GXS

Business Exchange Services - Data transformation User's Guide

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Contents

To the reader v
Who should read this book v
Related books v

Chapter 1. Introduction 1
Access to Data transformation 1
File Format 3
Logging 3
Registration 3
Implementation Guide 3
Translation definition setup 4
Error and warning messages 5
Field descriptions 5

Chapter 2. Translation mailboxes 7
Mailbox ownership enforcement 8
Mailbox document type definition 8
Internet transfer client enablement 9

Chapter 3. Translation 11
Standards and data types 11
Data Translations 11
Documents sent for translation 12
Outbound translation 12
Inbound Translation 12
Transaction activity reports 12

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Chapter 4. Mapping 13

Appendix A. Transaction activity reports 15

Appendix B. Implementation Guide Mapping Information 17
EDI standard data 17
Custom application definition format 17
XML data 18
Samples 18
EDI Standard data 18

Glossary 23

To the reader

This book describes how to send and receive documents using Business Exchange Services - Data transformation, a service offered by GXS.

Who should read this book

This book is for data processing professionals who need to exchange application, EDI, or Web-based data with their trading partners.

Related books

The following books contain information related to the topics covered in this book.

- *Business Exchange Services - Internet transfer User's Guide* - GC34-3289

  This book can be found on the Business Exchange Services web site, at www.gxs.com/EDIsupport.

- *WebSphere Data Interchange for Multiplatforms, Version 3.2* - GC34-6143
  Refer to the WDI website for product documentation.

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Chapter 1

Introduction

Business Exchange Services - Data transformation is a centralized data transformation service. You and your trading partners can either send data files to the service for translation or can receive data files from the service after they have been translated. Communication with Data transformation is achieved via the Internet transfer service.

The next section explains how you can also use Information Exchange to indirectly communicate with Data transformation through the Internet transfer service.

Access to Data transformation

Users of Business Exchange Services Internet transfer can exchange documents in a security-rich environment with Internet users, Information Exchange users, and value-added network (VAN) users. The Internet transfer service supports a variety of transfer protocols and allows you the flexibility of using a protocol that is different from the one used by your trading partners. Without changing their existing system, EDI hubs can enable large numbers of trading partners who want to use the Internet.

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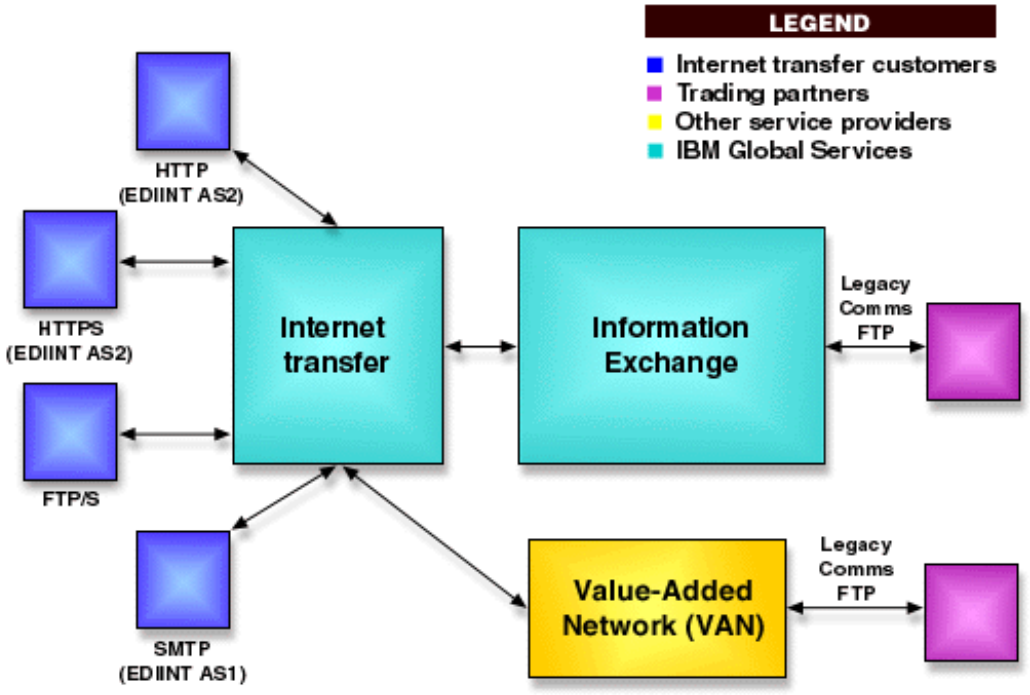
The following diagram shows how the Internet transfer service is structured.



