Addendum to Network Interface Specification

Datapath Technology Licensing Program

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Northern Telecom

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1.0 TE MESSAGE REPLY REQUIREMENTS

This section outlines the requirements of the TE when responding to CO messages.

When a message is received from the CO that requires a response, the TE must respond within eight (8) seconds of receiving the message.

When several messages are received from the CO that require responses, the TE must send the responses in the same order as the requests were received.

2.0 TE VINTAGE AND VERSION

This section outlines the response of the TE to the Report Vintage and Version command.

The vintage and version of the TE is an 8 bit value. It is uploaded to the CO using the Version Count 1 and 2 messages. The 4 most significant bits of the vintage and version byte are sent using the Version Count 1 message. This must be immediately followed by the Version Count 2 message, containing the 4 least significant bits.

The TE must use a vintage and version byte of all ones, sending "9F" Hex and "AF" Hex to the CO in response to the Report Vintage and Version command.

3.0 BULK DATA TRANSFER - PROFILE CONTEXT

This section outlines the messages and actions associated with the Bulk Data Transfer of messages with the Profile context.

The count nibble must always be used to determine the size of the bulk data transfer message. If a valid bulk data message is detected with less data nibbles than expected, the TE must only process those data nibbles received. Future extensions to the bulk data transfer messages described in this document will be appended to the last data nibble before the count nibble.

The following message types have been identified for the profile download context:

Figure 1. Contexts and Message Types

CONTEXT		MESSAGE TYPE	
NAME	CODE	NAME	CODE
PROFILE	0	PROFILE DOWNLOAD (FROM CO)	0
		PROFILE DOWNLOAD (FROM DLC)	1
		PROFILE UPLOAD REQUEST	2
		PROFILE UPLOAD CONFIRMATION	3
		PROFILE CLEAR REQUEST	4

3.1.1 Profile Message Sequences

Messages with a profile context are used to allow the CO to query and change the options in use in a TE.

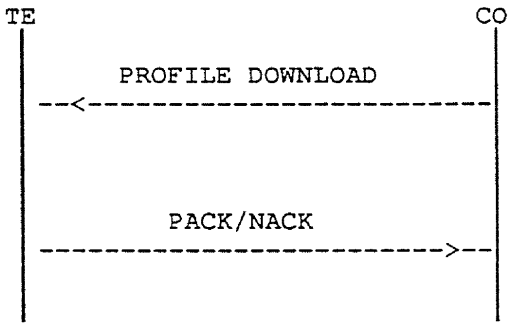
A Profile Download message allows the CO to control the operating characteristics of the TE.

A Profile Upload allows the CO to monitor which options are currently in effect on the TE.

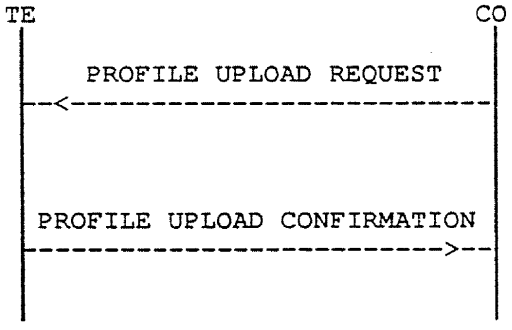
A Profile Clear allows the CO to erase any previous profiles sent to the TE.

Figure 2. Downloading/Uploading/Clearing Profile Information

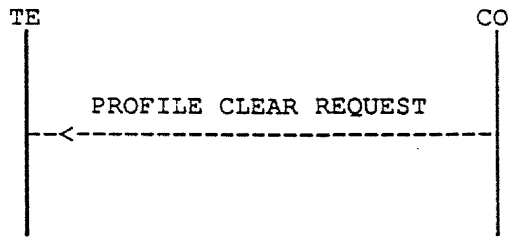
a) DOWNLOAD



b) UPLOAD



c) CLEAR



Note: no response to this request message

NOTE: All messages, apart from PACK/NACK, are of the new format:

e.g. START_DATA (context = profile)
DATA_CARRIER (msg_type = profile_download request)
DATA_CARRIER (data)
.
.
DATA_CARRIER (count)
STOP_DATA (chksum)

PACK/NACK are single byte messages in the TE/DLC Protocol (2E and 2F respectively).

