C.1.18 TG Descriptor (X′46′) Control Vector

C.1.18.1 TG Descriptor (X′46′) Control Vector

The TG Descriptor control vector identifies a transmission group (TG). All implementations, as a base requirement, always accept and forward the TG Descriptor (X′46′) control vector in its entirety.

TG Descriptor (X′46′) Control Vector

Byte	Bit	Content
0– 1		Vector header; Key=X′46′ (see -- Heading 'RUSPARS' unknown -- and -- Table 'CV' unknown --)
2 – n		Vector Data *Note:* The following subfields (described following this control vector) may be included. They are parsed according to subfield parsing rule LT (see "Substructure Encoding/Parsing Rules" in -- Heading 'CF' unknown --). X′80′ TG Identifier subfield (always present except when the control vector is included in a FID2 Encapsulation GDS variable) X′82′ DLC Signaling Information subfield (present only when the TG is connected to a connection network, except not present on XID3) X′83′ Real Partner CP Name subfield (present in a CD-Initiate in a Locate reply [or request] when a border node modifies the associated resource hierarchy such that the CP(DLU) [or CP(OLU)] is not adjacent to the NNS(DLU) [or NNS(OLU)]; or in an RSCV when an NNS(OLU) calculates a route that includes a TG vector carrying it): when present, used in preference to the TG-partner node's CP name in the TG Identifier (X′80′) subfield X′91′ DLC Signaling Type subfield (present in the FID2 Encapsulation GDS variable when DLC signaling information is to be conveyed for DLUR use). When present, additional DLC Signaling Information subfields (in the range X′92′ through X′F0′) follow this subfield, depending upon the DLC type indicated in the X′91′ subfield, as described below. More than one such series of DLC signaling information, consisting of one DLC Signaling Type (X′91′) subfield and its following DLC Signaling Information (X′92′ – X′F0′) subfields, may be included in the TG Descriptor (X′46′) control vector.

C.1.18.1.1 DLC Signaling Type (X′91′) TG Descriptor Subfield

DLC Signaling Type (X′91′) TG Descriptor Subfield

Byte	Bit	Content
0– 1		Subfield header; Key=X′91′ (see -- Heading 'RUSPARS' unknown --)
2 – n		Subfield Data
For DLC Type of Internal PU (DLUR):		
2– 6 (= n)		DLC type (EBCDIC characters): INTPU (for internal PU) *Note: For DLC Type = INTPU, the following subfields (described following this subfield) may be included in the TG Descriptor (X′46′) control vector following the DLC Signaling Type (X′91′) subfield; when both are present, each one identifies the same internal PU. Each internal PU to be identified requires its own X′91′ series.* X′92′ Internal PU Identifier: ID Block/ID Number (always present if identifying a different internal PU from that identified by the CP name in another X′91′ series present in the same X′46′ control vector; may be present if a X′93′ subfield is present in the same X′91′ series, in which case it identifies the same internal PU as the CP name in the accompanying X′93′ subfield) X′93′ Internal PU Identifier: CP Name (may be present to identify only one internal PU; any other internal PUs identified in other X′91′ series in the same X′46′ control vector are identified by ID block/ID number only — in other words, in a given X′46′ control vector, only one X′91′ subfield for DLC type = INTPU can have a following CP Name [X′93′] subfield)
For DLC Type of Token-Ring LAN:		
2– 3 (= n)		DLC type (EBCDIC characters): TR (for token-ring — see *IBM Token-Ring Network Architecture Reference*) *Note: For DLC Type = TR, the following subfields (described following this subfield) may be included in the TG Descriptor (X′46′) control vector following the DLC Signaling Type (X′91′) subfield:* X′92′ Port Identifier (optionally present): product-dependent identifier X′93′ Destination Service Access Point Address (DSAP) (always present) X′94′ Destination MAC Address (always present) X′95′ Source Service Access Point Address (SSAP) (present if multiple parallel links are supported) X′96′ Source MAC Address (present if X′92′ subfield not present; optional otherwise)
For DLC Type of Ethernet (IEEE 802.3) LAN:		
2– 9 (= n)		DLC type (EBCDIC characters):

