An Odette Publication

ODETTE
No effective digitalisation without standardisation

ENGDAT

Ref EN01 Version 3.0 Published March 2006

ACKNOWLEDGEMENTS

XMTD

eXchange and Management of Technical Data

Work Group of

SASIG

Strategic Automotive product data Standards Industry Group

SASIG Members:

AIAG - Automotive Industry Action Group – North America

GALIA - Groupement pour l'Amélioration des Liaisons dans l'Industrie Automobile - France

JAMA - Japan Automobile Manufacturers Association, Inc.

Odette Sweden

VDA - Verband der Automobilindustrie e.V. - Germany

SASIG Liaison Members:

JAPIA – Japan Auto Parts Industries Association

Odette International

Active participants in the group came from the following companies:

Michael Strub	Ford / Promethium Consulting	AIAG
Anna Wasmer	PDTec GmbH	AIAG/VDA
Toru Kato	Toyota Motor Corporation	JAMA
Hiroyuki Inagaki	Mitsubishi Motors Corporation	JAMA
Nils Johansson	Volvo Cars IT, Product Development	Odette Sweden
Peter Nilsson	Stralfors	Odette Sweden
Henner Stengel	Siemens VDO	VDA
Dietmar Kaschmieder	DaimlerChrysler	VDA
Andreas Exner	W. Karmann GmbH	VDA
Frédéric Chambolle	GALIA - PSA Peugeot Citroën	GALIA
Philippe DuRivault	GALIA	GALIA
Gerhard Hölzle	DaimlerChrysler	VDA

Some contributions were also made by the following individuals and companies:

William Koch	Dana Corporation	AIAG
Kimihiro Yamazaki	Akebono Brake Industry Co Ltd	JAPIA
Satoru Shamoto	Tokai Rika Co Ltd	JAPIA
Michael Lupia	DaimlerChrysler	VDA
Sten Lindgren	Odette-Sweden	Odette Sweden
Carol Tierney	General Dynamics Land Systems	AIAG
Akram Yunas	AIAG	AIAG
David Povilus	Lagado	AIAG
Takamasa Tanaka	Dipro / Nissan	JAMA
Jürgen Mohrmann	T-Systems	VDA
Vikal Sachdeva	DaimlerChrysler	AIAG
Farnoush Shifteh	DaimlerChrysler	AIAG
Hikari Ishimoto	Mitsubishi Motors Corporation	JAMA

TABLE OF CONTENTS

1 OVERVIEW

1.1 Use

The use of CAD/CAM technology is a state-of-the-art practice in the automotive and automotive component supplier industry. Many other types of technical data files, including Bills of Material (BOMs), Requirements lists, Finite Element Analysis (FEA) documents, spreadsheets, and text documents often accompany this data. Such groups of technical data, often called technical data packages, must be exchanged over considerable distances between partners.

More and more, the exchange takes place over (public) networks. This type of data transfer is called **Electronic Data Interchange (EDI)**. The advantages of Electronic Data Interchange are time savings and possible automation. Both can only be attained reliably if commonly defined rules are respected.

This recommendation specifies the content, structure, and format of a machine-readable delivery note (abstract, or content description) of exchanged technical data files. This is known as an ENGineering DATa message, or "**ENGDAT".**

ENGDAT contains basic descriptive information that is required by the parties responsible for requesting, creating, preparing, transmitting, receiving, managing, and acknowledging technical data, as well as characteristics of the included technical data files.

This recommendation was originally based on recommendations from ODETTE Working Group 11, but has been completely overhauled by more than 160 requirements from the Strategic Automotive product data Standards Industry Group (SASIG). **ENGDAT** versions 1 and 2 are accepted as European standards and are endorsed as well by North American and Japanese automotive industry groups.

The objective of this recommendation is to define, interpret, and provide examples of the **ENGDAT** message as a binding procedure for technical data exchange, and to facilitate the development of the necessary software to implement it. The result is the definition of a new version of **ENGDAT** (version 3) based on new requirements and new language technology.

ENGDAT V3 is published by Odette and Sasig. Both versions are identical in content.

1.2 Definitions / Terminology

Conformance Class

A subset of the data elements in the ENGDAT specification which can encode one of the four message types (request, basic exchange, sophisticated exchange, acknowledgement) or all four of them.

Container File

The data created or exported by some CAD systems may be in the form of a set of files – even for the design of a single item. One of these files is said to “contain” the other files, which it does by containing references to them. This file is the “container file” (the files within the container files are called “Contained Files”.)

Delivery Note

"Delivery Note" is a generic reference to any file used to convey information about a series of other files comprising a technical data package. In this document, a delivery note is an “ENGDAT message” or “ENGDAT file”.

ENGDAT Message (Engineering Data Message)

The ENGDAT message is a note that may be sent alone or that accompanies a set of files that are being exchanged. It is a list of metadata, or data about other data; in this case the “other data” consist of either requested or acknowledged data or of the exchanged files. These metadata consist of eight segments – Message Identification (MID), Document Alphanumeric Reference (DAN), Sender Details (SDE), Receiver Details (RDE), Requested File (REQ), Exchanged File Characteristics (EFC), Link to Other Files (LOF), and Contained File Characteristics (CFC). Each of these segments contains between 2 and 49 data elements. Together they can provide sufficient information to the receiver of the set of files so that the intent of the sender can be understood and the purpose of each file can be readily determined.

ENGDAT Package

The ENGDAT package is the set of technical data files to be sent using an ENGDAT message, including the ENGDAT message itself.

Technical Data Package

A Technical Data package is the generic phrase used to describe the set of technical data files to be sent using any delivery note, including the delivery note itself. An ENGDAT Package is the specific kind of Technical Data Package described in this document.

1.3 Changes from ENGDAT version 2

The changes in ENGDAT between this version (3) and the previous version are extensive. This new version accommodates business processes in additional regions of the world and incorporates many new requirements and updates. It also drops many outdated and little-used components, and accommodates a new implementation method: XML. It is therefore not practical to require compatibility with previous versions of ENGDAT. The following comments are therefore informational rather than critical to interoperability. If interoperability to previous versions is required, implementers will find that mappings from version 2 to version 3 are usually possible but that many mappings in the reverse direction have no corollary.

The GR1 (segment GRoup 1) segment, and the DSD (Drawing Specification Details) segment have been removed due to their lack of use and lack of a clear understanding of how they were intended to be used. All details formerly defined in this segment can easily be described instead in the EFC segment.

Fields have been added, removed, and changed in SDE and RDE. The SEC (Security) segment data element fields have been folded into the EFC and CFC segments.

A new data element has been added: CFC (Container File Characteristics). When the technical data file described by an EFC segment is a “container file”, it can describe the content of each contained file.

Previously the uses of ENGDAT had been limited to exchanging data (now called conformance class 2 or 3) and acknowledging data (now called conformance class 4) in versions 1 and 2. ENGDAT version 3 has been extended to making requests for data as well. To this end, another new data element has been added as well: REQ (Requested File). This element helps conformance class 1 data requests specify the parts needed by the requestor.

The sequence of data elements has been modified. This was done so that groups of data elements of a similar nature appear together, and groups of data elements with a similar purpose always appear in the same sequence, regardless of the segment in which they appear.

Technical data packages using ENGDAT may now consist of as many as 9998 technical data files accompanying the delivery note. Any of these data files may in turn be a container file with up to 9999 contained files. Also, maximum field lengths have been extended, although brevity is encouraged in all cases.

All of the old references to EDIFACT have been removed from the main body of this document. Although EDIFACT was the original implementation method, there is now another, preferred method for use in Internet exchanges: XML. Details on how to use XML are now found in appendixes.

Compatibility

With the publication of this Recommendation we no longer recommend that implementers support ENGDAT versions below version 3.

2 THE ENGDAT MESSAGE

2.1 Objective

Technical (Engineering) Data originate from many different technical specialties, including research, design, analysis, manufacturing, and so on. In common development and production processes, they are frequently exchanged in sets between companies.

For each transfer, the sending party must give information in addition to the technical data. After all, the final recipient (and possibly one or more service providers who may be relaying the message) must be informed about the sender, the reason for the transfer, its content, format, the status of the individual files, and many other details. Also, there may need to be a tacit agreement between the sender and receiver regarding the content of the data, format, etc.

A written or oral transfer of accompanying information, or a mere transfer of a group of files, has severe drawbacks:

- The receiving party must collate all data constituting this process, maybe covering different methods of information transfer and different media.
- Both partners must agree to the content and format of the accompanying information.
- An automated connection and procedure of the various transfer steps, such as data conversion, protocol generation, or archiving, is not possible or is very difficult as there is no standardization.
- The response to the sender and processing by the recipient follows an independent route, not connected to the sending process.
- It may not be possible to document or prove that agreements were made, resulting in legal complications.

The ENGDAT (Engineering Data) Message corrects these drawbacks:

- It combines all files of a transfer in a logical way.
- It transfers accompanying information in a uniform content and format.
- It is the prerequisite for a reliable, automated procedure using standard software.
- It may be used to make a documented data request to initiate the exchange process and can provide a controlled completion of the entire process by receipt confirmation (acknowledgement).
- It can be used for online data transfer, the preferred method, as well as for offline media. The ENGDAT message provides the conditions needed to attain the objective of an orderly and economical data exchange.

2.2 Enveloping (Naming Conventions / Linking of the Files)

In contrast to other message types, in which all information - including the user information - is transferred in a single message file, the ENGDAT message serves as a “delivery note” that contains information about additional, separate, technical data files. This information, or metadata, communicates file attribution and routing details. The technical data is transferred in separate files, which are considered to be “enveloped” by the ENGDAT delivery note.

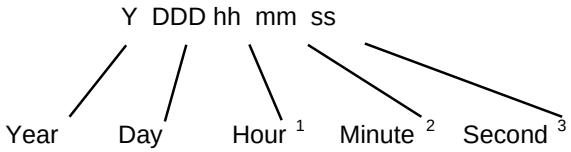
In order to correlate the technical data files with their ENGDAT delivery note, ENGDAT incorporates external file references – pointers to the associated files.

ENGDAT delivery notes and the technical data files they collate are each named with a 26-character string. These names are constructed as follows:

ENG<time_stamp><free_reference_code><filecount><sequence_number>

Where

- **ENG** is literally the three capital letters as shown,
- **<time_stamp>** has the following format:



- **<free_reference_code>** is a 5-character alphanumeric code, which shall be completely filled and bilaterally defined between sending and receiving parties.

  NOTE: “Exchange Reference” refers to the time stamp plus free reference code.

- **<filecount>** is a 4-digit number equal to the number of technical data files being exchanged, plus one more representing the ENGDAT delivery note itself.

The sending party is responsible for this reference being unique. It must ensure, therefore, that two messages are not created with the same time stamp.

Example

Transmit three files with technical data in an ENGDAT package. The message was created on 29th June (the 210th day of) 2002 at 11.33. The free reference code of the example shall be for “Company 1 (Hamburg)”, e.g. "C1HBG". During the transfer the files have the following virtual file names:

1. ENG2210113300C1HBG00040001 Delivery note
2. ENG2210113300C1HBG00040002 Technical data file 1

[1] From 0 to 23 hours
[2] From 0 to 59 minutes
[3] From 0 to 59 seconds

3. ENG2210113300C1HBG00040003 Technical data file 2
4. ENG2210113300C1HBG00040004 Technical data file 3

These four files constitute the ENGDAT package. This package receives the “name“ **ENG2210113300C1HBG.** All files belonging to this package receive this name, supplemented by the sequential number.

ENGDAT-Package:	**ENG2210113300C1HBG...**
ENGDAT "delivery note“	..**00040001**
Exchanged data file 1	...**00040002**
Exchanged data file 2	...**00040003**
Exchanged data file 3	...**00040004**

Table 1. Example of an ENGDAT Package

A modification of the delivery note during its transfer between sender and final recipient must be prevented (for instance by transfer through service providers or clearing centers analyzing the message to determine routing addresses).

2.3 Process Diagram Basis for ENGDAT

The process of exchanging technical data packages involves a series of steps. The complete series of steps that were considered by the international organization, SASIG, in developing this expanded version of ENGDAT is depicted in the process diagram of Annex B. A simplified diagram follows on the next page.

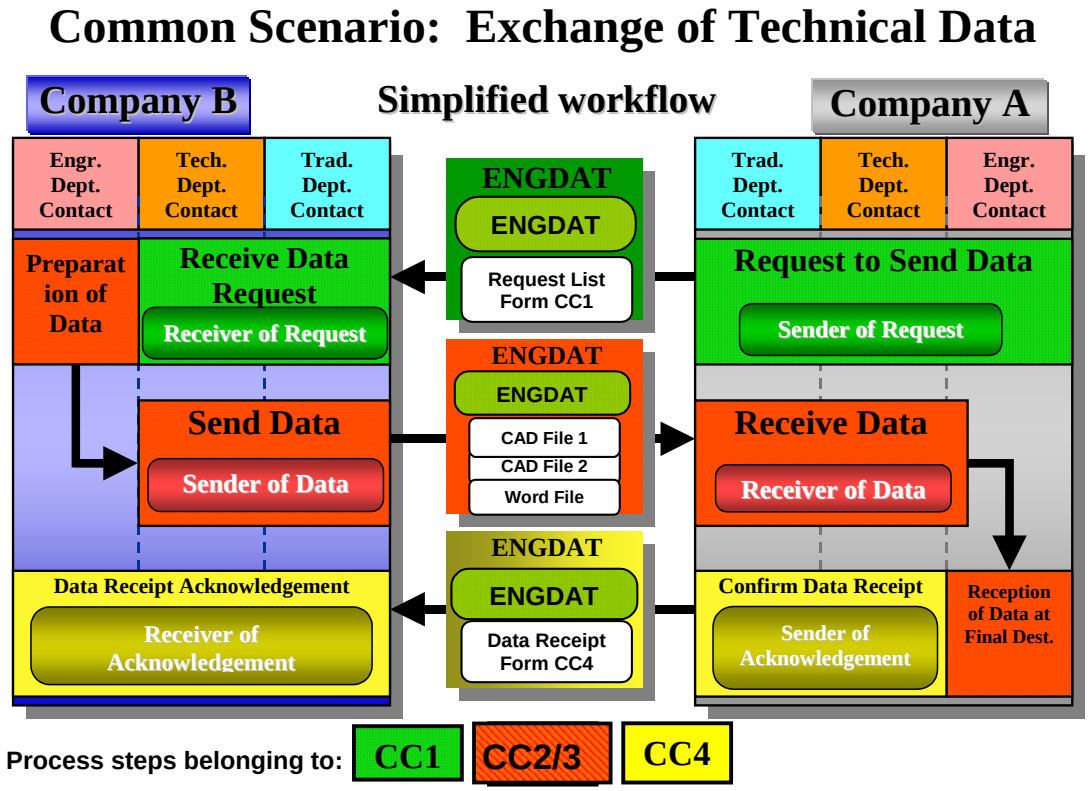


Figure 1 - Simplified Process Diagram

2.4 Conformance Classes

Groups of process steps in the preceding diagram have been collected into five color-coded conformance classes (CCs), enabling implementers to select conformance classes for implementation that meet the needs of their customers. Implementations of ENGDAT should state which conformance classes they support.

Class 1 (Green) This series of steps may begin with a formal request for data. The data elements of this request constitute CC1 of ENGDAT. The request is said to come ***from*** a receiver ***to*** a sender, because sender and receiver are defined ONLY in terms of the later exchange of the technical data. CC1 implementation is optional in an ENGDAT application but desired by many formally managed enterprises. It is new in ENGDAT version 3.

Data requests may instead be informal, consisting of nothing more than a phone call or an email. These requests are common but fall outside of the scope of ENGDAT. It is also possible that data may be sent without any prior solicitation whatsoever.

Class 2 (Red) After a formal or informal request for data, or none at all, an ENGDAT exchange may occur in which a technical data package is supplied - ***from*** a sender ***to*** a receiver. A minimal set of data elements, for which inexpensive implementations may be written, constitutes CC2. Its elements are very similar to those in ENGDAT version 2. The authors of this document intend that small

companies desiring an inexpensive implementation may be able to obtain and use CC2 compliant software.

Class 3 (Also Red) The supply of a technical data package may be accompanied by a delivery note that is richer in useful metadata than the minimal CC2 capability. Full capability to exchange this metadata is accommodated by CC3. CC3 includes CC2 as a subset. CC3 implementation is an optional extension that is desired by most large organizations. It contains many requirements new in ENGDAT version 3.

Class 4 (Yellow) After the supply of a technical data package, the ***receiving*** organization may send an acknowledgement of receipt to the ***sender***. The metadata transmitted in this acknowledgement constitutes Conformance Class 4 (CC4). This conformance class was previously described in ENGDAT version 2 in the ″acknowledgement″ example, section 2.5.3.

Class 5 (Entire Diagram) Conformance Class 5 does not describe a type of ENGDAT message but instead refers to an implementation that provides users with access to every data element in CC1 through CC4 – in other words, the entire ENGDAT v3 specification.

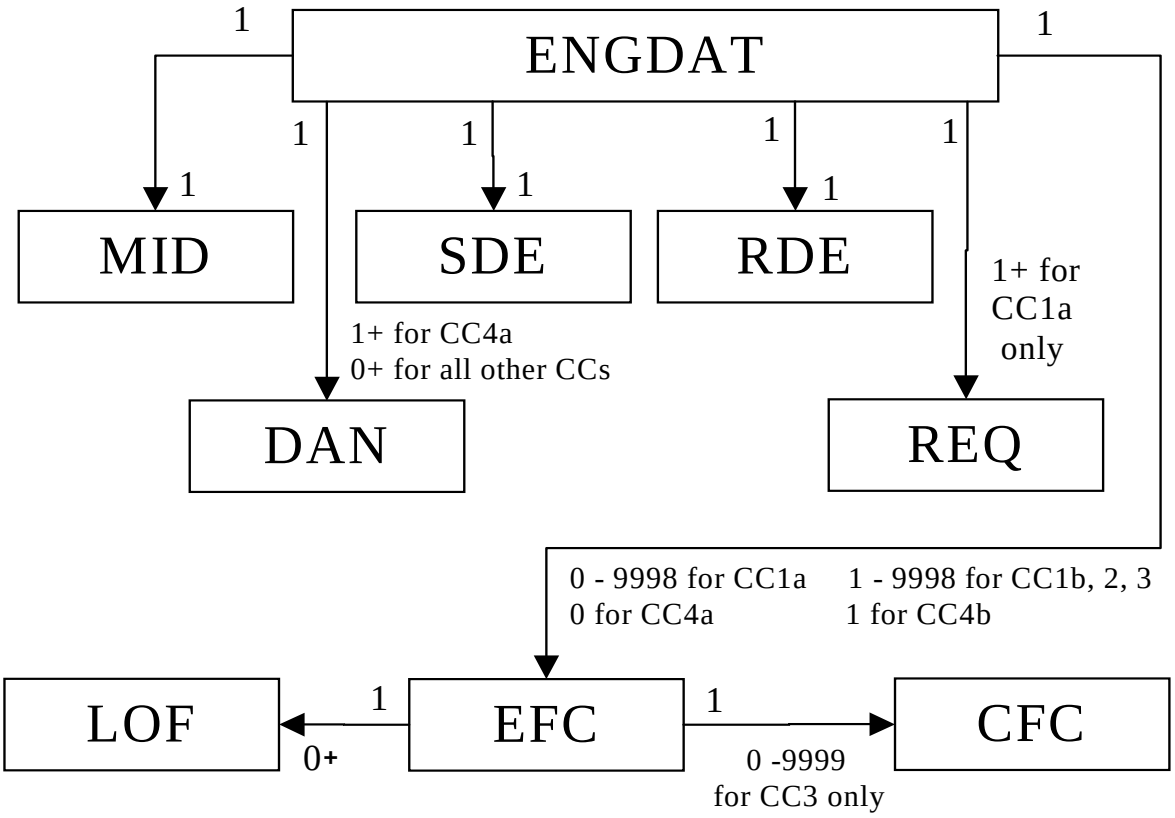
All ENGDAT ***messages*** must conform to exactly one of CC 1, 2, 3, or 4.

All ENGDAT ***implementations*** must claim conformance to CC 1, 2, 3, and/or 4; or to CC5. All implementations of CC3 must implement the subset, CC2. CC2 or CC3 implementations may optionally also implement and claim conformance to CC1 and/or CC4. CC5 simply means all of the CCs.

There are two different kinds of CC1 and two different kinds of CC4 messages, each known as “a” and “b”. They are differentiated by technical details described in sections 2.5 and 2.6. Implementations of CC1 must implement both CC1a and CC1b. Implementations of CC4 must implement both CC4a and CC4b.

2.5 ENGDAT Structure: Segments

The diagram below describes the structure and cardinality of ENGDAT in terms of its highest level elements: the segments.



The ENGDAT message consists of exactly one MID, SDE, and RDE segment. It may contain any number of DAN segments, although CC4b requires at least one. CC1a messages contain one or more REQ segments. EFC segment cardinality is highly dependent on conformance class. CC4 messages contain zero or one EFC segments, depending on whether they are of type “a” or “b”.

If a CC3 ENGDAT message contains any EFC segments, each EFC segment may optionally contain up to 9999 CFC segments and any number of LOF segments.

Each segment consists of between 2 and 49 data elements. Some of these belong to groups that are basically the same in two or three different segments. The purpose of these groups is only to simplify the representation of the structure of the ENGDAT standard.

The following diagrams in this section show what each segment consists of, in terms of these groups of data elements. Individual data elements are listed and described here only briefly. The fully detailed specification may be found in Annex A, which illustrates the following:

1. The sequence of segments, groups, and data elements

2. The source requirement of each data element

3. The conformance classes in which each data element shall be available

4. The full name of each data element

5. The abbreviated version of the data element name, known as the “Short Name”. This can be used by implementations to reduce ENGDAT delivery note file sizes

6. The cardinality of each segment, group, and data element. Cardinality means the permitted number of instances. Each segment appears a certain number of times in an ENGDAT message.

   For example, the MID segment must appear exactly once in an ENGDAT message. The EFC segment may appear between 1 and 9998 times in a conformance class 2 or 3 ENGDAT message

   Each group appears a certain number of times in its segment – in these cases, always either “once” (mandatory) or “zero or once” (optionally). For example, the General Data Element(s) group of any segment always appears once in that segment (whenever the segment itself is used). However, trading and technical contacts in the SDE and RDE segments are optional.

   Each data element appears a certain number of times in its group whenever that group is used – again, always either “once” or “zero or once”. For example, the Document Id must appear exactly once in the MID General Data Elements group whenever that group and segment are used. However, the comment field is optional in that group.

7. The format of the data element. Field types are n (numeric), an (alphanumeric), or x (alphanumeric plus punctuation). For most fields, maximum lengths are provided, but normal data values will be much shorter. For other fields, exact lengths are stated.

   NOTE: Numeric fields in ENGDAT are restricted to contain only digits, e.g. 1234567890. This means that numeric fields may only contain positive unsigned integers.

8. Field description. Precise terms of use for the data element. Certain additional format information may also appear here, as well as special cases and rules.

9. Sample values. Most data elements have many possible values. One of them is shown for illustrative purposes.

2.5.1 Message Identifier (MID) Segment Structure

The MID segment of ENGDAT, which appears in all ENGDAT messages and all conformance classes, contains information relevant to the overall technical data package among its "General Data Elements".

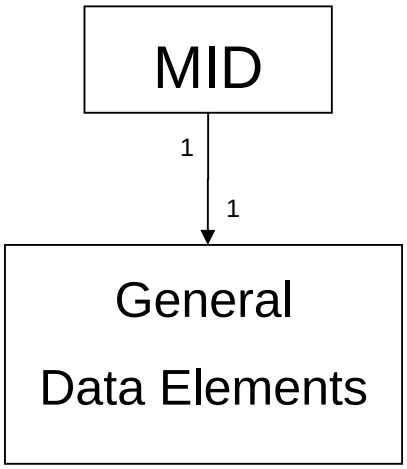


Figure 3 - MID Segment Structure

MID General Data Elements

The general data elements of MID provide unique identification of the technical data package, including character and language specifications, job numbers, number of files; dates and times of creation, deadline, request receipt, and data receipt; conformance class, and comments.

1. **Character Set**
2. **Language Specification**
3. **Technical Data Receiver's Job Number**
4. **Technical Data Sender's Job Number**
5. **Version** (mandatory)
6. **Document Id** (mandatory)
7. **File Count** (mandatory)
8. **Document Date**
9. **Required Completion Date / Time**
10. **Receiver's Request Reception Date / Time**
11. **Data Receipt Date / Time**
12. **Conformance Class**
13. **Free Text**

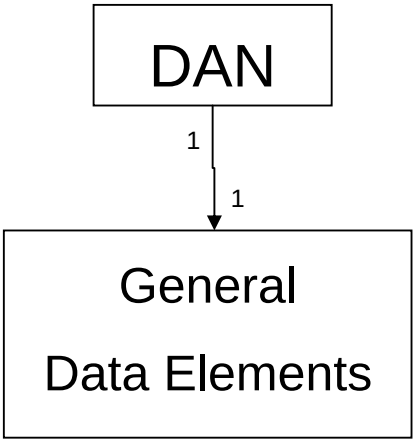


Figure 4 - DAN Segment Structure

2.5.2 Document Alphanumeric Reference (DAN) Segment Structure

Except for conformance class 4a, where it is mandatory, the DAN segment of ENGDAT is optional. When it appears, it may occur any number of times in an ENGDAT message. Each instance of DAN describes a reference to an external technical data package and the correlative ENGDAT delivery note.

DAN General Data Elements

The General Data Elements of DAN define a relationship to another technical data package and its ENGDAT delivery note.

1. **External Document Type**

2. **External Document Number** (mandatory)
3. **External Document Date / Time**
4. **External Document Reference Purpose**
5. **Incremental Change**

2.5.3 Sender Details (SDE) Segment Structure

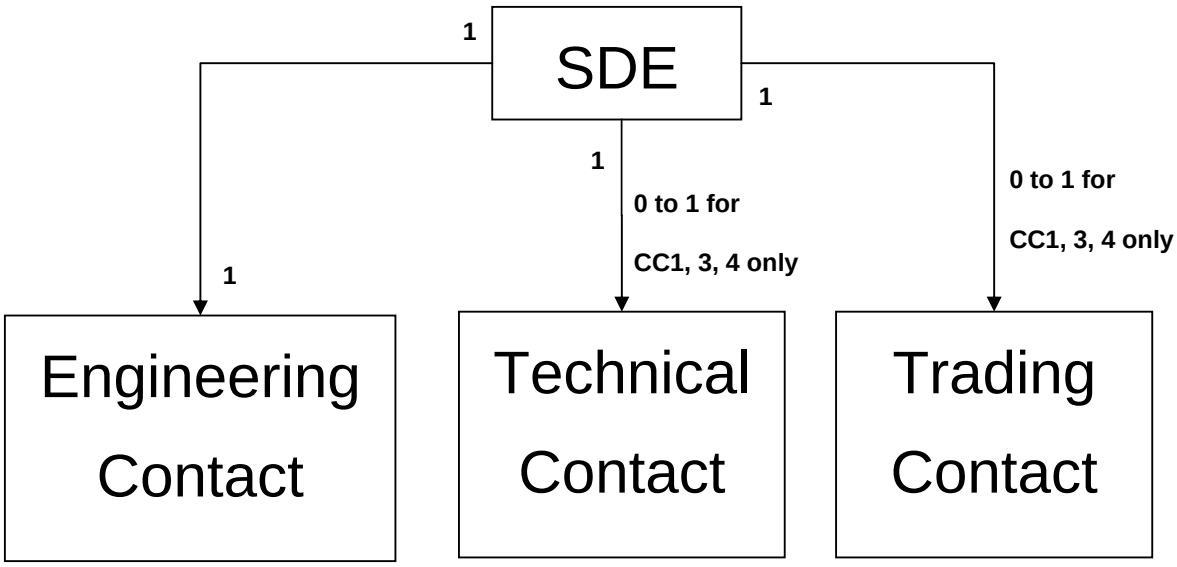


Figure 5 - SDE Segment Structure

The SDE segment of ENGDAT details up to three department contacts affiliated with or internal to the sending company. The Engineering Contact is mandatory, and the Technical and Trading Contacts are optional.

SDE Engineering Contact

The Engineering Contact of SDE identifies the person and/or company responsible for creating or maintaining the data in this technical data package. If no Technical or Trading contacts are specified, the Engineering Contact is responsible for their roles as well. This group defines the routing code, identifier, name, address, phone, e-mail, and fax contact information for the sender's engineering department, plus a comment.

This data element group is virtually identical to the RDE Engineering Contact.

1. **Sender Engineering Contact Routing Code**
   (mandatory, or #12 is mandatory with either #14 or #17)
2. **Sender Engineering Contact Company Name** (mandatory, or #3)
3. **Sender Engineering Contact Internal ID number** (mandatory, or #2)
4. **Sender Engineering Contact Address Street Name**
5. **Sender Engineering Contact Address Street Number**
6. **Sender Engineering Contact Address City**
7. **Sender Engineering Contact Address State**
8. **Sender Engineering Contact Address Country**
9. **Sender Engineering Contact Address Postal Code**
10. **Sender Engineering Contact Address Comment**
11. **Sender Engineering Contact Department**
12. **Sender Engineering Contact Person Surname**
    (mandatory with #14 or #17, unless #1 is specified)
13. **Sender Engineering Contact Person Given Name**
14. **Sender Engineering Contact Phone Number**
    (mandatory with #12, unless #12 and #17 are specified, or #1 is specified)
15. **Sender Engineering Contact Phone Number Mobile**
16. **Sender Engineering Contact Fax Number**
17. **Sender Engineering Contact E-mail Address**
    (mandatory with #12, unless #12 and #14 are specified, or #1 is specified)

SDE Technical Contact

The Technical Contact of SDE identifies the person and/or company responsible for sending, translating, and/or managing the exchanged data. If no Trading contact is specified, the Technical Contact is responsible for contractual arrangements for the data as well. This group defines the identifier, name, address, phone, e-mail, and fax contact information for the sender's technical department, plus a comment.

This data element group is virtually identical to the RDE Technical Contact.

1. **Sender Technical Contact Company Name** (mandatory, or #2)
2. **Sender Technical Contact Internal ID number** (mandatory, or #1)
3. **Sender Technical Contact Address Street Name**
4. **Sender Technical Contact Address Street Number**
5. **Sender Technical Contact Address City**
6. **Sender Technical Contact Address State**

7. **Sender Technical Contact Address Country**
8. **Sender Technical Contact Address Postal Code**
9. **Sender Technical Contact Address Comment**
10. **Sender Technical Contact Department**
11. **Sender Technical Contact Person Surname** (mandatory)
12. **Sender Technical Contact Person Given Name**
13. **Sender Technical Contact Phone Number** (mandatory, or #16)
14. **Sender Technical Contact Phone Number Mobile**
15. **Sender Technical Contact Fax Number**
16. **Sender Technical Contact E-mail Address** (mandatory, or #13)

SDE Trading Contact

The Trading Contact of SDE identifies the person and/or company responsible for contractual arrangements for the exchanged data. This group defines the identifier, name, address, phone, e-mail, and fax contact information for the sender's trading department, plus a comment.

This data element group is virtually identical to the RDE Trading Contact.

1. **Sender Trading Contact Company Name** (mandatory, or #2)
2. **Sender Trading Contact Internal ID number** (mandatory, or #1)
3. **Sender Trading Contact Address Street Name**
4. **Sender Trading Contact Address Street Number**
5. **Sender Trading Contact Address City**
6. **Sender Trading Contact Address State**
7. **Sender Trading Contact Address Country**
8. **Sender Trading Contact Address Postal Code**
9. **Sender Trading Contact Address Comment**
10. **Sender Trading Contact Department**
11. **Sender Trading Contact Person Surname** (mandatory)
12. **Sender Trading Contact Person Given Name**
13. **Sender Trading Contact Phone Number** (mandatory, or #16)
14. **Sender Trading Contact Phone Number Mobile**
15. **Sender Trading Contact Fax Number**
16. **Sender Trading Contact E-mail Address** (mandatory, or #13)

2.5.4 Receiver Details (RDE) Segment Structure

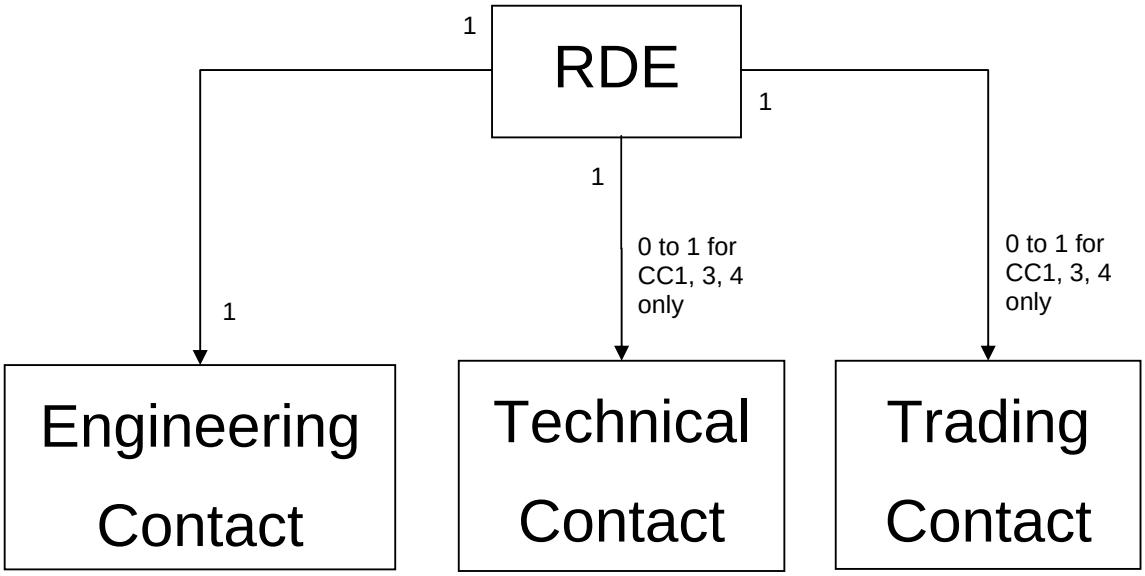


Figure 6 - RDE Segment Structure

The RDE segment of ENGDAT details up to three department contacts affiliated with or internal to the receiving company. The Engineering Contact is mandatory, and the Technical and Trading Contacts are optional.

RDE Engineering Contact

The Engineering Contact of RDE identifies the person and/or company that will be using the exchanged data. If no Technical or Trading contacts are specified, the Engineering Contact is responsible for their roles as well. This group defines the routing code, identifier, name, address, phone, e-mail, and fax contact information for the receiver's engineering department, plus a comment.

This data element group is virtually identical to the SDE Engineering Contact.

1. **Receiver Engineering Contact Routing Code**
   (mandatory, or #12 is mandatory with either #14 or #17)
2. **Receiver Engineering Contact Company Name** (mandatory, or #3)
3. **Receiver Engineering Contact Internal ID number** (mandatory, or #2)
4. **Receiver Engineering Contact Address Street Name**
5. **Receiver Engineering Contact Address Street Number**
6. **Receiver Engineering Contact Address City**
7. **Receiver Engineering Contact Address State**
8. **Receiver Engineering Contact Address Country**
9. **Receiver Engineering Contact Address Postal Code**

10. **Receiver Engineering Contact Address Comment**
11. **Receiver Engineering Contact Department**
12. **Receiver Engineering Contact Person Surname**

    (mandatory with #14 or #17, unless #1 is specified)
13. **Receiver Engineering Contact Person Given Name**
14. **Receiver Engineering Contact Phone Number**

    (mandatory with #12, unless #12 and #17 are specified, or #1 is specified)
15. **Receiver Engineering Contact Phone Number Mobile**
16. **Receiver Engineering Contact Fax Number**
17. **Receiver Engineering Contact E-mail Address**

    (mandatory with #12, unless #12 and #14 are specified, or #1 is specified)

RDE Technical Contact

The Technical Contact of RDE identifies the person and/or company responsible for receiving, translating, and/or managing the exchanged data. If no Trading contact is specified, the Technical Contact is responsible for contractual arrangements for the data as well. This group defines the identifier, name, address, phone, e-mail, and fax contact information for the receiver's technical department, plus a comment.

This data element group is virtually identical to the SDE Technical Contact.

1. **Receiver Technical Contact Company Name** (mandatory, or #2)
2. **Receiver Technical Contact Internal ID number** (mandatory, or #1)
3. **Receiver Technical Contact Address Street Name**
4. **Receiver Technical Contact Address Street Number**
5. **Receiver Technical Contact Address City**
6. **Receiver Technical Contact Address State**
7. **Receiver Technical Contact Address Country**
8. **Receiver Technical Contact Address Postal Code**
9. **Receiver Technical Contact Address Comment**
10. **Receiver Technical Contact Department**
11. **Receiver Technical Contact Person Surname** (mandatory)
12. **Receiver Technical Contact Person Given Name**
13. **Receiver Technical Contact Phone Number** (mandatory, or #16)
14. **Receiver Technical Contact Phone Number Mobile**
15. **Receiver Technical Contact Fax Number**
16. **Receiver Technical Contact E-mail Address** (mandatory, or #13)

RDE Trading Contact

The Trading Contact of RDE identifies the person and/or company responsible for contractual arrangements for the exchanged data. This group defines the identifier, name, address, phone, e-mail, and fax contact information for the receiver's trading department, plus a comment.

This data element group is virtually identical to the SDE Trading Contact.

1. **Receiver Trading Contact Company Name** (mandatory, or #2)
2. **Receiver Trading Contact Internal ID number** (mandatory, or #1)
3. **Receiver Trading Contact Address Street Name**
4. **Receiver Trading Contact Address Street Number**
5. **Receiver Trading Contact Address City**
6. **Receiver Trading Contact Address State**
7. **Receiver Trading Contact Address Country**
8. **Receiver Trading Contact Address Postal Code**
9. **Receiver Trading Contact Address Comment**
10. **Receiver Trading Contact Department**
11. **Receiver Trading Contact Person Surname** (mandatory)
12. **Receiver Trading Contact Person Given Name**
13. **Receiver Trading Contact Phone Number** (mandatory, or #16)
14. **Receiver Trading Contact Phone Number Mobile**
15. **Receiver Trading Contact Fax Number**
16. **Receiver Trading Contact E-mail Address** (mandatory, or #13)

2.5.5 Requested File (REQ) Segment Structure

REQ Part Specification

The Part Specification group of REQ is used to name and characterize the part being requested.