3.2 MESSAGE DESCRIPTION - DETAILED

3.2.1 Profile Download Message

The Profile Download message allows the CO to control the operating characteristics of the TE.

Figure 3. Profile Download Message

MSB.....DATA NIBBLE.....LSB

COUNT		3	2	1	0
0	START_DATA	CONTEXT = PROFILE			
1	DATA_CARRIER	MSG_TYPE = PROFILE DOWNLOAD			
2	DATA_CARRIER	CLASSDU			
3	DATA_CARRIER	RESERVED		SYNCHRO	CONFIG
4	DATA_CARRIER	DUPLEX	PARITY		
5	DATA_CARRIER	STOPBIT		CHARLEN	
6	DATA_CARRIER	DATARATE			
7	DATA_CARRIER	CLOCKSRC	ADAPTPRO	AUTOORIG	AUTOANS
8	DATA_CARRIER	MIMIC		ASERTRTS	ASERTDTR
9	DATA_CARRIER	DYNINP	ECHO	AUTOBAUD	SPEEDRES
10	DATA_CARRIER	RESTARTS	DTEIF		
11	DATA_CARRIER	PROMPTS	KBDTYP		KEYBDIAL
12	DATA_CARRIER	unused		SACMODE	SAC
13	DATA_CARRIER	ASERTCD	DELAYB	DELAYA	CTSDELAY
14	DATA_CARRIER	COUNT = 14 (DECIMAL)			
	STOP_DATA	CHKSUM			

3.2.1.1 Parameter Definitions

Parameter Definitions

CLASSDU

Class of Data Unit:

Code	Meaning
0	open
1	low speed
2	high speed
3	modem pool

CONFIG

DAM configuration indicator: (as defined in T-Link protocol)

Code	Meaning
0	The sending DAM is connected to a DTE
1	The sending DAM is connected to a DCE

SYNCHRC

Synchronization indicator: (as defined in T-Link protocol)

Code	Meaning
0	Asynchronous transmission
1	Synchronous transmission

PARITY

Parity treatment: (codes compatible with Intel 8251 Usart)

Code	Meaning
0	none (parity disabled)
1	odd
3	even
4	mark
6	space

DUPLEX

Full/half duplex operation: (as defined in T-Link protocol)

Code	Meaning
0	half duplex
1	full duplex

CHARLEN

Character length: (codes compatible with Intel 8251 Usart)

Code	Meaning
0	5 characters
1	6 characters
2	7 characters
3	8 characters

STOPBIT

Stop-bit treatment: (codes compatible with Intel 8251 Usart)

Code	Meaning
1	1 stop-bit
2	1.5 stop-bits
3	2 stop-bits

DATARATE

Data rate: (as defined in T-Link protocol)

Code	Meaning Async	Sync
0	19200 (bits/sec)	64000 (bits/sec)
1	50	16000
2	75	32000
3	110	50000
4	134.5	1200
5	150	2400
6	300	3600
7	600	4800
8	1200	7200
9	1800	9600
10	2000	14400
11	2400	19200
12	3600	38400
13	4800	40800
14	7200	48000
15	9600	56000

AUTOANS

Auto-answer:

Code	Meaning
0	auto-answer OFF
1	auto-answer ON

AUTOORIG

Auto-originate:

Code	Meaning
0	auto-originate OFF
1	auto-originate ON

Note: This parameter pertains to the switch setting on data units and should not be confused with the T-Link auto-answer (parameter message 2, bit D6).

