.

The measurement works as follows:

- A datapacket with the specified number of databytes is sent on an existing virtual call by the local STE.
- On seeing this measuring datapacket, the remote DCE/STE echoes the datapacket. The datapacket is not forwarded to the remote DTE/STE.
- On seeing the echoed datapacket, the local STE stops the measurement and delivers the result (measured transit delay in msecs) in event 55.
- The echoed datapacket is not forwarded to the local STE-X.

Event 55 is activated by setting Bit15 of the event mask.

Parameters

logical channel number

Min-max: 1-4095 Std: 1

packet size

Min-max: 1-256 Std: 64

3. 24. Set STE buf-configuration (156)**Request data**

<u>Field name</u>	<u>Datatype</u>
Min no of rec-bufs at LIC	num16
Pref. no of rec-bufs at LIC	num16
No of headers in LIC	num16
Wait local indic bufs to LIC	num16
Max net credit	num16
No of HDLC event buffers	num16
Input-buffers at HDLC	num16
Buffers at poolhandler	num16
Max no of bufs X75 can use	num16
No of buffers in LIC	num16
Buffer size	num16
DTE vers. (1: 80, 0: 84)	num8
rec N1	num16
receive buffers	num16
transmit buffers	num16
rec test elem pr buf	num16
xmit test elem pr buf	num16
cntrl test elem pr buf	num16
test bufs	num16
protocol	num8
xmit N1	num16
T3	num16

Answer data

<u>Field name</u>	<u>Datatype</u>
Min no of rec-bufs at LIC	num16
Pref. no of rec-bufs at LIC	num16
No of headers in LIC	num16
Wait local indic bufs to LIC	num16
Max net credit	num16
No of HDLC event buffers	num16
Input-buffers at HDLC	num16
Buffers at poolhandler	num16
Max no of bufs x75 can use	num16
No of buffers in LIC	num16
Buffer size	num16
DTE vers. (1: 80, 0: 84)	num8
rec N1	num16
receive buffers	num16
transmit buffers	num16
rec test elem pr buf	num16
xmit test elem pr buf	num16
cntrl test elem pr buf	num16
test bufs	num16
protocol	num8
xmit N1	num16
T3	num16

Function

The operation configures the bufferresources of the X75 module.

- If used, the operation must be used before the initialise operation.

Be carefull when defining 'buffers at poolhandler':
If the default buffer configuration is insufficient, the following is recommended:

'buffers at poolhandler' = 'pref no of rec bufs at LIC'
+ 'input buffers at HDLC' + 7*(number of LCN's configured)

The X75 module contains a configurable limit concerning the max number of buffers it will fetch at the poolhandler. If the default is insufficient, the following is recommended
'max no of bufs X75 can use' = 'buffers at poolhandler' +10%

Parameters

Min no of rec-bufs at LIC

The minimum number of buffer-recources outstand ing at LIC (router) for receiving LIC-indications.

Min-max: 0-65535 Std: 2

Pref. no of rec-bufs at LIC

Preferred number of buffer-recources outstandin g at LIC (router) for receiving LIC-indications

Min-max: 0-65535 Std: 5

No of headers in LIC

The number of headers in LIC must be greater than the number of buffers in LIC. The following is recommended :

$\#headers = 3 * \#buffers \text{ in LIC}$

Min-max: 0-65535 Std: 15

Wait local indic bufs to LIC

Min-max: 0-65535 Std: 1

Max net credit

Min-max: 1-16 Std: 4

No of HDLC event buffers

Number of buffers used for receiving HDLC-events.

Min-max: 0-65535 Std: 2

Input-buffers at HDLC

Number of buffer-resources outstanding at the HDLC for receiving data.

Min-max: 0-65535 Std: 4

Buffers at poolhandler

The total number of buffers ordered at the poolhandler.
See recommended value at explanation to operation.

Min-max: 0-65535 Std: 16

Max no of bufs X75 can use

See recommended value in explanation to operation.

Min-max: 0-65535 Std: 24

No of buffers in LIC

These buffers are used internally in the LIC.
They are used when sending the 'remove lic' operation.
The value of this variable must be enlarged when many "concurrent" disconnections occur.

Min-max: 0-65535 Std: 5

Buffer size

These buffers are used internally in the LIC.
They are used when sending the 'remove lic' operation.
The value of this variable must be enlarged when many "concurrent" disconnections occur.

Min-max: 0-65535 Std: 305

DTE vers. (1: 80, 0: 84)

Min-max: 0-255 Std: 0

rec N1

Min-max: 0-65535 Std: 259

receive buffers

Min-max: 0-65535 Std: 7

transmit buffers

Min-max: 0-65535 Std: 7

rec test elem pr buf

Min-max: 0-65535 Std: 16

xmit test elem pr buf

Min-max: 0-65535 Std: 16

cntrl test elem pr buf

Min-max: 0-65535 Std: 16

test bufs

Min-max: 0-65535 Std: 16

protocol

Min-max: 0-255 Std: 66

xmit N1

Min-max: 0-65535 Std: 259

T3

Min-max: 0-65535 Std: 0

Buffer size

These buffers are used internally in the LIC.

They are used when sending the 'remove lic' operation.

The value of this variable must be enlarged when many "concurrent" disconnections occur.

3. 25. Set transit delay (176)

Request and Answer data

<u>Field name</u>	<u>Datatype</u>
Dummy transit delay	num16

Function

The operation defines a dummy value for transit delay.

The operation also enables the transit delay indication to be updated in call set up packets, if requested.

