EDI

with VOLKSWAGEN and AUDI

- Communication Technology -

VOLKSWAGEN AG

Abt. K-SIO-C/5

Table of contents

1. EDI Communication Technology at VOLKSWAGEN

The modern ODETTE-File-Transfer-Protocol (OFTP) used across the industry is the standard transfer method of the European automobile industry and thus also used by VOLKSWAGEN. It can be used on the basis of the internationally available ISDN network or alternatively via an ENX (European Network Exchange) link on the basis of TCP/IP for communicating with Volkswagen. Recommendation 4914/2 of the German Association of the Automotive Industry (VDA) is implemented here. The protocol is open and in no way industry specific. It provides safe and controlled data transmission which is free of interventions and transparent in its performance. The OFTP may be used for the electronic data interchange of business data as well as for the transfer of CAD and scanned image raster data.

The actual electronic data interchange (file transfer) with Volkswagen is to be routed through the information processing centre (IVZ) in Wolfsburg. A small amount of messages for AUDI are also to be routed through the IVZ Ingolstadt. Transmission of data between the partners and SEAT or ŠKODA can also be handled by the IVZ Wolfsburg. IVZ Wolfsburg functions as the clearing centre for the group. You may exchange all data via the IVZ Wolfsburg at no extra cost. From there, the data is quickly sent automatically to the indicated recipient in the group.

When exchanging electronic data with VOLKSWAGEN, the principle of the single message transfer has to be considered. When sending and receiving files, each message type has to be identified by using the correct file name as specified by VOLKSWAGEN.

It is not permissible to combine several message types in a specific file for transfer.

1.1 Network service

The standard transmission processes used at VOLKSWAGEN are the point-to-point connections ISDN/OFTP, ENX/OFTP as well as Internet/OFTP2.
VOLKSWAGEN doesn’t set up connections with the network service Datex-P (X.25) anymore.

In the standard procedure, the EDI partner sending the data makes the connection. Data to be sent by VOLKSWAGEN are sent automatically, as soon as they are provided by the respective department. The partner's EDI system must be ready to receive at all times to ensure smooth and prompt handling of EDI traffic. The point-to-point procedure where the connection is made by the sender, is also supported by the standard transmission processes.

