

Electronic Data Interchange

EDI 214

Carrier Shipment Status Message

Version 006010

Document Version: 1.1



214 Carrier Shipment Status Message – Introduction

Logico uses the EDI 214 in order to track the shipment from the origin (ship-from) location to the destination (ship-to) location. The EDI 214 must contain the status information of the shipment including current location and any exceptions (OS&D, behind schedule, etc.).

Functional Acknowledgement

Logico will respond to each EDI 214 with an EDI 997. Logico requires that the carrier receive and reconcile all EDI 997's. In the event that a 997 is not received within one hour of the 214 transmission, contact Logico operations to verify that your EDI 214 has been received and processed.

Valid Values

Throughout this specification various element definitions may contain a list of valid values (codes). If a list of codes is provided in this document, or if the user is directed to a relevant appendix, that is to be interpreted to mean that only those codes will be considered valid and any other codes will cause the file to be rejected.

EDI 214 Examples:

The first example is a status message transmitted for a load which contains two shipments (BOLs) that were picked up at the same location at the same time. Notice how the message has two LX loops (one for each shipment id / bill of lading) where the shipment id, bill of lading, quantity and weight are different from one another.

Pickup (2 BOLs)

```
ISA*00*                *00*                *32*351538247          *32*300237446
*121206*1142*U*00601*000001200*1*T*>~
GS*SM*351538247*300237446*20121206*1142*1200*X*006010~
ST*214*12000001~
B10*112233*317749*BWEM~
LX*1~
L11*614587*SI~
L11*123456*BM~
L11*1*QN~
AT8*FR*L*22065*14025*18~
AT7*AF****20121206*1142*LT~
MS1*DETROIT*MI*USA*****48216~
MS2**55122*53~
N1*SF*Company X*94*1009~
LX*2~
L11*614588*SI~
L11*123457*BM~
L11*2*QN~
AT8*FR*L*5874*502*8~
AT7*AF****20121206*1142*LT~
```

MS1*DETROIT*MI*USA*****48216~
MS2**55122*53~
N1*SF*Company X*94*1009~
SE*21*12000001~
GE*1*1200~
IEA*1*000001200~

The second example is a status message transmitted for the same load. This message is reporting the delivery of one of the shipments. Notice how the message has only one LX loop. It is assumed an additional status message would be transmitted reporting the delivery of the second shipment to a different location at a different time.

Delivery (1 BOL)

ISA*00* *00* *32*351538247 *32*300237446
*121206*1142*U*00601*000001200*1*T*>~
GS*SM*351538247*300237446*20121206*1142*1200*X*006010~
ST*214*12000001~
B10*112233*317749*BWEM~
LX*1~
L11*614587*SI~
L11*123456*BM~
L11*1*QN~
AT8*FR*L*22065*14025*18~
AT7*D1*****20121206*1142*LT~
MS1*ROCKFORD*IL*USA*****61101~
MS2**55122*53~
N1*ST*Company Y*94*1008~
SE*12*12000001~
GE*1*1200~
IEA*1*000001200~

The third example is an in-transit update status message transmitted for a load that contains two shipments (BOLs). The message is reporting the current location of the load containing both shipments.

In-Transit (2 BOLs)

ISA*00* *00* *32*351538247 *32*300237446
*121206*1142*U*00601*000001200*1*T*>~
GS*SM*351538247*300237446*20121206*1142*1200*X*006010~
ST*214*12000001~
B10*112233*317749*BWEM~
LX*1~
L11*614587*SI~
L11*123456*BM~
L11*1*QN~
AT8*FR*L*22065*14025*18~
AT7*X6*****20121206*1142*LT~
MS1*LANSING*MI*USA*0427121*0846108*W*N*48917~
MS2**55122*53~
LX*2~
L11*614588*SI~

L11*123457*BM~
L11*2*QN~
AT8*FR*L*5874*502*8~
AT7*x6****20121206*1142*LT~
MS1*LANSING*MI*USA*0427121*0846108*W*N*48917~
MS2**55122*53~
SE*19*12000001~
GE*1*1200~
IEA*1*000001200~

The fourth example is a status message transmitted for a load which has been delayed. Notice how comments (K1) are included along with the applicable reason code for the delay (AT7 segment – AI).

Delayed

ISA*00* *00* *32*351538247 *32*300237446
*121206*1142*U*00601*000001200*1*T*>~
GS*SM*351538247*300237446*20121206*1142*1200*X*006010~
ST*214*12000001~
B10*112233*317749*BWEM**ZH*445566~
MS3*SEFL*1*DETROIT*LT*MI~
LX*1~
L11*614587*SI~
L11*123456*BM~
L11*1*QN~
K1*This is a remark*that continues here~
AT8*FR*L*22065*14025*18~
AT7*SD*AI***20121206*1142*LT~
MS1*DETROIT*MI*USA*****48216~
MS2**55122*53~
N1*SF*Company X*94*1009~
SE*14*12000001~
GE*1*1200~
IEA*1*000001200~

214

Transportation Carrier Shipment Status Message

Not Define:

Pos	Id	Segment Name	Req	Max Use	Repeat	Notes	Usage
	ISA	Interchange Control Header	M	1			Must Use
	GS	Functional Group Header	M	1			Must Use

Heading:

Pos	Id	Segment Name	Req	Max Use	Repeat	Notes	Usage
100	ST	Transaction Set Header	M	1			Must Use
200	B10	Beginning Segment for Transportation Carrier Shipment Status Message	M	1			Must Use
300	MS3	Interline Information	O	12			Used

Detail:

Pos	Id	Segment Name	Req	Max Use	Repeat	Notes	Usage
LOOP ID _ LX					999999		
100	LX	Transaction Set Line Number	M	1			Must Use
200	L11	Business Instructions and Reference Number	M	999			Must Use
400	Q7	Lading Exception Status	O	10			Used
500	K1	Remarks	O	10			Used
700	AT8	Shipment Weight, Packaging and Quantity Data	O	10			Used
LOOP ID _ AT7					10		
800	AT7	Shipment Status Details	M	1			Must Use
900	MS1	Equipment, Shipment, or Real Property Location	M	1			Must Use
1000	MS2	Equipment or Container Owner and Type	O	2			Used
LOOP ID _ N1					5		

1300	N1	Party Identification	O	1			Used	
2100	SE	Transaction Set Trailer	M	1			Must Use	

Summary:

<u>Pos</u>	<u>Id</u>	<u>Segment Name</u>	<u>Req</u>	<u>Max Use</u>	<u>Repeat</u>	<u>Notes</u>	<u>Usage</u>

Not Define:

	GE	Functional Group Header	M	1			Must Use
	IEA	Interchange Control Trailer	M	1			Must Use

ISA

Interchange Control Header

Pos:	Max: 1
Not Defined - Mandatory	
Loop: N/A	Elements: 16

Used

To start and identify an interchange of zero or more functional groups and interchange-related control segments.

