

Methods and Approaches to Printing Bar Code Labels From SAP

Like other customer enhanced printing in SAP, some ABAP programming is required to print bar code labels to network connected bar code label printers. This document primarily addresses the issue of printing labels. The issues of printing a bar code as part of documents is not addressed.

SAP Only Solutions - What's the Best Approach?

The perceived simplest and easiest method to print bar codes from SAP is to utilize SAP Script. This solution leads to two approaches: The first is to define a Bar code font in SAP Script and define the labels as needed in SAP Script. The primary obstacle to this approach is a specific printer driver is required for each printer. The creation and maintenance of these printer drivers is generally the responsibility of each SAP customer. A secondary issue concerns the "look" of the finished label. The labels may not be identical when printed on different model or manufacturer printers. The solution to this problem is unique SAP Script for each printer - label combination and the ABAP coding to send the correct printer - label data when a print request is made.

The second approach is to utilize bar code label design software that will generate unique SAP Script code for each printer - label combination. This approach eliminates the issues of printer drivers. A generic printer driver is used by SAP and the SAP Script contains the control data for each printer- label combination. The issue of the label "look" can be solved by adjusting the label design for each model or manufacture of the printers. The issue of ABAP coding to handle the unique SAP Script and printers to print request is the same as above.

Note! Both of these approaches may require significant coding and any changes in label design or printer configuration will require transports between development and production systems.

SAP - Software Print Server Solution

First the label design and printer control programs reside entirely within the Software platform. Changes to label design may not require any changes to the data required or generated by SAP. Additions or changes to the printer may not require changes to SAP. In the SAP Only Solution approach, any change to the label(s) requires transport of the changes between systems. The design of the integration between SAP and Software determines if the data needed to print a label is user maintained data or transported configuration data. A good design will allow any label or printer data to be maintained as user data and will eliminate the need for ABAP code or configuration change for most label or printer changes.

The APAP programming required to implement SAP - Software integration is approximately the same as programming to handle multiple label - printer combinations as the SAP Only Solution.

Application and Printer Transparency

The integration of SAP with Software's LPS Platform requires a good Software design process. The key points to this are using label field naming that is easily related to the SAP Data Dictionary. Using the SAP Data Dictionary field names as the Software label data field names is a logical solution. A second point is to organize the Software label designs such that the printer - label path is consistent. In the Software directory structure, a directory for each printer model could be established and the labels designed to print on that printer would be stored in the directory. Appendix "B" contains an example of the printer - label directory structure. The design process could be to design labels for the initial printer. When the design is completed, the label

could be merged and "re-formatted" for additional printers and printer types and stored in the correct directory.

Interface to the LPS Middleware Bridge

Passing label data from SAP to Loftware is most easily accomplished via the Loftware Pas file. See appendix "A" for example of Pas file. The SAP program will format the Pas file and either write the file to the Loftware drop directory or communicate with the Loftware TCPIP socket interface.

There are two methods of writing data to the Loftware drop directory. The first is to export the file data from SAP directly to the drop directory. The Pas file data can be accumulated in a SAP internal table and standard SAP functions can be utilized to write the file data in the drop directories.

The second is to export the file data to an SAP server using the same method as above and FTP the file (from within SAP) to the Loftware drop directory. The FTP can be handled automatically from within SAP using standard SAP functions. The second approach is needed if the printing performed by an SAP background process. Background printing normally does not have a user GUI available for the functions to write directly to the Loftware drop directory.

Closed Loop Loftware Printing

Printing label(s) by utilizing the drop directory does not provide status, feed back, or information, to SAP that the printing process has been accomplished. If confirmation of printing is required, the TCPIP socket interface is the only solution to use. To communicate with the Loftware TCPIP socket, the most direct approach is to create an SAP function to transfer the Pas file and related data to an external program. The external program then communicates between SAP and Loftware. Loftware provides the generic "C" code to communicate with the TCIP socket. SAP will generate generic "C" code for a program to which it can communicate. These two "C" programs must be combined to create the external program the SAP function can utilize to communicate with the Loftware TCP/IP socket.

The program flow would be to accumulate the Pas file data in an SAP internal table, call the SAP function and transfer the data to the external "C" program. The certain external "C" program will transfer the print request to Loftware and Loftware will return to the "C" program the print confirmation. The external "C" program will transmit the return confirmation back to SAP. The SAP function would provide the return data to the ABAP program. The ABAP program should be written in such a way as to take action based on the return data.

