

Chapter 6. Inbound Structured Fields

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Introduction

This chapter describes the inbound structured fields, including all of the Query Reply structured fields. These inbound structured fields are structured fields that are transmitted only one way, from the device to the host application. Inbound structured fields are preceded by an AID of X'88', as follows:

(AID) X'88'	Structured Field
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The inbound structured fields are listed below in the order that they are discussed in this chapter:

ID	Name
0F22	Exception/Status
0FB1	Inbound Text Header
80	Inbound 3270DS
1031	Recovery Data
0FC1	Type 1 Text Inbound
81	Query Reply
84	Query Reply (Alphanumeric Partitions)
99	Query Reply (Auxiliary Device)
9F	Query Reply (Begin/End of File)
85	Query Reply (Character Sets)
86	Query Reply (Color)
AB	Query Reply (Cooperative Processing Requestor)
98	Query Reply (Data Chaining)
A2	Query Reply (Data Streams)
91	Query Reply (DBCS-Asia)
A0	Query Reply (Device Characteristics)
95	Query Reply (Distributed Data Management)
97	Query Reply (Document Interchange Architecture)
B5	Query Reply (Extended Drawing Routine)
8C	Query Reply (Field Outlining)
8A	Query Reply (Field Validation)
90	Query Reply (Format Presentation)
94	Query Reply (Format Storage Auxiliary Device)
B4	Query Reply (Graphic Color)
B6	Query Reply (Graphic Symbol Sets)
87	Query Reply (Highlighting)
9E	Query Reply (IBM Auxiliary Device)
82	Query Reply (Image)
A6	Query Reply (Implicit Partition)
AA	Query Reply (IOCA Auxiliary Device)
B2	Query Reply (Line Type)
8B	Query Reply (MSR Control)
FF	Query Reply (Null)
8F	Query Reply (OEM Auxiliary Device)
A7	Query Reply (Paper Feed Techniques)
8E	Query Reply (Partition Characteristics)
B3	Query Reply (Port)
B1	Query Reply (Procedure)
9C	Query Reply (Product Defined Data Stream)

88	Query Reply (Reply Modes)
A1	Query Reply (RPQ Names)
92	Query Reply (Save/Restore Format)
B0	Query Reply (Segment)
A9	Query Reply (Settable Printer Characteristics)
96	Query Reply (Storage Pools)
80	Query Reply (Summary)
83	Query Reply (Text Partitions)
A8	Query Reply (Transparency)
81	Query Reply (Usable Area)
9A	Query Reply (3270 IPDS).

Structured field type codes not listed are rejected. Unless specifically stated to the contrary, any bits or fields classified as reserved must be checked for zero value; nonzero values are rejected.

Exception/Status

This section describes the Exception/Status inbound structured field.

Function

The Exception/Status structured field allows the reporting of exception/status information at the application level.

All parameters shown for the base structured field must be present. The structured field is allowed to carry only one exception/status condition. The Exception/Status structured field accepts one of five self-defining parameters:

- Auxiliary Device Exception Condition
- Auxiliary Device Status
- Failing Format Status
- Format Status
- Group Status.

A length value of X'0000' is invalid.

Format

The following table shows the format of the Exception/Status structured field:

Byte	Bit	Content	Content Description
0-1		L	Length of this structured field
2-3		SFID	X'0F22' Identifies this structured field as Exception/Status
4		PID	Partition Identifier
5		FLAGS	
	0	AVAILSTAT	Availability status: B'0' Status not provided B'1' Status provided
	1-7	RES	Reserved
6		FLAGS	Reserved

Additional Content Description

The content of the Exception/Status structured field is further described as follows:

PID Provides the PID of the partition associated with the reported exception condition or status. When used for reporting an exception condition or status for a direct accessed auxiliary device, the Exception/Status structured field must be preceded by a Destination/Origin structured field. Also, when reporting an exception condition or status of a direct accessed auxiliary device, the PID parameter in the Exception/Status structured field has no meaning and should be ignored. The PID should be set to X'FF'.

AVAILSTAT Indicates whether the exception condition being reported requires an availability status when the reported exception clears. This is set to B'0' when the exception code definition does not require a subsequent availability status. It is set to B'1' when the definition of the exception code being carried by the Exception/Status structured field requires an availability status when the condition clears.

Auxiliary Device Exception Condition Self-Defining Parameter

The Auxiliary Device Exception Condition self-defining parameter reports exception conditions associated with a direct accessed auxiliary device. Although the error codes may have the same value as existing SNA defined codes, the meanings are not necessarily the same.

The following table shows the format of the self-defining parameter:

Byte	Bit	Content	Content Description
0		L	X'06' Length of self-defining parameter
1		SDPID	X'01' Identifies this parameter as Auxiliary Device Exception Condition
2-3		RESERVED	Reserved
4-5		EXCODE	The specific exception code. It defines the direct accessed auxiliary exception condition.

EXCODE The specific, direct access, auxiliary exception code. The following list defines the valid codes for reporting exception conditions on direct access auxiliary devices:

- 0801 Invalid/unrecognized DOID in the Destination/Origin structured field. AVAILSTAT must be set to B'0'.
- 0802 DOID valid, but the auxiliary device is not available because of an intervention required condition (for example, out of paper, power off, or processing code not resident). Available status is sent when the condition clears. AVAILSTAT must be set to B'1'.
- 0803 Retired.
- 0804 Buffer overrun.
- 0805 Insufficient storage. The loading of the formats could not be completed because storage was exhausted.
- 0806 The format or group name was not specified in the Load Format Storage structured field.
- 0807 Data error.
- 084B Temporary insufficient resource. The application does not have a buffer available or is busy. The device chooses whether to set send status when the condition clears and set AVAILSTAT accordingly.
- 084C The auxiliary device data in the transmission exceeds the limit specified in the LIMOUT parameter of the Query Reply for the auxiliary device. AVAILSTAT must be set to B'0'.
- 1003 Function not supported.

Auxiliary Device Status Self-Defining Parameter

The Auxiliary Device Status self-defining parameter reports a change of status. The sending of certain exception codes that indicate unavailability requires that an available status be sent when the device becomes available.

The following table shows the format of the Auxiliary Device Status self-defining parameter:

Byte	Bit	Content	Content Description
0		L	X'04' Length of self-defining parameter
1		SDPID	X'02' Identifies this parameter as Auxiliary Device Status
2-3		STATCODE	Specific Status Code

STATCODE

Defines the specific status code. The following list defines the valid status codes for auxiliary devices:

0000 Acknowledged. The formats were successfully loaded, and no exception occurred.

0001 Auxiliary device available.

Failing Format Status Self-Defining Parameter

The Failing Format Status self-defining parameter must be sent whenever the sending of multiple formats in a transmission is supported and a format error is detected.

The following table shows the format of the Failing Format Status self-defining parameter:

Byte	Bit	Content	Content Description
0		L	X'22' Length of this self-defining parameter
1		SDPID	X'03' Identifies this parameter as Failing Format
2-17		FGNME	Group Name
18-33		FNME	Format Name

FGNME Provides the name of the group containing the failing format.

FNME Provides the name of the first format that has an exception condition.

Format Status Self-Defining Parameter

The Format Status self-defining parameter must be present if, and only if, it has been requested by a previous Load Format Storage structured field (OPRND = Request Summary Status, X'05').

The following table shows the format of the Format Status self-defining parameter:

Byte	Bit	Content	Content Description
0		L	X'0C' Length of this self-defining parameter
1		SDPID	X'04' Identifies this self-defining parameter as Format Status
2-3		NGL	Number of groups currently assigned
4-5		NML	Number of formats currently loaded
6-7		NLML	Number of local names used
8-11		STOR	Amount of format storage space available

- NGL** Provides the number of Format Groups that are currently loaded in format storage.
- NML** Provides the number of local formats that are currently loaded in format storage.
- NLML** Provides the number of local formats that are currently loaded in format storage.
- STOR** Provides the amount of remaining format storage space available in K bytes.

Group Status Self-Defining Parameter

The Group Status self-defining parameter must be present if, and only if, it has been requested by a previous Load Format Storage structured field (OPRND = Request Group Status X'06').

The following table shows the format of the Group Status self-defining parameter:

Byte	Bit	Content	Content Description
0		L	X'14' Length of this self-defining parameter
1		SDPID	X'05' Identifies this self-defining parameter as Group Status
2-17		FGNME	Group Name
18-19		NML	Number of formats currently loaded

- FGNME** Provides the name of the group that the NML parameter applies to.
- NML** Provides the number of formats currently loaded in the group specified in FGNME.

Inbound Text Header

This section describes the Inbound Text Header structured field.

Function

The Inbound Text Header structured field is transmitted inbound from a text partition. It can be followed by a Type 1 Text Inbound structured field.

A single Inbound Text Header structured field is transmitted inbound from a text partition (A-MODE = X'2') under the following conditions:

- In reply to a Read Modified command when the device is in a retry state and INPID identifies the text partition
- For an operator enter action when the active partition is a text partition.

Format

The following table shows the format of the Inbound Text Header structured field:

Byte	Content	Content Description
0-1	L	X'0016' Length of this structured field
2-3	SFID	X'0FB1' Identifies this structured field as Inbound Text Header
4	PID	Partition identifier
5	AID	Attention identifier
6	RES	Reserved
7	RES	Reserved
8	RES	Reserved
9	LVL	Cursor level
10-11	CRO	Cursor row offset
12-13	CC	Cursor column offset
14-15	RW	Row offset of window origin
16-17	CW	Column offset of window origin
18-19	HW	Window height
20-21	WW	Window width

Additional Content Description

The content of the Inbound Text Header structured field is further described as follows:

LVL The LVL parameter specifies the level of the element at the presentation space position CRO,CC that is identified. (The first element is at level 1.)

When the element level can be determined by the device, it should return a value for LVL in the range 1 through 254. If the device does not identify the level explicitly, it returns value X'FF' for LVL, meaning all elements at position CRO,CC.

It is not required that a device have the capability of distinguishing between multiple elements at the same position. That is, a device could always return LVL = X'FF' for a non-empty presentation position.

CRO, CC The CRO,CC parameters specify the presentation space position of the cursor. These values can range from 0 through 65534 (that is, the value X'FFFF' is not returned inbound).

If position CRO,CC is empty, LVL is X'00'.

RW, CW RW and CW give the origin of the window on presentation space.

HW, WW HW and WW give the height and width of this window. In a text partition, the operator can change the size of this window from the initial values established by the Create Partition structured field.

Inbound 3270DS

This section describes the Inbound 3270DS structured field.

Function

The Inbound 3270DS structured field is used to transmit 3270 orders and data inbound from a named alphanumeric partition.

This structured field is transmitted inbound from an alphanumeric partition (Create Partition Structured Field – A-MODE = B'0000' or B'0001') under the following conditions:

- In reply to a Read Modified, Read Modified All (SNA only), or Read Buffer command when the inbound partition has a nonzero PID, and the device is in Retry state
- In reply to a Read Partition structured field, type X'F6', X'6E' or X'F2' addressed to a partition with a nonzero PID
- For an operator enter action when the Active partition has a nonzero PID.

Orders and data from partition zero (whether implicitly or explicitly created) are transmitted in 3270 format, not in this structured field.

Format

The following table shows the format of the Inbound 3270DS structured field:

Byte	Content	Content Description
0-1	L	Length of this structured field
2	SFID	X'80' Identifies this structured field as Inbound 3270DS
3	PID	Partition identifier
4	AID	Attention identifier
5-6	CURSOR	Cursor address
7-n	DATA	Orders and data

Recovery Data

This section describes the Recovery Data inbound structured field.

Function

The Recovery Data structured field is sent from the SLU to the PLU in response to a Request Recovery Data structured field. It contains the recovery data needed by the PLU to recover from the error.

Format

The following table shows the format of the Recovery Data structured field:

Byte	Bit	Content	Content Description
0 - 1		L	X'0031' Length of this structured field
2 - 3		SFID	X'1031' Identifies this structured field as Recovery Data
4		RES	Reserved
5		FLAGS	
	0	VFORMAT	B'0' Vertical format not needed on Restart B'1' Vertical format needed on Restart
	1	HFORMAT	B'0' Horizontal format not needed on Restart B'1' Horizontal format needed on Restart
	2 - 7	RES	Reserved
6		SLD	SLD — Set line density parameter in effect at the checkpoint
7		CHAR. SET	Character set parameter of Set Attribute control in effect at the checkpoint
8 - 11		VERTICAL	Byte offset from Checkpoint Interval structured field to the Set Vertical Format control in effect for the checkpoint
12 - 13		V-OFFSET	Byte offset within the string control byte string or the SVF character
14 - 15		V-SEQUENCE	RU sequence number
16 - 17		V-LENGTH	Length of the SVF character string required for restart
18 - 19		SPD	Set Primary Density parameter in effect at the checkpoint
20 - 23		HORIZON	Same as VERTICAL for SHF
24 - 25		H-OFFSET	Same as V-OFFSET for SHF
26 - 27		H-SEQUENCE	Same as V-SEQUENCE for SHF
28 - 29		H-LENGTH	Same as V-LENGTH for SHF
30		COLOR	Color parameter of SA in effect at the checkpoint
31		HILITE	Highlight parameter of SA in effect at the checkpoint
32 - 33		PAGES	Number of pages printed since the checkpoint

Byte	Bit	Content	Content Description
34 - 35		LINES	Number of lines printed on the page with the error
36 - 39		CHECKPOINT	Byte offset from Set Checkpoint Interval structured field to the first character after the code point or character that caused an eject to the checkpointed page
40 - 41		C-OFFSET	Byte offset within the String Control Byte string or structured field of the checkpointed character
42 - 43		C-SEQUENCE	RU sequence number of the RU containing the checkpoint character
44 - 45		C-SEQOFF	Byte offset within the RU of the checkpointed character
46 - 47		C-SCSOFF	Byte offset within the parameterized SCS control code (for example, TRN) of the checkpointed character.
48		PRIME	Prime compression character

Additional Content Description

FLAGS Bit 0 of the FLAG field indicates whether the printer requires the SVF format to be present in the Restart structured field. If bit 0 is 1, the primary must use the VERTICAL field and V-OFFSET to locate the SVF format and resend it in the Restart structured field chain. If bit 0 is zero, the primary does not have to send the SVF format as the printer can assure that the formats are still set properly. Bit 1 of the FLAGS field is the same as bit 0, but for SHF.

SLD SLD is a 1-byte parameter field of the SLD in effect at the checkpoint. The default value (X'00') is used if SLD is not supported or has changed since the checkpoint. The default value (X'00') indicates the parameter is not to be reinitialized at restart.

CHAR. SET

Character Set is the 1-byte parameter field of the SA value for character set in effect at the checkpoint. The default value (X'00') is used if SA for character set is not supported or has not changed since the checkpoint. The default value (X'00') indicates the parameter is not to be reinitialized at restart.

VERTICAL

VERTICAL is a 4-byte counter that indicates the byte offset from the Set Checkpoint Interval structured field to the SVF code point in effect for this checkpoint. If no SVF code has been received, this field is set to zero. If the SVF is inside a parameterized string, the counter points to the control code of the parameters (for example, the immediately preceding SCB control code).

V-OFFSET

V-OFFSET is a 2-byte counter that indicates the position within an SCB string or structured field of the SVF code. It points to the uncompact/uncompressed position of the SVF. This field is set to zero if the vertical field points to the actual SWF code or if the SVF character is not within a SCB string or structured field.

V-SEQUENCE

V-SEQUENCE contains the RU sequence number of the RU that contains the SVF control code in effect at the checkpoint.

V-LENGTH

V-LENGTH contains the length of the SVF parameter string that must be returned in the Restart structured field. It includes the SVF control code and all parameters following.

SPD

SPD is the 2-byte parameter field of the SPD in effect at the checkpoint. The default value (X'0000') is used if SPD is not supported or has not changed since the checkpoint. The default value (X'0000') indicates that the parameter is not to be reinitialized at restart.

HORIZON

This is a 4-byte binary counter. It indicates that the byte offset from the Set Checkpoint Interval structured field to the SHF code point is in effect for this checkpoint. If no SHF has been received, this field is set to zero. If the SHF is inside a parameterized string, the counter points to the control code of the parameter (for example, the immediately preceding SCB control code).

H-OFFSET

H-OFFSET is a 2-byte binary counter that indicates the position within an SCB string or structured field of the SHF code. It points to the uncompact/uncompressed position of the SHF. This field is set to zero if the Horizontal Field points to the actual SHF code or if the SHF character is not within an SCB string or structured field.

H-SEQUENCE

H-SEQUENCE contains the RU sequence number of the RU that contains the SHF control code in effect at the checkpoint.

H-LENGTH

H-LENGTH contains the length of the SHF parameter string that must be returned in the Restart structured field. It includes the SHF control code and all parameters following.

COLOR

COLOR is the 1-byte parameter field of the SA (set attribute) value for color in effect at the checkpoint. The default value (X'00') is used if SA for color is not supported or has not changed since the checkpoint. The default value (X'00') indicates the parameter is not to be initialized at restart.

HILITE

This is the 1-byte parameter field of the SA value for highlighting in effect at the checkpoint. The default SA value (X'00') is not supported or has not changed since the checkpoint. The default value (X'00') indicates the parameter is not to be initialized at restart.

PAGES

PAGES indicates the number of pages that the SLU has printed since the checkpoint that is being sent to the PLU was taken.

LINES

LINES indicates the number of lines that the SLU has printed since the beginning of the page on which the error was detected.

CHECKPOINT

CHECKPOINT is a 4-byte binary counter that indicates a certain number of FM data bytes. These bytes are from the Set Checkpoint Interval structured field to the first code point after the one causing a page eject to the page for which a checkpoint is to be taken. That is, the counter counts all FM data bytes in the RUs following the latest Set Checkpoint Interval structured field. It then points to the first code point processed after the printer ejected to the top of the page for which the interval count requires a checkpoint. If the eject was caused by a parameterized string, the counter points to the control code of the parameters (for example, the immediately preceding SCB control code).

C-OFFSET

C-OFFSET is a 2-byte binary counter that indicates the position within a compression/compaction SCB string or structured field of the actual checkpoint character. It points to the uncompact/uncompressed position of the character, not the compressed/compact position. If the character is within a parameterized SCS control code, this is the offset to the SCS control code. This field is zero if the checkpoint field points to the exact checkpointed character or if the checkpointer is not within an SCB string or structured field.

C-SEQ C-SEQ contains the RU sequence number of the RU containing the checkpointed character.

C-SEQOFF

C-SEQOFF contains the byte offset within the RU of the checkpointed character.

C-SCSOFF

This is a 2-byte binary counter that indicates the position within a parameterized SCS code of the checkpointed character. This field is set to zero if the checkpointed character is not within a parameterized SCS code.

PRIME PRIME is the prime compression character in effect at the time of checkpoint.

Type 1 Text Inbound

This section describes the Type 1 Text Inbound structured field.

Function

The Type 1 Text Inbound structured field transmits data from a text partition.

The structured field is transmitted inbound from a text partition (A-MODE = X'2') following an Inbound Text Header structured field if both of the following are true:

- The AID corresponds to a read modified operation.
- The MDT is set because the operator modified data.