Access to the Data transformation service is achieved through the Internet transfer service. You or your trading partners who use Internet transfer can access the Data transformation service directly using your existing Internet transfer sign-on ID. You or your trading partners who use Information Exchange can use your existing Information Exchange sign-on ID to access the Data transformation service through the peer-to-peer link between Information Exchange and the Internet transfer service.

An Internet transfer mailbox, known as a Data transformation-Internet transfer mailbox, is assigned to you during the Data transformation registration process.

You or your trading partners can send data files to be translated to your Data transformation-Internet transfer mailbox. Data files that have been translated are sent to you or your trading partners from the address of the Data transformation-Internet transfer mailbox.

You and your trading partners can send data files in either structured or unstructured format to your assigned Data transformation-Internet transfer mailbox. Structured data files must contain data which conforms to UN/EDIFACT, ANSI X12 or to other standard formats agreed to by GXS.

File Format

Data files can be sent to the Data transformation service for translation, or received from Data transformation after translation, in any of the following formats:

- UN/EDIFACT
- ANSI X12
- XML
- Custom application data format (includes EDI data formats other than UN/EDIFACT and ANSI X12)

Data files sent for translation must contain information that can be used by the Data transformation service to identify the originator of the data, the intended recipient of the data after translation, and the type of data. This information must be located in a predefined place within the data file. The Data transformation service uses this information to determine the destination's data format and to route the transformed data to the destination.

Logging

Logging of all data file transfers is maintained in a log table. A log entry is made when a message is imported, exported, dispatched to a service, returned from a service, and other key events, such as exceptions. A reference to the Message ID being processed and a time stamp is included with the data for the log entry. Combined with the message table data, the log data will be processed to provide message tracking and problem resolution. Usage statistics can also be derived from this information.

Registration

Data transformation has its own internal trading partner register. As a prerequisite to receiving Data transformation, you must register your trading partners and the transaction types that you want to exchange with each trading partner. You must also verify the accuracy of the registration.

You and your trading partners must be registered in both the Data transformation service and the Internet transfer service features of Business Exchange Services. This includes users who wish to communicate with the Data transformation service from Information Exchange. You must provide GXS with all the information needed to make the necessary registrations for both yourself and your trading partners.

Implementation Guide

You must provide GXS with a documented description of the data transformation that you require the transformation service to perform. This documentation is know as the Implementation Guide and must contain the following descriptions:

- Input data format - the format of the data that will be sent for transformation
- Output data format - the format of the data after it has been translated
- Data mapping - how the input data format should be translated to the output data format

The guide should also identify where the transformation service should look in the input data format to find the identities of the sender of the data, the intended recipient of the translated data, and the transaction type. This information is used by the transformation service to determine which predefined data mapping should be used to transform the document.

Translation definition setup

GXS assumes responsibility for:

- Setting up data file translation definitions based on the customer's Implementation Guide.
- Performing internal testing of data file translation definitions. All internal test data are for GXS internal purposes only.
- Installing data file translation definitions in the customer's Data transformation environment.
- Optionally, assisting the customer with the testing. The service incurs an additional charge.

The customer assumes responsibility for:

- Ensuring that the data file translation definitions are adequate for the customer's purposes.
- Providing GXS with a data file translation definitions Implementation Guide.
- Testing data file translation definitions. Customer testing is considered complete upon the customer notifying GXS that the customer data file definitions have been translated in accordance with the Implementation Guide.

Error and warning messages

Error and warning messages or codes are sent through the customer's e-mail to indicate an unusual occurrence during the translation of their data. The e-mail includes a description of the message or code.

The following figure is an example of the format and content of the error and warning messages sent to the customer.

To: customer@abc.com
From: dtadmin@mail.com
Subject: DT Exception <Unauthorized Use of Send Mailbox. MBoxID=ITDT, MboxOwner=TESTER6, MsgSender=HTTPCO10.>

An exception was reported in the Data Transformation service for the following message:
Message ID: 4975556067164408838
Translation Mailbox ITDT ID: TESTER6_ADF2_SEND
Sender's IDDX ID: HTTPCO10
Date and Time: 2002-07-30 12:21:53.085

Exception Message:
Unauthorized Use of Send Mailbox. MBoxID=ITDT, MboxOwner=TESTER6, Msg-Sender=HTTPCO10.

