

BusinessMail X.400

MailBox X.400

EDI Processing

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# 1 EDI Processing

## Overview

The current chapter covers the following topics:

- Overview of EDI processing.
- How EDI processing is done by OpenMS.
- How to set up OpenMS for EDI processing.

## 1.1 Overview

### EDI

Electronic Data Interchange (EDI) describes the transfer of business documents (e.g. orders or invoices) between trading partners. Two trading partners maintain a trading relationship with each other in which one of the partner's acts as the *Originator* and the other as the *Recipient* of EDI documents. Usually a trading partner is free to send EDI documents to any other trading partner. The trading partner that receives EDI documents is free to either accept or reject documents from the respective sender.

### 1.1.1 Transmission Set Files

#### Overview

Within the OpenMS central EDI function EDIFACT encoded EDI documents are uploaded or downloaded using transmission sets (files). EDIFACT is defined in standard ISO 9735. The OpenMS central EDI function processes and provides these transmission set files based on the EDI relations configured in the OpenMS database. The OpenMS central EDI function is available when a special mailbox is used (EDIBOX) or when the MessageGate File Interface and/or the AS2 Gateway is used and is configured via a WEB-based configuration tool called WebConfig.

#### Structure

A transmission set is a sequence of so-called interchanges (i.e. EDI documents). Interchanges in turn, consist of a sequence of segments (i.e. EDI messages and segments of messages). Thus, the entire structure of a transmission set is as depicted in Figure 1:

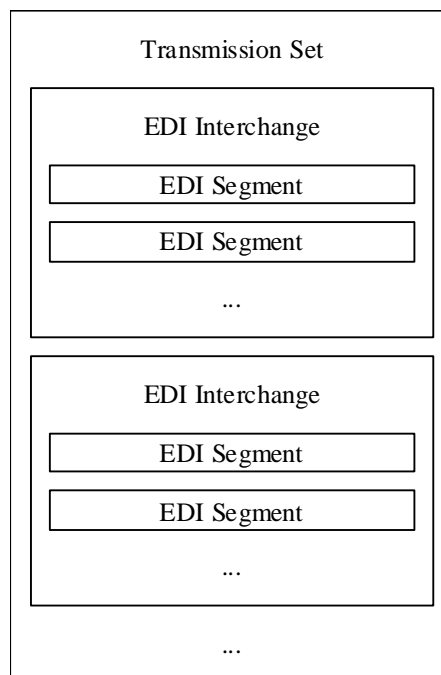


Figure 1: Transmission Set - Structure

## 1.1.2 EDI Accounts and EDI Relations

### Overview

Given two EDI partners - one acting as a sender and the other one as a receiver - the corresponding EDI trading relation (definition in the OpenMS database) defines whether there is a valid agreement between the two partners and the details thereof.

### EDI Partner / EDI account

An EDI partner is someone who is able to send and/or receive EDI documents. Each EDI partner is uniquely identified by the following attributes:

- an EDI partner identification (for example GLN or ILN)
- an EDI partner identification qualifier

Within the OpenMS central EDI function the OpenMS mailbox (EDIBOX) user has to configure one or more own EDI accounts and enter the following attributes:

#### Closed User Group

The EDI accounts for receiving EDI partners indicate whether they are part of a Closed User Group.

Closed User Group Type	Description
Open	An EDI account which is not configured as part of a Closed User Group is termed <i>Open</i> and has the following characteristics: EDI documents are generally accepted from any EDI sending partner.
Closed	An EDI account which is configured as part of a Closed User Group is termed <i>Closed</i> and has the following characteristics: EDI documents are not accepted except from certain explicitly configured EDI sending partners.

Table 1: EDI Accounts – Closed User Group Types

### EDI Relation

- An EDI relation is a direction dependent relationship between a sending and a receiving EDI partner. Direction dependent means that the type of relationship is not necessarily the same if the sender and receiver roles change. An EDI relation determines whether the sending trading partner is allowed to transmit EDI documents to a receiving trading partner or not. Additional information specifying the technical aspects of the EDI document interchange such as the data formats can be configured. If these are missing the OpenMS central EDI function will use default values.
- Within an EDI relation the EDI test flag (UNB TAG 0035 Test indicator) attribute can be used to uniquely identify an EDI partner. The processing of EDI documents with/without test flag is as follows:
  - EDI document contains the test flag in the UNB Header:
    - + If there is only one EDI relation where the test flag attribute is set, the EDI document is sent to the associated X.400 recipient address.
    - + If there is only one EDI relation where the test flag attribute is NOT set, the EDI document is sent to the associated X.400 recipient address (ie. the test flag attribute is ignored in this case).
    - + If there are two EDI relations, containing the same EDI partner attributes except for the test flag attribute, then the EDI document is sent to the X.400 recipient address associated with the EDI relation where the test flag attribute is set.
  - EDI document does NOT contain the test flag in the UNB Header:
    - + If there is one EDI relation where the test flag attribute is NOT set the EDI document is sent to the associated X.400 recipient address.
    - + If there is only one EDI relation where the test flag attribute is set the EDI message is rejected with the reason “Receiving Partner not found”.