The Type 1 Text Inbound structured field is not transmitted:

- For a "short read" (PA key or Clear Partition)
- If the MDT is not set.

Format

The following table shows the format of the Type 1 Text Inbound structured field:

Byte	Content	Content Description
0-1	L	Length of this structured field
2-3	SFID	X'0FC1' Identifies this structured field as Type 1 Text Inbound
4	PID	Partition identifier
5-6	RES	Reserved
7-n	DATA	Text data

Additional Content Description

The content of the Type 1 Text Inbound structured field is further described as follows:

- DATA** The text DATA consists of the entire contents of the text buffer, with an embedded insert cursor control to identify the cursor position. The data stream position of insert cursor should be interpreted in combination with the LVL parameter in the Inbound Text Header, as follows:
- If LVL is X'01' through X'FE', the insert cursor control immediately precedes the element at position [CRO, CC, LVL].
 - If LVL = X'FF' (that is, all elements at [CRO,CC]), the insert cursor control immediately precedes the first element in the data stream that is at a (row, column) at or beyond (CRO,CC).
 - If LVL = X'00' (that is, [CRO,CC] is empty), the insert cursor control immediately precedes the first element in the data stream (if any) that is at a (row, column) beyond (CRO,CC). If there is no such element, insert cursor is at the end of the data stream.

Query Replies

The Query Reply structured field is used to report to the host application the functions supported by the 3270 data stream devices and information about these functions.

All Query Reply structured fields have a value of X'81' in byte 2 that identifies the structured field as a Query Reply. The QCODE parameter (byte 3) is a unique value assigned to each Query Reply.

The Read Partition structured field is used for soliciting Query Replies when the Type parameter has a value of either X'02' (Query) or X'03' (Query List). The PID parameter (byte 3) has a value of X'FF' (PID not applicable). If the Type parameter value is X'03' (Query List), the Read Partition structured field contains an additional parameter, REQ TYP (Request Type), bits 0-1 of byte 5 and, optionally, a list of QCODES starting at byte 6. The Request Type parameter is used to indicate the type of Query List operation:

- B'00' = QCODE List (QCODEs are listed for the Query Replies requested)
- B'01' = Equivalent (with or without a QCODE List)
- B'10' = All.

The Query Replies are returned in response to a Query or Query List as indicated in Table 6-1 on page 6-21.

Query

A Read Partition structured field with a Type parameter (byte 4) value of X'02' is defined as a Query. See Table 6-1 on page 6-21 for the Query Replies that a 3270 data stream device or workstation supports that must be returned in reply to a Query. Those not indicated are not returned in reply to a Query.

Query List

A Read Partition structured field with a Type parameter (byte 5) value of X'03' is defined as a Query List. There are three versions of Query List. The version is designated by the Request Type parameter (bits 0-1, byte 5) value, as follows:

Version	Request Type Parameter	Description
QCODE List	B'00'	<p>Contains a list of one or more Query Reply QCODES. The 3270 data stream device or workstation returns all the requested Query Replies (QCODES listed) that are supported. If none of the requested Query Replies are supported, a Null Query Reply is returned. There is no requirement as to the order of the QCODES in the Read Partition (Query List) structured field or the order that the requested Query Replies are returned by the 3270 data stream device or workstation.</p> <p>It is not invalid for a particular QCODE to appear more than once in the list. However, regardless of how many times it appears, the 3270 device or workstation does not return duplicate Query Replies.</p>
EQUIVALENT	B'01'	<p>Requests the 3270 device or workstation to return the same Query Replies that would be returned in reply to a Query. Optionally, a list of QCODES can also be included. Requests for the same QCODE are made within the list, or a QCODE within the list is returned for the Query Equivalent. No duplicate Query Replies are returned by the 3270 data stream device or workstation.</p>
ALL	B'10'	<p>Requests the 3270 data stream device or workstation to return all the Query Replies supported. The Query List = All can contain a QCODE list. However, the QCODE list is ignored by the 3270 data stream device or workstation.</p>

Therefore, although duplicate Query Replies may be requested by the Query List = QCODE List, Equivalent, or All, the 3270 data stream device or workstation does not return duplicate Query Replies. There are cases where a single request (for example, QCODE in Query List) can result in multiple Query Replies being returned. For example, a 3270 data stream workstation could support two OEM auxiliary devices such as plotters. A Query List request for the OEM Auxiliary Device Query Reply would result in two OEM Auxiliary Device Query Replies being returned, one for each device. However, although the two Query Replies are of the same type (OEM Auxiliary Device), the contents of the Query Replies differ (at least in the DOID parameter) and hence are not duplicate Query Replies.

All 3270 data stream devices or workstations must support the Summary Query Reply, QCODE = X'80'. This Query Reply is returned in reply to a Query or Query List (QCODE List, Equivalent, or All). The Summary Query Reply provides a list of the QCODEs of all the Query Replies supported by the 3270 data stream device or workstation. (The QCODE for the Summary Query Reply itself is also included in the list.) The Summary Query Reply provides the host with the only indication of support of functions where the associated Query Reply is returned in reply to a Query List = QCODE List or All.

Query Response Table

Table 6-1 briefly describes each Query Reply.

Table 6-1 (Page 1 of 2). Query Responses				
Query Reply	Returned in Response to a Read Partition:			
	Query	Query List		
		List	Equivalent	All
Alphanumeric Partitions	Yes	X'84'	Yes	Yes
Auxiliary Device	Yes	X'99'	Yes	Yes
Begin/End of File	No	X'9F'	No	Yes
Character Sets	Yes	X'85'	Yes	Yes
Color	Yes	X'86'	Yes	Yes
Cooperative Proc. Requestor	Yes	X'AB'	Yes	Yes
Data Chaining	Yes	X'98'	Yes	Yes
Data Streams	Yes	X'A2'	Yes	Yes
DBCS-Asia	Yes	X'91'	Yes	Yes
Device Characteristics	Yes	X'A0'	Yes	Yes
Distributed Data Management	Yes	X'95'	Yes	Yes
Document Interchange Architecture	Yes	X'97'	Yes	Yes
Extended Drawing Routine	No	X'B5'	No	Yes
Field Outlining	Yes	X'8C'	Yes	Yes
Field Validation	Yes	X'8A'	Yes	Yes
Format Presentation	Yes	X'90'	Yes	Yes
Format Storage Auxiliary Device	Yes	X'94'	Yes	Yes
Graphic Color	No	X'B4'	No	Yes
Graphic Symbol Sets	No	X'B6'	No	Yes
Highlighting	Yes	X'87'	Yes	Yes
IBM Auxiliary Device	Yes	X'9E'	Yes	Yes
Image	No	X'82'	No	Yes
Implicit Partition	Yes	X'A6'	Yes	Yes
IOCA Auxiliary Device	No	X'AA'	No	Yes
Line Type	No	X'B2'	No	Yes
MSR Control	Yes	X'8B'	Yes	Yes
Null	No	X'FF'	No	No
OEM Auxiliary Device	Yes	X'8F'	Yes	Yes
Paper Feed Techniques	Yes	X'A7'	Yes	Yes
Partition Characteristics	No	X'8E'	No	Yes
Port	No	X'B3'	No	Yes
Procedure	No	X'B1'	No	Yes
Product Defined Data Stream	No	X'9C'	No	Yes

Table 6-1 (Page 2 of 2). Query Responses				
Query Reply	Returned in Response to a Read Partition:			
	Query	Query List		
		List	Equivalent	All
Reply Modes	Yes	X'88'	Yes	Yes
RPQ Names	Yes	X'A1'	Yes	Yes
Save/Restore Format	No	X'92'	No	Yes
Segment	No	X'B0'	No	Yes
Settable Printer Characteristics	No	X'A9'	No	Yes
Storage Pools	No	X'96'	No	Yes
Summary	Yes	X'80'	Yes	Yes
Text Partitions	Yes	X'83'	Yes	Yes
Transparency	No	X'A8'	No	Yes
Usable Area	Yes	X'81'	Yes	Yes
3270 IPDS	Yes	X'9A'	Yes	Yes

Query Reply

This section describes the Query Reply structured field.

Function

The Query Reply structured field is a response to a Query request. Query requests are contained in the Read Partition structured field.

In reply to a Query, the device transmits inbound a set of structured fields that describe the device features. Only the Query Replies that reflect the functions and features supported by the device are transmitted inbound.

Each Query Reply has an ID of X'81nn', where nn is the QCODE. When a Query Reply is used in the 3270 data stream, it is preceded by an AID of X'88'. If the structured field is one of a set of Query Reply structured fields, only the first is preceded by an AID of X'88'.

Format

The following table shows the format of the Query Reply structured field:

Byte	Content	Content Description
0-1	L	Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	The code identifying the feature being described
4-n	PLIST	A variable length parameter list. See the specific Query Reply in this chapter for the parameter list for each QCODE.

Query Reply (Alphanumeric Partitions)

This section describes the Query Reply (Alphanumeric Partitions) structured field.

Function

The Query Reply (Alphanumeric Partitions) structured field transmits the maximum number of partitions that can be supported on this device and the device's ability to support partition related functions.

When this function is supported, this Query Reply is transmitted inbound in reply to a Read Partition structured field specifying Query or Query List (QCODE = X'84', Equivalent, or All).

Format

The following table shows the format of the Query Reply (Alphanumeric Partitions) structured field:

Byte	Bit	Content	Content Description
0-1		L	Length of this structured field
2		SFID	X'81' Identifies this structured field as a Query Reply
3		QCODE	X'84' Identifies this Query Reply as Alphanumeric Partitions
4		NA	Max number of alphanumeric partitions
5-6		M	Total available partition storage
7		FLAGS	
	0	VERTWIN	B'0' Vertical scrolling not supported B'1' Vertical scrolling supported
	1	HORWIN	B'0' Horizontal scrolling not supported B'1' Horizontal scrolling supported
	2	RES	Reserved
	3	APA FLG	B'0' All Points addressability not supported B'1' All Points addressability supported
	4	PROT	B'0' Partition protection not supported B'1' Partition protection supported
	5	LCOPY	B'0' Presentation space local copy not supported B'1' Presentation space local copy supported
	6	MODPART	B'0' Modify Partition not supported B'1' Modify Partition supported
	7	RES	Reserved

Additional Content Description

The content of the Query Reply (Alphanumeric Partitions) structured field is further described as follows:

NA NA specifies the number of alphanumeric partitions supported.

If $NA > 0$, the alphanumeric partitions can be named 0 through $N-1$, where N is the total number of partitions supported.

If $NA = 0$, only one alphanumeric partition can be created with Create Partition. The identifier of this partition must be zero. All outbound and inbound operations to this partition must be through 3270 commands (that is, EW, EWA, EAU, RM, RMA [SNA only], RB).

M M defines the total number of bytes of storage available for creating alphanumeric partitions. The value of $X'FFFF'$ is reserved.

Refer to CO, RO, CM, and FO in the Buffer Allocation self-defining parameter for allocation of M.

FLAGS The flag bits specify device support of partition related functions and are associated with parameters in the Create Partition structured field. A zero value indicates that the associated function is not supported.

VERTWIN/HORWIN

Indicates whether the device supports vertical and horizontal scrolling. Support of scrolling implies the following:

- Support for Create Partition with presentation space height greater than viewport height, or width greater than viewport width
- Support for Set Window Origin with a change of the column (row)
- Possible support of local window movement by the operator; thus, the operator can move the window from the host-specified position.

APA Indicates that the Create Partition structured field parameters can be specified in terms of addressable points.

LCOPY Indicates whether the device supports the Presentation Space Local Copy function.

MODPART Indicates whether the device supports the Modify Partition structured field. If the vertical scroll flag is also set, Modify Partition can be used to change the window row.

Buffer Allocation Self-Defining Parameter

The Buffer Allocation self-defining parameter must be included as part of the Alphanumeric Partitions Query Reply unless bytes 3-6 (RO, CO, FO) are all zeros and byte 2 (CM) = 1. The default value for parameters not sent is zero.

A partition size, as defined by (HxW) of the Create Partition structured field, requires storage of:

$CM(H \times W) + (RO \times H) + (CO \times W) + FO$ bytes.

The total storage for all created partitions must not exceed M. A Create Partition structured field that causes the total storage used to exceed M will be rejected.

The following table shows the format of the Buffer Allocation self-defining parameter:

Byte	Content	Content Description
0	L	Length of this structured field
1	SDPID	X'02' Identifies this self-defining parameter as Buffer Allocation Parameters
2	CM	Character multiplier - number of storage bytes required for each position defined by (HxW) of the Create Partition structured field
3	RO	Row overhead - bytes of storage required per partition row
4	CO	Column overhead - bytes of storage required per partition column
5-6	FO	Fixed overhead - fixed storage bytes required per partition in addition to RO and CO

Query Reply (Auxiliary Device)

This section describes the Query Reply (Auxiliary Device) structured field.

Function

The Query Reply (Auxiliary Device) structured field indicates direct access support of one or more auxiliary devices.

When a 3270 Data Stream Work Station function is supported (that is, support of one or more auxiliary devices) this Query Reply is transmitted inbound in reply to a Read Partition structured field specifying Query List (QCODE List=X'99', Equivalent, or All) or to a Query.

This Query Reply indicates support of the following:

- Destination/Origin structured field
- Read Partition structured field specifying Query List
- One or more auxiliary devices.

Format

The following table shows the format of the Query Reply (Auxiliary Device) structured field:

Byte	Content	Content Description
0-1	L	X'0006' Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'99' Identifies this Query Reply as Auxiliary Device
4-5	FLAGS	Reserved

Query Reply (Begin/End of File)

This section describes the Query Reply (Begin/End of File) structured field.

Function

This Query Reply (Begin/End of File) structured field indicates that the SLU supports receiving Beginning-of-file and End-of-file from the PLU to delineate a file or job. The Begin/End of File Query Reply must always be sent inbound in reply to a Read Partition Query List (QCODE List=X'9F', or All) by any device which supports Beginning of File and End of File indication to delineate a file or job.

Format

The following table shows the format of the Query Reply (Begin/End of File) structured field:

Byte	Content	Content Description
0-1	L	X'0005' Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'9F' Identifies this Query Reply as Begin/End of File
4-5	FLAGS	Reserved; must be set to zeros

Query Reply (Character Sets)

This section describes the Query Reply (Character Sets) structured field.

Function

The Query Reply (Character Sets) structured fields transmits information about the following:

- Each character set supported
- The ability of the device to support the Load PS structured field and the GE character.

This Query Reply is required for SAA support. For more information about SAA, see the list of related publications at the beginning of this book and Appendix E, "Functions Required for Systems Application Architecture (SAA) Support."

This form of the Query Reply is transmitted inbound in reply to a Read Partition structured field specifying Query or Query List (QCODE List=X'85', Equivalent, or All).

Requirements

This Query Reply consists of at least two parts: the base and a descriptor. Each is discussed in the following sections.

The GF and CF flags in the base must be set to B'1'. The Coded Graphic Character Set Global Identifier (CGCSGID) and Coded Character Set Identifier (CCSID) fields must be present.

Character Sets Query Reply Base

This section describes the Character Sets Query Reply Base.

Function

This portion of the Character Sets Query Reply tells the host application which loadable and/or nonloadable character sets are available at the device. The base is always required and has requirements of its own.

Format

The following table shows the format of the Character Sets Query Reply Base:

Byte	Bit	Content	Content Description
0-1		L	Length of this structured field
2		SFID	X'81' Identifies this structured field as a Query Reply
3		QCODE	X'85' Identifies this Query Reply as Character Sets Query Reply
4		FLAGS	
	0	ALT	B'0' Graphic Escape not supported B'1' Graphic Escape supported
	1	MULTID	B'0' Multiple LCIDs are not supported B'1' Multiple LCIDs are supported

Byte	Bit	Content	Content Description
	2	LOADABLE	B'0' Load PSSF is not supported B'1' Load PSSF is supported
	3	EXT	B'0' Load PS EXTENDED is not supported B'1' Load PS EXTENDED is supported
	4	MS	B'0' Only one character slot size is supported B'1' More than one size of character slot is supported
	5	CH2	B'0' Two-byte coded character sets are not supported B'1' Two-byte coded character sets are supported
	6	GF	B'0' CGCSGID is not present B'1' CGCSGID is present
	7	RES	Reserved
5		FLAGS	
	0	RES	Reserved
	1	PSCS	Programmed Symbols Character Slot B'0' Load PS slot size match required B'1' Load PS slot size match not required
	2	RES	Reserved
	3	CF	B'0' CCSID not present B'1' CCSID present
	4-7	RES	Reserved
6		SDW	Default character slot width
7		SDH	Default character slot height
8-11		FORM	Supported Load PS format types, bit encoded. Bit i = 1 means type i is supported.
12		DL	Length of each descriptor

Additional Content Description

The content of the Character Sets Query Reply Base is further described as follows:

ALT Indicates that the device can support an alternate character set through the use of the GE control character.

MULTID Indicates that the device supports multiple graphic symbol sets with the same LCID (see the MULTID parameter of the Load PS structured field on page 5-26).

LOADABLE Indicates that the Load Programmed Symbol Set structured field is supported. In some implementations, the Load PS structured field may be supported while one or more of the attached devices do not support any loadable character sets (for example, a controller with multiple devices attached). Consequently, the Character Sets Query Reply associated with a particular device may indicate support of the

Load PS structured field, but only nonloadable character sets are supported. Therefore, to indicate support of loadable character sets, the Character Sets Query Reply for a device must indicate the support of both the Load PS structured field and support of one or more loadable character sets.

- EXT** Indicates that the device supports the Load PS extensions. Thus EXT can be set only if Loadable is set.
- MS** Indicates whether or not the device supports a character set related character slot size. This parameter can take one of two of the following values:
- B'0' The character slot size for all character sets is given by the parameters SDW and SDH. If any values are specified in the character set descriptors for SW or SH, they are ignored.
 - B'1' Each character set has its own character slot size, given by the parameters SW and SH in the descriptor for that character set. The parameters SW and SH are present in all descriptors. However, if the value of either SW or SH for a given character set is zero, the values given by SDW and SDH are used.
- If the device supports non-matrix characters (as indicated in byte 5, bit 1 of the Usable Area Query Reply), bytes 6 and 7 (SDW and SDH) are not applicable and must be set to zero.
- CH2** Indicates whether or not 2-byte character sets are supported. In a 2-byte character set, the characters are represented by 2-byte codes in the data stream. This parameter can take one of two of the following values:
- B'0' Two-byte character sets are not supported and the SUBSN parameters are not present in the descriptors.
 - B'1' Two-byte character sets are supported and the SUBSN parameters are present in the descriptors.
- GF** Indicates that the device returns Coded Graphic Character Set Global identifiers in this Query Reply. This parameter remains to accommodate some existing implementations that support the Character Sets Query Reply but not CGCSGID. All new implementations must have the CGCSGID present and have GF set to B'1'.
- PSCS** Indicates whether or not the character size (LW/LH) specified in the Load PS structured field must exactly match the character slot size (SDW/SDH or SW/SH) specified in the Character Sets Query Reply. This parameter can take one of two of the following values:
- B'0' A Load PS structured field specifying anything other than an exact match is rejected.
 - B'1' A Load PS structured field specifying LW equal to or less than SW/SDW and an LH equal to or less than SH/SDH is accepted.