Please contact the Data Transformation service helpdesk for more information and resolution of this problem.

This is an automated message from the Data Transformation service. You have been sent this message because you are identified as the owner of the ITDT mailbox from which the above message was sent.

Field descriptions

The following fields are included in the error and warning messages sent by data transformation.

Field	Description
Message ID	The internal unique message ID allocated by data transformation.
Translation mailbox Internet transfer ID	The data transformation mailbox to which the message in error is sent
Sender's Internet transfer ID	The Internet transfer ID from which the message in error is received
Date and Time	The date and time that the exception is reported

Chapter 2

Translation mailboxes

An Internet transfer customer wishing to use the Data transformation Translation Service works with his Data transformation sales and enablement team to define the number of Data transformation translation mailboxes that he may require. The Data transformation enablement team defines/selects the required translation maps and configures these mailboxes for the Data transformation and Internet transfer services.

The mailboxes appear to the Internet transfer-Data transformation customer simply as another Internet transfer trading partner. Documents that require translation before forwarding are sent to the appropriate Mailbox rather than to the target recipient. All documents to be translated must contain information that defines the target recipient. During the translation process, the recipient information is extracted and the translated document is forwarded through Internet transfer to the target recipient.

The figure below shows the difference between using Internet transfer to send a document to a trading partner, or using Internet transfer in conjunction with a Data transformation translation mailbox to translate and send a document to a trading partner.

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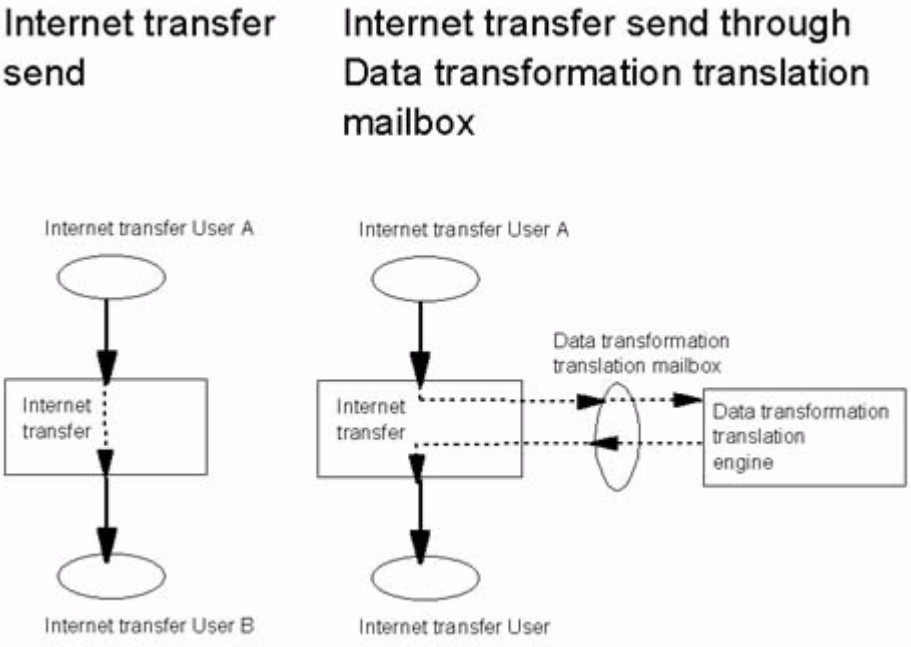
New graphic will be sent for review Wed - 9/4



Mailbox ownership enforcement

Mailbox owners are charged based on the translation mailbox usage. Therefore, the use of translation mailboxes is restricted by ownership. Because of this, two types of translation mailbox ownership are defined:

- SEND translation mailbox
- RECEIVE translation mailbox

If you own a SEND translation mailbox, you are the only Data transformation customer that can send to it. Translation is performed and the resultant document can be forwarded to any Data transformation defined trading partner. If you own a RECEIVE translation mailbox, any Data transformation trading partner can send to it; however, the delivery of the resultant document is restricted to you, the mailbox owner.

Mailbox document type definition

A mailbox is used to process a specific document input type. This type may be EDI, XML, or a defined ADF type. It is important that you send only the appropriate document type to the translation mailbox. If the wrong type of document is sent to a mailbox, the translation will fail and both the customer (mailbox owner) and GXS administrator will be notified. If you want to translate multiple types of documents, you must have a mailbox for each defined document type.

