



## **CardExchange® Producer Help**

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## 1 Welcome



And thank you for using CardExchange® Producer for producing your cards! We appreciate your business!

CardExchange® Producer offers a multiple card-template interface that allows you to produce cards in just a couple of clicks. Our CardExchange® Producer Card Production application is 10 years+ in the market offering you a solution containing all our experience and knowledge available for secure production of your cards!

We strive to innovate by offering market leading solutions and with CardExchange® Producer, we offer the complete Service Center section.

This section offers you all the tools you need to create, produce, deploy your cards. When needing support, this is the place to be. Always wondering how to get faster support, in the Service Center you can find all the information from your CardExchange® Producer reseller including their web address. In the Service Center of CardExchange® Producer, your Reseller, the Manufacture, etc., we all keep you posted with important information about your software and hardware.

CardExchange® Producer has support for Biometric devices and ID scanners. We are using Microsoft's XPS print engine to support the latest printing standards, however not all ID card printer manufacturers supply drivers that support XPS technology. Therefore CardExchange® Producer offers also a GDI+ print engine.

Our CardExchange® Producer GO Edition is the entry level offering, the GO Edition comes with an internal database which enables better protection and management of your stored data.

The entire main interface is designed to enhance ease-of-use and improved intuitiveness.

### **But that is not all...**

Get access to our huge collection of ["How-To"](#) videos on our YouTube channel. Join our CardExchange® Producer community by visiting our [online end-users forum](#) where you can



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find quickly answers to your questions, post questions, etc. Compare the functionality of your edition with the functionality of other available editions, etc. Find all you need to know in the [Using Service Center](#) section of this help file and be amazed what is been offered!

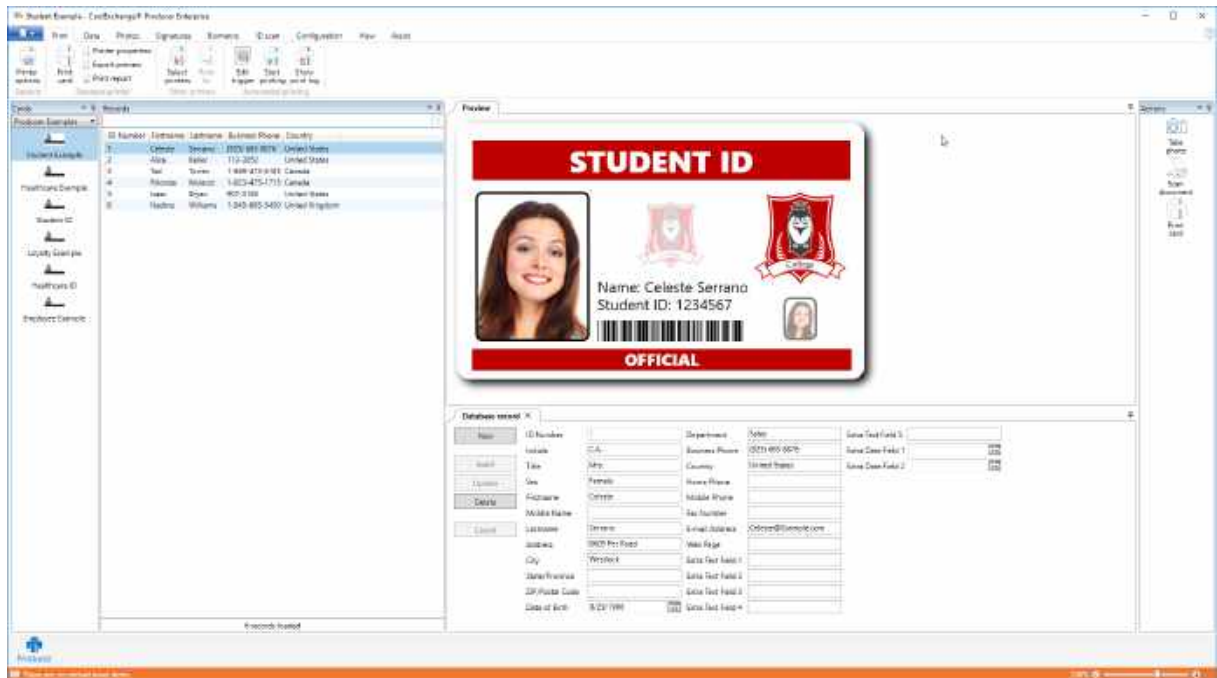
**It's not just about software; it's about the experience!™**

## 2 Getting Started

To get started with CardExchange® Producer, it is important to get familiarized with the interface. It is important to know that CardExchange® Producer basically is a combination of two disciplines:

- The Main Interface offering the multiple card-template interface and data-editing, etc.
- and the Configuration Interface, the Card Designer.

Most of the time you will be working from the main interface



In a very convenient way it offers you the possibility to select your card-templates at the left side followed by selecting the record that needs to be printed, take a picture or scan a signature on the right side, followed by the print command.

The configuration of this all is done directly via the Configuration Interface, the Card Designer



In the same setup as the main interface, from the left side you see all the available card-layout(s) and card-pages with all the available tools organized in different sections via the ribbon bar.

As we recognize that most people are used to working with Microsoft Office products, our CardExchange® Producer products are also designed accordingly. Not to make our lives easier, but yours! Everybody that can work with Microsoft PowerPoint or Word, will have no problems finding their way in CardExchange® Producer!

## 2.1 Overview

CardExchange® Producer is offered both as a Local Single User License and with Concurrent Network Licensing.

Our Standard Single License Solutions are available in five different editions:

<u>GO Edition</u>	<u>Premium Edition</u>	<u>Professional Edition</u>	<u>Business Edition</u>	<u>Enterprise Edition</u>
<b>Single User</b>	<b>Single User</b>	<b>Single User</b>	<b>Single User</b>	<b>Single User</b>
			<b>Network Master</b>	<b>Network Master</b>
			<b>Network Client</b>	<b>Network Client</b>
Card Design Wizard	SQLite, Access, Excel, CSV & Paradox DB Connectivity	SQL, MySQL, PostgreSQL, Oracle & DB2 DB Connectivity	Mifare Classic 1K & 4K Encoding	Mifare DESFire EV1 Encoding
Internal SQLite DB (200 records)	Internal SQLite DB (Unlimited records)	ODBC Connectivity	HID Prox Read	Mifare SAM AV2 Support
5 Card Templates	Unlimited Card Templates	Multiple Simultaneous	Biometric Fingerprint Scanning	Active Directory (LDAP) Data-Source

		Database Connections	Plug-in
CR80 Cards Only	No Card Size/Format Limit	Automatic Photo Cropping	ID Document Scanning
1D Barcodes	2D Barcodes	Automated Printing	Python Scripting Advanced Mappings
Data Import Wizard	Signature Capture (Topaz/Wacom/Signotec)	Conditional Card Layouts	External Plug-in Support
Magnetic Stripe Encoding	Database Filters (5)	Database Filters (Unlimited)	Paxton Net2 (Module)
Photo Capture (TWAIN/Direct Show/Canon EOS)	Basic User Permissions	Advanced User & Group Permissions	Active Directory (LDAP) Data-Source Plu-in (Module)

Starting with the GO Edition offering an internal database which enables better protection and management of your stored data. The Professional Edition offers real database power with connections to multiple database servers, native connections, etc., . All CardExchange® Producer Editions offer inline Magnetic Encoding functionality.

Starting from the Business Edition Producer offers you the powerful option to manage your licenses from a central location of your network. No more local licenses that need to be activated, no more need of using license dongles on local computers, just one location that holds your licenses. But it also offers the power of Central Data Management. All your card-templates, database connections, etc., managed by one administrator, user, computer, etc. The days of multiplying all your configurations are over!

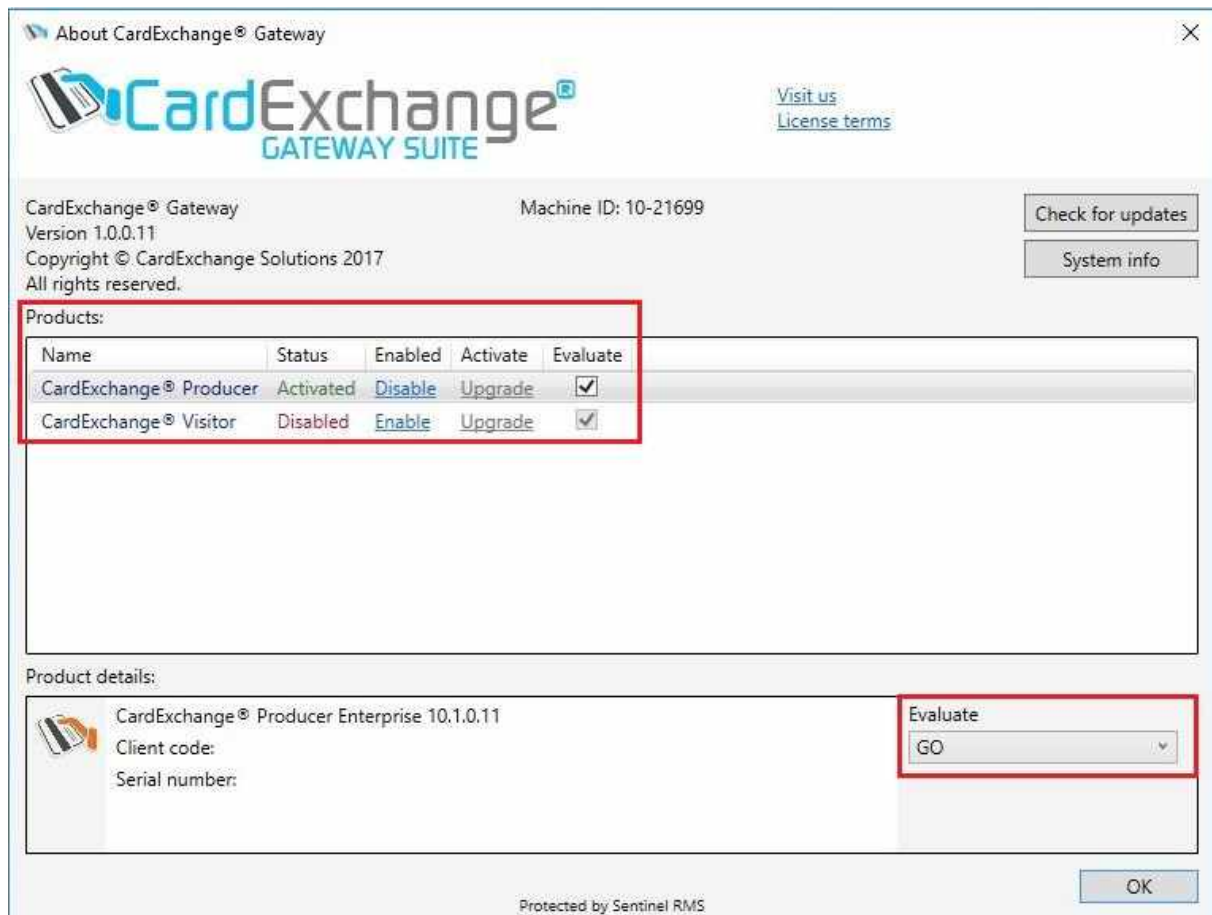
### **But that is not all!**

In combination with the [Dispatcher](#) and [Print Server](#) Editions, you will be able to create complete service bureau print farm solutions including load balancing printing. Send all your print jobs to the Dispatcher and/or directly to the Print Servers... It is all in your hands with the CardExchange® Producer Network License Solutions.