Regardless of the PSCS flag setting, if either or both the width or height of the character size specified in the Load PS Sets structured field exceeds the corresponding dimension of the character slot specified in the Character Sets Query Reply, the Load PS structured field is rejected. Support of a Load PS character size smaller than the character slot size (bit = B'1') is an implementation/requirement option. The PSCS flag has no meaning for an implementation that does not support Load PS Loadable Symbol Sets. The flag is set to B'0'.

When supported, a valid Load PS structured field specifying a character size smaller (in either or both dimensions) loads the character starting at the top left of the designated character slot. If the width (LW) is less than the width of the character slot, then the remaining dots in each row of the character slot are cleared to zero. The height (LH) is processed in a similar manner when it is less than the height of the character slot. The effect of this processing is as if the character slot were cleared to zero immediately before the character that was transmitted (in the Load PS Sets structured field) was loaded into the character slot.

CF Indicates that the device returns the Coded Character Set Identifier (CCSID), which identifies the character set, code page, and encoding scheme.

SDW and SDH

Define the default size of all the characters in the character set.

FORM In this 32-bit field, each bit corresponds to a format type that can be specified in the Load PS structured field. Thus, if bit *i* is set, the device supports format type *i*.

Currently, Load PS format types 1 - 6 and 8 are defined. The remaining values are reserved. This means that bit 0 and bits 7 through 32 (with the exception of bit 8) are reserved. The remaining bits are set depending on the formats supported.

DL Defines the length of each descriptor.

Character Set Descriptors

This section describes the Character Set Query Reply descriptors.

Function

The Character Set Query Reply descriptors define the characteristics of the character sets. Descriptors follow the base portion of a Character Sets Query Reply. At least one descriptor is required for each Character Sets Query Reply. Each descriptor's length is determined by the DL parameter; the number of bytes assigned to this parameter is the length of the descriptor.

Format

The following table shows the format of the Character Set Query Reply descriptors:

Byte	Bit	Content	Content Description
1		SET	Device Specific Character Set ID (PS store No.)
2		FLAGS	
	0	LOAD	B'0' Non-loadable character set B'1' Loadable character set
	1	TRIPLE	B'0' Single-plane character set B'1' Triple-plane character set
	2	CHAR	B'0' Single-Byte coded character set B'1' Double-Byte coded character set
	3	CB	B'0' LCID compare B'1' No LCID compare
	4-7	RES	Reserved
3		LCID	Local character set ID (alias)
4		SW	Width of the character slots in this character set. Present only if MS flag set to B'1'.
5		SH	Height of the character slots in this character set. Present only if MS flag set to B'1'.
6		SUBSN¹	Starting subsection. Present only if CH2 flag = 1.
7		SUBSN¹	Ending subsection. Present only if CH2 flag = 1.
8-11		CGCSGID¹	Coded Graphic Character Set Identifier.
12-13		CCSID	Coded Character Set Identifier.
Note: ¹ The position of the CGCSGID and SUBSN parameters may vary. For example, if SUBSNs and SW/SH were not present, the CGCSGID parameter would start at byte 4.			

Additional Content Description

The content of the Character Sets Query Reply descriptors is further described as follows:

SET Defines the device-specific character set ID. For a loadable character set, this value is specified in the RWS parameter of the Load PS structured field. It also defines the key that the operator can use to select this character set. The character set with device specific ID equal to X'01' is defined as the alternate character page.

If multiple base character sets are supported, the device returns multiple descriptors with SET = X'00' (one descriptor for each supported base character set). The first such descriptor defines the device default character set.

The BASE parameter in the Create Partition structured field or the base parameters in the Select Base Character Set SDP of the Set Partitions Characteristics structured field are used to select the appropriate base character set for a partition by indexing down the base character set descriptors in the order returned in this Query Reply.

The device default character set is the one associated with the implicit partition and with the keyboard.

- LOAD** Indicates whether or not this character set is loadable.
- TRIPLE** Indicates whether or not this device set has three planes: red, blue, and green.
- CHAR** Indicates whether the character set is a 1-byte or a 2-byte character set. It can take one of two values:
- B'0'** The characters are represented by 1-byte codes in the data stream. The character slot maps into a display cell of the size equal to AW x AH (AW/AH are defined in the Usable Area Query Reply).
 - B'1'** The characters are represented by 2-byte codes in the data stream. The character slot maps into a display cell of size equal to 2AW x AH.
- CB** Indicates whether this character set can be compared for copy. See the section "Load Programmed Symbols (Load PS)" on page 5-25.
- LCID** Identifies the Local ID currently connected to this character set; it does not necessarily uniquely identify the contents. A value of X'FF' indicates that this character set is free. (It cannot be accessed using an LCID in an SA, SFE, or MF order, and it cannot be selected by the operator using the PS [A-F] selection keys.) If the set is loadable, X'FF' also means that the set is available for local copy. The Load PS structured field allows the LCID (alias) to be connected to a loadable character set. This is the data stream value used in the SA, SFE, or MF orders to refer to characters from this set. Nonloadable character sets have default LCIDs assigned to them (X'F0' to X'FE'), where:
- X'F0' to X'F7' = 1-byte character sets
 - X'F8' to X'FE' = 2-byte character sets.

SW and SH

Defines the size of all the character slots in the character set. The parameters are present only if character sets with different slot sizes are supported (that is, when the parameter MS = B'1'). If SW and SH are present but are set to zero in any descriptor, the character slot size for that character set is given by SDW and SDH, respectively.

When a character is presented in the usable area, a dot matrix SW by SH is placed in the top left of the appropriate cell.

In a data type that is addressed in cells (for example, alphanumeric), the cell size, (X by Y) is defined when the partition is created, or it defaults to the values associated with the usable area (namely AW by AH). Thus, if SW < X, the remaining pels in each row become background and similarly for SH < Y. If SW > X, each row of the dot matrix is truncated on the right and similarly for SH > Y.

The rules for interpreting the Load PS structured field data stream are summarized below. For FORMAT types 3 through 6, one of the following occurs:

- If LW and LH are present in the Load PS structured field extension, then LW and LH are used.
- If SW and SH are present in the Character Set Descriptor and are non-zero, SW and SH are used.
- SDW and SDH are used.

This operation is illustrated in Figure 6-1.

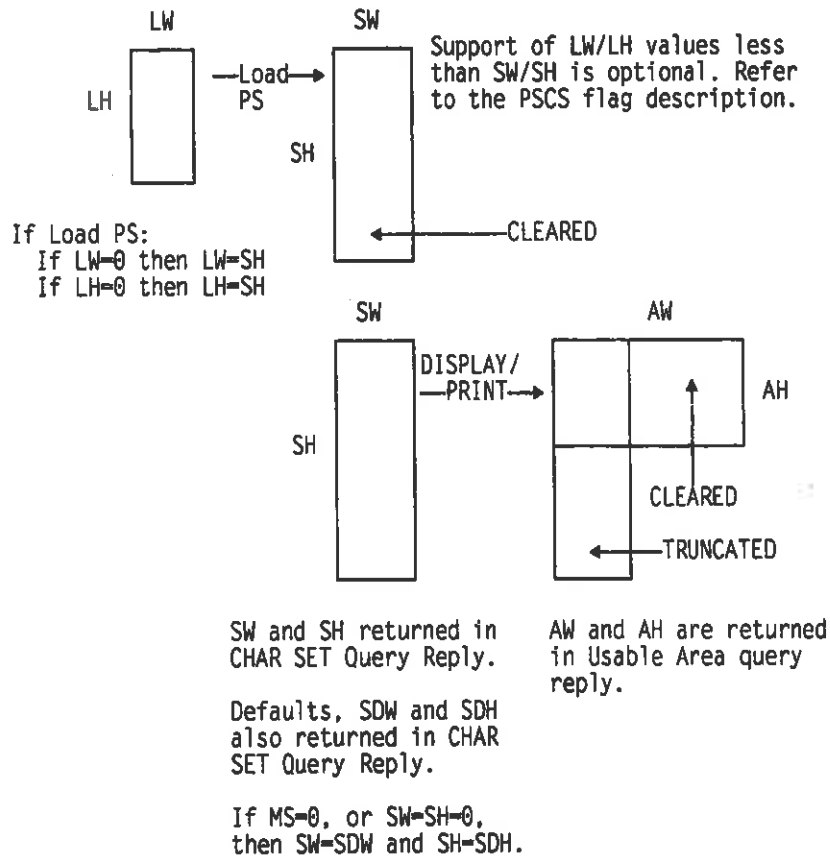


Figure 6-1. Steps Used in Interpreting Load PS Data Stream

Bytes 6 and 7 are not present when bit 2 of byte 2 is B'0' (1-byte coded character set). A 2-byte coded character set can consist of a nonloadable portion or both a nonloadable and a loadable portion. If a character set consists of both a nonloadable and loadable portion, then bit 0 of byte 0 (Load flag) is set to B'1' in the descriptor for that character set.

SUBSN Bytes 6 and 7 of each descriptor define the starting and ending subsection identifiers supported by the device for the PS store being described.

The starting subsection (byte 6 of each descriptor) defines the starting or lowest subsection identifier allowed for the 2-byte coded character

set being described. The default value for a loadable 2-byte character set is X'41', but it can be set by the ST.SUBS of Load PS.

For a nonloadable 2-byte character set, the starting subsection is set to the lowest subsection identifier accepted by the device for that device character set. The ending subsection identifier is set to the highest subsection identifier accepted by the device. Supported subsection identifiers must be consecutive within the range X'41' to X'FE'. For a loadable 2-byte character set, the starting subsection can be set by the ST.SUBSN parameter of Load PS.

The ending subsection is set by the device based on two factors. The first is the starting subsection identifier; the second is the number of physical subsections supported (indicating the range of consecutive subsection identifiers accepted by the device for this loadable device set). The difference between the ending and starting subsection identifiers is one less than the number of subsections supported for that device set. Supported subsection identifiers must be within the range X'41' to X'FE'.

The starting and ending subsection identifiers for loadable 2-byte character sets are reset to their device default values by power-on and test mode. The device default values are X'41' for the starting subsection identifier and the appropriate value for the ending subsection identifier (indicating the number of consecutive subsections supported by the device set).

Subsection parameters (bytes 6 and 7) are present in all descriptors if and only if flag CH2 is set to B'1'. If they are present but the specified device set represents a 1-byte coded character set (CHAR = B'0'), then both SUBSN parameters are set to X'00'.

CGCSGID

The CGCSGID consists of a 2-byte character set identifier followed by a 2-byte code page identifier. The CGCSGID is included for each descriptor in the Character Set Query Reply. If the character set being defined in the descriptor has no associated CGCSGID (for instance, PS Sets, which are user defined), the 4 bytes will be set to zeros.

Note: The CGCSGID is made up of the 2-byte character set number and the 2-byte code page number. For more information about CGCSGID values, see the 3174 *Character Set Reference*.

CCSID

The Coded Character Set Identifier indicates the character set, code page, and encoding scheme. Information on valid parameter values and aspects of Character Data Representation Architecture can be found in the following documents:

- *Character Data Representation Architecture - Level 1, Reference*
- *Character Data Representation Architecture - Level 1, Executive Overview*
- *Character Data Representation Architecture - Level 1, Registry.*

Query Reply (Color)

This section describes the Query Reply (Color) structured field.

Function

The Query Reply (Color) structured field transmits information about the color features of the device. The structured field is sent if the device is capable of interpreting 3270 field attributes as color attributes or accepts some subset of the color attribute values.

When this function is supported, this Query Reply is transmitted inbound in reply to a Read Partition structured field specifying Query or Query List (QCODE List=X'86', Equivalent, or All).

Format

The following table shows the format of the Query Reply (Color) structured field:

Byte	Bit	Content	Content Description
0-1		L	Length of this structured field
2		SFID	X'81' Identifies this structured field as a Query Reply
3		QCODE	X'86' Identifies this Query Reply as Color
4		FLAGS	
	0	RES	Reserved
	1	PRTBLK	Printer Ribbon: B'0' Printer only - black ribbon is not loaded B'1' Printer only - black ribbon is loaded
	2-7	RES	Reserved
5		NP	Length of color attribute list (NP = number of CAV/COLOR pairs)
n		CAV(n)	Color attribute value accepted by the device
	n+1	CI(n)	Color identifier of the color displayed/printed for CAV(n)

Additional Content Description

The content of the Query Reply (Color) structured field is further described as follows:

PRTBLK This flag informs the host application if a black ribbon is loaded or not.

CAV(n) The parameters CAV(n) are all those color attribute values that are accepted by the device without causing a negative response. Bytes n and n+1 are repeated for each of the data stream values accepted by the device.

CI(n) The parameters CI(n) identify the colors that are displayed or printed by the device for each of the accepted color attribute values. The device must either display the color whose color identifier is the same as the color attribute value or display the device default color.

The following table shows the colors and their architected color identifications as they are currently defined:

Color	I.D.	Defined
Neutral	X'F0'	(black on displays, white on printers)
Blue	X'F1'	
Red	X'F2'	
Pink	X'F3'	
Green	X'F4'	
Turquoise	X'F5'	
Yellow	X'F6'	
Neutral	X'F7'	(white on displays, black on printers)
Black	X'F8'	
Deep Blue	X'F9'	
Orange	X'FA'	
Purple	X'FB'	
Pale Green	X'FC'	
Pale Turquoise	X'FD'	
Grey	X'FE'	
White	X'FF'	

The 'color' listed above as Neutral with a color identification of X'F7' is defined as White for a display and Black for a printer.

The color associated with the CAV(n) value of X'F7' defines the default color that is displayed or printed when a single plane character set is referenced; the associated CI(n) value can be any of the values in CAV(n), including X'00'.

The CAV(n) value of X'00' can have an associated CI(n) value of any of the defined values except X'00'.

All devices that send Query Reply (Color) are required to have the values CAV1 = X'00', CI1 = value associated with the device default color, as the first entry in the CAV/CI pairs list.

Query Reply (Color) Example

The following table shows examples of the values returned by the Query Reply (Color) structured field:

Cl(n) Color Identifier	CAV(n) Attribute Value			
	Color Display	Mono Display	Color Printer	3290 Display
X'00'	X'F4'	X'F4'	X'F7'	X'FA'
X'F1'	X'F1'	X'00'	X'F1'	X'00'
X'F2'	X'F2'	X'00'	X'F2'	X'00'
X'F3'	X'F3'	X'00'	X'00'	X'00'
X'F4'	X'F4'	X'00'	X'F4'	X'00'
X'F5'	X'F5'	X'00'	X'00'	X'00'
X'F6'	X'F6'	X'00'	X'00'	X'00'
X'F7'	X'F7'	X'00'	X'00'	X'00'

Default Background Color Self-Defining Parameter

The Default Background Color self-defining parameter is present only if the device supports background color. There is only one of this type of self-defining parameter. All color attribute values supported by (foreground) color are supported by background color with the same color identifiers. Therefore, only the background color default is identified by the CAVDEF and CIDEF parameters. The following table shows the format of the Default Background Color self-defining parameter:

Byte	Content	Content Description
0	L	Length of this structure
1	SDPID	X'02' Identifies this self-defining parameter as Default Background Color
2	CAVDEF	X'00' Default color attribute value
3	CIDEF	Default background color identifier

Query Reply (Cooperative Processing Requestor)

This section describes the Query Reply (Cooperative Processing Requestor) structured field.

Function

The Query Reply (Cooperative Processing Requestor) structured field indicates that Cooperative Processing Requestor (CPR) functions are supported.

When this function is supported, the Query Reply is transmitted inbound in reply to a Query or Query List (QCODE List=X'AB', Equivalent, All).

Format

The following table shows the format of the Query Reply (Cooperative Processing Requestor) structured field:

Byte	Content	Content Description
0-1	L	Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'AB' Identifies this Query Reply as the Cooperative Processing Requestor
4-5	FLAGS	Reserved
6-7	LIMIN	Maximum CPR bytes/transmission allowed inbound
8-9	LIMOUT	Maximum CPR bytes/transmission allowed outbound
10	FEATL	Length (in bytes) of feature information that follows
11-12	FEATS	CPR length and feature flags
13 to (N×2) + 12	FEATs	Additional flags

Additional Content Description

The content of the Query Reply (cooperative Processing Requestor) structured field is further described as follows:

LIMIN Certain implementations can have a limit on the number of bytes of CPR information that are allowed inbound following an AID88. The number of bytes in an inbound CPR transmission must be equal to or less than the LIMIN value. A LIMIN value of X'0000' indicates no implementation limit on inbound CPR data.

LIMOUT The sum of bytes contained in all the CPR structured fields following a WSF command must be equal to or less than the LIMOUT value. If this limit is exceeded, the transmission is rejected. The data received prior to reaching the limit may have been processed. A LIMOUT value of X'0000' indicates no implementation limit on outbound CPR data.

The LIMOUT parameter applies only to the CPR structured fields. For example, if LIMOUT = 400 bytes, a WSF followed by a CPR SF (100 bytes), 3270 SF (500 bytes) and a CPR SF (300 bytes) would be accepted.

FEATL Indicates the number of bytes of feature information that follow. The minimum value is X'02'.

FEATS The content of the feature bytes is defined in related publications.

Direct Access ID Self-Defining Parameter

The following table shows the format of the Direct Access ID self-defining parameter:

Byte	Content	Content Description
0	L	X'04' Parameter Length
1	SDPID	X'01' Identifies this self-defining parameter as Direct Access ID
2-3	DOID	Destination/Origin Identification

The content of the Direct Access ID self-defining parameter is further described as follows:

DOID The presence of the Direct Access ID self-defining parameter indicates that the CPR device can be accessed directly. The value given in the DOID field is used in the Destination/Origin structured field to indicate that the destination or origin of the data following it is the CPR device. When more than one CPR device is supported, each one has a separate CPR Query Reply and a separate ID.

For the Query Reply to be valid, this self-defining parameter must be present.

Query Reply (Data Chaining)

This section describes the Query Reply (Data Chaining) structured field.

Function

The Query Reply (Data Chaining) structured field indicates that data chaining is supported in the non-SNA environment.

When the function is supported, this Query Reply is transmitted inbound in reply to a Read Partition structured field specifying Query or Query List (QCODE=X'98', Equivalent, or All).

Format

The following table shows the format of the Query Reply (Data Chaining) structured field:

Byte	Bit	Content	Content Description
0-1		L	X'0006' Length of this structured field
2		SFID	X'81' Identifies this structured field as a Query Reply
3		QCODE	X'98' Identifies this Query Reply as Data Chaining
4	0-1	DIR	Indicates which direction can use the Data Chain structured field. B'00' Both B'01' From device only B'10' To device only
	2-7	SFID	B'11' Reserved
5		FLAGS	Reserved

Query Reply (Data Streams)

This section describes the Query Reply (Data Streams) structured field.

Function

The Query Reply (Data Streams) structured field indicates which data streams are supported by the device. The positional relationship of the data within the structured field indicates the default data stream.

The following list describes the valid data stream identifiers:

X'00' SCS Base Data Stream with extensions as specified in the BIND Request and Device Characteristics Query Reply structured field

X'01' Document Content Architecture Level 2

X'02' IPDS as defined in related documentation.