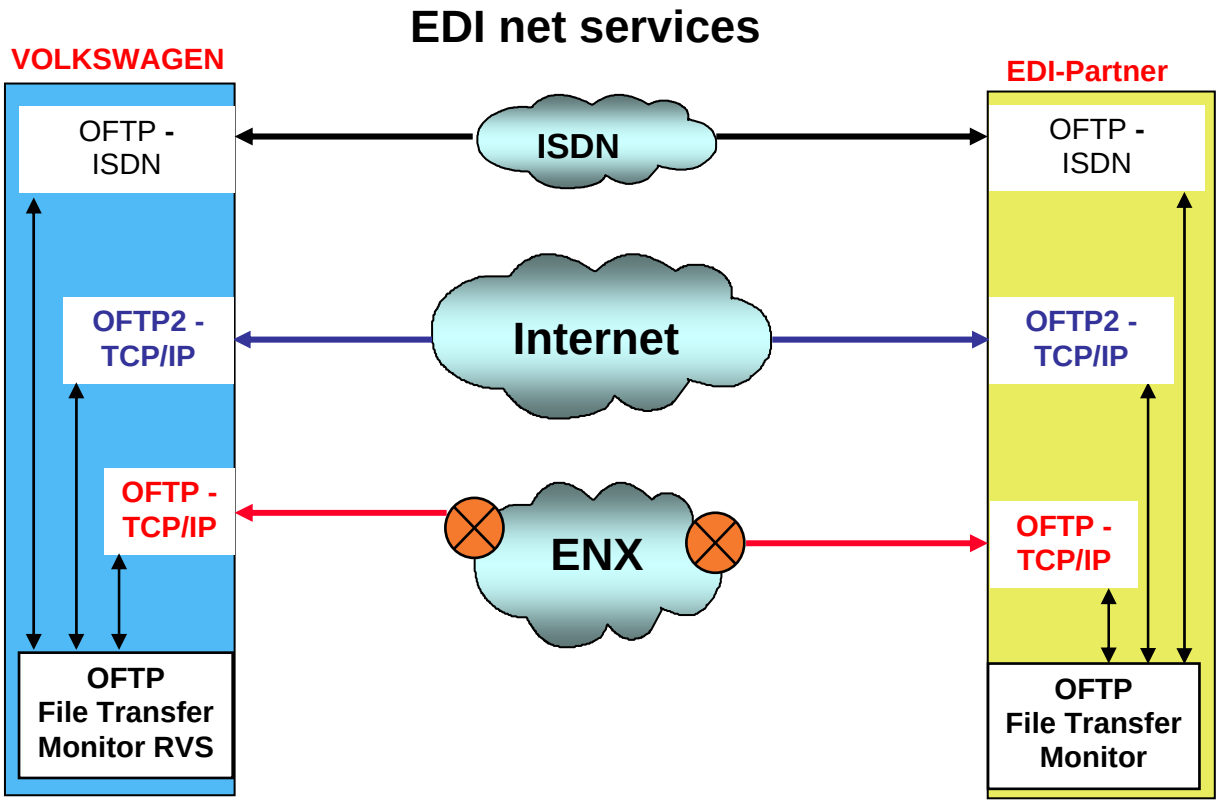

Figure 14: EDI net services with VOLKSWAGEN

1.1.1 ISDN Connection

In this connection the OFTP is used as the file transfer protocol and the X.25 OFTP data flow is transparently routed through the ISDN network. Standard EDI solutions for ISDN/OFTP require an IDSN communication card instead of the X.25 card. There are software solutions available for conversion from X.25 to ISDN and reverse. Please consult your EDI software partner for advice on this matter.

1.1.2 ENX Connection

ENX is another possibility for EDI transfers. The TCP/IP-based ENX network (**E**uropean **N**etwork E**x**change) operated by several providers offers variable transmission speeds between 64 kbit/s (dial-in connection) and 34 Mbit/s (dedicated line). It thus allows transmission speeds that other types of connection cannot provide. The ENX network also has very high availability and – unlike the other types of connection – it allows very secure automatic encryption of data during transmission.

1.1.3 Internet connection

As a new service VOLKSWAGEN offers the connection to the internet. In this case the OFTP2 protocol is used. This protocol offers a session and a file encryption unlike the previous versions. By using the internet as transmission line the connection costs can be reduced compared to the alternative connections. When establishing the connection the session is encrypted using TLS.

The connection via the internet is not suitable for time-critical data.

1.1.4 Value Added Network Services (VANs)

VOLKSWAGEN doesn't set up new VAN connections anymore!

VANs are intermediary service providers. VOLKSWAGEN as well as EDI partners support a mailbox each of them at the VAN. The transmission is not carried out by the point-to-point concept.

The introduction of a VAN service automatically reduces the transparency of the transmission process. In VAN, VOLKSWAGEN has no possibility for monitoring the final message transfer to the partner. In the case of irregularities during the transfer process, Volkswagen can only accept responsibility for data transmissions between the VAN and VOLKSWAGEN. Any check with the VAN in case of irregularities has to be initiated by the partner, irrespective of the direction of the data flow.

The introduction of VANs may result in unacceptable delays when transmitting messages with tight scheduling (daily call-off, dispatch and transport data).

The costs will not be paid by VOLKSWAGEN (- not even proportional) in this regard.

1.2 Implementation of a Data Transmission Link

The exchange of EDI messages with Volkswagen will be handled by IVZ Wolfsburg. This section identifies the various aspects you will have to consider when implementing an EDI link with VOLKSWAGEN. The simplest way to quickly set up a data connection at VOLKSWAGEN is to hire a software distributor specialized in EDI.

1.2.1 Application for an ODETTE Identification

You need a so-called organisation code, called ODETTE ID for communication with VOLKSWAGEN. You can apply this through the "ODETTE International Ltd.".

1.2.2 Application for a Network Connection

You have to apply to Telekom or any another telecommunication service provider to be connected to the network service you selected.

1.2.3 Application for a Communication Link

For setting up an EDI connection with Volkswagen, please use the EDI application form that you find on the supplier platform under EDI application form. Do not fill out the form until you receive the ODETTE ID from the VDA and the connection has been fully set up.

After sending the EDI application, you will normally be sent the missing parameters (for example, the sending and receiving password required for the connection) by mail. You will also be sent the station ID (SID) defined when the connection was set up for you. This station ID is used at Volkswagen as the unique identification for EDI communication with you. It is used throughout the. The station ID is always part of the data file name used for electronic data exchange with VOLKSWAGEN.

1.2.4 Transmission Test

Before the EDI transmission of operative data begins, the data path has to be tested. For this purpose, VOLKSWAGEN offers what is called a "loop test". Without restriction in regard to the contents, a data file (up to 10 KB) named "LOOPTEST" is to be sent to the IVZ Wolfsburg (station ID (SID) R11). As soon as the data file arrives successfully at Volkswagen, it will be automatically returned to the sender. A successful loop test proves that data transfer is possible in both directions.

1.2.5 Operative Processing

Once loop testing or transmission of test data has been successfully completed, the data link will be authorised for operative EDI processing by VOLKSWAGEN. The standard EDI process normally starts with the delivery instruction. Please consult the respective contact person at VOLKSWAGEN for the introduction of productive data exchange starting with the delivery instruction. You will find the list of contact persons on VW supplier platform on the Internet.