Parameters

Dummy transit delay

Min-max: 0-65535 Std: 1

3. 26. Set called adr modified notif (180)

Request and Answer data

None.

Function

The operation subscribes to the use of the 'called line address modified notification'.

The utility will be sent to the calling STE in either a clear_request or a call_connected packet indicating a reason for the facility.

The reasons can be:

- call distribution within a huntgroup. (7)
- call redirection due to called DTE out of order. (9)
- call redirection due to called DTE busy. (1)
- call redirection due to systematic redirection by called DTE. (15)
- DTE originated. (>127)

3. 27. Cancel called adr mod notif (184)**Request and Answer data**

None.

Function

This operation cancels the use of the 'called line address modified notification'- facility.

Can be necessary when originating STE is at 1980-level

3. 28. Set redirection notification (188)**Request and Answer data**

None.

Function

This operation subscribes to the use of the 'call redirection notification' facility.

The facility is used in incoming_call packets to inform the alternate DTE that the call has been redirected.

As additional information a reason for the redirection and the originally called DTE-address is contained in the incoming_call packet.

The reasons for redirection are :

- originally called DTE busy (1)
- originally called DTE out of order (9)
- systematic call redirection (15)

3. 29. Cancel redirection notific (192)**Request and Answer data**

None.

Function

The operation cancels the default redirection notification facility.

3. 30. set reachable DNIC (200)

Request data

<u>Field name</u>	<u>Datatype</u>
DNIC	text-fix

Answer data

<u>Field name</u>	<u>Datatype</u>
DNIC	text-fix
request sequence number	num8

Function

The operation loads the specified DNIC into the SCC database, indicating to the originating DCE/STE's that this X75 gateway has access to the Network with the specified DNIC.

Parameters

DNIC

Max chars: 4 Std:

3. 31. cancel reachable DNIC (204)

Request data

<u>Field name</u>	<u>Datatype</u>
DNIC	text-fix

Answer data

<u>Field name</u>	<u>Datatype</u>
DNIC	text-fix
request sequence number	num8

Function

The operation cancels the SCC database entry for the specified DNIC, ie. the X75 gateway has no longer access to the Network with the specified DNIC.

Parameters

DNIC

Max chars: 4 Std:

3. 32. set CNIC notification (208)

Request and Answer data

None.

Function

Used to set insertion of the "clearing network identification code" utility into clear packets, transmitted over the X.75 link.

3. 33. cancel CNIC notification (212)**Request and Answer data**

None.

Function

Used to cancel insertion of the "clearing network identification code" utility into clear packets, transmitted over the X.75 link.

3. 34. Set test mode on/off (216)**Request and Answer data**

<u>Field name</u>	<u>Datatype</u>
1: test mode on 0: off	num8
trace number to be output	num16

Function

Set test mode on/off controls generation of testoutput.

Parameters

1: test mode on 0: off

Min-max: 0-1 Std: 0

trace number to be output

Min-max: 0-65535 Std: 0

3. 35. Set 80/84 vars (228)**Request data**

<u>Field name</u>	<u>Datatype</u>
M-bit facility ON	num8
Maximum net credits.	num8
Version 80/84 select on	num8
Local STE version 80/84	num8

Answer data

<u>Field name</u>	<u>Datatype</u>
M-bit facility ON/OFF	num8
Maximum net credits.	num8
Version 80/84 select on	num8
Local STE version 80/84	num8

Function

No help text for this operation

Parameters**M-bit facility ON**

0 =M-bit facility disabled

1 =M-bit facility enabled

This facility should first be enabled when all DCE's are able to support the M-bit facility.

Min-max: 0-1 Std: 0

Maximum net credits.

Min-max: 1-16 Std: 16

Version 80/84 select on

0 =Version 80/84 select on disabled

1 =Version 80/84 select on enabled

Min-max: 0-1 Std: 1

Local STE version 80/84

0 =Version 84 local STE

1 =Version 80 local STE

80 =Version 80 local STE

84 =Version 84 local STE

Min-max: 0-84 Std: 84

M-bit facility ON/OFF

0 =M-bit facility disabled

1 =M-bit facility enabled

This facility should first be enabled when all DCE's are able to support the M-bit facility.

3. 36. init address translation (252)**Request and Answer data**

<u>Field name</u>	<u>Datatype</u>
validate calling	num8
logical addressing	num8
pnrc	hex-df20
own address length	num8
x121 dce address	hex-df20
number of ats messages	num8
ats server incarnation	num16

Function

Use of non-standard status bits in answer:
11: ats_pnrc_activate went wrong.

Parameters

validate calling

if equal to 1 then validate calling else
act like a normal dce with one dte connected

Min-max: 0-1 Std: 0

logical addressing

if equal to 1 then use logical addressing, ie
query the ats for router information, else
use the old paxnet addressing format

Min-max: 0-1 Std: 0

pnlc

private network identification code
this field is only used if validate calling
is enabled

Hex digits: 4 Std: 0000

own address length

length of the dce's own address
this field is only used if logical addressing
is enabled

Min-max: 0-14 Std: 0

x121 dce address

the x121 address of this dce
this field is only used if logical addressing
is enabled

Hex digits: 14 Std: 00000000000000

number of ats messages

the number of messages to allocate in the ats
zone

Min-max: 0-255 Std: 0

ats server incarnation

the incarnation number of the ats server

Min-max: 0-65535 Std: 0

3. 37. ats pnic activate (253)

