

the professional
labeling software

www.nicelabel.com
info@nicelabel.com



Designing and Exporting Labels to Your Existing IT Infrastructure

Direct Printing Integration White Paper

Version 20080602-02

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1 Executive Summary

The recent years have taught us to love our ERP, SAP, and other integrated business support systems. Still, as much as they would love to, they cannot support every single eventual business need. Label printing is one such functionality, and the integration of it can be as easy or difficult as we make it ourselves.

This paper focuses on the integration of standalone label printing through the lens of NiceLabel products, however our extensive research of customer needs and wishes does make the methodology very broadly applicable. This method of integration is best suited for:

- IT environments which already possess a printing infrastructure and processes, but lack a powerful compatible label design tool
- Environments where the raw speed of printing is the one most important feature of the infrastructure
- Environments that require a high level of compatibility, and require the capacity of label printing on machines without a label printing software installation

The advanced features that label printing is expected to facilitate can involve complex warehouse management and enterprise resource planning (ERP) systems and beyond, and as companies grow, many are looking to incorporate easy-to-use, maintenance friendly and cost effective label printing capabilities into their current IT environment. The IT environment constantly evolves to reflect the business needs and technological advances of the industry, and the labeling operation is expected to keep pace, but at the same time, remain fully compatible and seamlessly intuitive.

The standalone integration method of label printing includes label export functionalities and the Store and Recall option.

- This function stores all of the static components of a label into the printer's internal storage, and the printing can be issued at a later time by recalling the label and entering the field data.
- No further label input is needed, and the printer not only prints this label independently, it also prints faster, due to the smaller size of transmitted data.
- Easy access to the printing functionality from any computer which can send commands to the label printer

To learn more about various label printing integration methods with NiceLabel and the NiceLabel product range in general, see the **Appendix** of this white paper or visit the NiceLabel Web site at www.nicelabel.com

2 The Direct Printing Integration Method (Exporting Labels)

The direct printing method applies to software applications or devices that print labels but do not have a user-friendly label design tool. You are able to export labels designed with NiceLabel Pro to third party applications from which you want to print the labels. For example, if your SAP R/3 system does not have a user-friendly label design tool, you can design the label with NiceLabel Pro and export the label to your SAP R/3 system to print the label. Other export options are available for third party software applications, stand alone printer or Windows mobile devices. The exported label is processed in the third party application or uploaded directly to a printer for printing. NiceLabel Pro functions only as the label design tool and is not part of the label printing process.

The exported label file is a print command file, similar to a print file generated when you use the *Print to file* option in the *Print dialog box* of any Windows software. The exported label file contains hooks that are a sequence of specially formatted characters within the data stream, describing where the values for variable objects must be inserted in the label when you print the label. Hooks provide the information about the variable object that is encoded in the file and what data format is expected for that object. During the final label-processing phase the external application replaces all the hooks with actual data before the label is sent to the printer.

In addition to the open-ended flexible hooking system, NiceLabel Pro includes customized export options compatible with:

- Windows CE Mobile Device (Pocket PC)
- Stand-alone printing
- SAP R/3 (only with NiceLabel Suite edition)

2.1 Exporting Labels to a Mobile Device

Pocket NiceLabel is a print-only solution and enables mobile label printing from any supported Windows CE mobile device. The label is designed with NiceLabel Pro on a Windows desktop computer and exported to your mobile device using the command *Export to Pocket PC*. Some label design restrictions apply to label printing from your mobile device; for example, you can only use native (printer resident) fonts for variable objects on the label unless if you upload true type fonts to your printer using NiceMemMaster. Some restrictions also apply to the use of Pocket NiceLabel, as it does not support all advanced functions of the NiceLabel software.

The figures below show an exported label to a Windows CE mobile device and the corresponding .PNL file with printer commands.