Designing a Maintenance Free SAP Printing Solution

The exact approach to each customer design is driven by each customer's business model and requirements. Some customers require only simple SAP ABAP screens to print bar code labels "on-demand". Other customers require Bar code labels to be printed as part of standard SAP transactions (example print bar code parts label for MRO materials as part of the Purchase Order receiving process). SAP does provide some "user exits" in many of the SAP business process transactions for customer enhancements. In all cases the data required to print bar code labels must be available within SAP at the point in time the request to print the labels is made. In many cases the data required is not available in the standard SAP transaction and regardless of the solution, change to SAP code is required. The SAP-Loftware Solution,, after the initial design is programmed and tested, most changes can be accomplished via maintenance of Loftware and the user data within SAP. Other solutions require transport of changes between systems.

Designing for Future Flexibility

Many bar code printing requirements start as simple processes and the result is to utilize an SAP Only solution. However, over time changes in label design or printer changes will result in the ABAP code supporting the printing process becoming more complex and difficult to manage. The SAP - Loftware solution places most of the design and printer maintenance in the Loftware programs. The ease of maintaining label design and printer changes from within Loftware makes the SAP - Loftware solution the better choice.

M. B. Duckworth
Business Resource Management Techniques, Inc

Appendix A - Sample Pas File Data-

Loftware help contains more detailed explanation and examples of PAS files.

```
*FORMAT,INTERMEC_MODEL_X/MRO_1.lwl
*PRINTERNumber,2
MARA.MATNR,P0026644
MAKT.MAKTX,MODULE,OPER INTERFACE,SSD LINK,L5390
MARD.LGPBE,E0802
*QUANTITY, 2
*PRINTLABEL
```

Details-

```
*FORMAT,INTERMEC_MODEL_X/MRO_1.lwl
```

```
-----/-----
```

label sub directory / label name

```
*PRINTERNUMBER,2
```

```
-----
```

Loftware assigned printer number - Note the Pini files can be used to determine the model of printer.

```
MARA.MATNR,P0026644
```

```
-----,-----
```

SAP field name, SAP value

```
MAKT.MAKTX,MODULE,OPER INTERFACE,SSD LINK,L5390
```

```
-----,-----
```