For more information about our CardExchange® Producer Editions, please visit our website by [CLICKING HERE!](#)

## **2.2 Our Trial Edition**

Our CardExchange® Producer Demo Edition offers you unlimited access to all available functionality within our editions for an unlimited period of time. When you have installed CardExchange® Producer for the first time, just check the Evaluate box for CardExchange® Producer and select the edition that you want to try out.



We offer the possibility to try out all of our editions. You can find more information about the offered functionality per edition by [CLICKING HERE!](#)



When you have made your selection from the drop down menu, simply click on OK to start your trial and use all functionality offered. The only limitation of the Trial is that it prints DEMO on the card. The nice part is, when you have configured, designed, connect to databases, etc., and you like our CardExchange® Producer application, you simply purchase a license, activate it, and you keep on working. Nothing needs to be redone!

Activating your Trial or your new installation is explained in our [Activation and Registration](#) section of this Help file.

## 2.3 FAQ

This page contains a selection of our most common and frequently asked questions...

- [How can I activate a CardExchange® Producer license?](#)
- [What should I do if activation fails?](#)
- [How can I move my CardExchange® Producer installation to another computer?](#)
- [How can I create a new card with the user-guided wizard?](#)
- [How can I create a new card without the user-guided wizard?](#)
- [How can I connect to an Excel database?](#)
- [How can I show to Photos on my card layout?](#)
- [How can I store ID photos in the database?](#)
- [How can I use signature pads?](#)
- [Which Photo Cameras are supported by CardExchange® Producer?](#)
- [Which Signature Pads are supported by CardExchange® Producer?](#)
- [Can I use finger-print \(Biometric\) devices with CardExchange® Producer?](#)
- [How can I show a variable image on the card layout?](#)
- [How can I print multiple records on a single card?](#)
- [How can I print multiple layouts with a single database connection?](#)
- [How can I configure magnetic encoding?](#)
- [How can I link to multiple databases?](#)
- [How can I integrate non-standard functionality \(plug-ins\)?](#)
- [How can I protect CardExchange® Producer with user names and passwords?](#)
- [How can I find answers to specific questions about CardExchange® Producer \(forum\)?](#)
- [Using GDI+ printing technology when printing results are poor.](#)
- [How to use ID scanners with CardExchange® Producer.](#)

### 3 Installation



There are two different procedures for CardExchange® Producer depending on the edition you have. When you received a CD from your reseller, the Autoplay menu as shown in the screen shot will show.

CardExchange® Producer [Local License Editions](#)

CardExchange® Producer [Network Editions](#)

The CardExchange® Producer GO Edition, Premium Edition and Professional Edition are stand-alone (Local) licenses designed for use by a single user, the licenses are locked to the MachineID of the PC that they are activated on.

For the CardExchange® Producer Business Edition and Enterprise Edition you can choose to have a stand-alone (Local) license or a Network License.

The Network license is designed for multiple concurrent users, the licenses are managed by a license server on the local network and issued to the CardExchange® Producer clients when they are run.

### 3.1 Local License Installation

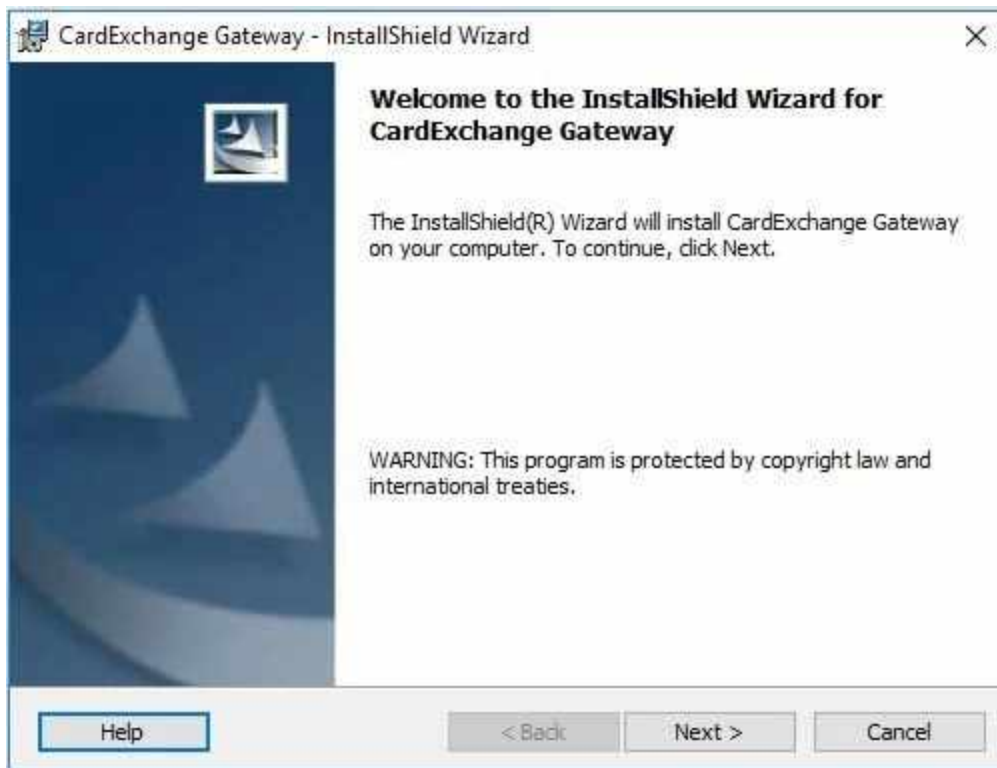
CardExchange® Producer uses a standard InstallShield Wizard, during the installation the installer will start checking the system requirements. The important thing that will be checked by the installer is that the .NET Framework 4.8 is installed. When not available, the installer will automatically start downloading this. If there is no internet connection available, it will automatically install it from DVD. If you are using the downloaded trial version and during the installation no internet connection is available, the installer will stop the installation process and you will be required to install the application manually.

The .NET Framework is normally available on the computer systems so we will not go deeper into this.

CardExchange® Producer is part of the CardExchange® Gateway Suite which also includes CardExchange® Visitor, so the installation will refer to CardExchange® Gateway Suite as both products will be installed,

The installation wizard starts with the welcome page, now click Next to proceed:





In this wizard page, the License Agreement is presented. You can click on the Print button to print out the complete text of the agreement. If you agree to the terms, please select the "I accept the terms in the license agreement" option and proceed with Next. If you do not agree, please select the "I do not accept the terms in the license agreement" and click on Finish. The installation will be canceled:



In the Customer Information page you can provide specific information like the user name and the organization. More important is to determine who is allowed to use this application. Here you can select the option "Anyone who uses this computer (all users)" which is default and we advice to use for standard installations. Especially important when multiple users have access and accounts on the target computer. Select "Only for me (user name)" if you want to make sure only this user has access to the application. Click Next to proceed:

CardExchange Gateway - InstallShield Wizard

**Customer Information**  
Please enter your information.

User Name:  
DCWADMIN

Organization:

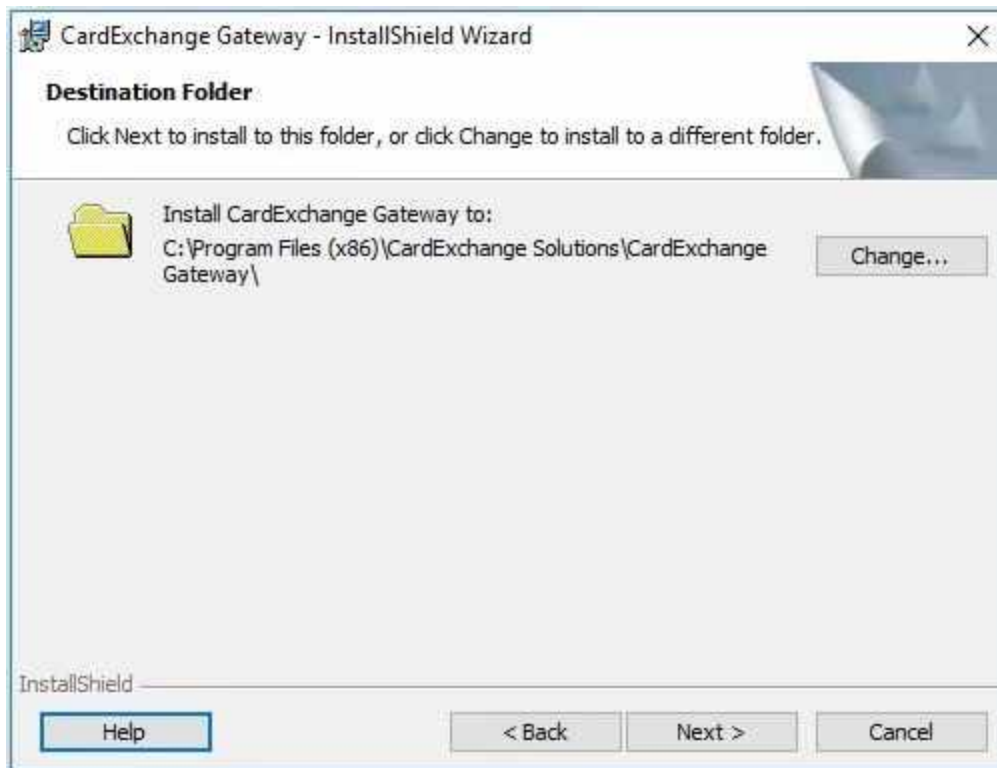
Install this application for:

Anyone who uses this computer (all users)  
 Only for me (DCWADMIN)

InstallShield

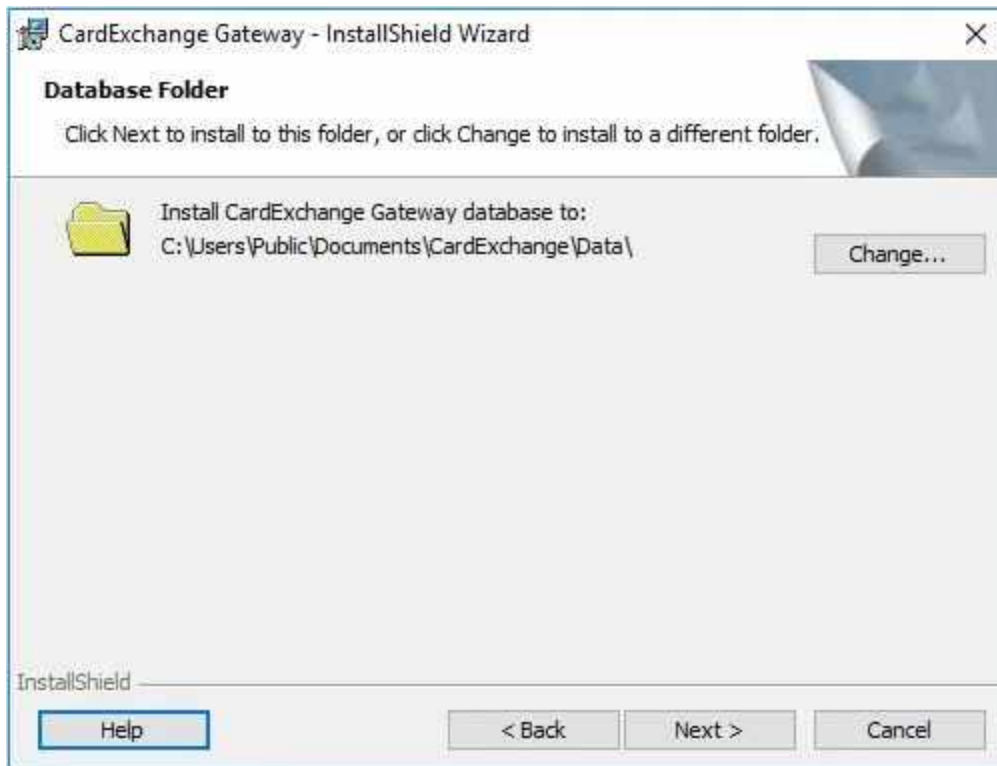
Help < Back Next > Cancel

CardExchange® Producer installations are compliant with Windows standards which means that by default the application is installed in the Program Files (x86) folder as shown in the screen shot below. The folder will be automatically created during the installation. Click on the Change button if you want to install to a different location. Click Next to proceed:

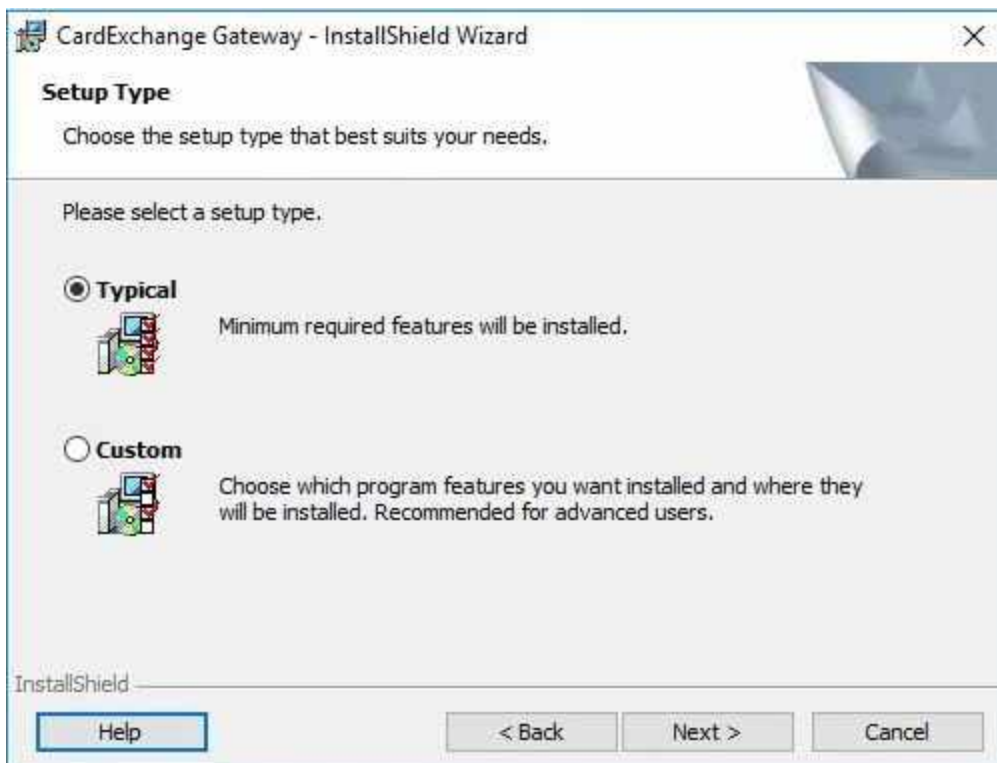


The Database folder is one of the most powerful and flexible features of the CardExchange® Producer applications. It contains all your card templates, database, saved documents, etc. It is very important to install this database folder on a location that can be accessed by the user or by more users of the computer. The application reads and writes information from and to this folder and therefore the user needs to have read and write permissions to this location. By default it will be installed on Public section of your system, like as shown in the screenshot below. If you install this Data folder on a location that is not available for all users of the system, it will result in error messages and not being able to start up!

Make sure that you make regular backups of this Data folder. In case of a computer crash, this backup will save you a lot of work. You only have to install CardExchange® Producer as normal and after the installation you replace the new Data folder with the backup and your system is up and running again! We advice to make a backup of the Data folder, every time you change something to your configuration. Click Next to proceed with the installation:

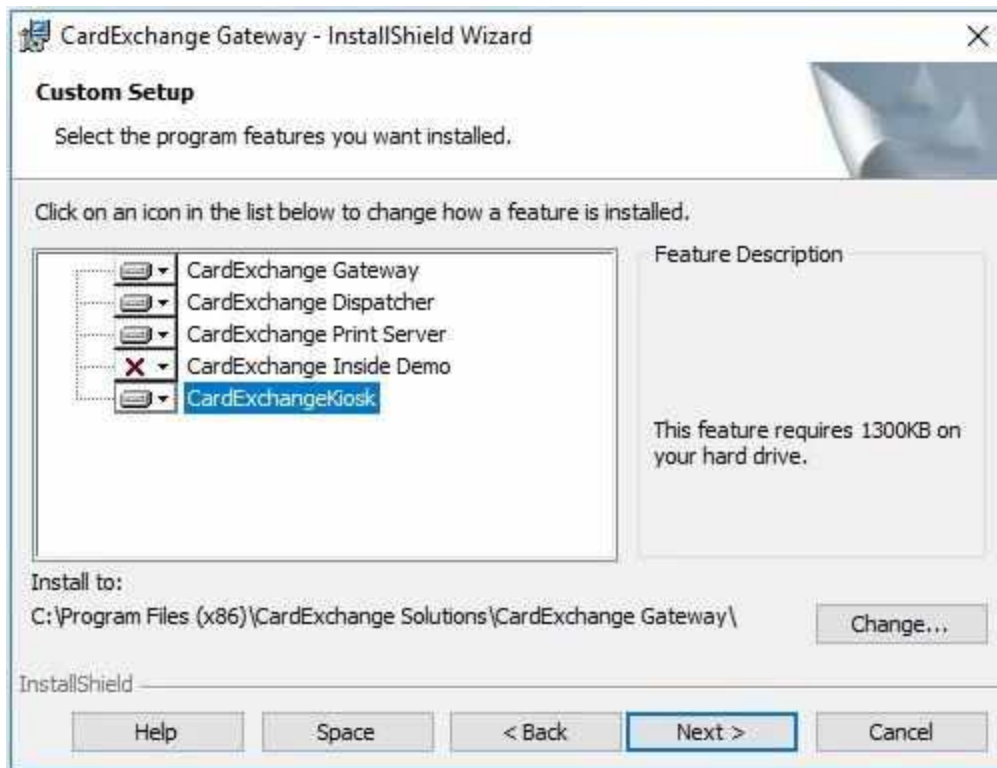


In the Setup type page you are asked to select the type of installation you want to proceed with. For standard installations, please select the Typical option.

