



NiceLabel .NET SDK Installation and Deployment Guide

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Table of Contents

1. Introduction	1
2. What is NiceLabel .NET SDK?	2
2.1 Introduction to NiceLabel .NET SDK.....	2
2.2 NiceLabel .NET SDK Components	2
3. Installing NiceLabel .NET SDK	4
3.1 System and Software Requirements.....	4
3.2 Installation in the Development Environment	4
4. Using NiceLabel .NET SDK.....	5
4.1 Referencing NiceLabel .NET SDK.....	5
4.2 Licensing.....	5
4.3 Label Design	6
4.4 Typical Workflow Tasks.....	6
4.4.1 Print Engine Management.....	6
4.4.2 Label Template Management.....	6
4.4.3 Data Management	6
4.4.4 Printer Management	7
4.4.5 Graphical Preview and Digital Archiving.....	7
4.4.6 Label Printing.....	7
4.4.7 Print Job Monitoring	8
4.4.8 Exception Handling.....	8
4.4.9 Logging with Control Center	8
5. Deploying and Licensing	9
5.1 Unlimited Licensing.....	9
5.2 Client licensing.....	9
5.3 Control Center Licensing	9
6. Control Center Integration	11
6.1 Label Management	11
6.2 Licensing.....	11
6.3 Logging.....	11
7. Technical Support.....	12
7.1 Online Resources	12
7.2 NiceLabel Representatives	12

1. Introduction

Intended Audience

This guide is intended for experienced software developers and product managers who are building applications that require advanced printing functionality. This guide discusses Microsoft .NET Framework technologies and object-oriented design concepts. It is intended to familiarize the user with what is required to install, integrate, and deploy the NiceLabel .NET SDK. You will need to have experience with the C# programming language and Microsoft's Visual Studio to understand and use the sample applications.

About this Installation and Deployment Guide

The NiceLabel .NET SDK Installation and Deployment Guide shows users how to:

- Install the NiceLabel .NET SDK resources in a development environment.
- Work with the NiceLabel Print Engine interface.
- Deploy and license applications with the NiceLabel Print Engine embedded.

Typographical Conventions

Class names are displayed as `Console.Font.Red`.

Filenames and properties are written as `filename.ext`.

Points of special consideration appear with green backgrounds.

2. What is NiceLabel .NET SDK?

This Guide is organized into the following sections:

- [What is NiceLabel .NET SDK?](#) - Presents an overview of the NiceLabel .NET SDK.
- [Installing NiceLabel .NET SDK](#) - Goes over the installation process to ensure all resources are available for integration.
- [Using NiceLabel .NET SDK](#) - Best practices and suggestions for working with the NiceLabel Print Engine.
- [Deploying and Licensing](#) - Considerations for deploying and licensing NiceLabel .NET SDK.
- [Control Center Integration](#) - How to integration with Control Center and benefit from license, template, and print logging management.
- [Technical Support](#) – Where to go for additional assistance.

2.1 Introduction to NiceLabel .NET SDK

The NiceLabel .NET SDK (Software Development Kit for .NET) is a set of .NET Framework based tools that enable software developers to interact with a variety of NiceLabel printing technologies.

The NiceLabel Print Engine is a rendering engine that is packaged as part of this software development kit (SDK). It can be the basis for a variety of products for previewing and printing NiceLabel label templates at different stages of the professional print workflow. The NiceLabel Print Engine is designed to keep pace with high-speed, high-volume printing devices.

NiceLabel .NET SDK is built on the Microsoft .NET Framework and is the preferred choice for developers of .NET applications. The NiceLabel .NET SDK components act as a label print engine and enable software publishers to embed label-printing functionality in their own applications. The NiceLabel Print Engine becomes a seamlessly integrated component of the software publisher's application.

The NiceLabel Print Engine was designed from the ground up with modern multi-core processors in mind. It comes with multi-threading support out of the box to easily deliver the best possible performance on any hardware. NiceLabel .NET SDK is essentially a framework for maximizing processing efficiency by taking full advantage of available hardware resources.

2.2 NiceLabel .NET SDK Components

The NiceLabel .NET SDK developer license includes:

- **One NiceLabel Designer Pro License.** NiceLabel Designer Pro is a graphical label designer that is used to create the label template (.LBL) files.
- **One NiceLabel .NET SDK Developer License.** This license grants you access to the NiceLabel .NET SDK technology for the development purposes.