SAP field name, SAP value

```
MARD.LGPBE,E0802
```

```
-----,-----
```

SAP field name, SAP value

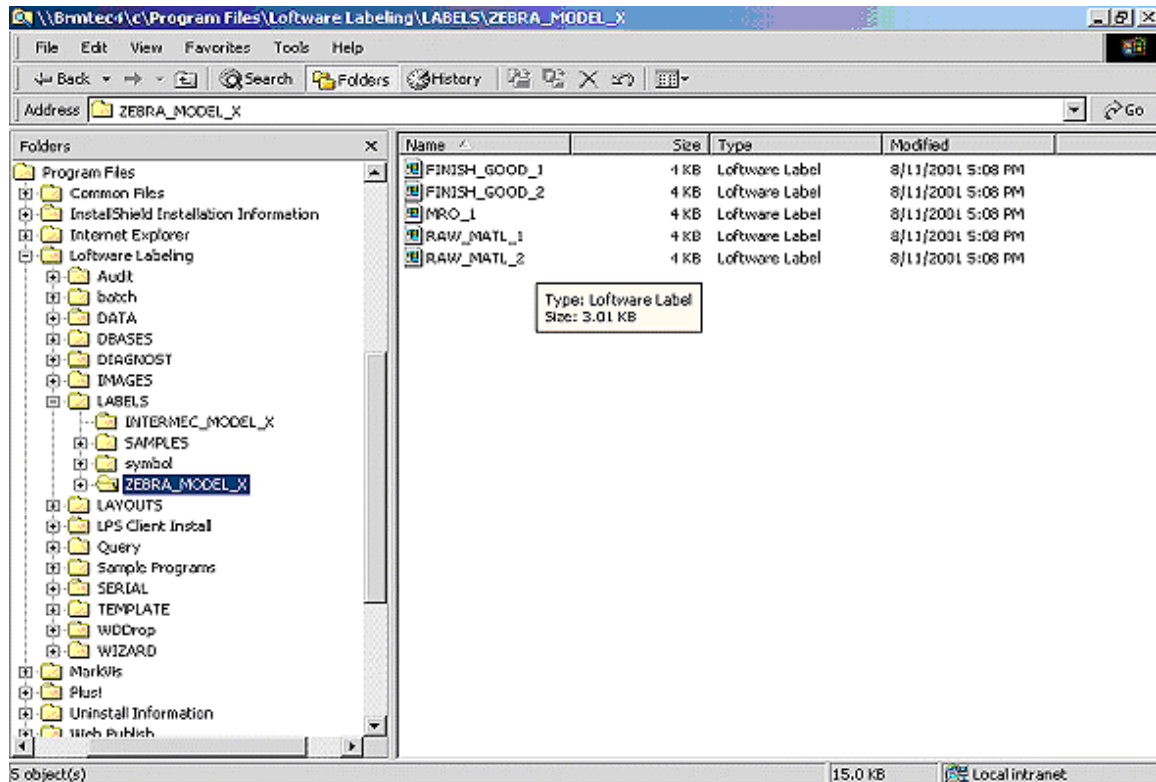
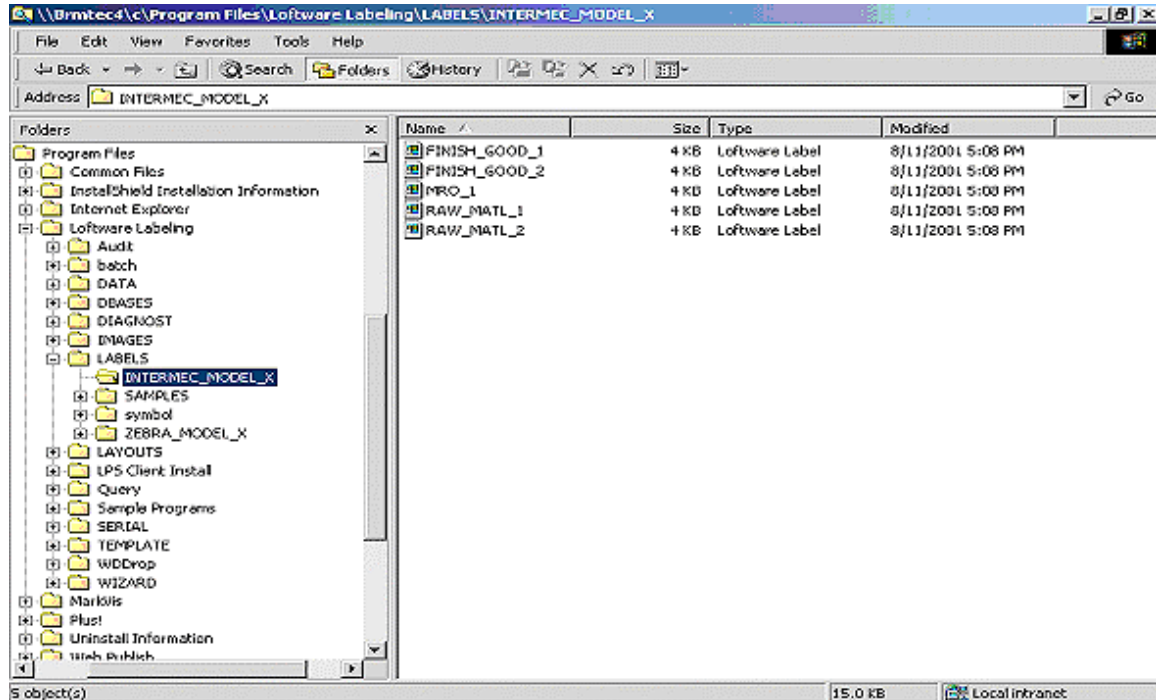
```
*QUANTITY, 2
```

```
-----,-----
```

SAP field name, SAP value

*PRINTLABEL

Appendix B - Sample Directory Structure-



Note that each directory (INTERMEC_MODEL_X and ZEBRA_MODEL X) contains the same label names. Each label file is generated by the Loftware Design program specifically for each model printer. To add a new Model Printer, create the directory , bring each label into the Loftware design program, change the printer for the label, and save in the new printer directory. If the SAP programming is properly designed, SAP will determine the correct printer subdirectory for each printer configured in Loftware.

For more information about creating scaleable label printing systems with the Loftware Print Server, see Loftware's White Paper: [“Organizing LPS Servers, Printers and Label Formats for Large Scale Labeling Systems”](#).

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