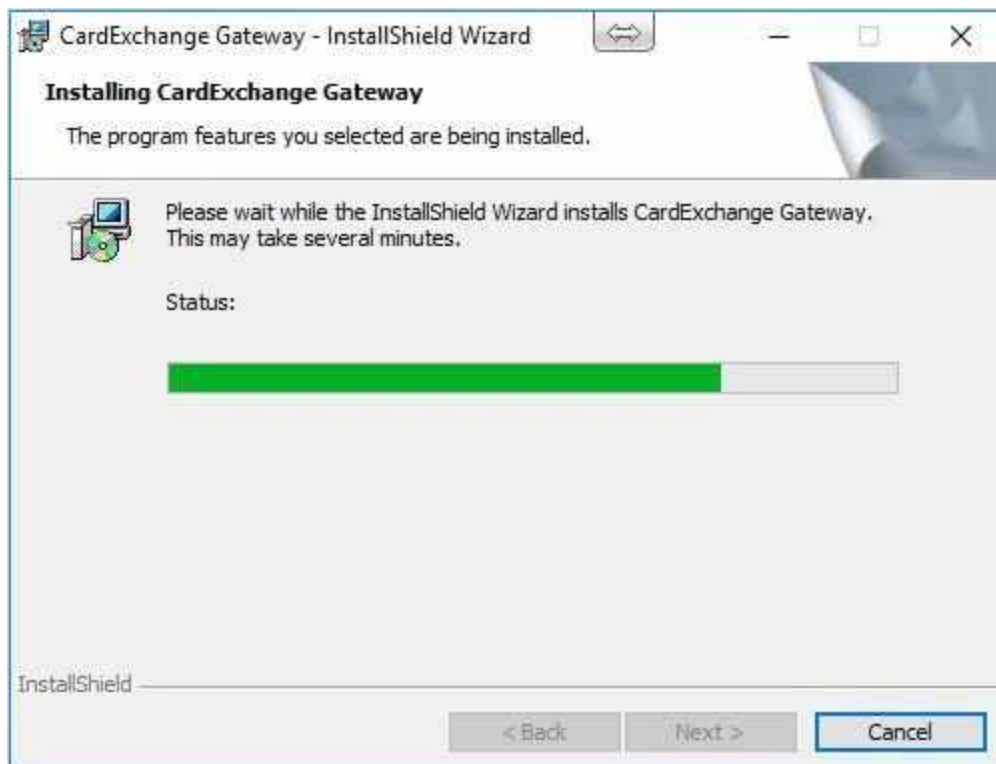
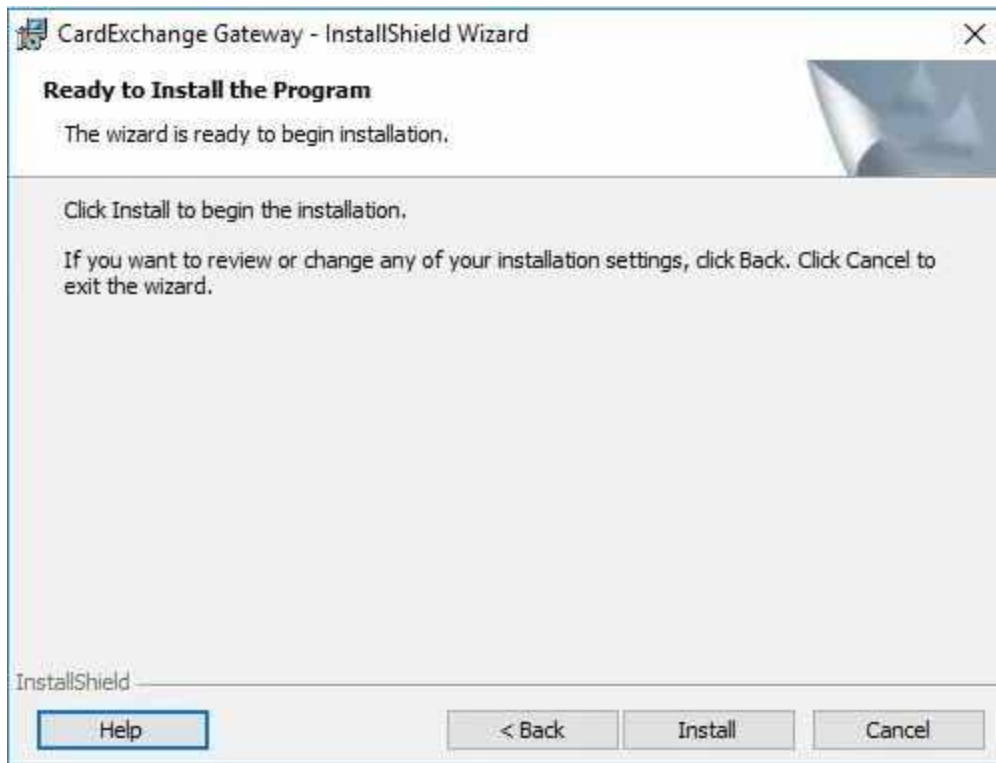


The Custom installation offers additional components that can be installed, these include the Dispatcher, Printserver and Kiosk.

You will require licenses for each of these additional components.

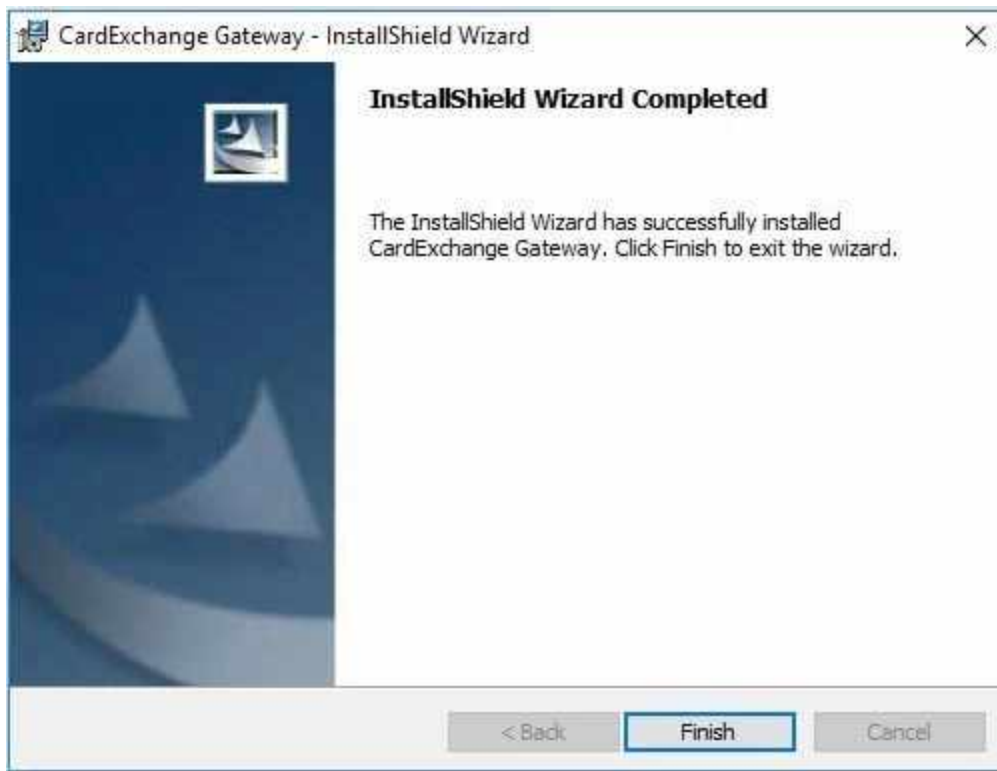


Now the installer has all the information to start installing CardExchange® Producer on your system. Click Install to proceed:



When the installation has succeeded, you can click on Finish to close the installer. Any temporary files will be removed from your system.

You can run CardExchange® Producer by double clicking on the Desktop icon or selecting the application from the Windows Start menu.

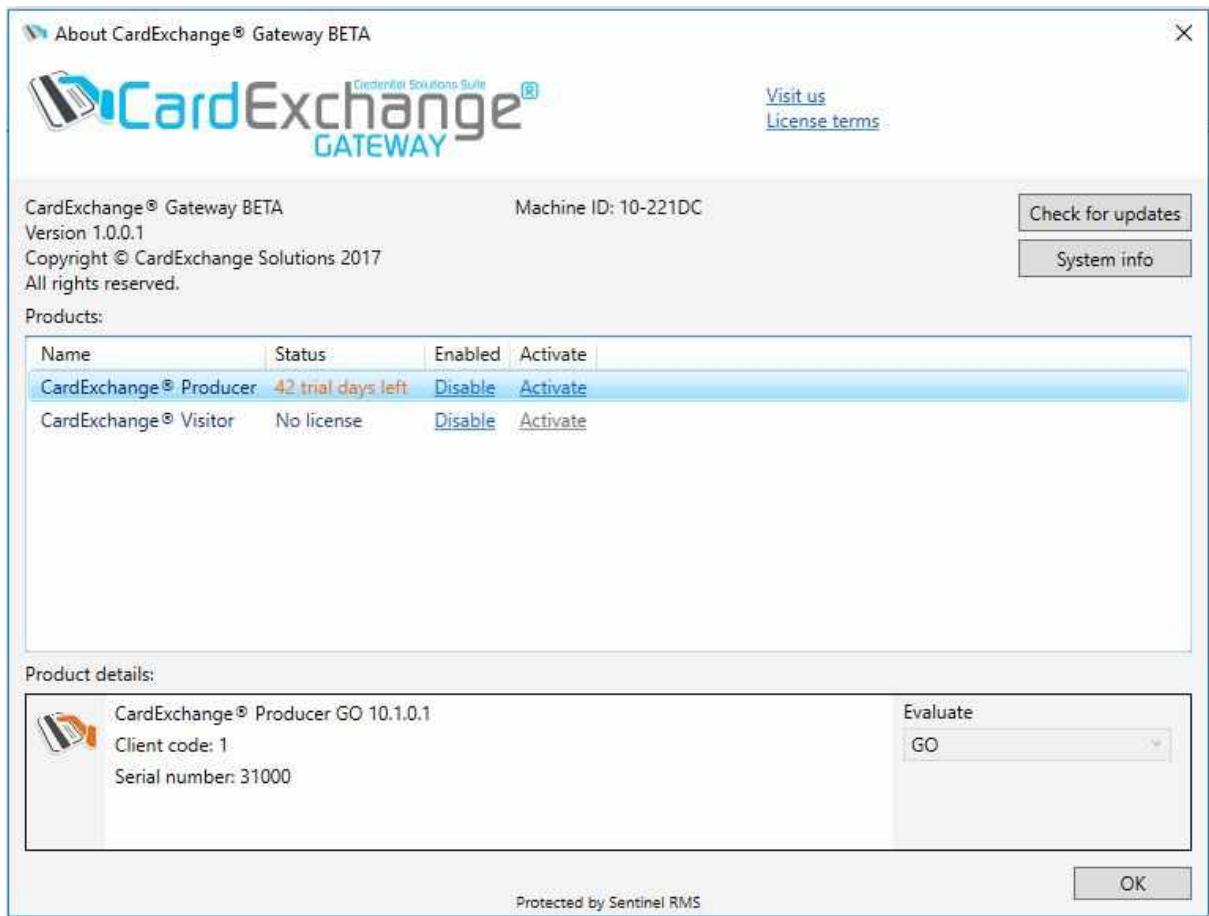


### 3.1.1 Activation & Registration

Activating CardExchange® Producer is very simple to do and only requires an internet connection.