Request data

<u>Field name</u>	<u>Datatype</u>
0 =remove, 1 =upload	num8

Answer data

<u>Field name</u>	<u>Datatype</u>
pnlc	hex-df20

Function

No help text for this operation

Parameters

0 =remove, 1 =upload

Min-max: 0-1 Std: 1

pnlc

private network identification code
the pnic which was uploaded/removed
by the module

4. Sense Operations.

4. 1. get STE survey (9)

Request data

<u>Field name</u>	<u>Datatype</u>
first logical channel	num16
last logical channel	num16

Answer data

<u>Field name</u>	<u>Datatype</u>
closed, HDLC state (cl, up, dis)	hex-df20
STE state (r0, r1, r2, r3_1, r3)	num8
HDLC line number	num8
.....	bit8
rc, -, fs, -, fcn, tcn, -, -	bit8
maximum throughput class	num8
Always 0	num8
own DNIC	hex-df20
own Network Terminal Number	hex-df20
no. of active log. channels	num16
1. logical channel number	num16
channel type (VC, PVC, DG)	num8
channel state	num8
.....	

Function

The operation requests a survey of active logical channels, the state of the STE and the value of the utility control parameters.

The operation can be used with bytecount 0, 2 or 4, meaning:

- 0: survey containing all active logical channels
- 2: survey containing one specified logical channel
- 4: survey containing a specified range of logical channels.

Parameters

first logical channel

Min-max: 1-4095 Std: 1

last logical channel

Min-max: 1-4095 Std: 8

closed,HDLC state(cl,up,dis)

closed =1 : HDLC line closed by NMC

HDLC state :

cl : 0 : closed

up : 1 : connected

dis: 2 : disconnected

STE state (r0,r1,r2,r3_1,r3)

0 : r0, init STE, HDLC line disconnected

1 : r1, Packet level READY

2 : r2, STE-X restart request

3 : r3_1, init STE, HDLC line up

4 : r3, STE restart indication

rc,-,fs,-,fcn,tcn,-,-

rc: reverse charge,

fs: fast select,

fcn: flow control neg

tcn: throughput class negotiation

maximum throughput class

4 : 110 bps, 5 : 300 bps, 6 : 600 bps,

7 : 1200 bps, 8 : 2400 bps, 9 : 4800 bps,

10 : 9.6 Kbps, 11 : 19.2 Kbps, 12 : 48 Kbps,

13 : 64 Kbps.

Other values : line-speed measure not succesful

channel type (VC,PVC,DG)

0 : VC

1 : PVC

2 : DG

channel state

A description of channel states is found
in the explanation text to this operation
(X75,9,a)

channel type (VC,PVC,DG)

0 : VC

1 : PVC

2 : DG

channel state

A description of channel states is found
in the explanation text to this operation

(DCE,9,a)

channel type (VC,PVC,DG)

0 : VC
1 : PVC
2 : DG

channel state

A description of channel states is found in the explanation text to this operation (DCE,9,a)

4. 2. sense timeout values (17)

Request data

None.

Answer data

<u>Field name</u>	<u>Datatype</u>
restart (t30)	num16
incoming call (t31)	num16
reset indication (t32)	num16
clear indication (t33)	num16
data or RR to STE-X	num16
call request (establish LIC)	num16
clear request (remove LIC)	num16
reset request (reset LIC)	num16
acc. inc. call (cf. est. LIC)	num16
interrupt (send LIC message)	num16
data (send LIC data)	num16
internal X75 tick period	num16
dummy	num16
PVC-data-timer (LIC)	num16
PVC-interrupt-timer (LIC)	num16

Function

The operation gets the actual timeout values for the timers specified in the answer record of this operation.

All values are specified in seconds.

Parameters

PVC-data-timer (LIC)

This timer is equivalent to 'data-timer'.
It is used when sending data to the LIC on a PVC.

PVC-interrupt-timer (LIC)

This timer is equivalent to 'interrupt-timer'.
It is used when sending an interrupt to the

LIC on a PVC.

4. 3. sense logical channel range (25)

Request data

None.

Answer data

<u>Field name</u>	<u>Datatype</u>
number of PVC's	num16
lower two ways channel	num16
higher two ways channel	num16
selects channels from lower?	num8

Function

The operation gets the present layout of logical channels, divided into:

- PVC's
- lower two ways
- higher two ways

4. 4. sense flow control neg. (29)

Request data

None.

Answer data

<u>Field name</u>	<u>Datatype</u>
def window size to STE-X	num8
def window size from STE-X	num8
def pack size to STE-X (2**x)	num8
def pack size from STE-X	num8
flow control negotiation?	num8
max window size to STE-X	num8
max window size from STE-X	num8
max pack size to STE-X (2**x)	num8
max pack size from STE-X	num8
window mode	num8

Function

The operation gets the values for the flow control parameters (window- and packet-sizes).
If flow control negotiation is not set, the operation returns the default values for both directions.

Parameters

window mode
see (X75, 64, r)

4. 5. get current tariff (41)

Request and Answer data

None.

Function

The operation gets the tariff currently active

4. 6. sense HDLC state (45)

Request data

None.

Answer data

<u>Field name</u>	<u>Datatype</u>
HDLC state (cd, cg, dg, dd, p)	num8
Data Set Ready (DSR)	num8
Data Carrier Detect (DCD)	num8
SQD/CTS	num8
Calling Indicator (CI)	num8

Function

The operation gets the present state of the HDLC-link - and the current status of the incoming modem signals:

- DSR (data set ready)
- DCD (data carrier detect)
- SQD (signal quality detect. CTS for COM205/MAC242.)
- CI (calling indicator)

The value of the HDLC state can only be considered valid for COM205/HDLC3 systems.

