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All About IDOC:Definition, Architecture, Implementation

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What is an IDOC?

IDOC is **simply a data container** used to exchange information between any two processes that can understand the syntax and semantics of the data.

In other words ,an IDOC is like a data file with a specified format which is exchanged between 2 systems which know how to interpret that data.

IDOC stands for " **Intermediate Document"**

When we execute an **outbound** ALE or EDI Process, an IDOC is created.

In the SAP System, IDOCs are stored in database.Every IDOC has an **unique number**(within a client).

Key Features

- IDOCs are **independent of the sending and receiving systems.**(SAP-to-SAP as well as Non-SAP)
- IDOCs are based on EDI standards, ANSI ASC X12 and EDIFACT. In case of any conflict in data size, it adopts one with greater length.
- IDOCs are **independent of the direction of data exchange** e.g. ORDERS01 : Purchasing module : Inbound and Outbound
- IDOCs can be viewed in a **text editor**. Data is stored in character format instead of binary format.

Structure of an IDOC
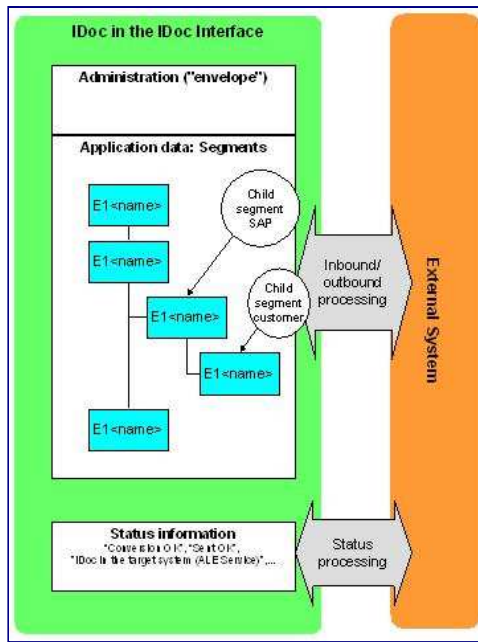
The Idoc structure consists of 3 parts -

1. The administration part(**Control Record**)- which has the type of idoc,message type, the current status, the sender, receiver etc. This is referred to as the Control record.
2. The application data (**Data Record**) – Which contains the data . These are called the data records/*segments*.
3. The Status information (**Status Record**)- These give you information about the various stages the idoc has passed through.

You can view an IDOC using transaction **WE02** or **WE05**
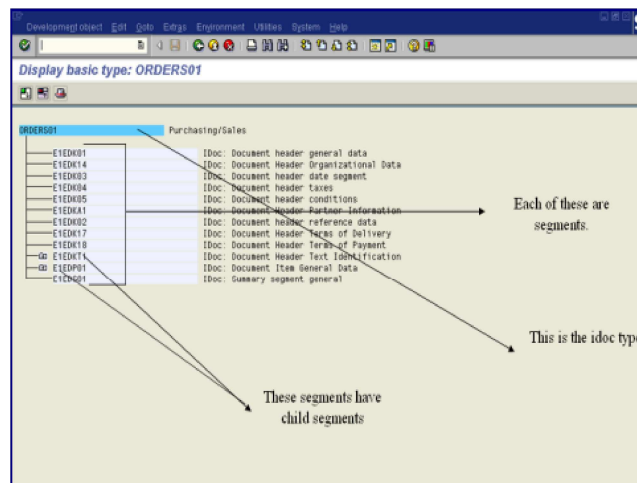
As seen in screenshot above IDOC record has three parts Control , Data and Status. Lets look into them in detail -

Control Record

- All control record data is stored in EDIDC table. The key to this table is the IDOC Number
- It contains information like IDOC number, the direction(inbound/outbound), sender, recipient information, channel it is using, which port it is using etc.
- Direction '1′ indicates outbound, '2′ indicates inbound.

Data Record

- Data record contains application data like employee header info, weekly details, client details etc
- All data record data is stored in EDID2 to EDID4 tables and EDIDD is a structure where you can see its components.
- It contains data like the idoc number, name and number of the segment in the idoc, the hierarchy and the data
- The actual data is stored as a string in a field called SDATA, which is a 1000 char long field.

Status Record

- Status record are attached to an IDOC at every milestone or when it encounter errors.
- All status record data is stored in EDIDS table.
- Statuses 1-42 are for outbound while 50-75 for inbound

IDOC Types

An IDOC Type (Basic) defines the structure and format of the business document that is to be exchanged. **An IDOC is an instance of an IDOC Type** , just like the concept of variables and variables types in programming languages. You can define IDOC types using **WE30**

What is a Segment?

Segment defines the format and structure of a **data record** in IDOC. Segments are reusable components.