This data element group is virtually identical to the EFC and CFC Part Specification groups but contains two additional data elements: Requested File Original Name, and Requested File Format.

1. **Requested File Revision Level**
2. **Requested File Revision Date / Time**
3. **Requested File Part Number**
4. **Requested File Part Name**
5. **Requested File Content Dimensionality**
6. **Requested File Comment**
7. **Requested File Original Name**
8. **Requested File Format**

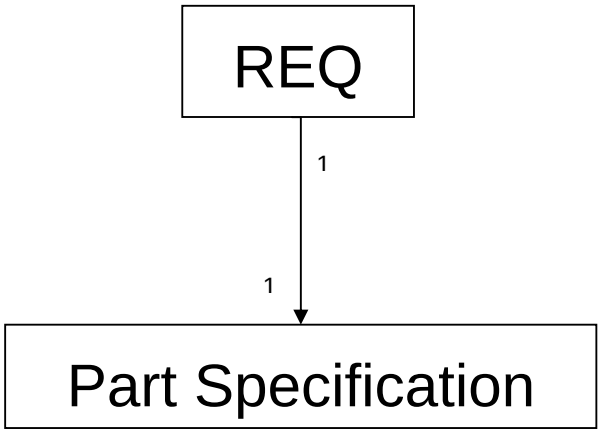


Figure 7 - REQ Segment Structure

2.5.6 Exchanged File Characteristics (EFC) Segment Structure

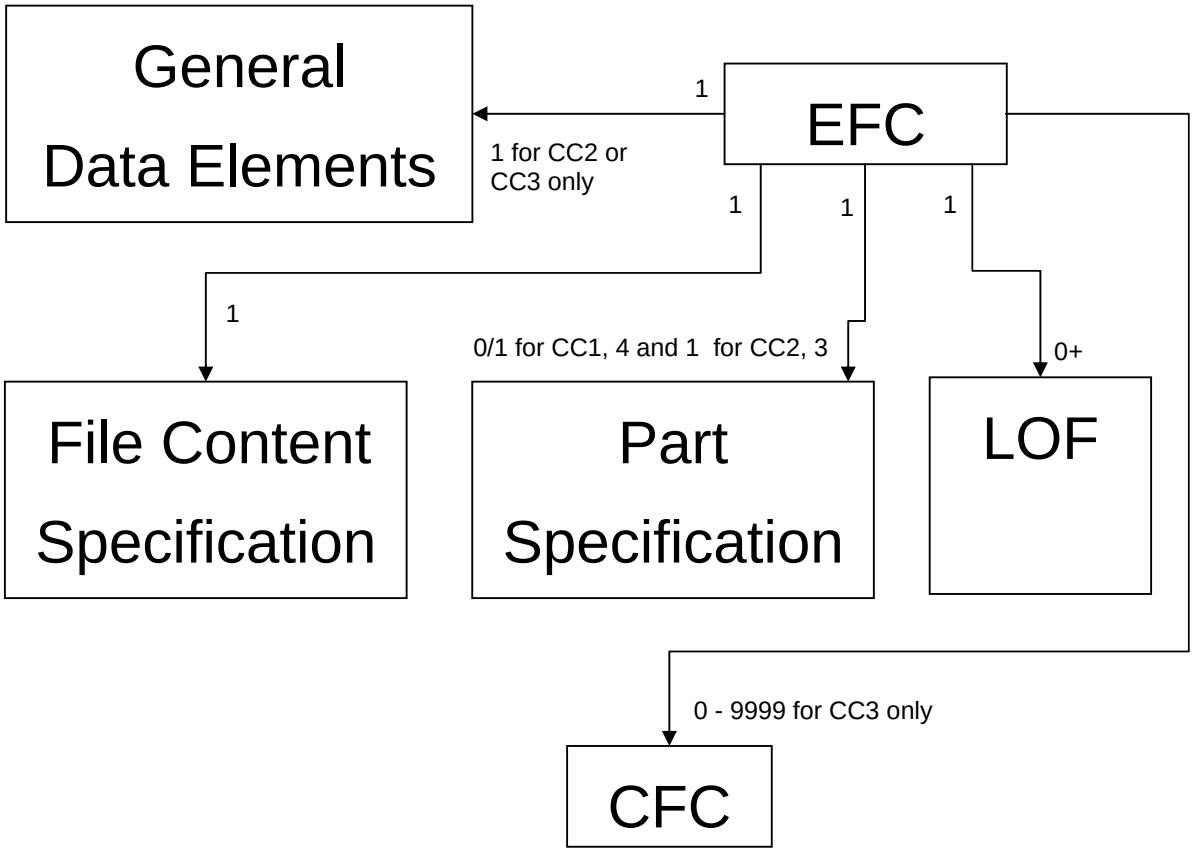


Figure 8 - EFC Segment Structure

The EFC segment of ENGDAT has many uses.

In **Conformance Class 1**, which is used for making the initial request for data, there are two ways to construct the requesting message, and two purposes for the EFC segment.

EFC segments may appear only to point to files which provide additional information about requested parts. For this purpose, EFC segments and the files they may point to are purely optional. REQ segments are used for making the actual part requests. This is CC1a.

OR:

A single EFC segment must be used, which points to a single exchanged file. This exchanged file contains a list of requested part files. Beyond it, additional EFC segments may point to files with additional information, as in case “a”. This style of CC1 message contains no REQ segments. This is CC1b.

In **Conformance Class 2 or 3**, which is used for the actual exchange of a technical data package, one EFC segment shall be instantiated per exchanged file. For each EFC segment, an accompanying file is pointed to. The technical data package consists of a header file plus as many exchanged files as there are EFC segments.

Finally, in **Conformance Class 4**, which is used to acknowledge the earlier transmission of a technical data package, there are also two ways to construct the message.

1. One may use zero EFC segments. One may use a DAN segment and establish an external link to the CC2 or CC3 ENGDAT package in which the data being acknowledged were transmitted. The DAN External Document Reference Purpose shall then be populated either with the word “SUCCESS” or “FAILURE”. In this case, there is no attached file and the header file stands alone as the only member of the technical data package. This is CC4a.

OR:

2. One may use a single EFC segment in the ENGDAT message. The EFC Exchanged File value shall begin with the string “CONFIRMATION”. One would also use the EFC Exchanged File Sequence Number to point to a single exchanged file that contains formally formatted information on the transaction being acknowledged, and its success or failure. This is CC4b. The file that the EFC segment points to has a simple prescribed format:

   Line 1: The exchange reference (found in the MID Document Id) of the preceding CC2 or CC3 data exchange being acknowledged.

   Line 2: Either a zero (0), which indicates that the entire package was received successfully and was correct, or a non-zero character, which indicates that there was a problem with content or receipt.

   Line 3 and onward: Free explanatory text of any length.

EFC General Data Elements

The General Data Elements of EFC are used to describe each exchanged file. The origins of the file can be described along with its formats, purpose, compression, and sizes.

1. **Exchanged File Contained Quantity** (mandatory)
2. **Exchanged File Project Code**
3. **Exchanged File Contract Number**
4. **Exchanged File Work Order Number**
5. **Exchanged File Format Coded**
6. **Exchanged File Format**
7. **Exchanged File Format Version**
8. **Exchanged File Data Code Coded**
9. **Exchanged File Data Code**
10. **Exchanged File Generating System**
11. **Exchanged File Generating System Application**
12. **Exchanged File Generating System Version**

13. **Exchanged File Purpose**
14. **Exchanged File Compression Method**
15. **Exchanged File Compressed File Size**
16. **Exchanged File Uncompressed File Size**

EFC File Content Specification

The File Content Specification Group of EFC is used to name and characterize the content of each exchanged file.

This data element group is virtually identical to the CFC File Content Specification group, except that the CFC variant has no encryption method.

1. **Exchanged File Sequence Number** (mandatory)
2. **Exchanged File Original Name**
3. **Exchanged File Physical Name**
4. **Exchanged File Design Phase**
5. **Exchanged File Content Detail Level**
6. **Exchanged File Encryption Method**

EFC Part Specification

The Part Specification Group of EFC is used to name and characterize the part detailed by an exchanged file.

This data element group is virtually identical to the REQ and CFC Part Specification groups, although the REQ segment contains a seventh and eighth data element not found here.

1. **Exchanged File Revision Level**
2. **Exchanged File Revision Date / Time**
3. **Exchanged File Part Number**
4. **Exchanged File Part Name**
5. **Exchanged File Content Dimensionality**
6. **Exchanged File Comment**

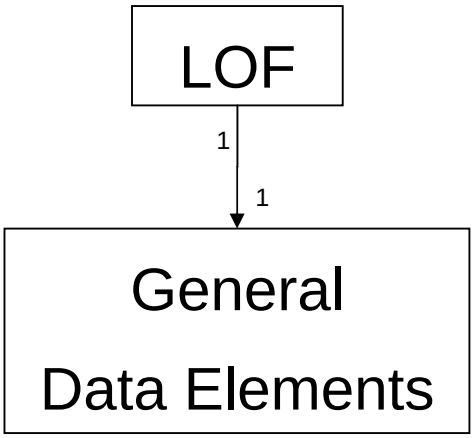


Figure 9 - LOF Segment Structure

2.5.7 Link to Other Files (LOF) Segment Structure

The LOF segment of ENGDAT is optional and may appear any number of times in the EFC segment of an ENGDAT message. Each instance of LOF describes a reference to another file within this technical data package.

General Data Elements

The Linked File Group of EFC is used to note a relationship between the file described by this EFC and a file described by another EFC segment in the same technical data package.

1. **Linked File Sequence Number** (mandatory)
2. **Link Purpose**

2.5.8 Contained File Characteristics (CFC) Segment Structure

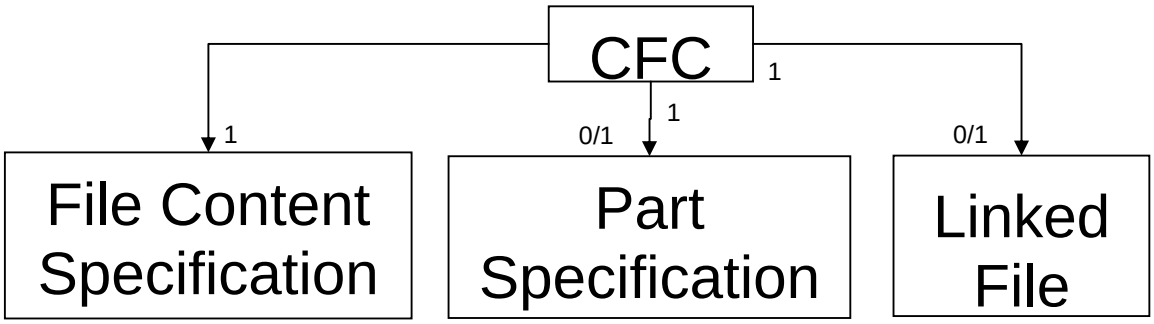


Figure 10 - CFC Segment Structure

Some software applications produce file outputs that contain other files. These files are called “Container Files”, and the files they contain are called “Contained Files”. It is recognized that occasionally a sender needs to communicate certain information to the receiver about individual contained files.

The CFC segment of ENGDAT may occur within an EFC segment only in a conformance class 3 exchange. Furthermore, it only appears within EFC segments that describe a container file, and then only for those contained files requiring additional explanatory metadata.

CFC File Content Specification

The File Content Specification Group of CFC is used to name and characterize the content of each contained file deemed worthy of this level of comment.

This data element group is virtually identical to the EFC File Content Specification group, except for the EFC Exchanged File Encryption Method. This exception is because encrypted contained files always are encrypted as an integral part of the container file encryption and never by an independent method.

1. **Contained File Sequence Number** (mandatory)
2. **Contained File Original Name**
3. **Contained File Physical Name**
4. **Contained File Design Phase**
5. **Contained File Content Detail Level**

CFC Part Specification

The Part Specification Group of CFC is used to name and characterize the part described in the contained file.

This data element group is virtually identical to the EFC and REQ Part Specification groups, although the REQ segment contains a seventh and eighth data element not found here.

1. **Contained File Revision Level**
2. **Contained File Revision Date / Time**
3. **Contained File Part Number**
4. **Contained File Part Name**
5. **Contained File Content Dimensionality**
6. **Contained File Comment**

CFC Linked File

The Linked File Group of CFC is used to note a relationship between the file described by this CFC and a file described by another CFC segment in the same EFC segment of the same technical data package.

This data element group is virtually identical to the EFC segment's LOF segment.

1. **Contained File Linked File Sequence Number** (mandatory)
2. **Contained File Link Purpose**

2.6 Application Examples

The following examples illustrate how each conformance class (CC) of ENGDAT may be used. CC1 is for making requests for data. CC2 is for delivering data files. CC3 is for delivering data files like CC2, except with more metadata, and for describing contents of data files that are container files. CC4 is for acknowledging data files sent earlier via CC2 or CC3.

Implementers may claim conformance to CC5 for implementations that include all data elements of this specification, which means all elements of CC1 through CC4. However, there is no CC5 message or exchange.

Implementations of ENGDAT should provide the capability of exchanging every data element contained in the conformance classes that they claim to support. However, individual exchanges may contain as few data elements as the mandatory minimum. A data element that is mandatory is only required when the data element group that contains it is specified. Likewise, a data element group that is mandatory is not required if the segment to which it belongs is not present.

Each example shows a snapshot from Annex A. This snapshot shows all of the data elements permitted in that conformance class and populates all mandatory and many optional data elements. The data element names are followed by short names, cardinalities, syntaxes, and example data.

2.6.1 Example 1 – Conformance Class 1a

In **Conformance Class 1**, which is used for making the initial request for data, the request may be made in two ways. The first way--“a”--is illustrated in the following example.

One **REQ** segment must be used for each requested part. There may be zero or more **EFC** segments pointing to files that provide additional information. This example will include one of the optional EFC segments.

	MID			1		
1	Character Set	MID_CHS		0/1	x..25	ISO 10646
2	Language Specification	MID_LAN		0/1	a2	EN
3	Technical Data Receiver's Job Number	MID_REC_JNR		0/1	x..25	A987654
5	Version	MID_VER		1	x..5	3
6	Document Id	MID_DID		1	an15	3029131005YUGOU
7	File Count	MID_QTY		1	n4	0002
8	Document Date	MID_DOC_DTM	0/1	n12		030129131005
9	Required Completion Date / Time	MID_DUE_DTM	0/1	n12		030205170000
12	Conformance Class	MID_CC		0/1	an..5	1
13	Free Text	MID_TXT		0/1	x..500	please phone engineering contact

The **MID** segment, which is mandatory, contains three mandatory data elements in CC1. The **Document Id** indicates that this file is being sent on January 29, 2003. There is a **File Count** of 0002, indicating that there is one attached file. The date and time by which the requested data is due is February 5, 2003 at 17:00.

The **DAN** segment is optional, so in this example we stipulate that there is no need to reference another, previous ENGDAT message. However, many CC1 messages will need to make one or more references to other ENGDAT messages.

	SDE		1		
	Engineering Contact		1		
1	Sender Engineering Contact Routing Code	SDE_ENG_ROU M or 12+14, 12+17	x..50		c3a1d4c1e5i9
2	Sender Engineering Contact Company Name	SDE_ENG_NAM	M or 3	x..100	Yugo Unlimited
3	Sender Engineering Contact Internal ID Number	SDE_ENG_UID	M or 2	x..50	195634
4	Sender Engineering Contact Address Street Name	SDE_ENG_ADR_STR	0/1	x..50	P.O.Box
5	Sender Engineering Contact Address Street Number	SDE_ENG_ADR_NBR	0/1	x..25	298-G
6	Sender Engineering Contact Address City	SDE_ENG_ADR_CTY	0/1	x..50	Detroit
7	Sender Engineering Contact Address State	SDE_ENG_ADR_STA	0/1	x..50	Michigan
8	Sender Engineering Contact Address Country	SDE_ENG_ADR_COU	0/1	a2	US
9	Sender Engineering Contact Address Postal Code	SDE_ENG_ADR_ZIP	0/1	x..25	48328-3516
10	Sender Engineering Contact Address Comment	SDE_ENG_ADR_TXT	0/1	x..50	(418 E. Madison Ave.)
11	Sender Engineering Contact Department	SDE_ENG_ADR_DEP	0/1	x..100	Dpt.ABT-1
12	Sender Engineering Contact Person Surname	SDE_ENG_PER_SUR M+14, M+17, or 1		x..50	Antgo
13	Sender Engineering Contact Person Given Name	SDE_ENG_PER_GNM	0/1	x..50	Corwin
14	Sender Engineering Contact Phone Number	SDE_ENG_PHN M+12, 12+17, or 1		x..50	+1 (248) 555-9876
15	Sender Engineering Contact Phone Number Mobile	SDE_ENG_MOB	0/1	x..50	+1 (818) 357-2468
16	Sender Engineering Contact Fax Number	SDE_ENG_FAX	0/1	x..50	+1 (248) 555-1000
17	Sender Engineering Contact E-mail Address	SDE_ENG_EML M+12, 12+14, or 1		x..100	cantgo@yugo.com

The **SDE** segment requires only that the **Engineering Contact** (group) be specified, so this example only populates them. Since the **Engineering Contact** group is mandatory, the mandatory rules within this group apply, and the sender must choose to supply the following fields as a minimum: **Sender Engineering Contact Routing Code**, or **Sending Engineering Contact Person Surname** with **Sender Engineering Contact Phone Number**, or **Sending Engineering Contact Person Surname** with **Sender Engineering Contact E-mail Address.** In addition, the sender must provide either the **Sender Engineering Contact Company Name** or the **Sender Engineering Contact Internal ID number**.

	Technical Contact		0/1	
1	Sender Technical Contact Company Name	SDE_TEC_NAM M or 2	x..100	
2	Sender Technical Contact Internal ID number	SDE_TEC_UID	M or 1	x..50
3	Sender Technical Contact Address Street Name	SDE_TEC_ADR_STR	0/1	x..50
4	Sender Technical Contact Address Street Number	SDE_TEC_ADR_NBR	0/1	x..25
5	Sender Technical Contact Address City	SDE_TEC_ADR_CTY	0/1	x..50
6	Sender Technical Contact Address State	SDE_TEC_ADR_STA	0/1	x..50
7	Sender Technical Contact Address Country	SDE_TEC_ADR_COU	0/1	a2
8	Sender Technical Contact Address Postal Code	SDE_TEC_ADR_ZIP	0/1	x..50
9	Sender Technical Contact Address Comment	SDE_TEC_ADR_TXT	0/1	x..50
10	Sender Technical Contact Department	SDE_TEC_ADR_DEP	0/1	x..100
11	Sender Technical Contact Person Surname	SDE_TEC_PER_SUR	1	x..50
12	Sender Technical Contact Person Given Name	SDE_TEC_PER_GNM	0/1	x..50
13	Sender Technical Contact Phone Number	SDE_TEC_PHN M or 16	x..50	
14	Sender Technical Contact Phone Number Mobile	SDE_TEC_MOB 0/1	x..50	
15	Sender Technical Contact Fax Number	SDE_TEC_FAX 0/1	x..50	
16	Sender Technical Contact E-mail Address	SDE_TEC_EML M or 13	x..100	
	Trading Contact		0/1	
1	Sender Trading Contact Company Name	SDE_TRD_NAM M or 2	x..100	
2	Sender Trading Contact Internal ID number	SDE_TRD_UID	M or 1	x..50
3	Sender Trading Contact Address Street Name	SDE_TRD_ADR_STR	0/1	x..50
4	Sender Trading Contact Address Street Number	SDE_TRD_ADR_NBR	0/1	x..25
5	Sender Trading Contact Address City	SDE_TRD_ADR_CTY	0/1	x..50
6	Sender Trading Contact Address State	SDE_TRD_ADR_STA	0/1	x..50
7	Sender Trading Contact Address Country	SDE_TRD_ADR_COU	0/1	a2
8	Sender Trading Contact Address Postal Code	SDE_TRD_ADR_ZIP	0/1	x..25
9	Sender Trading Contact Address Comment	SDE_TRD_ADR_TXT	0/1	x..50
10	Sender Trading Contact Department	SDE_TRD_ADR_DEP	0/1	x..100
11	Sender Trading Contact Person Surname	SDE_TRD_PER_SUR	1	x..50
12	Sender Trading Contact Person Given Name	SDE_TRD_PER_GNM	0/1	x..50
13	Sender Trading Contact Phone Number	SDE_TRD_PHN M or 16	x..50	
14	Sender Trading Contact Phone Number Mobile	SDE_TRD_MOB 0/1	x..50	

15	Sender Trading Contact Fax Number	SDE_TRD_FAX	0/1	x..50
16	Sender Trading Contact E-mail Address	SDE_TRD_EML	M or 13	x..100

The **SDE** segment does not require that the **Technical Contact** (group) or the **Trading Contact** (group) be specified, so this example does not populate them. If either contact group were provided at all, the mandatory data element rules within them would apply.

	RDE			1		
	Engineering Contact		1			
1	Receiver Engineering Contact Routing Code	RDE_ENG_ROU	M, or 12+14, 12+17	x..50	2b6f5e3c5e8h	
2	Receiver Engineering Contact Company Name	RDE_ENG_NAM	M or 3	x..100	Nova Parts Co.	
3	Receiver Engineering Contact Internal ID Number	RDE_ENG_UID	M or 2	x..50	084523	
4	Receiver Engineering Contact Address Street Name	RDE_ENG_ADR_STR	0/1	ax..50	Stephenson Highway	
5	Receiver Engineering Contact Address Street Number	RDE_ENG_ADR_NBR	0/1	x..25	1414	
6	Receiver Engineering Contact Address City	RDE_ENG_ADR_CTY	0/1	x..50	Windsor	
7	Receiver Engineering Contact Address State	RDE_ENG_ADR_STA	0/1	x..50	Ontario	
8	Receiver Engineering Contact Address Country	RDE_ENG_ADR_COU	0/1	a2	CA	
9	Receiver Engineering Contact Address Postal Code	RDE_ENG_ADR_ZIP	0/1	x..25	z1e4r4	
10	Receiver Engineering Contact Address Comment	RDE_ENG_ADR_TXT	0/1	x..50		
11	Receiver Engineering Contact Department	RDE_ENG_ADR_DEP	0/1	x..100		
12	Receiver Engineering Contact Person Surname	RDE_ENG_PER_SUR	M+14, M+17, or 1	x..50	DeVille	
13	Receiver Engineering Contact Person Given Name	RDE_ENG_PER_GNM	0/1	x..50	Cruella	
14	Receiver Engineering Contact Phone Number	RDE_ENG_PHN	M+12, 12+17, or 1	x..50		
15	Receiver Engineering Contact Phone Number Mobile	RDE_ENG_MOB	0/1	x..50		
16	Receiver Engineering Contact Fax Number	RDE_ENG_FAX	0/1	x..50		
17	Receiver Engineering Contact E-mail Address	RDE_ENG_EML	M+12, 12+14, or 1	x..100	cruella.d@nova.ca	

The **RDE** segment requires only that the **Engineering Contact** (group) be specified, so this example only populates them. Since the **Engineering Contact** (group) is mandatory, the mandatory rules within this group apply, and they are the same as for the same group in the SDE segment.

	Technical Contact		0/1	
1	Receiver Technical Contact Company Name	RDE_TEC_NAM	M or 2	x..100
2	Receiver Technical Contact Internal ID number	RDE_TEC_UID	M or 1	x..50
3	Receiver Technical Contact Address Street Name	RDE_TEC_ADR_STR	0/1	x..50
4	Receiver Technical Contact Address Street Number	RDE_TEC_ADR_NBR	0/1	x..25
5	Receiver Technical Contact Address City	RDE_TEC_ADR_CTY	0/1	x..50
6	Receiver Technical Contact Address State	RDE_TEC_ADR_STA	0/1	x..50
7	Receiver Technical Contact Address Country	RDE_TEC_ADR_COU	0/1	a2
8	Receiver Technical Contact Address Postal Code	RDE_TEC_ADR_ZIP	0/1	x..25
9	Receiver Technical Contact Address Comment	RDE_TEC_ADR_TXT	0/1	x..50
10	Receiver Technical Contact Department	RDE_TEC_ADR_DEP	0/1	x..100
11	Receiver Technical Contact Person Surname	RDE_TEC_PER_SUR	1	x..50
12	Receiver Technical Contact Person Given Name	RDE_TEC_PER_GNM	0/1	x..50
13	Receiver Technical Contact Phone Number	RDE_TEC_PHN	M or 16	x..50
14	Receiver Technical Contact Phone Number Mobile	RDE_TEC_MOB	0/1	x..50
15	Receiver Technical Contact Fax Number	RDE_TEC_FAX	0/1	x..50
16	Receiver Technical Contact E-mail Address	RDE_TEC_EML	M or 13	x..100
	Trading Contact		0/1	
1	Receiver Trading Contact Company Name	RDE_TRD_NAM	M or 2	x..100
2	Receiver Trading Contact Internal ID number	RDE_TRD_UID	M or 1	x..50
3	Receiver Trading Contact Address Street Name	RDE_TRD_ADR_STR	0/1	x..50
4	Receiver Trading Contact Address Street Number	RDE_TRD_ADR_NBR	0/1	x..25
5	Receiver Trading Contact Address City	RDE_TRD_ADR_CTY	0/1	x..50
6	Receiver Trading Contact Address State	RDE_TRD_ADR_STA	0/1	x..50
7	Receiver Trading Contact Address Country	RDE_TRD_ADR_COU	0/1	a2
8	Receiver Trading Contact Address Postal Code	RDE_TRD_ADR_ZIP	0/1	x..25
9	Receiver Trading Contact Address Comment	RDE_TRD_ADR_TXT	0/1	x..50
10	Receiver Trading Contact Department	RDE_TRD_ADR_DEP	0/1	x..100
11	Receiver Trading Contact Person Surname	RDE_TRD_PER_SUR	1	x..50
12	Receiver Trading Contact Person Given Name	RDE_TRD_PER_GNM	0/1	x..50

13	Receiver Trading Contact Phone Number	RDE_TRD_PHN	M or 16	x..50
14	Receiver Trading Contact Phone Number Mobile	RDE_TRD_MOB	0/1	x..50
15	Receiver Trading Contact Fax Number	RDE_TRD_FAX	0/1	x..50
16	Receiver Trading Contact E-mail Address	RDE_TRD_EML	M or 13	x..100

The **RDE** segment does not require that the **Technical Contact** (group) or the **Trading Contact** (group) be specified, so this example does not populate them.

	REQ		1+		
	Part Specification		1		
1	Requested File Revision Level	REQ_REV	0/1	x..25	Rel 2
2	Requested File Revision Date / Time	REQ_REV_DTM	0/1	n12	030122000000
3	Requested File Part Number	REQ_PRT_NBR	0/1	x..25	stc01839
4	Requested File Part Name	REQ_PRT_NAM	0/1	x..100	steering column
5	Requested File Content Dimensionality	REQ_CNT_DIM	0/1	n..5	3
6	Requested File Comment	REQ_TXT	0/1	x..500	assembly file
7	Requested File Original Name	REQ_ORG_NAM	0/1	x..100	x20.steering_column1839-sc.prt
8	Requested File Format	REQ_FMT	0/1	x..25	CATIA

The first instance of the **REQ** segment is a request for a steering column file, part number stc01839, release 2, in 3-dimensional form.

	REQ		1+		
	Part Specification		1		
1	Requested File Revision Level	REQ_REV	0/1	x..25	Rel 2
2	Requested File Revision Date / Time	REQ_REV_DTM	0/1	n12	
3	Requested File Part Number	REQ_PRT_NBR	0/1	x..25	rck02008
4	Requested File Part Name	REQ_PRT_NAM	0/1	x..100	rack gear
5	Requested File Content Dimensionality	REQ_CNT_DIM	0/1	n..5	3
6	Requested File Comment	REQ_TXT	0/1	x..500	design ASTM=30 steel
7	Requested File Original Name	REQ_ORG_NAM	0/1	x..100	x20.rack_gear2008.prt
8	Requested File Format	REQ_FMT	0/1	x..25	CATIA
	REQ		1+		
	Part Specification		1		
1	Requested File Revision Level	REQ_REV	0/1	x..25	Rel 3
2	Requested File Revision Date / Time	REQ_REV_DTM	0/1	n12	
3	Requested File Part Number	REQ_PRT_NBR	0/1	x..25	pnn00031
4	Requested File Part Name	REQ_PRT_NAM	0/1	x..200	pinion gear
5	Requested File Content Dimensionality	REQ_CNT_DIM	0/1	n..5	3
6	Requested File Comment	REQ_TXT	0/1	x..500	helical offset 20 deg
7	Requested File Original Name	REQ_ORG_NAM	0/1	x..100	x20.pinion_gear0031.prt
8	Requested File Format	REQ_FMT	0/1	x..25	CATIA

The second instance of the **REQ** segment is a request for a rack gear design that is part of the steering column assembly file, part number rck02008, release 2, in 3-dimensional form. The third instance follows the same pattern.

	EFC		0+		
1	Exchanged File Contained Quantity	EFC_CON_QTY	1	n4	0000
6	Exchanged File Format	EFC_FMT	0/1	x..25	Microsoft Word
13	Exchanged File Purpose	EFC_PPS	0/1	x..500	
					ADDITIONAL INFORMATION (engineering study)
14	Exchanged File Compression Method	EFC_CPR	0/1	x..25	gnuzip

	File Content Specification		1			
1	Exchanged File Sequence Number	EFC_SQN	1	n4	0002	
2	Exchanged File Original Name	EFC_ORG_NAM	0/1	x..100		engr_study.doc
3	Exchanged File Physical Name	EFC_PHS_NAM	0/1	x..100		engr_study.zip
6	Exchanged File Encryption Method	EFC_ENC	0/1	x..50		
	Part Specification		0/1			
6	Exchanged File Comment	EFC_TXT	0/1	x..500		

EFC segments are optional in an ENGDAT CC1a message, and because the REQ segments describe the requested part numbers, the **EFC** segment MUST NOT repeat the request. Put another way, **EFC** segments may only provide additional information about the request when there are **REQ** segments. To ensure that there is no confusion, every **EFC** Exchanged File Purpose in CC1a messages MUST ALWAYS begin with the string “ADDITIONAL INFORMATION”. Additional text optionally may follow this required text. In this example, the additional information is characterized as an “engineering study”.

In conclusion, the names of the files in this example would be the following:

ENGDAT message: ENG3029131005YUGOU00020001

Word Document: ENG3029131005YUGOU00020002

2.6.2 Example 2 – Conformance Class 1b

In **Conformance Class 1**, which is used for making the initial request for data, the request may be made in two ways. The second way--“b”--is illustrated in this example.

The first **EFC** segment is mandatory; it shall point to an exchanged file that is a list of requested parts. The Exchanged File Purpose shall begin with the string “REQUEST LIST”. Additional **EFC** segments are optional. None of them may contain a list of requested parts, nor begin with the string “REQUEST LIST”. All of them must contain only supporting data about the request. The value of their Exchanged File Purposes shall always begin with the string “ADDITIONAL INFORMATION”. Additional text may optionally follow the required string.

The example that follows is identical to that for CC1a except for the **MID** and **EFC** sections and the omission of the REQ segment.

	MID		1		
1	Character Set	MID_CHS	0/1	x..25	ISO 10646
2	Language Specification	MID_LAN	0/1	a2	EN
3	Technical Data Receiver's Job Number	MID_REC_JNR	0/1	x..25	A987654
5	Version	MID_VER	1	x..5	3
6	Document Id	MID_DID	1	an15	3029131005YUGOU
7	File Count	MID_QTY	1	n4	0003
8	Document Date	MID_DOC_DTM	0/1	n12	030129131005
9	Required Completion Date / Time	MID_DUE_DTM	0/1	n12	030205170000
12	Conformance Class	MID_CC	0/1	an..5	1
13	Free Text	MID_TXT	0/1	x..500	please phone engineering contact

The **MID** segment, which is mandatory, contains four mandatory data elements in CC1. The **Document Id** indicates that this file is being sent on January 29, 2003. There is a **File Count** of 0003,

indicating that there are two attached files in addition to this ENGDAT message – one with the requested parts list, and one with additional information about this request. The date and time by which the requested data are due are February 5, 2003 at 17:00 (the 36th day of 2003).

The **DAN** segment is optional, so in this example we stipulate that there is no need to reference another, previous ENGDAT message. However, some CC1 messages will need to make one or more references to other ENGDAT messages.

	SDE		1		
	Engineering Contact		1		
1	Sender Engineering Contact Routing Code	SDE_ENG_ROU	M or 12+14, 12+17	x..50	c3a1d4c1e5i9
2	Sender Engineering Contact Company Name	SDE_ENG_NAM	M or 3	x..100	Yugo Unlimited
3	Sender Engineering Contact Internal ID Number	SDE_ENG_UID	M or 2	x..50	195634
4	Sender Engineering Contact Address Street Name	SDE_ENG_ADR_STR	0/1	x..50	P.O.Box
5	Sender Engineering Contact Address Street Number	SDE_ENG_ADR_NBR	0/1	x..25	298-G
6	Sender Engineering Contact Address City	SDE_ENG_ADR_CTY	0/1	x..50	Detroit
7	Sender Engineering Contact Address State	SDE_ENG_ADR_STA	0/1	x..50	Michigan
8	Sender Engineering Contact Address Country	SDE_ENG_ADR_COU	0/1	a2	US
9	Sender Engineering Contact Address Postal Code	SDE_ENG_ADR_ZIP	0/1	x..25	48328-3516
10	Sender Engineering Contact Address Comment	SDE_ENG_ADR_TXT	0/1	x..50	(418 E. Madison Ave.)
11	Sender Engineering Contact Department	SDE_ENG_ADR_DEP	0/1	x..100	Dpt.ABT-1
12	Sender Engineering Contact Person Surname	SDE_ENG_PER_SUR	M+14, M+17, or 1	x..50	Antgo
13	Sender Engineering Contact Person Given Name	SDE_ENG_PER_GNM	0/1	x..50	Corwin
14	Sender Engineering Contact Phone Number	SDE_ENG_PHN	M+12, 12+17, or 1	x..50	+1 (248) 555-9876
15	Sender Engineering Contact Phone Number Mobile	SDE_ENG_MOB	0/1	x..50	+1 (818) 357-2468
16	Sender Engineering Contact Fax Number	SDE_ENG_FAX	0/1	x..50	+1 (248) 555-1000
17	Sender Engineering Contact E-mail Address	SDE_ENG_EML	M+12, 12+14, or 1	x..100	cantgo@yugo.com

The **SDE** segment requires only that the **Engineering Contact** (group) be specified, so this example only populates them. Since the **Engineering Contact** group is mandatory, the mandatory rules within this group apply, and the sender must choose to supply the following fields as a minimum: **Sender Engineering Contact Routing Code**, or **Sending Engineering Contact Person Surname** with **Sender Engineering Contact Phone Number**, or **Sending Engineering Contact Person Surname** with **Sender Engineering Contact E-mail Address.** In addition, the sender must provide either the **Sender Engineering Contact Company Name** or the **Sender Engineering Contact Internal ID number**.

	Technical Contact		0/1	
1	Sender Technical Contact Company Name	SDE_TEC_NAM	M or 2	x..100
2	Sender Technical Contact Internal ID number	SDE_TEC_UID	M or 1	x..50
3	Sender Technical Contact Address Street Name	SDE_TEC_ADR_STR	0/1	x..50
4	Sender Technical Contact Address Street Number	SDE_TEC_ADR_NBR	0/1	x..25
5	Sender Technical Contact Address City	SDE_TEC_ADR_CTY	0/1	x..50
6	Sender Technical Contact Address State	SDE_TEC_ADR_STA	0/1	x..50
7	Sender Technical Contact Address Country	SDE_TEC_ADR_COU	0/1	a2
8	Sender Technical Contact Address Postal Code	SDE_TEC_ADR_ZIP	0/1	x..25
9	Sender Technical Contact Address Comment	SDE_TEC_ADR_TXT	0/1	x..50
10	Sender Technical Contact Department	SDE_TEC_ADR_DEP	0/1	x..100
11	Sender Technical Contact Person Surname	SDE_TEC_PER_SUR	1	x..50
12	Sender Technical Contact Person Given Name	SDE_TEC_PER_GNM	0/1	x..50
13	Sender Technical Contact Phone Number	SDE_TEC_PHN	M or 16	x..50
14	Sender Technical Contact Phone Number Mobile	SDE_TEC_MOB	0/1	x..50
15	Sender Technical Contact Fax Number	SDE_TEC_FAX	0/1	x..50
16	Sender Technical Contact E-mail Address	SDE_TEC_EML	M or 13	x..100
	Trading Contact		0/1	
1	Sender Trading Contact Company Name	SDE_TRD_NAM	M or 2	x..100
2	Sender Trading Contact Internal ID number	SDE_TRD_UID	M or 1	x..50
3	Sender Trading Contact Address Street Name	SDE_TRD_ADR_STR	0/1	x..50
4	Sender Trading Contact Address Street Number	SDE_TRD_ADR_NBR	0/1	x..25

5	Sender Trading Contact Address City	SDE_TRD_ADR_CTY	0/1	x..50
6	Sender Trading Contact Address State	SDE_TRD_ADR_STA	0/1	x..50
7	Sender Trading Contact Address Country	SDE_TRD_ADR_COU	0/1	a2
8	Sender Trading Contact Address Postal Code	SDE_TRD_ADR_ZIP	0/1	ax..25
9	Sender Trading Contact Address Comment	SDE_TRD_ADR_TXT	0/1	x..50
10	Sender Trading Contact Department	SDE_TRD_ADR_DEP	0/1	x..100
11	Sender Trading Contact Person Surname	SDE_TRD_PER_SUR	1	x..50
12	Sender Trading Contact Person Given Name	SDE_TRD_PER_GNM	0/1	x..50
13	Sender Trading Contact Phone Number	SDE_TRD_PHN	M or 16	x..50
14	Sender Trading Contact Phone Number Mobile	SDE_TRD_MOB	0/1	x..50
15	Sender Trading Contact Fax Number	SDE_TRD_FAX	0/1	x..50
16	Sender Trading Contact E-mail Address	SDE_TRD_EML	M or 13	x..100

The **SDE** segment does not require that the **Technical Contact** (group) or the **Trading Contact** (group) be specified, so this example does not populate them. If either contact group were provided at all, the mandatory data element rules within them would apply.