DLC Signaling Type (X′91′) TG Descriptor Subfield

Byte	Bit	Content
		ETHERNET (for IEEE 802.3 LAN — see ISO/IEEE 8802.3 documentation)
		Note: For DLC Type = ETHERNET, the following subfields (described following this subfield) may be included in the TG Descriptor (X′46′) control vector following the DLC Signaling Type (X′91′) subfield: X′92′ Port Identifier (optionally present): product-dependent identifier X′93′ Destination Service Access Point Address (DSAP) (always present) X′94′ Destination MAC Address (always present) X′95′ Source Service Access Point Address (SSAP) (present if multiple parallel links are supported) X′96′ Source MAC Address (present if X′92′ subfield not present; optional otherwise)
For DLC Type of Frame-Relay Permanent Virtual Circuit (PVC):		
2–6 (=n)		DLC type (EBCDIC characters):
		FRPVC (for frame-relay permanent virtual circuit) — or FR, now retired
		Note: For DLC Type = FRPVC, the following subfields (described following this subfield) may be included in the TG Descriptor (X′46′) control vector following the DLC Signaling Type (X′91′) subfield: X′92′ Port Identifier (product-dependent identifier present if for signaling use; not present in a TG Descriptor control vector on a Locate) X′93′ Destination Service Access Point Address (DSAP) (always present) X′94′ Data Link Connection Identifier (DLCI) (always present) X′95′ Source Service Access Point Address (SSAP) (present in signaling information if multiple parallel logical links are supported; not present in a TG Descriptor control vector on a Locate)
For DLC Type of X.25 Permanent Virtual Circuit (PVC):		
2–7 (=n)		DLC type (EBCDIC characters):
		X25PVC (for X.25 Permanent Virtual Circuit)
		Note: For DLC Type = X25PVC, the following subfields (described following this subfield) may be included in the TG Descriptor (X′46′) control vector following the DLC Signaling Type (X′91′) subfield: X′92′ Port Identifier (always present): product-dependent identifier X′93′ Logical Channel Number (always present)
For DLC Type of X.25 Switched Virtual Circuit (SVC):		
2–7 (=n)		DLC type (EBCDIC characters):

DLC Signaling Type (X′91′) TG Descriptor Subfield

Byte	Bit	Content
		X25SVC (for X.25 Switched Virtual Circuit) — or X25, now retired
		Note: For DLC Type = X25SVC, the following subfields (described following this subfield) may be included in the TG Descriptor (X′46′) control vector following the DLC Signaling Type (X′91′) subfield: X′92′ Port Identifier (always present): product-dependent identifier X′94′ Protocol Identifier (optionally present) X′A5′ Called (destination) DTE Address (always present) X′A6′ Calling (origin) DTE Address (present when calling DTE address is required, for example, to convey a subaddress) X′AE′ Optional User Facilities (present when one or more of these optional facilities are being selected) X′CD′ Call User Data (present when call user data is to be included in a call request packet)
For DLC Type of SDLC Nonswitched:		
2–7 (=n)		DLC type (EBCDIC characters): SDLCNS (for SDLC nonswitched) *Note: For DLC Type = SDLCNS, the following subfields (described following this subfield) may be included in the TG Descriptor (X′46′) control vector following the DLC Signaling Type (X′91′) subfield:* X′92′ Port Identifier (always present): product-dependent identifier X′93′ Secondary Station Address (always present) X′94′ Group Address (optionally present if group addressing is used) X′95′ Station Role (retired) X′96′ Asynchronous SDLC Support Type (present if asynchronous SDLC operation is used)
For DLC Type of SDLC Switched:		
2–7 (=n)		DLC type (EBCDIC characters): SDLCSW (for SDLC switched) *Note: For DLC Type = SDLCSW, the following subfields (described following this subfield) may be included in the TG Descriptor (X′46′) control vector following the DLC Signaling Type (X′91′) subfield:* X′92′ Port Identifier (always present): product-dependent identifier X′93′ Secondary Station Address (always present) X′94′ Group Address (optionally present if group addressing is used) X′95′ Station Role (retired) X′96′ Asynchronous SDLC Support Type (present if asynchronous SDLC operation is used) *Note: For DLC Type = SDLCSW, a second DLC Signaling Type (X′91′) subfield specifying the switched physical interface type, along with its associated subfields, immediately follows the SDLCSW subfields. The Port Identifier subfields in both the SDLCSW X′91′ series and the corresponding physical interface X′91′ series contain the same port identifier.*