For each segment SAP creates

- • Segment Type (version independent)
- • Segment Definition (version dependent)
- • Segment Documentation

The last 3 characters is the version of the segment

Definitions keep changing as per the version but the segment type remains the same.
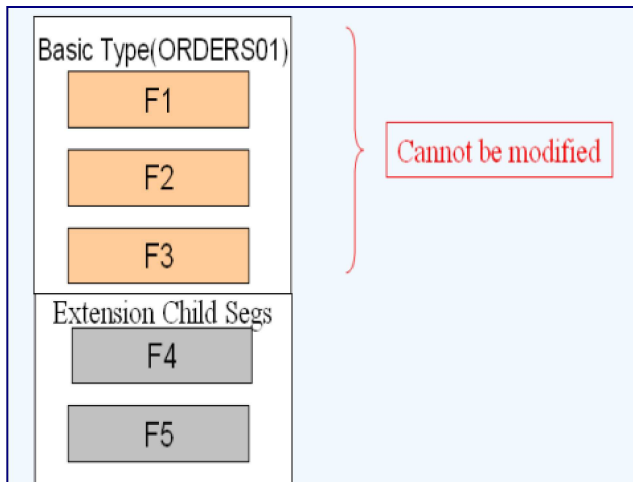
Transaction :**WE31**

What is Extension IDOC type ?

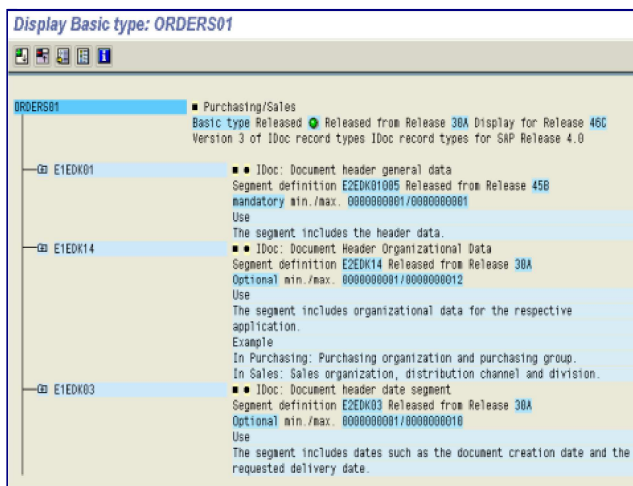An IDOC is of 2 types:-

1. Basic
2. Extension

SAP provides many a pre-defined Basic IDOC Types which **can not be modified**. In case you want to add more data to these restricted basic type you may use an extension type. Most of the times you will **NOT** use extension.

Documentation

Each IDOC are thoroughly documented in transaction **WE60**

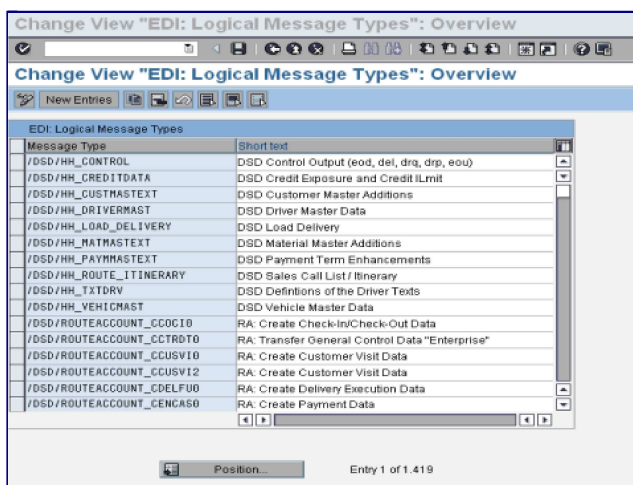## Message Type

A message represents a specific type of document that is transmitted between two partners Ex. Orders,orders responses,invoices etc

An idoc type can be associated with many message types

Also a message type can be associated with different idoc types. Transaction **WE81**

IDOC Views

An IDOC type can be used for more than one message type, which results in IDOCs containing more fields than required for a particular message type.

IDOC views are used to improve performance in generating IDOCs to ensure only the relevant segments are filled with data. IDOC Views are important only for Outbound Processing.
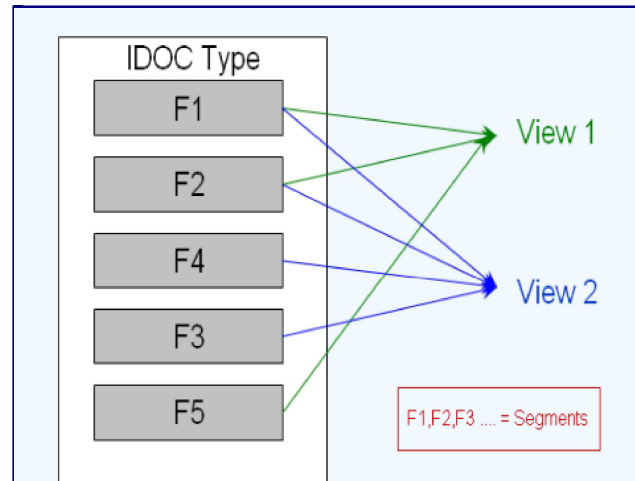
Partner Profiles