When the application is installed on your system and you are running it for the first time, you will see the about window. Here you can select enable and then click on activate.





Even if you are using a trial version, you can directly activate it without any loss of data or configurations. This wizard is also used when you are upgrading from an edition to a higher edition.

You can always open the activation wizard by selecting "CardExchange® Producer Activation" from the Windows Start Menu or via the Assist tab in the main window and click on Activation window.

CardExchange® Producer License Activation Wizard

Welcome to the CardExchange® Producer License Activation Wizard. In this wizard you will be able to activate and register your CardExchange® Producer license. By registering your license you make sure that you are being informed about updates and new releases.

Please provide your serial number and activation code in the fields below. If you have received an activation file (\*.AUT) or an activated license file (\*.LIC), click on the advanced button and select your file.

Serial number:  
12345

Activation code:  
12345-12345-12345-12345-12345-1234

Machine ID:  
10-221DC

Advanced >>

**IMPORTANT!** Your license can only be activated on a single computer. Do not activate your license on a computer that is only used for testing. The demo version offers all CardExchange® Producer functionality free for 42 days.

Cancel < Back Activate Finish

When you purchased your software, you received a serial number and activation code via email or printed on a label on the back of a DVD box or CD wallet. In this page of the wizard you need to enter this information. You can also find the Machine ID of your computer. The Machine ID is the digital fingerprint of your computer and is used to activate the license. You do not need to do anything with this Machine ID except if you are activating on a system without internet access.

You reseller or CardExchange Solutions can activate your license for you. You can also activate the license via our website using a computer that has internet access. Click [HERE](#) to visit the activation page of our website. To do so, you will have to send your license information and the Machine ID.

When the license is activated, you will receive a so called LIC file. You need to copy this LIC file to a location on the target system:

CardExchange® Producer License Activation Wizard

Welcome to the CardExchange® Producer License Activation Wizard. In this wizard you will be able to activate and register your CardExchange® Producer license. By registering your license you make sure that you are being informed about updates and new releases.

Please provide your serial number and activation code in the fields below. If you have received an activation file (\*.AUT) or an activated license file (\*.LIC), click on the advanced button and select your file.

Serial number:

Activation code:

Machine ID:

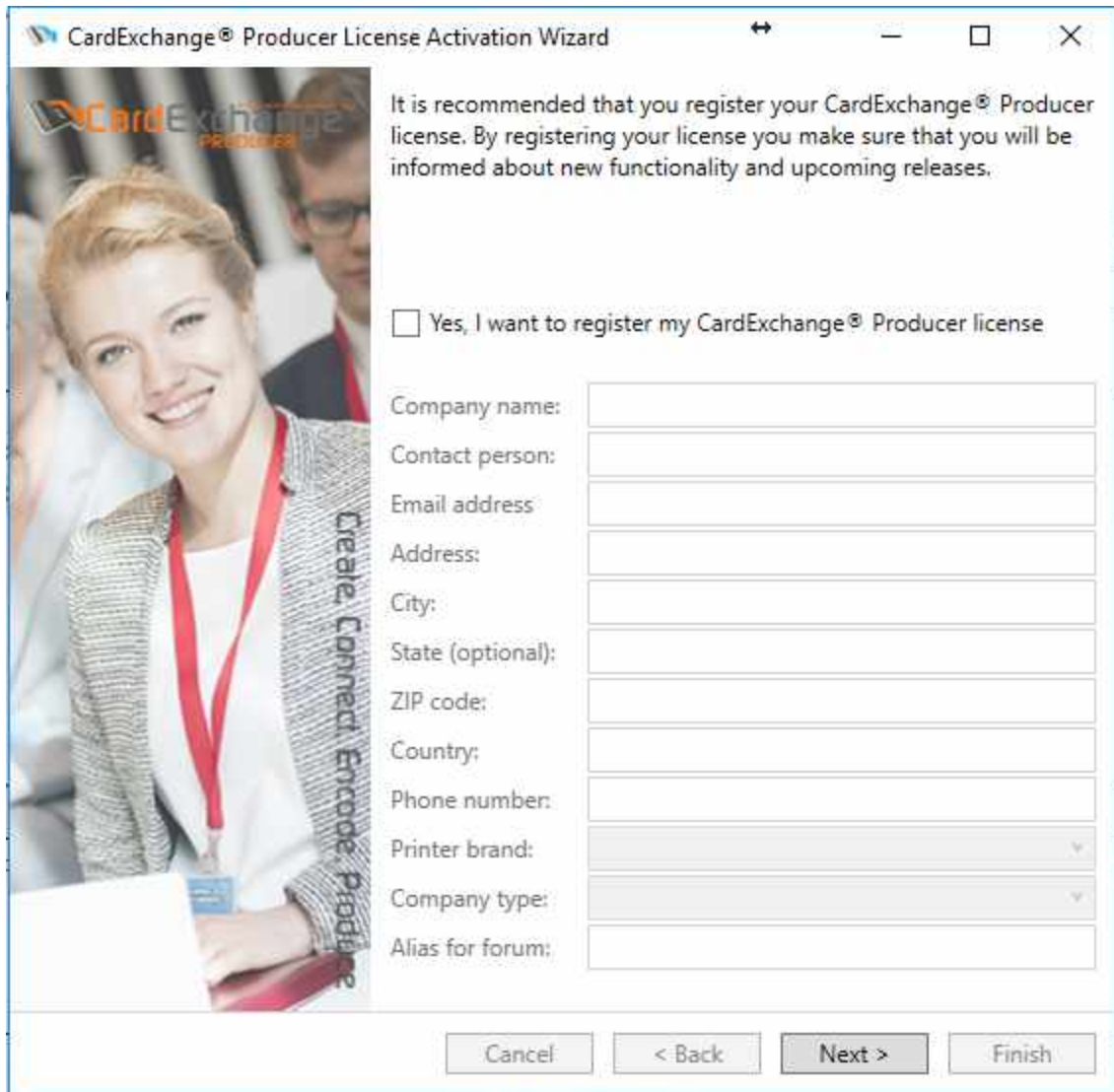
Advanced <<

Please type or select your license or activation file name:

**IMPORTANT!** Your license can only be activated on a single computer. Do not activate your license on a computer that is only used for testing. The demo version offers all CardExchange® Producer functionality free for 42 days.

Cancel < Back Activate Finish

Click on the Advanced button and select the three dots button on the right to browse to the LIC file location. When you click on Activate the license will be installed on your computer. The only difference is that in situations where internet connection is available, contact is made with our license server to verify the license information and activate the license based on the same Machine ID.



The screenshot shows a software window titled "CardExchange® Producer License Activation Wizard". On the left is a photograph of a smiling woman with a red lanyard. The main text area contains a recommendation to register the license and a checkbox labeled "Yes, I want to register my CardExchange® Producer license". Below this are several input fields: "Company name:", "Contact person:", "Email address", "Address:", "City:", "State (optional):", "ZIP code:", "Country:", "Phone number:", "Printer brand:" (with a dropdown arrow), "Company type:" (with a dropdown arrow), and "Alias for forum:". At the bottom are four buttons: "Cancel", "< Back", "Next >", and "Finish".

The registration is a part of the Activation Wizard. In this section you simply provide all the requested information. The fax number is optional. When all is entered, proceed to the next page:

CardExchange® Producer License Activation Wizard

After activating your license, CardExchange® Producer gives you the opportunity to have a 30-day trial of our Enterprise edition for free. This allows you to discover the functionality included in our higher editions. If you do not want to have this option, please uncheck the box below. Trial functionality can be disabled at any time via the main CardExchange® Producer window.

Yes, I want to have 30 days Enterprise Trial Functionality

Would you like to be contacted?

Please contact me by e-mail

Please contact me by phone

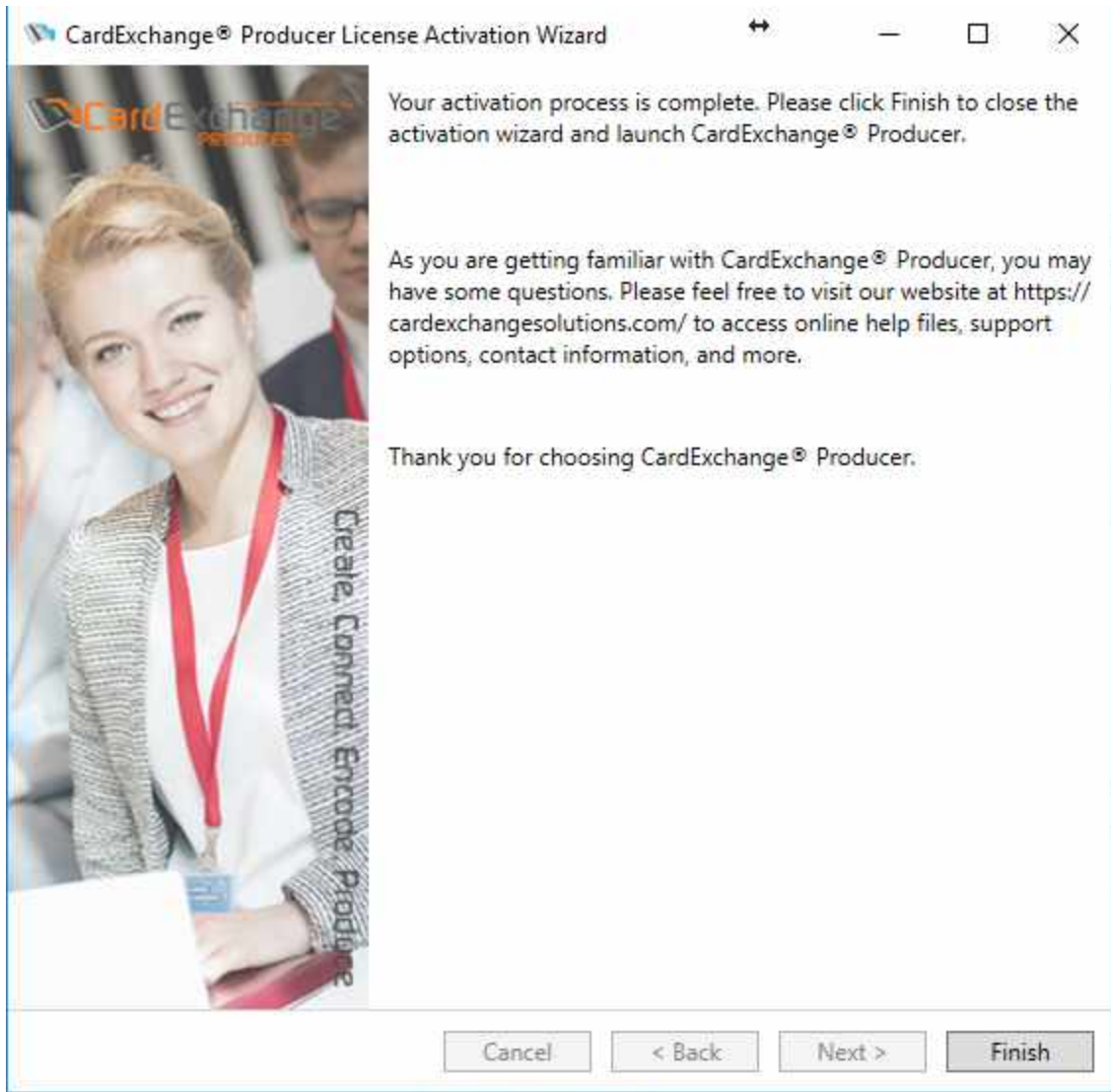
When would you like to be contacted?

