

# NiceLabel .NET SDK Installation and Deployment Guide

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# 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`.

**NOTE** Points of special consideration appear with green backgrounds.

## Sections

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.

# What is NiceLabel .NET SDK

## 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.

**NOTE** NiceLabel .NET SDK is available as a standalone package or a part of NiceLabel product.

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.

## NiceLabel .NET SDK Components

For NiceLabel .NET SDK as a part of the NiceLabel product:

**NOTE** In this case, the .NET SDK Libraries are installed with the NiceLabel product that you install on each printing client.

The NiceLabel .NET SDK developer license includes:

- **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.
- **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>.

For NiceLabel .NET SDK as a standalone product:

**NOTE** In this case, you have to install the .NET SDK Libraries on each printing client.

Additionally to the above list, 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.
- **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.

# Installing and Deploying

To use the NiceLabel .NET SDK, you need a development environment that can target the Microsoft .NET Framework 4.5, such as Microsoft's Visual Studio 2012 or newer.

## 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 4.5
- Microsoft .NET Framework Version 4.5
- Development environment capable of .NET integration
- Recommended printer drivers: NiceLabel printer drivers V5.1 or higher

## Installation in the Development Environment

NiceLabel .NET SDK can be installed in the following ways. In both methods, the NiceLabel .NET SDK provides the same functionality and performance, the difference lies in the activation method and the ability to connect to the NiceLabel Control Center.

Client licensing considerations must be included in the distribution. NiceLabel offers several different client licensing models to meet a wide variety of needs. See the chapter "Licensing" on page 11.

### Standalone Installation

In this case, you have purchased NiceLabel .NET SDK as a stand-alone product.

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 using this installation method you can connect to NiceLabel Control Center. For more information, see a topic "Control Center Integration" on page 12.

**NOTE** 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**.

### Installation as Part of NiceLabel Product

In this case, you have purchased NiceLabel software and decided to use the .NET SDK components provided with it.

NiceLabel .NET SDK is also part of the NiceLabel product. When used as such, there is no need for any special installation. Third party applications can directly use the .NET SDK libraries deployed on the workstation with the installation of the NiceLabel product.

# Deployment

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).

You can install the NiceLabel .NET SDK to production environment from standalone installation or as part of NiceLabel product.

# Using NiceLabel .NET SDK

## Referencing NiceLabel .NET SDK

To include the NiceLabel Print Engine in an application, you will need to create a reference to the `SDK.NET.Interface.dll` assembly. Dependent on the deployment type, this file can be found in the following folders:

- **For standalone deployment.** The `SDKFiles` folder.
- **When installed as part of NiceLabel product.** Location of NiceLabel product executable files.

A default installation folder is:

```
c:\Program Files\NiceLabel\NiceLabel 2017\bin.net
```

It is recommended to keep the files of SDK .NET in a separate folder to your application's executable. When the reference to `SDK.NET.Interface.dll` file is made, this file may be copied to your application's bin folder.

## 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 <http://www.nicelabel.com>.

## 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:

### Print Engine Management

All NiceLabel .NET SDK features are exposed through the `NiceLabel.SDK.IPrintEngine` interface.

When application references the `SDK.NET.Interface.dll` assembly, it can access `PrintEngineFactory` static class. Before using any other properties, the application needs to set the `SDKFilesPath` property. This is necessary for the library to access the SDK.NET files, which can exist on different locations.

Once the location is known, application can retrieve the `IPrintEngine` interface by accessing the `PrintEngineFactory.PrintEngine` property.

After retrieving the `PrintEngine`, a call to `Initialize()` method of the returned `IPrintEngine` instance needs to be done.

```
IPrintEngine printEngine = PrintEngineFactory.PrintEngine;  
printEngine.Initialize();
```



Before terminating the application, `Shutdown()` method of the `IPrintEngine` instance should be called to release all resources used by the library.

## 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.

## Data Management

Labels that have been designed with variables allow managing the values to be printed.

## 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.

## 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.

## 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 4000 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.

## 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.

## 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.

## 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.

# Licensing

Before you can use NiceLabel .NET SDK components in the development environment, a valid license must be available on the system.

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.

## NiceLabel .NET SDK as Standalone Product

**NOTE** 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.

### 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.

### Client licensing

**NOTE** 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 look up 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.

## NiceLabel .NET SDK as Part of NiceLabel Product

When NiceLabel .NET SDK is used as part of NiceLabel product, the license of the product is used.

**NOTE** In this scenario, there no `certificate.ini` file.

# 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.

**NOTE** Integration with Control Center can be used when SDK .NET is used as a part of NiceLabel product that is licensed with a LMS license. NiceLabel LMS products include Control Center as one of the components.

## 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.

## Licensing

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

## Logging

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

# 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.

## 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.

## NiceLabel Representatives

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

## Compatibility Issues

If you are migrating from **NiceLabel .NET SDK V6**, the existing applications need to add `SDK.NET.Interfaces.dll` assembly to the references. No other changes are necessary, the applications can still use own assembly resolving if required.

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