.NET API User Guide

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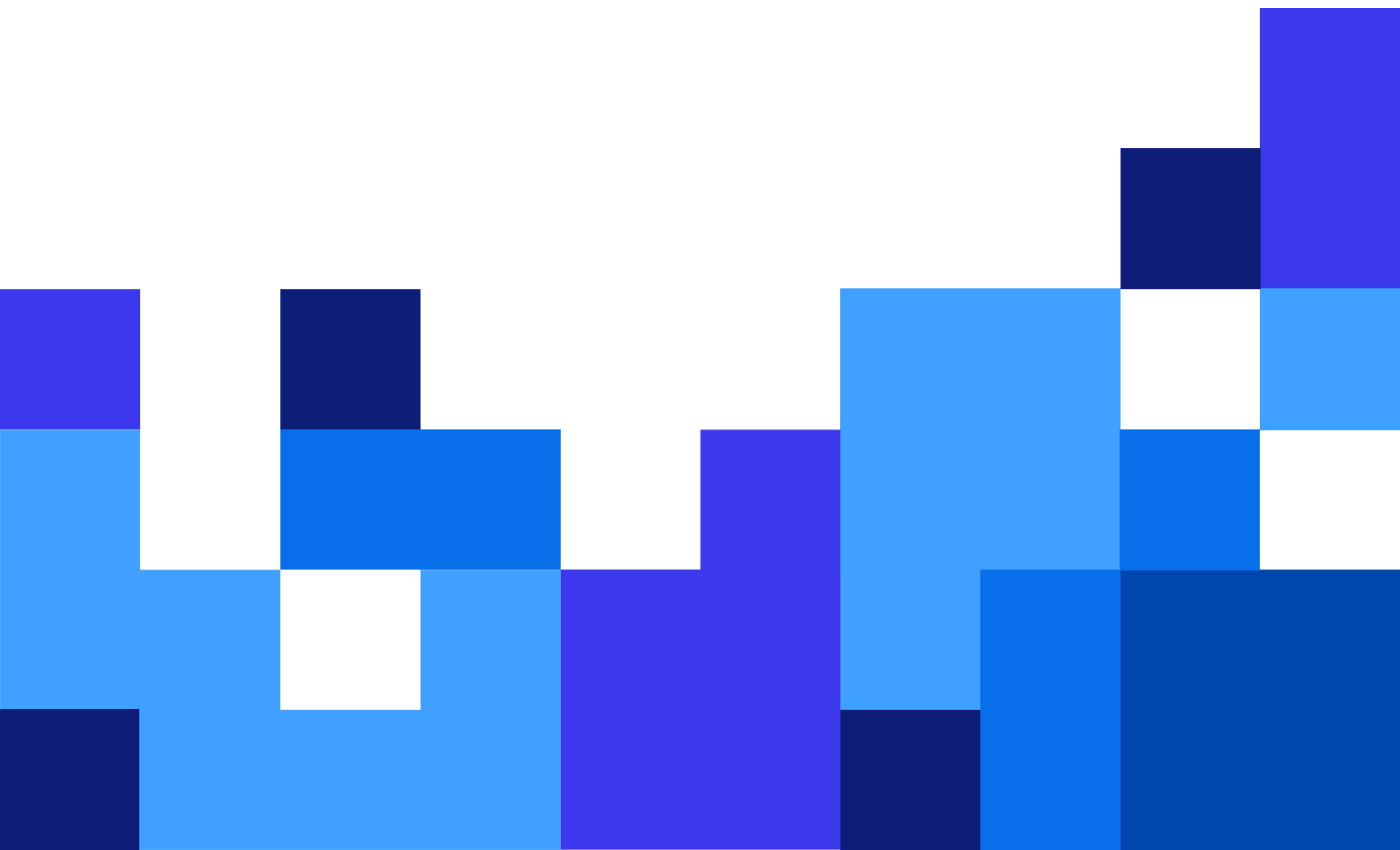
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1. Introduction

This guide is intended for software developers who want to programmatically integrate the printing of NiceLabel label templates into their own applications. This approach allows seamless integration into third party applications, but it requires an understanding of .NET Framework technologies and object-oriented programming techniques.

For easier non-programmable printing integration, use the NiceLabel Automation integration module instead.

1.1. About NiceLabel .NET API

NiceLabel .NET API is .NET Framework based library that enables software developers to seamlessly print NiceLabel label templates and interact with the NiceLabel Control Center.

NiceLabel Print Engine is a rendering engine and is an integral part of NiceLabel installation. NiceLabel Print Engine enables previewing and printing NiceLabel label templates at different stages of print workflows. NiceLabel Print Engine is designed to deliver reliable high-speed printing of labels and documents.