Internet transfer client enablement

A translation mailbox appears to Internet transfer clients the same as other trading partners. The same procedures in the Internet transfer user's guide for enabling sending to a trading partner through Internet transfer should be followed to enable sending to translation mailbox. For example, if you are using Cyclone Solo bundled HTTPS, the mailbox must be added as a secondary ID to the IBMIDDX partner in Cyclone Solo. Mailboxes are presented with both a Cyclone ID address and an Information Exchange address on the Internet transfer service.

Chapter 3

Translation

After you have ensured that the data file translation definitions are adequate for your purposes, provided GXS with an Implementation Guide, and tested your data translation definitions, your setup for data file translation is complete.

Standards and data types

The following EDI standards and data types are supported in the Data transformation service:

- UN/EDIFACT, including the subsets Odette and EANCOM
- ANSI X12
- Other formats agreed to by GXS
- Application data formats in form of sequential flat files
- XML data in the form of sequential flat files; the XML data type definition file is part of the Implementation Guide

Data Translations

The following data translations are supported by the Data transformation service:

- EDI to Application Data Format
- Application Data Format to EDI
- EDI to XML
- XML to EDI
- XML to Application Data Format
- Application Data Format to XML
- EDI type to EDI type
- EDI version to EDI version
- XML to XML
- Application Data Format to Application Data Format

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Documents sent for translation

Documents sent for translation are sent as non-self routing text files. An EDI or XML document sent for translation contains the target recipient in the receiver fields. If the document is sent as an EDI or XML document through the Internet transfer service, it is routed to the recipient, rather than to the translation mailbox. Therefore, all documents sent to a translation mailbox are sent as non-self routing text documents.

NOTE: For Cyclone Solo users, the file is sent through binary directories to a binary trading partner. For EDI users, the file is sent as a non-EDI text file.

Sending documents for translation as non-self routing allows the document to be routed to the mailbox, as opposed to the receiver indicated within the document; the true format of the document is known to the mailbox. The translation is performed based on the document type for the mailbox and the rules you have established for your trading partners in Data transformation. The translated output documents are forwarded to the recipient as their true type if that type is supported by the Internet transfer service, otherwise it is forwarded through Internet transfer as a non- self routing text document; for example, as a non-EDI text file or through Cyclone binary directories.

NOTE: If the customer is constrained to sending only EDI self routing data, this can be accommodated through special configuration or translation maps.

Outbound translation

For outbound translation, send a data file to your outbound Data transformation/Internet transfer mailbox or Data transformation - Information Exchange mailbox. The Data transformation service retrieves the data file from the outbound mailbox and, based upon the content of the data file, translates it to an agreed format. The Data transformation service then forwards the translated data file to the trading partner's delivery address, which is identified within the data file content.

Inbound Translation

For inbound translation, your trading partner may send data files to either your inbound Data transformation - Information Exchange mailbox or Data transformation-Internet transfer mailbox. The Data transformation service retrieves the data file from the inbound mailbox and, based upon the contents of the data file, translates it to the agreed format. The Data transformation service then forwards the translated file to the your delivery address, which is identified within the data file content.

Transaction activity reports

The transaction activity report provides the number of Data transformation transactions and the number of kilobytes sent and received by the customer per calendar month. The transaction activity reports are produced monthly, or as otherwise agreed upon by you and GXS. The reports are delivered to your Internet transfer mailbox. See Appendix A on page 15 for an example of a transaction activity report.

Chapter 4

Mapping

Mapping ties the translation process together. A map instructs the translator how to translate your input into your desired output. The map is developed using your Implementation Guide, which explains how each field in the input relates to its corresponding field in the desired output. The Implementation Guide also explains any special logic to be applied during the translation, any necessary value substitutions (such as EA for EACH), and any value limitations on any of the fields. For example, there may only be acceptable values for a particular item of data that you want to have translated. Those two values are stated in the implementation guide and the map is developed to ignore any other values.

Once a map is complete, a usage is defined that associates the map with a trading partner or trading partners. For inbound EDI, the translator uses the envelope to determine the trading partner and message type, and to match that to the correct map through the usage on that map. For translations where the input is your application data format, GXS must know which field in your data represents the trading partner in order to locate the correct map to use for translation.