The working times of the IVZ Wolfsburg for the data exchange is 7x24 hours with short maintenance windows.

If you have technical problems with the transmission, please contact the User Help Desk at Volkswagen.

1.2.6 Network Connections at Volkswagen/Audi - OFTP Parameters

VOLKSWAGEN will normally transmit data files containing VDA formats with fixed length records in EBCDIC format. It is also possible to transmit these files in ASCII format, but this has to be arranged before with the EDI contact person at VOLKSWAGEN. Files may be sent to VOLKSWAGEN in EBCDIC or ASCII format. For files in ASCII format, the file format "Text" should be used in OFTP. Files with variable length records in ODETTE/EDIFACT format, DELINS for example, will always be transmitted in file format "Text".
You'll find the connection parameters in the EDI application form.

1.2.7 Addressing/routing at Volkswagen Group

VOLKSWAGEN offers to pass EDI messages through the IVZ Wolfsburg as a central routing point. EDI messages may be exchanged in both directions between companies within Volkswagen Group or a computer of our contract freight forwarders.

The automatic forwarding of data files to third parties within and outside the computer network of the Volkswagen Group is facilitated by the routing function that is part of the ODETTE File Transfer Protocol (OFTP = VDA 4914/2).

The following is an example of message routing:

- Files should be sent from a Volkswagen Group affiliate, for example SEAT, to a supplier via Volkswagen Wolfsburg. This transfer occurs in two consecutive steps. In the first step, the file will be transferred from IVZ SEAT to IVZ Wolfsburg and stored there. After the file has been completely received by IVZ Wolfsburg, the data will be prepared automatically for transfer to the supplier. In the second step, the file will be transferred from IVZ Wolfsburg to the external partner.
- In this example, the IVZ Wolfsburg assumes the function of a central routing point, merely passing the data file on to the final recipient.

The actual routing instruction is always given by the sending party, which means that in this case SEAT had to identify the final recipient of the data file. The "Odette ID" is used to indicate the final recipient and the sender. The computers involved are identified by the ODETTE ID.
The ODETTE ID of the sender and of the final recipient will be transmitted together with the file through all steps of the procedure. This information is stored in the service record "SFID" (Start file ID) that the OFTP uses for this purpose. The ODETTE IDs remain unchanged throughout the whole transmission process so each of the recipients can easily see whether the information has to be passed on to a further party or whether their own computing centre is actually the final recipient.

The ODETTE IDs of all the computing centres involved, i.e. the sender, the central routing point and the final recipient, should be "known" to all computing centres involved, which means that this information must have been previously "generated" in the individual OFTP products. It is therefore important that the final recipient — the supplier in our example — is able to identify the ODETTE IDs of both the central routing point (IVZ Wolfsburg) and the sender IVZ SEAT. The final recipient will, however, never be in direct contact (ISDN, ENX (TCP/IP)) with the sender.

The following table lists computing centres at VOLKSWAGEN and Audi that are often involved in communication with external partners.

Volkswagen computing centres:

Location	**ODETTE ID**	
IVZ Wolfsburg (ISDN and ENX connection)	O0013000001VW.....R11	. =Blank (6x)

The IVZ Wolfsburg serves as the central routing point for the computing centres listed below. Line connections (ISDN, ENX (TCP/IP)) are always established with this computing centre, regardless of whether files are being received from or sent to other computing centres.

Location	**ODETTE ID**	
VW/AUDI, AHM Györ, Lamborghini (EDIFACT converter)	O0013000001VW.....KEY	. =Blank (6x)
VW Saxony, Mosel	O0013000001VW.....R28	
ŠKODA, Mlada Boleslav	O0013000001VW.....R31	
VW, Bratislava	O0013000001VW.....R37	
SEAT, Barcelona	O0013000001VW.....R41	
VW, Brussels	O0013000001VW.....R46	
VW of America, Auburn Hills	O0013000001VW.....R61	
VW de Mexico, Puebla	O0013000001VW.....R66	
VW do Brasil, São Bernardo	O0013000001VW.....R51	

Audi Computing Centres:

Location	**ODETTE ID**
IVZ Ingolstadt (ISDN connection)	O0013000057AUDI-INGR2A
IVZ Ingolstadt (ENX connection)	O0013000057AUDI-INGR21

IVZ Ingolstadt and the Ingolstadt R&D department computer serve as central routing points for other computing centres at Audi.

Imprint

Thomas Sieck

VOLKSWAGEN AG
ITP LOGISTIK
EDI-KOORDINATION
KONZERN UND MARKE VOLKSWAGEN

Brieffach 011/1836
38436 Wolfsburg
Telephone +49 5361 941817
E-mail thomas.sieck@volkswagen.de