Element Summary:

Ref	Id	Element Name	Req	Type	Min/Max	Usage								
ISA01	I01	Authorization Information Qualifier	M	ID	2/2	Must use								
		Description: Code to identify the type of information in the Authorization Information.												
ISA02	I02	Authorization Information	M	AN	10/10	Must use								
		Description: Information used for additional identification or authorization of the interchange sender or the data in the interchange; the type of information is set by the Authorization Information Qualifier (I01).												
ISA03	I03	Security Information Qualifier	M	ID	2/2	Must use								
		Description: Code to identify the type of information in the Security Information.												
ISA04	I04	Security Information	M	AN	10/10	Must use								
		Description: This is used for identifying the security information about the interchange sender or the data in the interchange; the type of information is set by the Security Information Qualifier (I03).												
ISA05	I05	Interchange Sender ID Qualifier	M	ID	2/2	Must use								
		<table border="1"> <thead> <tr> <th>Code</th> <th>Purpose</th> </tr> </thead> <tbody> <tr> <td>02</td> <td>SCAC (Standard Carrier Alpha Code)</td> </tr> <tr> <td>32</td> <td>U.S. Federal Employer Identification Number (FEIN)</td> </tr> <tr> <td>ZZ</td> <td>Mutually Defined</td> </tr> </tbody> </table>	Code	Purpose	02	SCAC (Standard Carrier Alpha Code)	32	U.S. Federal Employer Identification Number (FEIN)	ZZ	Mutually Defined				
Code	Purpose													
02	SCAC (Standard Carrier Alpha Code)													
32	U.S. Federal Employer Identification Number (FEIN)													
ZZ	Mutually Defined													
		Description: Qualifier to designate the system/method of code structure used to designate the sender or receiver ID element being qualified.												
ISA06	I06	Interchange Sender ID	M	AN	15/15	Must use								
		Description: Identification code published by the sender for other parties to use as the receiver ID to route data to them; the sender always codes this value in the sender ID element												
ISA07	I07	Interchange Receiver ID Qualifier	M	ID	2/2	Must use								
		Description: Qualifier to designate the system/method of code structure used to designate the sender or receiver ID element being qualified												
ISA08	I08	Interchange Receiver ID	M	AN	15/15	Must use								
		Description: Identification code published by the receiver of the data; When												

		sending, it is used by the sender as their sending ID, thus other parties sending to them will use this as a receiving ID to route data to them				
ISA09	I09	Interchange Date	M	DT	6/6	Must use
		Description: Date of the interchange				
ISA10	I10	Interchange Time	M	TM	4/4	Must use
		Description: Time of the interchange				
ISA11	I11	Interchange Control Standards Identifier	M	ID	1/1	Must use
		Description: Code to identify the agency responsible for the control standard used by the message that is enclosed by the interchange header and trailer				
ISA12	I12	Interchange Control Version Number	M	ID	5/5	Must use
		Description: Code specifying the version number of the interchange control segments				
ISA13	I13	Interchange Control Number	M	N0	9/9	Must use
		Description: A control number assigned by the interchange sender				
ISA14	I14	Acknowledgment Requested	M	ID	1/1	Must use
		Description: Code sent by the sender to request an interchange acknowledgment (TA1)				
ISA15	I15	Usage Indicator	M	ID	1/1	Must use
		Description: Code to indicate whether data enclosed by this interchange envelope is test, production or information 'P' for Production, 'T' for Test.				
ISA16	I16	Component Element Separator	M		1/1	Must use
		Description: Type is not applicable; the component element separator is a delimiter and not a data element; this field provides the delimiter used to separate component data elements within a composite data structure; this value must be different than the data element separator and the segment terminator				

GS

Functional Group Header

Pos:	Max: 1
Not Defined - Mandatory	
Loop: N/A	Elements: 8

Used

To indicate the beginning of a functional group and to provide control information.

Element Summary:

Ref	Id	Element Name	Req	Type	Min/Max	Usage
GS01	GS01	Functional Identifier Coder	M	ID	2/2	Must use
		Description: Code identifying a group of application related transaction sets				
GS02	GS02	Application Sender's Code	M	AN	2/15	Must use
		Description: Code identifying party sending transmission; codes agreed to by trading partners				
GS03	GS03	Application Receiver's Code	M	AN	2/15	Must use
		Description: Code identifying party receiving transmission; codes agreed to by trading partners				
GS04	GS04	Date	M	DT	8/8	Must use
		Description: Date expressed as YYYYMMDD				
GS05	GS05	Time	M	TM	4/8	Must use
		Description: Time expressed in 24-hour clock time as follows: HHMM, or HHMMSS, or HHMMSSD, or HHMMSSDD, where H = hours (00-23), M = minutes (00-59), S = integer seconds (00-59) and DD = decimal seconds; decimal seconds are expressed as follows: D = tenths (0-9) and DD = hundredths (00-99)				
GS06	GS06	Group Control Number	M	N0	1/9	Must use
		Description: Assigned number originated and maintained by the sender				
GS07	GS07	Responsible Agency Code	M	ID	1/2	Must use
		Description: Code identifying the issuer of the standard; this code is used in conjunction with Data Element 480				
GS08	GS08	Version / Release / Industry Identifier Code	M	AN	1/12	Must use
		Description: Code indicating the version, release, subrelease, and industry identifier of the EDI standard being used, including the GS and GE segments; if code in DE455 in GS segment is X, then in DE 480 positions 1-3 are the version number; positions 4-6 are the release and subrelease, level of the version; and positions 7-12 are the industry or trade association identifiers (optionally assigned by user); if code in DE455 in GS segment is T, then other formats are allowed				

ST

Transaction Set Header

Pos: 100	Max: 1
Header - Mandatory	
Loop: N/A	Elements: 2

*See ASC X12 Nomenclature, to review the transaction set structure, including descriptions of segments, data elements, levels, and loops

Used

To indicate the start of a transaction set and to assign a control number.

Element Summary:

<u>Ref</u>	<u>Id</u>	<u>Element Name</u>	<u>Req</u>	<u>Type</u>	<u>Min/Max</u>	<u>Usage</u>
ST001	143	Transaction Set Identifier Code	M/Z	ID	3/3	Used
		Code Purpose 214 Transportation Carrier Shipment Status Message				
		Description: Code identifying a Transaction Set				
ST002	329	Transaction Set Control Number	M	AN	4/9	Must use
		Description: Identifying control number that must be unique within the transaction set functional group assigned by the originator for a transaction set.				

B10 Beginning Segment for Transportation Carrier Shipment Status Message

Pos: 200	Max: 1
Header - Mandatory	
Loop: N/A	Elements: 5

Used

To transmit identifying numbers and other basic data relating to the transaction set.

Element Summary:

Ref	Id	Element Name	Req	Type	Min/Max	Usage
B10001	127	Reference Identification	M	AN	1/80	Must use
		Description: The carrier assigned reference number. The carrier PRO number (CN). Must match the value transmitted on the EDI 990 L11 001.				
B10002	145	Shipment Identification Number	M	AN	1/30	Must use
		Description: Identification number assigned to the load by the tendering party that uniquely identifies the load from origin to ultimate destination and is not subject to modification. The Logico Load ID. Must match the Load ID issued on the EDI 204 B2 004.				
B10003	140	Standard Carrier Alpha Code	M	ID	2/4	Must use
		Description: Must match the SCAC issued on the EDI 204 B2 002.				
B10005	128	Reference Identification Qualifier	X	ID	2/3	Used
		Code Purpose ZH Carrier Assigned Reference Number				
		Description: ZH = The interline carrier PRO number. If either B10 005 or B10 006 is present, then the other is required.				
B10006	127	Reference Identification	X	AN	1/80	Used
		Description: The interline carrier PRO number. If an interline carrier is being used then you must report the interline carrier pro number here with a ZH qualifier.				

MS3 Interline Information

Pos: 300	Max: 12
Header - Optional	
Loop: N/A	Elements: 5

Used

To identify the interline carrier and relevant data.