5/2/2017

Subscribe to our Newsletter to be notified of any updates and important information regarding your software

Cancel < Back Next > Finish

We offer you the possibility to try out the functionality of higher editions so you can see if there is functionality that you can use and test before purchasing the edition. You can get max 30 days of the higher edition functionality without limitations. If you want to check out other functionality, check this check box. You can also request to be contacted, by email or phone, with a preferred date. Don't forget to subscribe to our newsletter and keep up to date with the latest news. Click next to proceed to the final page:



LIC file activations have no need for internet connection. During the activation, a progress bar will indicate the time left before activated. When the activation is successful, you can click on Finish to close the activation process. When you activate for the first time, it will directly start after you click on Finish. If you are activating an upgrade, after clicking on Finish you will have to restart to make the license change effective.

## 3.2 Network License Installation

With the Business Edition or Enterprise Edition of CardExchange® Producer, you can also choose to purchase a Network License (this allows for concurrent licensing and the ability to run a client on a server based operating system).

This would typically have the license manager installed on a server along with the database and configuration. The network client is then installed on the workstations that will be using the software.

Here are the steps for a complete SBS installation:

1. Create the environmental variable for the license file location
2. Install the license manager
3. Open the license manager (WlmAdmin.exe)
4. Activate your Network license
5. Add them to the license manager (Wlmadmin.exe)
6. Configure clients to point to the license manager

For installing CardExchange® Producer Network License editions, the following operating systems are supported:

Windows 7, Windows 8, Windows 10  
Windows Server 2008 R2, 2012  
Citrix and Terminal Systems  
Virtual Machines

All operating systems are supported as 32 and 64 bit systems and need to run the latest available service packs of Microsoft.

For running CardExchange® Producer License Editions editions on servers or workstations we advise the following minimum specifications:

400 MB free disk space for Workstations  
Dual core processor  
2048 MB internal memory (32bit)  
4096 MB internal memory (64bit)  
Microsoft .NET Framework 4.8

#### Specific Firewall information:

Firewall issues are usually solved by adding the Sentinel RMS License Manager to your the firewall exceptions. The provider of the licensing system SafeNet states that:

"The Sentinel RMS License Manager only uses the UDP port 5093 at Server end by default. And at client end the ports are used dynamically and controlled by Operating System i.e. for communication only UDP port 5093 is used at server end and at client end it is used dynamically on the basis of available port."

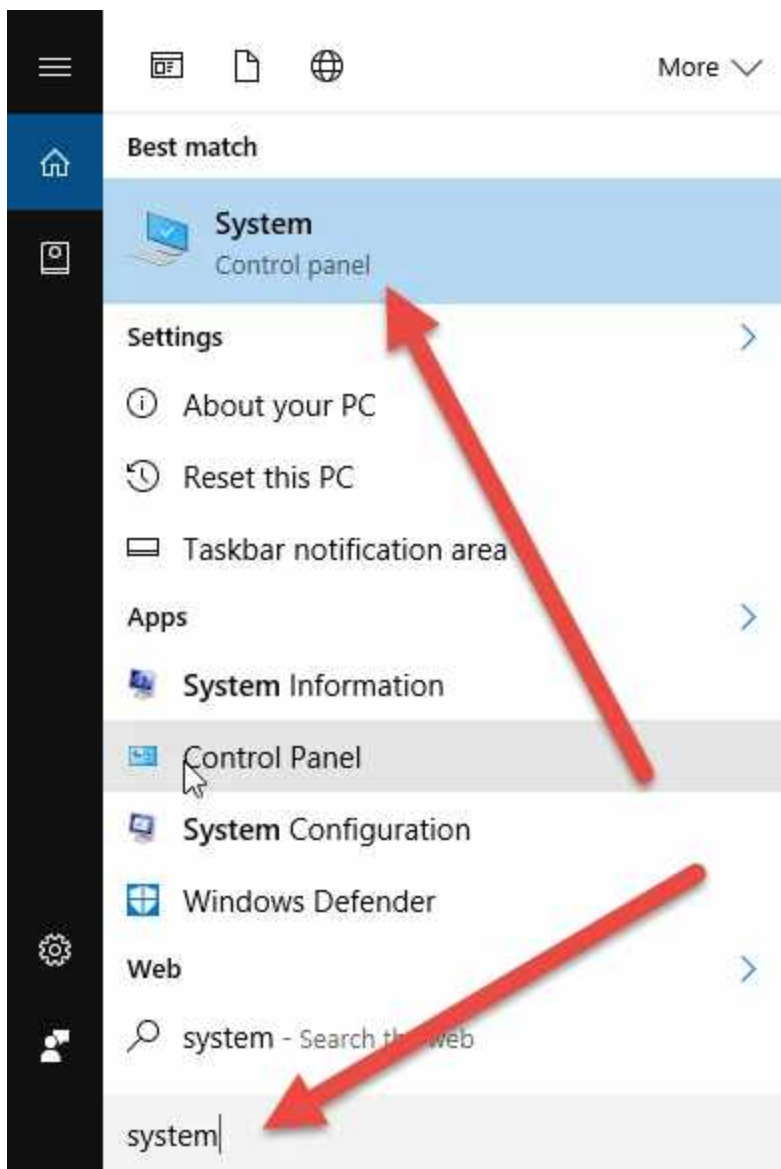
We recommend installing CardExchange® Producer on the machine hosting the license manager and test locally before you continue configuring other clients.

### **3.2.1 License File Location**

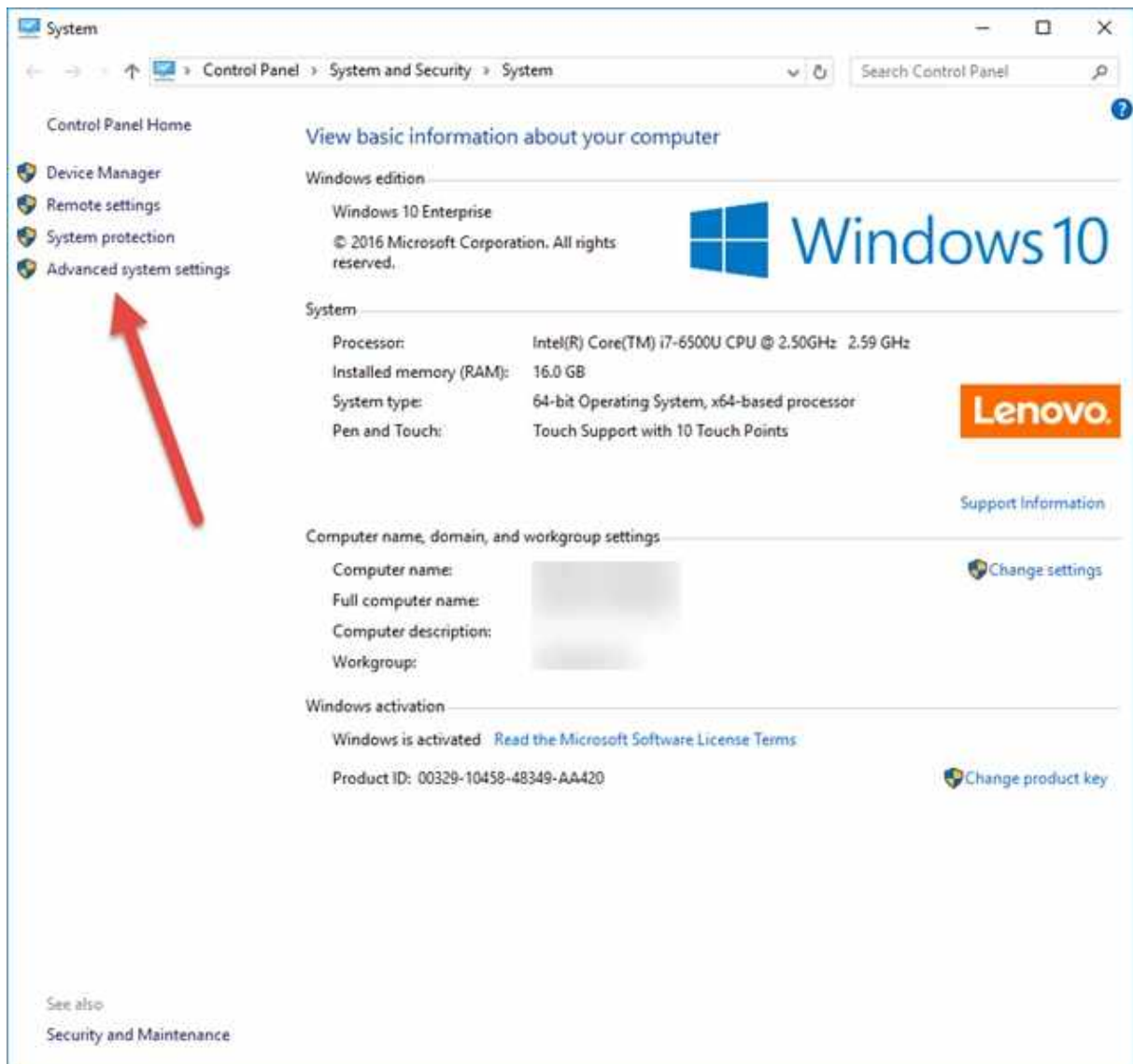
The network license manager stores its license codes in a plain text file. This file can be located anywhere on the system but the Windows user that manages the license manager service process needs to have read and write access to this location. To make sure this is guaranteed, we need to create a specific Environment Variable to set the location.