Figure 1: Exported Label to a mobile device

```

^XA~TA000~JSA^LT0^MMT^MNV^MTT^PON^PMN^LH0
,0^JMA^PR6,6^MD0^JUS^LRN^CIO^XZ
^~#003999^XA^LL0254
^PW244
^FT122,77^A0N,23,24^FH\^FD^~#009013ESC001
^FS
^BY1,3,64^FT21,199^BCN,,Y,N
^FD^~#024016BAR0110000000000C12003^FS
^FT122,114^A0N,23,24^FH\^FD^~#009014ESC00
1^FS
^FT41,35^A0N,28,28^FH\^FDNiceCompany^FS
^FT21,78^A0N,20,19^FH\^FDProduct ID:^FS
^FO12,46^GB218,0,1^FS
^FT21,117^A0N,20,19^FH\^FDVersion:^FS
^FT36,238^A0N,14,14^FH\^FDPrinted by
NiceLabel Software^FS
    
```

Figure 2: .PNL label file with printer commands

For more information, see the white paper *Mobile Label Printing with Pocket NiceLabel* and the *Pocket NiceLabel Quick Start Guide* available for download from the NiceLabel Web site at www.nicelabel.com.

2.2 Exporting Labels to Stand-alone Printers and Smart Keyboards

NiceLabel can also be used as a label design tool for many stand-alone printing solutions that do not require an active PC computer present at print time. You design the label with NiceLabel Pro on a Windows desktop computer and export the label to your stand-alone printer (using the command *Export to Printer*) or smart keyboard (using the application Smart Keyboard Downloader). The complete label printing process runs on the printer autonomously without the NiceLabel software being present at print time.

Some label design restrictions apply to label printing from a stand-alone printer; for example, you can only use native (printer resident) fonts for variable objects on the label and not all the advanced functions of the NiceLabel software are supported.

If your printer does not include stand-alone printing capabilities, you can still enjoy the benefits of offline printing by adding a special smart keyboard between your computer and the printer. The keyboard imitates the stand-alone printing capabilities. The labels are stored into the internal RAM of the Smart Keyboard and then sent to the printer when necessary. NiceLabel offers the support for Smart Keyboard with the application Smart Keyboard Downloader, which is available in NiceLabel's unparalleled Pro and Suite editions.

For more information, see the white paper *Using Smart Keyboard Downloader* available for download from the NiceLabel Web site at www.nicelabel.com.

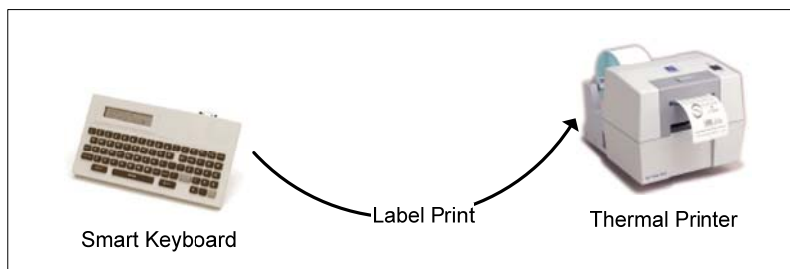


Figure 3: Label printed from Smart Keyboard

2.3 Exporting Labels to SAP R/3

NiceLabel Pro supports label template design with SAP Script for SAP R/3. You can select which SAP variables will be used for certain variable fields on the label. You design the label with NiceLabel Pro on a Windows desktop computer, save the file in the .ITF format and export the label to your SAP R/3 system using the command *Export to SAP*. The SAP system retrieves the variable label data and inserts it into the label, then prints the label directly to a thermal printer. You need the NiceLabel Suite edition in order to use the option *Export to SAP* in NiceLabel Pro.

Instead of exporting a label as an .ITF file you can use the NiceWatch integration middleware. If you export a SAP data file to a .TXT file, NiceWatch will recognize the exported .TXT file from the SAP system as a trigger for predefined actions. NiceWatch itself does not recognize an .ITF file. The NiceWatch integration middleware enables NiceLabel to process the label using all available functions and options, such as VB script and other advanced data processing that are not available with .ITF files. The SAP R/3 software prints the label on the thermal printer with either option.

```
= &ERNAM( 20 )&^FS
/ ^FT52,164
/ ^AAN,27,15
/ ^FH\
/ ^FD
= &KUNNR( 20 )&^FS
/ ^FT294,224
/ ^AAN,27,15
/ ^FH\
/ ^FD
= &POSNR( 10 )&^FS
/ ^FT294,336
/ ^AAN,27,15
/ ^FH\
/ ^FD
= &KONP( 10 )&^FS
/ ^FT152,69
/ ^AAN,63,35
/ ^FH\
/ ^FD
```