A partner is defined as a business partner with whom you conduct business and exchange documents

In the partner profile of a partner that we exchange Idocs with, we maintain the parameters that are necessary for exchanging the data. The transaction used is **WE20**.
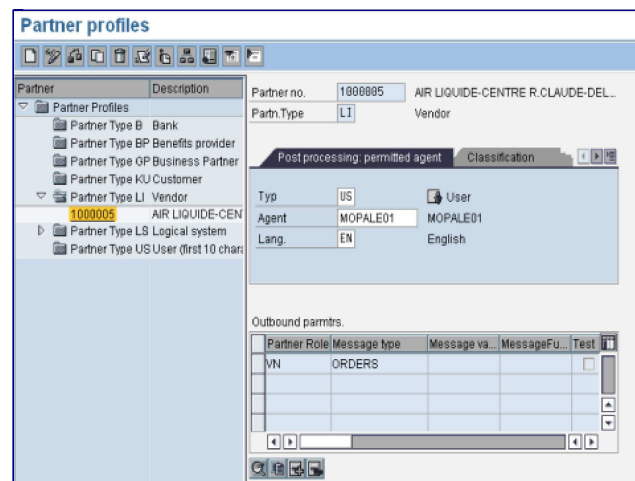

Port

The port defines the technical characteristics of the connection between your SAP system and the other system you want to transfer data with (subsystem). The port defines the medium in which data is exchanged between the 2 systems.

There are different types of ports. The 2 most commonly used are the **TRFC ports** used in ALE and **File** ports which EDI uses.

For TRFC ports we have to give the name of the logical destination created using **SM59**.

When using file port you can specify the directory where the IDOC file should be placed. The other system or the middleware will pick up the file from here. The Function module can be used to generate a file name for the idoc. While testing you can use "Outbound file" to specify a constant file name. The tab "**outbound trigger**" can be used to supply information if we want to trigger some processing on the subsystem when an idoc is created at this location. We have to specify the command file name and the directory which has to be run.
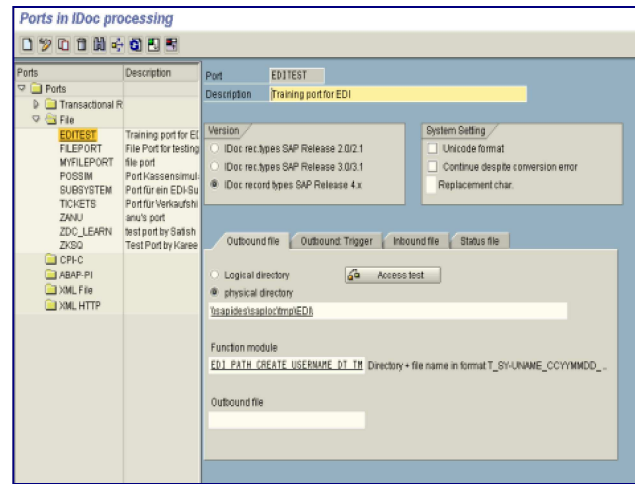
This is *so* CONFUSING!

Lets understand the process of creating an IDOC with an example -

- Whenever a Purchase Order (PO) is created we want to send the IDOC to a vendor.
- The PO is sent in the form of an IDOC to the vendor (partner). That partner has to be EDI enabled in that system. SAP should realize that it could send doc to this vendor electronically.
- The PO sent as an outbound idoc by the customer will be inbound idoc for the vendor. The SAP system on the vendors side can process this to create an application document (a sales order) on their system.
- Quotation, RFQ, PO, SO, Invoice, delivery note etc are some of the commonly exchanged documents through IDOC

The process of data transfer out of your SAP system is called the **Outbound process** , while that of data moving into you SAP system is called **Inbound process**. As a developer or a consultant who will be involved in setting up theses process for your organization. Here are the steps how to set them up-

The Outbound Process

Steps Involved -

1. Create segments(WE31)
2. Create an idoc type(WE30)
3. Create a message type (WE81)
4. Associate a message type to idoc type(WE82)
5. Create a port(WE21)
6. If you are going to use the message control method to trigger idocs then create the function module for creating the idoc and associate the function module to an outbound process code
7. Otherwise create the function module or stand alone program which will create the idoc
8. Create a partner profile(WE20) with the necessary information in the outbound parameters for the partner you want to exchange the idoc with.Trigger the idoc.

The Inbound Process

Steps Involved-

1. Creation of basic Idoc type (Transaction WE30)
2. Creating message type (Transaction WE81)
3. Associating the Message type to basic Idoc type (Transaction WE82)
4. Create the function module for processing the idoc
5. Define the function module characteristics (BD51)
6. Allocate the inbound function module to the message type(WE57)
7. Defining process code (Transaction WE42)
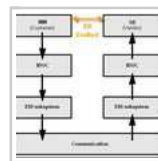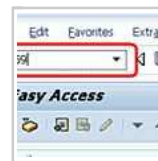8. Creation of partner profile (Transaction WE20)

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