To create this variable right mouse click on My Computer and select Properties. If you are running Windows 7, or 8, click on Properties and then select Advanced System Settings. If you are using Windows 10, please enter "System" in the search box and click on System as shown below:

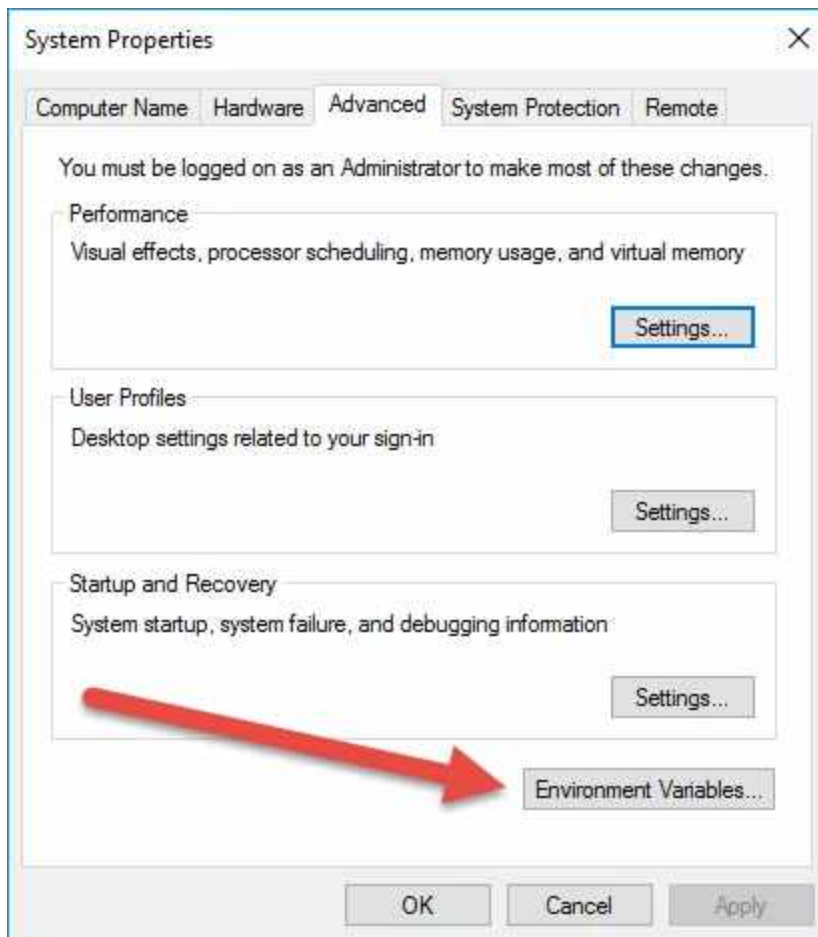




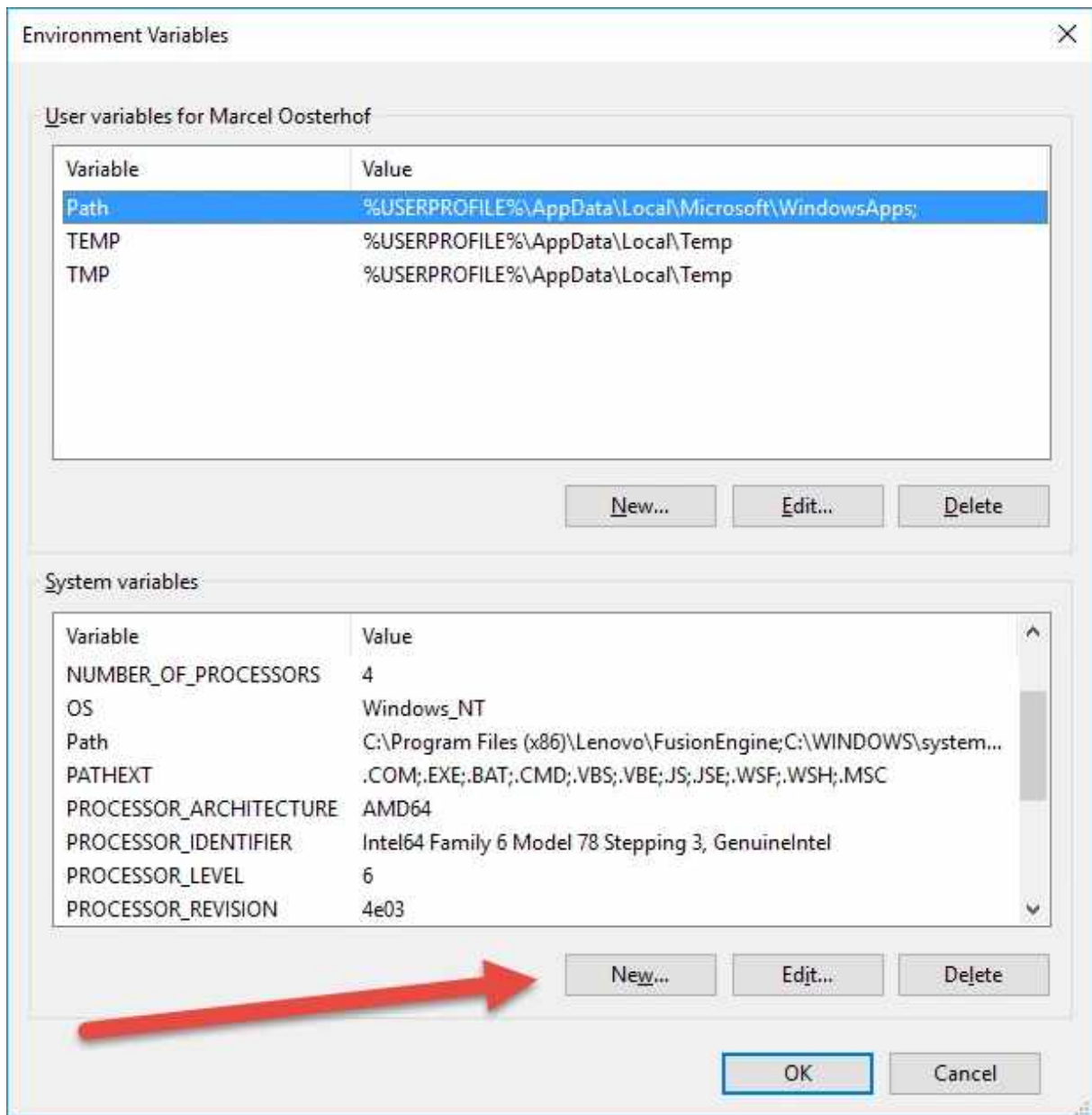
In the System window, click on Advanced system settings:



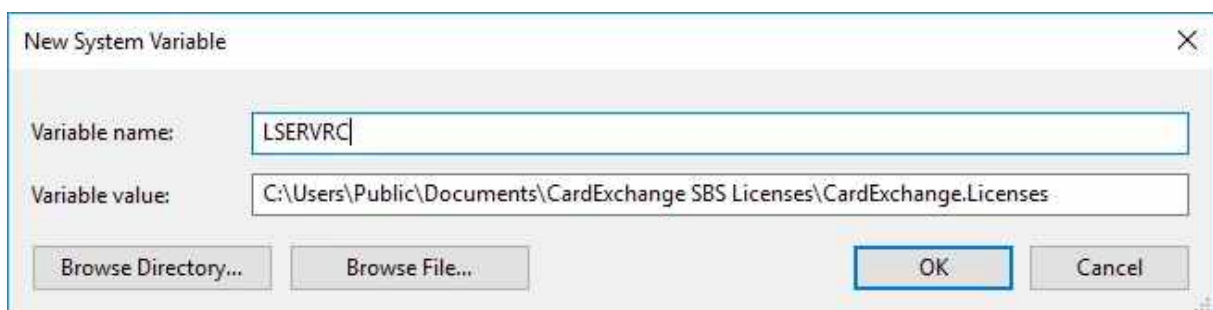
This will open System Properties window with the Advanced tab selected.



Now click on Environment Variables to open the this window:



And click on New to create a new variable:



---

Enter **LSERVRC** as the variable name. For the Variable value, you would enter the path of where a license file will be created and stored. This will be its location path for future reference. You can use "C:\Users\Public\Documents\CardExchange Network Licenses\CardExchange.Licenses"