- **Three NiceLabel .NET SDK Client Licenses.** These licenses are provided for internal testing and promotional purposes. They are not for use in production environments.
- **NiceLabel .NET SDK Libraries.** A set of managed .NET assemblies that your application will reference. These assemblies include the NiceLabel Print Engine that will be used to interface with label templates and manage print jobs.
- **NiceLabel .NET SDK Installation and Deployment Guide.** This document.
- **NiceLabel .NET SDK Programming Reference.** Contains information about the entire `NiceLabel.SDK` namespace.
- **Example Application**

SDK.DemoApp is a full-featured C# WPF application that demonstrates one way of integrating the NiceLabel .NET SDK. This application relies heavily on modern practices like data binding and the Model-View-ViewModel (MVVM) pattern.
- **Sample Applications**

The NiceLabel .NET SDK contains a variety of Visual Studio projects. Each project demonstrates how to utilize a specific feature of the NiceLabel .NET SDK. These samples are a great way to learn how to use the various features available in the NiceLabel .NET SDK. Please refer to the `ReadMe.txt` file included with each project as well as the inline code comments for specific details.
- **One Year Support Maintenance Agreement (SMA).** Gain full access to our Technical Support resources as well as upgrades to future versions of the NiceLabel .NET SDK. This SMA can be renewed on a yearly basis.
- **NiceLabel Printer Drivers.** NiceLabel has developed printer drivers for more than 3000 different printer models. We recommend using our native printer drivers so you can benefit from the optimized print streams. For a complete list and to download drivers, please visit <http://www.nicelabel.com/downloads/printer-drivers>.

3. Installing NiceLabel .NET SDK

To use the NiceLabel .NET SDK, you need a development environment that can target the Microsoft .NET Framework 4.0, such as Microsoft's Visual Studio 2010 or newer.

3.1 System and Software Requirements

In order for a successful NiceLabel .NET SDK implementation, your infrastructure needs to fulfill the system requirements. To install and run this product, you need at least the minimum supported configuration.

To be able to use NiceLabel .NET SDK, you need the following:

- Operating system: Any of the 32-bit or 64-bit Windows operating systems with support for Microsoft .NET Framework 4.0
- Microsoft .NET Framework Version 4.0
- Development environment capable of .NET integration
- Recommended printer drivers: NiceLabel printer drivers V5.1 or higher

3.2 Installation in the Development Environment

The NiceLabel .NET SDK installation package installs the following:

- **SDKFiles** folder: This folder contains all resource files that need to be included with your application.
- Subfolders with DEMO/Sample applications. These folders include C# sample applications (in source code). They reference the files from **SDKFiles** folder. Project files can be opened, compiled and executed. Each folder includes also a short description about the project.
- **SDK Reference.chm**. The .NET SDK help file.

When you download NiceLabel .NET SDK ZIP file from the web, make sure to first unblock it. If you do not unblock it, Windows will treat the content of ZIP file as untrusted and you might see the load errors such as "Cannot load assembly. Error details: System.IO.FileLoadException", when you load .NET SDK files in your applications. Right click the ZIP file and click Unblock button. For more information, see Knowledge Base article [KB271](#).

4. Using NiceLabel .NET SDK

4.1 Referencing NiceLabel .NET SDK

To include the NiceLabel Print Engine in an application, you will need to create a reference to the `SDK.NET.dll` assembly. This file can be found in the `SDKFiles` folder. The `SDK.NET.dll` depends on the remainder of the files in that folder. You will need to ensure that those files are properly deployed with your application. There are a couple of ways to accomplish this:

- 1) Assembly Resolve Method:
 - a. **SDK.NET assemblies will live in a separate folder besides your application.**
 - b. For this method, when adding a reference to `SDK.NET.dll`, change the “Copy Local” setting to false. For your application to resolve the reference at runtime, you must handle the `AssemblyResolve` event in your application. You can refer to the sample projects on how to implement this:
 - c. See the `CurrentDomain_AssemblyResolve` method in `Program.cs` in the `SDK.SimplePrintSample` sample.

This method is preferred because it allows you to use any assembly naming without the danger to conflict with SDK.NET assembly names (for example `utils.dll`).

- 2) Manual Deploy Method:
 - a. Manually copy all files from the `SDKFiles` folder to your application’s executable folder.
 - b. Add a reference to the `SDK.NET.dll` in your project.

For the list of available methods and properties of .NET interface in NiceLabel .NET SDK, please refer to the Programming Reference.

4.2 Licensing

Before you can use NiceLabel .NET SDK components in the development environment, a valid developer license must be available on the system. The license details are stored in the `certificate.ini` file.