	RDE		1		
	Engineering Contact		1		
1	Receiver Engineering Contact Routing Code	RDE_ENG_ROU	M, or 12+14, 12+17	x..50	
	2b6f5e3c5e8h				
2	Receiver Engineering Contact Company Name	RDE_ENG_NAM	M or 3	x..100	Nova Parts Co.
3	Receiver Engineering Contact Internal ID Number	RDE_ENG_UID	M or 2	x..50	084523
4	Receiver Engineering Contact Address Street Name	RDE_ENG_ADR_STR	0/1	x..50	Stephenson Highway
5	Receiver Engineering Contact Address Street Number	RDE_ENG_ADR_NBR	0/1	x..25	1414
6	Receiver Engineering Contact Address City	RDE_ENG_ADR_CTY	0/1	x..50	Windsor
7	Receiver Engineering Contact Address State	RDE_ENG_ADR_STA	0/1	x..50	Ontario
8	Receiver Engineering Contact Address Country	RDE_ENG_ADR_COU	0/1	a2	CA
9	Receiver Engineering Contact Address Postal Code	RDE_ENG_ADR_ZIP	0/1	x..25	z1e4r4
10	Receiver Engineering Contact Address Comment	RDE_ENG_ADR_TXT	0/1	x..50	
11	Receiver Engineering Contact Department	RDE_ENG_ADR_DEP	0/1	x..100	
12	Receiver Engineering Contact Person Surname	RDE_ENG_PER_SUR	M+14, M+17, or 1	x..50	DeVille
13	Receiver Engineering Contact Person Given Name	RDE_ENG_PER_GNM	0/1	x..50	Cruella
14	Receiver Engineering Contact Phone Number	RDE_ENG_PHN	M+12, 12+17, or 1	x..50	
15	Receiver Engineering Contact Phone Number Mobile	RDE_ENG_MOB	0/1	x..50	
16	Receiver Engineering Contact Fax Number	RDE_ENG_FAX	0/1	x..50	
17	Receiver Engineering Contact E-mail Address	RDE_ENG_EML	M+12, 12+14, or 1	x..100	cruella.d@nova.ca

The **RDE** segment requires only that the **Engineering Contact** (group) be specified, so this example only populates them. Since the **Engineering Contact** (group) is mandatory, the mandatory rules within this group apply and they are the same as for the same group in the SDE segment.

	Technical Contact			0/1	
1	Receiver Technical Contact Company Name	RDE_TEC_NAM		M or 2	x..100
2	Receiver Technical Contact Internal ID number	RDE_TEC_UID		M or 1	x..50
3	Receiver Technical Contact Address Street Name	RDE_TEC_ADR_STR		0/1	x..50
4	Receiver Technical Contact Address Street Number	RDE_TEC_ADR_NBR		0/1	x..25
5	Receiver Technical Contact Address City	RDE_TEC_ADR_CTY		0/1	x..50
6	Receiver Technical Contact Address State	RDE_TEC_ADR_STA		0/1	x..50
7	Receiver Technical Contact Address Country	RDE_TEC_ADR_COU		0/1	a2
8	Receiver Technical Contact Address Postal Code	RDE_TEC_ADR_ZIP		0/1	x..25
9	Receiver Technical Contact Address Comment	RDE_TEC_ADR_TXT		0/1	x..50
10	Receiver Technical Contact Department	RDE_TEC_ADR_DEP		0/1	x..100
11	Receiver Technical Contact Person Surname	RDE_TEC_PER_SUR		1	x..50
12	Receiver Technical Contact Person Given Name	RDE_TEC_PER_GNM		0/1	x..50
13	Receiver Technical Contact Phone Number	RDE_TEC_PHN		M or 16	x..50
14	Receiver Technical Contact Phone Number Mobile	RDE_TEC_MOB		0/1	x..50
15	Receiver Technical Contact Fax Number	RDE_TEC_FAX		0/1	x..50
16	Receiver Technical Contact E-mail Address	RDE_TEC_EML		M or 13	x..100
	Trading Contact			0/1	
1	Receiver Trading Contact Company Name	RDE_TRD_NAM		M or 2	x..100
2	Receiver Trading Contact Internal ID number	RDE_TRD_UID		M or 1	x..50
3	Receiver Trading Contact Address Street Name	RDE_TRD_ADR_STR		0/1	x..50
4	Receiver Trading Contact Address Street Number	RDE_TRD_ADR_NBR		0/1	x..25
5	Receiver Trading Contact Address City	RDE_TRD_ADR_CTY		0/1	x..50
6	Receiver Trading Contact Address State	RDE_TRD_ADR_STA		0/1	x..50
7	Receiver Trading Contact Address Country	RDE_TRD_ADR_COU		0/1	a2
8	Receiver Trading Contact Address Postal Code	RDE_TRD_ADR_ZIP		0/1	x..25
9	Receiver Trading Contact Address Comment	RDE_TRD_ADR_TXT		0/1	x..50
10	Receiver Trading Contact Department	RDE_TRD_ADR_DEP		0/1	x..100
11	Receiver Trading Contact Person Surname	RDE_TRD_PER_SUR		1	x..50
12	Receiver Trading Contact Person Given Name	RDE_TRD_PER_GNM	0/1	x..50	
13	Receiver Trading Contact Phone Number	RDE_TRD_PHN		M or 16	x..50
14	Receiver Trading Contact Phone Number Mobile	RDE_TRD_MOB		0/1	x..50
15	Receiver Trading Contact Fax Number	RDE_TRD_FAX		0/1	x..50
16	Receiver Trading Contact E-mail Address	RDE_TRD_EML		M or 13	x..100

The **RDE** segment does not require that the **Technical Contact** (group) or the **Trading Contact** (group) be specified, so this example does not populate them.

	EFC		1+		
1	Exchanged File Contained Quantity	EFC_CON_QTY	1	n4	0000
6	Exchanged File Format	EFC_FMT	0/1	x..25	Microsoft Word
13	Exchanged File Purpose	EFC_PPS	0/1	x..500	REQUEST LIST
14	Exchanged File Compression Method	EFC_CPR	0/1	x..25	
	File Content Specification		1		
1	Exchanged File Sequence Number	EFC_SQN	1	n4	0002
2	Exchanged File Original Name	EFC_ORG_NAM	0/1	x..100	request_list.doc
3	Exchanged File Physical Name	EFC_PHS_NAM	0/1	x..100	
6	Exchanged File Encryption Method	EFC_ENC	0/1	x..50	
	Part Specification		0/1		
6	Exchanged File Comment	EFC_TXT0/1	x..500		

The first **EFC** segment is a pointer to a file which in CC1b MUST contain a list of requested parts. Therefore, the Exchanged File Purpose data element must begin with the string “REQUEST LIST”, although it may optionally have additional text following the required string. This EFC points to a file that contains the requests for the following:

- a steering column file, part number stc01839, release 2, from January 22;
- a rack gear design, part number rck02008, release 2; and
- a pinion gear design, part number pnn00031, release 3 -
- all in 3-dimensional form, with various comments

Although other formats are permissible if sender and receiver agree, the preferred format for the exchanged request file uses the XML tags shown in the following example. Implementations shall be able to create and process this format at a minimum:

```
<EFCFilePartSpecification>
        <FileRevisionLevel>Rel 2</FileRevisionLevel>
        <FileRevisionDateTime>030122000000</FileRevisionDateTime>
        <FilePartNumber>stc01839</FilePartNumber>
        <FilePartName>steering column</FilePartName>
        <FileContentDimensionality>3</FileContentDimensionality>
        <FileComment>assembly file</FileComment>
        <FileOriginalName>x20.steering_column1839-sc.prt</FileOriginalName>
        <FileFormat>CATIA</FileFormat>
</EFCFilePartSpecification>
<EFCFilePartSpecification>
        <FileRevisionLevel>Rel 2</FileRevisionLevel>
        <FilePartNumber>RCK02008</FilePartNumber>
        <FilePartName>rack gear</FilePartName>
        <FileContentDimensionality>3</FileContentDimensionality>
        <FileComment>design ASTM-30 steel</FileComment>
        <FileOriginalName> x20.rack_gear2008.prt</FileOriginalName>
        <FileFormat>CATIA</FileFormat>
</EFCFilePartSpecification>
<EFCFilePartSpecification>
        <FileRevisionLevel>Rel 3</FileRevisionLevel>
        <FilePartNumber>PNN00031</FilePartNumber>
        <FilePartName>pinion gear</FilePartName>
        <FileContentDimensionality>3</FileContentDimensionality>
        <FileComment>helical offset 20 degrees</FileComment>
        <FileOriginalName> x20.pinion_gear0031.prt </FileOriginalName>
        <FileFormat>CATIA</FileFormat>
</EFCFilePartSpecification>
```

Note that the first requested file in the above example includes a complete set of tags. Since each tag is optional, the example shows one--**FileRevisionDateTime**--that is not supplied for the second and third requested files.

Now to complete our ENGDAT message example:

	EFC		1+		
1	Exchanged File Contained Quantity	EFC_CON_QTY	1	n4	0000
6	Exchanged File Format	EFC_FMT	0/1	x..25	Microsoft Word
13	Exchanged File Purpose	EFC_PPS	0/1	x..500	ADDITIONAL INFORMATION - marketing
14	Exchanged File Compression Method	EFC_CPR	0/1	x..25	gnuzip
	File Content Specification		1		
1	Exchanged File Sequence Number	EFC_SQN	1	n4	0003
2	Exchanged File Original Name	EFC_ORG_NAM	0/1	x..100	marketing_analysis.rpt
3	Exchanged File Physical Name	EFC_PHS_NAM	0/1	x..100	mkt_anal.doc.zip
6	Exchanged File Encryption Method	EFC_ENC	0/1	x..50	
	Part Specification		0/1		
6	Exchanged File Comment	EFC_TXT	0/1	x..500	

The second and subsequent **EFC** segments are optional in an ENGDAT CC1b message, and because the first **EFC** segment described the requested part numbers, the second and subsequent **EFC** segments MUST NOT repeat the request. To ensure that there is no confusion, the Exchanged File Purpose in these additional **EFC** segments MUST ALWAYS begin with the string “ADDITIONAL INFORMATION”. Further descriptive text may optionally follow this required string.

	LOF		0+		
1	Linked File Sequence Number	LNK_SEQ_NBR	1	n4	0002
2	Link Purpose	LNK_PPS	0/1	x..500	RCK02008 should conform to the customer requirements outlined in this list before the contract will be signed off.

The final segment, **LOF**, explains that this second EFC segment contains additional information relevant to the second requested part, RCK02008.

In conclusion, the names of the files in this example would be as follows:

ENGDAT message:	ENG3029131005YUGOU00030001
Requested Parts List:	ENG3029131005YUGOU00030002
Additional Information (marketing report):	ENG3029131005YUGOU00030003

2.6.3 Example 3 – Conformance Class 2

Conformance Class 2 is the minimum functionality by which ENGDAT provides a means of creating delivery notes for technical data package exchange.

	MID		1		
1	Character Set	MID_CHS	0/1	x..25	ISO 10646
2	Language Specification	MID_LAN	0/1	a2	EN
5	Version	MID_VER	1	x..5	3
6	Document Id	MID_DID	1	an15	3036165959NOVAP
7	File Count	MID_QTY	1	n4	0004
8	Document Date	MID_DOC_DTM	0/1	n12	030205165958
12	Conformance Class	MID_CC	0/1	an..5	2
13	Free Text	MID_TXT	0/1	x..500	Thanks for the business!

The **MID General Data Elements** describe a transaction dated February 5, 2003 at 16:59:59 – just beating the deadline of 17:00:00. Nova Parts is sending four files – this ENGDAT message plus three attached files.

The **DAN** segment is optional and available in CC2, but in this example we stipulate that there is no need to reference another, previous ENGDAT message. See the CC3 example for an example of this optional segment.

	SDE			1		
	Engineering Contact			1		
1	Sender Engineering Contact Routing Code	SDE_ENG_ROU	M or 12+14, 12+17	x..50	2b6f5e3c5e8h	
2	Sender Engineering Contact Company Name	SDE_ENG_NAM	M or 3	x..100	Nova Parts Co.	
3	Sender Engineering Contact Internal ID Number	SDE_ENG_UID	M or 2	x..50	084523	
4	Sender Engineering Contact Address Street Name	SDE_ENG_ADR_STR	0/1	x..50	Stephenson Highway	
5	Sender Engineering Contact Address Street Number	SDE_ENG_ADR_NBR	0/1	x..25	1414	
6	Sender Engineering Contact Address City	SDE_ENG_ADR_CTY	0/1	x..50	Windsor	
7	Sender Engineering Contact Address State	SDE_ENG_ADR_STA	0/1	x..50	Ontario	
8	Sender Engineering Contact Address Country	SDE_ENG_ADR_COU	0/1	a2	CA	
9	Sender Engineering Contact Address Postal Code	SDE_ENG_ADR_ZIP	0/1	x..25	z1e4r4	
10	Sender Engineering Contact Address Comment	SDE_ENG_ADR_TXT	0/1	x..50	2nd Floor cube 22E-1N	
11	Sender Engineering Contact Department	SDE_ENG_ADR_DEP	0/1	x..100	Engineering Management	
12	Sender Engineering Contact Person Surname	SDE_ENG_PER_SUR	M+14, M+17, or 1	x..50	DeVille	
13	Sender Engineering Contact Person Given Name	SDE_ENG_PER_GNM	0/1	x..50	Cruella	
14	Sender Engineering Contact Phone Number	SDE_ENG_PHN	M+12, 12+17, or 1	x..50		
15	Sender Engineering Contact Phone Number Mobile	SDE_ENG_MOB	0/1	x..50		
16	Sender Engineering Contact Fax Number	SDE_ENG_FAX	0/1	x..50		
17	Sender Engineering Contact E-mail Address	SDE_ENG_EML	M+12, 12+14, or 1	x..100	cruella.d@nova.ca	

The **SDE Engineering Contact** is mandatory. The **Routing Code**, **Person Surname,** and **E-mail Address** have been supplied, so the **Phone Number** is not necessary. In fact, the routing code alone would have been sufficient. The **Engineering Contact** is responsible for creating or maintaining the exchanged data. CC2 exchanges do not permit specification of Technical or Trading Contacts for either sender or receiver.

	RDE		1		
	Engineering Contact		1		
1	Receiver Engineering Contact Routing Code	RDE_ENG_ROU	M, or 12+14, 12+17	x..50	c3a1d4c1e5i9
2	Receiver Engineering Contact Company Name	RDE_ENG_NAM	M or 3	x..100	Yugo Unlimited
3	Receiver Engineering Contact Internal ID Number	RDE_ENG_UID	M or 2	x..50	195634
4	Receiver Engineering Contact Address Street Name	RDE_ENG_ADR_STR	0/1	x..50	P.O.Box
5	Receiver Engineering Contact Address Street Number	RDE_ENG_ADR_NBR	0/1	x..25	298-G
6	Receiver Engineering Contact Address City	RDE_ENG_ADR_CTY	0/1	x..50	Detroit
7	Receiver Engineering Contact Address State	RDE_ENG_ADR_STA	0/1	x..50	Michigan
8	Receiver Engineering Contact Address Country	RDE_ENG_ADR_COU	0/1	a2	US
9	Receiver Engineering Contact Address Postal Code	RDE_ENG_ADR_ZIP	0/1	x..25	48328-3516
10	Receiver Engineering Contact Address Comment	RDE_ENG_ADR_TXT	0/1	x..50	(418 E. Madison Ave.)
11	Receiver Engineering Contact Department	RDE_ENG_ADR_DEP	0/1	x..100	Dpt.ABT-1
12	Receiver Engineering Contact Person Surname	RDE_ENG_PER_SUR	M+14, M+17, or 1	x..50	Antgo
13	Receiver Engineering Contact Person Given Name	RDE_ENG_PER_GNM	0/1	x..50	Corwin
14	Receiver Engineering Contact Phone Number	RDE_ENG_PHN	M+12, 12+17, or 1	x..50	+1 (248) 555-9876
15	Receiver Engineering Contact Phone Number Mobile	RDE_ENG_MOB	0/1	x..50	+1 (818) 357-2468
16	Receiver Engineering Contact Fax Number	RDE_ENG_FAX	0/1	x..50	+1 (248) 555-1000
17	Receiver Engineering Contact E-mail Address	RDE_ENG_EML	M+12, 12+14, or 1	x..100	cantgo@yugo.com

The **RDE Engineering Contact** is mandatory. In this example it is fully – and perhaps redundantly – specified.

	EFC		1+		
1	Exchanged File Contained Quantity	EFC_CON_QTY	1	n4	0002
14	Exchanged File Compression Method	EFC_CPR	0/1	x..25	gnuzip

At least one **EFC** is required in an ENGDAT CC3 message. This message has three **EFC** segments, one for each exchanged file being provided in this technical data package. This first **EFC** describes a container file containing two files. However, CC2 messages do not further describe contained files. For this capability, see the CC3 example.

	File Content Specification		1		
1	Exchanged File Sequence Number	EFC_SQN	1	n4	0002
2	Exchanged File Original Name	EFC_ORG_NAM	0/1	x..100	x20.steering_column1839.prt
3	Exchanged File Physical Name	EFC_PHS_NAM	0/1	x..100	x20.steering_column1839.zip
6	Exchanged File Encryption Method	EFC_ENC	0/1	x..50	

The only part of the **EFC File Content Specification** that is used in CC2 messages is the **Exchanged File Sequence Number** and **Exchanged File Original Name** of the referenced file. Note that this means that the file being referred to has a virtual file name as follows: "**ENG**" + **MID Document Id** + **MID File Count** + **EFC Exchanged File Sequence Number**, or ENG 3 036 16 59 59 NOVAP 0004 0002 (blanks inserted only for readability – not used in actual virtual filenames).

	LOF		0+		
1	Linked File Sequence Number	LNK_SEQ_NBR	1	n4	
2	Link Purpose	LNK_PPS	0/1	x..500	

EFC segments have optional **LOF** segments that, if specified, point to another **EFC** segment in this ENGDAT message. This first **EFC** segment does not use this capability.

	EFC		1+		
1	Exchanged File Contained Quantity	EFC_CON_QTY	1	n4	0000
14	Exchanged File Compression Method	EFC_CPR	0/1	x..25	gnuzip
	File Content Specification		1		
1	Exchanged File Sequence Number	EFC_SQN	1	n4	0003
2	Exchanged File Original Name	EFC_ORG_NAM	0/1	x..100	x20.rack_gear2008.prt
3	Exchanged File Physical Name	EFC_PHS_NAM	0/1	x..100	x20.rack_gear2008.zip
6	Exchanged File Encryption Method	EFC_ENC	0/1	x..50	
	LOF		0+		
1	Linked File Sequence Number	LNK_SEQ_NBR	1	n4	0002
2	Link Purpose	LNK_PPS	0/1	x..500	Parent Assembly

This second **EFC** segment describes an exchanged file that is NOT a container file (because the **Exchanged File Contained Quantity** is zero). The **File Content Specification** of this second **EFC** segment is typical. The **LOF segment** points back to the first **EFC** segment. No encryption was used.

	EFC		1+		
1	Exchanged File Contained Quantity	EFC_CON_QTY	1	n4	0000
14	Exchanged File Compression Method	EFC_CPR	0/1	x..25	gnuzip
	File Content Specification		1		
1	Exchanged File Sequence Number	EFC_SQN	1	n4	0004
2	Exchanged File Original Name	EFC_ORG_NAM	0/1	x..100	x20.pinion_gear0031.prt
3	Exchanged File Physical Name	EFC_PHS_NAM	0/1	x..100	x20.pinion_gear0031.zip
6	Exchanged File Encryption Method	EFC_ENC	0/1	x..50	
	LOF		0+		
1	Linked File Sequence Number	LNK_SEQ_NBR	1	n4	0002
2	Link Purpose	LNK_PPS	0/1	x..500	Parent Assembly

The final **EFC** segment is populated much like the second instance of the segment was.

In conclusion, the names of the files in this example would be as follows:

ENGDAT message: ENG3036165959NOVAP00040001

Container File (steering column): ENG3036165959NOVAP00040002

File (rack design): ENG3036165959NOVAP00040003

File (pinion design): ENG3036165959NOVAP00040004

2.6.4 Example 4 – Conformance Class 3

Conformance Class 3 is the deluxe means of creating delivery notes for technical data package exchange.

	MID		1		
1	Character Set	MID_CHS	0/1	x..25	ISO 10646
2	Language Specification	MID_LAN	0/1	a2	EN
3	Technical Data Receiver's Job Number	MID_REC_JNR	0/1	x..25	A987655
4	Technical Data Sender's Job Number	MID_SND_JNR	0/1	x..25	W.O. #45678901
5	Version	MID_VER	1	x..5	3
6	Document Id	MID_DID	1	an15	3036165959NOVAP
7	File Count	MID_QTY	1	n4	0004
8	Document Date	MID_DOC_DTM	0/1	n12	030205165958
9	Required Completion Date / Time	MID_DUE_DTM	0/1	n12	030205170000
10	Receiver's Request Reception Date / Time	MID_REQ_RCV_DTM	0/1	n12	030129140000
12	Conformance Class	MID_CC	0/1	an..5	3
13	Free Text	ID_TXT	0/1	x..500	Thanks for the business!

The **MID General Data Elements** describe a transaction dated February 5, 2003 at 16:59:59 – just beating the deadline of 17:00:00. Nova Parts is sending four files – this ENGDAT message plus three attached files.

	DAN		0+		
1	External Document Type	DAN_EDR_TYP	0/1	an..50	request
2	External Document Number	DAN_EDR_NBR	1	an15	3029131005YUGOU
3	External Document Date / Time	DAN_EDR_DTM	0/1	n12	030129131005
4	External Document Reference Purpose	DAN_EDR_PPS	0/1	an..100	response to earlier request
5	Incremental Change	DAN_NET_CHG	0/1	x..50	

The **DAN** is optional and repeatable. Since it is specified, the **Type** or the **Type Coded** is mandatory. In this example, it points back to the original file request – which may be taken to be either of the conformance class 1 examples shown previously. The key to this reference is matching up the **External Document Number** here with the **Document Id** of the referenced message.

	SDE		1		
	Engineering Contact		1		
1	Sender Engineering Contact Routing Code	SDE_ENG_ROU	M or 12+14, 12+17	x..50	2b6f5e3c5e8h
2	Sender Engineering Contact Company Name	SDE_ENG_NAM	M or 3	x..100	Nova Parts Co.
3	Sender Engineering Contact Internal ID Number	SDE_ENG_UID	M or 2	x..50	084523
4	Sender Engineering Contact Address Street Name	SDE_ENG_ADR_STR	0/1	an..50	Stephenson Highway
5	Sender Engineering Contact Address Street Number	SDE_ENG_ADR_NBR	0/1	x..25	1414
6	Sender Engineering Contact Address City	SDE_ENG_ADR_CTY	0/1	x..50	Windsor
7	Sender Engineering Contact Address State	SDE_ENG_ADR_STA	0/1	x..50	Ontario
8	Sender Engineering Contact Address Country	SDE_ENG_ADR_COU	0/1	a2	CA
9	Sender Engineering Contact Address Postal Code	SDE_ENG_ADR_ZIP	0/1	x..25	z1e4r4
10	Sender Engineering Contact Address Comment	SDE_ENG_ADR_TXT	0/1	x..50	2nd Floor cube 22E-1N
11	Sender Engineering Contact Department	SDE_ENG_ADR_DEP	0/1	x..100	Engineering Management
12	Sender Engineering Contact Person Surname	SDE_ENG_PER_SUR	M+14, M+17, or 1	x..50	DeVille
13	Sender Engineering Contact Person Given Name	SDE_ENG_PER_GNM	0/1	x..50	Cruella
14	Sender Engineering Contact Phone Number	SDE_ENG_PHN	M+12, 12+17, or 1	x..50	
15	Sender Engineering Contact Phone Number Mobile	SDE_ENG_MOB	0/1	x..50	
16	Sender Engineering Contact Fax Number	SDE_ENG_FAX	0/1	x..50	
17	Sender Engineering Contact E-mail Address	SDE_ENG_EML	M+12, 12+14, or 1	x..100	cruella.d@nova.ca

The **SDE Engineering Contact** is mandatory. The **Routing Code**, **Person Surname,** and **E-mail Address** have been supplied, so the **Phone Number** is not necessary. In fact, the routing code alone would have been sufficient. The **Engineering Contact** is responsible for creating or maintaining the exchanged data.

	Technical Contact		0/1		
1	Sender Technical Contact Company Name	SDE_TEC_NAM	M or 2	x..100	Nova Parts Co.
2	Sender Technical Contact Internal ID number	SDE_TEC_UID	M or 1	x..50	084523
3	Sender Technical Contact Address Street Name	SDE_TEC_ADR_STR	0/1	x..50	Stephenson Highway
4	Sender Technical Contact Address Street Number	SDE_TEC_ADR_NBR	0/1	x..25	1414
5	Sender Technical Contact Address City	SDE_TEC_ADR_CTY	0/1	x..50	Windsor
6	Sender Technical Contact Address State	SDE_TEC_ADR_STA	0/1	x..50	Ontario
7	Sender Technical Contact Address Country	SDE_TEC_ADR_COU	0/1	a2	CA
8	Sender Technical Contact Address Postal Code	SDE_TEC_ADR_ZIP	0/1	x..25	z1e4r4
9	Sender Technical Contact Address Comment	SDE_TEC_ADR_TXT	0/1	x..50	2nd Floor cube 22E-3N
10	Sender Technical Contact Department	SDE_TEC_ADR_DEP	0/1	x..100	Drafting
11	Sender Technical Contact Person Surname	SDE_TEC_PER_SUR	1	x..50	Exner
12	Sender Technical Contact Person Given Name	SDE_TEC_PER_GNM	0/1	x..50	Andreas
13	Sender Technical Contact Phone Number	SDE_TEC_PHN	M or 16	x..50	040-123-0
14	Sender Technical Contact Phone Number Mobile	SDE_TEC_MOB	0/1	x..50	040-456-8910
15	Sender Technical Contact Fax Number	SDE_TEC_FAX	0/1	x..50	040-123-34555
16	Sender Technical Contact E-mail Address	SDE_TEC_EML	M or 13	x..100	aexner@axle.com

The **SDE Technical Contact**, which is optional, specifies a different person and a slightly different address from that of the **Engineering Contact**. The **Technical Contact** is responsible for sending, translating, and/or maintaining the exchanged data.

	Trading Contact		0/1		
1	Sender Trading Contact Company Name	SDE_TRD_NAM	M or 2	x..100	Commercial Attorneys PLC
2	Sender Trading Contact Internal ID number	SDE_TRD_UID	M or 1	x..50	27182818
3	Sender Trading Contact Address Street Name	SDE_TRD_ADR_STR	0/1	x..50	P.O.Box
4	Sender Trading Contact Address Street Number	SDE_TRD_ADR_NBR	0/1	x..25	459045
5	Sender Trading Contact Address City	SDE_TRD_ADR_CTY	0/1	x..50	San Juan
6	Sender Trading Contact Address State	SDE_TRD_ADR_STA	0/1	x..50	Puerto Rico
7	Sender Trading Contact Address Country	SDE_TRD_ADR_COU	0/1	a2	US
8	Sender Trading Contact Address Postal Code	SDE_TRD_ADR_ZIP	0/1	x..25	03141-5926
9	Sender Trading Contact Address Comment	SDE_TRD_ADR_TXT	0/1	x..50	
10	Sender Trading Contact Department	SDE_TRD_ADR_DEP	0/1	x..100	Supplier Representation
11	Sender Trading Contact Person Surname	SDE_TRD_PER_SUR	1	x..50	Goldstein
12	Sender Trading Contact Person Given Name	SDE_TRD_PER_GNM	0/1	x..50	Schlomo
13	Sender Trading Contact Phone Number	SDE_TRD_PHN	M or 16	x..50	+1 (818) 383-8383
14	Sender Trading Contact Phone Number Mobile	SDE_TRD_MOB	0/1	x..50	+1 (818) 278-7538
15	Sender Trading Contact Fax Number	SDE_TRD_FAX	0/1	x..50	+1 (818) 383-8000
16	Sender Trading Contact E-mail Address	SDE_TRD_EML	M or 13	x..100	schlomog@ca.plc.pr

The **SDE Trading Contact** specifies a different company from that of the **Engineering Contact**. The **Trading Contact** is responsible for contractual arrangements for the exchanged data. This contact and company are probably employed by Nova Parts to handle the contract.

	RDE		1		
	Engineering Contact		1		
1	Receiver Engineering Contact Routing Code	RDE_ENG_ROU	M, or 12+14, 12+17	x..50	c3a1d4c1e5i9
2	Receiver Engineering Contact Company Name	RDE_ENG_NAM	M or 3	x..100	Yugo Unlimited
3	Receiver Engineering Contact Internal ID Number	RDE_ENG_UID	M or 2	x..50	195634
4	Receiver Engineering Contact Address Street Name	RDE_ENG_ADR_STR	0/1	x..50	P.O.Box
5	Receiver Engineering Contact Address Street Number	RDE_ENG_ADR_NBR	0/1	x..25	298-G
6	Receiver Engineering Contact Address City	RDE_ENG_ADR_CTY	0/1	x..50	Detroit
7	Receiver Engineering Contact Address State	RDE_ENG_ADR_STA	0/1	x..50	Michigan
8	Receiver Engineering Contact Address Country	RDE_ENG_ADR_COU	0/1	a2	US
9	Receiver Engineering Contact Address Postal Code	RDE_ENG_ADR_ZIP	0/1	x..25	48328-3516
10	Receiver Engineering Contact Address Comment	RDE_ENG_ADR_TXT	0/1	x..50	(418 E. Madison Ave.)
11	Receiver Engineering Contact Department	RDE_ENG_ADR_DEP	0/1	x..100	Dpt.ABT-1
12	Receiver Engineering Contact Person Surname	RDE_ENG_PER_SUR	M+14, M+17, or 1	x..50	Antgo
13	Receiver Engineering Contact Person Given Name	RDE_ENG_PER_GNM	0/1	x..50	Corwin
14	Receiver Engineering Contact Phone Number	RDE_ENG_PHN	M+12, 12+17, or 1	x..50	+1 (248) 555-9876
15	Receiver Engineering Contact Phone Number Mobile	RDE_ENG_MOB	0/1	x..50	+1 (818) 357-2468
16	Receiver Engineering Contact Fax Number	RDE_ENG_FAX	0/1	x..50	+1 (248) 555-1000
17	Receiver Engineering Contact E-mail Address	RDE_ENG_EML	M+12, 12+14, or 1	x..100	cantgo@yugo.com

The **RDE Engineering Contact** is mandatory. In this example it is fully – and perhaps redundantly – specified.

	Technical Contact		0/1		
1	Receiver Technical Contact Company Name	RDE_TEC_NAM	M or 2	x..100	Togo Yugo, Ltd.
2	Receiver Technical Contact Internal ID number	RDE_TEC_UID	M or 1	x..50	
3	Receiver Technical Contact Address Street Name	RDE_TEC_ADR_STR	0/1	x..50	
4	Receiver Technical Contact Address Street Number	RDE_TEC_ADR_NBR	0/1	x..25	
5	Receiver Technical Contact Address City	RDE_TEC_ADR_CTY	0/1	x..50	Lome
6	Receiver Technical Contact Address State	RDE_TEC_ADR_STA	0/1	x..50	
7	Receiver Technical Contact Address Country	RDE_TEC_ADR_COU	0/1	a2	TG
8	Receiver Technical Contact Address Postal Code	RDE_TEC_ADR_ZIP	0/1	x..25	
9	Receiver Technical Contact Address Comment	RDE_TEC_ADR_TXT	0/1	x..50	
10	Receiver Technical Contact Department	RDE_TEC_ADR_DEP	0/1	x..100	Overseas Design

					Group
11	Receiver Technical Contact Person Surname	RDE_TEC_PER_SUR	1	x..50	Mombasa
12	Receiver Technical Contact Person Given Name	RDE_TEC_PER_GNM	0/1	x..50	Ashante
13	Receiver Technical Contact Phone Number	RDE_TEC_PHN	M or 16	x..50	+88 (349876) 3218764-327111
14	Receiver Technical Contact Phone Number Mobile	RDE_TEC_MOB	0/1	x..50	
15	Receiver Technical Contact Fax Number	RDE_TEC_FAX	0/1	x..50	
16	Receiver Technical Contact E-mail Address	RDE_TEC_EML	M or 13	x..100	

The **Technical Contact** is optional, but since it is desired in this example, the mandatory data elements within it must be supplied. Very nearly the bare minimum of information is provided.

	Trading Contact		0/1		
1	Receiver Trading Contact Company Name	RDE_TRD_NAM	M or 2	x..100	
2	Receiver Trading Contact Internal ID number	RDE_TRD_UID	M or 1	x..50	
3	Receiver Trading Contact Address Street Name	RDE_TRD_ADR_STR	0/1	x..50	
4	Receiver Trading Contact Address Street Number	RDE_TRD_ADR_NBR	0/1	x..25	
5	Receiver Trading Contact Address City	RDE_TRD_ADR_CTY	0/1	x..50	
6	Receiver Trading Contact Address State	RDE_TRD_ADR_STA	0/1	x..50	
7	Receiver Trading Contact Address Country	RDE_TRD_ADR_COU	0/1	a2	
8	Receiver Trading Contact Address Postal Code	RDE_TRD_ADR_ZIP	0/1	x..25	
9	Receiver Trading Contact Address Comment	RDE_TRD_ADR_TXT	0/1	x..50	
10	Receiver Trading Contact Department	RDE_TRD_ADR_DEP	0/1	x..100	
11	Receiver Trading Contact Person Surname	RDE_TRD_PER_SUR	1	x..50	
12	Receiver Trading Contact Person Given Name	RDE_TRD_PER_GNM	0/1	x..50	
13	Receiver Trading Contact Phone Number	RDE_TRD_PHN	M or 16	x..50	
14	Receiver Trading Contact Phone Number Mobile	RDE_TRD_MOB	0/1	x..50	
15	Receiver Trading Contact Fax Number	RDE_TRD_FAX	0/1	x..50	
16	Receiver Trading Contact E-mail Address	RDE_TRD_EML	M or 13	x..100	

The **Trading Contact** is not required to be provided, so it is not provided for this example. Real situations often have no **Trading Contact** to specify.

	EFC		1+		
1	Exchanged File Contained Quantity	EFC_CON_QTY	1	n4	0002
2	Exchanged File Project Code	EFC_PRJ_COD	0/1	x..25	X20 Car
3	Exchanged File Contract Number	EFC_CNR_NBR	0/1	x..25	CONTRACT 0303-a
4	Exchanged File Work Order Number	EFC_WOD_NBR	0/1	x..25	WO17395173
5	Exchanged File Format Coded	EFC_FMT_COD	0/1	an3	NAT
6	Exchanged File Format	EFC_FMT	0/1	x..25	CATIA Native
7	Exchanged File Format Version	EFC_FMT_VER	0/1	x..25	v5
8	Exchanged File Data Code Coded	EFC_DAT_COD	0/1	x..25	BIN
9	Exchanged File Data Code	EFC_DAT	0/1	x..25	Binary
10	Exchanged File Generating System	EFC_GEN_SYS	0/1	x..25	IBM RS6000
11	Exchanged File Generating System Application	EFC_GEN_SYS_APP	0/1	x..50	CATIA Native
12	Exchanged File Generating System Version	EFC_GEN_SYS_VER	0/1	x..25	V5r17
13	Exchanged File Purpose	EFC_PPS	0/1	x..500	Engineering Consultation
14	Exchanged File Compression Method	EFC_CPR	0/1	x..25	gnuzip
15	Exchanged File Compressed File Size	EFC_CPR_SIZ	0/1	n..25	10000
16	Exchanged File Uncompressed File Size	EFC_UCP_SIZ	0/1	n..25	30000

At least one **EFC** is required in an ENGDAT CC3 message. This message has three **EFC** segments, one for each exchanged file being provided in this technical data package. This first **EFC** describes a container file containing two files.

	File Content Specification		1		
1	Exchanged File Sequence Number	EFC_SQN	1	n4	0002
2	Exchanged File Original Name	EFC_ORG_NAM	0/1	x..100	x20.steering_column1839.prt
3	Exchanged File Physical Name	EFC_PHS_NAM	0/1	x..100	x20.steering_column1839.zip
4	Exchanged File Design Phase	EFC_DGN_PHA	0/1	x..25	Alpha mule
5	Exchanged File Content Detail Level	EFC_CNT_DTL_LVL	0/1	x..100	passed crash test
6	Exchanged File Encryption Method	EFC_ENC	0/1	x..50	pgp

The **File Content Specification** (group) indicates the file sequence number of this first exchanged file is 0002. Note that this means that the file being referred to has a virtual file name as follows: "**ENG**" + **MID Document Id** + **MID File Count** + **EFC Exchanged File Sequence Number**, or ENG 3 036 16 59 59 NOVAP 0004 0002 (blanks inserted only for readability – not used in actual virtual filenames).

	Part Specification		0/1		
1	Exchanged File Revision Level	EFC_REV	0/1	x..25	Rel 2
2	Exchanged File Revision Date / Time	EFC_REV_DTM	0/1	n12	030122000000
3	Exchanged File Part Number	EFC_PRT_NBR	0/1	x..25	stc01839
4	Exchanged File Part Name	EFC_PRT_NAM	0/1	x..100	steering column
5	Exchanged File Content Dimensionality	EFC_CNT_DIM	0/1	n..5	3
6	Exchanged File Comment	EFC_TXT	0/1	x..500	assembly file

The **Part Specification** (group) indicates that the part being exchanged is release 2, named stc01839, etc.

	LOF		0+		
1	Linked File Sequence Number	LNK_SEQ_NBR	1	n4	
2	Link Purpose	LNK_PPS	0/1	x..500	

EFC segments have optional **LOF** segments that, if specified, point to other **EFC** segments in this ENGDAT message. This first **EFC** segment does not use this capability.

	CFC		0 to "EFC Exchanged File Contained Quantity"		
	File Content Specification		1		
1	Contained File Sequence Number	CFC_SQN	1	n4	0001
2	Contained File Original Name	CFC_NAM	0/1	x..100	x20.steering_column1839-wk.prt
3	Contained File Physical Name	CFC_PHS	0/1	x..100	
4	Contained File Design Phase	CFC_DGN_PHA	0/1	x..25	Alpha mule
5	Contained File Content Detail Level	CFC_CNT_DTL_LVL	0/1	ax..100	
	Part Specification		0/1		
1	Contained File Revision Level	CFC_REV	0/1	x..25	PDI 0003 Rel 2
2	Contained File Revision Date / Time	CFC_REV_DTM	0/1	n12	030121000000
3	Contained File Part Number	CFC_PRT_NBR	0/1	x..25	stc01839-wk
4	Contained File Part Name	CFC_PRT_NAM	0/1	x..100	woodruff key
5	Contained File Content Dimensionality	CFC_CNT_DIM	0/1	n..5	3
6	Contained File Comment	CFC_TXT	0/1	x..500	

Note that the cardinality of the **CFC** segment may range from zero up to the value of **EFC Exchanged File Contained Quantity**. The first **EFC** segment in this example may therefore contain up to two **CFC** segments because the exchanged file it references "contains" two "contained files". This **CFC** is the first of them. It is understood that the **CFC** segment is part of the **EFC** segment that it immediately follows. It is also understood that a given contained file need not have a **CFC** segment unless the sender considers it important to communicate some information about it. This **CFC File Content**

Specification (group) is the first section in that first **CFC** segment. It tells us that the first "Contained" file is the design of a Woodruff Key.