A further description of the HDLC state values can be found in the field description of this operation.

Use of non-standard status bits in answer:
Illegal_state +11: HDLC was never opened.

Parameters

SQD/CTS

Signal Quality (SQD) for COM204 and Clear To Send (CTS) for COM205/MAC242

4. 7. Get STE buf-configuration (49)

Request data

None.

Answer data

<u>Field name</u>	<u>Datatype</u>
Min no of rec-bufs at LIC	num16
Pref. no of rec-bufs at LIC	num16
No of headers in LIC	num16
Wait local indic bufs to LIC	num16
Max net credit	num16
No of HDLC event buffers	num16
Input-buffers at HDLC	num16
Buffers at poolhandler	num16
Max no of bufs X75 can use	num16
No of buffers in LIC	num16
Buffer size / Max pac in buf	num16
DTE version (1: 80, 0: 84)	num8
rec N1	num16
receive buffers	num16
transmit buffers	num16
rec test elem pr buf	num16
xmit test elem pr buf	num16
cntrl test elem pr buf	num16
test bufs	num16
protocol	bit8
xmit N1	num16
T3	num16

Function

The operation collects the initialisation values of the buffer configuration params, as set by default or by the operation 'Set X75 buf configuration'.

Refer to the specific fields of the answer record for more information.

Parameters**Buffer size / Max pac in buf**

The size of the buffers used in communication with LIC and Router.

The value must be set to: max packet size + 3 +46 or to the code for the maximum packet size the buffer shall contain: 8..12

DTE version (1: 80, 0: 84)

If the DTE is running X25 1980 the DCE may protect the DTE from input only allowed in 1984 version.

rec N1

Unit is: bytes

4. 8. sense ats zone (65)

Request data

None.

Answer data

<u>Field name</u>	<u>Datatype</u>
validate calling	num8
logical addressing	num8
ats environment version	hex-df20
ats library version	hex-df20
options,opt,soft,ureq,abort	hex-df20
number of ats query buffers	num8
ats server name	text-fix
pnlc	hex-df20
address, net	num8
address, region	num8
address, node	num8
address, extension	num16
dce address, length	num8
dce address	hex-df20
ats user index	num16
number of updates	num16
number of update answers	num16
number of queries	num16
number of query answers	num16
calling dte address, length	num8
calling dte address	hex-df20
calling nsap, type, length	hex-df20
calling nsap	hex-df20
calling nsap	hex-df20
called dte address, length	num8
called dte address	hex-df20
called nsap, type, length	hex-df20
called nsap	hex-df20
called nsap	hex-df20
num. of candidates in answer	num16
ats stream number	num8
ats query semaphore open	num8

Function

No help text for this operation

Parameters

options,opt,soft,ureq,abort
 ats_optional, soft_init, user_req,
 abort_return

calling nsap
 See help for previous field.

called nsap

See help for previous field.

4. 9. sense logical channel (113)

Request data

<u>Field name</u>	<u>Datatype</u>
logical channel number	num16

Answer data

<u>Field name</u>	<u>Datatype</u>
entry number in lc_table	num16
logical channel number	num16
channel type (0: SVC, 1:PVC)	num8
channel state	num8
STE in receive ready state	bit8
outstanding STE-X interrupt	bit8
outstanding STE-Y interrupt	bit8
initial credit is sent	bit8
lower window edge for sending	num8
lower window edge for receive	num8
next P(s) to send	num8
last received P(s)	num8
actual network credit	num16
STE-X has outstanding d_bit	bit8
STE-Y has outstanding d_bit	bit8
STE-X d_bit P(s)	num8
STE-Y d_bit P(s)	num8
next send P(s) to network	num8
last rec. P(r) from network	num8
default credit	num8
priority	num8
last used error cause	num8
last used diagnostic	num8
internal timeout counter	num16
remote net number	num8
remote region number	num8
remote node number	num8
remote extension number	num16
LIC incarnation number	num8
LIC port number	num16
packets waiting to be sent	num8
wait cause(4?,lcn,cug?,dnic)	bit8
create date	hex-df20
create time	hex-df20
last update time, date	hex-df20
last update time, time	hex-df20
last update time, secs	hex-df20
no. of received data packs	num32
no. of transmitted data packs	num32
no. of received interrupts	num32
no. of transmitted interrupts	num32
acr type(ste,cr,rc,in,tr,pvc)	bit16
acr sequence number	num8
calling x121 address length	num8
calling x121 address, dnic	hex-df20
calling x121 address, ntn	hex-df20

called x121 address length	num8
called x121 address, dnic	hex-df20
called x121 address, ntn	hex-df20
call identifier	text-fix
packet size to STE-X (2**x)	num8
packet size from STE-X (2**x)	num8
window size to STE-X	num8
window size from STE-X	num8
throughput class to STE-X	num8
throughput class from STE-X	num8
fast select parameter field	num8
network user identifier	text-fix
tariff 1, time in seconds	num32
transmitted segm.	num32
received segm.	num32
tariff 2, time in seconds	num32
transmitted segm.	num32
received segm.	num32
tariff 3, time in seconds	num32
transmitted segm.	num32
received segm.	num32
tariff 4, time in seconds	num32
transmitted segm.	num32
received segm.	num32
hunting	bit8
redirecting	bit8
transit delay requested	bit8
transit delay value	num16
redundant lic	num8
pvc.byte1-7	hex-df20
pvc.channel	num16
pvc.window to dte	num8
pvc.window from dte	num8
pvc.remote charge	num8
pvc.destination net number	num8
pvc.destination region number	num8
pvc.destination node number	num8
pvc.destination extension no.	num16
pvc.hdlc priority	num8
pvc.lic incarnation	num8
pvc.lic index	num16
Remote credit	num8
Free queue	num16
Accumulation limit	num8
TNID utility used	num8
Number of timeouts	num8
Remote version	num8
Utility code	num8
80/84 selection found	num8
Remote is X.75	num8
Closed user group found	num8
RPOA found	num8
NSAP found	num8
Offset for cug-facility	num16
Offset for packet base	num16
Size of X.75 utilities	num16
Size of X.25 facilities	num16
Number of TNICS in packet	num8
Own TNIC pointer	num8
TNIC 1	hex-df20