All other values are reserved. As noted, the first identifier to appear in the subfield (for example, at byte 4 of the structured field) is assumed to be the default data stream.

When the function is supported, this Query Reply is transmitted inbound in response to a Read Partition structured field specifying Query, or Query List (QCODE List=X'A2', Equivalent, or All).

Format

The following table shows the format of the Query Reply (Data Streams) structured field:

Byte	Content	Content Description
0-1	L	Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'A2' Identifies this Query Reply as Data Streams
4	SFID	X'nn...' List of (L-4) data stream identifiers, the first of which is the default data stream

Query Reply (DBCS-Asia)

This section describes the Query Reply (DBCS-Asia) structured field.

Function

This Query Reply indicates the support of the DBCS-Asia node as defined in Chapter 12, "Double-Byte Coded Character Set (DBCS)-Asia."

When this function is supported, this Query Reply is transmitted inbound in reply to a Read Partition structured field specifying Query or Query List (QCODE List=X'91', Equivalent, or All).

Format

The following table shows the format of the Query Reply (DBCS-Asia) structured field:

Byte	Bit	Content	Content Description
0-1		L	Length of this structured field
2		SFID	X'81' Identifies this structured field as a Query Reply
3		QCODE	X'91' Identifies this Query Reply as DBCS-Asia
4		FLAGS	Reserved

The DBCS-Asia Query Reply can accept one or both of the following self-defining parameters:

- SO/SI
- Input Control.

SO/SI Self-Defining Parameter

The presence of the SO/SI self-defining parameter indicates that the host can send SO/SI to the device. Also, if previously written by the host, SO/SI can be read back. However, unless indicated in the Input Control self-defining parameter, SO/SI cannot be generated by the operator.

The following table shows the format of the SO/SI self-defining parameter:

Byte	Bit	Content	Content Description
0		L	X'03' Parameter length
1		SDPID	X'01' Identifies this self-defining parameter as SO/SI
2		SOSET	Set ID of the Shift Out (SO) character set

SOSET Designates the Set ID of the character set associated with SO. The LCID that the implementation assigned to the character set designated in SOSET is reported in the Character Sets Query Reply.

Input Control Self-Defining Parameter

The presence of the Input Control self-defining parameter indicates support of the extended field attribute type, Input Control.

The following table shows the format of the Input Control self-defining parameter:

Byte	Bit	Content	Content Description
0		L	X'03' Parameter length
1		SDPID	X'02' Identifies this self-defining parameter as Input Control
2		FUNC	Functions supported
	0-6	RES	Reserved
	7	CREATE	Operator creation of SO/SI
			B'0' SO/SI Creation not supported
			B'1' SO/SI Creation supported

The content of the Input Control self-defining parameter is further described as follows:

CREATE Indicates whether the Input Control self-defining parameter can be used to enable or disable the operator creation of SO/SI. This parameter can have one of two values:

B'0' Indicates creation of SO/SI by the operator is not supported.

B'1' Indicates creation of SO/SI by the operator is supported and may be enabled or disabled using the Input Control extended attribute. The default (for example, POR) is disabled.

Note: When CREATE = B'1' (operator creation of SO/SI supported), the SO/SI self-defining parameter must be present.

Query Reply (Device Characteristics)

This section describes the Query Reply (Device Characteristics) structured field.

Function

The Query Reply (Device Characteristics) structured field transmits the device's ability to support SNA SCS functions.

When the function is supported, this Query Reply is transmitted inbound in reply to a Read Partition structured field specifying Query or Query List (QCODE List=X'A0', Equivalent, or All). The function descriptor is included in the Device Characteristics query reply to indicate how an SCS function is supported.

As a general rule, any of the SCS control codes reported in the Device Characteristics Query Reply which are received with invalid parameters, are rejected. However, there are some situations where there is a relationship between parameters in which a normally valid parameter value becomes invalid in combination with another parameter value. For example, a device supporting character densities of 10 and 15 cpi could support a maximum MPP of 160 only when the character density was 15 cpi. The descriptors describe the action taken for the sets of parameters that are interrelated.

Format

The following table shows the format of the Query Reply (Device Characteristics) structured field:

Byte	Content	Content Description
0-1	L	Length of this structured field
2	SFID	X'81' Identifies this structured field as Query Reply
3	QCODE	X'A0' Identifies this Query Reply as Device Characteristics

Function Descriptors

The base part is followed by one or more of the following function descriptors:

- Set Print Density
- Horizontal Dimensional Parameters
- Vertical Dimensional Parameters
- Page Presentation Media
- Set Text Orientation.

Each descriptor defines the characteristics of one SCS control.

Set Print Density (SPD) Descriptor

This section describes the Set Print Density (SPD) descriptor.

Function

The SPD descriptor is included for historical purposes. The Horizontal Dimensional Parameters descriptor should be used in its place.

Format

The following table shows the format of the SPD descriptor:

Byte	Content	Content Description
0-1	L	Length of this structured field
2-3	SCS2B	X'1104' SCS X'2B' identifier
4-5	SPDDES	X'D229' Identifies this descriptor as Set Print Density
6	SPDSUP	X'00' SPD is supported. Default value is used.
7-8	SPDDEF	X'00nn' Default value for print density (for example, X'000A' is 10 characters per inch)
9	CDLEN	X'02' Character density parameter length
10	CDPRES	X'60' The character density is present sometimes. It takes only discrete values, and it appears only one time.
11	CDVALS	X'mm' Number of discrete values supported by the device
12-n	CDPARM	The discrete character density values supported

Horizontal Dimensional Parameters Descriptor

This section describes the Horizontal Dimensional Parameters descriptor.

Function

With Horizontal Dimensional Parameters, character density and maximum print position (MPP) occur as 2-byte pairs, one for each density. The character density is the number of characters per inch, rounded down to the next integer. The first character density/MPP pair is the device default setting. The other character density/MPP pairs must appear in the ascending order of MPP values.

Format

The following table shows the format of the Horizontal Dimensional Parameters descriptor:

Byte	Bit	Content	Content Description
0-1		L	Length of this structured field
2-3		HDPDES	X'FF01' Identifies this descriptor as Horizontal Dimensional Parameters
4		FLAGS	
	0	SPDSUP	B'0' SPD not supported B'1' SPD supported
	1-7	RES	Reserved
4+2n-1		CD(n)	Character Density
4+2n		MPP(n)	Maximum print position for character density

Additional Content Description

The content of the Horizontal Dimensional Parameters descriptor is further described as follows:

Character density/MPP

Character density is given preference. That is, it takes effect, regardless of whether the maximum MPP in effect is valid for that character density. If the maximum MPP in effect becomes invalid when a new character density is set, the maximum MPP becomes the highest value valid for the new character density. If a new MPP is set using the SHF control that is invalid for the character density in effect, the MPP is rejected.

Vertical Dimensional Parameters Descriptor

This section describes the Vertical Dimension Parameters descriptor.

Function

With Vertical Dimensional Parameters, typographic points and maximum page length (MPL) occur as 2-byte pairs, one for each density. The typographic points are expressed in 1/72nds of an inch and are rounded down to the next integer. The first typographic point/MPL pair is the device default setting. The other typographic point/MPL pairs must appear in the ascending order of MPL values.

Format

The following table shows the format of the Vertical Dimensional Parameters descriptor:

Byte	Bit	Content	Content Description
0-1		L	Length of this structured field
2-3		VDPDES	X'FF02' Identifies this descriptor as Vertical Dimensional Parameters
4		FLAGS	
	0	SLDSUP	B'0' Set Line Density not supported B'1' Set Line Density supported
	1-7	RES	Reserved
4+2n-1		PNTS(n)	Typographic points
4+2n		MPL(n)	Maximum page length for PNTS

Additional Content Description

The content of the Vertical Dimensional Parameters descriptor is further described as follows:

PNTS/MPL

Treated the same as character density/MPP, the line density PNTS is given preference, and a valid PNTS is accepted whether or not the MPL in effect is valid for that PNTS. Also, if a new MPL is set with the SVF control that is invalid for the PNTS in effect, the MPL is rejected.

Page Presentation Media (PPM) Descriptor

This section describes the Page Presentation Media (PPM) descriptor.

Function

The PPM descriptor indicates whether the device provides support for such functions as forms control, paper source and destination drawers, print quality level, and duplex printing.

On certain devices, PS sets have only the Quality levels inherent in the characteristics in which they were loaded into the device. On these devices, quality cannot be changed on PS sets. Other devices have the capability of changing quality for both PS sets as well as nonloadable character sets by not requiring a downstream load to change the quality level. Devices set the Quality flag byte, bit 1, to designate their capability to change quality on PS sets.

Note: On certain devices, changes in print quality can inherently result in a change in cell geometry. Following a change in the Quality parameter, the Primary should issue a Query List with the Usable Area Query Reply specified to determine the effects of the quality change upon the cell geometry.

For some devices, certain combinations of supported quality and character density are invalid. The existence of this condition is indicated by setting bit 3 of byte m+1 to B'1' and including a count of the number of invalid Q,character density pairs. This is followed by a list of the invalid Q,character density combinations

(2 bytes per pair). Devices that can support all combinations of supported quality and character density set bit 3 of byte (m+1) to B'0' and do not include the above fields.

Format

The following table shows the format of the PPM descriptor:

Byte	Bit	Content	Content Description
0-1		L	Length of this structured field
2-3		PPMDES	X'FF03' Identifies this descriptor as PPM
4		FLAGS	
	0	PPMSUP	B'0' PPM not supported B'1' PPM supported
	1-7	RES	Reserved
5		FC	Parameter Forms Control (FC)
	0	FCSUP	B'0' FC not supported B'1' FC supported
	1-7	RES	Reserved
6		FCNUMB	X'nn' Number of discrete Forms Control (FC) parameter values supported by the device
7 to j		FCVALS	The discrete FC values supported. The first value is the default value. Each value occupies 1 byte.
j+1		SD	Parameter Source Drawer (SD)
	0	SDSUP	B'0' SD not supported B'1' SD supported
	1	SDOPER	B'0' This parameter is not operator-selectable at the device. B'1' This parameter is operator-selectable at the device. Its current value can be invoked by the Primary setting SD = X'FF'.
	2-7	RES	Reserved
j+2		SDNUMB	X'nn' Number of discrete SD parameter values supported by the device
j+3 to k		SDPARM	The discrete SD values supported. The first value is also the default value. Each value occupies 1 byte.
k+1		DDO	Parameter Destination Drawer Offset (DDO)
	0	DDOSUP	B'0' DDO not supported B'1' DDO supported
	1-7	RES	Reserved

Byte	Bit	Content	Content Description
k+2		DD	Parameter Destination Drawer (DD)
	0	DDSUP	B'0' DD not supported B'1' DD supported
	1	DDOPER	B'0' This parameter is not operator-selectable at the device. B'1' This parameter is operator-selectable at the device. Its current value can be invoked by the Primary setting DD=X'FF'.
	2-7	RES	Reserved
k+3		DDNUMB	X'nn' Number of discrete DD parameter values supported by the device.
k+4 to m		DDVALS	The discrete values supported. The first value is also the default value.
m+1		QUAL	Parameter Quality (Q)
	0	QSUP	B'0' Q not supported B'1' Q supported
	1	QOPER	B'0' This parameter is not operator-selectable at the device. B'1' This parameter is operator-selectable at the device. Its current value can be invoked by the Primary specifying Q=X'FF'.
	2	QPS	B'0' Q is not applicable to PS sets. B'1' Q is applicable to PS sets.
	3	QALL	B'0' All supported quality levels are allowed at all supported character densities. B'1' Some combinations of supported quality levels/character densities are not valid.
	4-7	RES	Reserved
m+2		QNUMB	X'nn' Number of discrete Q parameter values supported by the device.
m+3 to n		QPARMS	The discrete Q values supported. The first value is also the default value (1 byte per value).
n+1		QCDNUMB	X'PP' Number of discrete Q/character density pair parameter values that are not allowed by the device.
n+2 to p		Q/character density(P)	Q/character density pairs of valid values that are not allowed as a combination. Two bytes per pair.

Byte	Bit	Content	Content Description
p+1		DUP	Parameter Duplex (D)
	0	DUPSUP	B'0' D is not supported.
			B'1' D is supported.
	1	DUOPER	B'0' This parameter is not operator-selectable at the device.
			B'1' This parameter is operator-selectable at the device. Its current value can be invoked by the Primary setting D = X'FF'.
	2-7	RES	Reserved

Additional Content Description

The content of the PPM descriptor is further described as follows:

Character density/Q

Character density is given preference. A valid character density takes effect whether or not the quality (Q) level in effect is valid for that character density. When a new character density selection makes the current Q level invalid, the Q level defaults to the next highest valid Q level. If a new valid Q level is set with the PPM that is invalid because of the character density in effect, it is rejected.

FCPARM Valid values for the FC mechanisms are:

X'01' Paper Source Drawer
X'02' Envelope Source Drawer
X'03' Manual Paper Drawer
X'04' Manual Envelope Drawer.

SDPARM

Valid values for the Paper SDs are:

X'01' Select paper from bin 1
X'02' Select paper from bin 2
X'03' Select paper from bin 3
X'04' to X'FE'
Select paper from respective drawer.

DDPARM

Valid values for the Paper DDs are:

X'01' Primary destination drawer
X'02' to X'FE'
Secondary destination drawers.

QPARM The number of print quality levels supported are listed in order of worst to best print quality.

For interrelated parameters (for example, character density/MPP), when both parameters are changed in the same transmission, the results obtained can be different, depending on which parameter appears first.

Set Text Orientation (STO) Descriptor

This section describes the Set Text Orientation (STO) descriptor.

Function

The STO descriptor indicates that the Set Text Orientation SCS control code is supported by the device.

Format

The following table shows the format for the STO descriptor:

Byte	Bit	Content	Content Description
0 - 1		L	X'0005' Length of this structured field
2 - 3		STODES	X'FF04' Identifies this descriptor as Set Text Orientation
4		FLAGS	
	0	STOSUP	B'0' STO not supported B'1' STO supported
	1 - 7	RES	Reserved

Query Reply (Distributed Data Management)

This section describes the Query Reply (Distributed Data Management) structured field.

Function

The Query Reply (Distributed Data Management) indicates the Distributed Data Management (DDM) subsets supported.

When this function is supported, this Query Reply is transmitted inbound in reply to a Read Partition structured field specifying Query or Query List (QCODE List=X'95', Equivalent, or All).

Format

The following table shows the format of the Query Reply (DDM) structured field:

Byte	Content	Content Description
0-1	L	Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'95' Identifies this Query Reply as DDM
4-5	FLAGS	Reserved
6-7	LIMIN	Maximum DDM bytes/transmission allowed inbound
8-9	LIMOUT	Maximum DDM bytes/transmission allowed outbound
10	NSS	Number of subsets supported
N	DDMSS	DDM subset identifier

Additional Content Description

The content of the Query Reply (DDM) structured field is further described as follows:

- LIMIN** Certain implementations can have a limit on the number of bytes of DDM information that are allowed inbound following an AID88. The number of bytes in an inbound DDM transmission must be equal to or less than the LIMIN value. A LIMIN value of X'0000' indicates no implementation limit on inbound DDM data.
- LIMOUT** The sum of bytes contained in all the DDM structured fields following a WSF command must be equal to or less than the LIMOUT value. If this limit is exceeded, the transmission is rejected. The data received prior to reaching the limit may have been processed. A LIMOUT value of X'0000' indicates no implementation limit on outbound DDM data.
- The LIMOUT parameter applies only to the DDM structured fields. For example, if LIMOUT = 400 bytes, a WSF followed by a DDM structured field (100 bytes), 3270 structured field (500 bytes), and a DDM structured field (300 bytes) would be accepted.
- NSS** Indicates the number of different subsets that are supported, that is, the number of DDMSS parameters present.
- DDMSS** Indicates the DDM subset that is supported. Valid values are as follows:
- X'01' = DDM Copy Subset 1
 - All other values reserved.

The DDM Query Reply supports three self-defining parameters:

- Direct Access ID
- DDM Application Name
- GDDM-PCLK Protocol Controls.

Direct Access ID Self-Defining Parameter

The following table shows the format of the Direct Access ID self-defining parameter:

Byte	Content	Content Description
0	L	X'04' Parameter Length
1	SDPID	X'01' Identifies this self-defining parameter as Direct Access ID
2-3	DOID	Destination/Origin Identification

The content of the Direct Access ID self-defining parameter is further described as follows:

- DOID** The presence of the Direct Access ID self-defining parameter indicates that the DDM device can be accessed directly. The value given in the DOID field is used in the Destination/Origin structured field to indicate the destination or origin of the following data is the DDM device.

DDM Application Name Self-Defining Parameter

This parameter provides the host with the name of the application containing control of the DDM auxiliary device that is identified by the DOID in the Direct Access self-defining parameter.

This parameter is optional unless the host application must identify distinct DDM auxiliary devices when more than one application at the remote workstation supports DDM auxiliary devices.

The following table shows the format of the DDM Application Name self-defining parameter:

Byte	Content	Content Description
0	L	Parameter Length
1	SDPID	X'02' Identifies this self-defining parameter as DDM Application Name
2-3	NAME	Name of the remote application program

The content of the DDM Application Name self-defining parameter is further described as follows:

NAME This value is a name of eight characters or less by which a host application can relate to an application in a remote workstation. It is the responsibility of the host and the remote application users to ensure that the name is understood by the applications on each end.

PCLK Protocol Controls Self-Defining Parameter

The presence of the PCLK Protocol Controls self-defining parameter indicates that the GDDM-PCLK Protocol Controls structured field (X'1013') can be used in both inbound and outbound DDM Auxiliary Device data streams.

The following table shows the format of the PCLK Protocol Controls self-defining parameter:

Byte	Content	Content Description
0	L	X'04' Parameter Length
1	SDPID	X'03' Identifies this self-defining parameter as PCLK Protocol Controls
2-3	VERS	Protocol version

The content of the PCLK Protocol Controls self-defining parameter is further described as follows:

VERS This value indicates the version of GDDM-PCLK installed in the terminal at the time when the Query Reply is returned. X'0001' indicates GDDM-PCLK Version 1.1.

Query Reply (Document Interchange Architecture)

This section describes the Query Reply (Document Interchange Architecture) structured field.

Function

The Query Reply (Document Interchange Architecture) structured field indicates the Document Interchange Architecture (DIA) function sets supported.

When the function is supported, this Query Reply is transmitted inbound in reply to a Read Partition structured field specifying Query, or Query List (QCODE List=X'97', Equivalent, or All).

Format

The following table shows the format of the Query Reply (Document Interchange Architecture) structured field:

Byte	Content	Content Description
0-1	L	Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'97' Identifies this Query Reply as Document Interchange Architecture
4-5	FLAGS	Reserved
6-7	LIMIN	Maximum DIA bytes/transmission allowed inbound
8-9	LIMOUT	Maximum DIA bytes/transmission allowed inbound
10	NFS	Number of 3-byte function set identifiers that follow
11-13	DIAFS	DIA function set identifier
N-N+2	DIAFSs	Additional DIA function set identifiers

Additional Content Description

The content of the Query Reply (Document Interchange Architecture) structured field is further described as follows:

LIMIN Certain implementations can have a limit on the number of bytes of DIA information that are allowed inbound following an AID X'88'. The number of bytes in an inbound DIA transmission must be equal to or less than the LIMIN value. A LIMIN value of X'0000' indicates no implementation limit on inbound DIA data.