- + If there are two EDI relations, containing the same EDI partner attributes except for the test flag attribute, then the EDI document is sent to the X.400 recipient address associated with the EDI relation where the test flag attribute is NOT set.
- The OpenMS central EDI function only supports X.400 messages (transmitted or delivered) that contain one recipient and one body part (either text or binary bodypart, but not FTBP) including an EDIFACT interchange (EDI document). Hence if the OpenMS central EDI function has been activated for the MessageGate File interface or the AS2 Gateway, messages with more than one body part, where the first body part includes an EDIFACT document, will be rejected.

## 1.2 How EDI processing is done by OpenMS

### Overview

The current section gives an overview of:

- How OpenMS processes EDI messages
- How OpenMS validates EDI relations between two trading partners

### 1.2.1 Processing Steps

#### Overview

EDI messages are processed by the OpenMS central EDI function. The purpose of this component is the validation of any EDI document exchange before the respective document is passed on to the respective EDI partner.

Every OpenMS mailbox user (EDIBOX) who wishes to utilize the central EDI function must set up his own EDI account containing his:

- EDI partner identification (EDI ID)
- EDI partner identification qualifier (EDI Qualifier)
- Closed User Group setting (open/closed)

To receive EDI documents from any EDI Partner an EDI account with Closed User Group setting of *Open* is used.

To receive EDI documents from specific EDI partners only, an EDI account with Closed User Group setting of *Closed* and the respective EDI relations representing the sending EDI partners are required.

To send EDI documents to specific EDI partners the respective EDI relations representing these EDI partners have to be set up in the context of one's own EDI account.

The configuration of EDI accounts and EDI relations is done via a WEB-based configuration tool called WebConfig (see also the WebConfig user guide or WebConfig short descriptions).

Validation of EDI messages takes place in the following situations:

- Submission validation:  
If the OpenMS central EDI function is activated for the sender, each EDI message is validated before it is submitted to the X.400 Message Transfer Service (MTS).
- Delivery validation:  
If the OpenMS central EDI function is activated for the receiver, each EDI message is validated before it is delivered to the Message Store, the MessageGate file interface or the AS2 Gateway.

The central EDI function is part of the OpenMS submission and delivery procedures for EDI-related messages, which is described in more detail below.

#### Submission Procedure

There are different components of OpenMS involved when an EDI document is delivered to OpenMS using either an User Agent (UA), via the AS2 Gateway or via MessageGate access protocols FTP/WebDAV.

Ignoring the different delivery mechanisms the submission procedure (Transmission Set Processor TSP) for EDI documents does the following:

- It dissects the EDI transmission set into single interchanges.

- Each interchange is mapped to an individual X.400 message.
- The EDI submission validation (see section 1.2.2: Validation of EDI Messages, p.7) is performed for each interchange. If validation is not successful an error is reported and the submission procedure is aborted.
- Each individual X.400 message is submitted to the MTA.

Please Note:

If the mailbox user (EDIBOX) user has the 'PromptUAID' flag set to 'YES' in his user agent profile, the TSP will use the Interchange Control Reference Number as UAcontentID (non-printable string characters are replaced with the SPACE character). Otherwise the TSP will set its own value for the UAcontentID field.

### **Delivery Procedure**

The delivery procedure for EDI documents does the following:

- Whenever an OpenMS entity (DLV or MessageGate) receives an X.400 message addressed to an EDI account (OpenMS central EDI function is activated) the following takes place:
  - EDI delivery validation is performed (see section 1.2.2: Validation of EDI Messages, p.7). If validation is not successful an error will be reported to the sender of the message and the delivery procedure is aborted, with the following exceptions in the case of a syntax validation error:
    - + If the recipient of this X.400 message is MessageGate, MessageGate will attempt to forward the content as an individual message.
    - + If the recipient of this X.400 message is the AS2 Gateway, then assuming that an AS2 relation exists, dependent on the bodypart type the content of the X.400 message will be mapped to either a MIME content-type of text/plain or application/octet-stream of an AS2 message.
  - If no validation errors occur the EDI interchange is delivered to the Message Store if the EDI account points to a mailbox user (EDIBOX), into the File Store if the EDI account points to a MessageGate user or directly to the AS2 Gateway if the EDI account points to an AS2 user.
- Using an User Agent (UA) the recipient user has to access the Message Store to download the EDI documents. The associated OpenMS USP entity retrieves the documents from the OpenMS Message Store. Using the EDI DOWNLOAD command the UA builds a transmission set file including the respective interchanges.