Element Summary:

Ref	Id	Element Name	Req	Type	Min/Max	Usage										
MS3001	140	Standard Carrier Alpha Code	M/Z	ID	2/4	Used										
		Description: SCAC for the interline carrier. Must NOT be equal to SCAC transmitted in EDI 214 B10 003.														
MS3002	133	Routing Sequence Code	M	ID	1/2	Must use										
		<table border="1"> <thead> <tr> <th>Code</th> <th>Purpose</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1st Carrier after Origin Carrier</td> </tr> <tr> <td>2</td> <td>2nd Carrier after Origin Carrier</td> </tr> <tr> <td>3</td> <td>3rd Carrier after Origin Carrier</td> </tr> <tr> <td>4</td> <td>4th Carrier after Origin Carrier</td> </tr> </tbody> </table>	Code	Purpose	1	1st Carrier after Origin Carrier	2	2nd Carrier after Origin Carrier	3	3rd Carrier after Origin Carrier	4	4th Carrier after Origin Carrier				
Code	Purpose															
1	1st Carrier after Origin Carrier															
2	2nd Carrier after Origin Carrier															
3	3rd Carrier after Origin Carrier															
4	4th Carrier after Origin Carrier															
		Description: Code specifying the relationship of a carrier to a specific shipment movement.														
MS3003	19	City Name	X/Z	AN	2/30	Used										
		Description: Free-form text for city name. The city where the interline transfer occurred. If MS3 001 is present, then MS3 003 is required.														
MS3004	91	Transportation Method/Type Code	O	ID	1/2	Used										
		<table border="1"> <thead> <tr> <th>Code</th> <th>Purpose</th> </tr> </thead> <tbody> <tr> <td>LT</td> <td>Less Than Trailer Load (LTL)</td> </tr> <tr> <td>L</td> <td>Contract Carrier</td> </tr> </tbody> </table>	Code	Purpose	LT	Less Than Trailer Load (LTL)	L	Contract Carrier								
Code	Purpose															
LT	Less Than Trailer Load (LTL)															
L	Contract Carrier															
		Description: L = Truckload LT = Less Than Truckload														
MS3005	156	State or Province Code	C	ID	2/2	Used										
		Description: Code specifying the Standard State/Province as defined by appropriate government agency. The state/province where the interline transfer occurred. If MS3 003 or MS 005 is present, then the other is required.														

LX

Transaction Set Line Number

Pos: 100	Max: 1
Detail - Mandatory	
Loop: LX	Elements: 1

Used

To reference a line number in a transaction set.

Element Summary:

<u>Ref</u>	<u>Id</u>	<u>Element Name</u>	<u>Req</u>	<u>Type</u>	<u>Min/Max</u>	<u>Usage</u>
LX001	554	Assigned Number	M	N0	1/6	Must use
		Description: Number assigned for differentiation within a transaction set. The first LX 001 value must be 1 and subsequent LX 001's must increment by 1. Each LX Loop may contain only one set of detail segments within it (with the exception of the L11 segment). Each LX Loop must contain, at a minimum, two L11 segments.				

L11

Business Instructions and Reference Number

Pos: 200	Max: 999
Detail - Mandatory	
Loop: LX	Elements: 2

Used

To specify instructions or reference numbers pertaining to the specified stop (shipment) on a load.

Element Summary:

Ref	Id	Element Name	Req	Type	Min/Max	Usage								
L11001	127	Reference Identification	M	AN	1/80	Must use								
		Description: The SI was issued on the EDI 204 S5 Loop, L11 001 (SI qualifier) and is mandatory for all status messages. The QN was issued on the EDI 204 S5 Loop, S5 001 and is mandatory for all status messages. The BM must be provided on the AF (Departed Pickup Location) status message.												
L11002	128	Reference Identification Qualifier	M	ID	2/3	Must use								
		<table border="1"><thead><tr><th>Code</th><th>Purpose</th></tr></thead><tbody><tr><td>BM</td><td>Bill of Lading Number</td></tr><tr><td>SI</td><td>Shipper's Identifying Number for Shipment (SID)</td></tr><tr><td>QN</td><td>Stop Sequence Number</td></tr></tbody></table>	Code	Purpose	BM	Bill of Lading Number	SI	Shipper's Identifying Number for Shipment (SID)	QN	Stop Sequence Number				
Code	Purpose													
BM	Bill of Lading Number													
SI	Shipper's Identifying Number for Shipment (SID)													
QN	Stop Sequence Number													
		Description: SI = The Logico Shipment Identifier. BM = The shipper's bill of lading number. QN = The stop sequence number.												

Q7

Lading Exception Status

Pos: 400	Max: 10
Detail - Optional	
Loop: LX	Elements: 3

Used

To specify the status of the shipment in terms of lading exception information.

There can only be one Q7 segment per LX Loop.

The Q7 segment is only required if the carrier is reporting a lading exception (overage, shortage, or damage).

Element Summary:

Ref	Id	Element Name	Req	Type	Min/Max	Usage																										
Q7001	33	Lading Exception Code	M	ID	1/1	Must use																										
		<table border="1"> <thead> <tr> <th>Code</th> <th>Purpose</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>All Short</td> </tr> <tr> <td>D</td> <td>Damaged</td> </tr> <tr> <td>O</td> <td>Overage</td> </tr> </tbody> </table>	Code	Purpose	A	All Short	D	Damaged	O	Overage																						
Code	Purpose																															
A	All Short																															
D	Damaged																															
O	Overage																															
		Description: Code indicating the condition of the shipment.																														
Q7002	211	Packaging Form Code	M	ID	3/3	Must use																										
		<table border="1"> <thead> <tr> <th>Code</th> <th>Purpose</th> </tr> </thead> <tbody> <tr> <td>BDL</td> <td>Bundle</td> </tr> <tr> <td>BIN</td> <td>Bin</td> </tr> <tr> <td>BOX</td> <td>Box</td> </tr> <tr> <td>CNT</td> <td>Container</td> </tr> <tr> <td>CRT</td> <td>Crate</td> </tr> <tr> <td>DRM</td> <td>Drum</td> </tr> <tr> <td>LSE</td> <td>Loose</td> </tr> <tr> <td>PCS</td> <td>Pieces</td> </tr> <tr> <td>PLT</td> <td>Pallet</td> </tr> <tr> <td>RCK</td> <td>Rack</td> </tr> <tr> <td>ROL</td> <td>Roll</td> </tr> <tr> <td>TBN</td> <td>Tote Bin</td> </tr> </tbody> </table>	Code	Purpose	BDL	Bundle	BIN	Bin	BOX	Box	CNT	Container	CRT	Crate	DRM	Drum	LSE	Loose	PCS	Pieces	PLT	Pallet	RCK	Rack	ROL	Roll	TBN	Tote Bin				
Code	Purpose																															
BDL	Bundle																															
BIN	Bin																															
BOX	Box																															
CNT	Container																															
CRT	Crate																															
DRM	Drum																															
LSE	Loose																															
PCS	Pieces																															
PLT	Pallet																															
RCK	Rack																															
ROL	Roll																															
TBN	Tote Bin																															
		Description: Code specifying the packaging form of the lading quantity.																														
Q7003	80	Lading Quantity	M	N0	1/7	Must use																										
		Description: Number of units of the lading commodity expressed in the packaging form code.																														

K1

Remarks

Pos: 500	Max: 10
Detail - Optional	
Loop: LX	Elements: 2

Used

To transmit information in a free-form text format for comment or special instructions.

There can only be one K1 segment per LX Loop.

Element Summary:

<u>Ref</u>	<u>Id</u>	<u>Element Name</u>	<u>Req</u>	<u>Type</u>	<u>Min/Max</u>	<u>Usage</u>
K1001	61	Free-form Information	M	AN	1/30	Must use
		Description: Free-form text.				
K1002	61	Free-form Information	O	AN	1/30	Used
		Description: Free-form text.				

AT8 Shipment Weight, Packaging and Quantity Data

Pos: 700	Max: 10
Detail - Optional	
Loop: LX	Elements: 5

Used

To specify shipment details in terms of total weight, and total quantity of pieces and handling units.

There can only be one AT8 segment per LX Loop.

The AT8 segment must be included on AF (Departed Pickup Location with shipment) status messages.