TNIC 2	hex-df20
TNIC 3	hex-df20
TNIC 4	hex-df20
TNIC 5	hex-df20
TNIC 6	hex-df20
TNIC 7	hex-df20
TNIC 8	hex-df20
TNIC 9	hex-df20
TNIC 10	hex-df20
Dataphase time, date	hex-df20
Dataphase time, time	hex-df20
Dataphase time, secs	hex-df20
M-bit concatenation in use	num8

Function

The operation requests all information concerning a specified logical channel.

Use of non-standard status bits in answer:
15: Logical channel zero.

Parameters

logical channel number

Min-max: 1-4095 Std: 1

Remote credit

Number of credits given to the remote end.

Free queue

Number of free buffers of this channel.

Accumulation limit

Credits are accumulated up to this limit.

Remote version

Used to remember the version number of the remote partner

Utility code

Save utility code for cug/cugoa here

80/84 selection found

80/84 selection facility found in call request packet

Remote is X.75

Set to true if the remote partner is X.75

4. 11. sense poolhandler zone (209)

Request data

None.

Answer data

<u>Field name</u>	<u>Datatype</u>
env version, version	num8
env version, release	num8
lib version, version	num8
lib version, release	num8
options, soft-init	num8
options, % private	num8
options, export bufs	num8
buffer-size (bytes)	num16
poolhandler incarnation	num8
poolhandler main-mailbox	text-fix
common-pool mailbox	text-fix
own incarnation-name	text-fix
users poolhandler-zone stream	num8
poolhandlers index	num8
no of buffers requested	num16
no of buffers allocated	num16
max buffers in use	num16
no of buffers in use	num16
max zone_headers allowed	num16
no of zone-headers allocated	num16
max zone-headers missing	num16
no of zone-headers missing	num16
user-wait, prio 0	num16
user-wait, prio 1	num16
user-wait, prio 2	num16
user-wait, prio 3	num16
max no of private	num16
private hits	num32
common hits	num32
handler hits	num32
private returns	num32
common returns	num32
(spare)	num32

Function

No help text for this operation

4. 12. Get 80/84 vars (229)

Request data

None.

Answer data

<u>Field name</u>	<u>Datatype</u>
M-bit facility ON	num8
Maximum net credits.	num8
Version 80/84 select on	num8
Local STE version 80/84	num8

Function

No help text for this operation

Parameters**M-bit facility ON**

0 =M-bit facility disabled

1 =M-bit facility enabled

This facility should first be enabled when all DCE's are able to support the M-bit facility.

Version 80/84 select on

0 =Version 80/84 select on disabled

1 =Version 80/84 select on enabled

Local STE version 80/84

0 =Version 84 local STE

1 =Version 80 local STE

80 =Version 80 local STE

84 =Version 84 local STE

5. Statistics Operations.

5. 1. get logical channel statistic (6)

Request data

<u>Field name</u>	<u>Datatype</u>
lower logical channel	num16
upper logical channel	num16

Answer data

<u>Field name</u>	<u>Datatype</u>
active logical channels	num16
1. logical channel number	num16
transmitted data packets	num32
received data packets	num32
transmitted interrupts	num32
received interrupts	num32
.....	

Function

The operation collects statistical information of active logical channels.

The operation can be used with bytecount 0,2 or 4, meaning:

- 0: all active logical channels
- 2: one specified logical channel
- 4: a specified range of logical channels

Parameters

lower logical channel

Min-max: 1-4095 Std: 1

upper logical channel

Min-max: 1-4095 Std: 1

transmitted data packets

Number of transmitted data packets from STE-X to the network.

received data packets

Number of data packets forwarded from the network to the STE-X.

transmitted interrupts

Number of interrupt packets sent from STE- X to the network.

received interrupts

Number of interrupt packets forwarded from the network to the STE-X.

5. 2. get HDLC line statistics (14)

Request data

None.

Answer data

<u>Field name</u>	<u>Datatype</u>
number of received infos	num32
number of transmitted infos	num32
number of skipped packets	num32
number of retransmitted infos	num32
number of received RNR	num16
number of transmitted RNR	num16
number of received REJ	num16
number of transmitted REJ	num16
no. of timeout retrans.	num16
no. of detected CTS off	num16
no. of detected DSR off	num16
no. of detected DCD off	num16
no. of detected CI on	num16
no. of detected SQD off	num16
rej fc field	num8
VR,response,VS,na1	bit8
na2,na3,na4,na5,Z,Y,X,W	bit8
no. of receiver overrun	num16
no. of transmitter underrun	num16
no. of receiver abort	num16
no. of receive errors	num16
no. of rec. empty I frames	num16
future use 2	num16
future use 3	num8
com id	num8
received SABM	num16
transmitted SABM	num16
received bytes	num32
transmitted bytes	num32
received databytes	num32
transmitted databytes	num32

Function

The operation reads statistical information in the HDLC connected to the STE-.