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Appendix A

Transaction activity reports

This appendix contains an example of a transaction activity report. See the following page.

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GILES1_report_1_MONTHS_2002-8-6
Messages Sent To Service From GILES1:

MESSAGE_ID	COMPONENT_ID	SENDER_ID	RECEIVER_ID	DATE_TIME_STAMP	MSG_SIZE	MSG_FORMAT

Total Messages: 0
Total bytes: 0

Messages Sent To GILES1 From Service:

MESSAGE_ID	COMPONENT_ID	SENDER_ID	RECEIVER_ID	DATE_TIME_STAMP	MSG_SIZE	MSG_FORMAT
2879951509129904606,TRANSLATE1	IDDX_OFF_RAMP	GILES1	GILES1	2002-07-19 09:57:05.68	922	edi
6799011262631378833.TRANSLATE1	IDDX_OFF_RAMP	GILES1	GILES1	2002-07-19 10:57:36.05	922	edi
3302531262670682751.TRANSLATE1	IDDX_OFF_RAMP	GILES1	GILES1	2002-07-19 11:25:10.332	1064	adf
5100006548925653678.TRANSLATE1	IDDX_OFF_RAMP	GILES1	GILES1	2002-07-22 06:10:27.413	1064	adf
5197327998443486790.TRANSLATE1	IDDX_OFF_RAMP	GILES1	GILES1	2002-07-24 04:57:24.958	1064	adf
3758070987875700528.TRANSLATE1	IDDX_OFF_RAMP	GILES1	GILES1	2002-07-24 05:26:24.306	922	edi
592280966994673934.TRANSLATE1	IDDX_OFF_RAMP	GILES1	GILES1	2002-07-24 06:29:02.926	494	edi
7233445709872646416.TRANSLATE1	IDDX_OFF_RAMP	GILES1	GILES1	2002-07-24 07:30:30.015	494	edi

Appendix B

Implementation Guide Mapping Information

In your Implementation Guide, provide the following information that pertains to your translation mapping requirements.

EDI standard data

Provide a detailed description of the file format, the segments to be used, and the codes and qualifiers to be used. Specify any rules for translating codes from one value to another. Additionally, include a sample file.

- EDI standard information
  - EDI Implementation Guide
  - Standard (ANSI X12, UN/EDIFACT)
  - Standard version (4030, D97A)
  - Transaction (850, 810, ORDERS, DESADV)
  - Direction (send or receive)
  - Segments and Data Elements
  - Lookup values/codes
- Sample data
- Mapping rules and guidelines

Custom application definition format

Provide a detailed description of the file format, including record and data element details. Indicate key fields which identify the sender of the data, the receiver of the translated data, as well as the transaction type. Specify any rules for translating codes from one value to another.

- Record type and description

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- Data elements within each record type
- Data element name and description
- Data element length
- Data element status
  - Mandatory (always present, required)
  - Optional (may be present, but not required)

- Sample data
- Mapping rules and guidelines

XML data

Provide a detailed description of the file format, including record and data element details.

Indicate key fields that identify the sender of the data, the receiver of the translated data, as well as the transaction type. Specify any rules for translating codes from one value to another.

- DTD and description
  - Data element status
    - Mandatory (always present, required)
    - Optional (may be present, but not required)
- Sample data
- Mapping rules and guidelines

Samples

Following are samples of the information required in the Implementation Guide.

EDI Standard data

Standard:	ANSI X12
Version:	4010
Transaction:	832 Price Catalog
Direction:	Inbound/Receive

Standard: ANSI X12

Version: 4010

Transaction: 832 Price Catalog

Direction: Inbound / Receive

Segment Details

	ID	Name	Usage	Max Use	Loop Repeat
Header	ST	Transaction set header	Mandatory	1	
	BCT	Beginning segment	Mandatory	1	
	DTM	Date/time reference	Optional	10	
	CUR	Currency	Optional	5	
N1 loop	N1	Name information	Optional	1	200
Detail	LIN	Item identification	Optional	1	700000
LIN loop	REF	UNPSC identification	Optional	8	
	DTM	Date/time reference	Optional	10	
	PID	Product/item description	Optional	200	
	SSS	Special services - warranty	Optional	25	
CTP loop	CTP	Pricing information	Optional	1	25
Summary	CTT	Transaction totals	Optional	1	
	SE	Transaction set trailer	Mandatory	1	

N1 Loop Details

Segment:	N1
Loop:	N1
Level:	Header
Usage:	Optional
Max use:	1
Purpose:	To identify the trading partner's name
Comments:	Sample N1 segment: N1*SE*GXS!