Element Summary:

Ref	Id	Element Name	Req	Type	Min/Max	Usage
AT8001	187	Weight Qualifier	M	ID	1/2	Must use
		Code Purpose				
		FR Freight Weight				
		Description: Code specifying the type of weight.				
AT8002	188	Weight Unit Code	M	ID	1/1	Must use
		Code Purpose				
		K Kilograms				
		L Pounds				
		Description: Code specifying the weight unit.				
AT8003	81	Weight	M	RD	1/10	Must use
		Description: Numeric value of weight. The total weight of the shipment.				
AT8004	80	Lading Quantity	M	N0	1/7	Must use
		Description: The total number of units (pieces) for the shipment. If unknown, set equal to the number of shipping containers/handling units (AT8 005).				
AT8005	80	Lading Quantity	M	N0	1/7	Must use
		Description: The total number of shipping containers/handling units (e.g. pallets, racks, etc.) for the shipment.				

AT7 Shipment Status Details

Pos: 800	Max: 1
Detail - Mandatory	
Loop: AT7	Elements: 5

Used

To specify the status of a shipment, the reason for that status, the date and time of the status, and the date and time of any appointments scheduled.

There can only be one AT7 segment per LX loop.

At a minimum, AF and D1 statuses must be provided for every shipment (bill of lading).

Carriers must also report in-transit updates (X6) at a minimum of every one hour for any load with a transit time greater than or equal to two hours.

Any shipment that will be delivered after the scheduled delivery date/time, as specified on the EDI 204, MUST be reported ASAP with an SD status indicator (AT7 001).

Element Summary:

Ref	Id	Element Name	Req	Type	Min/Max	Usage																										
AT7001	1650	Shipment Status Indicator	M	ID	2/2	Must use																										
		<table border="1"> <thead> <tr> <th>Code</th> <th>Purpose</th> </tr> </thead> <tbody> <tr> <td>A9</td> <td>Shipment Damaged</td> </tr> <tr> <td>AF</td> <td>Carrier Departed Pickup Location with Shipment</td> </tr> <tr> <td>D1</td> <td>Completed Unloading at Delivery Location</td> </tr> <tr> <td>SD</td> <td>Shipment Delayed</td> </tr> <tr> <td>X1</td> <td>Arrived at Delivery Location</td> </tr> <tr> <td>X3</td> <td>Arrived at Pickup Location</td> </tr> <tr> <td>X6</td> <td>En Route to Delivery Location</td> </tr> </tbody> </table>	Code	Purpose	A9	Shipment Damaged	AF	Carrier Departed Pickup Location with Shipment	D1	Completed Unloading at Delivery Location	SD	Shipment Delayed	X1	Arrived at Delivery Location	X3	Arrived at Pickup Location	X6	En Route to Delivery Location														
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X6	En Route to Delivery Location																															
		Description: Code indicating the status of a shipment.																														
AT7002	1651	Shipment Status or Appointment Reason Code	C	ID	2/2	Used																										
		<table border="1"> <thead> <tr> <th>Code</th> <th>Purpose</th> </tr> </thead> <tbody> <tr> <td>A5</td> <td>Unable to Locate</td> </tr> <tr> <td>AF</td> <td>Accident</td> </tr> <tr> <td>AI</td> <td>Mechanical Breakdown</td> </tr> <tr> <td>AO</td> <td>Weather or Natural Disaster Related</td> </tr> <tr> <td>D1</td> <td>Carrier Dispatch Error</td> </tr> <tr> <td>B1</td> <td>Consignee Closed</td> </tr> <tr> <td>BB</td> <td>Held per Shipper</td> </tr> <tr> <td>BE</td> <td>Road Conditions</td> </tr> <tr> <td>B5</td> <td>Held for Consignee</td> </tr> <tr> <td>BS</td> <td>Refused by Customer</td> </tr> <tr> <td>AS</td> <td>Hold Due to Customs Documentation Problems</td> </tr> <tr> <td>P2</td> <td>Waiting Inspection</td> </tr> </tbody> </table>	Code	Purpose	A5	Unable to Locate	AF	Accident	AI	Mechanical Breakdown	AO	Weather or Natural Disaster Related	D1	Carrier Dispatch Error	B1	Consignee Closed	BB	Held per Shipper	BE	Road Conditions	B5	Held for Consignee	BS	Refused by Customer	AS	Hold Due to Customs Documentation Problems	P2	Waiting Inspection				
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B5	Held for Consignee																															
BS	Refused by Customer																															
AS	Hold Due to Customs Documentation Problems																															
P2	Waiting Inspection																															
		Description: Code indicating the reason a shipment status was transmitted. If the shipment is being reported as delayed (AT7 001 = SD), then AT7 002 is required.																														

AT7005	373	Date	M	DT	8/8	Must use
		Description: Date expressed as YYYYMMDD. The date of the event that is being reported on the status message.				
AT7006	337	Time	M	TM	4/8	Must use
		Description: Time expressed in 24-hour clock time (HHMM). The time of the event that is being reported on the status message.				
AT7007	623	Time Code	M	ID	2/2	Must use
		Code	Purpose			
		LT	Local Time			
		Description: All times must be presented in the time zone which corresponds to the location specified in the associated N1 or MS1 segments. "LT" is the only valid value for this element. Logico takes an "all times local" approach and will interpret the date/time presented in AT7 005 and 006 as being expressed in the time zone that corresponds to the location being reported.				

MS1 Equipment, Shipment, or Real Property Location

Pos: 900	Max: 1
Detail - Mandatory	
Loop: AT7	Elements: 8

Used

To specify the location of a piece of equipment, a shipment, or real property in terms of city and state, or longitude and latitude, or postal code.

There can only be one MS1 segment per LX loop.

Element Summary:

Ref	Id	Element Name	Req	Type	Min/Max	Usage
MS1001	19	City Name	M	AN	2/30	Must use
		Description: The name of the city where the status event being reported occurred.				
MS1002	156	State or Province Code	M	ID	2/2	Must use
		Description: The state/province where the status event being reported occurred.				
MS1003	26	Country Code	M	ID	2/3	Must use
		Description: ISO-3166 three character code. The country where the status event being reported occurred.				
MS1004	1654	Longitude Code	X/Z	ID	7/7	Used
		Description: Code indicating the longitude in degrees (3 positions), minutes (2 positions), and seconds (2 positions). The longitude where the status event being reported occurred.				
MS1005	1655	Latitude Code	X/Z	ID	7/7	Used
		Description: Code indicating the latitude in degrees (3 positions), minutes (2 positions), seconds (2 positions). The latitude where the status event being reported occurred.				
MS1006	1280	Direction Identifier Code	C	ID	1/1	Used
		Code	Purpose			
		E	East			
		W	West			
		Description: Code identifying geographic direction of the longitude. Can only be E (East) or W (West). If either MS1 004 or MS1 006 is present, then the other is required.				
MS1007	1280	Direction Identifier Code	C	ID	1/1	Used
		Code	Purpose			
		N	North			
		S	South			
		Description: Code identifying geographic direction of the latitude. Can only be N (North) or S (South). If either MS1 005 or MS1 007 is present, then the other is required.				
MS1008	116	Postal Code	O	ID	3/15	Used
		Description: Code specifying international postal code.				

		The postal code where the status event being reported occurred. Canadian postal codes must have a single blank space between the first three characters and the last three characters (e.g. N7M 5J9).
--	--	--

MS2 Equipment or Container Owner and Type

Pos: 1000	Max: 2
Detail - Optional	
Loop: AT7	Elements: 3

Used

To specify the owner, the identification number assigned by that owner, and the type of equipment. There can only be one MS2 segment per LX loop.

Element Summary:

<u>Ref</u>	<u>Id</u>	<u>Element Name</u>	<u>Req</u>	<u>Type</u>	<u>Min/Max</u>	<u>Usage</u>
MS2001	140	Standard Carrier Alpha Code	O	ID	2/4	Used
		Description:				
MS2002	207	Equipment Number	O	AN	1/15	Used
		Description: Carrier equipment unit number (i.e. trailer number).				
MS2003	40	Equipment Description Code	O	ID	2/2	Used
		Description: Code identifying the specific asset type (equipment) used for this load. See Appendix A for list of valid codes. The equipment description code for the corresponding load tender was provided on the EDI 204 in N7 011.				