DLC Signaling Type (X′91′) TG Descriptor Subfield

Byte	Bit	Content
For Physical Interface Type of V.25:		
2– 4 (= n)		Physical interface type (EBCDIC characters): V25 (for V.25 switched physical interface) *Note: For Physical Interface Type = V25, the following subfields (described following this subfield) may be included in the TG Descriptor (X′46′) control vector following the Physical Interface Signaling Type (X′91′) subfield:* X′92′ Port Identifier (always present): product-dependent identifier X′93′ Destination Dial Address (always present)
For Physical Interface Type of V.25bis:		
2– 7 (= n)		Physical Interface type (EBCDIC characters): V25BIS (for V.25bis switched physical interface) *Note: For Physical Interface Type = V25BIS, the following subfields (described following this subfield) may be included in the TG Descriptor (X′46′) control vector following the Physical Interface Signaling Type (X′91′) subfield:* X′92′ Port Identifier (always present): product-dependent identifier X′93′ Destination Dial Address (always present) X′94′ Calling Identification Number (always present)

C.1.18.1.2 DLC Signaling Information (X′92′) TG Descriptor Subfield

DLC Signaling Information (X′92′) TG Descriptor Subfield

Byte	Bit	Content
0– 1		Subfield header; Key=X′92′ (see -- Heading 'RUSPARS' unknown --)
2 – n		Subfield Data
For DLC Type = INTPU:		
2– 5 (= n)		Internal PU identifier: ID block/ID number
	0– 1 1	Block number: product-specific binary number, as contained in bytes 2–5, bits 0–11 in XID3
	12– 3 1	ID number: binary number that, together with the block number, identifies a specific link station uniquely within a network, as contained in bytes 2–5, bits 12–31 in XID3
For DLC Type = TR, ETHERNET, FRPVC, X25PVC, X25SVC, SDLCNS, or SDLCSW:		
2 – n		Port Identifier: a variable-length hex string containing product-specific information to identify the port to which this signaling information pertains

DLC Signaling Information (X′92′) TG Descriptor Subfield

Byte	Bit	Content
For Physical Interface Type = V25 or V25BIS:		
2 – n		Port Identifier: a variable-length hex string containing product-specific information to identify the port to which this signaling information pertains *Note: This subfield contains the same port identifier as that contained in the associated SDLCSW series Port Identifier (X′92′) subfield.*

C.1.18.1.3 DLC Signaling Information (X′93′) TG Descriptor Subfield

DLC Signaling Information (X′93′) TG Descriptor Subfield

Byte	Bit	Content
0– 1		Subfield header; Key=X′93′ (see -- Heading 'RUSPARS' unknown --)
2 – n		Subfield Data
For DLC Type = INTPU:		
2 – n		Internal PU identifier: DLUR network-qualified CP name (up to 17 characters)
For DLC Type = TR:		
2(=n)		Destination service access point address (DSAP) **Note:** The DSAP here is encoded in *noncanonical* format.
For DLC Type = ETHERNET or FRPVC:		
2(=n)		Destination service access point address (DSAP) **Note:** The DSAP here is encoded in *canonical* (i.e., ISO/IEEE 8802) format.
For DLC Type = X25PVC		
2– 3 (=n)	0– 3	Reserved
	4– 15	Logical channel number: a binary number
For DLC Type = SDLCNS or SDLCSW:		
2(=n)		Secondary station SDLC address **Note:** The DLUR link station is always primary to its downstream dependent-LU link stations.
For Physical Interface Type = V25 or V25BIS:		