	Linked File		0/1		
1	Contained File Linked File Sequence Number	CFC_LNK_SEQ_NBR	1	n4	
2	Contained File Link Purpose	FC_LNK_PPS	0/1	x..500	

Although rarely used, each **CFC** segment is capable of including the optional data element group **Linked File**. This is not used in this **CFC** segment.

	CFC			0 to "EFC Exchanged File Contained Quantity"		
	File Content Specification			1		
1	Contained File Sequence Number	CFC_SQN		1	n4	0002
2	Contained File Original Name	CFC_NAM		0/1	x..100	x20.steering_column1839-sc.prt
3	Contained File Physical Name	CFC_PHS		0/1	x..100	
4	Contained File Design Phase	CFC_DGN_PHA		0/1	x..25	Alpha mule
5	Contained File Content Detail Level	CFC_CNT_DTL_LVL		0/1	x..100	filleted - needs tolerancing
	Part Specification			0/1		
1	Contained File Revision Level	CFC_REV		0/1	x..25	PDI 0003 Rel 2
2	Contained File Revision Date / Time	CFC_REV_DTM		0/1	n12	030121000000
3	Contained File Part Number	CFC_PRT_NBR		0/1	x..25	stc01839-sc
4	Contained File Part Name	FC_PRT_NAM		0/1	x..100	sleeve cylinder
5	Contained File Content Dimensionality	CFC_CNT_DIM		0/1	n..5	3
6	Contained File Comment	CFC_TXT	0/1	x..500	please tolerance to new spec	

The second **CFC** segment for the first **EFC** segment describes a contained file for a "sleeve cylinder". Note that the file being referred to has a virtual file name as follows: "**ENG**" + **MID Document Id** + **MID File Count** + **EFC Exchanged File Sequence Number** + **EFC Exchanged File Contained Quantity** + **CFC Contained File Sequence Number**, or ENG 3 036 16 59 59 NOVAP 0004 0002 0002 0002 (blanks inserted only for readability – not used in actual virtual filenames).

	Linked File		0/1		
1	Contained File Linked File Sequence Number	CFC_LNK_SEQ_NBR	1	n4	0001
2	Contained File Link Purpose	CFC_LNK_PPS	0/1	x..500	Use two per sleeve cylinder

A **Linked File** (group) in this second **CFC** segment of the first **EFC** segment contains a pointer back to the first **CFC** segment of the first **EFC** segment.

	EFC		1+		
1	Exchanged File Contained Quantity	EFC_CON_QTY	1	n4	0000
2	Exchanged File Project Code	EFC_PRJ_COD	0/1	x..25	X20 Car
3	Exchanged File Contract Number	EFC_CNR_NBR	0/1	x..25	CONTRACT 0303-a
4	Exchanged File Work Order Number	EFC_WOD_NBR	0/1	x..25	WO17395173
5	Exchanged File Format Coded	EFC_FMT_COD	0/1	an3	NAT
6	Exchanged File Format	EFC_FMT	0/1	x..25	CATIA Native
7	Exchanged File Format Version	EFC_FMT_VER	0/1	x..25	v5
8	Exchanged File Data Code Coded	EFC_DAT_COD	0/1	x..25	BIN
9	Exchanged File Data Code	EFC_DAT	0/1	x..25	Binary
10	Exchanged File Generating System	EFC_GEN_SYS	0/1	x..25	IBM RS6000
11	Exchanged File Generating System Application	EFC_GEN_SYS_APP	0/1	x..50	CATIA Native

12	Exchanged File Generating System Version	EFC_GEN_SYS_VER	0/1	x..25	V5r17
13	Exchanged File Purpose	EFC_PPS	0/1	x..500	Engineering Consultation
14	Exchanged File Compression Method	EFC_CPR	0/1	x..25	gnuzip
15	Exchanged File Compressed File Size	EFC_CPR_SIZ	0/1	n..25	10000
16	Exchanged File Uncompressed File Size	EFC_UCP_SIZ	0/1	n..25	30000

This second **EFC** segment describes an exchanged file that is NOT a container file (because the **Exchanged File Contained Quantity** is zero). Therefore, no **CFC** segments will follow this **EFC** segment.

	File Content Specification			1		
1	Exchanged File Sequence Number	EFC_SQN		1	n4	0003
2	Exchanged File Original Name	EFC_ORG_NAM		0/1	x..100	x20.rack_gear2008.prt
3	Exchanged File Physical Name	EFC_PHS_NAM		0/1	x..100	x20.rack_gear2008.zip
4	Exchanged File Design Phase	EFC_DGN_PHA		0/1	x..25	Alpha mule
5	Exchanged File Content Detail Level	EFC_CNT_DTL_LVL	0/1	x..100		
6	Exchanged File Encryption Method	EFC_ENC		0/1	x..50	
	Part Specification			0/1		
1	Exchanged File Revision Level	EFC_REV		0/1	x..25	Rel 2
2	Exchanged File Revision Date / Time	EFC_REV_DTM		0/1	n12	021229000000
3	Exchanged File Part Number	EFC_PRT_NBR		0/1	x..25	rck02008
4	Exchanged File Part Name	EFC_PRT_NAM		0/1	x..100	rack gear
5	Exchanged File Content Dimensionality	EFC_CNT_DIM		0/1	n..5	3
6	Exchanged File Comment	EFC_TXT	0/1	x..500		designed for ASTM-30 steel
	LOF			0+		
1	Linked File Sequence Number	LNK_SEQ_NBR		1	n4	0002
2	Link Purpose	LNK_PPS		0/1	x..500	Parent Assembly

The **File Content Specification** of this second **EFC** segment is typical. An **LOF** segment points back to the first **EFC** segment. No encryption was used.

	EFC			1+		
1	Exchanged File Contained Quantity	EFC_CON_QTY		1	n4	0000
2	Exchanged File Project Code	EFC_PRJ_COD		0/1	x..25	X20 Car
3	Exchanged File Contract Number	EFC_CNR_NBR		0/1	x..25	CONTRACT 0303-a
4	Exchanged File Work Order Number	EFC_WOD_NBR	0/1	x..25	WO17395173	
5	Exchanged File Format Coded	EFC_FMT_COD		0/1	an3	NAT
6	Exchanged File Format	EFC_FMT		0/1	x..25	CATIA Native
7	Exchanged File Format Version	EFC_FMT_VER		0/1	x..25	v5
8	Exchanged File Data Code Coded	EFC_DAT_COD		0/1	x..25	BIN
9	Exchanged File Data Code	EFC_DAT		0/1	x..25	Binary
10	Exchanged File Generating System	EFC_GEN_SYS		0/1	x..25	IBM RS6000
11	Exchanged File Generating System Application	EFC_GEN_SYS_APP		0/1	x..50	CATIA Native
12	Exchanged File Generating System Version	EFC_GEN_SYS_VER		0/1	x..25	V5r17
13	Exchanged File Purpose	EFC_PPS		0/1	x..500	Engineering Consultation
14	Exchanged File Compression Method	EFC_CPR		0/1	x..25	gnuzip
15	Exchanged File Compressed File Size	EFC_CPR_SIZ		0/1	n..25	4280
16	Exchanged File Uncompressed File Size	EFC_UCP_SIZ		0/1	n..25	9839
	File Content Specification			1		
1	Exchanged File Sequence Number	EFC_SQN		1	n4	0004
2	Exchanged File Original Name	EFC_ORG_NAM		0/1	x..100	x20.pinion_gear0031.prt
3	Exchanged File Physical Name	EFC_PHS_NAM		0/1	x..100	x20.pinion_gear0031.zip
4	Exchanged File Design Phase	EFC_DGN_PHA		0/1	x..25	Alpha mule
5	Exchanged File Content Detail Level	EFC_CNT_DTL_LVL		0/1	x..100	
6	Exchanged File Encryption Method	EFC_ENC		0/1	x..50	
	Part Specification			0/1		
1	Exchanged File Revision Level	EFC_REV		0/1	x..25	Rel 3
2	Exchanged File Revision Date / Time	EFC_REV_DTM		0/1	n12	030120000000
3	Exchanged File Part Number	EFC_PRT_NBR		0/1	x..25	pnn00031
4	Exchanged File Part Name	EFC_PRT_NAM		0/1	x..100	pinion gear
5	Exchanged File Content Dimensionality	EFC_CNT_DIM		0/1	n..5	3

6	Exchanged File Comment	EFC_TXT	0/1	x..500	Only 15 degree offsets available - will work with this assembly.	
	LOF			0+		
1	Linked File Sequence Number	LNK_SEQ_NBR	1	n4	0002	
2	Link Purpose	LNK_PPS	0/1	x..500	Parent Assembly	

The final **EFC** segment is populated much like the second instance of the segment was.

In conclusion, the names of the files in this example would beas follows:

ENGDAT message: ENG3036165959NOVAP00040001

Container File (steering column): ENG3036165959NOVAP00040002

File (rack design): ENG3036165959NOVAP00040003

File (pinion design): ENG3036165959NOVAP00040004

In addition, the contained files in the above container file could be referenced like this:

Contained File #1 (woodruff key): ENG3036165959NOVAP0004000200020001

Contained File #2 (sleeve cylinder): ENG3036165959NOVAP0004000200020002

2.6.5 Example 5 – Conformance Class 4a

There are two ways to construct a **Conformance Class 4** ENGDAT message, which acknowledges a technical data package receipt and informs the sender that it was a success or a failure.

The first method shown in this example (example “a”) uses an ENGDAT message that stands alone and is not accompanied by any other exchanged files. The **DAN** External Document Reference shall be used to establish a link to the CC2 or CC3 ENGDAT file in which the data being acknowledged were transmitted. The **DAN** External Document Reference Purpose shall then be populated either with the word “SUCCESS” or “FAILURE”.

	MID		1		
1	Character Set	MID_CHS	0/1	x..25	ISO 10646
2	Language Specification	MID_LAN	0/1	a2	EN
3	Technical Data Receiver's Job Number	MID_REC_JNR	0/1	x..25	A9839887
4	Technical Data Sender's Job Number	MID_SND_JNR	0/1	x..25	W.O. #45678901
5	Version	MID_VER	1	x..5	3
6	Document Id	MID_DID	1	an15	3039093000YUGOU
7	File Count	MID_QTY	1	n4	0001
8	Document Date	MID_DOC_DTM	0/1	n12	030208084500
11	Data Receipt Date / Time	MID_DTA_RCV_DTM	0/1	n12	030205170000
12	Conformance Class	MID_CC	0/1	an..5	4
13	Free text	MID_TXT	0/1	x..500	

The acknowledgment begins with the usual specifications. The **File Count** is 1, indicating that this is a type “a” acknowledgement and no exchanged files will be accompanying the message.

	DAN		0+		
1	External Document Type	DAN_EDR_TYP	0/1	x..50	Acknowledgement
2	External Document Number	DAN_EDR_NBR	1	an15	3036165959NOVAP
3	External Document Date / Time	DAN_EDR_DTM	0/1	n12	030205165958
4	External Document Reference Purpose	DAN_EDR_PPS	0/1	x..100	SUCCESS
5	Incremental Change	DAN_NET_CHG	0/1	x..50	

The **DAN** is used to associate this acknowledgement to the data being acknowledged. The **Dan External Document Number** matches the **MID Document Id** of the ENGDAT message that accompanied the exchanged technical data package. The **DAN External Document Reference Purpose** could also show the word “FAILURE”. In either case, this data element references the entire data exchange and may not describe the success or failure of the data exchange on any more detailed basis, such as one file at a time.

	SDE		1		
	Engineering Contact		1		
1	Sender Engineering Contact Routing Code	SDE_ENG_ROU	M or 12+14, 12+17	x..50	c3a1d4c1e5i9
2	Sender Engineering Contact Company Name	SDE_ENG_NAM	M or 3	x..100	Yugo Unlimited
3	Sender Engineering Contact Internal ID Number	SDE_ENG_UID	M or 2	x..50	195634
4	Sender Engineering Contact Address Street Name	SDE_ENG_ADR_STR	0/1	x..50	P.O.Box
5	Sender Engineering Contact Address Street Number	SDE_ENG_ADR_NBR	0/1	x..25	298-G
6	Sender Engineering Contact Address City	SDE_ENG_ADR_CTY	0/1	x..50	Detroit
7	Sender Engineering Contact Address State	SDE_ENG_ADR_STA	0/1	x..50	Michigan
8	Sender Engineering Contact Address Country	SDE_ENG_ADR_COU	0/1	a2	US
9	Sender Engineering Contact Address Postal Code	SDE_ENG_ADR_ZIP	0/1	x..25	48328-3516
10	Sender Engineering Contact Address Comment	SDE_ENG_ADR_TXT	0/1	x..50	(418 E. Madison Ave.
11	Sender Engineering Contact Department	SDE_ENG_ADR_DEP	0/1	x..100	Dpt.ABT-1
12	Sender Engineering Contact Person Surname	SDE_ENG_PER_SUR	M+14, M+17, or 1	x..50	Antgo
13	Sender Engineering Contact Person Given Name	SDE_ENG_PER_GNM	0/1	x..50	Corwin
14	Sender Engineering Contact Phone Number	SDE_ENG_PHN	M+12, 12+17, or 1	x..50	+1 (248) 555-9876
15	Sender Engineering Contact Phone Number Mobile	SDE_ENG_MOB	0/1	x..50	+1 (818) 357-2468
16	Sender Engineering Contact Fax Number	SDE_ENG_FAX	0/1	x..50	+1 (248) 555-1000
17	Sender Engineering Contact E-mail Address	SDE_ENG_EML	M+12, 12+14, or 1	x..100	cantgo@yugo.com
	Technical Contact		0/1		
1	Sender Technical Contact Company Name	SDE_TEC_NAM	M or 2	x..100	Togo Yugo, Ltd.
2	Sender Technical Contact Internal ID number	SDE_TEC_UID	M or 1	x..50	8981237
3	Sender Technical Contact Address Street Name	SDE_TEC_ADR_STR	0/1	x..50	
4	Sender Technical Contact Address Street Number	SDE_TEC_ADR_NBR	0/1	x..25	
5	Sender Technical Contact Address City	SDE_TEC_ADR_CTY	0/1	x..50	Lome
6	Sender Technical Contact Address State	SDE_TEC_ADR_STA	0/1	x..50	

7	Sender Technical Contact Address Country	SDE_TEC_ADR_COU	0/1	a2	TG
8	Sender Technical Contact Address Postal Code	SDE_TEC_ADR_ZIP	0/1	x..25	
9	Sender Technical Contact Address Comment	SDE_TEC_ADR_TXT	0/1	x..50	
10	Sender Technical Contact Department	SDE_TEC_ADR_DEP	0/1	x..100	Overseas Design Group
11	Sender Technical Contact Person Surname	SDE_TEC_PER_SUR	1	x..50	Mombasa
12	Sender Technical Contact Person Given Name	SDE_TEC_PER_GNM	0/1	x..50	Ashante
13	Sender Technical Contact Phone Number	SDE_TEC_PHN	M or 16	x..50	+88 (349876) 3218764-327111
14	Sender Technical Contact Phone Number Mobile	SDE_TEC_MOB	0/1	x..50	
15	Sender Technical Contact Fax Number	SDE_TEC_FAX	0/1	x..50	
16	Sender Technical Contact E-mail Address	SDE_TEC_EML	M or 13	x..100	
	Trading Contact		0/1		
1	Sender Trading Contact Company Name	SDE_TRD_NAM	M or 2	x..100	
2	Sender Trading Contact Internal ID number	SDE_TRD_UID	M or 1	x..50	
3	Sender Trading Contact Address Street Name	SDE_TRD_ADR_STR	0/1	x..50	
4	Sender Trading Contact Address Street Number	SDE_TRD_ADR_NBR	0/1	x..25	
5	Sender Trading Contact Address City	SDE_TRD_ADR_CTY	0/1	x..50	
6	Sender Trading Contact Address State	SDE_TRD_ADR_STA	0/1	x..50	
7	Sender Trading Contact Address Country	SDE_TRD_ADR_COU	0/1	a2	
8	Sender Trading Contact Address Postal Code	SDE_TRD_ADR_ZIP	0/1	x..25	
9	Sender Trading Contact Address Comment	SDE_TRD_ADR_TXT	0/1	x..50	
10	Sender Trading Contact Department	SDE_TRD_ADR_DEP	0/1	x..100	
11	Sender Trading Contact Person Surname	SDE_TRD_PER_SUR	1	x..50	
12	Sender Trading Contact Person Given Name	SDE_TRD_PER_GNM	0/1	x..50	
13	Sender Trading Contact Phone Number	SDE_TRD_PHN	M or 16	x..50	
14	Sender Trading Contact Phone Number Mobile	SDE_TRD_MOB	0/1	x..50	
15	Sender Trading Contact Fax Number	SDE_TRD_FAX	0/1	x..50	
16	Sender Trading Contact E-mail Address	SDE_TRD_EML	M or 13	x..100	

The **SDE** segment is populated according to the same rules as in a CC1 or CC3 exchange. Further comments may be found in the examples for those exchanges.

	RDE		1		
	Engineering Contact		1		
1	Receiver Engineering Contact Routing Code	RDE_ENG_ROU	M, or 12+14, 12+17	x..50	2b6f5e3c5e8h
2	Receiver Engineering Contact Company Name	RDE_ENG_NAM	M or 3	x..100	Nova Parts Co.
3	Receiver Engineering Contact Internal ID Number	RDE_ENG_UID	M or 2	x..50	084523
4	Receiver Engineering Contact Address Street Name	RDE_ENG_ADR_STR	0/1	x..50	Stephenson Highway
5	Receiver Engineering Contact Address Street Number	RDE_ENG_ADR_NBR	0/1	x..25	1414
6	Receiver Engineering Contact Address City	RDE_ENG_ADR_CTY	0/1	x..50	Windsor
7	Receiver Engineering Contact Address State	RDE_ENG_ADR_STA	0/1	x..50	Ontario
8	Receiver Engineering Contact Address Country	RDE_ENG_ADR_COU	0/1	a2	CA
9	Receiver Engineering Contact Address Postal Code	RDE_ENG_ADR_ZIP	0/1	x..25	z1e4r4
10	Receiver Engineering Contact Address Comment	RDE_ENG_ADR_TXT	0/1	x..50	2nd Floor cube 22E-1N
11	Receiver Engineering Contact Department	RDE_ENG_ADR_DEP	0/1	x..100	Engineering Management
12	Receiver Engineering Contact Person Surname	RDE_ENG_PER_SUR	M+14, M+17, or 1	x..50	DeVille
13	Receiver Engineering Contact Person Given Name	RDE_ENG_PER_GNM	0/1	x..50	Cruella
14	Receiver Engineering Contact Phone Number	RDE_ENG_PHN	M+12, 12+17, or 1	x..50	
15	Receiver Engineering Contact Phone Number Mobile	RDE_ENG_MOB	0/1	x..50	
16	Receiver Engineering Contact Fax Number	RDE_ENG_FAX	0/1	x..50	
17	Receiver Engineering Contact E-mail Address	RDE_ENG_EML	M+12, 12+14, or 1	x..100	cruella.d@nova.ca
	Technical Contact		0/1		
1	Receiver Technical Contact Company Name	RDE_TEC_NAM	M or 2	an…100	Nova Parts Co.
2	Receiver Technical Contact Internal ID number	RDE_TEC_UID	M or 1	x..50	084523
3	Receiver Technical Contact Address Street Name	RDE_TEC_ADR_STR	0/1	x..50	Stephenson Highway
4	Receiver Technical Contact Address Street Number	RDE_TEC_ADR_NBR	0/1	x..25	1414
5	Receiver Technical Contact Address City	RDE_TEC_ADR_CTY	0/1	x..50	Windsor
6	Receiver Technical Contact Address State	RDE_TEC_ADR_STA	0/1	x..50	Ontario
7	Receiver Technical Contact Address Country	RDE_TEC_ADR_COU	0/1	a2	CA
8	Receiver Technical Contact Address Postal Code	RDE_TEC_ADR_ZIP	0/1	x..25	z1e4r4
9	Receiver Technical Contact Address Comment	RDE_TEC_ADR_TXT	0/1	x..50	2nd Floor cube 22E-3N
10	Receiver Technical Contact Department	RDE_TEC_ADR_DEP	0/1	x..100	Drafting
11	Receiver Technical Contact Person Surname	RDE_TEC_PER_SUR	1	x..50	Exner
12	Receiver Technical Contact Person Given Name	RDE_TEC_PER_GNM	0/1	x..50	Andreas

13	Receiver Technical Contact Phone Number	RDE_TEC_PHN		M or 16	x..50	040-123-0
14	Receiver Technical Contact Phone Number Mobile	RDE_TEC_MOB		0/1	x..50	040-456-8910
15	Receiver Technical Contact Fax Number	RDE_TEC_FAX		0/1	x..50	040-123-34555
16	Receiver Technical Contact E-mail Address	RDE_TEC_EML		M or 13	x..100	aexner@axle.com
	Trading Contact			0/1		
1	Receiver Trading Contact Company Name	RDE_TRD_NAM		M or 2	x..100	Commercial Attorneys PLC
2	Receiver Trading Contact Internal ID number	RDE_TRD_UID		M or 1	x..50	27182818
3	Receiver Trading Contact Address Street Name	RDE_TRD_ADR_STR		0/1	x..50	P.O.Box
4	Receiver Trading Contact Address Street Number	RDE_TRD_ADR_NBR		0/1	x..25	459045
5	Receiver Trading Contact Address City	RDE_TRD_ADR_CTY		0/1	x..50	San Juan
6	Receiver Trading Contact Address State	RDE_TRD_ADR_STA		0/1	x..50	Puerto Rico
7	Receiver Trading Contact Address Country	RDE_TRD_ADR_COU		0/1	a2	US
8	Receiver Trading Contact Address Postal Code	RDE_TRD_ADR_ZIP		0/1	x..25	03141-5926
9	Receiver Trading Contact Address Comment	RDE_TRD_ADR_TXT		0/1	x..50	
10	Receiver Trading Contact Department	RDE_TRD_ADR_DEP		0/1	x..100	Supplier Representation
11	Receiver Trading Contact Person Surname	RDE_TRD_PER_SUR		1	x..50	Goldstein
12	Receiver Trading Contact Person Given Name	RDE_TRD_PER_GNM	0/1	x..50		Schlomo
13	Receiver Trading Contact Phone Number	RDE_TRD_PHN		M or 16	x..50	+1 (818) 383-8383
14	Receiver Trading Contact Phone Number Mobile	RDE_TRD_MOB		0/1	x..50	+1 (818) 278-7538
15	Receiver Trading Contact Fax Number	RDE_TRD_FAX		0/1	x..50	+1 (818) 383-8000
16	Receiver Trading Contact E-mail Address	RDE_TRD_EML		M or 13	x..100	schlomog@ca.plc.pr

The **RDE** segment is populated according to the same rules as in a CC1 or CC3 exchange. Further comments may be found in the examples for those exchanges.

The **EFC** segment is not used in this kind of CC4 acknowledgement. There is no accompanying file, and the ENGDAT message is the sole file transmitted.

In conclusion, the name of the file in this example would be as follows:

ENGDAT message: ENG3039093000YUGOU00010001

2.6.6 Example 6 – Conformance Class 4b

There are two ways to construct a **Conformance Class 4** ENGDAT message, which acknowledges a technical data package receipt and informs the sender that it was a success or a failure.

The second method shown in this example (example “b”) uses a single **EFC** segment. The **EFC** Exchanged File Purpose begins with the mandatory string “CONFIRMATION”. It may optionally continue with additional text. The only **EFC** Exchanged File Sequence Number shall be used to point to a single exchanged file. This file has a simple format as follows:

Line 1: The exchange reference (found in the MID Document Id) of the preceding CC2 or CC3 data exchange being acknowledged.

Line 2: Either a zero (0), which indicates that the entire package was received successfully and was correct, or a non-zero character, which indicates that there was a problem with content or receipt.

Line 3 and onward: Free explanatory text of any length.

But first, here is the format and content of the ENGDAT message file:

	MID		1		
1	Character Set	MID_CHS	0/1	x..25	ISO 10646
2	Language Specification	MID_LAN	0/1	a2	EN

3	Technical Data Receiver's Job Number	MID_REC_JNR	0/1	x..25	A9839887
4	Technical Data Sender's Job Number	MID_SND_JNR	0/1	x..25	W.O. #45678901
5	Version	MID_VER	1	x..5	3
6	Document Id	MID_DID	1	an15	3039093000YUGOU
7	File Count	MID_QTY	1	n4	0002
8	Document Date	MID_DOC_DTM	0/1	n12	030208084500
11	Data Receipt Date / Time	MID_DTA_RCV_DTM	0/1	n12	030205170000
12	Conformance Class	MID_CC	0/1	an..5	4
13	Free Text	MID_TXT	0/1	x..500	

The acknowledgment begins with the usual specifications. The **File Count** is 2, indicating that this is a type “b” acknowledgement and that one exchanged file will be accompanying the message.

	DAN		0+		
1	External Document Type	DAN_EDR_TYP	0/1	x..50	Acknowledgement
2	External Document Number	DAN_EDR_NBR	1	an15	3036165959NOVAP
3	External Document Date / Time	DAN_EDR_DTM	0/1	n12	030205165958
4	External Document Reference Purpose	DAN_EDR_PPS	0/1	x..100	SUCCESS

The **DAN** segment may be used to associate this acknowledgement to the data being acknowledged. The **DAN External Document Number** matches the **MID Document Id** of the ENGDAT message that accompanied the exchanged technical data package. The **External Document Reference Purpose** could also show the word “FAILURE”. In either case, the data element references the entire data exchange and may not describe the success or failure of the data exchange on any more detailed basis, such as one file at a time, or a portion of a file.

	SDE		1		
	Engineering Contact		1		
1	Sender Engineering Contact Routing Code	SDE_ENG_ROU	M or 12+14, 12+17	x..50	c3a1d4c1e5i9
2	Sender Engineering Contact Company Name	SDE_ENG_NAM	M or 3	x..100	Yugo Unlimited
3	Sender Engineering Contact Internal ID Number	SDE_ENG_UID	M or 2	x..50	195634
4	Sender Engineering Contact Address Street Name	SDE_ENG_ADR_STR	0/1	x..50	P.O.Box
5	Sender Engineering Contact Address Street Number	SDE_ENG_ADR_NBR	0/1	x..25	298-G
6	Sender Engineering Contact Address City	SDE_ENG_ADR_CTY	0/1	x..50	Detroit
7	Sender Engineering Contact Address State	SDE_ENG_ADR_STA	0/1	x..50	Michigan
8	Sender Engineering Contact Address Country	SDE_ENG_ADR_COU	0/1	a2	US
9	Sender Engineering Contact Address Postal Code	SDE_ENG_ADR_ZIP	0/1	x..25	48328-3516
10	Sender Engineering Contact Address Comment	SDE_ENG_ADR_TXT	0/1	x..50	(418 E. Madison Ave.)
11	Sender Engineering Contact Department	SDE_ENG_ADR_DEP	0/1	x..100	Dpt.ABT-1
12	Sender Engineering Contact Person Surname	SDE_ENG_PER_SUR	M+14, M+17, or 1	x..50	Antgo
13	Sender Engineering Contact Person Given Name	SDE_ENG_PER_GNM	0/1	x..50	Corwin
14	Sender Engineering Contact Phone Number	SDE_ENG_PHN	M+12, 12+17, or 1	x..50	+1 (248) 555-9876
15	Sender Engineering Contact Phone Number Mobile	SDE_ENG_MOB	0/1	x..50	+1 (818) 357-2468
16	Sender Engineering Contact Fax Number	SDE_ENG_FAX	0/1	x..50	+1 (248) 555-1000
17	Sender Engineering Contact E-mail Address	SDE_ENG_EML	M+12, 12+14, or 1	x..100	cantgo@yugo.com
	Technical Contact		0/1		
1	Sender Technical Contact Company Name	SDE_TEC_NAM	M or 2	x..100	Togo Yugo, Ltd.
2	Sender Technical Contact Internal ID number	SDE_TEC_UID	M or 1	x..50	8981237
3	Sender Technical Contact Address Street Name	SDE_TEC_ADR_STR	0/1	x..50	
4	Sender Technical Contact Address Street Number	SDE_TEC_ADR_NBR	0/1	x..25	
5	Sender Technical Contact Address City	SDE_TEC_ADR_CTY	0/1	x..50	Lome
6	Sender Technical Contact Address State	SDE_TEC_ADR_STA	0/1	x..50	
7	Sender Technical Contact Address Country	SDE_TEC_ADR_COU	0/1	a2	TG
8	Sender Technical Contact Address Postal Code	SDE_TEC_ADR_ZIP	0/1	x..25	
9	Sender Technical Contact Address Comment	SDE_TEC_ADR_TXT	0/1	x..50	
10	Sender Technical Contact Department	SDE_TEC_ADR_DEP	0/1	x..100	Overseas Design Group
11	Sender Technical Contact Person Surname	SDE_TEC_PER_SUR	1	x..50	Mombasa

12	Sender Technical Contact Person Given Name	SDE_TEC_PER_GNM	0/1	x..50	Ashante
13	Sender Technical Contact Phone Number	SDE_TEC_PHN	M or 16	x..50	+88 (349876) 3218764-327111
14	Sender Technical Contact Phone Number Mobile	SDE_TEC_MOB	0/1	x..50	
15	Sender Technical Contact Fax Number	SDE_TEC_FAX	0/1	x..50	
16	Sender Technical Contact E-mail Address	SDE_TEC_EML	M or 13	x..100	
	Trading Contact		0/1		
1	Sender Trading Contact Company Name	SDE_TRD_NAM	M or 2	x..100	
2	Sender Trading Contact Internal ID number	SDE_TRD_UID	M or 1	x..50	
3	Sender Trading Contact Address Street Name	SDE_TRD_ADR_STR	0/1	x..50	
4	Sender Trading Contact Address Street Number	SDE_TRD_ADR_NBR	0/1	x..25	
5	Sender Trading Contact Address City	SDE_TRD_ADR_CTY	0/1	x..50	
6	Sender Trading Contact Address State	SDE_TRD_ADR_STA	0/1	x..50	
7	Sender Trading Contact Address Country	SDE_TRD_ADR_COU	0/1	a2	
8	Sender Trading Contact Address Postal Code	SDE_TRD_ADR_ZIP	0/1	x..25	
9	Sender Trading Contact Address Comment	SDE_TRD_ADR_TXT	0/1	x..50	
10	Sender Trading Contact Department	SDE_TRD_ADR_DEP	0/1	x..100	
11	Sender Trading Contact Person Surname	SDE_TRD_PER_SUR	1	x..50	
12	Sender Trading Contact Person Given Name	SDE_TRD_PER_GNM	0/1	x..50	
13	Sender Trading Contact Phone Number	SDE_TRD_PHN	M or 16	x...50	
14	Sender Trading Contact Phone Number Mobile	SDE_TRD_MOB	0/1	x..50	
15	Sender Trading Contact Fax Number	SDE_TRD_FAX	0/1	x..50	
16	Sender Trading Contact E-mail Address	SDE_TRD_EML	M or 13	x..100	

The **SDE** segment is populated according to the same rules as in a CC1 or CC3 exchange. Further comments may be found in the examples for those exchanges.

	RDE		1		
	Engineering Contact		1		
1	Receiver Engineering Contact Routing Code	RDE_ENG_ROU	M, or 12+14, 12+17	x..50	2b6f5e3c5e8h
2	Receiver Engineering Contact Company Name	RDE_ENG_NAM	M or 3	x..100	Nova Parts Co.
3	Receiver Engineering Contact Internal ID Number	RDE_ENG_UID	M or 2	x..50	084523
4	Receiver Engineering Contact Address Street Name	RDE_ENG_ADR_STR	0/1	x..50	Stephenson Highway
5	Receiver Engineering Contact Address Street Number	RDE_ENG_ADR_NBR	0/1	x..25	1414
6	Receiver Engineering Contact Address City	RDE_ENG_ADR_CTY	0/1	x..50	Windsor
7	Receiver Engineering Contact Address State	RDE_ENG_ADR_STA	0/1	x..50	Ontario
8	Receiver Engineering Contact Address Country	RDE_ENG_ADR_COU	0/1	a2	CA
9	Receiver Engineering Contact Address Postal Code	RDE_ENG_ADR_ZIP	0/1	x..25	z1e4r4
10	Receiver Engineering Contact Address Comment	RDE_ENG_ADR_TXT	0/1	x..50	2nd Floor cube 22E-1N
11	Receiver Engineering Contact Department	RDE_ENG_ADR_DEP	0/1	x..100	Engineering Management
12	Receiver Engineering Contact Person Surname	RDE_ENG_PER_SUR	M+14, M+17, or 1	x..50	DeVille
13	Receiver Engineering Contact Person Given Name	RDE_ENG_PER_GNM	0/1	x..50	Cruella
14	Receiver Engineering Contact Phone Number	RDE_ENG_PHN	M+12, 12+17, or 1	x..50	
15	Receiver Engineering Contact Phone Number Mobile	RDE_ENG_MOB	0/1	x..50	
16	Receiver Engineering Contact Fax Number	RDE_ENG_FAX	0/1	x..50	
17	Receiver Engineering Contact E-mail Address	RDE_ENG_EML	M+12, 12+14, or 1	x..100	cruella.d@nova.ca
	Technical Contact		0/1		
1	Receiver Technical Contact Company Name	RDE_TEC_NAM	M or 2	x..100	Nova Parts Co.
2	Receiver Technical Contact Internal ID number	RDE_TEC_UID	M or 1	x..50	084523
3	Receiver Technical Contact Address Street Name	RDE_TEC_ADR_STR	0/1	x..50	Stephenson Highway
4	Receiver Technical Contact Address Street Number	RDE_TEC_ADR_NBR	0/1	x..50	1414
5	Receiver Technical Contact Address City	RDE_TEC_ADR_CTY	0/1	x..50	Windsor
6	Receiver Technical Contact Address State	RDE_TEC_ADR_STA	0/1	x..50	Ontario
7	Receiver Technical Contact Address Country	RDE_TEC_ADR_COU	0/1	a2	CA
8	Receiver Technical Contact Address Postal Code	RDE_TEC_ADR_ZIP	0/1	x..25	z1e4r4
9	Receiver Technical Contact Address Comment	RDE_TEC_ADR_TXT	0/1	x..50	2nd Floor cube 22E-3N
10	Receiver Technical Contact Department	RDE_TEC_ADR_DEP	0/1	x..100	Drafting
11	Receiver Technical Contact Person Surname	RDE_TEC_PER_SUR	1	x..50	Exner
12	Receiver Technical Contact Person Given Name	RDE_TEC_PER_GNM	0/1	x..50	Andreas
13	Receiver Technical Contact Phone Number	RDE_TEC_PHN	M or 16	x..50	040-123-0
14	Receiver Technical Contact Phone Number Mobile	RDE_TEC_MOB	0/1	x..50	040-456-8910
15	Receiver Technical Contact Fax Number	RDE_TEC_FAX	0/1	x..50	040-123-34555
16	Receiver Technical Contact E-mail Address	RDE_TEC_EML	M or 13	x..100	aexner@axle.com
	Trading Contact		0/1		

1	Receiver Trading Contact Company Name	RDE_TRD_NAM		M or 2	x..100	Commercial Attorneys PLC
2	Receiver Trading Contact Internal ID number	RDE_TRD_UID		M or 1	x..50	27182818
3	Receiver Trading Contact Address Street Name	RDE_TRD_ADR_STR		0/1	x..50	P.O.Box
4	Receiver Trading Contact Address Street Number	RDE_TRD_ADR_NBR		0/1	x..25	459045
5	Receiver Trading Contact Address City	RDE_TRD_ADR_CTY		0/1	x..50	San Juan
6	Receiver Trading Contact Address State	RDE_TRD_ADR_STA		0/1	x..50	Puerto Rico
7	Receiver Trading Contact Address Country	RDE_TRD_ADR_COU		0/1	a2	US
8	Receiver Trading Contact Address Postal Code	RDE_TRD_ADR_ZIP		0/1	x..25	03141-5926
9	Receiver Trading Contact Address Comment	RDE_TRD_ADR_TXT		0/1	x..50	
10	Receiver Trading Contact Department	RDE_TRD_ADR_DEP		0/1	x..100	Supplier Representation
11	Receiver Trading Contact Person Surname	RDE_TRD_PER_SUR		1	x..50	Goldstein
12	Receiver Trading Contact Person Given Name	RDE_TRD_PER_GNM	0/1	x..50	Schlomo	
13	Receiver Trading Contact Phone Number	RDE_TRD_PHN		M or 16	x..50	+1 (818) 383-8383
14	Receiver Trading Contact Phone Number Mobile	RDE_TRD_MOB		0/1	x..50	+1 (818) 278-7538
15	Receiver Trading Contact Fax Number	RDE_TRD_FAX		0/1	x..50	+1 (818) 383-8000
16	Receiver Trading Contact E-mail Address	RDE_TRD_EML		M or 13	x..100	schlomog@ca.plc.pr

The **RDE** segment is populated according to the same rules as in a CC1 or CC3 exchange. Further comments may be found in the examples for those exchanges.

	EFC		0/1		
1	Exchanged File Contained Quantity	EFC_CON_QTY	1	n4	0000
13	Exchanged File Purpose	EFC_PPS	0/1	x..500	CONFIRMATION
	File Content Specification		0/1		
1	Exchanged File Sequence Number	EFC_SQN	1	n4	0002
2	Exchanged File Original Name	EFC_ORG_NAM	0/1	x..100	Acknowledge.txt
3	Exchanged File Physical Name	EFC_PHS_NAM	0/1	x..100	

The **EFC** segment has an extremely limited use in CC4b exchanges. The **EFC Exchanged File Purpose** shall begin with the mandatory string “CONFIRMATION” without exception. It may continue with additional optional text. The **Exchanged File Sequence Number** shall have the value “0002” assigned to it since there is one accompanying exchanged file in a CC4b exchange. (This segment is not used at all in CC4 if the exchange is of type “a”.)

