Test File: AIW Item Numbers 8360, 8375 and 8382

This file shows the subfield formats that have been defined for CV X'46', which are included as Appendix C of the APPN DLUR Architecture Reference. It includes the changes described in three AIW Items. Item 8360, which received electronic approval in February, covers a correction to the text for X25SVC regarding the length of the address field. These changes are indicated by the revision symbol "x" in the margin of subfields X'A5' and X'A6'. Item 8375 covers the change of DSAP and SSAP encoding for FRPVC from canonical to noncanonical. These changes are indicated by the revision symbol "c" in the margin of subfields X'93' and X'95'. Finally, Item 8382 covers the use of subfield X'95' to convey a composite of all the commands and addresses needed for a V.25 bis modem, as an alternative to the use of subfields X'93' and X'94'. These changes are indicated by the revision symbol "v" in subfields X'91'and X'95'.

Common Fields

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 &ruspars. 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.

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 or physical interface 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 or physical interface 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 or physical interface 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 Connection (PVC):		
2– 6 (= n)		DLC or physical interface type (EBCDIC characters):
		FRPVC (for frame-relay permanent virtual connection} — 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 (always present): product-dependent identifier
		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 if multiple parallel logical links are supported)
		X′96′ Destination MAC Address (present if RFC 1490 bridged 802.5 frame format is used) **Note:** The frame-relay Boundary Access Node (BAN) function uses this RFC 1490 format.
For DLC Type of X.25 Permanent Virtual Circuit (PVC):		
2– 7 (= n)		DLC or physical interface 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 or physical interface 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 (present when a protocol other than the default is being selected)
		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 or physical interface 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 or physical interface 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.
For Physical Interface Type of V.25:		
2– 4 (= n)		DLC or physical interface type (EBCDIC characters):

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

Byte	Bit	Content
		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) *Note: For Physical Interface Type = V25, a second DLC Signaling Type (X′91′) subfield, specifying the associated DLC protocol along with its associated subfields, immediately precedes the V25 subfields. The Port Identifier subfields in both the V25 X′91′ series and the corresponding DLC X′91′ series contain the same port identifier.*
For Physical Interface Type of V.25bis:		
2–7 (=n)		DLC or 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 (present when the DLC does not require a composite command and address string) X′94′ Calling Identification Number (present when the DLC does not require a composite command and address string) X′95′ V.25 bis composite command and address string (present when the DLC requires this composite string) *Note: For Physical Interface Type = V25BIS, a second DLC Signaling Type (X′91′) subfield, specifying the associated DLC protocol along with its associated subfields, immediately precedes the V25BIS subfields. The Port Identifier subfields in both the V25BIS X′91′ series and the corresponding DLC X′91′ series contain the same port identifier.*

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
	0–11	Block number: product-specific binary number, as contained in bytes 2–5, bits 0–11 in XID3
	12–31	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

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

Byte	Bit	Content
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
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.*

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)
c *For DLC Type = TR or FRPVC:*		
2(=n)		Destination service access point address (DSAP) **Note:** The DSAP here is encoded in *noncanonical* format.
c *For DLC Type = ETHERNET:*		
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– 1 5	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:		
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.

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
	6–15	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:		
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.

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 or FRPVC:		
2(=n)		Source service access point address (SSAP) **Note:** The SSAP here is encoded in *noncanonical* format.
For DLC Type = ETHERNET:		
2(=n)		Source service access point address (SSAP) **Note:** The SSAP here is encoded in *canonical* (i.e., ISO/IEEE 8802) format.
For Physical Interface Type = V25BIS:		
2 – n		Composite command and address string: A 3-character V.25 bis command followed by those addresses, separators, and other special characters that are appropriate for that command. A maximum of 64 EBCDIC characters may be contained in this subfield. Any characters that are acceptable to the specific V.25 bis modem being used may included in this subfield. The ordering within the subfield conforms to ITU-T Recommendation V.25 bis, so that no reordering is required before passing this signaling information to the modem.

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:		
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 = FRPVC:		
2– 7 (= n)		Destination MAC address **Note:** The MAC address here is encoded in *noncanonical* format.
For DLC Type = SDLCNS or SDLCSW:		

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

Byte	Bit	Content
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

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)
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
x 3 x		Length, in binary, of called DTE address field in half-bytes (The TOA/NPI indicators are included in this length, which has a maximum value of 17 for X.121 addresses.)

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

Byte	Bit	Content
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′.

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
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
x 3		Length, in binary, of calling DTE address field in half-bytes (The TOA/NPI indicators are
x		included in this length, which has a maximum value of 17 for X.121 addresses.)

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

Byte	Bit	Content
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′.

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 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. (See Recommendation X.25 for a complete listing of the optional user facilities that may be included in a call request.) 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 coding of the two facilities most commonly associated with basic APPN connectivity, closed user groups and reverse charging, is given below. These 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

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

Byte	Bit	Content
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.

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.

End of -- Heading ′TEST′ unknown --