N1

Party Identification

Pos: 1300	Max: 1
Detail - Optional	
Loop: N1	Elements: 4

Used

To identify a party by type of organization, name, and code.

This segment, used alone, provides the most efficient method of providing organizational identification. To obtain this efficiency, the "ID Code" (N1 004) must provide a key to the table maintained by the transaction processing party.

There can only be one N1 segment per LX loop.

This segment is used to transmit the Logico location identifier (location id) that the status message applies to.

Element Summary:

Ref	Id	Element Name	Req	Type	Min/Max	Usage						
N1001	98	Entity Identifier Code	M	ID	2/3	Must use						
		<table border="1"><thead><tr><th>Code</th><th>Purpose</th></tr></thead><tbody><tr><td>SF</td><td>Ship From</td></tr><tr><td>ST</td><td>Ship To</td></tr></tbody></table>	Code	Purpose	SF	Ship From	ST	Ship To				
Code	Purpose											
SF	Ship From											
ST	Ship To											
		Description: Used to indicate the physical location (either ship-from or ship-to) that the status message applies to. Use SF for AF and X3 status codes (AT7 001). Use ST for D1 and X1 status codes (AT7 001).										
N1002	93	Name	O	AN	1/60	Used						
		Description: Location name.										
N1003	66	Identification Code Qualifier	M	ID	1/2	Must use						
		<table border="1"><thead><tr><th>Code</th><th>Purpose</th></tr></thead><tbody><tr><td>94</td><td>Code assigned by the organization that is the ultimate destination of the transaction set</td></tr></tbody></table>	Code	Purpose	94	Code assigned by the organization that is the ultimate destination of the transaction set						
Code	Purpose											
94	Code assigned by the organization that is the ultimate destination of the transaction set											
		Description: Code specifying the system/method of code structure used for Identification Code (67).										
N1004	67	Identification Code	M	AN	2/80	Must use						
		Description: Logico Location Identifier. This value was provided on the EDI 204 S5 Loop, N1 Loop, N1 004 with a qualifier of 93 and a matching entity identifier code of either SF or ST.										

SE

Transaction Set Trailer

Pos: 2100	Max: 1
Detail - Mandatory	
Loop: N/A	Elements: 2

Used

To indicate the end of the transaction set and provide the count of the transmitted segments (including the beginning (ST) and ending (SE) segments)

Element Summary:

<u>Ref</u>	<u>Id</u>	<u>Element Name</u>	<u>Req</u>	<u>Type</u>	<u>Min/Max</u>	<u>Usage</u>
SE001	96	Number of Included Segments	M	N0	1/10	Must use
		Description: Total number of segments included in a transaction set including ST and SE segments				
SE002	329	Transaction Set Control Number	M	AN	4/9	Must use
		Description: Identifying control number that must be unique within the transaction set functional group assigned by the originator for a transaction set				

GE

Functional Group Header

Pos:	Max: 1
Not Defined - Mandatory	
Loop: N/A	Elements: 2

Used

To indicate the end of a functional group and to provide control information.

Element Summary:

<u>Ref</u>	<u>Id</u>	<u>Element Name</u>	<u>Req</u>	<u>Type</u>	<u>Min/Max</u>	<u>Usage</u>
GE01	GE01	Number of Transaction Sets Included	M	N0	1/6	Must use
		Description: Total number of transaction sets included in the functional group or interchange (transmission) group terminated by the trailer containing this data element				
GE02	GE02	Group Control Number	M	N0	1/9	Must use
		Description: Assigned number originated and maintained by the sender.				

IEA

Interchange Control Trailer

Pos:	Max: 1
Not Defined - Mandatory	
Loop: N/A	Elements: 2

Used

To define the end of an interchange of zero or more functional groups and interchange-related control segments.

Element Summary:

<u>Ref</u>	<u>Id</u>	<u>Element Name</u>	<u>Req</u>	<u>Type</u>	<u>Min/Max</u>	<u>Usage</u>
IEA01	IEA01	Number of Included Functional Groups	M	N0	1/5	Must use
		Description: A count of the number of functional groups included in an interchange.				
IEA02	IEA02	Interchange Control Number	M	N0	9/9	Must use
		Description: A control number assigned by the interchange sender.				

ASC X12 Nomenclature

Interchange and Application Control Structures

Interchange Control Structure

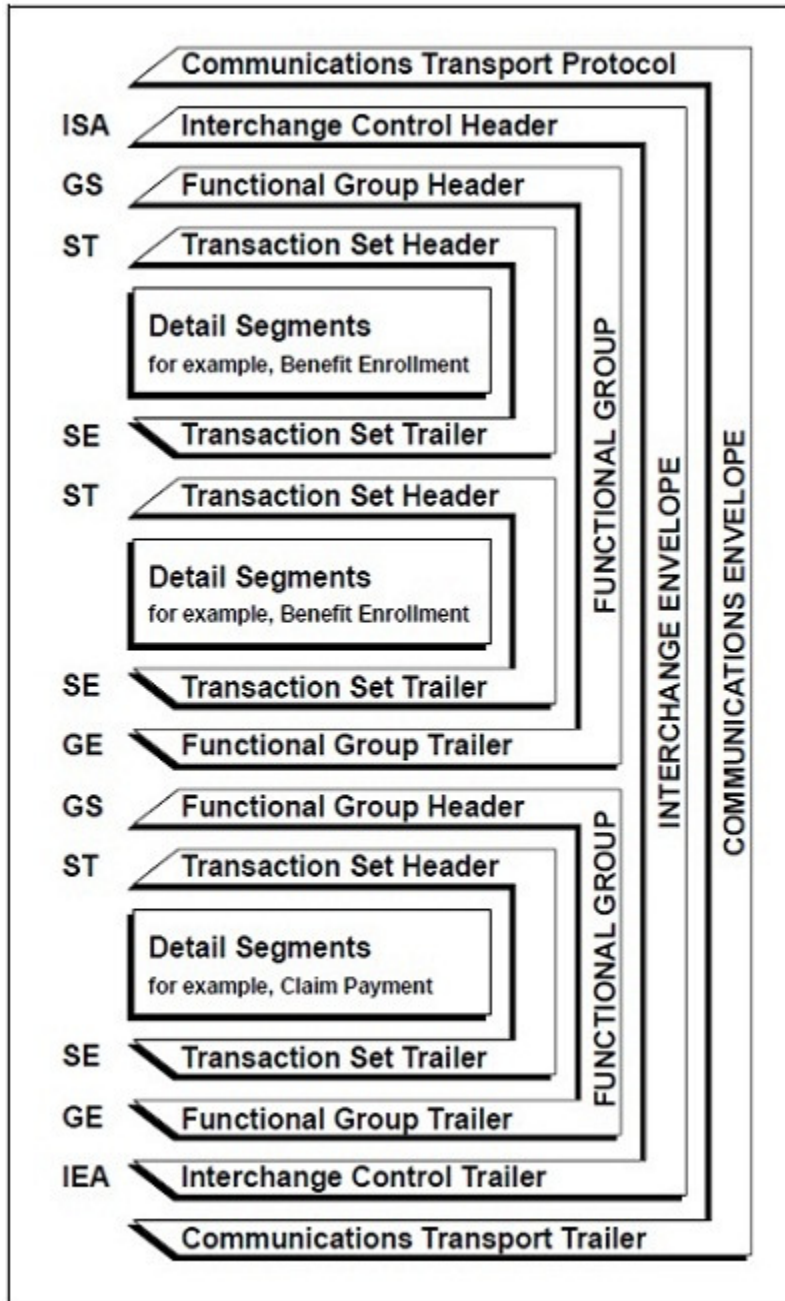


Figure A1. Transmission Control Schematic

The transmission of data proceeds according to very strict format rules to ensure the integrity and maintain the efficiency of the interchange. Each business grouping of data is called a transaction set. For instance, a group of benefit enrollments sent from a sponsor to a payer is considered a transaction set. Each transaction set contains groups of logically related data in units called segments. For instance, the N4 segment used in the transaction set conveys the city, state, ZIP Code, and other geographic information. A transaction set contains multiple segments, so the addresses of the different parties, for example, can be conveyed from one computer to the other. An analogy would be that the transaction set is like a freight train; the segments are like the train's cars; and each segment can contain several data elements the same as a train car can hold multiple crates. The sequence of the elements within one