ADAPTPRO

Adaptive profile:

Code	Meaning
0	adaptive profile OFF
1	adaptive profile ON

CLOCKSRC

Clocking source: (as defined in T-Link protocol)

Code	Meaning
0	external; user provided
1	internal; synchronized to network

ASERTDTR

Assert DTR:

Code	Meaning
0	assert DTR OFF
1	assert DTR ON

ASERTRTS

Assert RTS:

Code	Meaning
0	assert RTS OFF
1	assert RTS ON

MIMIC

Mode indicator/mode indicator common control

Code	Meaning
0	pulse normal
1	level normal
2	pulse inverted
3	level inverted

SPEEDRES

Speed restricted calling feature:

Code	Meaning
0	speed restriction inactive
1	speed restriction active

AUTOBAUD

Autobaud Indicator:

Code	Meaning
0	autobauding OFF
1	autobauding ON

ECHO

Echo: (as defined in T-Link protocol)

Code	Meaning
0	echo
1	no echo

DYNINPUT

Dynamic input:

Code	Meaning
0	dynamic input disabled
1	dynamic input enabled

DTEIF

DTE interface:

Code	Meaning
0	RS232C
1	V35
2	RS449
3	RS422
4	COAX

RESTARTS

Enable restarts in the inband protocol (T-Link)

Code	Meaning
0	restarts disabled
1	restarts enabled

KEYBDIAL

Keyboard dialing:

Code	Meaning
0	keyboard dialing feature inactive
1	keyboard dialing feature active

KBDTYP

Type of keyboard dialing:

Code	Meaning
0	symbolic
1	Hayes compatible

PROMPTS

Turn on/off the sending of keyboard dialing call progress prompt strings to the DTE terminating a call:

Code	Meaning
0	prompts disabled
1	prompts enabled

SAC

Synchronous Automatic Calling (V.25bis):

Code	Meaning
0	SAC disabled
1	SAC enabled

SACMODE

Type of Synchronous Automatic Calling (V.25bis):

Code	Meaning
0	Character-oriented Bisync format
1	Bit-oriented HDLC format

CTSDELAY

RTS/CTS delay feature:

Code	Meaning
0	End-to-end RTS/CTS Delays active
1	Local RTS/CTS Delays active

DELAYA

RTS/CTS delay feature:

Code	Meaning
0	CTS Delay A OFF
1	CTS Delay A ON

DELAYB

RTS/CTS delay feature:

Code	Meaning
0	CTS Delay B OFF
1	CTS Delay B ON

ASERTCD

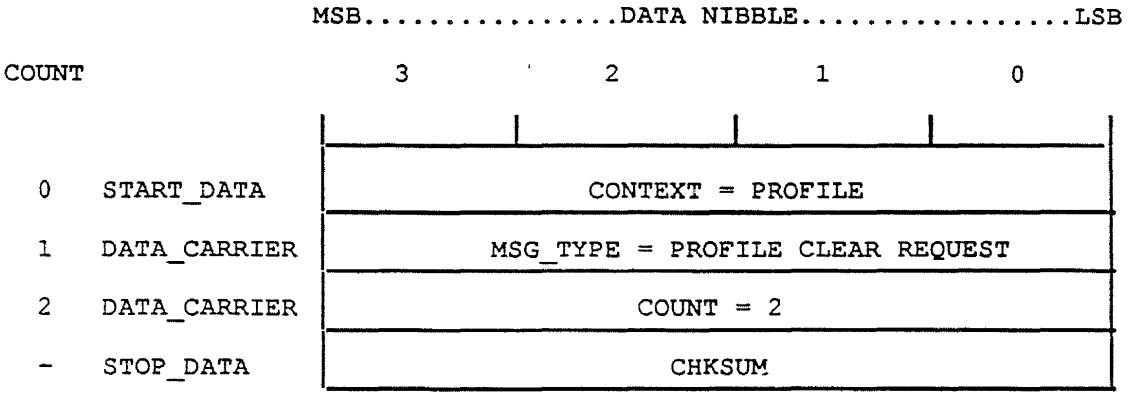
Assert CD:

Code	Meaning
0	Assert CD OFF
1	Assert CD ON

3.2.2 Profile Clear Request Message

The profile clear request message allows the CO to erase any previous profiles downloaded to the TE. The TE must operate as if it had never received a profile download.