The format of the single exchanged file shall be as follows:

Line 1: The exchange reference (found in the MID Document Id) of the preceding CC2 or CC3 data exchange being acknowledged.

Line 2: Either a zero (0), which indicates that the entire package was received successfully and was correct, or a non-zero character, which indicates that there was a problem with content or receipt.

Line 3 and onward: Free explanatory text of any length.

Here is an example of that file:

030205165959NOVAP
0

In this case, the author chose not to leave any comment, so the third line is blank.

In conclusion, the names of the files in this example would be as follows:

ENGDAT message: ENG3039093000YUGOU00020001

Exchanged File (acknowledgement): ENG3039093000YUGOU00020002

2.7 Technical Requirements

2.7.1 Data Line

Hardware and software requirements are out of the scope of this recommendation. One implementation method, XML, has been developed and is available in the Annexes. One or more additional implementation methods may become available if interest justifies their development. Of course, the necessary equipment (hardware and software) must be operational.

2.7.2 Data Media

This Recommendation has been prepared in view of an electronic data transfer. The exchange using physical data media should be an exception.

2.7.3 File Transfer Protocol

The use of FTP (File Transfer Protocol) for batch transmission of data, including especially OFTP (ODETTE File Transfer Protocol), is encouraged.

ANNEX A - DETAILED SPECIFICATION

The following table provides a complete view of the ENGDAT standard. Every data element of every segment used in ENGDAT version 3 is shown. Conformance class mappings, cardinality, field format, definitions, and an example are given for each field.

The sample values given for each field do not provide a consistent example when taken as a whole. (For consistent examples, see section 2.6). Use these sample values only as individual examples of the instantiation of each data element.

SASIG ENGDAT STANDARD - VERSION 3

Structure	Data Element Number	Requirement Mapping #	CC1	CC2	CC3	CC4	Data Element Name	Short Name	Permitted or Required Frequency	Format	Field Description (for further clarification of intent for use)	Sample Values
MID Segment SASIG ENGDAT (General Data Elements)		MID	x	x	x	x	Message IDentifier		1		Information for unique message id	
	1	6.1	x	x	x	x	*Character Set*	*MID_CHS*	*0/1*	*x..25*	Specification of the Character Set used in this delivery note. If not specified, the default shall be the ISO 10646 standard. ISO 8859-1 standard is included in ISO 10646.	ISO 10646
	2	6.2	x	x	x	x	*Language Specification*	*MID_LAN*	*0/1*	*a2*	Specification of the Language used in this delivery note. If not specified, the default is English (EN or en). The language_code specifies the language of the text information in the Alpha-2 bibliographic code specified in ISO 639-1:2002. Possible values for language_code are, e.g., 'FR' or 'fr' for French, 'JA' or 'ja' for Japanese, or 'DE or 'de' for German.	EN
	3	4	x		x	x	*Technical Data Receiver's Job Number*	*MID_REC_ JNR*	*0/1*	*x..25*	Unique number of the job, as given by receiver. (Common scenario step 2). This number has to be kept for all transmissions belonging to this job.	A9839887
	4	6			x	x	*Technical Data Sender's Job Number*	*MID_SND_ JNR*	*0/1*	*x..25*	Unique number of the job, as given by the sender	W.O. #45678901
	5	old	x	x	x	x	*Version*	*MID_VER*	*1*	*x..5*	The version of the SASIG ENGDAT standard on which this message is based	3
	6	5	x	x	x	x	*Document Id*	*MID_DID*	*1*	*an15*	A transfer reference number; the unique id of a message (see transmission line under common scenario step 13); content is identical to the "exchange reference" described in section 2.2 of ENGDAT v3.	3029131005AAXLE
	7	101	x	x	x	x	*File Count*	*MID_QTY*	*1*	*n4*	Number of files in this exchange of this technical data package, including this delivery note, but not counting contents of any container files.	0002
	8	3	x	x	x	x	*Document Date*	*MID_DOC_ DTM*	*0/1*	*n12*	Date, and optionally time, that the creator of this message completes its creation. Format is YYMMDDHHMMSS (two-digit year, month, day, hour, minute, and second). If the time is not supplied, HHMMSS should appear as 000000.	030129131005

SASIG ENGDAT STANDARD - VERSION 3

Structure	Data Element Number	Requirement Mapping #	CC1	CC2	CC3	CC4	Data Element Name	Short Name	Permitted or Required Frequency	Format	Field Description (for further clarification of intent for use)	Sample Values
MID Segment SASIG ENGDAT (General Data Elements)	9	1	x		x		*Required Completion Date / Time*	*MID_DUE_ DTM*	*0/1*	*n12*	Date, and optionally time, of the requestor's deadline for supplying data. Format is YYMMDDHHMMSS (two-digit year, month, day, hour, minute, and second). If the time is not supplied, HHMMSS should appear as 000000.	030205170000
	10	2			x		*Receiver's Request Reception Date / Time*	*MID_REQ_ RCV_DTM*	*0/1*	*n12*	Date, and optionally time, when sender's technical department receives the sending request from the receiver. Format is YYMMDDHHMMSS (two-digit year, month, day, hour, minute, and second). If the time is not supplied, HHMMSS should appear as 000000.	030129131500
	11	104				x	*Data Receipt Date / Time*	*MID_DTA_ RCV_DTM*	*0/1*	*n12*	Date, and optionally time, that receiver received the requested data. Format is YYMMDDHHMMSS (two-digit year, month, day, hour, minute, and second). If the time is not supplied, HHMMSS should appear as 000000.	030205151508
	12	0	x	x	x	x	*Conformance Class*	*MID_CC*	*0/1*	*an..5*	A 1-digit specification of the conformance class of this exchange. Valid values are 1, 2, 3, or 4. NOTE: Conformance classes may not be combined in a single message, e.g., an exchange of files (CC2 or CC3) cannot also be a request for files (CC1). The absence of a value implies the default value, 2.	3
	13	64	x	x	x	x	*Free text*	*MID_TXT*	*0/1*	*x..500*	Free text comment relevant to overall ENGDAT message	Offer to your request from 10 Dec

SASIG ENGDAT STANDARD - VERSION 3

Structure	Data Element Number	Requirement Mapping #	CC1	CC2	CC3	CC4	Data Element Name	Short Name	Permitted or Required Frequency	Format	Field Description (for further clarification of intent for use)	Sample Values
(General Data Elements)		DAN	x	x	x	x	Document Alphanumeric Reference	1+ for CC4a 0+ for all other CCs			Defines a relationship to another technical data package and its ENGDAT delivery note	
	1	JAMA Stkm	x	x	x	x	*External Document Type*	*DAN_EDR_TYP*	*0/1*	*x..50*	Type of message being referenced in free text. e.g., delivery request, CAD/CAM msg, etc.	offer
	2	JAMA Stockholm	x	x	x	x	*External Document Number*	*DAN_EDR_NBR*	*1*	*an15*	A 15-character transfer reference number identical in format to the **MID Document ID.** Conformance class 3 exchanges may use this data element to identify the conformance class 1 exchange that requested them. Conformance class 4 exchanges may use this data element to identify the conformance class 2 or 3 exchanges that requested them.	3008090500AAXLE
	3	JAMA Stockholm	x	x	x	x	*External Document Date / Time*	*DAN_EDR_DTM*	*0/1*	*n12*	Creation Date/ time of referenced message. Format is YYMMDDHHMMSS (two-digit year, month, day, hour, minute, second). If the time is not supplied, HHMMSS should be 000000. RULE: Entry must match **MID Document Date** of the referenced message.	030108090500
	4	105	x	x	x	x	*External Document Reference Purpose*	*DAN_EDR_PPS*	*0/1*	*x..100*	Purpose of this external document reference in free text. NOTE 1: Commonly, a CC3 use for this data element would be to the initializing CC1 request; but any other purposes are also permitted. NOTE 2: CC4 acknowledgements MUST USE THIS FIELD ONLY to communicate the status of a prior CC2 or CC3 data transmission, using the values "SUCCESS" or "FAILURE." This status shall refer to the entire technical data package, not to individual files within it. RULE: If a CC4 message does not use this element, it MUST contain an **EFC** segment referring to a file with the equivalent information.	SUCCESS
	5	63	x	x	x		*Incremental Change*	*DAN_NET_CHG*	*0/1*	*x..50*	Indication of whether the contents of this technical data package represent incremental change (also known as net change) to the technical data package of the associated delivery note.	Net Change

SASIG ENGDAT STANDARD - VERSION 3

Structure	Data Element Number	Requirement Mapping #	CC1	CC2	CC3	CC4	Data Element Name	Short Name	Permitted or Required Frequency	Format	Field Description (for further clarification of intent for use)	Sample Values
SASIG ENGDAT SDE Segment Engineering Contact		SDE	x	x	x	x	Sender Details	1			The sender is the party responsible for creating and supplying exchanged data.	
							Engineering Contact		1		The sender engineers are the creators or maintainers of the exchanged data, and may also play the roles of Technicians and/or Traders, if either of those contacts are not independently specified.	
	1	16	x	x	x	x	*Sender Engineering Contact Routing Code*	*SDE_ENG_ ROU*	*Mandatory, or must specify Surname with either Phone or E-mail*	*x..50*	A unique identification of a person or an automated process within a company	xyz12355087267313534
	2	7	x	x	x	x	*Sender Engineering Contact Company Name*	*SDE_ENG_ NAM*	*At least one of these elements is mandatory*	*x..100*	Name of company that creates data	Andreas Axle Works
	3	8	x	x	x	x	*Sender Engineering Contact Internal ID Number*	*SDE_ENG_ UID*		*x..50*	Identifier of company that creates data, e.g. DUNS number, ODETTE code list. NOTE: The Receiver would decide what internal id the sender should use to identify himself.	195634
	4	9.1	x	x	x	x	*Sender Engineering Contact Address Street Name*	*SDE_ENG_ ADR_STR*	*0/1*	*x..50*	Postal addess street name of engineering contact company. If delivery is to a post office box number, the text "Post Office Box" or "P.O.Box" is substituted for a street name.	P.O.Box
	5	9.2	x	x	x	x	*Sender Engineering Contact Address Street Number*	*SDE_ENG_ ADR_NBR*	*0/1*	*x..25*	Postal address street number of engineering contact company. If delivery is to a post office box number, the box number is placed here.	298-G
	6	9.4	x	x	x	x	*Sender Engineering Contact Address City*	*SDE_ENG_ ADR_CTY*	*0/1*	*x..50*	Postal address city name of engineering contact company.	Detroit
	7	9.7	x	x	x	x	*Sender Engineering Contact Address State*	*SDE_ENG_ ADR_STA*	*0/1*	*x..50*	Postal address state name of engineering contact company.	Michigan
	8	9.5	x	x	x	x	*Sender Engineering Contact Address Country*	*SDE_ENG_ ADR_COU*	*0/1*	*a2*	Postal address country name of engineering contact company. The country_code specifies the country according to the alpha-2 code in ISO 3166-1.	US
	9	9.3	x	x	x	x	*Sender Engineering Contact Address Postal Code*	*SDE_ENG_ ADR_ZIP*	*0/1*	*x..25*	Postal address postal code (in USA called "Zip Code") of engineering contact company.	48328-3516
	10	9.6	x	x	x	x	*Sender Engineering Contact Address Comment*	*SDE_ENG_ ADR_TXT*	*0/1*	*x..50*	Additional address information of engineering contact company, for example, a street address that may differ from the postal address.	(418 E. Madison Ave.)

SASIG ENGDAT STANDARD - VERSION 3

Structure	Data Element Number	Requirement Mapping #	CC1	CC2	CC3	CC4	Data Element Name	Short Name	Permitted or Required Frequency	Format	Field Description (for further clarification of intent for use)	Sample Values
SASIG ENGDAT SDE Segment Engineering Contact, continued	11	10	x	x	x	x	*Sender Engineering Contact Department*	*SDE_ENG_ ADR_DEP*	*0/1*	*x..100*	Department name of engineering contact	Dpt.ABT-1
	12	11.1	x	x	x	x	*Sender Engineering Contact Person Surname*	*SDE_ENG_ PER_SUR*	*Mandatory with Phone, Mandatory with E-mail, or must specify Routing Code*	*x..50*	Surname, or last name, of engineering contact person	Exner
	13	11.2	x	x	x	x	*Sender Engineering Contact Person Given Name*	*SDE_ENG_ PER_GNM*	*0/1*	*x..50*	Given, or first name, of engineering contact person	Andreas
	14	12	x	x	x	x	*Sender Engineering Contact Phone Number*	*SDE_ENG_ PHN*	*Mandatory with Surname, or Surname and E-mail must be specified, or Routing Code must be specified*	*x..50*	Telephone number, including any extensions, of engineering contact person	040-123-0 extension 882
	15	13	x	x	x	x	*Sender Engineering Contact Phone Number Mobile*	*SDE_ENG_ MOB*	*0/1*	*x..50*	Mobile (cellular) telephone number of engineering contact person	040-456-8910
	16	14	x	x	x	x	*Sender Engineering Contact Fax Number*	*SDE_ENG_ FAX*	*0/1*	*x..50*	Fax number of engineering contact person	040-112-35813
	17	15	x	x	x	x	*Sender Engineering Contact E-mail Address*	*SDE_ENG_ EML*	*Mandatory with Surname, or Surname and Phone must be specified, or Routing Code must be specified*	*x..100*	E-mail address of engineering contact person	aexner@axle.com

SASIG ENGDAT STANDARD - VERSION 3

Structure	Data Element Number	Requirement Mapping #	CC1	CC2	CC3	CC4	Data Element Name	Short Name	Permitted or Required Frequency	Format	Field Description (for further clarification of intent for use)	Sample Values
SASIG ENGDAT SDE Segment Technical Contact							Technical Contact		0/1		The sender technicians are the senders, translators, and/or managers of the exchanged data. If no trading contact is specified, they also are responsible for contractual details of the data exchange.	
	1	26	x		x	x	*Sender Technical Contact Company Name*	*SDE_TEC_NAM*	*At least one of these elements is mandatory*	*x..100*	Name of company that creates and sends data	Andreas Axle Works
	2	27	x		x	x	*Sender Technical Contact Internal ID number*	*SDE_TEC_UID*		*x..50*	Identifier of company that creates and sends data, e.g, DUNS number, ODETTE code list. NOTE: The Receiver would decide what internal id the sender should use to identify himself.	195634
	3	28.1	x		x	x	*Sender Technical Contact Address Street Name*	*SDE_TEC_ADR_STR*	*0/1*	*x..50*	Postal addess street name of technical contact company. If delivery is to a post office box number, the text "Post Office Box" or "P.O.Box" is substituted for a street name.	P.O.Box
	4	28.2	x		x	x	*Sender Technical Contact Address Street Number*	*SDE_TEC_ADR_NBR*	*0/1*	*x..25*	Postal address street number of technical contact company. If delivery is to a post office box number, the box number is placed here.	298-G
	5	28.4	x		x	x	*Sender Technical Contact Address City*	*SDE_TEC_ADR_CTY*	*0/1*	*x..50*	Postal address city name of technical contact company	Detroit
	6	28.7	x		x	x	*Sender Technical Contact Address State*	*SDE_TEC_ADR_STA*	*0/1*	*x..50*	Postal address state name of technical contact company	Michigan
	7	28.5	x		x	x	*Sender Technical Contact Address Country*	*SDE_TEC_ADR_COU*	*0/1*	*a2*	Postal address country name of technical contact company. The country_code specifies the country according to the alpha-2 code in ISO 3166-1.	US
	8	28.3	x		x	x	*Sender Technical Contact Address Postal Code*	*SDE_TEC_ADR_ZIP*	*0/1*	*x..25*	Postal address postal code (in USA called "Zip Code") of technical contact company	48328-3516
	9	28.6	x		x	x	*Sender Technical Contact Address Comment*	*SDE_TEC_ADR_TXT*	*0/1*	*x..50*	Additional address information of technical contact company, for example, a street address that may differ from the postal address.	(418 E. Madison Ave.)
	10	29	x		x	x	*Sender Technical Contact Department*	*SDE_TEC_ADR_DEP*	*0/1*	*x..100*	Department name of technical contact	Dpt.ABT-1
	11	30.1	x		x	x	*Sender Technical Contact Person Surname*	*SDE_TEC_PER_SUR*	*1*	*x..50*	Surname, or last name, of technical contact person	Exner
	12	30.2	x		x	x	*Sender Technical Contact Person Given Name*	*SDE_TEC_PER_GNM*	*0/1*	*x..50*	Given, or first name, of technical contact person	Andreas
	13	31	x		x	x	*Sender Technical Contact Phone Number*	*SDE_TEC_PHN*	*Mandatory, or must specify E-mail*	*x..50*	Telephone number, including any extensions, of technical contact person	040-123-0
	14	32	x		x	x	*Sender Technical Contact Phone Number Mobile*	*SDE_TEC_MOB*	*0/1*	*x..50*	Mobile (cellular) telephone number of technical contact person	040-456-8910
	15	33	x		x	x	*Sender Technical Contact Fax Number*	*SDE_TEC_FAX*	*0/1*	*x..50*	Fax number of technical contact person	040-123-34555
	16	34	x		x	x	*Sender Technical Contact E-mail Address*	*SDE_TEC_EML*	*Mandatory, or must specify Phone*	*x..100*	E-mail address of technical contact person	aexner@axle.com

SASIG ENGDAT STANDARD - VERSION 3

Structure	Data Element Number	Requirement Mapping #	CC1	CC2	CC3	CC4	Data Element Name	Short Name	Permitted or Required Frequency	Format	Field Description (for further clarification of intent for use)	Sample Values
SDE Segment SASIG ENGDAT Trading Contact							Trading Contact		0/1		The sender traders are responsible for contractual arrangements for the exchanged data	
	1	17	x		x	x	Sender Trading Contact Company Name	SDE_TRD_NAM	At least one of these elements is mandatory	x..100	Name of company that creates and sends data	Andreas Axle Works
	2	18	x		x	x	Sender Trading Contact Internal ID number	SDE_TRD_UID		x..50	Identifier of company that creates and sends data, e.g., DUNS number, ODETTE code list. NOTE: The Receiver would decide what internal id the sender should use to identify himself.	195634
	3	19.1	x		x	x	Sender Trading Contact Address Street Name	SDE_TRD_ADR_STR	0/1	x..50	Postal addess street name of trading contact company. If delivery is to a post office box number, the text "Post Office Box" or "P.O.Box" is substituted for a street name.	P.O.Box
	4	19.2	x		x	x	Sender Trading Contact Address Street Number	SDE_TRD_ADR_NBR	0/1	x..25	Postal address street number of trading contact company. If delivery is to a post office box number, the box number is placed here.	298-G
	5	19.4	x		x	x	Sender Trading Contact Address City	SDE_TRD_ADR_CTY	0/1	x..50	Postal address city name of trading contact company	Detroit
	6	19.7	x		x	x	Sender Trading Contact Address State	SDE_TRD_ADR_STA	0/1	x..50	Postal address state name of trading contact company	Michigan
	7	19.5	x		x	x	Sender Trading Contact Address Country	SDE_TRD_ADR_COU	0/1	a2	Postal address country name of trading contact company. The country_code specifies the country according to the alpha-2 code in ISO 3166-1.	US
	8	19.3	x		x	x	Sender Trading Contact Address Postal Code	SDE_TRD_ADR_ZIP	0/1	x..25	Postal address postal code (in USA called "Zip Code") of trading contact company	48328-3516
	9	19.6	x		x	x	Sender Trading Contact Address Comment	SDE_TRD_ADR_TXT	0/1	x..50	Additional address information of trading contact company, for example, a street address that may differ from the postal address.	(418 E. Madison Ave.)
	10	20	x		x	x	Sender Trading Contact Department	SDE_TRD_ADR_DEP	0/1	x..100	Department name of trading contact	Dpt.ABT-1
	11	21.1	x		x	x	Sender Trading Contact Person Surname	SDE_TRD_PER_SUR	1	x..50	Surname, or last name, of trading contact person	Exner
	12	21.2	x		x	x	Sender Trading Contact Person Given Name	SDE_TRD_PER_GNM	0/1	x..50	Given, or first name, of trading contact person	Andreas
	13	22	x		x	x	Sender Trading Contact Phone Number	SDE_TRD_PHN	Mandatory, or must specify E-mail	x..50	Telephone number, including any extensions, of trading contact person	040-123-0
	14	23	x		x	x	Sender Trading Contact Phone Number Mobile	SDE_TRD_MOB	0/1	x..50	Mobile (cellular) telephone number of trading contact person	040-456-8910
	15	24	x		x	x	Sender Trading Contact Fax Number	SDE_TRD_FAX	0/1	x..50	Fax number of trading contact person	040-123-34555
	16	25	x		x	x	Sender Trading Contact E-mail Address	SDE_TRD_EML	Mandatory, or must specify Phone	x..100	E-mail address of trading contact person	aexner@axle.com

SASIG ENGDAT STANDARD - VERSION 3

Structure	Data Element Number	Requirement Mapping #	CC1	CC2	CC3	CC4	Data Element Name	Short Name	Permitted or Required Frequency	Format	Field Description (for further clarification of intent for use)	Sample Values
RDE Segment SASIG ENGDAT		RDE	x	x	x	x	**Receiver Details**		1		The receiver is the party requesting the exchanged data.	
Engineering Contact							Engineering Contact		1		The receiver engineers are the users of the exchanged data and may also play the roles of Technicians and/or Traders, if either of those contacts are not independently specified	
	1	44	x	x	x	x	*Receiver Engineering Contact Routing Code*	*RDE_ENG_ROU*	*Mandatory, or must specify Surname with either Phone or E-mail*	*x..50*	A unique identification of a person or an automated process within a company	xyz12355087267313534
	2	35	x	x	x	x	*Receiver Engineering Contact Company Name*	*RDE_ENG_NAM*	*At least one of these elements is mandatory*	*x..100*	Name of company that receives data	Andreas Axle Works
	3	36	x	x	x	x	*Receiver Engineering Contact Internal ID Number*	*RDE_ENG_UID*		*x..50*	Identifier of company that receives data, e.g., DUNS number, ODETTE code list. NOTE: The Sender would decide what internal id the receiver should use to identify himself.	195634
	4	37.1	x	x	x	x	*Receiver Engineering Contact Address Street Name*	*RDE_ENG_ADR_STR*	*0/1*	*x..50*	Postal addess street name of engineering contact company. If delivery is to a post office box number, the text "Post Office Box" or "P.O.Box" is substituted for a street name.	P.O.Box
	5	37.2	x	x	x	x	*Receiver Engineering Contact Address Street Number*	*RDE_ENG_ADR_NBR*	*0/1*	*x..25*	Postal address street number of engineering contact company. If delivery is to a post office box number, the box number is placed here.	298-G
	6	37.4	x	x	x	x	*Receiver Engineering Contact Address City*	*RDE_ENG_ADR_CTY*	*0/1*	*x..50*	Postal address city name of engineering contact company	Detroit
	7	37.7	x	x	x	x	*Receiver Engineering Contact Address State*	*RDE_ENG_ADR_STA*	*0/1*	*x..50*	Postal address state name of engineering contact company	Michigan
	8	37.5	x	x	x	x	*Receiver Engineering Contact Address Country*	*RDE_ENG_ADR_COU*	*0/1*	*a2*	Postal address country name of engineering contact company. The country_code specifies the country according to the alpha-2 code in ISO 3166-1.	US
	9	37.3	x	x	x	x	*Receiver Engineering Contact Address Postal Code*	*RDE_ENG_ADR_ZIP*	*0/1*	*x..25*	Postal address postal code (in USA called "Zip Code") of engineering contact company	48328-3516
	10	37.6	x	x	x	x	*Receiver Engineering Contact Address Comment*	*RDE_ENG_ADR_TXT*	*0/1*	*x..50*	Additional address information of engineering contact company, for example, a street address that may differ from the postal address.	(418 E. Madison Ave.)
	11	38	x	x	x	x	*Receiver Engineering Contact Department*	*RDE_ENG_ADR_DEP*	*0/1*	*x..100*	Department name of engineering contact	Dpt.ABT-1
	12	39.1	x	x	x	x	*Receiver Engineering Contact Person Surname*	*RDE_ENG_PER_SUR*	*Mandatory with Phone, Mandatory with E-mail, or must specify Routing Code*	*x..50*	Surname, or last name, of engineering contact person	Exner

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	**SASIG ENGDAT STANDARD - VERSION 3**															
2	**Structure**				**Data Element Number**	**Requirement Mapping #**	**CC1**	**CC2**	**CC3**	**CC4**	**Data Element Name**	**Short Name**	**Permitted or Required Frequency**	**Format**	**Field Description (for further clarification of intent for use)**	**Sample Values**
90	**SASIG ENGDAT RDE Segment Engineering Contact, continued**				**13**	**39.2**	x	x	x	x	***Receiver Engineering Contact Person Given Name***	***RDE_ENG_ PER_GNM***	***0/1***	***x..50***	**Given, or first name, of engineering contact person**	**Andreas**
91					**14**	**40**	x	x	x	x	***Receiver Engineering Contact Phone Number***	***RDE_ENG_ PHN***	***Mandatory with Surname, or Surname and E-mail must be specified, or Routing Code must be specified***	***x..50***	**Telephone number, including any extensions, of engineering contact person**	**040-123-0**
92					**15**	**41**	x	x	x	x	***Receiver Engineering Contact Phone Number Mobile***	***RDE_ENG_ MOB***	***0/1***	***x..50***	**Mobile (cellular) telephone number of engineering contact person**	**040-456-8910**
93					**16**	**42**	x	x	x	x	***Receiver Engineering Contact Fax Number***	***RDE_ENG_ FAX***	***0/1***	***x..50***	**Fax number of engineering contact person**	**040-123-34555**
94					**17**	**43**	x	x	x	x	***Receiver Engineering Contact E-mail Address***	***RDE_ENG_ EML***	***Mandatory with Surname, or Surname and Phone must be specified, or Routing Code must be specified***	***x..100***	**E-mail address of engineering contact person**	**aexner@axle.com**

SASIG ENGDAT STANDARD - VERSION 3

Structure	Data Element Number	Requirement Mapping #	CC1	CC2	CC3	CC4	Data Element Name	Short Name	Permitted or Required Frequency	Format	Field Description (for further clarification of intent for use)	Sample Values
RDE Segment SASIG ENGDAT							Technical Contact		0/1		The receiver technicians are the receivers, translators, and/or managers of the exchanged data. If no trading contact is specified, they also are responsible for contractual details of the data exchange.	
Technical Contact	1	54	x		x	x	Receiver Technical Contact Company Name	RDE_TEC_ NAM	At least one of these elements is mandatory	x..100	Name of company that receives data	Andreas Axle Works
	2	55	x		x	x	Receiver Technical Contact Internal ID number	RDE_TEC_ UID		x..50	Identifier of company that receives data, e.g., DUNS number, ODETTE code list. NOTE: The Sender would decide what internal id the receiver should use to identify himself.	195634
	3	56.1	x		x	x	Receiver Technical Contact Address Street Name	RDE_TEC_ ADR_STR	0/1	x..50	Postal addess street name of technical contact company. If delivery is to a post office box number, the text "Post Office Box" or "P.O.Box" is substituted for a street name.	P.O.Box
	4	56.2	x		x	x	Receiver Technical Contact Address Street Number	RDE_TEC_ ADR_NBR	0/1	x..25	Postal address street number of technical contact company. If delivery is to a post office box number, the box number is placed here.	298-G
	5	56.4	x		x	x	Receiver Technical Contact Address City	RDE_TEC_ ADR_CTY	0/1	x..50	Postal address city name of technical contact company.	Detroit
	6	56.7	x		x	x	Receiver Technical Contact Address State	RDE_TEC_ ADR_STA	0/1	x..50	Postal address state name of technical contact company.	Michigan
	7	56.5	x		x	x	Receiver Technical Contact Address Country	RDE_TEC_ ADR_COU	0/1	a2	Postal address country name of technical contact company. The country_code specifies the country according to the alpha-2 code in ISO 3166-1.	US
	8	56.3	x		x	x	Receiver Technical Contact Address Postal Code	RDE_TEC_ ADR_ZIP	0/1	x..25	Postal address postal code (in USA called "Zip Code") of technical contact company.	48328-3516
	9	56.6	x		x	x	Receiver Technical Contact Address Comment	RDE_TEC_ ADR_TXT	0/1	x..50	Additional address information of technical contact company, for example, a street address that may differ from the postal address.	(418 E. Madison Ave.)
	10	57	x		x	x	Receiver Technical Contact Department	RDE_TEC_ ADR_DEP	0/1	x..100	Department name of technical contact	Dpt.ABT-1
	11	58.1	x		x	x	Receiver Technical Contact Person Surname	RDE_TEC_ PER_SUR	1	x..50	Surname, or last name, of technical contact person	Exner
	12	58.2	x		x	x	Receiver Technical Contact Person Given Name	RDE_TEC_ PER_GNM	0/1	x..50	Given, or first name, of technical contact person	Andreas
	13	59	x		x	x	Receiver Technical Contact Phone Number	RDE_TEC_ PHN	Mandatory, or must specify E-mail	x..50	Telephone number, including any extensions, of technical contact person	040-123-0
	14	60	x		x	x	Receiver Technical Contact Phone Number Mobile	RDE_TEC_ MOB	0/1	x..50	Mobile (cellular) telephone number of technical contact person	040-456-8910
	15	61	x		x	x	Receiver Technical Contact Fax Number	RDE_TEC_ FAX	0/1	x..50	Fax number of technical contact person	040-123-34555
	16	62	x		x	x	Receiver Technical Contact E-mail Address	RDE_TEC_ EML	Mandatory, or must spe-cify Phone	x..100	E-mail address of technical contact person	aexner@axle.com

SASIG ENGDAT STANDARD - VERSION 3

Structure	Data Element Number	Requirement Mapping #	CC1	CC2	CC3	CC4	Data Element Name	Short Name	Permitted or Required Frequency	Format	Field Description (for further clarification of intent for use)	Sample Values
RDE Segment SASIG ENGDAT / Trading Contact							Trading Contact		0/1		The receiver traders are responsible for contractual arrangements for the exchanged data.	
	1	45	x		x	x	Receiver Trading Contact Company Name	RDE_TRD_ NAM	At least one of these elements is mandatory	x..100	Name of company that receives data	Andreas Axle Works
	2	46	x		x	x	Receiver Trading Contact Internal ID number	RDE_TRD_ UID		x..50	Identifier of company that receives data, e.g., DUNS number, ODETTE code list. NOTE: The Sender would decide what internal id the receiver should use to identify himself.	195634
	3	47.1	x		x	x	Receiver Trading Contact Address Street Name	RDE_TRD_ ADR_STR	0/1	x..50	Postal address street name of trading contact company. If delivery is to a post office box number, the text "Post Office Box" or "P.O.Box" is substituted for a street name.	P.O.Box
	4	47.2	x		x	x	Receiver Trading Contact Address Street Number	RDE_TRD_ ADR_NBR	0/1	x..25	Postal address street number of trading contact company. If delivery is to a post office box number, the box number is placed here.	298-G
	5	47.4	x		x	x	Receiver Trading Contact Address City	RDE_TRD_ ADR_CTY	0/1	x..50	Postal address city name of trading contact company	Detroit
	6	47.7	x		x	x	Receiver Trading Contact Address State	RDE_TRD_ ADR_STA	0/1	x..50	Postal address state name of trading contact company	Michigan
	7	47.5	x		x	x	Receiver Trading Contact Address Country	RDE_TRD_ ADR_COU	0/1	a2	Postal address country name of trading contact company. The country_code specifies the country according to the alpha-2 code in ISO 3166-1.	US
	8	47.3	x		x	x	Receiver Trading Contact Address Postal Code	RDE_TRD_ ADR_ZIP	0/1	x..25	Postal address postal code (in USA called "Zip Code") of trading contact company	48328-3516
	9	47.6	x		x	x	Receiver Trading Contact Address Comment	RDE_TRD_ ADR_TXT	0/1	x..50	Additional address information of trading contact company, for example, a street address that may differ from the postal address.	(418 E. Madison Ave.)
	10	48	x		x	x	Receiver Trading Contact Department	RDE_TRD_ ADR_DEP	0/1	x..100	Department name of trading contact	Dpt.ABT-1
	11	49.1	x		x	x	Receiver Trading Contact Person Surname	RDE_TRD_ PER_SUR	1	x..50	Surname, or last name, of trading contact person	Exner
	12	49.2	x		x	x	Receiver Trading Contact Person Given Name	RDE_TRD_ PER_GNM	0/1	x..50	Given, or first name, of trading contact person	Andreas
	13	50	x		x	x	Receiver Trading Contact Phone Number	RDE_TRD_ PHN	Mandatory, or must specify E-mail	x..50	Telephone number, including any extensions, of trading contact person	040-123-0
	14	51	x		x	x	Receiver Trading Contact Phone Number Mobile	RDE_TRD_ MOB	0/1	x..50	Mobile (cellular) telephone number of trading contact person	040-456-8910
	15	52	x		x	x	Receiver Trading Contact Fax Number	RDE_TRD_ FAX	0/1	x..50	Fax number of trading contact person	040-123-34555
	16	53	x		x	x	Receiver Trading Contact E-mail Address	RDE_TRD_ EML	Mandatory, or must specify Phone	x..100	E-mail address of trading contact person	aexner@axle.com

SASIG ENGDAT STANDARD - VERSION 3

	Structure	Data Element Number	Requirement Mapping #	CC1	CC2	CC3	CC4	Data Element Name	Short Name	Permitted or Required Frequency	Format	Field Description (for further clarification of intent for use)	Sample Values
129	Part Specification		REQ	x				Requested Part	1+ for CC1a only			Details of a part and/or file being requested	
130								Part Specification		1		Part and part file information	
131		1	103.1	x				*Requested File Revision Level*	*REQ_REV*	*0/1*	*x..25*	Revision number, release level, and/or change number of the requested file	PDI 0003 Rel 2
132		2	103.2	x				*Requested File Revision Date / Time*	*REQ_REV_ DTM*	*0/1*	*n12*	Date, and optionally time, that the requested file was assigned its current revision level. Format is YYMMDDHHMMSS (two-digit year, month, day, hour, minute, and second). If the time is not supplied, HHMMSS should appear as 000000.	030107000000
133		3	102	x				*Requested File Part Number*	*REQ_PRT_ NBR*	*0/1*	*x..25*	The number or identification, as assigned by the sender, of the part or assembly that is the subject of the requested file. If the file contains more than one part, the highest-level assembly part number shall be used.	stc01839
134		4	103	x				*Requested File Part Name*	*REQ_PRT_ NAM*	*0/1*	*x..100*	The name, as assigned by the sender, of the part or assembly that is the subject of the requested file	steering column
135		5	103.3	x				*Requested File Content Dimensionality*	*REQ_CNT_ DIM*	*0/1*	*n..5*	Dimensionality of requested file, e.g., 2 for 2D, 3 for 3D	3
136		6	103.4	x				*Requested File Comment*	*REQ_TXT*	*0/1*	*x..500*	Free text relevant to this requested file	Keep to tol requests for surface quality
137		7	10/3/3	x				*Requested File Original Name*	*REQ_ORG_NAM*	*0/1*	*x..100*	Original filename of this requested file as it is expected to appear in the sender's application	einspritsanlage.igs
138		8	10/3/3	x				*Requested File Format*	*REQ_FMT*	*0/1*	*x..25*	Data format of requested file in free text	STEP AP 214

SASIG ENGDAT STANDARD - VERSION 3

Structure	Data Element Number	Requirement Mapping #	CC1	CC2	CC3	CC4	Data Element Name	Short Name	Permitted or Required Frequency	Format	Field Description (for further clarification of intent for use)	Sample Values
SASIG ENGDAT / EFC Segment (General Data Elements)		EFC	x	x	x	x	Exchanged File Characteristics	0-9998 for CC1a 1-9998 for CC1b, CC2, CC3 0 for CC4a 1 for CC4b			Information about the exchanged files that are being requested (CC1), transmitted (CC2 or CC3), or acknowledged (CC4) in this message	
	1	89	x	x	x	x	*Exchanged File Contained Quantity*	*EFC_CON_QTY*	*1*	*n4*	If exchanged file is not a container file, use zero. If exchanged file is a container file, this number shall be greater than one to indicate the number of files it contains. NOTE: Detailed information about any contained file may be found in a CFC segment if it is worthy of additional comment – see that section for further details. Container files are not to be used as a mechanism for nesting ENGDAT files. Their purpose is to accommodate exchange of output from applications such as CATIA that may create container files.	0002
	2	80			x		*Exchanged File Project Code*	*EFC_PRJ_COD*	*0/1*	*x..25*	Name or number of the project within which the owner of the exchanged file developed it, such as a car platform designation	X20 Car
	3	83			x		*Exchanged File Contract Number*	*EFC_CNR_NBR*	*0/1*	*x..25*	Contract number for the exchanged file, used for accounting purposes only.	CONTRACT 0303-a
	4	84			x		*Exchanged File Work Order Number*	*EFC_WOD_NBR*	*0/1*	*x..25*	Work order number for the exchanged file, used for accounting purposes only.	WO17395173
	5	71			x		*Exchanged File Format Coded*	*EFC_FMT_COD*	*0/1*	*an3*	Coded per ODDC 77, e.g.: NAT=native, IGS=IGES, VFS=VDAFS, VIS= VDAIS, SET=SET, UNI=UNIISURF, SPA= SPAC, STP= STEP, DXF=DXF, TI3 or TI4 =TIFF, CAP or CAT=CALS, WOW=Word for Windows, WOP=WordPerfect, HPG=HPGL, DMI=input, DMO=output, and several other codes not mentioned here.	STP
	6	71	x		x		*Exchanged File Format*	*EFC_FMT*	*0/1*	*x..25*	Data format of exchanged file in free text	STEP AP 214
	7	72			x		*Exchanged File Format Version*	*EFC_FMT_VER*	*0/1*	*x..25*	Format version	IS (2003) TC2
	8	73			x		*Exchanged File Data Code Coded*	*EFC_DAT_COD*	*0/1*	*x..25*	Coded per ODDC 78, e.g.: ASC=ASCII, 646=ISO 646 IRV, 885=ISO 8859-1 (Latin 1), EBC=EBCDIC, BIN=Binary, OTH=Other	646
	9	73			x		*Exchanged File Data Code*	*EFC_DAT*	*0/1*	*x..25*	Data code in free text	US ASCII 7BIT
	10	old			x		*Exchanged File Generating System*	*EFC_GEN_SYS*	*0/1*	*x..25*	Name of the system hardware and/or software on which the exchanged file originated.	CATIA RS6000