Figure 4: SAP .ITF file with inserted variables

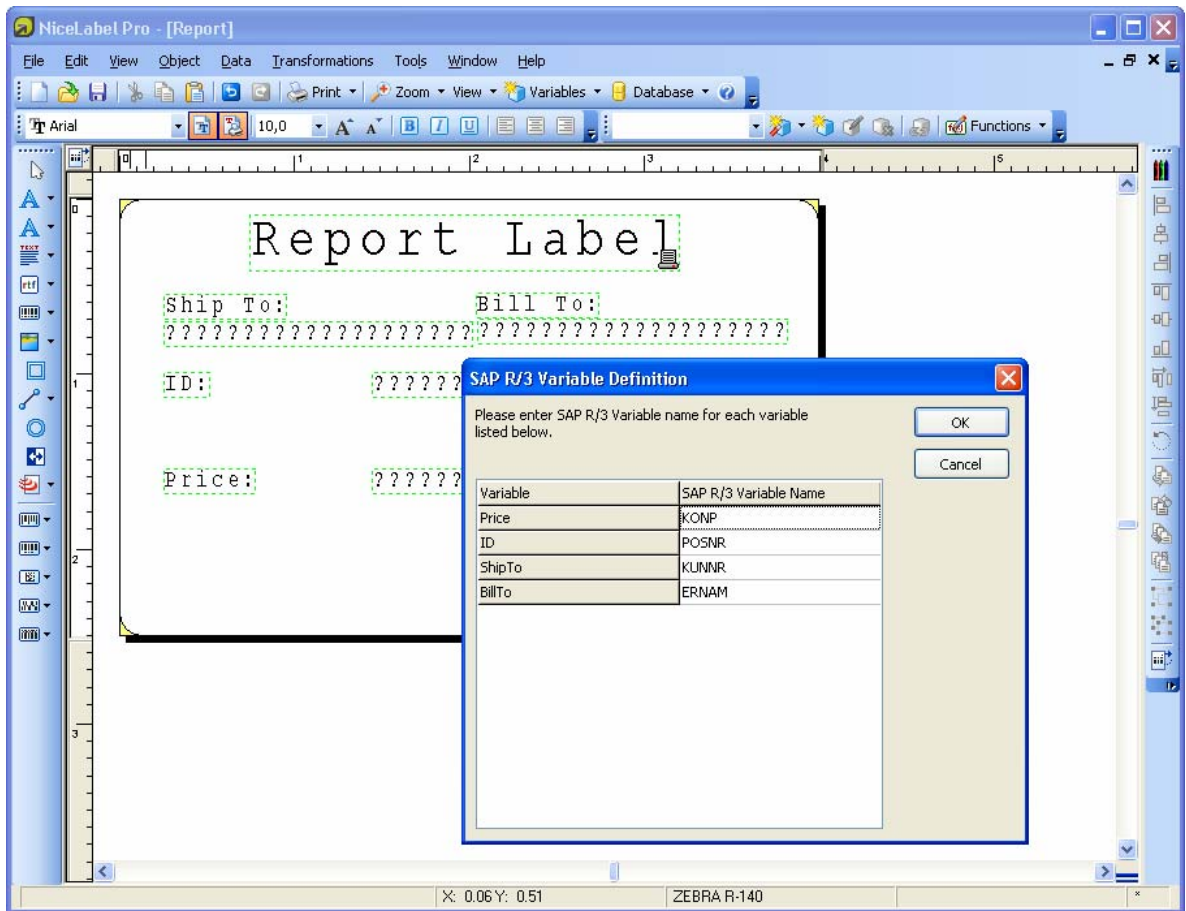


Figure 5: Mapping SAP variables

For further information, see the white paper *Printing Labels to Thermal Printers from SAP R/3* available for download from the NiceLabel Web site at www.nicelabel.com.