NiceLabel .NET API is built on Microsoft .NET Framework and enables users to quickly add full-featured professional label printing capability to their applications.

NiceLabel Print Engine enables multi-threading support out of the box to easily deliver the best possible performance on any hardware.

1.2. NiceLabel .NET API Components

NiceLabel .NET API Libraries are installed together with the NiceLabel product that you install on each printing client.

The NiceLabel .NET API includes:

- **NiceLabel .NET API Libraries.** A set of managed .NET assemblies that your application refers to. These assemblies include NiceLabel Print Engine that interfaces with label templates and manages print jobs.

- **NiceLabel .NET API Programming Reference.** Contains information about the entire `NiceLabel.SDK` namespace. See the help file `SDK Reference.chm`. If you used the default installation location, the help file is located in `c:\Program Files\NiceLabel\\Help\SDK\`.

- **Loftware Printer Drivers.** Loftware offers printer drivers for more than 4000 different printer models. We recommend using Loftware printer drivers so you can benefit from the optimized print streams. Check the complete list of drivers on our download page: https://drivers.loftware.com/.

# 2. Deploying and Licensing

2.1. System and Software Requirements

See general NiceLabel System Requirements. To develop your application you need a development environment with .NET Framework 4.7.2 such as Microsoft Visual Studio 2012 or newer.

2.2. Deploying NiceLabel .NET API

When you install NiceLabel .NET API package is also installed. The NiceLabel installation package installs the following:

- **SDK Reference.chm.** The NiceLabel .NET API help file is located in the folder where you installed NiceLabel. The default location is `c:\Program Files\NiceLabel\NiceLabel 10\ \Help\SDK\`.

Use the universal NiceLabel installer to install NiceLabel on the client's computer. The API libraries are installed as part of **Print** components.
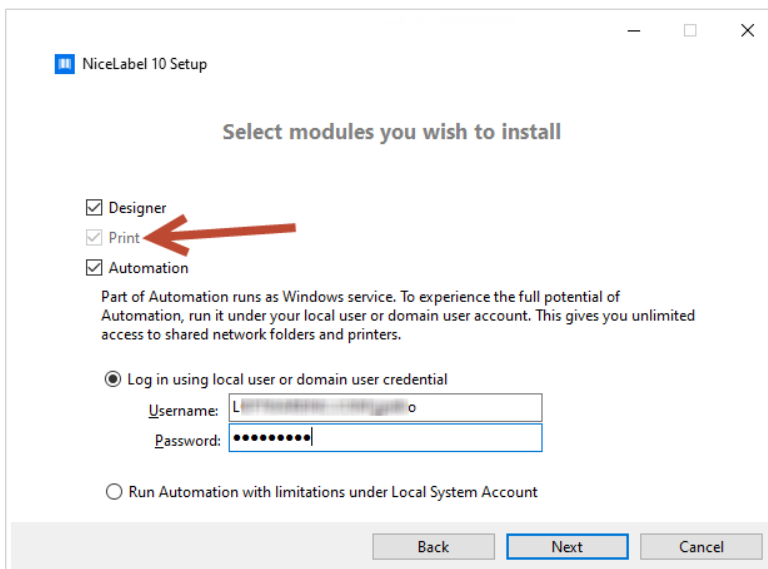
2.3. Licensing

Before you start using NiceLabel .NET API on workstations, activate your license.

To activate your license, run NiceLabel Desktop Designer or Automation and follow the on-screen guidance for activation.

NiceLabel .NET API is available with PowerForms Suite and Control Center licenses. Printers used with NiceLabel .NET API count in the same license quote as from other NiceLabel modules. See the document NiceLabel Licensing for more information.

For software vendors that develop web or cloud based products, higher volume off-the-shelf products, or niche applications that use predefined label templates, NiceLabel offers a set of developer-only products which might be better suited for such processes. Contact our sales department to learn more.

If you are using Loftware Cloud, you can start using your NiceLabel .NET API after you install and sign in your NiceLabel Print client to the Loftware Cloud:

1. Open NiceLabel Print.

2. Go to **File** > **About**.

3. Under **Account**, click **Sign in**. The **Connect to Loftware Cloud** window appears.

4. Type in the name of the Loftware Cloud server you are connecting to and click **Connect**.

5. The **Sign in to your Loftware Cloud** window appears. Sign in using your Microsoft or Google Account.

If you are using NiceLabel Desktop Designer in combination with NiceLabel Print that you activate in your Control Center, you can also:

- Pre-configure activation settings using the `product.config` configuration file. This allows you to perform standardized repeated installations in your labeling environment. See all available pre-configuration options in our Knowledge Base article.