ID	Name	Usage	Type	Length (min/max)
N101	Entity identifier code 'SE' - Selling party	Mandatory	ID	2/2
N102	Name	Conditional	AN	1/35

Segment:	PER
Loop:	N1
Level:	Header
Usage:	Optional
Max use:	3
Purpose:	To identify the trading partner's name
Comments:	Sample PER segment: PER*IC*JohnDavis*TE*8005551234!

ID	Name	Usage	Type	Length (min/max)
PER01	Contact function r code 'IC' - Information contact	Mandatory	ID	2/2
PER02	Name Name of person at vendor location to contact	Conditional	AN	1/35
PER03	Communication number qualifier 'TE' - Telephone number	Conditional	ID	2/2
PER04	Communication number Telephone number	Conditional	AN	1/25
PER05	Communication number qualifier 'EM' - E-mail address	Conditional	ID	2/2
PER06	Communication number E-mail address	Conditional	AN	1/25

ADF mapping

Following is a sample of ADF mapping layout

						Rules	
Name	Format	Size	Start Pos	End Pos	Description	Mandatory/Optional	
SAPPART	Char	7	1	7	Product Part Number	mandatory	
FILLER1	Char	1	8	8			
SAPDESC	Char	45	9	53	Product Description	mandatory	
SAPACT	Char	9	54	62	Product Publish Status	mandatory	
FILLER3	Char	1	63	63			
SAPWEIGHQUAL	Char	10	64	73	Weight UOM	mandatory, if weight supplied	
FILLER4	Char	1	74	74			
SAPWEIGHT	Char	17	75	91	Product Weight	optional	1) number format is (x,3)
FILLER5							
SAPMEASID	Char	10	93	102	Distance UOM	mandatory, if length, width, height supplied	
FILLER6	Char	1	103	103			
SAPLENGTH	Char	17	104	120	Product Length	optional	1) number format is (x,3); 2) may not be NULL or negative
FILLER7	Char	1	121	121			
SAPWIDTH	Char	17	122	138	Product Width	optional	1) number format is (x,3); 2) may not be NULL or negative
FILLER8	Char	1	139	139			
SAPHEIGHT	Char	17	140	156	Product Height	optional	1) number format is (x,3); 2) may not be NULL or negative

						Rules	
Name	Format	Size	Start Pos	End Pos	Description	Mandatory/Optional	
FILLER9	Char	1	157	157			
SAPSOLDTO	Char	10	158	167	Customer Sold to Number	mandatory	
SAPENTITLEDPRICE	Char	18	168	185	Product Entitled Price	mandatory	1) number format is (x,2)
SAPLISTPRICE	Char	18	186	203	Product Base Price	mandatory	1) number format is (x,2)
FILLER12	Char	1	204	204			
SAPSTARTDATE	Char	10	205	214	Product Base Price Start Date	mandatory	1) format is mm/dd/yyyy
FILLER13	Char	1	215	215			
SAPENDDAT	Char	10	216	225	Product Base Price End Date	mandatory	1) If not avail, then set value to "12/31/9999"; 2) format is mm/dd/yyyy
FILLER14	Char	1	226	226			
SAPWITHDRAWDATE	Char	10	227	236	Product Withdrawal Date	mandatory	1) If not avail, then set value to "12/31/9999"; 2) format is mm/dd/yyyy
FILLER15	Char	1	237	237			
SAPCURRENTDATE	Char	10	238	247	Current Date	mandatory	1) format is mm/dd/yyyy
FILLER16	Char	1	248	248			
SAPMATERIALST	Char	2	249	250	Product Material Status	mandatory	
FILLER17	Char	1	251	251			
SAPCURRENCY	Char	3	252	254	Price Currency	mandatory	
FILLER18	Char	37	255	291			

Glossary

This glossary defines technical terms used in the documentation for EDI Services products and services. It includes selected terms and definitions from:

- *The American National Standard Dictionary for Information Systems*, ANSI X3.172-1990, copyright 1990 by the American National Standards Institute (ANSI). Copies may be purchased from the American National Standards Institute, 11 West 42nd Street, New York, New York 10036. Definitions are identified by the symbol (A) after the definition.
- The *Information Technology Vocabulary* developed by Subcommittee 1, Joint Technical Committee 1, of the International Organization for Standardization and the International Electrotechnical Commission (ISO/IEC JTC1/SC1). Definitions of published parts of this vocabulary are identified by the symbol (I) after the definition; definitions taken from draft international standards, committee drafts, and working papers being developed by ISO/IEC JTC1/SC1 are identified by the symbol (T) after the definition, indicating that final agreement has not yet been reached among the participating National Bodies of SC1.

