

White Paper

Reading SAP IDocs

Understanding How BarTender Reads
SAP Intermediate Documents

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SAP™ (Systems, Applications, and Products in Data Processing) is an enterprise-scale, customizable, workflow application produced by SAP AG of Frankfurt, Germany. It is designed to automate all of the core processes in a large business including order processing, order fulfillment, customer service, supply chain management, and inventory management. It is used by medium and large businesses worldwide.

Crucial to SAP's success is its powerful integration features that enable disparate third-party applications and incompatible databases to exchange information with each other. BarTender uses one of these integration technologies, called Intermediate Documents (IDocs), to print data from any of your company's SAP-connected databases onto your labels.

An IDoc is a transactional message, in the form of a pure ASCII file, sent from a SAP-connected application to other applications. Most of an IDoc message consists of fields of data grouped into segments. The segments themselves have a hierarchical relation to each other.

EXAMPLE:

A physician's prescription of a drug for a hospital patient needs to get to the hospital's pharmacy. This could be done by means of an IDoc sent from a bedside application to an application in the pharmacy. Suppose the IDoc has a hierarchy of four levels of segments:

```
Patient Name: Johnson
      Diagnosis: croup
      Diagnosis: tibia fracture
            Visit Type: admission
                  Drug: codeine
                  Drug: amidol
            Visit Type: followup
                  Drug: naprosin
```

Level 1: Contains data that remains constant for years at a time, such as patient name and address.

Level 2: Contains data that remains constant through a given illness, but changes from illness-to-illness; such as primary physician and diagnosis. There can be more than one second level segment for a given patient.

Level 3: Contains data that tend to change from visit-to-visit but remains constant through a particular visit to the hospital; such as visit type (admission or followup) and attending physician. A patient may have more than one hospital visit during an illness.

Level 4: Contains data that tends to change from prescription-to-prescription; such as prescribing physician, medicine, and dosage. More than one medicine may be ordered for a given patient on a given visit.

IDoc Types and Segment Definitions

Since an IDoc is a message, both the sending and receiving applications must conform to a common convention about where, in a given IDoc, each piece of data will be found. To this end, SAP AG has defined several hundred IDoc types and a large number of segment types. And SAP owners can create their own custom IDoc types and segment types.

A sending application must construct an IDoc of a given type in accordance with these definitions; and a receiving application, like BarTender, must conform to the definitions when parsing the IDoc. This means that identifying a parser file is one step in setting up BarTender to use data from IDocs. A parser file for an IDoc type contains the information BarTender needs to parse the IDocs; such as what segments can appear in it, which segments are repeatable, what data fields will appear in each segment, what order the fields will be in, and what length each field will have.

IDoc types have names of six letters and two numerals. SHPMNT01 is an IDoc that embodies a message about shipments. SAP revises the definitions of IDocs from time-to-time, and the two numerals at the end of the name identify the revision.

Segment names may end in three digit version numbers. For example, E2KNA1M001 is a segment for the DEBMAS02 (customer masters) IDoc type.

Converting IDoc Hierarchical Data to Flat Records

Because BarTender views data as organized into tables, it must convert the hierarchies in IDocs to flat records. Fortunately, since data in a child segment is always associated with the data in its parent, any non-branching path through a tree in an IDoc, from a top node to a bottom node can be reconstructed as a record.

In the hospital example above, the path through the tibia fracture and the prescription for naprosin can be collapsed into a flat record like this:

Patient Name	Diagnosis	Visit	Drug
Johnson	tibia fracture	followup	naprosin

The two other complete paths could be collapsed into these records:

Patient Name	Diagnosis	Visit	Drug
Johnson	tibia fracture	admission	codeine
Johnson	tibia fracture	admission	amidol

Master Segment

You will not always need a label for every possible record that could be produced from the data hierarchy in an IDoc. BarTender can be configured at print time to select only some records, but some label formats that draw data from an IDoc will not need every possible record even in the typical case. BarTender uses the concept of the **Master Segment** to help you produce just the records you need from an IDoc.

The Master Segment is the segment whose data is the focus of interest with respect to your labelling needs. BarTender will produce one record for every segment in the IDoc that you designate as the Master Segment.

To continue the hospital example, if the hospital needs a label for every drug prescribed, it would set the Master Segment at the fourth level. Thus, BarTender would produce the three flat records shown above.

Suppose the hospital keeps separate files for every patient visit and wants to generate labels to be used for file folders. Only one label is needed for each visit. So the Master Segment is set to the third level, and BarTender produces two records:

Patient Name	Diagnosis	Visit	Drug
Johnson	tibia fracture	admission	codeine amidol
Johnson	tibia fracture	followup	naprosin

The rule of thumb for deciding what your Master Segment should be is:

In the typical run of labels built from this IDoc,
I'll want one label for every _____.

Steps for Adding an IDoc to Your BarTender System

BarTender's Add Database Connection Wizard takes you through the process of adding a SAP IDoc database to your BarTender system.

1. Launch the wizard by clicking the **Database Connection Setup** button. Then click **Next**.
2. On the **Add Database Connection Wizard - Type** window, select the radio button **SAP R/3 Intermediate Document (IDoc) File**, and then click **Next**.
3. On the **Add Database Connection Wizard - Options** window, select an IDoc type and an IDoc file from which to draw data for your labels. If necessary, add, modify, or remove IDoc types. When you are finished, click **Next**.
4. On the **Add Database Connection Wizard - Master Segment** window, select the **Master Segment** and click **Next**.
5. On the **Add Database Connection Wizard - Fields** window, select the fields on the IDoc from which you want to draw data. If you pick any fields on repeating segments, set the repeating segment rules for each such field.
6. Click **Finish**. You will be returned to the **Database Connection Setup** window. In the tree view of databases available to BarTender, there is now a child, called **SAP Database**, under **All Databases**.
7. Add a bar code or text object to a label and right-click on it. Click **Properties** to open the **Modify . . .** dialog. Click the **Data Source** tab and select **Database Field** as the source and pick the desired IDoc field from the **Use Field** list.
8. Print the label.

More Information

For more details about setting up BarTender to use IDocs, refer to the following topics in the online help:

Understanding IDocs

Master Segment

Parser Files

IDoc Types and Segment Definitions

Converting IDoc Hierarchical Data to Flat Records

Database Connection Setup Options Tab for IDocs

Add a new IDoc Type

IDoc Type Definition Window

Modify how BarTender works with an IDoc

Fields Tab for IDocs

Repeating Segment Rules . . . Window

Command Line Parameters Reference

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