For the MegaSwitch only a minor number of the fields are used.

Use of non-standard status bits in answer:
Illegal_state +11: hdlc was never opened.

5. 3. Get HDLC buffer statistics (18)**Request data**

None.

Answer data

<u>Field name</u>	<u>Datatype</u>
No of HDLC event_lost	num32
No of HDLC events with u2 <ok	num32
No of HDLC output ok	num32
No of HDLC output not ok	num32
No of HDLC input ok	num32
No of HDLC input not ok	num32
Input buffers at HDLC	num16
Output buffers at HDLC	num16

Function

The operation collects buffer statistics with the HDLC.

The actual statistical information is found in the answer record of this operation.

6. Old Event Ordering Operations.

6. 1. set event bit mask (4)

Request data

<u>Field name</u>	<u>Datatype</u>
bits to be updated	bit16
new values	bit16

Answer data

<u>Field name</u>	<u>Datatype</u>
updated mask	bit16

Function

Bit1 is the most significant bit in the event mask:
bit1 : measure-delay event (55)
bit2 : HDLC-connected event (39)
bit3 : HDLC-disc and warning events (43,51)
bit4 : SCC-rsp event (47)
bit5 : A-account event (163)
bit6 : B-account event (167)
bit7 :
bit8 :
bit9 : ATS response (59)
bit10:
bit11: reset, reset-req, reset-conf events (231,223,215)
bit12: LIC-estb, call-req, call-conn events (31,207,23)
bit13: clear, clear-req, clear-conf events (227,211,27)
bit14:
bit15: restart-req,restart-conf,restart-ind ev (203,219,235)
bit16: incoming call, call connected, estab. lic (63,67,71)

Parameters

bits to be updated

Std: 11111111 11111111

new values

Std: 01100000 00000010

6. 2. get event bit mask (5)

Request data

None.

Answer data

<u>Field name</u>	<u>Datatype</u>
actual event bit mask	bit16

Function

This operation gets the present value of the event mask.
For an explanation of the single bit - refer to operation 4
(set event mask)

7. Supervisory Events.

7. 1. HDLC line up (39)

Event data

<u>Field name</u>	<u>Datatype</u>
HDLC event data, always 0	num8
HDLC line number	num8

Function

The event is generated when the HDLC driver returns a "line up" event.

7. 2. HDLC line up (43)

Event data

<u>Field name</u>	<u>Datatype</u>
HDLC event data	num8
HDLC line number	num8

Function

This event is generated when the HDLC driver returns a "line down" event. (See manual for detailed description).

Some typical events are :

- 2 : reset line; SABM received in connected state - UA sent
- 4 : disconnected by other end. The link is disconnected.
- 5 : unsolicited UA received - error recovery initiated.
- 6 : FRMR received error - recovery initiated.
- 7 : Frame with unintelligible control field received - FRMR sent.
- 8 : unsolicited response with F-bit received - recovery initiated.
- 9 : I-frame with illegal size (#bits > n1) received. FRMR sent.
- 10 : I- or S-frame with ill. seq. no received - FRMR sent.
- 11 : Timeout - SABM is sent and reestablishment is tried.
- 12 : Timeout - driver gives up.
- 13 : Temp rec. malfunction

Parameters

HDLC event data

For most events a short description is given in the explanation field of this event.
For a detailed description refer to the manual.

7. 3. HDLC line warning (51)

Event data

<u>Field name</u>	<u>Datatype</u>
HDLC event data	num8
HDLC line number	num8

Function

This event is generated when a HDLC-event categorized as a warning is received from the HDLC-driver.

The following events are considered as warnings :

1 : RNR-timeout ; t1 has run out n2 times. Error-recovery is initiated if rnr-disc is true (set in open-HDLC).

13 : Temporary line error

a) Modem clock on transmitter is lost for more than timer t1. Will be repeated when t1*n2 sec has elapsed.

b) n2 frames received with CRC-error or overrun or n2 frames transmitted with underrun.

15 : Parity error in controller RAM. Line state is unchanged.

Parameters

HDLC event data

For most events a short description is given in the explanation field of this event.
For a detailed description refer to the manual.

8. Transmission Events.

8. 1. call connected from STE-X (23)

Event data

<u>Field name</u>	<u>Datatype</u>
q_bit,d_bit,m_128,m_8,lcgn(4)	bit8
logical channel number	num8
DTE address lengths	hex-df20
4. byte	hex-df20
.....	hex-df20

Function

The event is generated when an incoming call is accepted by the STE-X.

Parameters

q_bit,d_bit,m_128,m_8,lcgn(4)
The GFI (general format identifier) followed by the logical channel group number.

8. 2. clear confirmation from STE-X (27)

Event data

<u>Field name</u>	<u>Datatype</u>
logical channel number	num16
received packets from STE-X	num32
transmitted packets to STE-X	num32
received intrupts from STE-X	num32
transmitted intrupts to STE-X	num32

Function

The event is generated when a clear confirmation is received from the STE-X.