2.4 Fully Customized Label Export with Hooks

Many organizations use custom systems for their data collection, processing, and printing operations. These systems can range from commercial solutions customized in various degrees, in-house developed software, or heavily customized IT solutions available locally.

NiceLabel supports a fully customized export of labels, which can adapt to provide compatibility with most if not all of these systems. The exported data uses “hooks” to delimit text and mark the positions, where the current printing and/or data collection system should enter label information.

If you choose this option, NiceLabel asks you to provide all of the information for the exported label printing file. This includes the file name and extension, hooks for the beginning and end of file, as well as the beginning and end of the page. Furthermore, the user can provide hooks for variables which delimit variable values.

In this way, NiceLabel allows you to create a label printing file, which is completely adapted to the files that your current applications/system use and expect. This is how universal integration is guaranteed, as the print files can be adjusted to a form that matches virtually any printing infrastructure.

```

^XA~TA000~JSN^LT0^MNW^MTT^PON^PMN^LH0,0^JMA^PR6,6^MD0^JUS^LRN^CI0^XZ
^XA
^MMC
^LL0406
^PW609
^LS0
^FT176,281^AAN,36,20^FH\^FD~Weight,10~^FS
^FT176,231^AAN,36,20^FH\^FD~Article,15~^FS
^FT176,183^AAN,36,20^FH\^FD~Code,10~^FS
^BY2,2,82^FT216,385^BEN,,Y,N
^FD~Ean,12~^FS
^FT24,281^AAN,36,20^FH\^FDWeight:^FS
^FT166,82^AAN,90,50^FH\^FDLabel 1^FS
^FT24,231^AAN,36,20^FH\^FDArticle:^FS
^FT24,183^AAN,36,20^FH\^FDCode:^FS
^PQ~LBL_QTY,4~, , , Y^XZ

```

Figure 6: Variable hooks in the print file

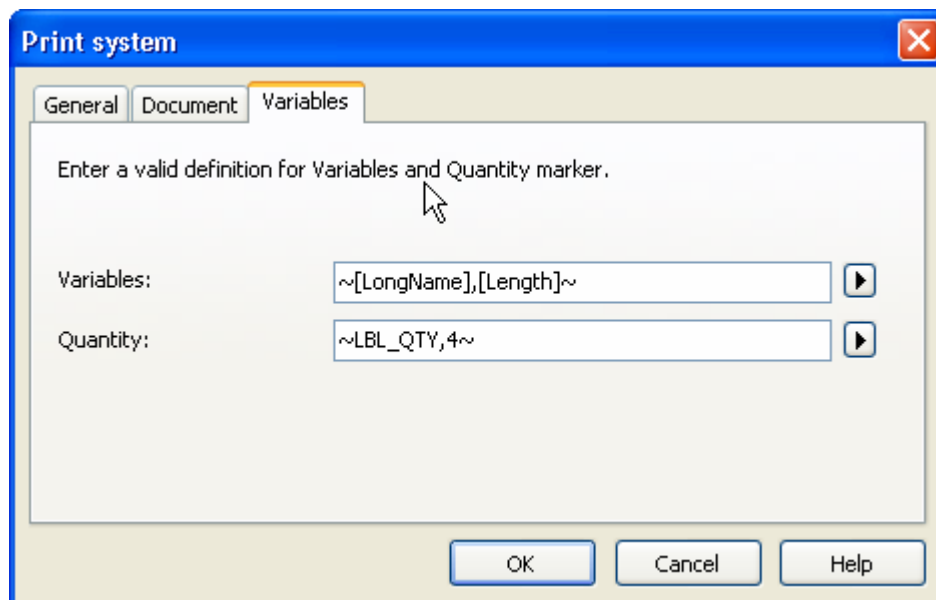


Figure 7: Variable hook settings

2.5 Export to image

Albeit lacking in function and flexibility, the final label export type is also the most universal. The label is exported directly to an image file, which can be printed as such.