Upon initialization, the NiceLabel Print Engine verifies the licensing information. If licensing information is not found, the Print Engine will throw an exception with a message stating so. The Print Engine will not function without a valid license.

To activate the NiceLabel .NET SDK make sure the copy of the `certificate.ini` file is included in the folder with NiceLabel .NET SDK files on each client. In production environments, the installer of your application should deploy a client license.

The client licenses for the production environment (end users) are sold separately.

4.3 Label Design

NiceLabel .NET SDK components have no label design capabilities and no user interface. It is strictly a print engine for embedding into other applications.

Label templates, which the NiceLabel Print Engine will use for printing, must be created in the label design product NiceLabel Designer Pro. This is the label design tool that you use to define the graphical layout of the label templates, define object properties, and variable fields.

You will use NiceLabel Designer Pro to create your label templates and you will use NiceLabel .NET SDK to merge user data and managing printing of the labels.

For more information about NiceLabel Designer Pro, see NiceLabel Web site at www.nicelabel.com.

4.4 Typical Workflow Tasks

Included in the NiceLabel .NET SDK package is a collection of sample applications that demonstrate how you can interface with the NiceLabel Print Engine in your application. From these samples you can learn how to use the NiceLabel technology efficiently for your projects.

The sample applications have been written in C# with Visual Studio 2013. Each sample focuses on a typical task and is accompanied with a **ReadMe.txt** file and code comments which provide important notes for integrating with the NiceLabel .NET SDK components.

The following is an overview of typical workflows tasks:

4.4.1 Print Engine Management

All NiceLabel .NET SDK features are exposed through the **NiceLabel.SDK.PrintEngine** interface. Typically your application should call the **Initialize()** method before accessing any of the features for the first time and then the **ShutDown()** method after usage is completed.

4.4.2 Label Template Management

At the heart of all printing workflows will be access to label template files. The **OpenLabel()** method allows your application to manage which template(s) your users will have access to. Templates can be opened from files on your client's file system or from **System.IO.Stream** objects for users that want to deploy them embedded in their application or maintained in a database. Additionally, users of Control Center can utilize Document Storage Server for template management.

4.4.3 Data Management

Label that have been designed with Variables allow managing the values to be printed.

4.4.4 Printer Management

The NiceLabel Print Engine provides a list of locally available printer drivers to your application and is provided as a convenience to reduce coding on your side.

Printer selection follows this hierarchy:

- 1) The `PrinterName` property is set to a valid printer name.
- 2) The printer name stored on the template is found.
- 3) The system's default printer.

4.4.5 Graphical Preview and Digital Archiving

Label previews are a vital part of any print workflow system. Print production personnel as well as consumers rely on online- and hardcopy previews as assurances of final job quality.

NiceLabel .NET SDK-based applications will use the same print engine for both previews and final output, thus ensuring that what you see is indeed what you get.

With the `GetLabelPreview()` method, your application can retrieve a graphical preview of the next label that will print. This method is very convenient for displaying a true preview to the user so they can see what should be physically printed.

The `PrintToGraphics()` method will generate a series of images of all the labels that would be printed. This can be useful for achieving purposes or working with proof-of-concepts.

4.4.6 Label Printing

With NiceLabel technology you are able to print to any printer with a Windows driver. In addition, NiceLabel will output native printer commands for more than 3000 label printers allowing you to utilize printer native features, such as barcodes, font and counters, thus improving printing performance.

The NiceLabel .NET SDK offers three different printing modes:

- **Synchronous Printing** – The synchronous mode maintains a connection to the print process. In this mode the application sends data to the print process and keeps the connection to it established as long as the print process is busy. Calling the `Print()` method returns feedback about the print job.
- **Asynchronous Printing** – The asynchronous mode processes the print job in its own thread. This boosts performance and increases the number of print jobs that can be processed in a time frame. When using the `PrintAsync()` method, the caller is notified via event handlers when print process status changes.
- **Session Printing** – NiceLabel's unique concept of session printing assures that every print job will be printed exactly as you intended. If you need to make sure that your print jobs are not interrupted when using shared printers or you need to print different labels on a single page, NiceLabel makes it easy with session print.

All labels within one session print are sent to the printer as a single job, ensuring the correct printing order.

There are 3 stages to session printing; `StartSessionPrint()` initializes a new printing session, `SessionPrint()` adds a print request to the current session and can be called multiple times, and `EndSessionPrint()` finalizes the current session.