- Pre-configure the activation settings using the command line interface. This way, you can make your repeated installations faster. You can find the license key definition commands in our Knowledge Base article.

3. Using NiceLabel .NET API

3.1. Referencing NiceLabel .NET API

To include the NiceLabel Print Engine in your application, you need to create a reference to the `SDK.NET.Interface.dll` assembly. The file is typically located in the `c:\Program Files\NiceLabel\NiceLabel 10\\bin.net\` folder.

We recommend you keep the files of NiceLabel .NET API in a separate folder from your application's executable file. After you make the reference to the `SDK.NET.Interface.dll`, you can copy the .dll file to your application's bin folder.

3.2. Label Design

NiceLabel .NET API components have no label design capabilities and no user interface. NiceLabel .NET API is a print engine that is embedded into other applications.

Label templates, which the NiceLabel Print Engine uses for printing, must be created in NiceLabel Desktop Designer. It is the label design tool to create the graphical layout of label templates, define object properties, and variable fields.

Use NiceLabel Desktop Designer to create your label templates, and use NiceLabel .NET API to merge user data, and manage label printing.

3.3. Typical Workflow Tasks

3.3.1. Print Engine Management

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

When your application refers to the **`SDK.NET.Interface.dll`** assembly, the application 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 NiceLabel .NET API files, which can exist in different locations.

Once the location is known, the 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, the `Shutdown()` method of the `IPrintEngine` instance should be called to release all resources used by the library.

3.3.2. Label Template Management

The `OpenLabel()` method allows your application to manage which templates your users can access. Templates can be opened from your clients' file systems or from `System.IO.Stream` objects for users who want to deploy them embedded in their application or maintained in a database.

Control Center users can manage label files in Documents storage.

3.3.3. Printer Management

NiceLabel Print Engine provides a list of locally available printer drivers to your applications and reduces the need for coding.

Printer selection follows the hierarchy:

1. The `PrinterName` property.

2. The printer name stored in your label template.

3. The system's default printer.

> **NOTE**

3.3.4. Graphical Preview and Digital Archiving

NiceLabel .NET API-based applications use the same print engine for previews and printing, so the graphical previews of your labels are identical to printed labels.

With the `GetLabelPreview()` method, your application can retrieve a graphical preview of the next label that will be printed.

The `PrintToGraphics()` method generates a series of images of all the labels that would be printed. This way you can work with proofs-of-concept.

3.3.5. Label Printing

NiceLabel technology allows you to print to any printer with a Windows driver. NiceLabel output also provides printer commands for more than 4000 different printer models allowing you to use native printer features, such as internal barcodes, fonts, and counters.

NiceLabel .NET API offers three different printing modes:

- **Synchronous Printing.** This mode maintains a connection to the print process. With this mode, the application sends data to the print process and keeps the connection established as long as the print process is busy. Calling the `Print()` method returns feedback about the print job.

- **Asynchronous Printing.** This 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.** Youse this option when you don't want to interrupt your print jobs or you need to print different labels on a single page, NiceLabel enables this with session print.
  All labels within a single session print are sent to the printer as a single job, ensuring the correct printing order.
  Each session printing includes three stages:

  1. `StartSessionPrint()` initializes a new printing session.

  2. `SessionPrint()` adds a print request to the current session and can be called multiple times.

  3. `EndSessionPrint()` finalizes the current session.

3.3.6. Print Job Monitoring

NiceLabel .NET API lets you monitor the printing process through print job status updates regardless of the label printing mode you chose. This detailed access to your printing process allows you to control and respond correctly to any situation.

3.3.7. Exception Handling

All exceptions from the NiceLabel Print Engine are `SDKException` type. This class contains detailed information about errors that might occur.

3.3.8. Print Logging

Control Center users can log print events from each client into the Control Center's database. You can examine the collected information from Control Center's centralized web interface.

See the **NiceLabel .NET API Programming Reference** for details.

4. Control Center Integration

Control Center is a web-based management application that is the core of the NiceLabel Label Management System. Control Center is a platform intended for businesses that operate a quality management system and regulated enterprises. Control Center includes tools to standardize, centralize, and control your labeling. NiceLabel .NET API allows application developers to seamlessly integrate and leverage Control Center's Document Management System and Print History.

4.1. Document Management

Control Center products include a document management system optimized for labeling that is accessible through Web Distributed Authoring and Versioning (WebDAV) protocol. The files inside the Documents storage 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 Documents storage, governed by lifecycle management and user access control. NiceLabel .NET API gains access to the Documents storage and retrieves the requested files.

4.2. Logging

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