There are no options of data connectivity, and no internal printer elements, obviously, but NiceLabel does prompt the user to enter the label variable values during the export process. The label is then exported with the listed value as an image, offering the user the choice between a broad range of supported image formats. This image can then be printed to practically any printer in any printing infrastructure or transferred in its electronic form.

The primary purpose of this export type lies in the need to present a label design to a party that does not have NiceLabel software installed, or for that matter, any labeling software. The label image can be viewed on most if not all computers, and transported easily due to its manageable size.

3 Conclusion

The NiceLabel software family offers integration solutions for bar code and RFID smart label printing in any type of desktop, mobile and network environment. Its methods of integration provide flexibility that is unmatched in the automatic identification and data collection industry.

The standalone method is aimed at customers with very specific needs regarding printing speed and application on systems that do not include an installation of labeling software. This method does include some inherent limitations to the system and label design, and should be weighed against the other two integration methods when deciding on which method to use.

The raw printing speed of this method is unmatched anywhere in the market, as the transferred data can be minimized, and the broad application of the method is guaranteed by the fact that all the label-specific data is preloaded or stored. If these are the key priorities of your IT infrastructure and business, no other solution can come close to the performance of standalone labeling system integration.

If you want to learn more about the different label printing integration methods with NiceLabel and the NiceLabel product range in general, see the literature referenced in the **Appendix** chapter of this white paper, visit the NiceLabel Web site at **www.nicelabel.com** or contact one of our offices below.

Appendix

Additional resources

To learn more about NiceLabel and how to integrate bar code and RFID label design and printing into your IT system and Windows application, see the following list of NiceLabel literature and documentation. You will find the documents on your NiceLabel CD ROM or at <http://www.nicelabel.com/Learning-center>.

Label Integration White Papers	<ul style="list-style-type: none"> ▪ White Paper: The Concerns and Benefits of Label Printing Integration ▪ White Paper: Middleware Integration of Label Printing Into Existing IT Systems ▪ White Paper: Programming Your System to Include a Labeling Solution
Exporting Labels:	<ul style="list-style-type: none"> ▪ White Paper: Printing labels to thermal printers from SAP R/3 ▪ White Paper: Using Smart Keyboard Downloader
General NiceLabel resources	<ul style="list-style-type: none"> ▪ NiceLabel Web site Learning Center ▪ NiceLabel Tutorials ▪ NiceLabel Technical FAQ ▪ NiceLabel Technical Support site ▪ NiceLabel forums
Pocket NiceLabel Mobile Devices:	<ul style="list-style-type: none"> ▪ White Paper: Mobile Wireless Printing using Pocket NiceLabel ▪ Pocket NiceLabel Quick Start Guide
NiceLabel Pro:	<ul style="list-style-type: none"> ▪ NiceLabel Quick Start Guide ▪ NiceLabel Pro User Guide ▪ White Paper: Multi-lingual label printing with Unicode ▪ White Paper: NiceLabel RFID Technology ▪ NiceLabel Offline Help

Glossary

.ITF file	.ITF files contain a description of the label written in SAPscript.
.LVX File	When you export a label created with NiceLabel Pro to a mobile device, NiceLabel will generate two (2) files: a .PNL and a .LVX file. The .LVX file includes information about all the variables on the label. The .PNL file is the print file that includes the commands to control the printer and to handle the variables.
.PNL File	See .LVX File.

Technical Contacts

Head Office

Euro Plus d.o.o.

Ulica Lojzeta Hrovata 4c
SI-4000 Kranj, Slovenia
+386 4 280 50 00 Tel
+386 4 233 11 48 Fax

www.europlus.si
info@europlus.si

French Office

Cobarsoft SARL
Le rempart
32320 Montesquiou
France
+33 (0) 562 709 201 Tel
+33 (0) 562 708 004 Fax

support@nicelabel.fr
www.nicelabel.fr

North American Office

Niceware International, LLC

10437 Innovation Drive, Suite 147
Milwaukee, WI 53226
+1 414 476 6423 Tel
+1 414 476 7955 Fax

www.nicewareintl.com
sales@nicewareintl.com
support@nicewareintl.com