segment is specified by the ASC X12 standard as well as the sequence of segments in the transaction set. In a more conventional computing environment, the segments would be equivalent to records, and the elements equivalent to fields. Similar transaction sets, called “functional groups,” can be sent together within a transmission. Each functional group is prefaced by a group start segment; and a functional group is terminated by a group end segment. One or more functional groups are prefaced by an interchange header and followed by an interchange trailer. Figure A1, Transmission Control Schematic, illustrates this interchange control. The interchange header and trailer segments envelop one or more functional groups or interchange-related control segments and perform the following functions:

1. Define the data element separators and the data segment terminator.
2. Identify the sender and receiver.
3. Provide control information for the interchange.
4. Allow for authorization and security information.

Application Control Structure Definitions and Concepts

Basic Structure

A data element corresponds to a data field in data processing terminology. The data element is the smallest named item in the ASC X12 standard. A data segment corresponds to a record in data processing terminology. The data segment begins with a segment ID and contains related data elements. A control segment has the same structure as a data segment; the distinction is in the use. The data segment is used primarily to convey user information, but the control segment is used primarily to convey control information and to group data segments.

Basic Character Set

A...Z	0...9	!	“	&	'	()	*	+
,	-	.	/	:	;	?	=	“ ” (space)	

Figure A2. Basic Character Set

The section that follows is designed to have representation in the common character code schemes of EBCDIC, ASCII, and CCITT International Alphabet 5. The ASC X12 standards are graphic-character-oriented; therefore, common character encoding schemes other than those specified herein may be used as long as a common mapping is available. Because the graphic characters have an implied mapping across character code schemes, those bit patterns are not provided here.

The basic character set of this standard, shown in figure A2, Basic Character Set, includes those selected from the uppercase letters, digits, space, and special characters as specified below.

Extended Character Set

a..z	%	~	@	[]	_	{
}	\		<	>	#	\$	

Figure A3. Extended Character Set

An extended character set may be used by negotiation between the two parties and includes the lowercase letters and other special characters as specified in figure A3, Extended Character Set.

Note that the extended characters include several character codes that have multiple graphical representations for a specific bit pattern. The complete list appears in other standards such as CCITT S.5. Use of the USA graphics for these codes presents no problem unless data is exchanged with an international partner. Other problems, such as the translation of item descriptions from English to

French, arise when exchanging data with an international partner, but minimizing the use of codes with multiple graphics eliminates one of the more obvious problems.

Control Characters

Two control character groups are specified; they have only restricted usage. The common notation for these groups is also provided, together with the character coding in three common alphabets. In the matrix A1, Base Control Set, the column IA5 represents CCITT V.3 International Alphabet 5.

Base Control Set

NOTATION	NAME	EBCDIC	ASCII	IA5
BEL	bell	2F	07	07
HT	horizontal tab	05	09	09
LF	line feed	25	0A	0A
VT	vertical tab	0B	0B	0B
FF	form feed	0C	0C	0C
CR	carriage return	0D	0D	0D
FS	file separator	1C	1C	1C
GS	group separator	1D	1D	1D
RS	record separator	1E	1E	1E
US	unit separator	1F	1F	1F
NL	new line	15		

Matrix A1. Base Control Set

The base control set includes those characters that will not have a disruptive effect on most communication protocols. These are represented by: The Group Separator (GS) may be an exception in this set because it is used in the 3780 communications protocol to indicate blank space compression.

Extended Control Set

NOTATION	NAME	EBCDIC	ASCII	IA5
SOH	start of header	01	01	01
STX	start of text	02	02	02
ETX	end of text	03	03	03
EOT	end of transmission	37	04	04
ENQ	enquiry	2D	05	05
ACK	acknowledge	2E	06	06
DC1	device control 1	11	11	11
DC2	device control 2	12	12	12
DC3	device control 3	13	13	13
DC4	device control 4	3C	14	14
NAK	negative acknowledge	3D	15	15
SYN	synchronous idle	32	16	16
ETB	end of block	26	17	17

Matrix A2. Extended Control Set

The extended control set includes those that may have an effect on a transmission system. These are shown in matrix A2, Extended Control Set.

Delimiters

<u>CHARACTER</u>	<u>NAME</u>	<u>DELIMITER</u>
*	Asterisk	Data Element Separator
:	Colon	Subelement Separator
~	Tilde	Segment Terminator

Matrix A3. Delimiters

A delimiter is a character used to separate two data elements (or subelements) or to terminate a segment. The delimiters are an integral part of the data.

Delimiters are specified in the interchange header segment, ISA. The ISA segment is a 105 byte fixed length record. The data element separator is byte number 4; the component element separator is byte number 105; and the segment terminator is the byte that immediately follows the component element separator. Once specified in the interchange header, the delimiters are not to be used in a data element value elsewhere in the interchange. For consistency, this implementation guide uses the delimiters shown in matrix A3, Delimiters, in all examples of EDI transmissions.

The delimiters above are for illustration purposes only and are not specific recommendations or requirements. Users of this implementation guide should be aware that an application system may use some valid delimiter characters within the application data. Occurrences of delimiter characters in transmitted data within a data element can result in errors in translation programs. The existence of asterisks (*) within transmitted application data is a known issue that can affect translation software.

Business Transaction Structure Definitions and Concepts

The ASC X12 standards define commonly used business transactions (such as a health care claim) in a formal structure called “transaction sets.” A transaction set is composed of a transaction set header control segment, one or more data segments, and a transaction set trailer control segment. Each segment is composed of the following:

- A unique segment ID
- One or more logically related data elements each preceded by a data element separator
- A segment terminator

Data Element

<u>SYMBOL</u>	<u>TYPE</u>
Nn	Numeric
R	Decimal
ID	Identifier
AN	String
DT	Date
TM	Time
B	Binary

Matrix A4. Data Element Types

The data element is the smallest named unit of information in the ASC X12 standard. Data elements are identified as either simple or component. A data element that occurs as an ordinarily positioned member of a composite data structure is identified as a component data element. A data element that

occurs in a segment outside the defined boundaries of a composite data structure is identified as a simple data element. The distinction between simple and component data elements is strictly a matter of context because a data element can be used in either capacity.

Data elements are assigned a unique reference number. Each data element has a name, description, type, minimum length, and maximum length. For ID type data elements, this guide provides the applicable ASC X12 code values and their descriptions or references where the valid code list can be obtained. Each data element is assigned a minimum and maximum length. The length of the data element value is the number of character positions used except as noted for numeric, decimal, and binary elements.

The data element types shown in matrix A4, Data Element Types, appear in this implementation guide.

Numeric

A numeric data element is represented by one or more digits with an optional leading sign representing a value in the normal base of 10. The value of a numeric data element includes an implied decimal point. It is used when the position of the decimal point within the data is permanently fixed and is not to be transmitted with the data.

This set of guides denotes the number of implied decimal positions. The representation for this data element type is "Nn" where N indicates that it is numeric and n indicates the number of decimal positions to the right of the implied decimal point.

If n is 0, it need not appear in the specification; N is equivalent to N0. For negative values, the leading minus sign (-) is used. Absence of a sign indicates a positive value. The plus sign (+) should not be transmitted.