Figure 4. Profile Clear Request Message



3.2.3 Profile Upload Request Message

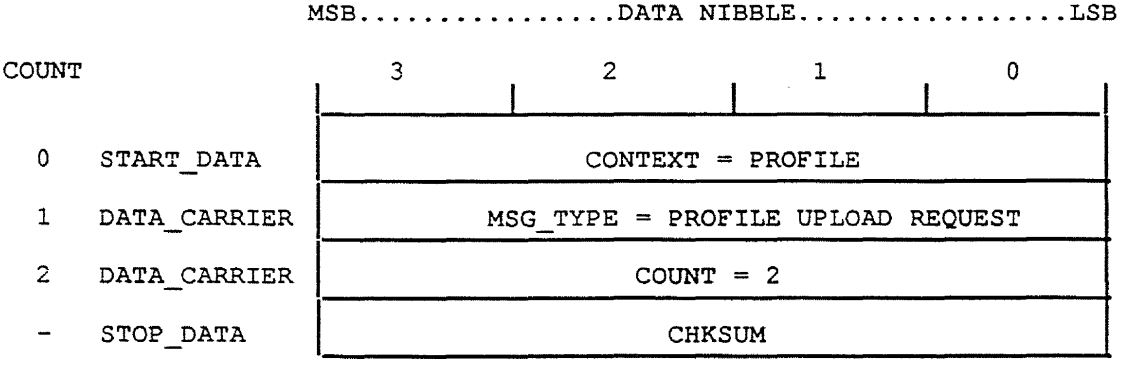
The profile upload request message allows the CO to determine which options are in effect on the TE. The TE must respond with a profile upload confirmation message, containing its operating characteristics.

If the TE has no previous profile, the TE must upload its current operating characteristics as selected by the user.

If the TE has had a previous profile download with DYNINP off, the TE must upload an exact copy of the downloaded profile.

If the TE has had a previous profile download with DYNINP on, the TE must upload its current operating characteristics as defined by both the profile and the user selectable options.

Figure 5. Profile Upload Request Message



3.2.4 MESSAGE DESCRIPTION - DETAILED

3.2.1 Profile Upload Confirmation Message

The Profile Download message allows the CO to control the operating characteristics of the TE.

Figure 3. Profile Download Message

MSB.....DATA NIBBLE.....LSB

COUNT		3	2	1	0
0	START_DATA	CONTEXT = PROFILE			
1	DATA_CARRIER	MSG_TYPE = PROFILE DOWNLOAD			
2	DATA_CARRIER	CLASSDU			
3	DATA_CARRIER	RESERVED		SYNCHRO	CONFIG
4	DATA_CARRIER	DUPLEX	PARITY		
5	DATA_CARRIER	STOPBIT		CHARLEN	
6	DATA_CARRIER	DATARATE			
7	DATA_CARRIER	CLOCKSRC	ADAPTPRO	AUTOORIG	AUTOANS
8	DATA_CARRIER	MIMIC		ASERTRTS	ASERTDTR
9	DATA_CARRIER	DYNINP	ECHO	AUTOBAUD	SPEEDRES
10	DATA_CARRIER	RESTARTS	DTEIF		
11	DATA_CARRIER	PROMPTS	KBDTYP		KEYBDIAL
12	DATA_CARRIER	unused		SACMODE	SAC
13	DATA_CARRIER	ASERTCD	DELAYB	DELAYA	CTSDELAY
14	DATA_CARRIER	COUNT = 14 (DECIMAL)			
	STOP_DATA	CHKSUM			

3.2.4.1 Parameter Definitions

Refer to descriptions given for Profile Download message. All reserved data bits must be set to zero.