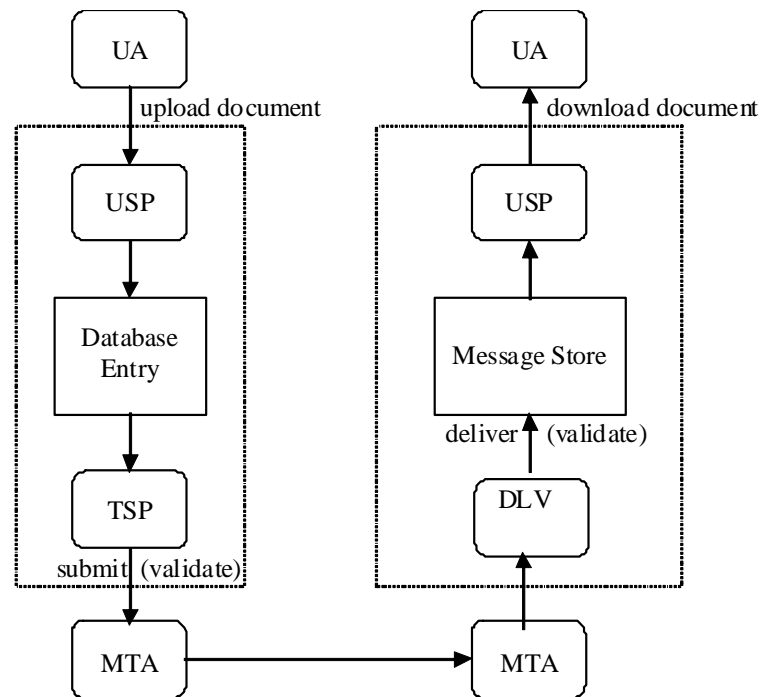


Figure 2: EDI - Processing Steps for an OpenMS X.400 mailbox(EDIBOX) user

#### Remarks

Since each interchange of an EDI document is mapped to a separate X.400 message by the Message Store the MTS (MTA) is able to handle EDI-related messages transparently (i.e. like any other X.400 message).

### 1.2.2 Validation of EDI Messages

#### Overview

Figure 2: EDI - Processing Steps, p.7, shows that the validation of EDI messages is a two-step process that occurs:

- before the message is submitted to the MTA (submission validation) and
- before the message is delivered by the MTA (delivery validation)

Each validation step in turn performs the following actions:

- Check that the message is a valid EDIFACT document (only the UNA, UNB and UNZ segments are verified!)
- Originator and/or Recipient address is authenticated
- Check whether a valid EDI relation exists between the Originator and Recipient

#### Submission Validation

OpenMS handles outgoing EDI interchanges as follows:

In order to authenticate the Originator and Recipient the EDI partner identification, EDI qualifier and the Test Flag are extracted from the interchange (EDIFACT segment UNB). The following items are then checked against the OpenMS database:

- The extracted EDI originator details are used to determine the X.400 Originator address present in the database. This X.400 address must match the X.400 Originator address of the user who uploaded the EDI document. Otherwise authentication will fail.
- The extracted EDI recipient details must match exactly one of the originator's partner EDI relations. The test flag in the EDIFACT header is processed as described in 1.1.2 "EDI Accounts and EDI Relations". Authentication will fail otherwise.

**Delivery Validation**

OpenMS handles incoming EDI interchanges as follows:

- In order to authenticate the Recipient and the Originator the EDI Partner Identification and the EDI Qualifier are extracted from the interchange. The following items are checked against the OpenMS database:
  - + The extracted recipient details must match the details of exactly one of the EDI accounts known to OpenMS. Authentication will fail otherwise.
  - + If the recipient EDI account is part of a Closed User Group, the extracted originator details must match exactly the details contained in one of the recipient EDI relations. The respective X.400 Originator address determined via the EDI relation must match the X.400 Originator address present in the X.400 message. Authentication will fail otherwise.

**Remarks**

When extracting the authentication details needed from the interchange only the syntax of the EDIFACT header is checked. The content is not checked. Syntax errors will result in authentication failure.