8. 3. indication establish lic (31)

Event data

<u>Field name</u>	<u>Datatype</u>
q_bit,d_bit,m_128,m_8,lcgn(4)	bit8
multibuffering	num8
DTE address lengths	hex-df20
called network address	hex-df20
called DTE address	hex-df20
calling network address	hex-df20
calling DTE address	hex-df20

Function

No help text for this operation

8. 4. SCC indication answer (47)

Event data

<u>Field name</u>	<u>Datatype</u>
request sequence number	num8
SCC result (0:ok,1:war,3:fail)	num8
SCC reason (see manual)	num16

Function

The event is generated when receiving an answer from the SCC database.

Parameters

SCC result (0:ok,1:war,3:fail)

If 'warning' or 'failure' then the next field contains the reason.

SCC reason (see manual)

CS-reason definitions (from CS-env in SL-man.)

- 0 : no reason
- 1 : remote user disconnect
- 2 : system init. disconnect
- 3 : insufficient QOS caused disconnect
- 40: busy - no resources
- 41: address unknown

8. 5. measured transit delay (55)

Event data

<u>Field name</u>	<u>Datatype</u>
sequence number	num8
logical channel number	num16
packet length	num16
transit delay * 2, hours	num8

minutes	num8
seconds	num8
millisecs	num16

Function

This event is generated to give the result of a transit-delay measurement.

NOTE : the measured delay is the net-delay for one packet sent forth and back.

8. 6. address translation respond (59)**Event data**

<u>Field name</u>	<u>Datatype</u>
calling dte addr, length	num8
calling dte addr	hex-df20
calling general, addr. kind	bit8
calling general, type/length	num8
calling general, address	hex-df20
calling general, address	hex-df20
called dte addr, length	num8
called dte addr	hex-df20
called general, addr. kind	bit8
called general, type/length	num8
called general, address	hex-df20
called general, address	hex-df20
access point, net	num8
access point, region	num8
access point, node	num8
access point, extension	num16
ats answer result	num8
ats answer reason	num16

Function

No help text for this operation

Parameters

calling dte addr, length
length of the calling address as a dte address

calling dte addr
the value of the calling dte address field

calling general, addr. kind
address kind of the calling general address
field: possible values ak_null, ak_dte, ak_nsap

calling general, type/length
depending of the address kind, this field is
either an encoded type/length field (the two mo

st significant bytes indicates the type) or only a length field (if kind =ak_dte)

calling general, address

this field contains the address element as specified in the addr. kind field

calling general, address

See help for previous field.

called dte addr, length

length of the called address as a dte address

called dte addr

the value of the called dte address field

called general, addr. kind

address kind of the called general address field: possible values ak_null, ak_dte, ak_nsap

called general, type/length

depending of the address kind, this field is either an encoded type/length field (the two most significant bytes indicates the type) or only a length field (if kind =ak_dte)

called general, address

this field contains the address element as specified in the addr. kind field

called general, address

See help for previous field.

access point, net

net field of the datagram address of the access point to the destination address

access point, region

region field of the datagram address of the access point to the destination address

access point, node

node field of the datagram address of the access point to the destination address

access point, extension

extension field of the datagram address of the
access point to the destination address

8. 7. A-end Account record (163)**Event data**

<u>Field name</u>	<u>Datatype</u>
type(ste,ic,rc,int,tra,?,?,?)	bit16
local address, net	num8
region	num8
node	num8
extension	num16
network user identifier	text-fix
logical channel number	num16
channel type(0:svc, 1:pvc)	num8
account sequence number	num8
cause(cl,tmo,req,res,?,?,?,?)	bit8
clear cause (cf manual).	num8
diagnostic (cf. x25 recom.)	num8
remote address, net	num8
region	num8
node	num8
extension	num16
calling address, length	num8
calling address, x121 format	hex-df20
called address, length	num8
called address, x121 format	hex-df20
user facilities, length	num8
call identifier =129	num8
call identifier parameter	hex-df20
throughput class =2	num8
throughp. class (to,fr dte)	hex-df20
window =67	num8
window, to dte	num8
window, from dte	num8
packet size =66	num8
packet size,from called dte	num8
packet size,to called dte	num8
fast select =1	num8
fs,rst,?,?,?,?,?,rc	bit8
TNID used	num8
not used	text-fix
call setup time	hex-df20
tariff 1, time in seconds	num32
transmitted segm.	num32
received segm.	num32
tariff 2, time in seconds	num32
transmitted segm.	num32
received segm.	num32
tariff 3, time in seconds	num32
transmitted segm.	num32
received segm.	num32
tariff 4, time in seconds	num32
transmitted segm.	num32
received segm.	num32

Function

The event contains information that:

- identifies a specific virtual connection
- identifies facilities used
- identifies the number of segments (64Bytes) sent and received within each tariff period.
- identifies the duration of the connection

Parameters

type(ste,ic,rc,int,tra,?,?,?)

ste:x75, ic:call reception, rc:reverse charge,
int:international connection, tra:transit connection.

cause(cl,tmo,req,res,?,?,?)

cl:cleared, tmo:timeout, req:nmc request, res:informations are reset.

fs,rst,?,?,?,?,rc

fs: fast select,
rst: with restrictions
rc: reverse charging

8. 8. B-end Account record (167)