DLC Signaling Information (X′93′) TG Descriptor Subfield

Byte	Bit	Content
2 – n		Destination dial address: Circuit-switched network address (as defined in CCITT Recommendation E.163) of the destination, starting with the country code, encoded in packed form two decimal digits to the byte. If the dial address contains an odd number of digits, the low-order half-byte of the byte containing the last (low-order) digit contains X′C′. Lengths up to 18 digits are accommodated, thereby allowing for extension.

C.1.18.1.4 DLC Signaling Information (X′94′) TG Descriptor Subfield

DLC Signaling Information (X′94′) TG Descriptor Subfield

Byte	Bit	Content
0– 1		Subfield header; Key=X′94′ (see -- Heading 'RUSPARS' unknown --)
2 – n		Subfield Data
For DLC Type = TR:		
2– 7 (= n)		Destination MAC address **Note:** The MAC address here is encoded in *noncanonical* format.
For DLC Type = ETHERNET:		
2– 7 (= n)		Destination MAC address **Note:** The MAC address here is encoded in *canonical* (i.e., ISO/IEEE 8802) format.
For DLC Type = FRPVC:		
2– 3 (= n)	0– 5	Reserved
	6– 1 5	Data link connection identifier (DLCI)
For DLC Type = X25SVC		
2(=n)		Protocol Identifier: X′C2′ PSH — Physical Services Header X′C3′ QLLC — Qualified Logical Link Control X′C6′ ELLC — Extended Logical Link Control X′CB′ QLLC — Qualified Logical Link Control with SNA-specific diagnostic codes X′CE′ ELLC — Extended Logical Link Control with SNA-specific diagnostic codes
For DLC Type = SDLCNS or SDLCSW:		
2(=n)		Group SDLC address
For Physical Interface Type = V25BIS:		

DLC Signaling Information (X′94′) TG Descriptor Subfield

Byte	Bit	Content
2 – n		Calling Identification Number: Circuit-switched network address (as defined in CCITT Recommendation E.163) of the calling data station, starting with the country code, encoded in packed form two decimal digits to the byte. If the calling identification number contains an odd number of digits, the low-order half-byte of the byte containing the last (low-order) digit contains X′C′. Lengths up to 18 digits are accommodated, thereby allowing for extension.

C.1.18.1.5 DLC Signaling Information (X′95′) TG Descriptor Subfield

DLC Signaling Information (X′95′) TG Descriptor Subfield

Byte	Bit	Content
0– 1		Subfield header; Key=X′95′ (see -- Heading 'RUSPARS' unknown --)
2 – n		Subfield Data
For DLC Type = TR:		
2(=n)		Source service access point address (SSAP) **Note:** The SSAP here is encoded in *noncanonical* format.
For DLC Type = ETHERNET or FRPVC:		
2(=n)		Source service access point address (SSAP) **Note:** The SSAP here is encoded in *canonical* (i.e., ISO/IEEE 8802) format.

C.1.18.1.6 DLC Signaling Information (X′96′) TG Descriptor Subfield

DLC Signaling Information (X′96′) TG Descriptor Subfield

Byte	Bit	Content
0– 1		Subfield header; Key=X′96′ (see -- Heading 'RUSPARS' unknown --)
2 – n		Subfield Data
For DLC Type = TR:		