LIMOUT The sum of bytes contained in all the DIA structured fields following a WSF command must be equal to or less than the LIMOUT value. If this limit is exceeded, the transmission is rejected. The data received prior to reaching the limit may have been processed. A LIMOUT value of X'0000' indicates no implementation limit on DIA data outbound.

The LIMOUT parameter applies only to the DIA structured fields. For example, if LIMOUT=400 bytes, a WSF followed by a DIA structured field (100 bytes), an Outbound 3270DS structured field (500 bytes), and a DIA structured field (300 bytes) would be accepted.

NFS The number of different function sets that are supported, that is, the number of 3-byte DIAFS parameters present, as follows: A valid Query Reply must have at least one DIAFS.

X'01' File Server
X'02' File Requestor
X'03' Both File Server and File Requestor
All other values reserved.

The second and third bytes give the function set number in hexadecimal. For example, to indicate the role of the File Server with support of function set 11, the value of bytes 11 through 13 would be X'01000B'.

For a description of the Document Interchange Architecture functions refer to the following publications:

- *Document Interchange Architecture Technical Reference*
- *Document Interchange Architecture Document Profile Reference*
- *Document Interchange Architecture Transaction Programmer's Guide.*

See "Where To Find More Information" on page xvii.

Direct Access ID Self-Defining Parameter

For the Query Reply to be valid, the Direct Access ID self-defining parameter must be present.

The following table shows the format of the Direct Access ID self-defining parameter:

Byte	Content	Content Description
0	L	X'04' Parameter length
1	SDPID	X'01' Identifies this self-defining parameter as Direct Access ID
2-3	DOID	Destination/Origin Identification

The content of the Direct Access ID self-defining parameter is further described as follows:

DOID The presence of the Direct Access ID self-defining parameter indicates that the DIA device can be accessed directly. The value given in the DOID field is used in the Destination/Origin structured field to indicate that the destination or origin of the following data is the DIA device. When more than one DIA device is supported, each one has a separate DIA Query Reply and a separate ID.

Query Reply (Extended Drawing Routine)

This section describes the Query Reply (Extended Drawing Routine) structured field.

Function

The Query Reply (Extended Drawing Routine) structured field indicates at which graphic subset level extended drawing routines are supported.

When this function is supported, it is transmitted inbound in reply to a Read Partition structured field specifying Query List (QCODE List=X'B5' or All).

Format

The following table shows the format of the Query Reply (Extended Drawing Routine) structured field:

Byte	Content	Content Description
0-1	L	Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'B5' Identifies this Query Reply as Extended Drawing Routine
4-n	DATA	Data

Note: For information regarding the format and operation of the DATA parameter, refer to the appropriate graphics product publications.

Query Reply (Field Outlining)

This section describes the Query Reply (Field Outlining) structured field.

Function

The Query Reply (Field Outlining) structured field specifies the details of the field outlining supported by the device.

When this function is supported, the Query Reply is transmitted inbound in reply to a Read Partition structured field specifying Query or Query List (QCODE List=X'8C', Equivalent, or All).

Format

The following table shows the format of the Query Reply (Field Outlining) structured field:

Byte	Bit	Content	Content Description
0-1		L	X'000A' Length of this structured field
2		SFID	X'81' Identifies this structured field as a Query Reply
3		QCODE	X'8C' Identifies this Query Reply as Field Outlining
4	0-7	FLAG	Reserved
5	0	SEP	Support of separation of underlining and overlining: B'0' Separation not supported B'1' Separation supported
	1-7	RES	Reserved
6		VPOS	Location of vertical line
7		HPOS	Location of overline/underline
8		HPOS0	Location of overline in case of separation
9		HPOS1	Location of underline in case of separation

Additional Content Description

The content of the Query Reply (Field Outlining) structured field is further described as follows:

SEP Indicates that the separation of underline and overline is supported in printers. When the function is not supported (SEP = B'0'), an underline and the next overline are always printed as one line. When the function is supported (SEP = B'1'), an underline and the next overline are separated when specified.

VPOS Indicates the horizontal location of the vertical line.

HPOS Indicates the vertical location of the horizontal line. In the printer, the location of the horizontal line when the separation is not specified is indicated here. When the overline is drawn above the cell, the location of the underline, which is the same as the location of the overline in the next row, is used.

HPOS0 and HPOS1

Indicate the vertical locations of the overline and the underline respectively when Separation is specified. In displays or printers where the device does not support Separation, zero values are set. When the overline is drawn above the character cell, the location of the overline in the next row is used.

Each of VPOS, HPOS, HPOS0, and HPOS1 is a 1-byte binary number, and they indicate the location of the Field Ruling lines against the top left corner of the character cell, where the value of the location is zero vertically and horizontally. These values are measured in the same unit as that in cell units of the Usable Area Query Reply and measured when the Skip Suppression is specified.

Query Reply (Field Validation)

This section describes the Query Reply (Field Validation) structured field.

Function

The Query Reply (Field Validation) structured field specifies that the device supports field validation and indicates the types of validation the device supports.

When this function is supported, the Query Reply is transmitted inbound in reply to a Read Partition structured field specifying Query or Query List (QCODE List=X'8A', Equivalent, or All).

Format

The following table shows the format of the Query Reply (Field Validation) structured field:

Byte	Bit	Content	Content Description
0-1		L	X'0005' Length of this structured field
2		SFID	X'81' Identifies this structured field as a Query Reply
3		QCODE	X'8A' Identifies this Query Reply as Field Validation
4		TYPES	Types supported:
	0-4	RES	Reserved
	5	MANDFILL	B'0' Mandatory fill not supported B'1' Mandatory fill supported
	6	MANDENTR	B'0' Mandatory entry not supported B'1' Mandatory entry supported
	7	TRIGGER	B'0' Trigger not supported B'1' Trigger supported

Query Reply (Format Presentation)

This section describes the Query Reply (Format Presentation) structured field.

Function

The Query Reply (Format Presentation) structured field specifies that the device supports Format Presentation.

When this function is supported, the Query Reply is transmitted inbound in reply to a Read Partition structured field specifying Query or Query List (QCODE List=X'90', Equivalent, or All).

Format

The following table shows the format of the Query Reply (Format Presentation) structured field:

Byte	Content	Content Description
0-1	L	X'0004' Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'90' Identifies this Query Reply as Format Presentation

Query Reply (Format Storage Auxiliary Device)

This section describes the Query Reply (Format Storage Auxiliary Device) structured field.

Function

The Format Storage Auxiliary Device Query Reply indicates that the device supports the loading of format storage by the Load Format Storage structured field. This Query Reply also provides the DOID to be used in the Destination/Origin structured field, which precedes data to and from format storage.

The Format Storage Auxiliary Device Query Reply must always be sent inbound in reply to a Read Partition structured field specifying Query or Query List (QCODE List=X'94', Equivalent or All) by any device which supports the Load Format Storage (LFS) node.

The minimum support for the Format Storage Auxiliary Device query reply consists of the Format Storage Auxiliary Device Query Reply Base and the Direct Access ID self-defining parameter. The Format Storage Auxiliary Device Query Reply has one self-defining parameter: Direct Access ID.

The Format Storage Auxiliary Device Query Reply precedes the Direct Access ID self-defining parameter and must be present when the Format Storage Auxiliary Device Query Reply is supported.

Format

The following table shows the format of the Query Reply (Format Storage Auxiliary Device) structured field:

Byte	Bit	Content	Content Description
0-1		L	Length of this structured field
2		SFID	X'81' Identifies this structured field as a Query Reply
3		QCODE	X'94' Identifies this Query Reply as Format Storage Auxiliary Device
4		FLAGS	
	0	F/T	Formats per transmission B'0' One format per transmission allowed B'1' Multiple formats/transmission allowed
	1	CSTAT	Current Status B'0' No formats currently loaded B'1' One or more formats currently loaded
	2	OPSEL	User selected format default B'0' Disabled B'1' Enabled
	3	HMGMT	Host Format Management B'0' Non-shared B'1' Shared
	4-7	RES	Reserved, must be set to zeros
5		FLAGS	Reserved, must be set to zeros
6-7		LIMIN	Reserved for LIMIN parameter. Must be set to zeros.
8-9		LIMOUT	Maximum bytes of format storage data per transmission allowed outbound.

Additional Content Description

The content of the Query Reply (Format Storage Auxiliary Device) structured field is further described as follows:

QCODE The X'94' is the code for the Format Storage Auxiliary Device Query Reply.

F/T This flag indicates whether the host application is limited to one format per transmission or if more than one format per transmission is allowed if the function is supported in non-SNA, as follows:

B'0' Only one format per transmission or per Data Chain if the function is supported in non-SNA. The next format cannot be sent until the Format Storage Auxiliary Device sends in an Exception/Status structured field indicating either Acknowledge or Reject.

B'1' More than one format is allowed per transmission (or per Data Chain). After sending the transmission (or Data Chain), no further formats can be sent until the Format Storage Auxiliary Device sends in an Exception/Status structured field indicating either Acknowledge or Reject. If rejected, the Exception/Status structured field must include the Failing Format self-defining parameter to indicate the name of the first format encountered with an exception condition.

Regardless of the setting of the F/T flag, if the host application does not wait for the required Acknowledge/Reject, the result is unpredictable. A transmission cannot contain a partial format. Therefore, a format cannot span a transmission unless Data Chaining is being used in a non-SNA environment. If Data Chaining is being used, a format cannot span Data Chains, as follows:

CSTAT This indicates whether or not there are any formats loaded at the time the Query Reply is sent.

B'0' No formats were loaded when the query was sent.

B'1' One or more formats were present in format storage when the Query Reply was sent.

OPSEL This indicates the default state for user-selected formats. The default state is entered after a reset condition established by configuration settings or host control, as follows:

B'0' Indicates that the default state for user-selected formats is disabled.

B'1' Indicates that formats presented by this host application can be loaded by another host application.

LIMIN This field is reserved for the LIMIN parameter and should be set to all zeros.

LIMOUT The sum of the bytes contained in all the Load Format Storage structured fields following a WSF command must be equal to or less than the LIMOUT value. If this limit is exceeded, the transmission is rejected. Note that the data received prior to reaching the limit may have been processed. A LIMOUT value of X'0000' indicates no implementation limit on format storage data in an outbound transmission.

The LIMOUT parameter applies only to the Load Format Storage structured fields. For example, if LIMOUT = 400 bytes, a WSF followed by a Load Format Storage structured field (100 bytes), Outbound 3270DS structured field (500 bytes) and a Load Format Storage structured field (300 bytes) would be accepted.

Direct Access ID Self-Defining Parameter

The Direct Access ID self-defining parameter provides the DOID value to be used in the Destination/Origin structured field preceding information to and from format storage. The Direct Access self-defining parameter must be included whenever the Format Storage Auxiliary Device Query Reply is sent.

The following table shows the format of the Direct Access ID self-defining parameter:

Byte	Bit	Content	Content Description
0		L	X'06' Length of this self-defining parameter
1		SDPID	X'01' Identifies this self-defining parameter as Direct Access ID
2-3		DOID	Destination/Origin Identification
4-5		SIZE	Size of the format storage space.

The content of the Direct Access ID self-defining parameter is further described as follows:

DOID Provides the value to use in the DOID field of the Destination/Origin structured field which precedes information to and from format storage.

SIZE Provides the total size of the format storage space in K bytes. For example, the Size parameter for a format storage space of 32 K bytes would be X'0020'.

Query Reply (Graphic Color)

This section describes the Query Reply (Graphic Color) structured field.

Function

The Query Reply (Graphic Color) structured field indicates the support for color available in graphics.

When the function is supported, this form of Query Reply is transmitted inbound in reply to a Read Partition structured field specifying Query List (QCODE List=X'B4', or All).

Format

The following table shows the format of the Query Reply (Graphic Color) structured field:

Byte	Content	Content Description
0-1	L	Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'B4' Identifies this Query Reply as Graphic Color
4-n	DATA	Data

Note: For the definition of the format and operation of the DATA parameter, refer to the appropriate graphics product publications.

Query Reply (Graphic Symbol Sets)

This section describes the Query Reply (Graphic Symbol Sets) structured field.

Function

The Query Reply (Graphic Symbol Sets) structured field reports all of the symbol set stores that are available for use in graphics.

When the function is supported, this form of Query Reply is transmitted inbound in reply to a Read Partition structured field specifying Query List (QCODE List=X'B6', or All).

Format

The following table shows the format of the Query Reply (Graphic Symbol Sets) structured field:

Byte	Content	Content Description
0-1	L	Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'B6' Identifies this Query Reply as Graphic symbol Sets
4-n	DATA	Data

Note: For the definition of the format and operation of the DATA parameter, refer to the appropriate graphics product publications.

Query Reply (Highlighting)

This section describes the Query Reply (Highlighting) structured field.

Function

The Query Reply (Highlighting) structured field transmits the types of highlighting supported by the device.

When this function is supported, the Query Reply is transmitted inbound in reply to a Read Partition structured field specifying Query or Query List (QCODE List=X'87', Equivalent, or All).

If a device accepts the highlight attribute, then it must accept attribute value X'00' (default specification). It can, optionally, accept other attribute values. The attribute values listed in the Query Reply are accepted by the device. The following attribute values are the only valid values:

X'00'	Default
X'F0'	Normal highlight
X'F1'	Blink
X'F2'	Reverse video
X'F4'	Underscore
X'F8'	Intensify.

This structured field indicates that the device supports highlighting on an exclusive basis. That is, one and only one of the highlight values can be applied to a field or character location.

The code X'00' indicates that the device action for the corresponding attribute value is the same as the action for the attribute value X'00' (the default action of the device).

Format

The following table shows the format of the Query Reply (Highlighting) structured field:

Byte	Content	Content Description
0-1	L	Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'87' Identifies this Query Reply as Highlighting
4	NP	Number of attribute-value/action pairs
n	VI	Data stream attribute value accepted
n+1	AI	Data stream action

The following example illustrates the Query Reply (Highlighting) response:

Byte	Content Description
0-1	X'000C' Length of this structured field
2	X'81' Identifies this structured field as Query Reply
3	X'87' Identifies this query as Highlighting
4	X'04' Number of pairs
5-6	X'00' Attribute value (default) (pair 1) X'F0' Action - normal
7-8	X'F1' Attribute value (pair 2) X'F1' Action - blink
9-10	X'F2' Attribute value (pair 3) X'F2' Action - reverse video
11-12	X'F4' Attribute value (pair 4) X'F4' Action - underscore

Query Reply (IBM Auxiliary Device)

This section describes the Query Reply (IBM Auxiliary Device) structured field.

Function

This Query Reply structured field tells the host application about the characteristics of IBM auxiliary devices. This Query Reply must always be sent inbound in reply to a Read Partition structured field specifying Query or Query List (QCODE List=X'9E', Equivalent, or All).

To use this Query Reply, you must have a device that:

- Can be addressed with the Destination/Origin structured field
- Uses a data stream defined by an IBM product or one of the IBM Object Content Architectures.

Format

The following table shows the format of the Query Reply (IBM Auxiliary Device) structured field:

Byte	Bit	Content	Content Description
0-1		L	Length of this structured field
2		SFID	X'81' Identifies this structured field as a Query Reply
3		QCODE	X'9E' Identifies this Query Reply as IBM Auxiliary Device
4	0	FLAGS	
		QUERY	Read Partition (Query or Query List)
		B'1'	Device supports Query
	1-7	RES	Reserved; must be zeros
5		FLAG	Reserved; must be zeros
6-7		LIMIN	Inbound message size limit
8-9		LIMOUT	Outbound message size limit
10		TYPE	Type of IBM auxiliary device
		X'01'	Display
		X'02'	Printer
		Others	Reserved
Note: All bytes of the IBM Auxiliary Device structured field must be present. If not used, they are set to X'00'.			

Additional Content Description

The content of the Query Reply (IBM Auxiliary Device) structured field is further described as follows:

- QUERY** When this bit is set to B'1', the device supports receiving a Read Partition (Query or Query List), so the host application can use a Read Partition to determine the device's characteristics. The Read Partition must be directed to the auxiliary device with the Destination/Origin structured field.
- This bit must be set to B'1' for all IBM auxiliary devices. The minimum support for this structured field is to return the Null Query Reply in response to the Read Partition.
- LIMIN** LIMIN is the maximum number of bytes in an inbound transmission. A value of X'0000' indicates no implementation limit on the number of bytes transferred.
- LIMOUT** LIMOUT is the maximum number of bytes in an outbound transmission. A value of X'0000' indicates no implementation limit on the number of bytes transferred.
- TYPE** Type identifies the auxiliary device that is supported. A value of X'01' identifies the device as a display. A value of X'02' identifies that device as a printer. All other values are reserved.

The IBM Auxiliary Device Query Reply accepts three self-defining parameters:

- Direct Access ID
- Printer Name
- PCLK Protocol Controls.

Direct Access ID Self-Defining Parameter

For the Query Reply to be valid, the Direct Access ID self-defining parameter must be present.

The following table shows the format of the Direct Access ID self-defining parameter:

Byte	Content	Content Description
0	L	X'04' Parameter length
1	SDPID	X'01' Identifies this self-defining parameter as Direct Access ID
2-3	DOID	Destination/Origin Identification

The content of the Direct Access ID self-defining parameter is further described as follows:

- DOID** The presence of the Direct Access ID self-defining parameter indicates that the IBM auxiliary device can be accessed directly. The value given in the DOID field is used in the Destination/Origin structured field to indicate that the destination or origin of the following data is the auxiliary device. When more than one auxiliary device is supported, each one has a separate IBM Auxiliary Device Query Reply and a separate ID.

Printer Name Self-Defining Parameter

The Printer Name self-defining parameter provides a name that uniquely identifies the specified printer. The parameter is valid only if TYPE in the IBM Auxiliary Device Query Reply Base is set to X'02' (IBM Auxiliary Device Printer).

If more than one IBM Auxiliary Device Query Reply for a printer is returned by a device, then each Printer Name self-defining parameter must provide a unique name.

The following table shows the format of the Printer Name self-defining parameter:

Byte	Content	Content Description
0	L	X'0E' Parameter length
1	SDPID	X'02' Identifies this self-defining parameter as Printer Name
2-3	CSET	Character set used to define PNAME
4-5	CPAGE	Code page used to define PNAME
6-13	PNAME	Printer name

The content of the Printer Name self-defining parameter is further described as follows:

- CSET** A 2-byte Global Graphic Character Identifier (GGID) that identifies the character set used to define PNAME.
- CPAGE** A 2-byte Global Code Page Identifier (GPID) that identifies the code page used to define PNAME.
- PNAME** This parameter contains an 8-byte character string to define the name of the printer.

PCLK Protocol Controls Self-Defining Parameter

The presence of the PCLK Protocol Controls self-defining parameter indicates that the PCLK Protocol Controls structured field (X'1013') can be used in both inbound and outbound IBM Auxiliary Device data streams.