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	**SASIG ENGDAT STANDARD - VERSION 3**															
2	**Structure**				**Data Element Number**	**Requirement Mapping #**	**CC1**	**CC2**	**CC3**	**CC4**	**Data Element Name**	**Short Name**	**Permitted or Required Frequency**	**Format**	**Field Description (for further clarification of intent for use)**	**Sample Values**
150	SASIG ENGDAT	EFC Segment (General Data Elements, continued)			11	74			x		*Exchanged File Generating System Application*	*EFC_GEN_SYS_APP*	*0/1*	*x..50*	The application within the generating system used to create the exchanged file	IGES Export utility
151					12	old			x		*Exchanged File Generating System Version*	*EFC_GEN_SYS_VER*	*0/1*	*x..25*	Version of the software on which the exchanged file originated	V5r17
152					13	82	x		x	x	*Exchanged File Purpose*	*EFC_PPS*	*0/1*	*x..500*	Purpose of this exchanged file in free text. RULES: For CC1a, value of this field shall always begin with the string "ADDITIONAL INFORMATION". For CC1b, in the first EFC segment, the value of this field shall begin with the string "REQUEST LIST", and any subsequent EFC segments shall have the value of this field begin with the string "ADDITIONAL INFORMATION". For CC4, the value of this field shall begin with the string "CONFIRMATION". Example values for CC3, or for optional text that may follow the required strings in CC1 or CC4, include "engineering consultation", "information only", "tool design", "unspecified", etc.	Tool Design
153					14	67	x	x	x		*Exchanged File Compression Method*	*EFC_CPR*	*0/1*	*x..25*	Name of compression method used	none
154					15	68			x		*Exchanged File Compressed File Size*	*EFC_CPR_SIZ*	*0/1*	*n..25*	Compressed file size in kilobytes	19
155					16	69			x		*Exchanged File Uncompressed File Size*	*EFC_UCP_SIZ*	*0/1*	*n..25*	Uncompressed file size in kilobytes	30000

SASIG ENGDAT STANDARD - VERSION 3

Structure	Data Element Number	Requirement Mapping #	CC1	CC2	CC3	CC4	Data Element Name	Short Name	Permitted or Required Frequency	Format	Field Description (for further clarification of intent for use)	Sample Values
SASIG ENGDAT / EFC Segment / File Content Specification							File Content Specification		1	File names, dates, contents		
	1	65 66	x	x	x	x	*Exchanged File Sequence Number*	*EFC_SQN*	*1*	*n4*	Consecutive file number, beginning with 0002, assigned to each exchanged file. NOTE: The file is referred to within this exchange by the concatenation of the MID Document Id, the MID File Count, and this four digit number, the EFC Exchanged File Sequence Number.	0002
	2	78	x	x	x	x	*Exchanged File Original Name*	*EFC_ORG_NAM*	*0/1*	*x..100*	Original filename of this exchanged file as it appeared in the sender's application	einspritsanlage.igs
	3	65	x	x	x	x	*Exchanged File Physical Name*	*EFC_PHS_NAM*	*0/1*	*x..100*	Original filename of this exchanged file as it is renamed upon export by the export function of certain kinds of software.	einsprits.exp
	4	81			x		*Exchanged File Design Phase*	*EFC_DGN_PHA*	*0/1*	*x..25*	Name of design phase of the exchanged file, such as pre-release, study phase, or release status of design	Alpha mule
	5	86			x		*Exchanged File Content Detail Level*	*EFC_CNT_DTL_LVL*	*0/1*	*x..100*	Level of detail in free text, e.g., requirements draft, unchecked, filleted, etc.	ready for filleting
	6	70	x	x	x		*Exchanged File Encryption Method*	*EFC_ENC*	*0/1*	*x..50*	Name of encryption method used	pgp
							Part Specification		0/1 for CC1, CC3 only	Part and part file information		
	1	85			x		*Exchanged File Revision Level*	*EFC_REV*	*0/1*	*x..25*	Revision number, release level, and/or change number of the exchanged file	PDI 0003 Rel 2
	2	85.1			x		*Exchanged File Revision Date / Time*	*EFC_REV_DTM*	*0/1*	*n12*	Date, and optionally time, that the exchanged file was assigned its current revision level. Format is YYMMDDHHMMSS (two-digit year, month, day, hour, minute, and second). If the time is not supplied, HHMMSS should appear as 000000.	030107000000
	3	76			x		*Exchanged File Part Number*	*EFC_PRT_NBR*	*0/1*	*x..25*	The number or identification, as assigned by the sender, of the part or assembly that is the subject of the exchanged file. If the file contains more than one part, the highest-level assembly part number shall be used	stc01839
	4	77			x		*Exchanged File Part Name*	*EFC_PRT_NAM*	*0/1*	*x..100*	The name, as assigned by the sender, of the part or assembly that is the subject of the exchanged file	steering column
	5	79			x		*Exchanged File Content Dimensionality*	*EFC_CNT_DIM*	*0/1*	*n..5*	Dimensionality of exchanged file, e.g,. 2 for 2D, 3 for 3D	3
	6	88	x		x		*Exchanged File Comment*	*EFC_TXT*	*0/1*	*x..500*	Free text relevant to this exchanged file	Keep to tol requests for surface quality

SASIG ENGDAT STANDARD - VERSION 3

Structure			Data Element Number	Requirement Mapping #	CC1	CC2	CC3	CC4	Data Element Name	Short Name	Permitted or Required Frequency	Format	Field Description (for further clarification of intent for use)	Sample Values
SASIG ENGDAT	EFC Segment	General Data Elems		LOF	x	x	x		Linked File	0+ for each EFC segment			Link between file described by this EFC and file described by another EFC in this technical data package.	
SASIG ENGDAT	EFC Segment	LOF Segment	1	87	x	x	x		*Linked File Sequence Number*	*LNK_ SEQ_NBR*	*1*	*n4*	Number of the file to which the link is created. NOTE: Must match value in EFC Exchanged File Sequence Number for that file. Must be 0002 or greater.	0003
SASIG ENGDAT	EFC Segment	LOF Segment	2	old	x	x	x		*Link Purpose*	*LNK_PPS*	*0/1*	*x..500*	Purpose in free text	Layer convention

SASIG ENGDAT STANDARD - VERSION 3

	Structure				Data Element Number	Requirement Mapping #	CC1	CC2	CC3	CC4	Data Element Name	Short Name	Permitted or Required Frequency	Format	Field Description (for further clarification of intent for use)	Sample Values
173	SASIG ENGDAT	EFC Segment	CFC Segment	File Content Specification		CFC			x		Contained File Characteristics	0 for CC1, CC2, CC4 For CC3, 0 up to the value of "EFC Exchanged File Contained Quantity" for each EFC segment			Information about each contained file being transmitted - used only when the EFC is a container file, and only for those contained files deemed to need further description, if any.	
174											File Content Specification		1		File names, dates, contents	
175					1	90 91			x		*Contained File Sequence Number*	*CFC_SQN*	*1*	*n4*	Consecutive file number, beginning with 0001, assigned to each contained file. NOTE: This contained file may be uniquely referred to within this exchange by the concatenation of the MID Document Id, the MID File Count, the EFC Exchanged File Sequence Number, the EFC Exchanged File Contained Quantity, and this four digit number, the CFC Contained File Sequence Number.	0001
176					2	94			x		*Contained File Original Name*	*CFC_NAM*	*0/1*	*x..100*	Original filename of this contained file as it appeared in the sender's application	pinion018.cat
177					3	91			x		*Contained File Physical Name*	*CFC_PHS*	*0/1*	*x..100*	Original filename of this contained file as it is renamed upon export by the export function of certain kinds of software.	pinion018.exp
178					4	im-plied			x		*Contained File Design Phase*	*CFC_DGN_PHA*	*0/1*	*x..25*	Name of design phase of the contained file, such as pre-release, study phase, or release status of design	Alpha mule
179					5	97			x		*Contained File Content Detail Level*	*CFC_CNT_DTL_LVL*	*0/1*	*x..100*	Level of detail in free text, e.g., requirements draft, unchecked, filleted, etc.	ready for filleting
180											Part Specification		0/1		Part and part file information	
181				Part Specification	1	96			x		*Contained File Revision Level*	*CFC_REV*	*0/1*	*x..25*	Revision number, release level, and/or change number of the contained file	PDI 0003 Rel 2
182					2	96.1			x		*Contained File Revision Date / Time*	*CFC_REV_DTM*	*0/1*	*n12*	Date, and optionally time, that the contained file was assigned its current revision level. Format is YYMMDDHHMMSS (two-digit year, month, day, hour, minute, and second). If the time is not supplied, HHMMSS should appear as 000000.	030106000000
183					3	92			x		*Contained File Part Number*	*CFC_PRT_NBR*	*0/1*	*x..25*	The number or identification, as assigned by the sender, of the part or assembly that is the subject of the contained file. If the file contains more than one part, the highest-level assembly part number shall be used.	98765432
184					4	93			x		*Contained File Part Name*	*CFC_PRT_NAM*	*0/1*	*x..100*	The name, as assigned by the sender, of the part or assembly that is the subject of the contained file.	pinion gear
185					5	95			x		*Contained File Content Dimensionality*	*CFC_CNT_DIM*	*0/1*	*n..5*	Dimensionality of contained file, e.g., 2 for 2D, 3 for 3D	3
186					6	98			x		*Contained File Comment*	*CFC_TXT*	*0/1*	*x..500*	Free text description of the contained file	version 18 of our pinion gear for this assembly

SASIG ENGDAT STANDARD - VERSION 3

Structure	Data Element Number	Requirement Mapping #	CC1	CC2	CC3	CC4	Data Element Name	Short Name	Permitted or Required Frequency	Format	Field Description (for further clarification of intent for use)	Sample Values
SASIG ENGDAT / EFC Segment / CFC Segment / Linked File							Linked File		0/1		Link between file described by this CFC and file described by another CFC in the same EFC of this technical data package.	
	1	99			x		*Contained File Linked File Sequence Number*	*CFC_LNK_SEQ_NBR*	*1*	*n4*	Number of the file to which the link is created. NOTE: Must match value in CFC Contained File Sequence Number for that file. Must be 0001 or greater.	0003
	2	old			x		*Contained File Link Purpose*	*CFC_LNK_PPS*	*0/1*	*x..500*	Purpose in free text	Layer convention
CFC Segment												
EFC Segment												
SASIG ENGDAT												

KEY

Frame and Message Context

n — Level of segment

nn — Requirement mapping number from common requirements list; or Segment abbreviation.

x x x x — Indicates mapping to conformance classes

Data element — Name of data element

Short Name — Filesize-saving data element abbreviation. First 3 letters correspond to the segment.

n — Cardinality (0 = forbidden, 1 = mandatory, 0+ optional and repeatable,
1+ mandatory and repeatable, 0/1 optional,
n to m Between n and m instances permitted)

an8	Format is alphanumeric (alphabetic plus numeric), 8 characters long
a..30	Format is alphabetic, up to 30 characters long
n..10	Format is numeric, up to 10 digits in length.
x..100	Format is up to 100 of any character (alphabetic plus numeric plus punctuation plus multibyte characters like those found in Japanese, Chinese, and Arabic)

ANNEX B - ENGDAT DETAILED PROCESS DIAGRAM

The Process diagram illustrates a generic superset of the processes undertaken by organizations to exchange data. Process diagrams show the ***flow*** of data but do not show the ***structure*** of data. These processes are not to be understood as being within the scope of ENGDAT; however, they do indicate states and stages of the generation of requests, technical data packages, and acknowledgements which ***are*** in scope.

Detailed common Scenario: Exchange of Technical Data

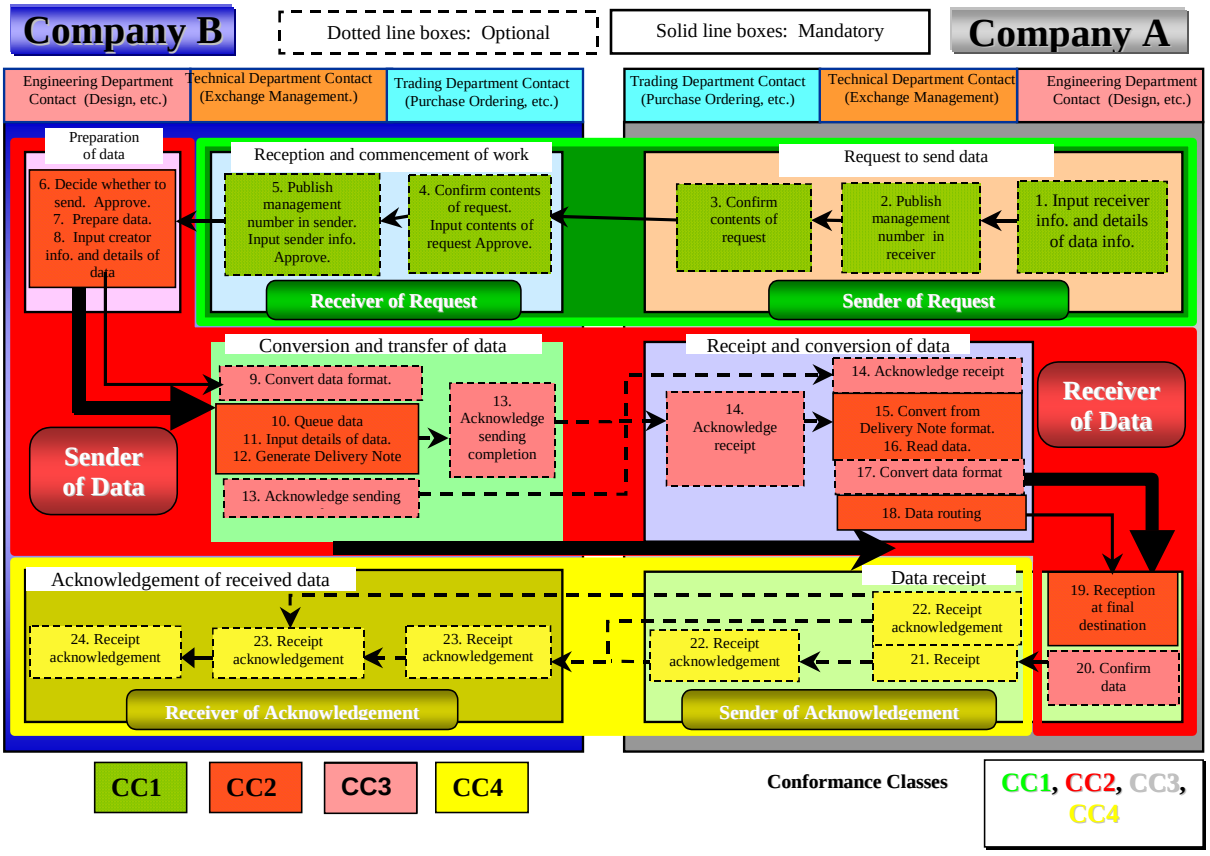


Figure 11 - Fully Detailed Process Diagram

ANNEX C - RECOMMENDED PRACTICES

The following practices are recommended in the instantiation of data in ENGDAT delivery notes and as assistance for implementors in dealing with certain situations.

1. **(SDE Sender / RDE Receiver) (Engineering/Technical/Trading) Contact Address Comment** These six data elements are recommended as the location for instantiating actual addresses when they differ from the postal (delivery) address.

2. **Contact uniqueness** Merely supplying a name and a phone number is often insufficient information to make a unique reference to a contact person, especially in offices where a phone number is shared by a team, and a name may be a common surname. Therefore, it is recommended that users supply enough additional contact information to ensure a unique reference – especially an e-mail address. Implementors ***must*** implement the cardinalities shown in the specification but would do well to ***consider*** warning users who provide only a name and a phone number that their message may require more thorough routing information to reach the intended recipient.
   Implementations should require users to supply one of the mandatory minimum subsets of data element values before permitting a message to be transmitted.

3. **CC2 versus CC3** Conformance Class 2 is intended for use by small suppliers who have a minimum of information to exchange and who desire an inexpensive tool with which to convey it. Conformance Class 3 is intended for larger enterprises that require more complete and sophisticated metadata.

4. **Pilot Results and Use Cases** The XMTD committee of SASIG plans to publish one or more related documents to facilitate the work of implementors. These will describe the work of the pilots conducted on ENGDAT by members of SASIG, and will contain more sophisticated use cases than the examples shown in section 2.6 and in Annex D. Please request the status of this / these document(s) from SASIG if you are interested.

5. **EFC Exchanged File Format Coded** It is recommended – but not required - that CC3 and CC5 implementations sense the actual file format of exchanged files and automatically enter the value in this data element. It should still be possible for the user to manually override this value but only with a warning from the software that they may be incorrect.
   For example, a sender may attempt to send a STEP neutral format file. The EFC segment should have this data element automatically entered by the sending application as the correct ISO code for STEP. The user may override the supplied value, but the software will ask the user if he/she is sure of the modification. If there were no ISO code for STEP, the value would be left blank.

6. **Segment Cardinalities in XML Implementations** The cardinality – the number of permitted instances - of segments varies between conformance classes. Only one XML schema is provided for implementation, which does not incorporate all such conditional cardinalities. It is the responsibility of implementations to enforce these cardinalities wherever the XML schema does not do so.
   Implementations should enforce cardinalities by leading authors of ENGDAT messages through a questionnaire to determine which kind of message – which conformance class - they will send and then permit only the creation of the numbers of instances of segments that are permitted for that message type.
   Are you requesting data?
   If yes, would you like to manually enter part numbers?

(If yes, this will be a CC1a message. Each part number input creates one REQ segment.)
If no, please select the file that contains the list of requested part numbers.
(Then this will be a CC1b message. This input creates the first EFC segment.)
Optionally, at this point users will be prompted to add files to the package that provide additional information about the requested parts. These inputs create additional EFC segments.

Are you providing data?
If yes, this will be a CC3 message if the implementation is capable of that; otherwise, it will automatically be a CC2 message. But CC3 implementations should give the option to generate a CC2 message if the message is to be sent to a CC2 implementation.

Are you acknowledging data?
If yes, the implementation should automatically construct either a CC4a or CC4b message, depending on a configuration option set by the sending company upon installation of their software.

7. Data Receipt Requirements for Implementations
CC1 implementations should be able to receive CC1a and CC1b messages.
All implementations of CC2 should be able to receive CC3 messages by stripping and discarding all data elements that are outside of the scope of CC2.
All implementations of CC3 should be able to receive either CC2 or CC3 messages. This is obvious because the CC2 message is merely a subset of CC3.
All implementations that receive CC4 messages should be able to process either type of acknowledgement (CC4a or CC4b) transparently for users.

8. Error Correction It is possible and encouraged for implementations to add capability that will automatically correct some errors in received files and automatically prevent certain inconsistency and incompleteness errors in transmitted files. A discussion of possible strategies to do this could grow without bound and therefore is left to the judgement of the implementor

9. Uniqueness of Virtual File Names There is a potential for duplicate virtual file names when a company transmits two ENGDAT messages during the same second with the same number of attached files. Implementations should avoid this possibility by the following recommended method. A file accessible by all ENGDAT implementations in the enterprise should contain the 10-digit time stamp of the last message sent by any implementation. Before assigning the next virtual file name, the application should compare its time stamp to that in the file, and if they are the same, the application should increment its time stamp by one second.

10. Container Files Container files should be only the unavoidable outputs of software that generates them, such as CATIA. Container files should not be made manually by users to encode relationships between data files. The capabilities of ENGDAT are more than sufficient to encode most rudimentary relationships between files without doing this. When more sophistication is required, it is recommended that STEP files be generated and included in the technical data package. See the recommendation that follows.

11. Specification of File Names All filenames should be specified with their extensions, such as .stp, .igs, .doc, .xls, .tiff, and etc. These extensions, or file types, can be used to indicate the format of data, such as a STEP, IGES, Word, Excel, an image file, and etc. If users input the wrong extension for a file, it is nice if the implementation can correct the extension string. However, the meanings of file extensions are not always uniquely indicative of the file type, and the set of possible file extensions is always growing and changing. Therefore, the responsibility for understanding the true meaning of the file extensions of files exchanged by ENGDAT is the responsibility of the sender and receiver, who should agree in advance.

12. **PDM Exchange with STEP** ENGDAT is not designed for describing more than rudimentary PDM data. For the exchange of PDM data beyond ENGDAT capabilities, the STEP standard, ISO 10303, provides an Application Protocol, AP 214, that is recommended for use within ENGDAT technical data packages. Within AP 214, it is Conformance Class 6 (CC6) that contains the requisite capabilities. To use this standard, an ENGDAT message must be generated according to the following rules:

    a. Every PDM-ENGDAT package must contain at least one PDM file (e.g., STEP AP214 CC6); all the documents of the package must be allocated to (referenced by) this file or files.

    b. A PDM-ENGDAT technical data package may be an aggregation of several sets of files consisting of a PDM file and one or more correlative files. These sets must be clearly defined and described via **LOF** data elements.

    c. A PDM-ENGDAT technical data package must not contain any document that has not been allocated to one or more of its PDM files.

    d. Each PDM file may occupy any sequential position in the ENGDAT message.

    e. In order to identify a PDM data exchange, the format of the PDM file (e.g. STEP 214 CC6) must be entered in the **EFC Exchanged File Format** or **EFC Exchanged File Format Coded** data element for the PDM file.

    f. One ENGDAT message references n[any?] associated application files.

    g. Application files referenced may be in any format (e.g., CAD Native, STEP, Office, etc.).

    h. All the application files referenced in the ENGDAT message must also be referenced in the PDM file.

i. The **RDE Receiver Engineering Contact Routing Code** data element can be used to identify the correct PDM system at the receiver, subject to pre-existing agreement between sender and receiver regarding the nature of this correlation.

j. A combination of sender (**SDE** segment) and generating system (**EFC Exchanged File Generating System**) can be used to identify the PDM import processor at the receiver site, subject to pre-existing agreement between sender and receiver regarding the nature of this correlation.

k. The following consistency rules between the PDM file and the ENGDAT message must be adhered to:

Exchanged File	Consistent with PDM file
EFC Exchanged File Original Name	Required
EFC Exchanged File Format (Coded)	Required (consistent content)
Model name	Optional
EFC Exchanged File Generating System	Optional

l. For further information please study SASIG XMTD Use Case PDM Data Exchange document.

13. **Style Sheets** If XML implementations make use of style sheets, they can be more effective. Style sheets enable the display of required items in the style preferred by each company. For example, in the header of a JAMA XML file, one may insert the following line after the encoding (first) line of the XML file:

```
<?xml-stylesheet type="text/xsl" href="../DEF/dn.xsl"?>
```

14. **Multiple character set encoding** The character set referenced in the first line of the XML for an ENGDAT header file, e.g.

```
<?xml version="1.0" encoding="UTF-8"?>
```

may differ from the character set referenced in the MID_CHS element, e.g.

```
<MID>
    <CharacterSet>ISO 10646</CharacterSet>
    …..
</MID>
```

due to the fact that a character set may have multiple encodings. The appearance of different encodings in these two locations is expected by the authors to be more often evident with Asian character set encodings than with European.

15. The initial characters of the **virtual file name** are described by this standard as being the fixed characters “ENG”. It is acceptable to substitute “**EN3**", where the third character, “3”, is the number of this version of ENGDAT. Use of this alternate naming convention can make it slightly easier to recognize ENGDAT files issued under the version 3 specification in order to distinguish them from versions 1 and 2. Consideration of whether to make this variation of virtual file names mandatory has been deferred to a future version of ENGDAT.

16. **Implementation of software that detects ENGDAT files** Implementations may not depend on the presence of a properly formed ENGDAT virtual file name when identifying ENGDAT files. This is because most users in Asia do not adhere to this part of the standard, and further because the first three characters of these file names, as used in other parts of the world, may be “ENG” or “EN3”. Therefore SASIG recommends that all implementations verify the identity of ENGDAT files by a different means, such as reading the beginning of each file.

ANNEX D - XML IMPLEMENTATION METHOD

D.1 Background and Related work

ENGDAT Data Elements are represented by simple elements in XML (XML attributes are not used). These simple elements are embedded as content of the named complex type representing the segment and composite data element. Following the general design rules, these elements must be generated globally as simple types; in the complex type, a reference to the globally defined element is included. In this way, every locally defined attribute is based on a global simple type representing the data type for this attribute, which is either an XML schema defined simple type (string, etc.) or can be additionally constrained in the Schema if required (e.g., using patterns, length restrictions, codes, etc.).

The derivation from, for instance, xsd:string to String..35, is being done by applying the constraints applicable to XSD–such as maxLength, minLength, Pattern, and so on.

D.2 Guidelines for Mapping ENGDAT Information Structure to XML

There are many possible mappings between the ENGDAT data structures and XML. The following rules and guidelines have been applied for ENGDAT XML schema generation.

D.2.1 General Rules

Global Level Definitions

The chosen design model follows the recommendation for XML schemas that everything is to be defined on the global level: simpleTypes, complexTypes, and all other elements.

Use of Sequence

The default content model used throughout the XML Schema is “Sequence,” i.e., the order of attributes and associations is defined. Each attribute or association within the sequence can be optional or mandatory or can appear 1 to n times (see “Cardinality”). If only one of the selected elements may be present in the interchange (XOR), XML “Choice” (with a cardinality of exactly one per element) is used.

Complex Constraints

Complex Constraints on the ENGDAT information elements are not explicitly expressed by the XML schema, i.e., will have to be ensured by a compliant implementation.

Complex ENGDAT Elements (Segments and Composite Data Elements)

Each ENGDAT segment and composite data element is mapped to a “complexType”. The complex type will have the converted name of the segment or composite data element plus a “‘Type” extension (see “Naming Conventions”below). Based on this complex type, a global XML element with the converted model name will be created.

Inheritance

Common design pattern types are used to represent information elements with similar or the same content. These types are solely intended to ensure a consistent design of complex data structures. Derived types inherit from these common design pattern types. The mapping of the inheritance is to a complex type which extends the complexType representing the base class.

ENGDAT Data Elements – Creation of Simple Data Types

ENGDAT Data Elements will be represented by simple elements in XML (XML attributes are not used). These simple elements are embedded as content of the named complex type representing the segment and composite data element. Following the general design rules, these elements must be generated globally as simple types; in the complex type, a reference to the globally defined element is included. In this way, every locally defined attribute is based on a global simple type representing the data type for this attribute, which is either an XML schema defined simple type (string, etc.) or can be additionally constrained in the Schema if required (e.g., using patterns, length restrictions, codes, etc.).

The derivation from xsd:string to String..35, for instance, is being done by applying the constraints applicable to XSD such as maxLength, minLength, Pattern, and so on.

Cardinality of Elements

The standard attributes minOccurs and maxOccurs of the XML Schema are used to express the cardinality of the ENGDAT information elements (data elements and associations). They must be included in the schema only when they differ from 1 since 1 is the default value for both attributes.

Handling of Code Lists (Enumerations)

Predefined value sets for data elements (code lists) are mapped to "xsd:enumeration" elements.

Naming Conventions

All names of XML elements and types are derived from the name of the corresponding ENGDAT information element.

- If the name contains more than one word, white spaces are removed and “camel case” notation is used, i.e., each name starts with an upper case letter and if the name contains more than one word, each subsequent word starts with an upper case character as well.
- For the segments, the short name appearing in the ENGDAT structure diagrams (i.e., MID, EFC, SDE, ...) is used.
- Each complex ENGDAT element causes the generation of a named "complexType”. The complex type will have the converted name (as described above) plus a “Type” extension.
- For shared/re-used elements (like sender’s and receiver’s contact data), a shortened name may be used for genericity, for example, “CompanyName” instead of “SenderEngineeringContactCompanyName”/ “ReceiverEngineeringContactCompanyName”. Names of enumeration data types have the extension …Code (already defined by ENGDAT name).
    - Simple data types with length restrictions will be denoted as follows:
      A string up to *n* characters: String..*n*
      A string from *m to n* characters String*m..n*
      A string of exact n characters String*n*
- The same naming rules apply to derived integer and decimal data types.
- Classes defined to be the pattern for semantic instantiation get a 'Type' extension to their name (e.g., Party Type, Contact Type).

Handling of Conformance Classes

Depending on the conformance class, the cardinality of ENGDAT information elements (segments, composite data elements, data elements) may differ. To model these cardinalities as precisely as possible for each individual conformance class, individual XML types and elements (e.g., for EFC) reflecting those cardinalities would have to be defined (inheriting from a common base type). It has been decided by the XMTD group to stay with one type per ENGDAT information element, i.e., not to model these conformance class specific constraints. These will have to be covered by compliant implementations.

D.2.2 Additional Design Decisions

Creation of commonly used sub-structures

Structures that appear two or more times have had a sub-structure defined for them to minimize structural redundancy, e.g., Address Type.

Document Entry Points (Root Element)

A common document entry point (“Electronic Document Type”) is recommended by the ODETTE XML work group to define the business content of an individual document. It also provides the necessary means for deriving single root or single document XSDs. The ENGDAT specific document type is derived from this Electronic Document Type through generalisation by extension.

D.3 The Complete ENGDAT XML (XSD) Schema

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema targetNamespace="xmtd"
xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns="xmtd"
elementFormDefault="qualified">
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDcomplexType>> AddressType  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:element name="Address" type="AddressType"/>
  <xs:complexType name="AddressType">
    <xs:sequence>
      <xs:element name="AddressStreetName" type="AddressStreetName"
minOccurs="0"/>
      <xs:element name="AddressStreetNumber" type="AddressStreetNumber"
minOccurs="0"/>
      <xs:element name="AddressCity" type="AddressCity" minOccurs="0"/>
      <xs:element name="AddressState" type="AddressState" minOccurs="0"/>
      <xs:element name="AddressCountry" type="AddressCountry"
minOccurs="0"/>
      <xs:element name="AddressPostalCode" type="AddressPostalCode"
minOccurs="0"/>
      <xs:element name="AddressComment" type="AddressComment"
minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDcomplexType>> CFCFileContentSpecificationType  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:element name="CFCFileContentSpecification"
type="CFCFileContentSpecificationType"
substitutionGroup="FileContentSpecificationType"/>
  <xs:complexType name="CFCFileContentSpecificationType">
    <xs:complexContent>
      <xs:extension base="FileContentSpecificationTypeType"/>
    </xs:complexContent>
  </xs:complexType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDcomplexType>> CFCFilePartSpecificationType  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:element name="CFCFilePartSpecification"
type="CFCFilePartSpecificationType"
substitutionGroup="PartSpecificationType"/>
  <xs:complexType name="CFCFilePartSpecificationType">
    <xs:complexContent>
      <xs:extension base="PartSpecificationTypeType"/>
    </xs:complexContent>
  </xs:complexType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDcomplexType>> CFCLinkedFileType  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:element name="CFCLinkedFile" type="CFCLinkedFileType"
substitutionGroup="LinkedFileType"/>
  <xs:complexType name="CFCLinkedFileType">
    <xs:complexContent>
```

```
      <xs:extension base="LinkedFileTypeType"/>
    </xs:complexContent>
  </xs:complexType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDcomplexType>> CFCType  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:element name="CFC" type="CFCType"/>
  <xs:complexType name="CFCType">
    <xs:sequence>
      <xs:element ref="CFCFileContentSpecification"/>
      <xs:element ref="CFCFilePartSpecification" minOccurs="0"/>
      <xs:element ref="CFCLinkedFile" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDcomplexType>> ContactTypeType  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:element name="ContactType" type="ContactTypeType" abstract="true"/>
  <xs:complexType name="ContactTypeType" abstract="true">
    <xs:sequence>
      <xs:element name="CompanyName" type="CompanyName" minOccurs="0"/>
      <xs:element name="InternalIDNumber" type="InternalIDNumber"
minOccurs="0"/>
      <xs:element ref="Address" minOccurs="0"/>
      <xs:element name="Department" type="Department" minOccurs="0"/>
      <xs:element name="PersonSurname" type="PersonSurname" minOccurs="0"/>
      <xs:element name="PersonGivenName" type="PersonGivenName"
minOccurs="0"/>
      <xs:element name="PhoneNumber" type="PhoneNumber" minOccurs="0"/>
      <xs:element name="PhoneNumberMobile" type="PhoneNumberMobile"
minOccurs="0"/>
      <xs:element name="FaxNumber" type="FaxNumber" minOccurs="0"/>
      <xs:element name="EmailAddress" type="EmailAddress" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDcomplexType>> EngineeringContactTypeType  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:element name="EngineeringContactType"
type="EngineeringContactTypeType" abstract="true"/>
  <xs:complexType name="EngineeringContactTypeType" abstract="true">
    <xs:sequence>
      <xs:element name="RoutingCode" type="RoutingCode" minOccurs="0"/>
      <xs:element name="CompanyName" type="CompanyName" minOccurs="0"/>
      <xs:element name="InternalIDNumber" type="InternalIDNumber"
minOccurs="0"/>
      <xs:element ref="Address" minOccurs="0"/>
      <xs:element name="Department" type="Department" minOccurs="0"/>
      <xs:element name="PersonSurname" type="PersonSurname" minOccurs="0"/>
      <xs:element name="PersonGivenName" type="PersonGivenName"
minOccurs="0"/>
      <xs:element name="PhoneNumber" type="PhoneNumber" minOccurs="0"/>
      <xs:element name="PhoneNumberMobile" type="PhoneNumberMobile"
minOccurs="0"/>
      <xs:element name="FaxNumber" type="FaxNumber" minOccurs="0"/>
      <xs:element name="EmailAddress" type="EmailAddress" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
```

```
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDcomplexType>> DANType  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:element name="DAN" type="DANType"/>
  <xs:complexType name="DANType">
    <xs:sequence>
      <xs:element name="ExternalDocumentType" type="ExternalDocumentType"
minOccurs="0"/>
      <xs:element name="ExternalDocumentNumber"
type="ExternalDocumentNumber"/>
      <xs:element name="ExternalDocumentDateTime"
type="ExternalDocumentDateTime" minOccurs="0"/>
      <xs:element name="ExternalDocumentReferencePurpose"
type="ExternalDocumentReferencePurpose" minOccurs="0"/>
      <xs:element name="IncrementalChange" type="IncrementalChange"
minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDcomplexType>> EFCFileContentSpecificationType  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:element name="EFCFileContentSpecification"
type="EFCFileContentSpecificationType"
substitutionGroup="FileContentSpecificationType"/>
  <xs:complexType name="EFCFileContentSpecificationType">
    <xs:complexContent>
      <xs:extension base="FileContentSpecificationTypeType">
        <xs:sequence>
          <xs:element name="FileEncryptionMethod"
type="FileEncryptionMethod" minOccurs="0"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDcomplexType>> EFCFilePartSpecificationType  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:element name="EFCFilePartSpecification"
type="EFCFilePartSpecificationType"
substitutionGroup="PartSpecificationType"/>
  <xs:complexType name="EFCFilePartSpecificationType">
    <xs:complexContent>
      <xs:extension base="PartSpecificationTypeType"/>
    </xs:complexContent>
  </xs:complexType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDcomplexType>> EFCType  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:element name="EFC" type="EFCType"/>
  <xs:complexType name="EFCType">
    <xs:sequence>
      <xs:element name="ExchangedFileContainedQuantity"
type="ExchangedFileContainedQuantity" minOccurs="0"/>
      <xs:element name="ExchangedFileProjectCode"
type="ExchangedFileProjectCode" minOccurs="0"/>
      <xs:element name="ExchangedFileContractNumber"
type="ExchangedFileContractNumber" minOccurs="0"/>
```

```
      <xs:element name="ExchangedFileWorkOrderNumber"
type="ExchangedFileWorkOrderNumber" minOccurs="0"/>
      <xs:choice minOccurs="0">
        <xs:element name="ExchangedFileFormatCoded"
type="ExchangedFileFormatCoded"/>
        <xs:element name="ExchangedFileFormatCodedExt"
type="ExchangedFileFormatCodedExt"/>
      </xs:choice>
      <xs:element name="ExchangedFileFormat" type="ExchangedFileFormat"
minOccurs="0"/>
      <xs:element name="ExchangedFileFormatVersion"
type="ExchangedFileFormatVersion" minOccurs="0"/>
      <xs:choice minOccurs="0">
        <xs:element name="ExchangedFileDataCodeCoded"
type="ExchangedFileDataCodeCoded"/>
        <xs:element name="ExchangedFileDataCodeCodedExt"
type="ExchangedFileDataCodeCodedExt"/>
      </xs:choice>
      <xs:element name="ExchangedFileDataCode" type="ExchangedFileDataCode"
minOccurs="0"/>
      <xs:element name="ExchangedFileGeneratingSystem"
type="ExchangedFileGeneratingSystem" minOccurs="0"/>
      <xs:element name="ExchangedFileGeneratingSystemApplication"
type="ExchangedFileGeneratingSystemApplication" minOccurs="0"/>
      <xs:element name="ExchangedFileGeneratingSystemVersion"
type="ExchangedFileGeneratingSystemVersion" minOccurs="0"/>
      <xs:element name="ExchangedFilePurpose" type="ExchangedFilePurpose"
minOccurs="0"/>
      <xs:element name="ExchangedFileCompressionMethod"
type="ExchangedFileCompressionMethod" minOccurs="0"/>
      <xs:element name="ExchangedFileCompressedFileSize"
type="ExchangedFileCompressedFileSize" minOccurs="0"/>
      <xs:element name="ExchangedFileUncompressedFileSize"
type="ExchangedFileUncompressedFileSize" minOccurs="0"/>
      <xs:element ref="EFCFileContentSpecification" minOccurs="0"/>
      <xs:element ref="EFCFilePartSpecification" minOccurs="0"/>
      <xs:element ref="LOF" minOccurs="0" maxOccurs="unbounded"/>
      <xs:element ref="CFC" minOccurs="0" maxOccurs="9999"/>
    </xs:sequence>
  </xs:complexType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDcomplexType>> ElectronicDocumentTypeType  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:element name="ElectronicDocumentType"
type="ElectronicDocumentTypeType"/>
  <xs:complexType name="ElectronicDocumentTypeType"/>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDcomplexType>> EngDatMessageType  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:element name="EngDatMessage" type="EngDatMessageType"
substitutionGroup="ElectronicDocumentType"/>
  <xs:complexType name="EngDatMessageType">
    <xs:complexContent>
      <xs:extension base="ElectronicDocumentTypeType">
        <xs:sequence>
          <xs:element ref="MID"/>
          <xs:element ref="DAN" minOccurs="0" maxOccurs="unbounded"/>
          <xs:element ref="SDE"/>
```