Event data

Field name	Datatype
type(ste,ic,rc,int,tra,?,?,?)	bit16
local address, net	num8
region	num8
node	num8
extension	num16
network user identifier	text-fix
logical channel number	num16
channel type(0:svc, 1:pvc)	num8
account sequence number	num8
cause(cl,tmo,req,res,?,?,?)	bit8
clear cause (cf manual).	num8
diagnostic (cf. x25 recom.)	num8
remote address, net	num8
region	num8
node	num8
extension	num16
calling address, length	num8
calling address, x121 format	hex-df20
called address, length	num8
called address, x121 format	hex-df20
user facilities, length	num8
call identifier =129	num8
call identifier parameter	hex-df20
throughput class =2	num8

throughp. class (to,fr dte)	hex-df20
window =67	num8
window, to dte	num8
window, from dte	num8
packet size =66	num8
packet size,from called dte	num8
packet size,to called dte	num8
fast select =1	num8
fs,rst,?,?,?,?,rc	bit8
TNID used	num8
not used	text-fix
call setup time	hex-df20
tariff 1, time in seconds	num32
transmitted segm.	num32
received segm.	num32
tariff 2, time in seconds	num32
transmitted segm.	num32
received segm.	num32
tariff 3, time in seconds	num32
transmitted segm.	num32
received segm.	num32
tariff 4, time in seconds	num32
transmitted segm.	num32
received segm.	num32

Function

The event contains information that:

- identifies a specific virtual connection
- identifies facilities used
- identifies the number of segments (64Bytes) sent and received within each tariff period.
- identifies the duration of the connection

Parameters

type(ste,lc,rc,int,tra,?,?,?)

ste:x75, lc:call reception, rc:reverse charge,
int:international connection, tra:transit connection.

cause(cl,tmo,req,res,?,?,?)

cl:cleared, tmo:timeout, req:nmc request, res:informations are reset.

fs,rst,?,?,?,?,rc

fs: fast select,
rst: with restrictions
rc: reverse charging

8. 9. restart request from STE-X (203)

Event data

<u>Field name</u>	<u>Datatype</u>
HDLC line number	num16
restart cause	num8
restart diagnostic	num8

Function

This event is generated when a restart-packet is received from the STE-X.

Parameters

restart cause

Cause value as read from packet. Typical values

- 0 : local procedure error
- 3 : network congestion
- 7 : network operational

8. 10. call request from STE-X (207)

Event data

<u>Field name</u>	<u>Datatype</u>
q_bit,d_bit,m_128,m_8,lcn(4)	bit8
logical channel number	num8
DTE address lengths	hex-df20
called network address	hex-df20
called DTE address	hex-df20

Function

No help text for this operation

8. 11. clear request from STE-X (211)

Event data

<u>Field name</u>	<u>Datatype</u>
logical channel number	num16
clear cause	num8
clear diagnostic	num8

Function

This event is generated when a clear-request packet is received from the DTE.

Clear-cause values are found in X.25 - typical values are :

- 0, >127 : DTE originated
- 1 : number busy
- 3 : invalid facility request
- 5 : network congestion
- 9 : out of order
- 11: access barred

13: not obtainable
 17: remote procedure error
 19: local procedure error
 25: reverse charge acceptance not subscribed
 33: incompatible destination
 41: fast select acceptance not subscribed

Parameters

clear cause

The cause value as read from packet.
 Further explanation is found in exp (211,e).

8. 12. reset confirmation from STE-X (215)

Event data

<u>Field name</u>	<u>Datatype</u>
logical channel number	num16

Function

The event is generated when a reset confirmation is received from the STE-X.

8. 13. restart conf. from STE-X (219)

Event data

<u>Field name</u>	<u>Datatype</u>
logical channel number (=0)	num16

Function

The event is generated when a restart confirmation packet is received from the STE-X.

8. 14. reset request from STE-X (223)

Event data

<u>Field name</u>	<u>Datatype</u>
logical channel number	num16
reset cause	num8
reset diagnostic	num8

Function

This event is generated when a reset-request packet is received from the STE-X.
 Cause and diagnostic values can be found in X.25 - typical cause values are :
 0, >127 : DTE originated
 1 : out of order (PVC only)
 3 : remote procedure error

7 : network congestion
 9 : remote DTE operational (PVC only)
 15: network operational (PVC only)
 17: incompatible destination
 29: network out of order (PVC only)

Parameters

reset cause

Cause as read in packet. For further explanation refer to exp (223,e)

8. 15. logical channel cleared (227)

Event data

<u>Field name</u>	<u>Datatype</u>
logical channel number	num16
clear cause (internal value)	num8
clear diagnostic	num8
call set up time	hex-df20
received packets from STE-X	num32
transmitted packets to STE-X	num32
received interrupts from STE-X	num32
transmitted interrupts to STE-X	num32
lic status (0: ok)	num8

Function

The event is generated when a logical channel is cleared.

Parameters

clear cause (internal value)

For further explanation of the internal cause value, refer to exp (113, a)

clear diagnostic

The diagnostic code sent to the STE-X in the clear indication packet.
 Coding follows the X.25 recommendation.

8. 16. logical channel reset (231)

Event data

<u>Field name</u>	<u>Datatype</u>
logical channel number	num16
reset cause (internal value)	num8
reset diagnostic	num8
call set up time	hex-df20
received packets from STE-X	num32

transmitted packets to STE-X	num32
received interrupts from STE-X	num32
transmitted interrupts to STE-X	num32
lic status (0: ok)	num8

Function

The event is generated when the STE initiates a resetting of a logical channel.

Parameters**reset cause (internal value)**

For further explanation of the internal reset cause, refer to exp (113,a)

8. 17. restart indic. sent to STE-X (235)**Event data**

<u>Field name</u>	<u>Datatype</u>
HDLC line number	num16
restart cause	num8
restart diagnostic	num8

Function

No help text for this operation

Parameters**restart cause**

Cause value as read from packet. Typical values

0 : local procedure error
3 : network congestion
7 : network operational

PN: 99001417