The following table shows the format of the PCLK Protocol Controls self-defining parameter:

Byte	Content	Content Description
0	L	X'04' Parameter length
1	SDPID	X'03' Identifies this self-defining parameter as PCLK Protocol Controls
2-3	VERS	Protocol version

The content of the PCLK Protocol Controls self-defining parameter is further described as follows:

- VERS** This value indicates the version of GDDM-PCLK installed in the terminal at the time the Query Reply is returned. X'0001' indicates GDDM-PCLK Version 1.1.

Query Reply (Image)

This section describes the Query Reply (Image) structured field.

Function

The Query Reply (Image) structured field provides specific information about the device support of image parameter sets and image order sets.

This Query Reply is returned to the host in reply to a Read Partition structured field specifying Query List (QCODE List=X'82' or All).

Format

The following table shows the format of the Query Reply (Image) structured field:

Byte	Content	Content Description
0-1	L	Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'82' Identifies this Query Reply as Image
4-n	COMMAND	Command

Note: For information about the format and operation of the COMMAND parameter, refer to related imaging documentation.

Query Reply (Implicit Partition)

This section describes the Query Reply (Implicit Partition) structured field.

Function

The Query Reply (Implicit Partition) structured field defines unique implicit partition characteristics.

This field is required for SAA support. For more information about SAA, see the list of related publications at the beginning of this book and Appendix E, "Functions Required for Systems Application Architecture (SAA) Support."

The Implicit Partition Query Reply must always be sent inbound in reply to a Read Partition structured field specifying Query or Query List (QCODE List=X'A6', Equivalent, or All) by any device supporting EBASE.

Format

The following table shows the format of the Query Reply (Implicit Partition) structured field:

Byte	Content	Content Description
0-1	L	Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'A6' Identifies this Query Reply as Implicit Partition
4-5	FLAGS	X'0000' Reserved

The Implicit Partition Query Reply accepts the following self-defining parameters:

- Implicit Partition Sizes for Display Devices

This parameter is required for all display devices.

- Implicit Partition Sizes for Printer Devices

This parameter is required for all printer devices.

- Implicit Partition Sizes for Character Cell Dimensions.

This parameter is not required for all Implicit Partition Query Replies. When this parameter is not present, the character cell size for the Implicit Partition is specified in the Usable Area Query Reply.

Implicit Partition Sizes for Display Devices Self-Defining Parameter

The Implicit Partition Sizes for Display Devices self-defining parameter informs the host of the default and alternate screen sizes of the Implicit Partition. The sizes are specified in character cells. This parameter is required for all display devices.

When the default and alternate screen sizes are specified, two things must be true:

- Default and alternate values must be nonzero.
- If the device does not have an alternate screen size, the value for the alternate screen size must be that of the default screen size.

The Implicit Partition default and alternate screen sizes are established differently in SNA and non-SNA systems. In SNA systems, the default and alternate sizes returned in this reply are those established at BIND. In non-SNA systems, the default and alternate sizes returned in this reply are those in effect at the time the Query Reply is generated.

The following table shows the format of the Implicit Partition Sizes for Display Devices self-defining parameter:

Byte	Content	Content Description
0	L	X'0B' Length of this self-defining parameter
1	SDPID	X'01' Identifies this self-defining parameter as Implicit Partition Sizes
2	FLAGS	X'00' Reserved
3-4	WD	Width of the Implicit Partition default screen size (in character cells)
5-6	HD	Height of the Implicit Partition default screen size
7-8	WA	Width of the Implicit Partition alternate screen size
9-10	HA	Height of the Implicit Partition alternate screen size

Implicit Partition Sizes for Printer Devices Self-Defining Parameter

The Implicit Partition Sizes for Display Devices self-defining parameter informs the host of the default and alternate printer buffer sizes. The sizes are specified in character cells. This parameter is required for all printer devices.

When the default and alternate printer buffer sizes are specified, two things must be true:

- Default and alternate values must be nonzero.
- If the device does not have an alternate print buffer size, the value for the alternate size must be that of the default size.

The Implicit Partition default and alternate printer buffer sizes are established differently between SNA and non-SNA systems. In SNA systems, the default and alternate sizes returned in this reply are those established at BIND. In non-SNA systems, the default and alternate sizes returned in this query reply are those in effect at the time that the Query Reply is generated.

The buffer size defines the following printer buffer restrictions:

- The maximum linear character buffer address that can be explicitly specified in 3270 orders. (The maximum buffer address is one less than the buffer size in character cells.)
- The wrapping point for the transmitted data.

If the implied address for the data being loaded into the character buffer exceeds the maximum address allowed by the buffer size, then the implied address is reset to zero and loading continues from the first buffer location.

The following table shows the format of the Implicit Partition Sizes for Printer Devices self-defining parameter:

Byte	Content	Content Description
0	L	X'0B' Length of this self-defining parameter
1	SDPID	X'03' Identifies this self-defining parameter as Implicit Partition Sizes
2	FLAGS	X'00' Reserved
3-6	DPBS	Default printer buffer size (in character cells)
7-10	APBS	Alternate printer buffer size

Implicit Partition Sizes for Character Cell Dimensions Self-Defining Parameter

The Implicit Partition Sizes for Character Cell Dimensions self-defining parameter informs the host system of the character cell sizes associated with the default and alternate Implicit Partition sizes. This parameter is not required for all Implicit Partition Query Replies. Use this parameter only if the following conditions exist:

- The cell size associated with either the default or alternate screen size for the Implicit Partition is different from the cell size that is reported in the Usable Area Query Reply parameters (AW/AH).
- The device supports the Load PS structured field.

Character Cells are measured in this Query Reply in the same way as in the Usable Area Query Reply parameters (UNITS, Xr, and Yr).

When this parameter is present, the default or alternate character cell sizes are determined by the following three factors:

- The Implicit Partition default screen size uses the default character cell size.
- The Implicit Partition alternate screen size uses the alternate character cell size.
- The default character cell size for the Explicit Partition is stated in the Usable Area Query Reply parameters (AW/AH). (There is no alternate size in Explicit Partition state.)

The following table shows the format of the Implicit Partition Sizes for Character Cell Dimensions self-defining parameter:

Byte	Content	Content Description
0	L	X'0B' Length of this self-defining parameter
1	SDPID	X'02' Identifies this self-defining parameter as Implicit Partition Sizes
2	FLAGS	X'00' Reserved
3-4	WCD	Width of character cell for the Implicit Partition default screen size
5-6	HCD	Height of character cell for the Implicit Partition default screen size
7-8	WCA	Width of character cell for the Implicit Partition alternate screen size
9-10	HCA	Height of character cell for the Implicit Partition alternate screen size

Query Reply (IOCA Auxiliary Device)

This section describes the Query Reply (IOCA Auxiliary Device) structured field.

Function

The Query Reply (IOCA Auxiliary Device) structured field indicates support of a 3270 workstation auxiliary device that uses the Image Object Content Architecture (IOCA) data stream.

This Query Reply is returned to the host as a result of receiving a Read Partition structured field specifying Query List (QCODE List=X'AA' or All).

When a workstation supports multiple IOCA auxiliary devices, an IOCA Auxiliary Device Query Reply must be sent for each of them.

Format

The following table shows the format of the Query Reply (IOCA Auxiliary Device) structured field:

Byte	Content	Content Description
0-1	L	Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'AA' Identifies this Query Reply as IOCA Auxiliary Device
4-5	FLAGS	Reserved
6-7	LIMIN	Max IOCA bytes/inbound transmission
8-9	LIMOUT	Max IOCA bytes/outbound transmission
10	IOTYPE	X'00' Type of device X'01' Input device X'02' Output device

Note: For information about the format and operation of the COMMAND parameter, refer to related imaging documentation.

Additional Content Description

The content of the Query Reply (IOCA Auxiliary Device) structured field is further described as follows:

- LIMIN** The sum of bytes contained in all of the structured fields that are associated with the IOCA Auxiliary Device following an AID 88, is equal to or less than the value specified (in hexadecimal) in LIMIN. A LIMIN value of X'0000' indicates no implementation limit on inbound IOCA data.
- LIMOUT** The sum of bytes contained in all the IOCA structured fields associated with the IOCA auxiliary device— following a WSF command— must not exceed the LIMOUT value. If this limit is exceeded, the transmission must be rejected. The data received prior to reaching the limit may have been processed. A LIMOUT value of X'0000' indicates no implementation limit on outbound IOCA data.
- IOTYPE** This specifies the type of device. There are three types of devices: input, output, and input/output.

For information about self-defining parameters, refer to related image documentation.

Query Reply (Line Type)

This section describes the Query Reply (Line Type) structured field.

Function

The Query Reply (Line Type) structured field indicates which line type attribute values are supported and the corresponding device action. Also, for loadable line types, it indicates which formats of line type definition are supported, as well as an indication of which, if any, code points are already loaded.

When the function is supported, this form of Query Reply is transmitted inbound in reply to a Read Partition structured field specifying Query List (QCODE List=X'B2' or All).

Format

The following table shows the format of the Query Reply (Line Type) structured field:

Byte	Content	Content Description
0-1	L	Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'B2' Identifies this Query Reply as Line Type
4-n	DATA	Data

Note: For the definition of the format and operation of the DATA parameter, refer to the appropriate graphics product publications.

Query Reply (MSR Control)

This section describes the Query Reply (MSR Control) structured field.

Function

The Query Reply (MSR Control) structured field defines the number of magnetic slot reader (MSR) devices that are attached and specifies the magnetic slot reader type that the application program can use to determine the control requirements of the device.

When the function is supported, the Query Reply is transmitted inbound in reply to a Read Partition structured field specifying Query or Query List (QCODE List=X'8B', Equivalent, or All).

Format

The following table shows the format of the Query Reply (MSR Control) structured field:

Byte	Content	Content Description
0-1	L	X'0007' Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'8B' Identifies this Query Reply as MSR Control
4	FLAGS	Reserved
5	ND	Number of MSR device types
6	TYPE	MSR type: X'01' Magnetic reader Other Reserved

Query Reply (Null)

This section describes the Query Reply (Null) structured field.

Function

The Query Reply (Null) structured field informs the host that the device does not support any of the features or functions that the host inquired about with the Read Partition structured field specifying Query List (QCODE List). If the host queries the device and the device supports at least one feature or function that was queried about, then the Null Query Reply is not sent to the host.

This Query Reply must always be sent inbound in reply to a Read Partition structured field specifying Query List (QCODE List=X'FF'), as shown in the following examples:

Example 1:

- A device supports features A, B, and C.
- The host queries for features A, X, and Z.

The device does not send the Null Query Reply. It sends the Query Reply for feature A only. Therefore, the host knows that the device does not support features X and Z.

Example 2:

- A device supports features A, B, and C.
- The host queries for features X, Y, and Z.

The device sends the Null Query Reply because the device does not support any of the requested features.

This Query Reply is required for SAA support. For more information about SAA, see the list of related publications at the beginning of this book and Appendix E, "Functions Required for Systems Application Architecture (SAA) Support."

Format

The following table shows the format of the Query Reply (Null) structured field:

Byte	Content	Content Description
0-1	L	X'0004' Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'FF' Identifies this Query Reply as Null

Query Reply (OEM Auxiliary Device)

This section describes the Query Reply (OEM Auxiliary Device) structured field.

Function

The Query Reply (OEM Auxiliary Device) structured field indicates support of an OEM auxiliary device (see Chapter 11, "Auxiliary Devices and Workstations"). An OEM device is defined here as a device that is manufactured outside of IBM and does not use an IBM-defined data stream. The device may carry either an outside manufacturer logo or an IBM logo.

When the function is supported, the OEM Auxiliary Device Query Reply is transmitted inbound in reply to a Read Partition structured field specifying Query or Query List (QCODE List=X'8F', Equivalent, or All).

When a workstation supports multiple OEM devices, an OEM Auxiliary Device Query Reply must be sent for each of the devices.

All parameters shown in the base part of the OEM Auxiliary Device Query Reply must be present.

Format

The following table shows the format of the Query Reply (OEM Auxiliary Device) structured field:

Byte	Content	Content Description
0-1	L	Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'8F' Identifies this Query Reply as OEM Auxiliary Device
4	FLAGS	Reserved
5	DSREF	Data stream reference identifier
6-13	DTYPE	Device type
14-21	UNAME	User assigned name

Additional Content Description

The content of the Query Reply (OEM Auxiliary Device) structured field is further described as follows:

DTYPE This is an 8-byte character string used to send the device type to the host application. An understanding must exist between the workstation and the host on the relationship of the DTYPE value and the device characteristics (for example, what data the device accepts or sends).

DSREF This parameter is used to indicate what data is contained in an OEM Data structured field directed to or from the OEM auxiliary device.

A value of X'00' indicates the data in the OEM Data structured field must be the data stream the device recognizes or sends as derived from the DTYPE parameter.

A nonzero value indicates that the OEM Data structured field contains a value added data stream. That is, the OEM Data structured field contains controls and other data, in addition to the data recognized or sent by the device. Further workstation processing of this value added data stream is required before sending the data to the OEM auxiliary device. Refer to your related product documentation for a description of the value added data stream associated with the DSREF parameter.

Valid values for the DSREF parameter (in addition to X'00') are as follows:

X'01' Plotter Type 1
All other values reserved.

UNAME This parameter contains an 8-byte character string name provided by the workstation. The purpose is to provide a user friendly name (for example, plotter1, plotter2) for use by the application. This name will not appear in the data stream between the host and the workstation. A value of all zeros indicates no name assigned. The value X'FF FF' is reserved.

The Query Reply (OEM Auxiliary Device) structured field accepts three self-defining parameters:

- Direct Access ID
- LIMIN/LIMOUT OEM Auxiliary Controls
- PCLK Protocol Controls.

Direct Access ID Self-Defining Parameter

The Direct Access ID self-defining parameter provides the ID for use in the Destination/Origin structured field in the direct access of the OEM auxiliary device. It must be present.

The following table shows the format of the Direct Access ID self-defining parameter:

Byte	Content	Content Description
0	L	X'04' Length of this parameter
1	SDPID	X'01' Identifies this self-defining parameter as Direct Access ID
2-3	DOID	Destination/Origin ID

The content of the Direct Access ID self-defining parameter is further described as follows:

DOID The value in this byte is used in the ID field of the Destination/Origin structured field to identify the auxiliary device as the destination or origin of the data that follows.

LIMIN/LIMOUT OEM Auxiliary Controls Self-Defining Parameter

The LIMIN/LIMOUT OEM Auxiliary Controls self-defining parameter indicates the maximum number of bytes allowed in an OEM Data structured field to or from the OEM auxiliary device.

The following table shows the format of the LIMIN/LIMOUT OEM Auxiliary Controls self-defining parameter:

Byte	Content	Content Description
0	L	X'06' Parameter Length
1	SDPID	X'02' Identifies this self-defining parameter as LIMIN/LIMOUT OEM Auxiliary Controls
2-3	LIMIN	Maximum OEM dsf bytes/transmission allowed inbound
4-5	LIMOUT	Maximum OEM dsf bytes/transmission allowed outbound

The content of the LIMIN/LIMOUT OEM Auxiliary Controls self-defining parameter is further described as follows:

- LIMIN** Certain implementations may have a limit on the number of bytes of OEM information that are allowed inbound following an AID88. The number of bytes in an inbound OEM transmission must be equal to or less than the LIMIN value. A LIMIN value of X'0000' indicates no implementation limit on inbound OEM data.
- LIMOUT** The sum of bytes contained in all the OEM structured fields following a WSF command must be equal to or less than the LIMOUT value. If this limit is exceeded, the transmission is rejected. Note that the data received prior to reaching the limit may have been processed. A LIMOUT value of X'0000' indicates no implementation limit on outbound OEM data.

The LIMOUT parameter applies only to the OEM structured fields. For example, if LIMOUT = 400 bytes, a WSF followed by an OEM sf (100 bytes), 3270E sf (500 bytes), and an OEM sf (300 bytes) would be accepted.

PCLK Protocol Controls Self-Defining Parameter

The presence of the PCLK Protocol Controls self-defining parameter indicates that the GDDM-PCLK Protocol Controls structured field (X'1013') can be used in both inbound and outbound OEM Auxiliary Device data streams.

The following table shows the format of the PCLK Protocol Controls self-defining parameter:

Byte	Content	Content Description
0	L	X'04' Parameter Length
1	SDPID	X'03' Identifies this self-defining parameter as GDDM-PCLK Protocol Controls
2-3	VERS	Protocol version

The content of the PCLK Protocol Controls self-defining parameter is further described as follows:

- VERS** This value indicates the version of GDDM-PCLK installed in the terminal at the time the Query Reply is returned. X'0001' indicates GDDM-PCLK version 1.1.

Query Reply (Paper Feed Techniques)

This section describes the Query Reply (Paper Feed Techniques) structured field.

Function

The Query Reply (Paper Feed Techniques) structured field transmits the currently installed and active paper feed technique (for example, cut sheet automatic). It transmits the size of the restricted print areas (if any) at the top and/or bottom of the presentation surface (form). If any area of the presentation surface (form) is restricted, a device must support this Query Reply.

When the function is supported, this Query Reply is transmitted inbound in reply to a Read Partition structured field specifying Query or Query List (QCODE List=X'A7', Equivalent, or All).

The top and bottom margin offsets define the areas at the top and bottom of the presentation surface (form) where printing should not occur. The top and bottom margin offsets can range from 0 (meaning there is no restricted area) to 65 535/1440ths of an inch (45.51 inches).

Format

The following table shows the format of the Query Reply (Paper Feed Techniques) structured field:

Byte	Bit	Content	Content Description	
0-1		L	X'0009'	Length of this structured field
2		SFID	X'81'	Identifies this structured field as a Query Reply
3		QCODE	X'A7'	Identifies this Query Reply as Paper Feed Techniques
4		FLAGS		
	0-2	PRMECH	B'000' B'001' B'010' B'011' B'100' Other	Unknown Cut sheet manual Continuous form Cut sheet automatic Document on demand Values reserved
	3-7	RES	B'00000'	Reserved
5-6		TMO	X'nnnn'	Top margin offset in 1/1440ths of an inch
7-8		BMO	X'mmmm'	Bottom margin offset in 1/1440ths of an inch .

Additional Content Description

FLAGS When this bit is set to B'100', then document on demand is similar to continuous forms except that printing stops automatically after the current page is ejected. The operator can tear off the current form any time after printing stops. Printing resumes when the operator presses the Enable (Start) key.

TMO

The top margin offset is the top margin that must be used if the restricted area at the top of the presentation surface is to be avoided. The top margin offset is measured from the top edge of the presentation surface to the base line of the first allowable print line.

Except when the printer is operating in the 3270 mode, the action taken when printing is attempted in the top restricted area is device dependent (that is, actions could include a forced movement to the first safe line, an attempt to print, or a rejected request). In effect, to obtain predictable results, the application must avoid attempting to print in the top restricted area.

Other than lines of nulls or lines of spaces, the application can use any of the means provided by the data stream to move through the top restricted area without printing; for example:

- Set the TM parameter of SVF control to a value equal to or greater than the first allowable print line.
- Move from top of the presentation surface to the first allowable print line (or greater) using new lines (NLs), line feeds (LFs), or vertical tabs (VTs).