A

application data. In Internet data and document exchange, data produced by an application program that does not contain EDI or XML header information.

AS1. Applicability Statement 1 is the draft specification standard by which vendor applications communicate EDI data (or other data such as XML) over the Internet using SMTP.

AS2. Applicability Statement 2 is the draft specification standard by which vendor applications communicate EDI (or other data such as XML) over the Internet using HTTP.

C

CA. See certificate authority.

certificate. In e-commerce, a digital document that binds a public key to the identity of the certificate owner; thereby, enabling the certificate owner to be authenticated. A certificate is issued by a certificate authority (CA).

certificate authority (CA). In e-commerce, an organization that issues certificates. The CA authenticates the certificate owner's identity and the services that the owner is authorized to use, issues new certificates, renews existing certificates, and revokes certificates belonging to users who are no longer authorized to use them.

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certification authority. See certificate authority.

D

delivery address. The receiving party's destination address that can be reached through the Internet transfer service, unless the customer and GXS agree otherwise.

E

EDI. See Electronic Data Interchange.

EDIFACT. See EDI For Administration Commerce and Trade.

EDIINT. See Electronic Data Interchange-Internet Integration.

EDI For Administration Commerce and Trade (EDIFACT). An international standard EDI format.

Electronic Data Interchange (EDI). A standard format for exchanging business data.

Electronic Data Interchange - Internet Integration (EDIINT). A standard for conducting EDI exchanges over the Internet.

Extensible Markup Language (XML). A standard meta-language for defining markup languages that was derived from and is a subset of SGML. XML omits the more complex and less-used parts of SGML and makes it much easier to (a) write applications to handle document types, (b) author and manage structured information, and (c) transmit and share structured information across diverse computing systems. The use of XML does not require the robust applications and processing that are necessary for SGML. XML is being developed under the auspices of the World Wide Web Consortium (W3C).

H

HTTP. See Hypertext Transfer Protocol.

HTTPS. See Secure Hypertext Transfer Protocol.

Hypertext Transfer Protocol (HTTP). In the Internet suite of protocols, the protocol that is used to transfer and display hypertext documents.

I

Implementation Guide. A document the customer provides to GXS that describes the format of data prior to, and after translation, and how the input data format is to be converted to the output data format.

M

MIME. See Multipurpose Internet Mail Extensions.

Multipurpose Internet Mail Extensions (MIME). An Internet standard for identifying the type of object being transferred across the Internet. MIME types include several variants of audio, graphics, and video.

P

private key. In computer security, a key that is known only to its owner. Contrast with public key. See public key cryptography.

public key. In computer security, a key that is made available to everyone. Contrast with private key. See public key cryptography.

public key cryptography. In computer security, cryptography in which public keys and private keys are used for encryption and decryption.

Public Key Infrastructure (PKI). In computer security, a security architecture based on public key cryptography.

PKI. See Public Key Infrastructure.

S

Secure Hypertext Transfer Protocol (HTTPS). A Web protocol that encrypts and decrypts Web page requests and the pages that are returned by the Web server.

Secure Sockets Layer (SSL). A security protocol that provides communication privacy. SSL enables client/server applications to communicate in a way that is designed to prevent eavesdropping, tampering, and message forgery. SSL was developed by Netscape Communications Corp. and RSA Data Security, Inc.

Simple Mail Transfer Protocol (SMTP). A TCP/IP protocol used for sending and receiving e-mail.

S/MIME. A format and protocol for adding cryptographic signatures and encryption services to Internet MIME messages.

SMTP. See Simple Mail Transfer Protocol.

T

trading partner. Business associates, such as a manufacturer and a supplier, who agree to exchange information using electronic data interchange.

V

value-added network (VAN). A network that provides value-added services, such as administration services, interconnection and interoperation with other services, and data security.

VAN. See value added network.

X

X12. A standard EDI format used primarily in North America.

XML. See Extensible Markup Language.