EXAMPLE

A transmitted value of 1234, when specified as numeric type N2, represents a value of 12.34.

Leading zeros should be suppressed unless necessary to satisfy a minimum length requirement. The length of a numeric type data element does not include the optional sign.

Decimal

A decimal data element may contain an explicit decimal point and is used for numeric values that have a varying number of decimal positions. This data element type is represented as "R."

The decimal point always appears in the character stream if the decimal point is at any place other than the right end. If the value is an integer (decimal point at the right end) the decimal point should be omitted. For negative values, the leading minus sign (-) is used. Absence of a sign indicates a positive value. The plus sign (+) should not be transmitted.

Leading zeros should be suppressed unless necessary to satisfy a minimum length requirement. Trailing zeros following the decimal point should be suppressed unless necessary to indicate precision. The use of triad separators (for example, the commas in 1,000,000) is expressly prohibited. The length of a decimal type data element does not include the optional leading sign or decimal point.

EXAMPLE

A transmitted value of 12.34 represents a decimal value of 12.34.

Identifier

An identifier data element always contains a value from a predefined list of codes that is maintained by the ASC X12 Committee or some other body recognized by the Committee. Trailing spaces should be suppressed unless they are necessary to satisfy a minimum length. An identifier is always left justified. The representation for this data element type is "ID."

String

A string data element is a sequence of any characters from the basic or extended character sets. The significant characters shall be left justified. Leading spaces, when they occur, are presumed to be significant characters. Trailing spaces should be suppressed unless they are necessary to satisfy a

minimum length. The representation for this data element type is "AN."

Date

A date data element is used to express the standard date in either YYMMDD or CCYYMMDD format in which CC is the first two digits of the calendar year, YY is the last two digits of the calendar year, MM is the month (01 to 12), and DD is the day in the month (01 to 31). The representation for this data element type is "DT." Users of this guide should note that all dates within transactions are 8-character dates (millennium compliant) in the format CCYYMMDD. The only date data element that is in format YYMMDD is the Interchange Date data element in the ISA segment, and also used in the TA1 Interchange Acknowledgment, where the century can be readily interpolated because of the nature of an interchange header.

Time

A time data element is used to express the ISO standard time HHMMSSd..d format in which HH is the hour for a 24 hour clock (00 to 23), MM is the minute (00 to 59), SS is the second (00 to 59) and d..d is decimal seconds. The representation for this data element type is "TM." The length of the data element determines the format of the transmitted time.

EXAMPLE

Transmitted data elements of four characters denote HHMM. Transmitted data elements of six characters denote HHMMSS.

Composite Data Structure

The composite data structure is an intermediate unit of information in a segment. Composite data structures are composed of one or more logically related simple data elements, each, except the last, followed by a sub-element separator. The final data element is followed by the next data element separator or the segment terminator. Each simple data element within a composite is called a component. Each composite data structure has a unique four-character identifier, a name, and a purpose. The identifier serves as a label for the composite. A composite data structure can be further defined through the use of syntax notes, semantic notes, and comments. Each component within the composite is further characterized by a reference designator and a condition designator. The reference designators and the condition designators are described below.

Data Segment

The data segment is an intermediate unit of information in a transaction set. In the data stream, a data segment consists of a segment identifier, one or more composite data structures or simple data elements each preceded by a data element separator and succeeded by a segment terminator.

Each data segment has a unique two- or three-character identifier, a name, and a purpose. The identifier serves as a label for the data segment. A segment can be further defined through the use of syntax notes, semantic notes, and comments. Each simple data element or composite data structure within the segment is further characterized by a reference designator and a condition designator.

Syntax Notes

Syntax notes describe relational conditions among two or more data segment units within the same segment, or among two or more component data elements within the same composite data structure.

Semantic Notes

Simple data elements or composite data structures may be referenced by a semantic note within a particular segment. A semantic note provides important additional information regarding the intended meaning of a designated data element, particularly a generic type, in the context of its use within a specific data segment. Semantic notes may also define a relational condition among data elements in a segment based on the presence of a specific value (or one of a set of values) in one of the data elements.

Comments

A segment comment provides additional information regarding the intended use of the segment.

Reference Designator

Each simple data element or composite data structure in a segment is provided a structured code that indicates the segment in which it is used and the sequential position within the segment. The code is composed of the segment identifier followed by a two-digit number that defines the position of the simple data element or composite data structure in that segment.

For purposes of creating reference designators, the composite data structure is viewed as the hierarchical equal of the simple data element. Each component data element in a composite data structure is identified by a suffix appended to the reference designator for the composite data structure of which it is a member. This suffix is a two-digit number, prefixed with a hyphen, that defines the position of the component data element in the composite data structure.

EXAMPLE

- The first simple element of the CLP segment would be identified as CLP01.
- The first position in the SVC segment is occupied by a composite data structure that contains seven component data elements, the reference designator for the second component data element would be SVC01-02.

Condition Designator

This section provides information about X12 standard conditions designators. It is provided so that users will have information about the general standard. Implementation guides may impose other conditions designators.

Data element conditions are of three types: mandatory, optional, and relational. They define the circumstances under which a data element may be required to be present or not present in a particular segment.

DESIGNATOR	DESCRIPTION				
M- Mandatory	The designation of mandatory is absolute in the sense that there is no dependency on other data elements. This designation may apply to either simple data elements or composite data structures. If the designation applies to a composite data structure, then at least one value of a component data element in that composite data structure shall be included in the data segment.				
O- Optional	The designation of optional means that there is no requirement for a simple data element or composite data structure to be present in the segment. The presence of a value for a simple data element or the presence of value for any of the component data elements of a composite data structure is at the option of the sender.				
X- Relational	Relational conditions may exist among two or more simple data elements within the same data segment based on the presence or absence of one of those data elements (presence means a data element must not be empty). Relational conditions are specified by a condition code (see table below) and the reference designators of the affected data elements. A data element may be subject to more than one relational condition. The definitions for each of the condition codes used within syntax notes are detailed below: <table><thead><tr><th>CONDITION CODE</th><th>DEFINITION</th></tr></thead><tbody><tr><td>P- Paired or Multiple</td><td>If any element specified in the relational condition is present, then all of the elements specified must be present.</td></tr></tbody></table>	CONDITION CODE	DEFINITION	P- Paired or Multiple	If any element specified in the relational condition is present, then all of the elements specified must be present.
CONDITION CODE	DEFINITION				
P- Paired or Multiple	If any element specified in the relational condition is present, then all of the elements specified must be present.				

R- Required	At least one of the elements specified in the condition must be present.
E- Exclusion	Not more than one of the elements specified in the condition may be present.
C- Conditional	If the first element specified in the condition is present, then all other elements must be present. However, any or all of the elements not specified as the first element in the condition may appear without requiring that the first element be present. The order of the elements in the condition does not have to be the same as the order of the data elements in the data segment.
L- List Conditional	If the first element specified in the condition is present, then at least one of the remaining elements must be present. However, any or all of the elements not specified as the first element in the condition may appear without requiring that the first element be present. The order of the elements in the condition does not have to be the same as the order of the data elements in the data segment.

Control Segments

A control segment has the same structure as a data segment, but it is used for transferring control information rather than application information.

Loop Control Segments

Loop control segments are used only to delineate bounded loops. Delineation of the loop shall consist of the loop header (LS segment) and the loop trailer (LE segment). The loop header defines the start of a structure that must contain one or more iterations of a loop of data segments and provides the loop identifier for this loop. The loop trailer defines the end of the structure. The LS segment appears only before the first occurrence of the loop, and the LE segment appears only after the last occurrence of the loop. Unbounded looping structures do not use loop control segments.