When the printer is operating in the 3270 mode (LU3 or non-SNA) the printer must protect against printing in the top restricted area. An application attempt to print in the top restricted area results in a forced move to the first safe print line. The number of lines moved equal the line equivalent of the distance given in the top offset field of the Paper Feed Technique Query Reply; the line counter is incremented for each line of forced movement.

BMO

The bottom margin offset is the bottom margin that must be used if the restricted area at the bottom of the presentation surface is to be avoided. The bottom margin offset is measured from the bottom edge of the presentation surface to the base line of the last allowable print line.

The action taken when an application attempts to print in the bottom restricted area is device dependent (that is, actions could include a forced move to the next form, an attempt to print, or a rejected request). In effect, to obtain predictable results, an application must avoid printing in the bottom restricted area.

Other than lines of nulls and lines of spaces, the application can use any of the means provided by the data stream to avoid printing in the bottom restricted area; for example:

- Use of a form feed (FF) prior to reaching the bottom restricted area
- Use of new lines (NLs), line feeds (LFs), or vertical tabs (VTs) to move through the bottom restricted area.

When operating in 3270 mode, the means of avoiding the bottom restricted area are somewhat limited. VTs and LFs are not valid, and the FF/NL controls are not always valid. Therefore, the user should ensure that the paper loaded in the printer is long enough to accommodate the complete buffer contents.

Query Reply (Partition Characteristics)

This section describes the Query Reply (Partition Characteristics) structured field.

Function

The Query Reply (Partition Characteristics) structured field specifies that the device supports the Partition Characteristics Structured Field. When the function is supported, this Query Reply is transmitted inbound in reply to a Query List specifying a QCODE of X'8E' or All.

The Partition Characteristics Query Reply has the following self-defining parameters:

- Viewport Outline Parameters
- Enable User Call-up.

Format

The following table shows the format of the Query Reply (Partition Characteristics) structured field:

Byte	Content	Content Description
0-1	L	Length of this structure
2	SFID	X'81' Query Reply
3	QCODE	X'8E' Identifies this Query Reply as Partition Characteristics

Viewport Outline Parameters Self-Defining Parameters

The Viewport Outline Parameters self-defining parameter indicates that viewport outlining is supported by the device.

The following table shows the format of the Viewport Outline Parameters self-defining parameter:

Byte	Content	Content Description
0	L	X'03' Length of this structure
1	SDPID	X'01' Identifies this self-defining parameter as Viewport Outline Parameters
2	THICKNESS	Maximum outline thickness supported

Enable User Call-up Self-Defining Parameter

The Enable User Call-up self-defining parameter indicates that the Enable User Call-up function of the Set Partition Characteristics structured field is supported by the device.

The following table shows the format of the Enable User Call-up self-defining parameter:

Byte	Content	Content Description
0	L	X'02' Length of this self-defining parameter
1	SDPID	X'03' Identifies this self-defining parameter as Enable User Call-up

Query Reply (Port)

This section describes the Query Reply (Port) structured field.

Function

The Query Reply (Port) structured field defines which ports are supported.

For each port supported, an appropriate, separate Query Reply is returned in response to a Read Partition structured field specifying Query List (QCODE List=X'B3' or All).

Format

The following table shows the format of the Query Reply (Port) structured field:

Byte	Content	Content Description
0-1	L	Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'B3' Identifies this Query Reply as Port
4-n	DATA	Data

Note: For the definition of the format and operation of the DATA parameter, refer to the appropriate graphics product publications.

Query Reply (Procedure)

This section describes the Query Reply (Procedure) structured field.

Function

The Query Reply (Procedure) structured field indicates at which graphic subset level graphic procedures are supported.

When the function is supported, this form of Query Reply is transmitted inbound in reply to a Read Partition structured field specifying Query List (QCODE List=X'B1' or All).

Format

The following table shows the format of the Query Reply (Procedure) structured field:

Byte	Content	Content Description
0-1	L	Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'B1' Identifies this Query Reply as Procedure
4-n	DATA	Data

Note: For the definition of the format and operation of the DATA parameter, refer to the appropriate graphics product publications.

Query Reply (Product Defined Data Stream)

This section describes the Query Reply (Product Defined Data Stream) structured field.

Function

This Query Reply indicates support of a 3270DS workstation auxiliary device that uses an IBM product defined data stream (PDDS).

When an auxiliary device supports an IBM product defined data stream, the Query Reply is transmitted inbound in reply to a Query List (QCODE List=X'9C' or All).

All bytes of this structured field and the Direct Access ID parameter must be present.

Format

The following table shows the format of the Query Reply (Product Defined Data Stream) structured field:

Byte	Content	Content Description
0-1	L	X'000C' Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'9C' Identifies this Query Reply as Product Defined Data Stream
4-5	FLAGS	Reserved; must be zeros
6	REFID	Reference identifier
7	SSID	Subset Identifier

Additional Content Description

The content of the Query Reply (Product Defined Data Stream) structured field is further described as follows:

- REFID** This byte contains a reference number that indicates the particular IBM PDDS and the documentation describing that data stream.
- SSID** This byte contains a reference number that indicates which subset of the PDDS identified by REFID is supported by the auxiliary device. The subset must be defined in the product documentation. If no subsets exist inside the PDDS, the value of SSID is X'00'.

The values of REFID and SSID can be any of the combinations described in the following table:

REFID	SSID	Product and Data Stream Documentation
X'01'		This reference ID indicates that the auxiliary device supports the 5080 Graphics System. The 5080 Graphics Architecture, structured fields, subset IDs, DOID, and associated function sets are described in <i>IBM 5080 Graphics System Principles of Operation</i> .
	X'01'	5080 HFGD Graphics Subset
	X'02'	5080 RS232 Ports Subset
X'02'		This reference ID indicates that the auxiliary device supports the WHIP API data stream. The WHIP API architecture is described in <i>IBM AIX Workstation Host Interface Program User's Guide and Reference Manual, Version 1.1</i> .
	X'01'	WHIP Subset 1
X'03' to X'FF'		Reserved

Direct Access ID Self-Defining Parameter

The Direct Access ID parameter provides the ID for use in the Destination/Origin structured field in the direct access of the auxiliary device. It must be present.

When multiple auxiliary devices that use a product defined data stream are supported, a separate Product Defined Data Stream Query Reply with a unique DOID must be provided.

The following table shows the format for the Direct Access ID self-defining parameter:

Byte	Content	Content Description
0	L	X'04' Length of this parameter
1	SDPID	X'01' Identifies this self-defining parameter as Direct Access ID
2-3	DOID	Destination/Origin ID

The content of the Direct Access ID self-defining parameter is further described as follows:

DOID The value in this byte is used in the ID field of the Destination/Origin structured field to identify the auxiliary device as the destination or origin of the data that follows.

Query Reply (Reply Modes)

This section describes the Query Reply (Reply Modes) structured field.

Function

The Query Reply (Reply Modes) is used to inform the host of the following:

- The 3270 Data Stream attribute orders that the device supports, in both the inbound and the outbound directions.
- The modes that can be set by the Set Reply Modes structured field.

When this function is supported, this query reply is transmitted inbound in reply to a Read Partition structured field specifying Query or Query List (QCODE list=X'88', Equivalent, or All). This query reply is not transmitted if *only* the Field Mode is supported.

For a description of reply modes, see "Set Reply Mode" on page 5-68.

Format

The following table shows the format of the Query Reply (Reply Modes) structured field:

Byte	Content	Content Description
0-1	L	Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'88' Identifies this Query Reply as Reply Modes
4-n	MODES	Modes supported: X'00' Field mode X'01' Extended field mode X'02' Character mode Other Reserved

Additional Content Description

The content of the Query Reply (Reply Modes) structured field is further described as follows:

Modes This field contains one byte for each of the modes supported. The minimum entry is X'0001' (X'00' for Field and X'01' for Extended Field) because this query reply is first used when extended fields are supported.

The following is a list of modes and the Orders that they use:

- The Field mode indicates support of the Start Field (SF) order. See "Start Field (SF)" on page 4-4.
- The Extended Field mode indicates support of the Start Field Extended (SFE) and the Modify Field (MF) orders. See "Start Field Extended (SFE)" on page 4-4 and "Modify Field (MF)" on page 4-7.
- The Character mode indicates support of the Set Attribute order. See "Set Attribute (SA)" on page 4-6.

Examples

- If the device supports the Field and Extended Field attributes, then the device sets the MODES field to X'0001'.
- If the device supports the Field, the Extended Field, and the Character attributes, then the device sets the MODES field to X'000102'.

Query Reply (RPQ Names)

This section describes the Query Reply (RPQ Names) structured field.

Function

The Query Reply (RPQ NAMES) structured field tells the application which RPQs are initialized for use in the display. If appropriate, RPQ-dependent information is supplied for each.

When the function is supported, this Query Reply is transmitted inbound in reply to a Read Partition structured field specifying Query or Query List (QCODE List=X'A1', Equivalent, or All).

Format

The following table shows the format of the Query Reply (RPQ Names) structured field:

Byte	Content	Content Description
0-1	L	Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'A1' Identifies this Query Reply as RPQ Names
4-7	DEVICE	Device type identifier
8-11	MODEL	Model type identifier (X'00000000' = all models)
12	RPQL	RPQ length (length of RPQ Name + RPQ)
13-n	RPQID	RPQ name

For example, the following table describes the RPQ Query Reply sent by device type 8775 supporting RPQ SU0183 only:

Byte	Content Description
0-1	X'0013' Length of this structured field
2	X'81' Identifies this structured field as Query Reply
3	X'A1' Identifies this query as RPQ Names
4-7	C'8775' Device type identifier
8-11	AL4(0) Model type identifier (X'00000000' = all models)
12	X'07' Length of RPQ name (including this byte)
13-18	C'SU0183' RPQ name

Query Reply (Save/Restore Format)

This section describes the Query Reply (Save/Restore Format) structured field.

Function

The Query Reply (Save/Restore Format) structured field indicates that the secondary device supports the Save/Restore Format structured field.

When the function is supported, the Query Reply is transmitted inbound in reply to a Read Partition structured field specifying Query List (QCODE List=X'92' or All).

Format

The following table shows the format of the Query Reply (Save/Restore Format) structured field:

Byte	Content	Content Description
0-1	L	X'0006' Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'92' Identifies this Query Reply as Save/Restore Format
4-5	FPCBL	Format parameter control block length: a binary count that designates the length of the Format Parameter Control Block (FPCB). The FPCB length is fixed for a given implementation, that is, length does not vary with the specific SCS control codes used within a session.

Query Reply (Segment)

This section describes the Query Reply (Segment) structured field.

Function

The Query Reply (Segment) structured field indicates the graphic subset level at which graphic segments are supported.

When the function is supported, this form of Query Reply is transmitted inbound in reply to a Read Partition structured field specifying Query List (QCODE List=X'B0' or All).

Format

The following table shows the format of the Query Reply (Segment) structured field:

Byte	Content	Content Description
0-1	L	Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'B0' Identifies this Query Reply as Segment
4-n	DATA	Data

For a description of the format and operation of the DATA parameter, refer to the appropriate graphics product publications.

Query Reply (Settable Printer Characteristics)

This section describes the Query Reply (Settable Printer Characteristics) structured field.

Function

The Query Reply (Settable Printer Characteristics) structured field indicates support of one or more characteristics such as printer functions and modes that can be set or reset by use of the SPC structured field. Self-defining parameters are used to describe each characteristic supported. This structured field flows inbound in reply to a Read Partition structured field specifying Query List (QCODE List=X'A9' or All).

Format

The following table shows the format of the Query Reply (Settable Printer Characteristics) structured field:

Byte	Content	Content Description
0-1	L	Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'A9' Identifies this Query Reply as Settable Printer Characteristics
4-5	FLAGS	Reserved

The Early Print Complete (EPC) self-defining parameter must be present. See "Early Print Complete Self-Defining Parameter" on page 5-67

Early Print Complete (EPC) Self-Defining Parameter

The EPC parameter supports the early print complete mode of operation. When the early print complete mode is set, it allows a 3270 printer to indicate that it is ready for more data before printing is actually completed. The overlapping of load and print can improve throughput for certain situations involving high-speed printers.

The following table shows the format of the EPC self-defining parameter:

Byte	Bit	Content	Content Description
0		L	X'03' Length of this parameter
1		SDPID	X'01' EPC
2		FLAGS	
	0 - 1	POC	Printer operator control B'00' No printer operator control B'01' Printer operator control EPC set off B'10' Printer operator control EPS set on B'11' Reserved
	2 - 7	RES	Reserved

The content of the EPC self-defining parameter is further described as follows:

POC Printer Operator Control indicates whether the implementation provides printer operator control of the set/reset of the EPC mode. It also indicates the operator selection when the query list was received.

Query Reply (Storage Pools)

This section describes the Query Reply (Storage Pools) structured field.

Function

The Query Reply (Storage Pools) structured field identifies the storage pools in the device. For each storage pool, there is a self-defining parameter describing the characteristics of that storage pool. These characteristics are the total size of that storage pool when empty, the amount of that storage pool available for additional objects, and a list of identifiers of the types of objects housed in that storage pool.

When the function is supported, this form of Query Reply structured field is transmitted inbound in reply to a Read Partition structured field specifying Query List (QCODE List=X'96' or All).

Format

The following table shows the format of the Query Reply (Storage Pools) structured field:

Byte	Content	Content Description
0-1	L	Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'96' Identifies this Query Reply as Storage Pools

Storage Pool Characteristics Self-Defining Parameter

The following table shows the format of the Storage Pool Characteristics self-defining parameter:

Byte	Content	Content Description
0	L	Length of this self-defining parameter
1	SDPID	X'01' Identifies this self-defining parameter as Storage Pool Characteristics
2	SPID	Storage pool identity
3-6	SIZE	Size of this storage pool when empty
7-10	SPACE	Space available in this storage pool
11-n	OBJLIST	Identifiers of objects housed in this storage pool

The content of the Storage Pool Characteristics self-defining parameter is further described as follows:

SIZE Size is the total size of the storage pool in bytes; for example, the size when it contains no objects.

SPACE Space is the amount of storage in the pool remaining in bytes; that is, the amount available to house additional objects.

OBJLIST OBJLIST is a list of the 2-byte identifiers of the objects that are housed in this storage pool. The following identifiers are from the registry of object identifiers:

Object	Identifier
Segment	X'0001'
Procedure	X'0002'
Extended drawing routine	X'0003'
Data unit	X'0004'
Temporary	X'0005'
Line type	X'0006'
Symbol set	X'0007'

Query Reply (Summary)

This section describes the Query Reply (Summary) structured field.

Function

The Query Reply (Summary) structured field provides a list of the device-supported Query Replies (QCODES) that can be used by the host in a Read Partition Query List (QCODE List). All of the QCODES that are supported by the device are included in the Summary Query Reply (except the Null Query Reply QCODE).

This Query Reply is required for SAA support. For more information about SAA, see the list of related publications at the beginning of this book and Appendix E, "Functions Required for Systems Application Architecture (SAA) Support."

The Summary Query Reply must always be sent inbound in reply to a Read Partition structured field specifying Query, or Query List (QCODE List=X'80', Equivalent, or All).

Format

The following table shows the format of the Query Reply (Summary) structured field:

Byte	Content	Content Description
0-1	L	Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'80' Identifies this Query Reply as Summary Query Reply
4-N	LIST	List of supported QCODES

Query Reply (Text Partitions)

This section describes the Query Reply (Text Partitions) structured field.

Function

The Query Reply (Text Partitions) structured field defines the text partition support.

The maximum partition size is the guaranteed size of the text buffer. This means that if the host restricts an outbound text structured field to this size, it is guaranteed to fit in the buffer. However, if the outbound text structured field exceeds this size, it does *not* necessarily mean that the transmission will fail.

When the function is supported, the Query Reply is transmitted inbound in reply to a Read Partition structured field specifying Query or Query List (QCODE List=X'83', Equivalent, or All).

Format

The following table shows the format of the Query Reply (Text Partitions) structured field:

Byte	Bit	Content	Content Description
0-1		L	Length of this structured field
2		SFID	X'81' Identifies this structured field as a Query Reply
3		QCODE	X'83' Identifies this Query Reply as Text Partitions
4		NT	Maximum number of text partitions
5-6		M	Maximum partition size
7		FLAGS	
	0	VERTSCR	B'0' Vertical scrolling not supported B'1' Vertical scrolling supported
	1	RES	Reserved
	2	RES	Reserved
	3	APADDR	B'0' AP addressability not supported B'1' AP addressability supported
	4	PARPROT	B'0' Partition protection not supported B'1' Partition protection supported
	5	RES	Reserved
	6	MODPROT	B'0' Modify partition not supported B'1' Modify partition supported
	7	RES	Reserved
8		NTT	Number of text types supported
9-N		TLIST	List of types supported: X'01' Type 1 Text Others Reserved

Additional Content Description

The content of the Query Reply (Text Partitions) structured field is further described as follows:

NT NT specifies the number of text partitions supported. The range of text PIDs supported is 0 to N-1, where N is the total number of partitions supported. (See also "Query Reply (Alphanumeric Partitions)" on page 6-23.)

FLAGS The scrolling flags indicate whether the device supports vertical scrolling. Support of scrolling implies the following:

- Support for the Set Window Origin structured field with a change of the row.
- Possible support of local window movement by the operator. The operator can move the window from the host-specified position.

The Modify Partition flag indicates whether the device supports the Modify Partition structured field. If the vertical scrolling flag is also set, the Modify Partition structured field can be used to change the window row.

TLIST TLIST is a list of 1-byte values showing which types of text are supported. It has NTT entries, where NTT is the number of text types supported.

Query Reply (Transparency)

This section describes the Query Reply (Transparency) structured field.

Function

The Query Reply (Transparency) structured field identifies the type of transparency supported by the device.

When the function is supported, this form of the Query Reply is transmitted inbound in reply to a Read Partition structured field specifying Query List (QCODE List=X'A8' or All).

Format

The following table shows the format of the Query Reply (Transparency) structured field:

Byte	Content	Content Description
0-1	L	Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'A8' Identifies this Query Reply as Transparency
4	NP	Number of pairs
5	V(I)	Data stream attribute value accepted
6	A(I)	Associated action value
7-N	SFID	Additional V(I)/A(I) pairs as needed

Additional Content Description

The content of the Query Reply (Transparency) structured field is further described as follows:

- NP** The number of value/action pairs in this Query Reply.
- V(I)** The background transparency attribute values valid for this device. For each accepted value, the Query Reply returns an action value that indicates the device action associated with that value.
- A(I)** The valid action values accepted by the device. The action values currently defined are listed in the A(i) parameter. The device actions currently defined for each action value are as follows:

Value	Device Action
X'00'	Default
X'F0'	Normal (background transparent) - OR
X'F1'	Background is transparent - XOR
X'FF'	Non-transparent (opaque).

An action value of X'00' indicates that the device action for the corresponding attribute value is the same as for the default attribute value.

Query Reply (Usable Area)

This section describes the Query Reply (Usable Area) structured field.

Function

The Query Reply (Usable Area) structured field defines the size and other characteristics of the display surface that can be used for partition viewports (*usable area*) independent of the data type. For example, this structured field defines default size of a character cell. It also defines the following:

Character Slot Size

The character slot size, specified in the Character Sets Query Reply, is mapped into the character cell size that is defined in the Usable Area Query Reply.