```
          <xs:element ref="RDE"/>
          <xs:element ref="REQ" minOccurs="0" maxOccurs="unbounded"/>
          <xs:element ref="EFC" minOccurs="0" maxOccurs="9998"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDcomplexType>> EngineeringContactType  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:element name="EngineeringContact" type="EngineeringContactType"/>
  <xs:complexType name="EngineeringContactType">
    <xs:complexContent>
      <xs:extension base="EngineeringContactTypeType"/>
    </xs:complexContent>
  </xs:complexType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDcomplexType>> FileContentSpecificationTypeType  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:element name="FileContentSpecificationType"
type="FileContentSpecificationTypeType" abstract="true"/>
  <xs:complexType name="FileContentSpecificationTypeType" abstract="true">
    <xs:sequence>
      <xs:element name="FileSequenceNumber" type="FileSequenceNumber"/>
      <xs:element name="FileOriginalName" type="FileOriginalName"
minOccurs="0"/>
      <xs:element name="FilePhysicalFilename"
type="ExchangedFilePhysicalFilename" minOccurs="0"/>
      <xs:element name="FileDesignPhase" type="FileDesignPhase"
minOccurs="0"/>
      <xs:element name="FileContentDetailLevel"
type="FileContentDetailLevel" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDcomplexType>> LOFType  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:element name="LOF" type="LOFType"
substitutionGroup="LinkedFileType"/>
  <xs:complexType name="LOFType">
    <xs:complexContent>
      <xs:extension base="LinkedFileTypeType"/>
    </xs:complexContent>
  </xs:complexType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDcomplexType>> LinkedFileTypeType  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:element name="LinkedFileType" type="LinkedFileTypeType"
abstract="true"/>
  <xs:complexType name="LinkedFileTypeType" abstract="true">
    <xs:sequence>
      <xs:element name="FileSequenceNumber" type="FileSequenceNumber"
minOccurs="0"/>
      <xs:element name="FileLinkPurpose" type="FileLinkPurpose"
minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
```

```
  <!-- Class: <<XSDcomplexType>> MIDType  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:element name="MID" type="MIDType"/>
  <xs:complexType name="MIDType">
    <xs:sequence>
      <xs:element name="CharacterSet" type="CharacterSet" minOccurs="0"/>
      <xs:element name="LanguageSpecification" type="LanguageSpecification"
minOccurs="0"/>
      <xs:element name="TechnicalDataReceiverJobNumber"
type="TechnicalDataReceiverJobNumber" minOccurs="0"/>
      <xs:element name="TechnicalDataSenderJobNumber"
type="TechnicalDataSenderJobNumber" minOccurs="0"/>
      <xs:element name="Version" type="Version"/>
      <xs:element name="DocumentID" type="DocumentID"/>
      <xs:element name="FileCount" type="FileCount"/>
      <xs:element name="DocumentDate" type="DocumentDate" minOccurs="0"/>
      <xs:element name="RequiredCompletionDateTime"
type="RequiredCompletionDateTime" minOccurs="0"/>
      <xs:element name="ReceiverRequestReceptionDateTime"
type="ReceiverRequestReceptionDateTime" minOccurs="0"/>
      <xs:element name="DataReceiptDateTime" type="DataReceiptDateTime"
minOccurs="0"/>
      <xs:choice minOccurs="0">
        <xs:element name="ConformanceClass" type="ConformanceClass"
minOccurs="0"/>
        <xs:element name="ConformanceClassExt" type="ConformanceClassExt"
minOccurs="0"/>
      </xs:choice>
      <xs:element name="FreeText" type="FreeText" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDcomplexType>> PartSpecificationTypeType  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:element name="PartSpecificationType" type="PartSpecificationTypeType"
abstract="true"/>
  <xs:complexType name="PartSpecificationTypeType" abstract="true">
    <xs:sequence>
      <xs:element name="FileRevisionLevel" type="FileRevisionLevel"
minOccurs="0"/>
      <xs:element name="FileRevisionDateTime" type="FileRevisionDateTime"
minOccurs="0"/>
      <xs:element name="FilePartNumber" type="FilePartNumber"
minOccurs="0"/>
      <xs:element name="FilePartName" type="FilePartName" minOccurs="0"/>
      <xs:element name="FileContentDimensionality"
type="FileContentDimensionality" minOccurs="0"/>
      <xs:element name="FileComment" type="FileComment" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDcomplexType>> PartyTypeType  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:element name="PartyType" type="PartyTypeType" abstract="true"/>
  <xs:complexType name="PartyTypeType" abstract="true">
    <xs:sequence>
      <xs:element ref="EngineeringContact"/>
      <xs:element ref="TechnicalContact" minOccurs="0"/>
```

```
      <xs:element ref="TradingContact" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDcomplexType>> RDEType  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:element name="RDE" type="RDEType" substitutionGroup="PartyType"/>
  <xs:complexType name="RDEType">
    <xs:complexContent>
      <xs:extension base="PartyTypeType"/>
    </xs:complexContent>
  </xs:complexType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDcomplexType>> REQPartSpecificationType  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:element name="REQPartSpecification" type="REQPartSpecificationType"
substitutionGroup="PartSpecificationType"/>
  <xs:complexType name="REQPartSpecificationType">
    <xs:complexContent>
      <xs:extension base="PartSpecificationTypeType">
        <xs:sequence>
          <xs:element name="FileOriginalName"
type="RequestedFileOriginalName" minOccurs="0"/>
          <xs:element name="FileFormat" type="RequestedFileFormat"
minOccurs="0"/>
        </xs:sequence>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDcomplexType>> REQType  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:element name="REQ" type="REQType"/>
  <xs:complexType name="REQType">
    <xs:sequence>
      <xs:element ref="REQPartSpecification"/>
    </xs:sequence>
  </xs:complexType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDcomplexType>> SDEType  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:element name="SDE" type="SDEType" substitutionGroup="PartyType"/>
  <xs:complexType name="SDEType">
    <xs:complexContent>
      <xs:extension base="PartyTypeType"/>
    </xs:complexContent>
  </xs:complexType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDcomplexType>> TechnicalContactType  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:element name="TechnicalContact" type="TechnicalContactType"
substitutionGroup="ContactType"/>
  <xs:complexType name="TechnicalContactType">
    <xs:complexContent>
      <xs:extension base="ContactTypeType"/>
    </xs:complexContent>
  </xs:complexType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
```

```
  <!-- Class: <<XSDcomplexType>> TradingContactType  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:element name="TradingContact" type="TradingContactType"
substitutionGroup="ContactType"/>
  <xs:complexType name="TradingContactType">
    <xs:complexContent>
      <xs:extension base="ContactTypeType"/>
    </xs:complexContent>
  </xs:complexType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDsimpleType>> AddressCity  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:simpleType name="AddressCity">
    <xs:restriction base="String..50"/>
  </xs:simpleType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDsimpleType>> AddressComment  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:simpleType name="AddressComment">
    <xs:restriction base="String..50"/>
  </xs:simpleType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDsimpleType>> AddressCountry  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:simpleType name="AddressCountry">
    <xs:restriction base="CountryCode"/>
  </xs:simpleType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDsimpleType>> AddressPostalCode  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:simpleType name="AddressPostalCode">
    <xs:restriction base="String..25"/>
  </xs:simpleType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDsimpleType>> AddressState  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:simpleType name="AddressState">
    <xs:restriction base="String..50"/>
  </xs:simpleType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDsimpleType>> AddressStreetName  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:simpleType name="AddressStreetName">
    <xs:restriction base="String..50"/>
  </xs:simpleType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDsimpleType>> AddressStreetNumber  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:simpleType name="AddressStreetNumber">
    <xs:restriction base="String..25"/>
  </xs:simpleType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDsimpleType>> CharacterSet  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:simpleType name="CharacterSet">
    <xs:restriction base="String..25"/>
  </xs:simpleType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
```

```
<!-- Class: <<XSDsimpleType>> CompanyName  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="CompanyName">
  <xs:restriction base="String..100"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<enumeration>> ConformanceClass  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="ConformanceClass">
  <xs:restriction base="String..5">
    <xs:enumeration value="1"/>
    <xs:enumeration value="2"/>
    <xs:enumeration value="3"/>
    <xs:enumeration value="4"/>
  </xs:restriction>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> ConformanceClassExt  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="ConformanceClassExt">
  <xs:restriction base="String..5"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> DataReceiptDateTime  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="DataReceiptDateTime">
  <xs:restriction base="Numeric12"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> Department  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="Department">
  <xs:restriction base="String..100"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> DocumentDate  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="DocumentDate">
  <xs:restriction base="Numeric12"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> DocumentID  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="DocumentID">
  <xs:restriction base="String15"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> EmailAddress  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="EmailAddress">
  <xs:restriction base="String..100"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> ExchangedFileCompressedFileSize  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="ExchangedFileCompressedFileSize">
  <xs:restriction base="xs:decimal"/>
</xs:simpleType>
```

```
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> ExchangedFileCompressionMethod  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="ExchangedFileCompressionMethod">
  <xs:restriction base="String..25"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> ExchangedFileContainedQuantity  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="ExchangedFileContainedQuantity">
  <xs:restriction base="Numeric4"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> ExchangedFileContractNumber  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="ExchangedFileContractNumber">
  <xs:restriction base="String..25"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> ExchangedFileDataCode  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="ExchangedFileDataCode">
  <xs:restriction base="String..25"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<enumeration>> ExchangedFileDataCodeCoded  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="ExchangedFileDataCodeCoded">
  <xs:restriction base="String..25">
    <xs:enumeration value="ASC"/>      <xs:enumeration value="646"/>
    <xs:enumeration value="885"/>      <xs:enumeration value="EBC"/>
    <xs:enumeration value="BIN"/>      <xs:enumeration value="OTH"/>
  </xs:restriction>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> ExchangedFileDataCodeCodedExt  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="ExchangedFileDataCodeCodedExt">
  <xs:restriction base="String..25"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> ExchangedFileFormat  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="ExchangedFileFormat">
  <xs:restriction base="String..25"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<enumeration>> ExchangedFileFormatCoded  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="ExchangedFileFormatCoded">
  <xs:restriction base="String3">
    <xs:enumeration value="NAT"/>      <xs:enumeration value="IGS"/>
    <xs:enumeration value="VFS"/>      <xs:enumeration value="VIS"/>
    <xs:enumeration value="SET"/>      <xs:enumeration value="UNI"/>
    <xs:enumeration value="SPA"/>      <xs:enumeration value="STP"/>
    <xs:enumeration value="DXF"/>      <xs:enumeration value="TI3"/>
    <xs:enumeration value="TI4"/>      <xs:enumeration value="CAP"/>
    <xs:enumeration value="CAT"/>      <xs:enumeration value="WOW"/>
```

```
      <xs:enumeration value="WOP"/>      <xs:enumeration value="HPG"/>
      <xs:enumeration value="DMI"/>      <xs:enumeration value="DMO"/>
    </xs:restriction>
  </xs:simpleType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDsimpleType>> ExchangedFileFormatCodedExt  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:simpleType name="ExchangedFileFormatCodedExt">
    <xs:restriction base="String3"/>
  </xs:simpleType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDsimpleType>> ExchangedFileFormatVersion  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:simpleType name="ExchangedFileFormatVersion">
    <xs:restriction base="String..25"/>
  </xs:simpleType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDsimpleType>> ExchangedFileGeneratingSystem  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:simpleType name="ExchangedFileGeneratingSystem">
    <xs:restriction base="String..25"/>
  </xs:simpleType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDsimpleType>> ExchangedFileGeneratingSystemApplication  -
->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:simpleType name="ExchangedFileGeneratingSystemApplication">
    <xs:restriction base="String..50"/>
  </xs:simpleType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDsimpleType>> ExchangedFileGeneratingSystemVersion  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:simpleType name="ExchangedFileGeneratingSystemVersion">
    <xs:restriction base="String..25"/>
  </xs:simpleType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDsimpleType>> ExchangedFilePhysicalFilename  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:simpleType name="ExchangedFilePhysicalFilename">
    <xs:restriction base="String..100"/>
  </xs:simpleType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDsimpleType>> ExchangedFileProjectCode  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:simpleType name="ExchangedFileProjectCode">
    <xs:restriction base="String..25"/>
  </xs:simpleType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDsimpleType>> ExchangedFilePurpose  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:simpleType name="ExchangedFilePurpose">
    <xs:restriction base="String..500"/>
  </xs:simpleType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDsimpleType>> ExchangedFileUncompressedFileSize  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:simpleType name="ExchangedFileUncompressedFileSize">
    <xs:restriction base="xs:decimal"/>
```

```
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> ExchangedFileWorkOrderNumber  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="ExchangedFileWorkOrderNumber">
  <xs:restriction base="String..25"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> ExternalDocumentDateTime  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="ExternalDocumentDateTime">
  <xs:restriction base="Numeric12"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> ExternalDocumentNumber  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="ExternalDocumentNumber">
  <xs:restriction base="String15"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> ExternalDocumentReferencePurpose  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="ExternalDocumentReferencePurpose">
  <xs:restriction base="String..100"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> ExternalDocumentType  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="ExternalDocumentType">
  <xs:restriction base="String..50"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> FaxNumber  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="FaxNumber">
  <xs:restriction base="String..50"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> FileComment  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="FileComment">
  <xs:restriction base="String..500"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> FileContentDetailLevel  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="FileContentDetailLevel">
  <xs:restriction base="String..100"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> FileContentDimensionality  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="FileContentDimensionality">
  <xs:restriction base="Numeric..5"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> FileCount  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
```

```
<xs:simpleType name="FileCount">
  <xs:restriction base="Numeric4"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> FileDesignPhase  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="FileDesignPhase">
  <xs:restriction base="String..25"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> FileEncryptionMethod  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="FileEncryptionMethod">
  <xs:restriction base="String..50"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> FileLinkPurpose  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="FileLinkPurpose">
  <xs:restriction base="String..500"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> FileOriginalName  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="FileOriginalName">
  <xs:restriction base="String..100"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> FilePartName  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="FilePartName">
  <xs:restriction base="String..100"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> FilePartNumber  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="FilePartNumber">
  <xs:restriction base="String..25"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> FileRevisionDateTime  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="FileRevisionDateTime">
  <xs:restriction base="Numeric12"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> FileRevisionLevel  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="FileRevisionLevel">
  <xs:restriction base="String..25"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> FileSequenceNumber  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="FileSequenceNumber">
  <xs:restriction base="Numeric4"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
```

```
<!-- Class: <<XSDsimpleType>> FreeText  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="FreeText">
  <xs:restriction base="String..500"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> IncrementalChange  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="IncrementalChange">
  <xs:restriction base="String..50"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> InternalIDNumber  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="InternalIDNumber">
  <xs:restriction base="String..50"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> LanguageSpecification  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="LanguageSpecification">
  <xs:restriction base="LanguageCode"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> PersonGivenName  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="PersonGivenName">
  <xs:restriction base="String..50"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> PersonSurname  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="PersonSurname">
  <xs:restriction base="String..50"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> PhoneNumber  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="PhoneNumber">
  <xs:restriction base="String..50"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> PhoneNumberMobile  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="PhoneNumberMobile">
  <xs:restriction base="String..50"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> ReceiverRequestReceptionDateTime  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="ReceiverRequestReceptionDateTime">
  <xs:restriction base="Numeric12"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> RequestedFileFormat  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="RequestedFileFormat">
  <xs:restriction base="String..25"/>
```

```
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> RequestedFileOriginalName  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="RequestedFileOriginalName">
  <xs:restriction base="String..100"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> RequiredCompletionDateTime  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="RequiredCompletionDateTime">
  <xs:restriction base="Numeric12"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> RoutingCode  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="RoutingCode">
  <xs:restriction base="String..50"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> TechnicalDataReceiverJobNumber  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="TechnicalDataReceiverJobNumber">
  <xs:restriction base="String..25"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> TechnicalDataSenderJobNumber  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="TechnicalDataSenderJobNumber">
  <xs:restriction base="String..25"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> Version  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="Version">
  <xs:restriction base="String..5"/>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<enumeration>> CountryCode  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="CountryCode">
  <xs:annotation>
    <xs:documentation>ISO 3166-1 alpha 2 (2000)</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string">
    <xs:enumeration value="AD"/>      <xs:enumeration value="AE"/>
    <xs:enumeration value="AF"/>      <xs:enumeration value="AG"/>
    <xs:enumeration value="AI"/>      <xs:enumeration value="AL"/>
    <xs:enumeration value="AM"/>      <xs:enumeration value="AN"/>
    <xs:enumeration value="AO"/>      <xs:enumeration value="AQ"/>
    <xs:enumeration value="AR"/>      <xs:enumeration value="AS"/>
    <xs:enumeration value="AT"/>      <xs:enumeration value="AU"/>
    <xs:enumeration value="AW"/>      <xs:enumeration value="AZ"/>
    <xs:enumeration value="BA"/>      <xs:enumeration value="BB"/>
    <xs:enumeration value="BD"/>      <xs:enumeration value="BE"/>
    <xs:enumeration value="BF"/>      <xs:enumeration value="BG"/>
    <xs:enumeration value="BH"/>      <xs:enumeration value="BI"/>
    <xs:enumeration value="BJ"/>      <xs:enumeration value="BM"/>
```

```
<xs:enumeration value="BN"/>      <xs:enumeration value="BO"/>
<xs:enumeration value="BR"/>      <xs:enumeration value="BS"/>
<xs:enumeration value="BT"/>      <xs:enumeration value="BV"/>
<xs:enumeration value="BW"/>      <xs:enumeration value="BY"/>
<xs:enumeration value="BZ"/>      <xs:enumeration value="CA"/>
<xs:enumeration value="CC"/>      <xs:enumeration value="CD"/>
<xs:enumeration value="CF"/>      <xs:enumeration value="CG"/>
<xs:enumeration value="CH"/>      <xs:enumeration value="CI"/>
<xs:enumeration value="CK"/>      <xs:enumeration value="CL"/>
<xs:enumeration value="CM"/>      <xs:enumeration value="CN"/>
<xs:enumeration value="CO"/>      <xs:enumeration value="CR"/>
<xs:enumeration value="CU"/>      <xs:enumeration value="CV"/>
<xs:enumeration value="CX"/>      <xs:enumeration value="CY"/>
<xs:enumeration value="CZ"/>      <xs:enumeration value="DE"/>
<xs:enumeration value="DJ"/>      <xs:enumeration value="DK"/>
<xs:enumeration value="DM"/>      <xs:enumeration value="DO"/>
<xs:enumeration value="DZ"/>      <xs:enumeration value="EC"/>
<xs:enumeration value="EE"/>      <xs:enumeration value="EG"/>
<xs:enumeration value="EH"/>      <xs:enumeration value="ER"/>
<xs:enumeration value="ES"/>      <xs:enumeration value="ET"/>
<xs:enumeration value="FI"/>      <xs:enumeration value="FJ"/>
<xs:enumeration value="FK"/>      <xs:enumeration value="FM"/>
<xs:enumeration value="FO"/>      <xs:enumeration value="FR"/>
<xs:enumeration value="GA"/>      <xs:enumeration value="GB"/>
<xs:enumeration value="GD"/>      <xs:enumeration value="GE"/>
<xs:enumeration value="GF"/>      <xs:enumeration value="GH"/>
<xs:enumeration value="GI"/>      <xs:enumeration value="GL"/>
<xs:enumeration value="GM"/>      <xs:enumeration value="GN"/>
<xs:enumeration value="GP"/>      <xs:enumeration value="GQ"/>
<xs:enumeration value="GR"/>      <xs:enumeration value="GS"/>
<xs:enumeration value="GT"/>      <xs:enumeration value="GU"/>
<xs:enumeration value="GW"/>      <xs:enumeration value="GY"/>
<xs:enumeration value="HK"/>      <xs:enumeration value="HM"/>
<xs:enumeration value="HN"/>      <xs:enumeration value="HR"/>
<xs:enumeration value="HT"/>      <xs:enumeration value="HU"/>
<xs:enumeration value="ID"/>      <xs:enumeration value="IE"/>
<xs:enumeration value="IL"/>      <xs:enumeration value="IN"/>
<xs:enumeration value="IO"/>      <xs:enumeration value="IQ"/>
<xs:enumeration value="IR"/>      <xs:enumeration value="IS"/>
<xs:enumeration value="IT"/>      <xs:enumeration value="JM"/>
<xs:enumeration value="JO"/>      <xs:enumeration value="JP"/>
<xs:enumeration value="KE"/>      <xs:enumeration value="KG"/>
<xs:enumeration value="KH"/>      <xs:enumeration value="KI"/>
<xs:enumeration value="KM"/>      <xs:enumeration value="KN"/>
<xs:enumeration value="KP"/>      <xs:enumeration value="KR"/>
<xs:enumeration value="KW"/>      <xs:enumeration value="KY"/>
<xs:enumeration value="KZ"/>      <xs:enumeration value="LA"/>
<xs:enumeration value="LB"/>      <xs:enumeration value="LC"/>
<xs:enumeration value="LI"/>      <xs:enumeration value="LK"/>
<xs:enumeration value="LR"/>      <xs:enumeration value="LS"/>
<xs:enumeration value="LT"/>      <xs:enumeration value="LU"/>
<xs:enumeration value="LV"/>      <xs:enumeration value="LY"/>
<xs:enumeration value="MA"/>      <xs:enumeration value="MC"/>
<xs:enumeration value="MD"/>      <xs:enumeration value="MG"/>
<xs:enumeration value="MH"/>      <xs:enumeration value="MK"/>
<xs:enumeration value="ML"/>      <xs:enumeration value="MM"/>
<xs:enumeration value="MN"/>      <xs:enumeration value="MO"/>
<xs:enumeration value="MP"/>      <xs:enumeration value="MQ"/>
```

```
      <xs:enumeration value="MR"/>      <xs:enumeration value="MS"/>
      <xs:enumeration value="MT"/>      <xs:enumeration value="MU"/>
      <xs:enumeration value="MV"/>      <xs:enumeration value="MW"/>
      <xs:enumeration value="MX"/>      <xs:enumeration value="MY"/>
      <xs:enumeration value="MZ"/>      <xs:enumeration value="NA"/>
      <xs:enumeration value="NC"/>      <xs:enumeration value="NE"/>
      <xs:enumeration value="NF"/>      <xs:enumeration value="NG"/>
      <xs:enumeration value="NI"/>      <xs:enumeration value="NL"/>
      <xs:enumeration value="NO"/>      <xs:enumeration value="NP"/>
      <xs:enumeration value="NR"/>      <xs:enumeration value="NU"/>
      <xs:enumeration value="NZ"/>      <xs:enumeration value="OM"/>
      <xs:enumeration value="PA"/>      <xs:enumeration value="PE"/>
      <xs:enumeration value="PF"/>      <xs:enumeration value="PG"/>
      <xs:enumeration value="PH"/>      <xs:enumeration value="PK"/>
      <xs:enumeration value="PL"/>      <xs:enumeration value="PM"/>
      <xs:enumeration value="PN"/>      <xs:enumeration value="PR"/>
      <xs:enumeration value="PS"/>      <xs:enumeration value="PT"/>
      <xs:enumeration value="PW"/>      <xs:enumeration value="PY"/>
      <xs:enumeration value="QA"/>      <xs:enumeration value="RE"/>
      <xs:enumeration value="RO"/>      <xs:enumeration value="RU"/>
      <xs:enumeration value="RW"/>      <xs:enumeration value="SA"/>
      <xs:enumeration value="SB"/>      <xs:enumeration value="SC"/>
      <xs:enumeration value="SD"/>      <xs:enumeration value="SE"/>
      <xs:enumeration value="SG"/>      <xs:enumeration value="SH"/>
      <xs:enumeration value="SI"/>      <xs:enumeration value="SJ"/>
      <xs:enumeration value="SK"/>      <xs:enumeration value="SL"/>
      <xs:enumeration value="SM"/>      <xs:enumeration value="SN"/>
      <xs:enumeration value="SO"/>      <xs:enumeration value="SR"/>
      <xs:enumeration value="ST"/>      <xs:enumeration value="SV"/>
      <xs:enumeration value="SY"/>      <xs:enumeration value="SZ"/>
      <xs:enumeration value="TC"/>      <xs:enumeration value="TD"/>
      <xs:enumeration value="TF"/>      <xs:enumeration value="TG"/>
      <xs:enumeration value="TH"/>      <xs:enumeration value="TJ"/>
      <xs:enumeration value="TK"/>      <xs:enumeration value="TL"/>
      <xs:enumeration value="TM"/>      <xs:enumeration value="TN"/>
      <xs:enumeration value="TO"/>      <xs:enumeration value="TR"/>
      <xs:enumeration value="TT"/>      <xs:enumeration value="TV"/>
      <xs:enumeration value="TW"/>      <xs:enumeration value="TZ"/>
      <xs:enumeration value="UA"/>      <xs:enumeration value="UG"/>
      <xs:enumeration value="UM"/>      <xs:enumeration value="US"/>
      <xs:enumeration value="UY"/>      <xs:enumeration value="UZ"/>
      <xs:enumeration value="VA"/>      <xs:enumeration value="VC"/>
      <xs:enumeration value="VE"/>      <xs:enumeration value="VG"/>
      <xs:enumeration value="VI"/>      <xs:enumeration value="VN"/>
      <xs:enumeration value="VU"/>      <xs:enumeration value="WF"/>
      <xs:enumeration value="WS"/>      <xs:enumeration value="YE"/>
      <xs:enumeration value="YT"/>      <xs:enumeration value="YU"/>
      <xs:enumeration value="ZA"/>      <xs:enumeration value="ZM"/>
      <xs:enumeration value="ZW"/>
    </xs:restriction>
  </xs:simpleType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<enumeration>> LanguageCode  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:simpleType name="LanguageCode">
    <xs:annotation>
      <xs:documentation>ISO 639-1 alpha 2 (2002)</xs:documentation>
    </xs:annotation>
```

```
<xs:restriction base="xs:string">
  <xs:enumeration value="AA"/>      <xs:enumeration value="AB"/>
  <xs:enumeration value="AF"/>      <xs:enumeration value="AM"/>
  <xs:enumeration value="AN"/>      <xs:enumeration value="AR"/>
  <xs:enumeration value="AS"/>      <xs:enumeration value="AY"/>
  <xs:enumeration value="AZ"/>      <xs:enumeration value="BA"/>
  <xs:enumeration value="BE"/>      <xs:enumeration value="BG"/>
  <xs:enumeration value="BH"/>      <xs:enumeration value="BI"/>
  <xs:enumeration value="BN"/>      <xs:enumeration value="BO"/>
  <xs:enumeration value="CA"/>      <xs:enumeration value="CO"/>
  <xs:enumeration value="CS"/>      <xs:enumeration value="CY"/>
  <xs:enumeration value="DA"/>      <xs:enumeration value="DE"/>
  <xs:enumeration value="DZ"/>      <xs:enumeration value="EL"/>
  <xs:enumeration value="EN"/>      <xs:enumeration value="EO"/>
  <xs:enumeration value="ES"/>      <xs:enumeration value="ET"/>
  <xs:enumeration value="EU"/>      <xs:enumeration value="FA"/>
  <xs:enumeration value="FI"/>      <xs:enumeration value="FJ"/>
  <xs:enumeration value="FO"/>      <xs:enumeration value="FR"/>
  <xs:enumeration value="FY"/>      <xs:enumeration value="GA"/>
  <xs:enumeration value="GD"/>      <xs:enumeration value="GL"/>
  <xs:enumeration value="GN"/>      <xs:enumeration value="GU"/>
  <xs:enumeration value="GV"/>      <xs:enumeration value="HA"/>
  <xs:enumeration value="HE"/>      <xs:enumeration value="HI"/>
  <xs:enumeration value="HO"/>      <xs:enumeration value="HR"/>
  <xs:enumeration value="HT"/>      <xs:enumeration value="HU"/>
  <xs:enumeration value="HY"/>      <xs:enumeration value="HZ"/>
  <xs:enumeration value="IA"/>      <xs:enumeration value="ID"/>
  <xs:enumeration value="IG"/>      <xs:enumeration value="IK"/>
  <xs:enumeration value="IO"/>      <xs:enumeration value="IS"/>
  <xs:enumeration value="IT"/>      <xs:enumeration value="IU"/>
  <xs:enumeration value="JA"/>      <xs:enumeration value="JV"/>
  <xs:enumeration value="KA"/>      <xs:enumeration value="KG"/>
  <xs:enumeration value="KJ"/>      <xs:enumeration value="KK"/>
  <xs:enumeration value="KL"/>      <xs:enumeration value="KM"/>
  <xs:enumeration value="KN"/>      <xs:enumeration value="KO"/>
  <xs:enumeration value="KR"/>      <xs:enumeration value="KS"/>
  <xs:enumeration value="KU"/>      <xs:enumeration value="KY"/>
  <xs:enumeration value="LA"/>      <xs:enumeration value="LG"/>
  <xs:enumeration value="LN"/>      <xs:enumeration value="LO"/>
  <xs:enumeration value="LT"/>      <xs:enumeration value="LV"/>
  <xs:enumeration value="MG"/>      <xs:enumeration value="MH"/>
  <xs:enumeration value="MI"/>      <xs:enumeration value="MK"/>
  <xs:enumeration value="MN"/>      <xs:enumeration value="MO"/>
  <xs:enumeration value="MR"/>      <xs:enumeration value="MS"/>
  <xs:enumeration value="MT"/>      <xs:enumeration value="MY"/>
  <xs:enumeration value="NA"/>      <xs:enumeration value="NB"/>
  <xs:enumeration value="ND"/>      <xs:enumeration value="NE"/>
  <xs:enumeration value="NG"/>      <xs:enumeration value="NL"/>
  <xs:enumeration value="NN"/>      <xs:enumeration value="NO"/>
  <xs:enumeration value="NR"/>      <xs:enumeration value="NV"/>
  <xs:enumeration value="NY"/>      <xs:enumeration value="OC"/>
  <xs:enumeration value="OJ"/>      <xs:enumeration value="OM"/>
  <xs:enumeration value="OR"/>      <xs:enumeration value="OS"/>
  <xs:enumeration value="PA"/>      <xs:enumeration value="PD"/>
  <xs:enumeration value="PI"/>      <xs:enumeration value="PL"/>
  <xs:enumeration value="PS"/>      <xs:enumeration value="PT"/>
  <xs:enumeration value="QU"/>      <xs:enumeration value="RM"/>
  <xs:enumeration value="RN"/>      <xs:enumeration value="RO"/>
```

```
      <xs:enumeration value="RU"/>      <xs:enumeration value="RW"/>
      <xs:enumeration value="SA"/>      <xs:enumeration value="SD"/>
      <xs:enumeration value="SG"/>      <xs:enumeration value="SH"/>
      <xs:enumeration value="SI"/>      <xs:enumeration value="SK"/>
      <xs:enumeration value="SL"/>      <xs:enumeration value="SM"/>
      <xs:enumeration value="SN"/>      <xs:enumeration value="SO"/>
      <xs:enumeration value="SQ"/>      <xs:enumeration value="SR"/>
      <xs:enumeration value="SS"/>      <xs:enumeration value="ST"/>
      <xs:enumeration value="SU"/>      <xs:enumeration value="SV"/>
      <xs:enumeration value="SW"/>      <xs:enumeration value="TA"/>
      <xs:enumeration value="TE"/>      <xs:enumeration value="TG"/>
      <xs:enumeration value="TH"/>      <xs:enumeration value="TI"/>
      <xs:enumeration value="TK"/>      <xs:enumeration value="TL"/>
      <xs:enumeration value="TN"/>      <xs:enumeration value="TO"/>
      <xs:enumeration value="TR"/>      <xs:enumeration value="TS"/>
      <xs:enumeration value="TT"/>      <xs:enumeration value="TW"/>
      <xs:enumeration value="UG"/>      <xs:enumeration value="UK"/>
      <xs:enumeration value="UR"/>      <xs:enumeration value="UZ"/>
      <xs:enumeration value="VI"/>      <xs:enumeration value="VO"/>
      <xs:enumeration value="WA"/>      <xs:enumeration value="WO"/>
      <xs:enumeration value="XH"/>      <xs:enumeration value="YI"/>
      <xs:enumeration value="YO"/>      <xs:enumeration value="ZA"/>
      <xs:enumeration value="ZH"/>      <xs:enumeration value="ZU"/>
    </xs:restriction>
  </xs:simpleType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDsimpleType>> Numeric  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:simpleType name="Numeric">
    <xs:restriction base="xs:string">
      <xs:pattern value="[\d]*"/>
    </xs:restriction>
  </xs:simpleType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDsimpleType>> Numeric..5  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:simpleType name="Numeric..5">
    <xs:restriction base="Numeric">
      <xs:maxLength value="5"/>
    </xs:restriction>
  </xs:simpleType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDsimpleType>> Numeric12  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:simpleType name="Numeric12">
    <xs:restriction base="Numeric">
      <xs:length value="12"/>
    </xs:restriction>
  </xs:simpleType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <!-- Class: <<XSDsimpleType>> Numeric4  -->
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
  <xs:simpleType name="Numeric4">
    <xs:restriction base="Numeric">
      <xs:length value="4"/>
    </xs:restriction>
  </xs:simpleType>
  <!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
```

```
<!-- Class: <<XSDsimpleType>> Numeric5  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="Numeric5">
  <xs:restriction base="Numeric">
    <xs:length value="5"/>
  </xs:restriction>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> String..100  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="String..100">
  <xs:restriction base="xs:string">
    <xs:maxLength value="100"/>
  </xs:restriction>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> String..25  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="String..25">
  <xs:restriction base="xs:string">
    <xs:maxLength value="25"/>
  </xs:restriction>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> String..5  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="String..5">
  <xs:restriction base="xs:string">
    <xs:maxLength value="5"/>
  </xs:restriction>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> String..50  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="String..50">
  <xs:restriction base="xs:string">
    <xs:maxLength value="50"/>
  </xs:restriction>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> String..500  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="String..500">
  <xs:restriction base="xs:string">
    <xs:maxLength value="500"/>
  </xs:restriction>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> String15  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<xs:simpleType name="String15">
  <xs:restriction base="xs:string">
    <xs:length value="15"/>
  </xs:restriction>
</xs:simpleType>
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
<!-- Class: <<XSDsimpleType>> String3  -->
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
```

```
  <xs:simpleType name="String3">
    <xs:restriction base="xs:string">
      <xs:length value="3"/>
    </xs:restriction>
  </xs:simpleType>
</xs:schema>
```

D.4 Sample Files

D.4.1 Sample File for CC1a

```
<?xml version="1.0" encoding="UTF-8"?>
<EngDatMessage xmlns="xmtd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xsi:schemaLocation="xmtd
./engdat_version3_schema.xsd">
  <MID>
    <CharacterSet>ISO 10646</CharacterSet>
    <LanguageSpecification>EN</LanguageSpecification>
    <TechnicalDataReceiverJobNumber>A987654</TechnicalDataReceiverJobNumber>
    <Version>3</Version>
    <DocumentID>3029131005YUGOU</DocumentID>
    <FileCount>0002</FileCount>
    <DocumentDate>030129131005</DocumentDate>
    <RequiredCompletionDateTime>030205170000</RequiredCompletionDateTime>
    <ConformanceClass>1</ConformanceClass>
    <FreeText>please phone enigneering contact</FreeText>
  </MID>
  <SDE>
    <EngineeringContact>
      <RoutingCode>c3a1d4c1e5i9</RoutingCode>
      <CompanyName>Yugo Unlimitted</CompanyName>
      <InternalIDNumber>195634</InternalIDNumber>
      <Address>
        <AddressStreetName>P.O.Box</AddressStreetName>
        <AddressStreetNumber>298-G</AddressStreetNumber>
        <AddressCity>Detroit</AddressCity>
        <AddressState>Michigan</AddressState>
        <AddressCountry>US</AddressCountry>
        <AddressPostalCode>48328-3516</AddressPostalCode>
        <AddressComment>(418 E. Madison Ave.)</AddressComment>
      </Address>
      <Department>Dpt.ABT-1</Department>
      <PersonSurname>Antgo</PersonSurname>
      <PersonGivenName>Corwin</PersonGivenName>
      <PhoneNumber>+1(248)555-9876</PhoneNumber>
      <PhoneNumberMobile>+1(818)357-2468</PhoneNumberMobile>
      <FaxNumber>1(248)555-1000</FaxNumber>
      <EmailAddress>cantgo@yugo.com</EmailAddress>
    </EngineeringContact>
  </SDE>
```

```
<RDE>
   <EngineeringContact>
      <RoutingCode>2b6f5e3c5e8h</RoutingCode>
      <CompanyName>Nova Parts</CompanyName>
      <InternalIDNumber>084523</InternalIDNumber>
      <Address>
         <AddressStreetName>Stephenson Highway</AddressStreetName>
         <AddressStreetNumber>1414</AddressStreetNumber>
         <AddressCity>Windsor</AddressCity>
         <AddressState>Ontario</AddressState>
         <AddressCountry>CA</AddressCountry>
         <AddressPostalCode>z1e4r4</AddressPostalCode>
      </Address>
      <PersonSurname>DeVille</PersonSurname>
      <PersonGivenName>Cruella</PersonGivenName>
      <EmailAddress>cruella.d@nova.com</EmailAddress>
   </EngineeringContact>
</RDE>
<REQ>
   <REQPartSpecification>
      <FileRevisionLevel>Rel 2</FileRevisionLevel>
      <FileRevisionDateTime>030122000000</FileRevisionDateTime>
      <FilePartNumber>stc01839</FilePartNumber>
      <FilePartName>steering column</FilePartName>
      <FileContentDimensionality>3</FileContentDimensionality>
      <FileComment>assembly file</FileComment>
      <FileOriginalName>x20.steering_column1839-sc.prt</FileOriginalName>
      <FileFormat>CATIA</FileFormat>
   </REQPartSpecification>
</REQ>
<REQ>
   <REQPartSpecification>
      <FileRevisionLevel>Rel 2</FileRevisionLevel>
      <FilePartNumber>rck02008</FilePartNumber>
      <FilePartName>rack gear</FilePartName>
      <FileContentDimensionality>3</FileContentDimensionality>
      <FileComment>design ASTM=30 steel</FileComment>
      <FileOriginalName>x20.rack_gear2008.prt</FileOriginalName>
      <FileFormat>CATIA</FileFormat>
   </REQPartSpecification>
</REQ>
<REQ>
   <REQPartSpecification>
      <FileRevisionLevel>Rel 3</FileRevisionLevel>
      <FilePartNumber>pnn00031</FilePartNumber>
      <FilePartName>pinion gear</FilePartName>
```