4.4.7 Print Job Monitoring

Regardless of the label printing mode you chose, NiceLabel .NET SDK lets you monitor the printing process through simple, event-based print job status updates. This detailed access to your printing process allows you to control and respond correctly to any situation.

4.4.8 Exception Handling

All exceptions from the NiceLabel Print Engine will be of type `SDKException`. This class contains detailed information about errors that might be encountered.

4.4.9 Logging with Control Center

Users who integrate with Control Center can benefit from NiceLabel .NET SDK's ability to log print events from each client into the Control Center's consolidated history database. The collected information can be drilled-in and examined from Control Center's centralized web interface.

5. Deploying and Licensing

Since the NiceLabel .NET SDK will be fully embedded in your application, there are no special considerations for installing in a production environment other than it must include all of NiceLabel .NET SDK components so they are available with your executable(s).

Client licensing considerations must be included in the distribution. NiceLabel offers several different client licensing models to meet a wide variety of needs.

5.1 Unlimited Licensing

When you choose this licensing model, you will receive the `certificate.ini` file that licenses the NiceLabel .NET SDK components immediately. Make sure this file is installed with each deployment of NiceLabel print engine.

When NiceLabel print engine finds this file upon its initialization, it will validate the contents. If no error has been detected, it will run. No internet or network connection is needed.

5.2 Client licensing

You must have an internet connection available when the NiceLabel .NET SDK is initialized for the first time. This happens when your application interacts with the NiceLabel .NET SDK.

When you choose this licensing model, you will receive a `certificate.ini` file that instructs NiceLabel .NET SDK components to lookup the license in the cloud-based NiceLabel licensing service. Make sure this file is installed with each deployment of NiceLabel print engine.

The license is taken from the cloud licensing service and cached locally on each client, so there are no delays upon further initializations. The licensing is executed automatically and no individual license key numbers need to be distributed to the clients.

Each license is bound to the MAC address of the main network interface card in the computer, where .NET SDK is installed. If you have replaced the network card, you will have to re-activate .NET SDK and spend a new license.

5.3 Control Center Licensing

When the customer already owns the NiceLabel Control Center product, the NiceLabel .NET SDK can obtain the license from it.

The Control Center holds Client Access Licenses (CAL) for the NiceLabel design applications. The same licenses can be used by NiceLabel .NET SDK. When the NiceLabel .NET SDK-embedding application initializes the NiceLabel Print Engine, a CAL will be taken from Control Center, reducing the number of licenses by one. When the application shuts down the NiceLabel Print Engine, the license is returned to the Control Center.

This type of licensing does not involve the `certificate.ini` file. Instead you have to programmable get a license from the Control Center.

To license NiceLabel print engine with a CAL from Control Center, you have to initialize the `ControlCenterUrl` property. See the included Programming Reference for further details.

No internet connection is necessary, but each client must be able to access Control Center.

6. Control Center Integration

Control Center is the web-based, enterprise-level, management application for supervising the entire labeling infrastructure, from label design, label printing, and printer infrastructure all the way to licensing.

6.1 Label Management

The NiceLabel Control Center products include a file repository that is accessible through Web Distributed Authoring and Versioning (WebDAV) protocol. The files inside this repository can be subject to lifecycle management controls, such as version control and a multi-step approval process.

All your label-related files can be stored within an online centralized Document Storage, governed by lifecycle management and user access control. NiceLabel .NET SDK will be able to gain access into the Document Storage and retrieve the requested file.

6.2 Licensing

When the customer already owns the NiceLabel Control Center product, the NiceLabel .NET SDK can obtain the license from it.

6.3 Logging

NiceLabel .NET SDK can log print events from each client into the Control Center's consolidated history database.

7. Technical Support

NiceLabel is renowned for its dedication to customer satisfaction. We have continued this tradition by making our site on the World Wide Web a valuable resource for answers to many technical support issues. We encourage you to make this your first stop for getting the latest information quickly and efficiently.

7.1 Online Resources

- Knowledge Base: <http://kb.nicelabel.com>
- NiceLabel User Guides: <http://www.nicelabel.com/Learning-center/User-Guides>
- NiceLabel Tutorials: <http://www.nicelabel.com/Learning-center/Tutorials>
- NiceLabel Forums: <http://forums.nicelabel.com/>

If you cannot solve the problem on your own, please contact your local vendor, representative offices, or NiceLabel technical support.

If you have an active support maintenance agreement (SMA), please follow the steps in the agreement.

7.2 NiceLabel Representatives

For a current list of local NiceLabel Representatives, please visit <http://www.nicelabel.com/contact>.