DLC Signaling Information (X′96′) TG Descriptor Subfield

Byte	Bit	Content
2– 7 (= n)		Source MAC address **Note:** The MAC address here is encoded in *noncanonical* format.
For DLC Type = ETHERNET:		
2– 7 (= n)		Source MAC address **Note:** The MAC address here is encoded in *canonical* (i.e., ISO/IEEE 8802) format.
For DLC Type = SDLCNS or SDLCSW:		
2(=n)		Asynchronous SDLC Support Type
	0	Data transparency type: 0 8-bit data transparency not selected 1 8-bit data transparency selected (allows 8-bit data to be transmitted on 7-bit networks)
	1– 2	Character transparency type: 00 basic transparency selected 01 flow-control transparency selected (includes basic transparency) 10 control-character transparency selected (includes flow-control transparency) 11 Reserved
	3– 7	Reserved

C.1.18.1.7 DLC Signaling Information (X′A5′) TG Descriptor Subfield

DLC Signaling Information (X′A5′) TG Descriptor Subfield

Byte	Bit	Content
0– 1		Subfield header; Key=X′A5′ (see -- Heading 'RUSPARS' unknown --)
2 – n		Subfield Data
For DLC Type = X25SVC:		
2 – n		X.25 Called (destination) DTE Address (based on CCITT Recommendation X.25 1992)
2	0	Address format type indicator (X.25 A bit): 0 non-TOA/NPI (type of address/numbering plan identification) address 1 TOA/NPI address
	1– 7	Reserved
3 – n		Address Information for Address Format Type Indicator = 0
3	0– 3	Reserved
	4– 7	Length, in binary, of called DTE address in half-bytes (number of BCD digits — maximum of 15)

DLC Signaling Information (X′A5′) TG Descriptor Subfield

Byte	Bit	Content
4 – n		Called DTE address: Packet-switched network address (as defined in CCITT Recommendation X.25 1992), starting with the country code, encoded in packed form two decimal digits to the byte. If the DTE address contains an odd number of digits, the low-order half-byte of the byte containing the last (low-order) digit contains X′0′.
3 – n		Address Information for Address Format Type Indicator = 1
3		Length, in binary, of called DTE address in half-bytes (number of BCD digits — maximum of 17 for X.121 address)
4		TOA/NPI indicators
	0– 3	Type of address: 0000 network-dependent number 0001 international number 0010 national number 0101 alternative address
	4– 7	Numbering plan identification: 0001 address as defined in CCITT Recommendation E.164. 0011 address as defined in CCITT Recommendation X.121
5 – n		Called DTE address: Packet-switched network address encoded in packed form, two decimal digits to the byte. If the DTE address contains an odd number of digits, the low-order half-byte of the byte containing the last (low-order) digit contains X′0′.

C.1.18.1.8 DLC Signaling Information (X′A6′) TG Descriptor Subfield

DLC Signaling Information (X′A6′) TG Descriptor Subfield

Byte	Bit	Content
0– 1		Subfield header; Key=X′A6′ (see -- Heading 'RUSPARS' unknown --)
2 – n		Subfield Data
For DLC Type = X25SVC:		
2 – n		X.25 Calling (origin) DTE Address (based on CCITT Recommendation X.25 1992)
2	0	Address format type indicator (X.25 A bit): 0 non-TOA/NPI (type of address/numbering plan identification) address 1 TOA/NPI address
	1– 7	Reserved
3 – n		Address Information for Address Format Type Indicator = 0

DLC Signaling Information (X′A6′) TG Descriptor Subfield

Byte	Bit	Content
3	0– 3	Reserved
	4– 7	Length, in binary, of calling DTE address in half-bytes (number of BCD digits — maximum of 15)
4 – n		Calling DTE address: Packet-switched network address (as defined in CCITT Recommendation X.25 1992), starting with the country code, encoded in packed form two decimal digits to the byte. If the DTE address contains an odd number of digits, the low-order half-byte of the byte containing the last (low-order) digit contains X′0′.
3 – n		Address Information for Address Format Type Indicator = 1
3		Length, in binary, of calling DTE address in half-bytes (number of BCD digits — maximum of 17 for X.121 address)
4		TOA/NPI indicators
	0– 3	Type of address: 0000 network-dependent number 0001 international number 0010 national number 0101 alternative address
	4– 7	Numbering plan identification: 0001 address as defined in CCITT Recommendation E.164. 0011 address as defined in CCITT Recommendation X.121
5 – n		Calling DTE address: Packet-switched network address encoded in packed form, two decimal digits to the byte. If the DTE address contains an odd number of digits, the low-order half-byte of the byte containing the last (low-order) digit contains X′0′.