```
        <FileContentDimensionality>3</FileContentDimensionality>
        <FileComment>helical offset 20 deg</FileComment>
        <FileOriginalName>x20.pinion_gear0031.prt</FileOriginalName>
        <FileFormat>CATIA</FileFormat>
     </REQPartSpecification>
   </REQ>
   <EFC>
     <ExchangedFileContainedQuantity>0000</ExchangedFileContainedQuantity>
     <ExchangedFileFormat>Microsoft Word</ExchangedFileFormat>
     <ExchangedFilePurpose>ADDITIONAL INFORMATION (engineering
study)</ExchangedFilePurpose>
     <ExchangedFileCompressionMethod>gnuzip</ExchangedFileCompressionMethod>
     <EFCFileContentSpecification>
        <FileSequenceNumber>0002</FileSequenceNumber>
        <FileOriginalName>engr_study.doc</FileOriginalName>
        <FilePhysicalFilename>engr_study.zip</FilePhysicalFilename>
     </EFCFileContentSpecification>
   </EFC>
</EngDatMessage>
```

D.4.2 Sample File for CC1b

```
<?xml version="1.0" encoding="UTF-8"?>
<EngDatMessage xmlns="xmtd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xsi:schemaLocation="xmtd
./engdat_version3_schema.xsd">
  <MID>
    <CharacterSet>ISO 10646</CharacterSet>
    <LanguageSpecification>EN</LanguageSpecification>
    <TechnicalDataReceiverJobNumber>A987654</TechnicalDataReceiverJobNumber>
    <Version>3</Version>
    <DocumentID>3029131005YUGOU</DocumentID>
    <FileCount>0003</FileCount>
    <DocumentDate>030129131005</DocumentDate>
    <RequiredCompletionDateTime>030205170000</RequiredCompletionDateTime>
    <ConformanceClass>1</ConformanceClass>
    <FreeText>please phone enigneering contact</FreeText>
  </MID>
  <SDE>
    <EngineeringContact>
      <RoutingCode>c3a1d4c1e5i9</RoutingCode>
      <CompanyName>Yugo Unlimited</CompanyName>
      <InternalIDNumber>195634</InternalIDNumber>
      <Address>
        <AddressStreetName>P.O.Box</AddressStreetName>
        <AddressStreetNumber>298-G</AddressStreetNumber>
        <AddressCity>Detroit</AddressCity>
        <AddressState>Michigan</AddressState>
        <AddressCountry>US</AddressCountry>
        <AddressPostalCode>48328-3516</AddressPostalCode>
        <AddressComment>(418 E. Madison Ave.)</AddressComment>
      </Address>
      <Department>Dpt.ABT-1</Department>
      <PersonSurname>Antgo</PersonSurname>
      <PersonGivenName>Corwin</PersonGivenName>
      <PhoneNumber>+1(248)555-9876</PhoneNumber>
      <PhoneNumberMobile>+1(818)357-2468</PhoneNumberMobile>
      <FaxNumber>1(248)555-1000</FaxNumber>
      <EmailAddress>cantgo@yugo.com</EmailAddress>
    </EngineeringContact>
  </SDE>
  <RDE>
    <EngineeringContact>
      <RoutingCode>2b6f5e3c5e8h</RoutingCode>
```

```
        <CompanyName>Nova Parts Co.</CompanyName>
        <InternalIDNumber>084523</InternalIDNumber>
        <Address>
          <AddressStreetName>Stephenson Highway</AddressStreetName>
          <AddressStreetNumber>1414</AddressStreetNumber>
          <AddressCity>Windsor</AddressCity>
          <AddressState>Ontario</AddressState>
          <AddressCountry>CA</AddressCountry>
          <AddressPostalCode>z1e4r4</AddressPostalCode>
          <AddressComment/>
        </Address>
        <PersonSurname>DeVille</PersonSurname>
        <PersonGivenName>Cruella</PersonGivenName>
        <EmailAddress>cruella.d@nova.com</EmailAddress>
      </EngineeringContact>
    </RDE>
    <EFC>
      <ExchangedFileContainedQuantity>0000</ExchangedFileContainedQuantity>
      <ExchangedFileFormat>Microsoft Word</ExchangedFileFormat>
      <ExchangedFilePurpose>REQUEST LIST</ExchangedFilePurpose>
      <EFCFileContentSpecification>
        <FileSequenceNumber>0002</FileSequenceNumber>
        <FileOriginalName>request_list.doc</FileOriginalName>
      </EFCFileContentSpecification>
    </EFC>
    <EFC>
      <ExchangedFileContainedQuantity>0000</ExchangedFileContainedQuantity>
      <ExchangedFileFormat>Microsoft Word</ExchangedFileFormat>
      <ExchangedFilePurpose>ADDITIONAL INFORMATION – marketing
</ExchangedFilePurpose>
      <ExchangedFileCompressionMethod>gnuzip</ExchangedFileCompressionMethod>
      <EFCFileContentSpecification>
        <FileSequenceNumber>0003</FileSequenceNumber>
        <FileOriginalName>marketing_analysis.ppt</FileOriginalName>
        <FilePhysicalFilename>mkt_anal.doc.zip</FilePhysicalFilename>
      </EFCFileContentSpecification>
      <LOF>
        <FileSequenceNumber>0002</FileSequenceNumber>
        <FileLinkPurpose>RCK02008 should conform to the customer requirements
outlined in this list before the contact will be signed off</FileLinkPurpose>
      </LOF>
    </EFC>
</EngDatMessage>
```

D.4.3 Sample File for CC2

```
<?xml version="1.0" encoding="UTF-8"?>
<EngDatMessage xmlns="xmtd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xsi:schemaLocation="xmtd
./engdat_version3_schema.xsd">
  <MID>
    <CharacterSet>ISO 10646</CharacterSet>
    <LanguageSpecification>EN</LanguageSpecification>
    <Version>3</Version>
    <DocumentID>3036165959NOVAP</DocumentID>
    <FileCount>0004</FileCount>
    <DocumentDate>030205165958</DocumentDate>
    <ConformanceClass>2</ConformanceClass>
    <FreeText>Thanks for the business!</FreeText>
  </MID>
  <SDE>
    <EngineeringContact>
      <RoutingCode>2b6f5e3c5e8h</RoutingCode>
      <CompanyName>Nova Parts Co.</CompanyName>
      <InternalIDNumber>084523</InternalIDNumber>
      <Address>
        <AddressStreetName>Stephenson Highway</AddressStreetName>
        <AddressStreetNumber>1414</AddressStreetNumber>
        <AddressCity>Windsor</AddressCity>
        <AddressState>Ontario</AddressState>
        <AddressCountry>CA</AddressCountry>
        <AddressPostalCode>z1e4r4</AddressPostalCode>
        <AddressComment>2nd Floor cube 22E-1N</AddressComment>
      </Address>
      <Department>Engineering Management</Department>
      <PersonSurname>DeVille</PersonSurname>
      <PersonGivenName>Cruella</PersonGivenName>
      <EmailAddress>cruella.d@nova.com</EmailAddress>
    </EngineeringContact>
  </SDE>
  <RDE>
    <EngineeringContact>
      <RoutingCode>c3a1d4c1e5i9</RoutingCode>
      <CompanyName>Yugo Unlimited</CompanyName>
      <InternalIDNumber>195634</InternalIDNumber>
      <Address>
```

```
            <AddressStreetName>P.O.Box</AddressStreetName>
            <AddressStreetNumber>298-G</AddressStreetNumber>
            <AddressCity>Detroit</AddressCity>
            <AddressState>Michigan</AddressState>
            <AddressCountry>US</AddressCountry>
            <AddressPostalCode>48328-3516</AddressPostalCode>
            <AddressComment>(418 E. Madison Ave.)</AddressComment>
         </Address>
         <Department>Dpt.ABT-1</Department>
         <PersonSurname>Antgo</PersonSurname>
         <PersonGivenName>Corwin</PersonGivenName>
         <PhoneNumber>+1(248)555-9876</PhoneNumber>
         <PhoneNumberMobile>+1(818)357-2468</PhoneNumberMobile>
         <FaxNumber>+1(248)555-1000</FaxNumber>
         <EmailAddress>cantgo@yugo.com</EmailAddress>
      </EngineeringContact>
   </RDE>
   <EFC>
      <ExchangedFileContainedQuantity>0002</ExchangedFileContainedQuantity>
      <ExchangedFileCompressionMethod>gnuzip</ExchangedFileCompressionMethod>
      <EFCFileContentSpecification>
         <FileSequenceNumber>0002</FileSequenceNumber>
         <FileOriginalName>x20.steering_column1839.prt</FileOriginalName>
         <FilePhysicalFilename>x20.steering_column1839.zip</FilePhysicalFilename>
      </EFCFileContentSpecification>
   </EFC>
   <EFC>
      <ExchangedFileContainedQuantity>0000</ExchangedFileContainedQuantity>
      <ExchangedFileCompressionMethod>gnuzip</ExchangedFileCompressionMethod>
      <EFCFileContentSpecification>
         <FileSequenceNumber>0003</FileSequenceNumber>
         <FileOriginalName>x20.rack_gear2008.prt</FileOriginalName>
         <FilePhysicalFilename>x20.rack_gear2008.zip</FilePhysicalFilename>
      </EFCFileContentSpecification>
      <LOF>
         <FileSequenceNumber>0002</FileSequenceNumber>
         <FileLinkPurpose>Parent Assembly</FileLinkPurpose>
      </LOF>
   </EFC>
   <EFC>
      <ExchangedFileContainedQuantity>0000</ExchangedFileContainedQuantity>
      <ExchangedFileCompressionMethod>gnuzip</ExchangedFileCompressionMethod>
      <EFCFileContentSpecification>
         <FileSequenceNumber>0004</FileSequenceNumber>
         <FileOriginalName>x20.pinion_gear0031.prt</FileOriginalName>
         <FilePhysicalFilename>x20.pinion_gear0031.zip</FilePhysicalFilename>
      </EFCFileContentSpecification>
      <LOF>
         <FileSequenceNumber>0002</FileSequenceNumber>
         <FileLinkPurpose>Parent Assembly</FileLinkPurpose>
```

```
      </LOF>
   </EFC>
</EngDatMessage>
```

D.4.4 Sample File for CC3

```
<?xml version="1.0" encoding="UTF-8"?>
<EngDatMessage xmlns="xmtd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="xmtd
./engdat_version3_schema.xsd">
   <MID>
      <CharacterSet>ISO 10646</CharacterSet>
      <LanguageSpecification>EN</LanguageSpecification>
      <TechnicalDataReceiverJobNumber>A987655</TechnicalDataReceiverJobNumber>
      <TechnicalDataSenderJobNumber>W.O. #45678901</TechnicalDataSenderJobNumber>
      <Version>3</Version>
      <DocumentID>3036165959NOVAP</DocumentID>
      <FileCount>0004</FileCount>
      <DocumentDate>030205165958</DocumentDate>
      <RequiredCompletionDateTime>030205170000</RequiredCompletionDateTime>

   <ReceiverRequestReceptionDateTime>030129140000</ReceiverRequestReceptionDateTime>
      <ConformanceClass>3</ConformanceClass>
      <FreeText>Thanks for the business!</FreeText>
   </MID>
   <DAN>
      <ExternalDocumentType>request</ExternalDocumentType>
      <ExternalDocumentNumber>3029131005YUGOU</ExternalDocumentNumber>
      <ExternalDocumentDateTime>030129131005</ExternalDocumentDateTime>
      <ExternalDocumentReferencePurpose>response to earlier request
</ExternalDocumentReferencePurpose>
   </DAN>
   <SDE>
      <EngineeringContact>
         <RoutingCode>2b6f5e3c5e8h</RoutingCode>
         <CompanyName>Nova Parts Co.</CompanyName>
         <InternalIDNumber>084523</InternalIDNumber>
         <Address>
            <AddressStreetName>Stephenson Highway</AddressStreetName>
            <AddressStreetNumber>1414</AddressStreetNumber>
            <AddressCity>Windsor</AddressCity>
```

```
        <AddressState>Ontario</AddressState>
        <AddressCountry>CA</AddressCountry>
        <AddressPostalCode>z1e4r4</AddressPostalCode>
        <AddressComment>2nd Floor cube 22E-1N</AddressComment>
      </Address>
      <Department>Engineering Management</Department>
      <PersonSurname>DeVille</PersonSurname>
      <PersonGivenName>Cruella</PersonGivenName>
      <EmailAddress>cruella.d@nova.com</EmailAddress>
    </EngineeringContact>
    <TechnicalContact>
      <CompanyName>Nova Parts Co.</CompanyName>
      <InternalIDNumber>084523</InternalIDNumber>
      <Address>
        <AddressStreetName>Stephenson Highway</AddressStreetName>
        <AddressStreetNumber>1414</AddressStreetNumber>
        <AddressCity>Windsor</AddressCity>
        <AddressState>Ontario</AddressState>
        <AddressCountry>CA</AddressCountry>
        <AddressPostalCode>z1e4r4</AddressPostalCode>
        <AddressComment>2nd Floor cube 22E-3N</AddressComment>
      </Address>
      <Department>Drafting</Department>
      <PersonSurname>Exner</PersonSurname>
      <PersonGivenName>Andreas</PersonGivenName>
      <PhoneNumber>040-123-0</PhoneNumber>
      <PhoneNumberMobile>040-456-8910</PhoneNumberMobile>
      <FaxNumber>040-123-34555</FaxNumber>
      <EmailAddress>aexner@axle.com</EmailAddress>
    </TechnicalContact>
    <TradingContact>
      <CompanyName>Commercial Attorneys PLC</CompanyName>
      <InternalIDNumber>27182818</InternalIDNumber>
      <Address>
        <AddressStreetName>P.O.Box</AddressStreetName>
        <AddressStreetNumber>459045</AddressStreetNumber>
        <AddressCity>San Juan</AddressCity>
```

```
        <AddressState>Puerto Rico</AddressState>
        <AddressCountry>US</AddressCountry>
        <AddressPostalCode>03141-5926</AddressPostalCode>
      </Address>
      <Department>Supplier Representation</Department>
      <PersonSurname>Goldstein</PersonSurname>
      <PersonGivenName>Schlomo</PersonGivenName>
      <PhoneNumber>+1(818)383-8383</PhoneNumber>
      <PhoneNumberMobile>+1(818)278-7538</PhoneNumberMobile>
      <FaxNumber>+1(818)383-8000</FaxNumber>
      <EmailAddress>schlomog@ca.plc.pr</EmailAddress>
   </TradingContact>
</SDE>
<RDE>
   <EngineeringContact>
      <RoutingCode>c3a1d4c41e5i9</RoutingCode>
      <CompanyName>Yugo Unlimited</CompanyName>
      <InternalIDNumber>195634</InternalIDNumber>
      <Address>
        <AddressStreetName>P.O.Box</AddressStreetName>
        <AddressStreetNumber>298-G</AddressStreetNumber>
        <AddressCity>Detroit</AddressCity>
        <AddressState>Michigan</AddressState>
        <AddressCountry>US</AddressCountry>
        <AddressPostalCode>48328-3516</AddressPostalCode>
        <AddressComment>(418 E. Madison Ave.)</AddressComment>
      </Address>
      <Department>Dpt.ABT-1</Department>
      <PersonSurname>Antgo</PersonSurname>
      <PersonGivenName>Corwin</PersonGivenName>
      <PhoneNumber>+1(248)555-9876</PhoneNumber>
      <PhoneNumberMobile>+1(818)357-2468</PhoneNumberMobile>
      <FaxNumber>+1(248)555-1000</FaxNumber>
      <EmailAddress>cantgo@yugo.com</EmailAddress>
   </EngineeringContact>
   <TechnicalContact>
      <CompanyName>Togo Yugo, Ltd.</CompanyName>
```

```
        <Address>
          <AddressCity>Lome</AddressCity>
          <AddressCountry>TG</AddressCountry>
        </Address>
        <Department>Overseas Design Group</Department>
        <PersonSurname>Mombasa</PersonSurname>
        <PersonGivenName>Ashante</PersonGivenName>
        <PhoneNumber>+88(349876)3218764-327111</PhoneNumber>
      </TechnicalContact>
    </RDE>
    <EFC>
      <ExchangedFileContainedQuantity>0002</ExchangedFileContainedQuantity>
      <ExchangedFileProjectCode>X20 Car</ExchangedFileProjectCode>
      <ExchangedFileContractNumber>CONTRACT 0303-a</ExchangedFileContractNumber>
      <ExchangedFileWorkOrderNumber>WO17395173</ExchangedFileWorkOrderNumber>
      <ExchangedFileFormatCoded>NAT</ExchangedFileFormatCoded>
      <ExchangedFileFormat>CATIA Native</ExchangedFileFormat>
      <ExchangedFileFormatVersion>v5</ExchangedFileFormatVersion>
      <ExchangedFileDataCodeCoded>BIN</ExchangedFileDataCodeCoded>
      <ExchangedFileDataCode>Binary</ExchangedFileDataCode>
      <ExchangedFileGeneratingSystem>IBM RS6000</ExchangedFileGeneratingSystem>
      <ExchangedFileGeneratingSystemApplication>CATIA
Native</ExchangedFileGeneratingSystemApplication>

    <ExchangedFileGeneratingSystemVersion>V5r17</ExchangedFileGeneratingSystemVersion>
      <ExchangedFilePurpose>Engineering Consultation</ExchangedFilePurpose>
      <ExchangedFileCompressionMethod>gnuzip</ExchangedFileCompressionMethod>
      <ExchangedFileCompressedFileSize>10000</ExchangedFileCompressedFileSize>
      <ExchangedFileUncompressedFileSize>30000</ExchangedFileUncompressedFileSize>
      <EFCFileContentSpecification>
        <FileSequenceNumber>0002</FileSequenceNumber>
        <FileOriginalName>x20.steering_column1839.prt</FileOriginalName>
        <FilePhysicalFilename>x20.steering_column1839.zip</FilePhysicalFilename>
        <FileDesignPhase>Alpha mule</FileDesignPhase>
        <FileContentDetailLevel>passed crash test</FileContentDetailLevel>
        <FileEncryptionMethod>pgp</FileEncryptionMethod>
      </EFCFileContentSpecification>
      <EFCFilePartSpecification>
```

```
        <FileRevisionLevel>Rel 2</FileRevisionLevel>
        <FileRevisionDateTime>030122000000</FileRevisionDateTime>
        <FilePartNumber>stc01839</FilePartNumber>
        <FilePartName>steering column</FilePartName>
        <FileContentDimensionality>3</FileContentDimensionality>
        <FileComment>assembly file</FileComment>
      </EFCFilePartSpecification>
      <CFC>
        <CFCFileContentSpecification>
          <FileSequenceNumber>0001</FileSequenceNumber>
          <FileOriginalName>x20.steering_column1839-wk.prt</FileOriginalName>
          <FileDesignPhase>Alpha mule</FileDesignPhase>
        </CFCFileContentSpecification>
        <CFCFilePartSpecification>
          <FileRevisionLevel>PDI 0003 Rel 2</FileRevisionLevel>
          <FileRevisionDateTime>030121000000</FileRevisionDateTime>
          <FilePartNumber>stc01839-wk</FilePartNumber>
          <FilePartName>woodruff key</FilePartName>
          <FileContentDimensionality>3</FileContentDimensionality>
        </CFCFilePartSpecification>
      </CFC>
      <CFC>
        <CFCFileContentSpecification>
          <FileSequenceNumber>0002</FileSequenceNumber>
          <FileOriginalName>x20.steering_column1839-sc.prt</FileOriginalName>
          <FileDesignPhase>alpha mule</FileDesignPhase>
          <FileContentDetailLevel>filleted - needs
tolerancing</FileContentDetailLevel>
        </CFCFileContentSpecification>
        <CFCFilePartSpecification>
          <FileRevisionLevel>PDI 0003 Rel 2</FileRevisionLevel>
          <FileRevisionDateTime>030121000000</FileRevisionDateTime>
          <FilePartNumber>stc01839-sc</FilePartNumber>
          <FilePartName>sleeve cylinder</FilePartName>
          <FileContentDimensionality>3</FileContentDimensionality>
          <FileComment>pleace tolerance to new spec</FileComment>
        </CFCFilePartSpecification>
        <CFCLinkedFile>
```

```
          <FileSequenceNumber>0001</FileSequenceNumber>
          <FileLinkPurpose>Use two per sleeve cylinder</FileLinkPurpose>
        </CFCLinkedFile>
      </CFC>
    </EFC>
    <EFC>
      <ExchangedFileContainedQuantity>0000</ExchangedFileContainedQuantity>
      <ExchangedFileProjectCode>X20 Car</ExchangedFileProjectCode>
      <ExchangedFileContractNumber>CONTRACT 0303-a</ExchangedFileContractNumber>
      <ExchangedFileWorkOrderNumber>WO17395173</ExchangedFileWorkOrderNumber>
      <ExchangedFileFormatCoded>NAT</ExchangedFileFormatCoded>
      <ExchangedFileFormat>CATIA Native</ExchangedFileFormat>
      <ExchangedFileFormatVersion>v5</ExchangedFileFormatVersion>
      <ExchangedFileDataCodeCoded>BIN</ExchangedFileDataCodeCoded>
      <ExchangedFileDataCode>Binary</ExchangedFileDataCode>
      <ExchangedFileGeneratingSystem>IBM RS6000</ExchangedFileGeneratingSystem>
      <ExchangedFileGeneratingSystemApplication>CATIA
Native</ExchangedFileGeneratingSystemApplication>

    <ExchangedFileGeneratingSystemVersion>V5r17</ExchangedFileGeneratingSystemVersion>
      <ExchangedFilePurpose>Engineering Consultation</ExchangedFilePurpose>
      <ExchangedFileCompressionMethod>gnuzip</ExchangedFileCompressionMethod>
      <ExchangedFileCompressedFileSize>10000</ExchangedFileCompressedFileSize>
      <ExchangedFileUncompressedFileSize>30000</ExchangedFileUncompressedFileSize>
      <EFCFileContentSpecification>
        <FileSequenceNumber>0003</FileSequenceNumber>
        <FileOriginalName>x20.rack_gear2008.prt</FileOriginalName>
        <FilePhysicalFilename>x20.rack_gear2008.zip</FilePhysicalFilename>
        <FileDesignPhase>Alpha mule</FileDesignPhase>
      </EFCFileContentSpecification>
      <EFCFilePartSpecification>
        <FileRevisionLevel>Rel 2</FileRevisionLevel>
        <FileRevisionDateTime>021229000000</FileRevisionDateTime>
        <FilePartNumber>rck02008</FilePartNumber>
        <FilePartName>rack gear</FilePartName>
        <FileContentDimensionality>3</FileContentDimensionality>
        <FileComment>designed for ASTM-30 steel</FileComment>
      </EFCFilePartSpecification>
```

```
      <LOF>
         <FileSequenceNumber>0002</FileSequenceNumber>
         <FileLinkPurpose>Parent Assembly</FileLinkPurpose>
      </LOF>
   </EFC>
   <EFC>
      <ExchangedFileContainedQuantity>0000</ExchangedFileContainedQuantity>
      <ExchangedFileProjectCode>X20 Car</ExchangedFileProjectCode>
      <ExchangedFileContractNumber>CONTRACT 0303-a</ExchangedFileContractNumber>
      <ExchangedFileWorkOrderNumber>WO17395173</ExchangedFileWorkOrderNumber>
      <ExchangedFileFormatCoded>NAT</ExchangedFileFormatCoded>
      <ExchangedFileFormat>CATIA Native</ExchangedFileFormat>
      <ExchangedFileFormatVersion>v5</ExchangedFileFormatVersion>
      <ExchangedFileDataCodeCoded>BIN</ExchangedFileDataCodeCoded>
      <ExchangedFileDataCode>Binary</ExchangedFileDataCode>
      <ExchangedFileGeneratingSystem>IBM RS6000</ExchangedFileGeneratingSystem>
      <ExchangedFileGeneratingSystemApplication>CATIA
Native</ExchangedFileGeneratingSystemApplication>

   <ExchangedFileGeneratingSystemVersion>V5r17</ExchangedFileGeneratingSystemVersion>
      <ExchangedFilePurpose>Engineering Consultation</ExchangedFilePurpose>
      <ExchangedFileCompressionMethod>gnuzip</ExchangedFileCompressionMethod>
      <ExchangedFileCompressedFileSize>4280</ExchangedFileCompressedFileSize>
      <ExchangedFileUncompressedFileSize>9839</ExchangedFileUncompressedFileSize>
      <EFCFileContentSpecification>
         <FileSequenceNumber>0004</FileSequenceNumber>
         <FileOriginalName>x20.pinion_gear0031.prt</FileOriginalName>
         <FilePhysicalFilename>x20.pinion_gear0031.zip</FilePhysicalFilename>
         <FileDesignPhase>Alpha mule</FileDesignPhase>
      </EFCFileContentSpecification>
      <EFCFilePartSpecification>
         <FileRevisionLevel>Rel 3</FileRevisionLevel>
         <FileRevisionDateTime>030120000000</FileRevisionDateTime>
         <FilePartNumber>pnn00031</FilePartNumber>
         <FilePartName>pinion gear</FilePartName>
         <FileContentDimensionality>3</FileContentDimensionality>
         <FileComment>only 15 degree offsets available - will work with this
assembly</FileComment>
```

```
    </EFCFilePartSpecification>
    <LOF>
      <FileSequenceNumber>0002</FileSequenceNumber>
      <FileLinkPurpose>Parent Assembly</FileLinkPurpose>
    </LOF>
  </EFC>
</EngDatMessage>
```

D.4.5 Sample File for CC4a

```
<?xml version="1.0" encoding="UTF-8"?>
<EngDatMessage xmlns="xmtd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xsi:schemaLocation="xmtd
./engdat_version3_schema.xsd">
   <MID>
      <CharacterSet>ISO 10646</CharacterSet>
      <LanguageSpecification>EN</LanguageSpecification>
      <TechnicalDataReceiverJobNumber>A9839887</TechnicalDataReceiverJobNumber>
      <TechnicalDataSenderJobNumber>W.O. #45678901</TechnicalDataSenderJobNumber>
      <Version>3</Version>
      <DocumentID>3039093000YUGOU</DocumentID>
      <FileCount>0001</FileCount>
      <DocumentDate>030208084500</DocumentDate>

   <ReceiverRequestReceptionDateTime>030205170000</ReceiverRequestReceptionDateTi
me>
      <ConformanceClass>4</ConformanceClass>
   </MID>
   <DAN>
      <ExternalDocumentType>Acknowledgement</ExternalDocumentType>
      <ExternalDocumentNumber>3036165959NOVAP</ExternalDocumentNumber>
      <ExternalDocumentDateTime>030205165958</ExternalDocumentDateTime>

   <ExternalDocumentReferencePurpose>SUCCESS</ExternalDocumentReferencePurpose>
   </DAN>
   <SDE>
      <EngineeringContact>
         <RoutingCode>c3a1d4c1e5i9</RoutingCode>
         <CompanyName>Yugo Unlimited</CompanyName>
         <InternalIDNumber>195634</InternalIDNumber>
         <Address>
            <AddressStreetName>P.O.Box</AddressStreetName>
            <AddressStreetNumber>298-G</AddressStreetNumber>
            <AddressCity>Detroit</AddressCity>
            <AddressState>Michigan</AddressState>
            <AddressCountry>US</AddressCountry>
```

```
        <AddressPostalCode>48328-3516</AddressPostalCode>
        <AddressComment>(418 E. Madison Ave)</AddressComment>
      </Address>
      <Department>Dpt.ABT-1</Department>
      <PersonSurname>Antgo</PersonSurname>
      <PersonGivenName>Corwin</PersonGivenName>
      <PhoneNumber>+1(248)555-9876</PhoneNumber>
      <PhoneNumberMobile>+1(818)357-2468</PhoneNumberMobile>
      <FaxNumber>+1(248)555-1000</FaxNumber>
      <EmailAddress>cantgo@yugo.com</EmailAddress>
   </EngineeringContact>
   <TechnicalContact>
      <CompanyName>Togo Yugo, Ltd.</CompanyName>
      <InternalIDNumber>8981237</InternalIDNumber>
      <Address>
        <AddressCity>Lome</AddressCity>
        <AddressCountry>TG</AddressCountry>
      </Address>
      <Department>Overseas Design Group</Department>
      <PersonSurname>Mombasa</PersonSurname>
      <PersonGivenName>Ashante</PersonGivenName>
      <PhoneNumber>+88(349876)3218764-327111</PhoneNumber>
   </TechnicalContact>
</SDE>
<RDE>
   <EngineeringContact>
      <RoutingCode>2b6f5e3c5e8h</RoutingCode>
      <CompanyName>Nova Parts Co.</CompanyName>
      <InternalIDNumber>084523</InternalIDNumber>
      <Address>
        <AddressStreetName>Stephenson Highway</AddressStreetName>
        <AddressStreetNumber>1414</AddressStreetNumber>
        <AddressCity>Windsor</AddressCity>
        <AddressState>Ontario</AddressState>
        <AddressCountry>CA</AddressCountry>
        <AddressPostalCode>z1e4r4</AddressPostalCode>
        <AddressComment>2nd Floor cube 22E-1N</AddressComment>
```

```
      </Address>
      <Department>Engineering Management</Department>
      <PersonSurname>DeVille</PersonSurname>
      <PersonGivenName>Cruella</PersonGivenName>
      <EmailAddress>cruella.d@nova.ca</EmailAddress>
   </EngineeringContact>
   <TechnicalContact>
      <CompanyName>Nova Parts Co.</CompanyName>
      <InternalIDNumber>084523</InternalIDNumber>
      <Address>
         <AddressStreetName>Stephenson Highway</AddressStreetName>
         <AddressStreetNumber>1414</AddressStreetNumber>
         <AddressCity>Windsor</AddressCity>
         <AddressState>Ontario</AddressState>
         <AddressCountry>CA</AddressCountry>
         <AddressPostalCode>z1e4r4</AddressPostalCode>
         <AddressComment>2nd Floor cube 22E-3N</AddressComment>
      </Address>
      <Department>Drafting</Department>
      <PersonSurname>Exner</PersonSurname>
      <PersonGivenName>Andreas</PersonGivenName>
      <PhoneNumber>040-123-0</PhoneNumber>
      <PhoneNumberMobile>040-456-8910</PhoneNumberMobile>
      <FaxNumber>040-123-34555</FaxNumber>
      <EmailAddress>aexner@axle.com</EmailAddress>
   </TechnicalContact>
   <TradingContact>
      <CompanyName>Commercial Attorneys PLC</CompanyName>
      <InternalIDNumber>27182818</InternalIDNumber>
      <Address>
         <AddressStreetName>P.O.Box</AddressStreetName>
         <AddressStreetNumber>459045</AddressStreetNumber>
         <AddressCity>San Juan</AddressCity>
         <AddressState>Puerto Rico</AddressState>
         <AddressCountry>US</AddressCountry>
         <AddressPostalCode>03141-5926</AddressPostalCode>
      </Address>
```

```
        <Department>Supplier Representation</Department>
        <PersonSurname>Goldstein</PersonSurname>
        <PersonGivenName>Schlomo</PersonGivenName>
        <PhoneNumber>+1(818)383-8383</PhoneNumber>
        <PhoneNumberMobile>+1(818)278-7538</PhoneNumberMobile>
        <FaxNumber>+1(818)383-8000</FaxNumber>
        <EmailAddress>schlomog@ca.plc.pr</EmailAddress>
      </TradingContact>
    </RDE>
</EngDatMessage>
```

D.4.6 Sample File for CC4b

```
<?xml version="1.0" encoding="UTF-8"?>
<EngDatMessage xmlns="xmtd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="xmtd
 ./engdat_version3_schema.xsd">
  <MID>
    <CharacterSet>ISO 10646</CharacterSet>
    <LanguageSpecification>EN</LanguageSpecification>
    <TechnicalDataReceiverJobNumber>A9839887</TechnicalDataReceiverJobNumber>
    <TechnicalDataSenderJobNumber>W.O. #45678901</TechnicalDataSenderJobNumber>
    <Version>3</Version>
    <DocumentID>3039093000YUGOU</DocumentID>
    <FileCount>0002</FileCount>
    <DocumentDate>030208084500</DocumentDate>

  <ReceiverRequestReceptionDateTime>030205170000</ReceiverRequestReceptionDateTime>
    <ConformanceClass>4</ConformanceClass>
  </MID>
  <DAN>
    <ExternalDocumentType>Acknowledgement</ExternalDocumentType>
    <ExternalDocumentNumber>3036165959NOVAP</ExternalDocumentNumber>
    <ExternalDocumentDateTime>030205165958</ExternalDocumentDateTime>
    <ExternalDocumentReferencePurpose>SUCCESS</ExternalDocumentReferencePurpose>
  </DAN>
  <SDE>
    <EngineeringContact>
      <RoutingCode>c3a1d4c1e5i9</RoutingCode>
      <CompanyName>Yugo Unlimited</CompanyName>
      <InternalIDNumber>195634</InternalIDNumber>
      <Address>
        <AddressStreetName>P.O.BOX</AddressStreetName>
        <AddressStreetNumber>298-G</AddressStreetNumber>
        <AddressCity>Detroit</AddressCity>
        <AddressState>Michigan</AddressState>
        <AddressCountry>US</AddressCountry>
        <AddressPostalCode>48328-3516</AddressPostalCode>
```

```
        <AddressComment>(418 E. Madison Ave)</AddressComment>
      </Address>
      <Department>Dpt.ABT-1</Department>
      <PersonSurname>Antgo</PersonSurname>
      <PersonGivenName>Corwin</PersonGivenName>
      <PhoneNumber>+1(248)555-9876</PhoneNumber>
      <PhoneNumberMobile>+1(818)357-2468</PhoneNumberMobile>
      <FaxNumber>+1(248)555-1000</FaxNumber>
      <EmailAddress>cantgo@yugo.com</EmailAddress>
   </EngineeringContact>
   <TechnicalContact>
      <CompanyName>Togo Yugo, Ltd.</CompanyName>
      <InternalIDNumber>8981237</InternalIDNumber>
      <Address>
        <AddressCity>Lome</AddressCity>
        <AddressCountry>TG</AddressCountry>
      </Address>
      <Department>Overseas Design Group</Department>
      <PersonSurname>Mombasa</PersonSurname>
      <PersonGivenName>Ashante</PersonGivenName>
      <PhoneNumber>+88(349876)3218764-327111</PhoneNumber>
   </TechnicalContact>
</SDE>
<RDE>
   <EngineeringContact>
      <RoutingCode>2b6f5e3c5e8h</RoutingCode>
      <CompanyName>Nova Parts Co.</CompanyName>
      <InternalIDNumber>084523</InternalIDNumber>
      <Address>
        <AddressStreetName>Stephenson Highway</AddressStreetName>
        <AddressStreetNumber>1414</AddressStreetNumber>
        <AddressCity>Windsor</AddressCity>
        <AddressState>Ontario</AddressState>
        <AddressCountry>CA</AddressCountry>
        <AddressPostalCode>z1e4r4</AddressPostalCode>
        <AddressComment>2nd Floor cube 22E-1N</AddressComment>
      </Address>
```

```
      <Department>Engineering Management</Department>
      <PersonSurname>DeVille</PersonSurname>
      <PersonGivenName>Cruella</PersonGivenName>
      <EmailAddress>cruella.d@nova.ca</EmailAddress>
   </EngineeringContact>
   <TechnicalContact>
      <CompanyName>Nova Parts Co.</CompanyName>
      <InternalIDNumber>084523</InternalIDNumber>
      <Address>
         <AddressStreetName>Stephenson Highway</AddressStreetName>
         <AddressStreetNumber>1414</AddressStreetNumber>
         <AddressCity>Windsor</AddressCity>
         <AddressState>Ontario</AddressState>
         <AddressCountry>CA</AddressCountry>
         <AddressPostalCode>z1e4r4</AddressPostalCode>
         <AddressComment>2nd Floor cube 22E-3N</AddressComment>
      </Address>
      <Department>Drafting</Department>
      <PersonSurname>Exner</PersonSurname>
      <PersonGivenName>Andreas</PersonGivenName>
      <PhoneNumber>040-123-0</PhoneNumber>
      <PhoneNumberMobile>040-456-8910</PhoneNumberMobile>
      <FaxNumber>040-123-34555</FaxNumber>
      <EmailAddress>aexner@axle.com</EmailAddress>
   </TechnicalContact>
   <TradingContact>
      <CompanyName>Commercial Attroneys PLC</CompanyName>
      <InternalIDNumber>27182818</InternalIDNumber>
      <Address>
         <AddressStreetName>P.O.Box</AddressStreetName>
         <AddressStreetNumber>459045</AddressStreetNumber>
         <AddressCity>San Juan</AddressCity>
         <AddressState>Puerto Rico</AddressState>
         <AddressCountry>US</AddressCountry>
         <AddressPostalCode>03141-5926</AddressPostalCode>
      </Address>
      <Department>Supplier Representation</Department>
```

```
        <PersonSurname>Goldstein</PersonSurname>
        <PersonGivenName>Schlomo</PersonGivenName>
        <PhoneNumber>+1(818)383-8383</PhoneNumber>
        <PhoneNumberMobile>+1(818)278-7538</PhoneNumberMobile>
        <FaxNumber>+1(818)383-8000</FaxNumber>
        <EmailAddress>schlomog@ca.plc.pr</EmailAddress>
      </TradingContact>
    </RDE>
    <EFC>
      <ExchangedFileContainedQuantity>0000</ExchangedFileContainedQuantity>
      <ExchangedFilePurpose>CONFIRMATION</ExchangedFilePurpose>
      <EFCFileContentSpecification>
        <FileSequenceNumber>0002</FileSequenceNumber>
        <FileOriginalName>Acknowledge.txt</FileOriginalName>
      </EFCFileContentSpecification>
    </EFC>
</EngDatMessage>
```

D.4.7 References

W3C recommendation 04 February 2004

W3C XML Schema – version http://www.w3.org.2001/XMLSchema

W3C XSLT Extensible Stylesheet Language Transformation
http://www.w3.org/1999/XSL/Transform

MAINTENANCE REQUEST

This form should be completed when there are changes that should be made to this SASIG publication. Forward this request to any of the member organisations. For address details, see www.sasig.com. Please fill out the complete form. Note: all SASIG publications are reviewed periodically.

PLEASE PRINT OR TYPE

Name of Submitter: _____ **Date:** _____

Company: _____

Company Address: _____

Phone: _____ **Fax:** _____ **E-mail:** _____

MAINTENANCE REQUEST (Use additional sheets if necessary)

Page Number of Change: _____

Document Currently Reads: _____

_____

_____

Recommended Changes/Should Read: _____

_____

_____

Recommended Additions: _____

_____

_____

Reason for Change: _____

_____

Signature of Submitter: _____

DISPOSITION (SASIG use only) – Completed forms are filed in the final document maintenance file.

Program Owner Assigned to: _____ **Log #:** _____

Program Owner's Recommendation: _____

_____

Final Disposition: _____

_____

Comments: _____

_____