Variable Character Cell Size

If a device supports variable character cell sizes, an explicit partition's character cell size can be defined by the host in the Create Partition structured field. In this case, the host-specified value overrides the default character cell size described in the Usable Area Query Reply.

Printers

Printers use the fields in the Usable Area Query Reply differently than displays. When a printer uses a field differently than displays, there will be a note to define how the printer uses the field.

If a printer is a page printer, consider the following:

- Print data is not immediately placed on the paper. It resides in a volatile internal storage area, and unexpected losses of power can cause loss of printed data that would print on non-page printers.
- Page printers may have recovery resources that eliminate the need to resend print data after an intervention-required condition.

The Usable Area Query Reply must always be sent inbound in reply to a Read Partition structured field specifying Query or Query List (QCODE List=X'81', Equivalent, or All).

This Query Reply is required for SAA support. For more information about SAA, see the list of related publications at the beginning of this book and Appendix E, "Functions Required for Systems Application Architecture (SAA) Support."

The minimum support for the Usable Area Query Reply consists of the Usable Area Query Reply Base and the self-defining parameters that are appropriate to the device.

The Usable Area Query Reply has three self-defining parameters:

- On Pels Limit
- Multiple Usable Area
- Alternate Usable Area.

Usable Area Query Reply Base

This section describes the Usable Area Query Reply Base.

Format

The following table shows the format of the Usable Area Query Reply Base:

Byte	Bit	Content	Content Description
0-1		L	Length of this structured field
2		SFID	X'81' Identifies this structured field as a Query Reply
3		QCODE	X'81' Identifies this Query Reply as Usable Area
4		FLAGS	
	0	RES	B'0' Reserved
	1	PP	Page printer B'0' Non-page printer B'1' Page printer
	2	RES	B'0' Reserved ¹
	3	HC	Hard copy: B'0' Not a hard copy device B'1' A hard copy device
	4-7	ADDR	Allowable addressing modes for alphanumeric support of the 3270 data stream X'0' Reserved X'1' 12/14-bit addressing allowed X'2' Reserved X'3' 12/14/16-bit addressing allowed X'F' Unmapped (no explicit address)
5		FLAGS	
	0	VCP	Variable cells: B'0' Variable cells not supported B'1' Variable cells supported
	1	CHAR	Characters: B'0' Matrix character B'1' Non-matrix character
	2	CELLUNITS	Cell Units: B'0' Value in bytes 6 and 7, 8 and 9; cells B'1' Value in bytes 6 and 7, 8 and 9; pels
	3-7	RES	B'00000' Reserved
6-7		W	Width of usable area in cells/pels
8-9		H	Height of usable area in cells/pels
10		UNITS	Units of measure of pels / in. or mm. X'00' Inches X'01' Millimeters

Byte	Bit	Content	Content Description
11-14		Xr	Distance between points in X direction as a fraction, measured in UNITS, with 2-byte numerator and 2-byte denominator
15-18		Yr	Distance between points in Y direction as a fraction, measured in UNITS, with 2-byte numerator and 2-byte denominator
19		AW	Number of X units in default cell
20		AH	Number of Y units in default cell
21-22		BUFFSZ	Character buffer size (bytes)
23		XMIN	Minimum number of X units in variable cell (present if VCP flag set)
24		YMIN	Minimum number of Y units in variable cell (present if VCP flag set)
25		XMAX	Maximum number of X units in variable cell (present if VCP flag set)
26		YMAX	Maximum number of Y units in variable cell (present if VCP flag set)
¹ A few early products set this bit to B'1' to indicate that the Outbound 3270DS and Erase/Reset structured fields were not supported.			

Bytes 0 through 20 must always be included in the Usable Area Query Reply Base. Bytes 21 through 26 (parameters BUFFSZ and XMIN, YMIN, XMAX, YMAX) must be present if any self-defining parameters are included. If the parameters are not applicable, then zero values are used for the parameters.

Additional Content Description

The content of the Query Reply (Usable Area) structured field is further described as follows:

- PP** Indicates whether the device is a page printer. A *page printer* is a device that can print only one page at a time. This flag is applicable only if the device is a printer (that is, HC = B'1'). If HC is set to B'0', this flag must be set to B'0'.
- HC** Indicates that this device is a hard copy device (a printer).
- ADDR** Indicates the addressing modes that the device can support. Following are the valid values and a description of each value. All other values are reserved:
- X'0' Reserved

This value was used by the 8100 to indicate 12-bit addressing. All displays and printers must support 12/14-bit addressing mode.
 - X'1' 12/14-bit addressing allowed

When the 12/14-bit addressing mode (outbound) is specified for a partition (Implicit Partition zero is always set to 12/14-bit addressing), bits 0 and 1 of the first address byte following the 3270 order are flag bits and have the following significance:

B'00' 14-bit binary address follows

The next 14 bits (the remainder of this byte and the full 8 bits of the next byte) contain the buffer address in binary form. No address translation is necessary.

B'01' 12-bit coded address follows

The next 14 bits are to be interpreted as a 3270 coded address (6 bits in each byte). The second byte has the first 2 bits as B'01' or B'11'. Otherwise, the data stream is rejected.

B'10' Reserved

Receipt of a buffer address beginning with the flag bits of B'10' cause the data stream to be rejected.

B'11' 12-bit coded address follows

The next 14 bits are to be interpreted as a 3270 coded address (6 bits in each byte). The second byte will have the first 2 bits as B'01' or B'11'. Otherwise, the data stream is rejected.

The rules for an inbound data stream with the 12/14-bit addressing mode are a function of the partition size and are as follows:

- If the partition size is greater than 4096 characters, then all of the addresses are in the 14-bit form.
- If the partition size is equal to or less than 4096 characters, then all of the addresses are in the 12-bit form.

X'2' Reserved

This value indicates 16-bit addressing only.

X'3' 12/14/16-bit addressing allowed. This value is used to support partitions that use the 16-bit addressing. The 16-bit addressing is interpreted as binary values.

For 12/14-bit addressing see X'1' above.

X'F' Unmapped (no explicit address). This value is used to indicate a non-3270 data stream addressing mode (for example, SCS for printers).

VCP Indicates that the device can support different character cell sizes in each partition. Thus, VCP must be B'0' unless the device also supports the Create Partition structured field. If VCP is set to B'1', a character cell size can be specified in the Create Partition structured field when each partition is created. The XMIN, YMIN, XMAX and YMAX parameters of this Query Reply provide the minimum and the maximum valid values for the character cell sizes.

CHAR Indicates whether matrix or non-matrix type characters are supported. (An example of a non-matrix type character would be found on a belt printer.) If this bit is set to B'1', bytes 10 through 20 are not applicable and must be set to zeros.

CELLUNITS

Indicates the unit of measure (character cells or pels) of the W and H parameters, as follows:

B'0' The values in W and H indicate Usable Area width and height in units of character cells.

B'1' The values in W and H indicate Usable Area width and height in units of pels.

W and H Define the size of the usable area for the base display surface.

Thus, the size of the Usable Area in pels is (W x AW) by (H x AH) when Byte 5, bit 2 is B'0' (character cells), or W x H when Byte 5, bit 2 is B'1' (PELs).

Thus, W x H defines the maximum number of characters that can be presented in the Usable Area when characters from a nonloadable alphanumeric character set are written with the 3270 data stream.

For different types of printers, W and H have different meanings:

- For an LU Type 1 printer, W and H are the MPP and the MPL (respectively) supported by the implementation. These values indicate the maximum MPP and MPL that the host can set using the SHF(MPP) and the SVF(MPL) SCS controls. The values reported in the W and H fields are not affected by operator set values on printers that provide operator control (for example, switches). A host selection using SHF or SVF overrides an operator selection.
- For LU Type 3 and non-SNA 3270 printers, the W and H fields have no meaning and are ignored by the host. The W and H fields should be set to zeros.

UNITS Indicates the unit of measure (inches or millimeters) of the Xr and Yr parameters.

Xr and Yr

Give the distance between the pel centers in fractions of the units specified by the UNITS parameter (inches or millimeters). When determined, the numerator and denominator values for Xr and Yr are expressed in a 16-bit (2-byte), positive, hexadecimal number.

If a value for Xr or Yr cannot be determined, then Xr and Yr are set to X'FFFFFFFF' (Xr = X'FFFF' and Yr = X'FFFF'). If the device supports the Load PS Set structured field, then the values for Xr and Yr must not be X'FFFFFFFF'.

For example, if the device has 72.5 pels/inch horizontally, and 69 PELs/inch vertically, then the values returned would be as follows:

UNITS X'00'

Xr X'00020091' (2/145 inch)

Yr X'00010045' (1/69 inch).

AW and AH

Define the default character cell size for the device. If the device supports the Load Programmed Symbol Set structured field and the size of the character cell used for either the default or alternate size of

Implicit Partition Zero is different than (AW, AH), then the Character Cell Dimensions parameter must be returned in the Implicit Partitions Query Reply. If a partition is created without specifying the character cell dimensions (PW, PH), the character cell used by the display must be of size (AW, AH).

BUFFSZ Defines the amount of character buffer available. It applies only to a device that does not support partitions. If the device supports partitions, the Alphanumeric Partitions Query Reply defines the buffer size, and the BUFFSZ parameter is set to zero.

If there are no self-defining parameters, no variable character cell parameters, and the BUFFSZ parameter is not applicable, then both the BUFFSZ and the XMIN, YMIN, XMAX, YMAX can be omitted.

For different types of printers, BUFFSZ has different meanings:

- For LU Type 1, the BUFFSZ parameter is not applicable and should be set to X'0000'.
- For LU Type 3 and non-SNA 3270 Printers, the Implicit Partition Query Reply provides the buffer wrap points associated with the default and alternate buffer sizes. The BUFFSZ parameter is redundant. The value used in BUFFSZ is the same as that in the Implicit Partition Query Reply for Alternate Printer Buffer Size (APBS).

XMIN, YMIN, XMAX, YMAX

Define the limits of character cell size that can be specified in the Create Partition structured field when the device supports different size cells in each partition.

If there are no self-defining parameters and no variable character cell parameters, then the XMIN, YMIN, XMAX, YMAX parameters can be omitted. The parameters XMIN, YMIN, XMAX, YMAX are treated as one parameter (that is, if there is a value for XMIN, then there are values for YMIN, XMAX, YMAX).

On Pels Limit Self-Defining Parameter

The On Pels Limit self-defining parameter informs the host application of the percentage of pels that can be on at the same time.

If the device has no limit (100% of the pels on at the same time), then the device does not have to send this self-defining parameter.

The On Pels Limit self-defining parameter is required when the device has a limit for how many pels may be on at the same time.

The following table shows the format of the On Pels Limit self-defining parameter:

Byte	Content	Content Description
0	L	X'03' Length of this self-defining parameter
1	SDPID	X'01' Identifies this self-defining parameter as On Pels Limit
2	PERCENT	Percent of pels allowed on at a time

The content of the On Pels Limit self-defining parameter is further described as follows:

PERCENT

Indicates the percentage of the available pels, reported in the Usable Area Query Reply Base, that can be on at the same time. The PERCENT parameter gives the percentage as a hexadecimal value. Valid values are X'01' through X'64' (1 through 100 percent). For example, if the limit is 31%, the value of the parameter is X'1F'.

Exceeding the reported limit can result in the loss of displayed information.

Multiple Usable Area Self-Defining Parameter

The Multiple Usable Area self-defining parameter informs the host application of the presence of multiple (two or more), separate and independent display surfaces and what data types are to be viewed on each surface. If the device has only a single display surface, then the Multiple Usable Area self-defining parameter is not returned to the host application, and all of the data types supported by the device are displayed on the single display surface.

When the Multiple Usable Area self-defining parameter is included in the Usable Area Query Reply, the following apply:

- The existence of multiple display surfaces has no effect on the host data stream.
- The Usable Area Query Reply Base reports the usable area for alphanumeric (A/N) data and every data type not reported in a Multiple Usable Area self-defining parameter.
- Each instance of the Multiple Usable Area self-defining parameter must have only one unique data type (DATATYPE) parameter.
- The routing of data to the multiple display surfaces is done by data type. Therefore, each data type can only occur once per logical terminal.
- When a partition is created in the Multiple Usable Area environment, the device creates the viewports for each of the display surfaces. The viewport for the Alphanumeric partition is defined (size and position) in the Create Partition structured field. The size and position of the viewports for the other display surfaces is determined by the device using the data in the Create Partition structured field and the data in the Usable Area Query Reply.

The Multiple Usable Area self-defining parameter is always required when the device supports multiple, separate, and independent display surfaces.

Note: Printers cannot use the Multiple Usable Area self-defining parameter.

The following table shows the format of the Multiple Usable Area self-defining parameter:

Byte	Bit	Content	Content Description
0		L	X'13' Length of this self-defining parameter
1		SDPID	X'03' Identifies this self-defining parameter as Multiple Usable Area
2		RES	X'00' Reserved - must be set to zero
3		FLAGS	
	0-1	RES	B'00' Reserved
	2	CELLUNITS	Cell units
			B'0' Value in bytes 4-5, 6-7 in cells
			B'1' Value in bytes 4-5, 6-7 in pels
	3	RES	B'0' Reserved
	4-7	DATATYPE	Data types presented on Usable Area
			B'0001' Reserved ¹
			B'0010' Graphic data type
			Others Reserved
4-5		WG	Width of Multiple Usable Area
6-7		HG	Height of Multiple Usable Area
8		UNITS	Units of measure of pels/in or mm
			X'00' Inches
			X'01' Millimeters
9-12		Xr	Distance between points in X direction as a fraction measured in UNITS, with 2-byte numerator and 2-byte denominator
13-16		Yr	Distance between points in Y direction as a fraction measured in UNITS, with 2-byte numerator and 2-byte denominator
17		AW	Number of X units in default cell
18		AH	Number of Y units in default cell
¹ Previously, this value was used to indicate an alphanumeric data type.			

The content of the Multiple Usable Area self-defining parameter is further described as follows:

CELLUNITS

Indicates the unit of measure (character cells or pels) of the WG and HG parameters (see the Usable Area Query Reply Base CELLUNITS parameter).

DATATYPE

Indicates which type of data is presented on this multiple display surface.

WG and HG

Define the size of the usable area for this multiple display surface (see the Usable Area Query Reply Base W and H parameters).

UNITS

Indicates the unit of measure (inches or millimeters) of the Xr and Yr parameters.

Xr and Yr

Give the distance between the pel centers in fractions of the units specified by the UNITS parameter (inches or millimeters). The numerator and denominator values for Xr and Yr are expressed in a 16-bit (2-byte), positive, hexadecimal number.

If Xr and Yr cannot be determined, X'FFFFFFFF' is returned for both. Xr and Yr must not be X'FFFFFFFF' for a device that supports the Load Programmed Symbol Set structured field. (See the Usable Area Query Reply Base Xr and Yr parameters.)

AW and AH

Define the default character cell size for this multiple display surface. (See the Usable Area Query Reply Base AW and AH parameters.)

Alternate Usable Area Self-Defining Parameter

The Alternate Usable Area self-defining parameter is present only for devices that support more than one usable area size on one display surface.

For example, a physical device such as the 3180 has the capability to display up to 43 rows and up to 132 columns, but not concurrently. The device could report 43 rows and 80 columns (Model 4) in the Usable Area Query Reply Base and 27 rows and 132 columns (Model 5) in the Alternate Usable Area self-defining parameter.

The Alternate Usable Area self-defining parameter is limited to a single partition implementation. When the Alternate Usable Area self-defining parameter is used and the device receives a Create Partition structured field, the following apply:

- If the defined viewport fits within the usable area defined in the Usable Area Query Reply Base, then that usable area is used.
- If the defined viewport does not fit in the usable area defined in the Usable Area Query Reply Base, then the usable area defined in the Alternate Usable Area self-defining parameter is tried. If the viewport fits, that usable area is used.
- If the viewport does not fit in either usable area, then the Create Partition structured field is rejected.

Note: The Alternate Usable Area self-defining parameter cannot be used for printers.

The Alternate Usable Area self-defining parameter is always required when the device supports more than one usable area size on one display surface.

For devices that support the Load PS Set structured field, bytes 8 through 18 must be supplied so that the host application can determine the correct character cell size.

The following table shows the format of the Alternate Usable Area self-defining parameter:

Byte	Content	Content Description
0	L	X'13' Length of this self-defining parameter
1	SDPID	X'02' Identifies this self-defining parameter as Alternate Usable Area
2	RES	X'00' Reserved - must be set to zero
3	AUAID	Alternate Usable Area ID X'01' Identifier for the Alternate Usable Area X'FE' Reserved values
4-5	WAUAI	Width of AUAI
6-7	HAUAI	Height of AUAI
8	AUAUNITS	Units of measure X'00' Inches X'01' Millimeters
9-12	AUAXr	Distance between points in X direction as a fraction, measured in AUAUNITS, with 2-byte numerator and 2-byte denominator.
13-16	AUAYr	Distance between points in Y direction as a fraction, measured in AUAUNITS, with 2-byte numerator and 2-byte denominator
17	AWAUAI	Number of X units in default cell
18	AHAUAI	Number of Y units in default cell

The content of the Alternate Usable Area self-defining parameter is further described as follows:

WAUAI and HAUAI

Define the size of the usable area for the alternate display surface (see the Usable Area Query Reply Base W and H parameters). The units of WAUAI and HAUAI are the CELLUNITS defined in the Usable Area Query Reply Base.

AUAUNITS

Indicates the unit of measure (inches or millimeters) of the AUAXr and AUAYr parameters.

AUAXr and AUAYr

Give the distance between the 'pel centers' in fractions of the units specified by the AUAUNITS parameter (inches or millimeters). The numerator and denominator values for Xr and Yr are expressed in a 16 bit (2 byte), positive, hexadecimal number.

If the device is unable to determine Xr and Yr, X'FFFFFFFF' is returned for both. Xr and Yr must not be X'FFFFFFFF' for a device that supports the Load Programmed Symbol Set structured field. (See the Usable Area Query Reply Base Xr and Yr parameters.)

AWAUAI and AHUAI

Define the default character cell size for the alternate display surface (see the Usable Area Query Reply Base AW and AH parameters).

Query Reply (3270 IPDS)

This section describes the Query Reply (3270 IPDS) structured field.

Function

The Query Reply (3270 IPDS) structured field indicates support of the Intelligent Printer Data Stream (IPDS) through the 3270 data stream (non-SNA).

When this function is supported, the Query Reply is transmitted inbound in reply to a Read Partition structured field specifying Query or Query List (QCODE = X'9A', Equivalent or All).

Format

The following table shows the format of the Query Reply (3270 IPDS) structured field:

Byte	Content	Content Description
0-1	L	X'0008' Length of this structured field
2	SFID	X'81' Identifies this structured field as a Query Reply
3	QCODE	X'9A' Identifies this Query Reply as 3270 IPDS
4-5	FLAGS	Reserved
6-7	TRANLIM	Maximum transmission size allowed outbound. It specifies the maximum number of bytes of IPDS data allowed in an outbound transmission. A value of X'0000' indicates no limit specified.