EDI ENVELOPING

Standards

The concept and theory of electronic data interchange has evolved from the transmission of data in fixed-length proprietary record formats to the transmission of data in variable length standard formats. Without these standard formats, industry utilization of computer-to-computer communication technology would be encumbered by the use of different formats and data contents. The Automotive Industry Action Group (AIAG) has adopted a subset of the telecommunication standards developed by the Accredited Standards Committee X12 (ASC) of the American National Standards Institute (ANSI) and publishes conventions for use of these standards by the automotive industry. As a member of the automotive community, Flex-N-Gate will use and support the AIAG conventions.

This document is not intended to define every segment and data element available in each transaction set. It should be used in conjunction with the AIAG Electronic Data Interchange Conventions and Industry Guidelines manual. For additional information concerning AIAG programs, memberships, educational programs, publications, and other materials, contact the AIAG at:

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Revisions

1. 10/9/2003
    a. Added Flex-N-Gate EDI Separators Section
    b. Updated ISA16 Comments
2. 07/01/2015
    a. Create a Changeable version of the PDF
    b.

Terms and Definitions

Data Element - A data element is the smallest named item in the standard. It can represent a qualifier, a value, or text – such as a description. A data element has two primary attributes: length and type.

Data Element Position - Data elements have specific positions within a data segment. Data elements that appear at the end of a data segment and are not needed may be omitted. The omission of data elements, other than at the end of a data segment, is signified by successive data element separators.

Data Element Separator – Data elements are separated by the separator character defined in the interchange control header. The data segment identifier and the first data element are also delimited by the same separator. Once the data element separator is defined in the interchange control header segment, it shall not appear in any subsequent data element.

Data Segment - A data segment is the intermediate unit of information in a transaction set. Data segments consist of logically related data elements in a defined sequence. The length of the segment depends on the lengths of the data elements from which it is constructed. A data segment may vary in length because individual data elements may vary within the minimum/maximum length range, and because optional and conditional data elements may be omitted.

Data Segment Identifier - Each data segment has a unique alpha/numeric identifier with a length of two or three characters. The identifier serves as a name for the data segment and occupies the first character positions of the data segment. The data segment identifier is not a data element.

Data Segment Terminator – Each data segment ends with a data segment terminator. By convention, the EBCDIC new line character of ASCII carriage return or line feed characters are preferred as the data segment terminator.

Functional Group - A functional group is a collection of related transaction sets. A functional group may consist of a single type of transaction set or may be a combination of related transaction sets. The functional group is started with a functional group header and terminated with a functional group trailer. (GS&GE segments)

Functional Group Header & Trailer – Use of the functional group header and trailer provides the receiver with the identification of the data application, the identification of the sender and intended receiver at each specific location, and absolute checking to determine the beginning and end of each functional group contained in a transmission.

Interchange Control Header - This data segment is the first segment in the interchange and it defines the data element separators, data element terminators, sender, receiver and control information.
All the data elements in this segment are required and are fixed in length. (ISA segment)

Interchange Control Trailer - This data segment is the last segment in the interchange and it contains control totals for the interchange. All the data elements in this segment are required and are fixed in length. (IEA segment)

Interchange Envelope – The interchange envelope consists of the interchange header and trailer segments, which frame one or more functional groups.

Transaction Set - A transaction set is the minimum collection of data which must be interchanged in order to convey meaning between parties engaged in Electronic Data Interchange. Each transaction set starts with a transaction set header, and is followed immediately by a beginning segment unique to that transaction set type. The transaction set is terminated by transaction set trailer.

Transaction Set Header - This data segment is the first segment in every transaction set. It contains the transaction set identifier and the transaction set control number. (ST segment)

Transaction Set Trailer - This data segment is the last segment in every transaction set. It contains the count of the number of data segments contained in the transaction set and a control number which matches the control number in the preceding transaction set header. (SE Segment)

Decimal Number Control Structure

A decimal data element contains an explicit decimal point and is used for numeric values that have a varying number of decimal positions. Their presentation for this data element type is **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 e ND) 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 decimal type data element does not include the optional leading sign or decimal point.

EXAMPLE A:

* Value is -123.45
* Decimal type symbol is R as defined by the X12 standards.
* The data stream value is -123.45
* The length is 5

EXAMPLE B:

* Value is 12345
* Decimal type symbol is R as defined by the X12 standards.
* The data stream value is 12345
- The length is 5

EDI Separators

Flex-N-Gate will use the following ASCII Hex EDI Separators:

Element Separator - Hex 2A "*"
Sub-Element Separator - Hex 3C "<"
Segment Terminator - Hex 7E "~"

Transmission Header Segments

ISA Segment (Interchange Control Header)

Purpose: To start and identify an interchange of one or more functional groups.

Ref Des	Name	Attributes		Comments
	Segment ID	**M**		**'ISA'**
ISA01	Authorization Info Qualifier	M	AN 2/2	'00'
ISA02	Authorization Information	M	AN10/10	' ' (10 Spaces)
ISA03	Security Info Qualifier	M	AN 2/2	'00'
ISA04	Security Information	M	AN10/10	' ' (10Spaces)
ISA05	Interchange Id Qualifier	M	AN 2/2	'01'
ISA06	Interchange Sender Id	M	AN15/15	Sender's DUNS Number
ISA07	Interchange Id Qualifier	M	AN 2/2	'01'
ISA08	Interchange Receiver Id	M	AN15/15	Receiver's DUNS
ISA09	Interchange Submit Date	M	DT 6/6	Current Date (yymmdd)
ISA10	Interchange Submit Time	M	DT 4/4	Current Time (hhmm)
ISA11	Interchange Standards ID	M	AN 1/1	'U'
ISA12	Interchange Version ID	M	AN 5/5	'00401'
ISA13	Interchange Control Number	M	AN 9/9	000000001 - 999999999
ISA14	Acknowledge Requested	M	AN 1/1	'0' (No) Interchange Ack.
ISA15	Test Indicator Sub	M	AN 1/1	'P' (Prod) or 'T' (Test)
ISA16	Element Separator	M	AN 1/1	'<' ASCII Hex 3C

GS Segment (Functional Group Header)

Purpose: To start and identify a group of related to transaction sets and provide control and application identification information.

Ref Des	Name	Attributes			Comments
	Segment ID	**M**			**'GS'**
GS01	Functional Id	M	AN	2/2	Code to indicate type of document in the group
GS02	Application Sender's ID	M	AN	15/15	Sender's DUNS Number
GS03	Application Receiver's	M	AN	15/15	Receiver's DUNS
GS04	ID Data Interchange	M	DT	8/8	Number Current Date
GS05	Data Interchange Time	M	AN	4/4	Current Time (hhmm)
GS06	Control Group Number	M	N	1/9	1 – 999999999
GS07	Responsible Agency	M	AN	1/1	'X'
GS08	Code Version/Release	M	AN	6/6	'004010'

Transmission Trailer Segments

GE Segment (Functional Group Trailer)

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

Ref Des	Name	Attributes			Comments
	Segment ID	**M**			**'GE'**
GE01	Number of Included Sets	M	N	1/6	1-999999
GE02	Control Group Number	M	N	1/9	1-999999999 Must match the control In the previous GS06

IEA Segment (Interchange Control Trailer)

Purpose: To define the end of an interchange of one or more functional groups.

Ref Des	Name	Attributes			Comments
	Segment ID	**M**			**'IEA'**
IEA01	Number of Included Groups	M	N	1/5	1-99999
IEA02	Interchange Control Number	M	AN	9/9	000000001-999999999 Must match the control in the previous ISA13