Transaction Set Control Segments

The transaction set is delineated by the transaction set header (ST segment) and the transaction set trailer (SE segment). The transaction set header identifies the start and identifier of the transaction set. The transaction set trailer identifies the end of the transaction set and provides a count of the data segments, which includes the ST and SE segments.

Functional Group Control Segments

The functional group is delineated by the functional group header (GS segment) and the functional group trailer (GE segment). The functional group header starts and identifies one or more related transaction sets and provides a control number and application identification information. The functional group trailer defines the end of the functional group of related transaction sets and provides a count of contained transaction sets.

Relations among Control Segments

The control segment of this standard must have a nested relationship as is shown and annotated in this subsection. The letters preceding the control segment name are the segment identifier for that control segment. The indentation of segment identifiers shown below indicates the subordination among control segments.

GS Functional Group Header, starts a group of related transaction sets.

ST Transaction Set Header, starts a transaction set.

LS Loop Header, starts a bounded loop of data segments but is not part of the loop.

LS Loop Header, starts an inner, nested, bounded loop.

LE Loop Trailer, ends an inner, nested bounded loop.

LE Loop Trailer, ends a bounded loop of data segments but is not part of the loop.

SE Transaction Set Trailer, ends a transaction set.

GE Functional Group Trailer, ends a group of related transaction sets.

More than one ST/SE pair, each representing a transaction set, may be used within one functional group. Also more than one LS/LE pair, each representing a bounded loop, may be used within one transaction set.

Transaction Set

The transaction set is the smallest meaningful set of information exchanged between trading partners. The transaction set consists of a transaction set header segment, one or more data segments in a specified order, and a transaction set trailer segment. See figure A1, Transmission Control Schematic.

Transaction Set Header and Trailer

A transaction set identifier uniquely identifies a transaction set. This identifier is the first data element of the Transaction Set Header Segment (ST). A user assigned transaction set control number in the header must match the control number in the Trailer Segment (SE) for any given transaction set. The value for the number of included segments in the SE segment is the total number of segments in the transaction set, including the ST and SE segments.

Data Segment Groups

The data segments in a transaction set may be repeated as individual data segments or as unbounded or bounded loops.

Repeated Occurrences of Single Data Segments

When a single data segment is allowed to be repeated, it may have a specified maximum number of occurrences defined at each specified position within a given transaction set standard. Alternatively, a segment may be allowed to repeat an unlimited number of times. The notation for an unlimited number of repetitions is ">1."

Loops of Data Segments

Loops are groups of semantically related segments. Data segment loops may be unbounded or bounded.

Unbounded Loops

To establish the iteration of a loop, the first data segment in the loop must appear once and only once in each iteration. Loops may have a specified maximum number of repetitions. Alternatively, the loop may be specified as having an unlimited number of iterations. The notation for an unlimited number of repetitions is ">1."

A specified sequence of segments is in the loop. Loops themselves are optional or mandatory. The requirement designator of the beginning segment of a loop indicates whether at least one occurrence of the loop is required. Each appearance of the beginning segment defines an occurrence of the loop.

The requirement designator of any segment within the loop after the beginning segment applies to that segment for each occurrence of the loop. If there is a mandatory requirement designator for any data segment within the loop after the beginning segment, that data segment is mandatory for each occurrence of the loop. If the loop is optional, the mandatory segment only occurs if the loop occurs.

Bounded Loops

The characteristics of unbounded loops described previously also apply to bounded loops. In addition, bounded loops require a Loop Start Segment (LS) to appear before the first occurrence and a Loop End Segment (LE) to appear after the last occurrence of the loop. If the loop does not occur, the LS and LE segments are suppressed.

Data Segments in a Transaction Set

When data segments are combined to form a transaction set, three characteristics are applied to each data segment: a requirement designator, a position in the transaction set, and a maximum occurrence.

Data Segment Requirement Designators

A data segment, or loop, has one of the following requirement designators for health care and insurance transaction sets, indicating its appearance in the data stream of a transmission. These requirement designators are represented by a single character code.

DESIGNATOR	DESCRIPTION
M- Mandatory	This data segment must be included in the transaction set. (Note that a data segment may be mandatory in a loop of data segments, but the loop itself is optional if the beginning segment of the loop is designated as optional.)
O- Optional	The presence of this data segment is the option of the sending party.

Data Segment Position

The ordinal positions of the segments in a transaction set are explicitly specified for that transaction. Subject to the flexibility provided by the optional requirement designators of the segments, this positioning must be maintained.

Data Segment Occurrence

A data segment may have a maximum occurrence of one, a finite number greater than one, or an unlimited number indicated by ">1."

Functional Group

A functional group is a group of similar transaction sets that is bounded by a functional group header segment and a functional group trailer segment. The functional identifier defines the group of transactions that may be included within the functional group. The value for the functional group control number in the header and trailer control segments must be identical for any given group. The value for the number of included transaction sets is the total number of transaction sets in the group. See figure A1, Transmission Control Schematic.

Envelopes and Control Structures

Interchange Control Structures

Typically, the term "interchange" connotes the ISA/IEA envelope that is transmitted between trading/business partners. Interchange control is achieved through several "control" components. The interchange control number is contained in data element ISA13 of the ISA segment. The identical control number must also occur in data element O2 of the IEA segment. Most commercial translation software products will verify that these two fields are identical. In most translation software products, if these fields are different the interchange will be "suspended" in error.

There are many other features of the ISA segment that are used for control measures. For instance, the ISA segment contains data elements such as authorization information, security information, sender identification, and receiver identification that can be used for control purposes. These data elements are agreed upon by the trading partners prior to transmission and are contained in the written trading partner agreement. The interchange date and time data elements as well as the interchange control number within the ISA segment are used for debugging purposes when there is a problem with the transmission or the interchange. Data Element ISA12, Interchange Control Version Number, indicates the version of the ISA/IEA envelope. The ISA12 does not indicate the version of the transaction set that is being transmitted but rather the envelope that encapsulates the transaction. An Interchange Acknowledgment can be denoted through data element ISA14. The acknowledgment that would be sent in reply to a "yes" condition in data element ISA14 would be the TA1 segment. Data element ISA15, Test

Indicator, is used between trading partners to indicate that the transmission is in a “test” or “production” mode. This becomes significant when the production phase of the project is to commence. Data element ISA16, Subelement Separator, is used by the translator for interpretation of composite data elements. The ending component of the interchange or ISA/IEA envelope is the IEA segment. Data element IEA01 indicates the number of functional groups that are included within the interchange. In most commercial translation software products, an aggregate count of functional groups is kept while interpreting the interchange. This count is then verified with data element IEA01. If there is a discrepancy, in most commercial products, the interchange is suspended. The other data element in the IEA segment is IEA02 which is referenced above.

Functional Groups

Control structures within the functional group envelope include the functional identifier code in GS01. The Functional Identifier Code is used by the commercial translation software during interpretation of the interchange to determine the different transaction sets that may be included within the functional group. If an inappropriate transaction set is contained within the functional group, most commercial translation software will suspend the functional group within the interchange.

The Application Sender’s Code in GS02 can be used to identify the sending unit of the transmission. The Application Receiver’s Code in GS03 can be used to identify the receiving unit of the transmission.

The functional group contains a creation date (GS04) and creation time (GS05) for the functional group. The Group Control Number is contained in GS06. These data elements (GS04, GS05, AND GS06) can be used for debugging purposes during problem resolution. GS08, Version/Release/Industry Identifier Code is the version/release/sub-release of the transaction sets being transmitted in this functional group. The GS08 does not represent the version of the interchange (ISA/IEA) envelope but rather the version/release/sub-release of the transaction sets that are encompassed within the GS/GE envelope.

The Functional Group Control Number in GS06 must be identical to data element 02 of the GE segment. Data element GE01 indicates the number of transaction sets within the functional group. In most commercial translation software products, an aggregate count of the transaction sets is kept while interpreting the functional group. This count is then verified with data element GE01.