C.1.18.1.9 DLC Signaling Information (X′AE′) TG Descriptor Subfield

DLC Signaling Information (X′AE′) TG Descriptor Subfield

Byte	Bit	Content
0– 1		Subfield header; Key=X′AE′ (see -- Heading 'RUSPARS' unknown --)
2 – n		Subfield Data
For DLC Type = X25SVC:		
2 – n		X.25 Optional User Facilities

DLC Signaling Information (X′AE′) TG Descriptor Subfield

Byte	Bit	Content
		This subfield is used to convey the information needed to invoke one or more optional user facilities on a call basis. The subfield data is coded exactly as it is to be placed in a call request packet. If the inclusion of different categories of facilities requires the use of CCITT-specified facility markers to separate them, these markers are always included in the subfield. The only facilities explicitly included for use with APPN are defined below. They are standard X.25 facilities, which may be included in either order and do not require facility markers separating them. In each case, the facility request is shown starting at byte 0.
0		Closed user group facility code: X′03′ basic closed user group X′47′ extended closed user group
1		For basic or extended format index (binary coded decimal)
	0–3	First digit of closed user group index
	4–7	Second digit of closed user group index
2		For extended format index (binary coded decimal) — not present for basic closed user group
	0–3	Third digit of closed user group index
	4–7	Fourth digit of closed user group index
0		Facility code: X′01′ RC/ICRD/FS (Reverse Charging/ICRD Status Selection/Fast Select) facility
1		RC/ICRD/FS parameter field
	0–1	Fast-select parameter: 00 fast-select not requested 01 fast-select not requested 10 fast-select requested with no restriction 11 fast-select requested with restriction
	2–3	ICRD parameter: 00 ICRD status not selected 01 ICRD allowance requested 10 ICRD prevention requested 11 reserved
	4–6	Reserved
	7	Reverse charging parameter: 0 reverse charging not requested 1 reverse charging requested
		Note: Only the reverse charging parameter is expected to be used in APPN.

C.1.18.1.10 DLC Signaling Information (X′CD′) TG Descriptor Subfield

DLC Signaling Information (X′CD′) TG Descriptor Subfield

Byte	Bit	Content
0– 1		Subfield header; Key=X′CD′ (see -- Heading 'RUSPARS' unknown --)
2 – n		Subfield Data
For DLC Type = X25SVC:		
2 – n		X.25 Call User Data Data to be transferred from DTE to DTE in the call user data field of a call request packet immediately following the one-byte protocol identifier defined in subfield X′94′. A maximum of 15 bytes may be defined (n = 16) unless the fast-select facility is used. In that case, 127 bytes may be defined (n = 128). One use of this subfield is to convey a logon identifier.

C.1.19 DLUR/S Capabilities (X′51′) Control Vector

C.1.19.1 DLUR/S Capabilities (X′51′) Control Vector

The DLUR/S Capabilities control vector is exchanged by the dependent LU requester and the dependent LU server to describe their DLUR/S capabilities once a DLUS-DLUR session is activated.

DLUR/S Capabilities (X′51′) Control Vector

Byte	Bit	Content
0– 1		Vector header; Key=X′51′ (see -- Heading 'RUSPARS' unknown -- and -- Table 'CV' unknown --)
2 – n		Vector Data
2		Dependent LU support level: X′01′ Release 1
3		Node type: X′00′ APPN network node X′01′ APPN end node
4		DLUR/S node type: X′00′ DLUR X′01′ DLUS
5– 8		Flow-reduction sequence number: a value that identifies the latest Topology Database Update GDS variable received by the sender of the DLUR/S Capabilities control vector from the receiver of the DLUR/S Capabilities control vector