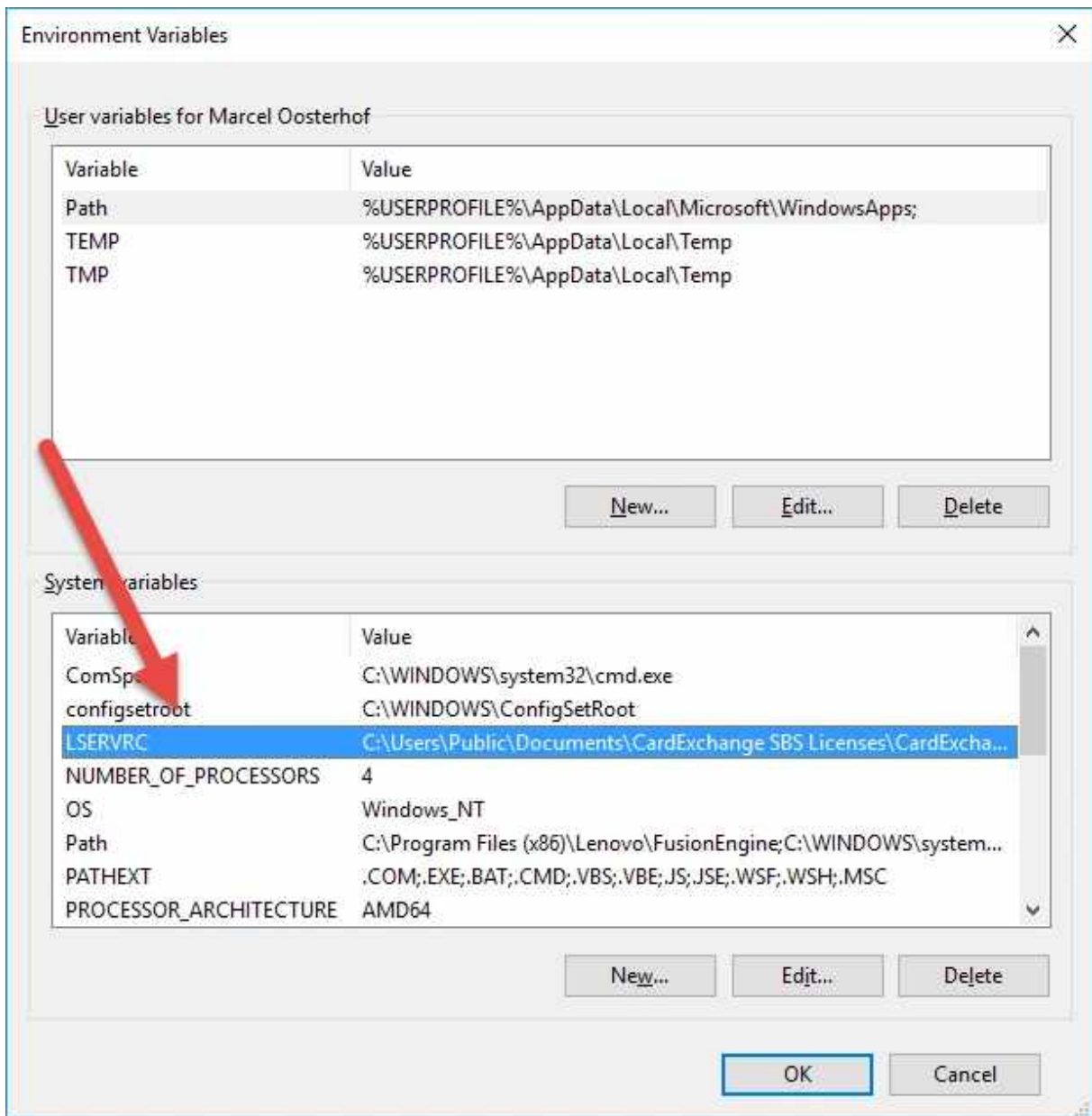
Important

Please note that you should enter a directory of the path, all folders should exist in the path, but the "CardExchange.Licenses" file itself will not and should not exist yet.

The name of the file is arbitrary, for example, CardExchange.Licenses.

Also, make sure that the path is accessible and has all the rights otherwise it will result in access errors!

Click on OK to store the newly created Environment Variable.



### 3.2.2 Install License Manager

**CardExchange®**  
GATEWAY SUITE

**Installation Manual**

**Install License Manager**

**Install MySQL Server**

**Install Gateway Client**

**Browse CD**

**Retrieve Machine ID**

**License Activation**

Starting with the CardExchange® Visitor Business edition, you can also choose to use the Network License (SBS) Setup, this allow for concurrent licensing and the ability to run CardExchange® Visitor on a server operating system.

This would typically have the license manager installed on a server along with the database and configuration. The SBS client is then installed on the workstations that will be using the software.

Please open the Installation Manual and follow the steps to ensure a successful installation of CardExchange® Visitor on your system.

The CardExchange® Sales Team.

**Production | Visitors | People | Events | Time**

**Back to Main Page**

Download the License Manager here:

You can find all of our latest downloads for the License Manager and License manager tools on our [Network Utility Downloads page](#)

We need to install the license manager on the system, to do so click on the Install License Manager button to start the installation:




When the installation is started, click Next to proceed:





If you agree to the terms of this agreement, select accordingly and proceed by clicking Next:



Sentinel RMS License Manager 8.3.0 - InstallShield Wizard

**Customer Information**

Please enter your information.

**Sentinel RMS**  
Development Kit

User Name:  
CardExchange SBS User

Organization:  
CardExchange Solutions

Install this application for:

Anyone who uses this computer (all users)

Only for me ( )

InstallShield

< Back   Next >   Cancel

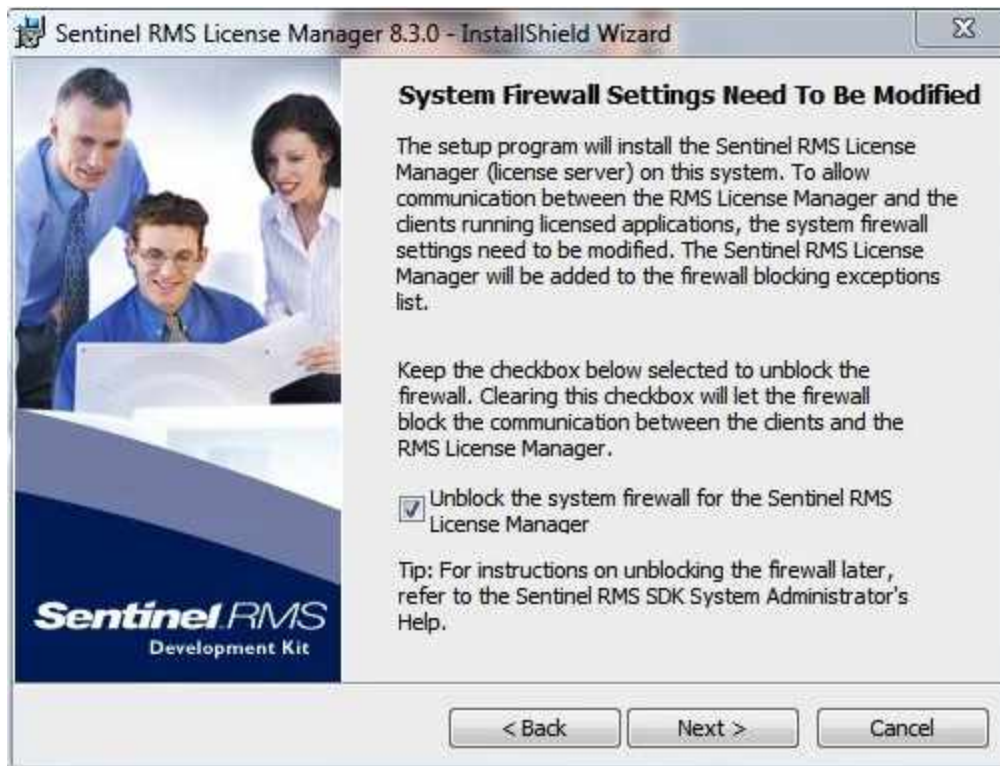
Enter the user and company information. We advice to install this application so that anyone can use it:



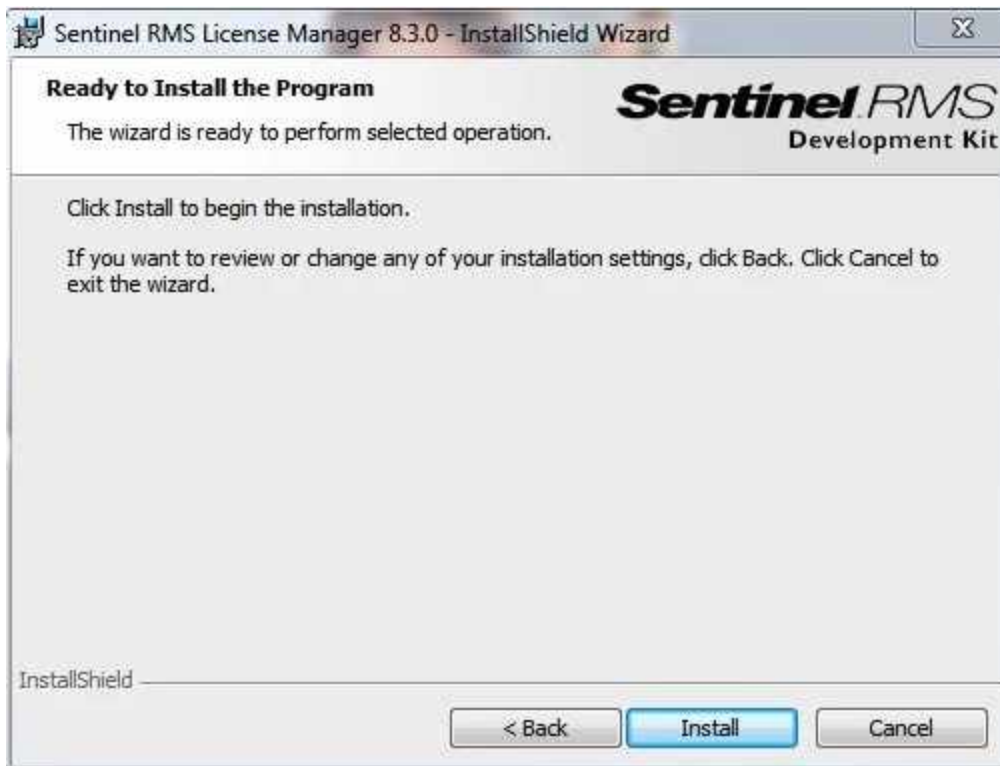
If applicable, change the destination folder of the application by clicking the Change button. However, we do advice to install it into the default installation folder:



Choose Complete installation and proceed with Next:



License assignment by the license manager goes via UDP protocol over your network (Port 5093). It is important that all the clients can freely communicate with the license manager therefore the license manager needs to address some ports for its communications. When installing, per default the installer can make the firewall modifications for you, as we advise to have the installer do so. If you want to do this manually, please uncheck the checkbox before proceeding:



Now you are ready to install the license manager on your system and you can click Install to start the installation. Click on Finish when the installation is done to close the installer.

### 3.2.3 License Manager Tools (WlmAdmin)

**CardExchange®**  
GATEWAY SUITE

**Installation Manual**

**Install License Manager**

**Install MySQL Server**

**Install Gateway Client**

**Browse CD**

**Retrieve Machine ID**

**License Activation**

Starting with the CardExchange® Visitor Business edition, you can also choose to use the Network License (SBS) Setup, this allow for concurrent licensing and the ability to run CardExchange® Visitor on a server operating system.

This would typically have the license manager installed on a server along with the database and configuration. The SBS client is then installed on the workstations that will be using the software.

Please open the Installation Manual and follow the steps to ensure a successful installation of CardExchange® Visitor on your system.

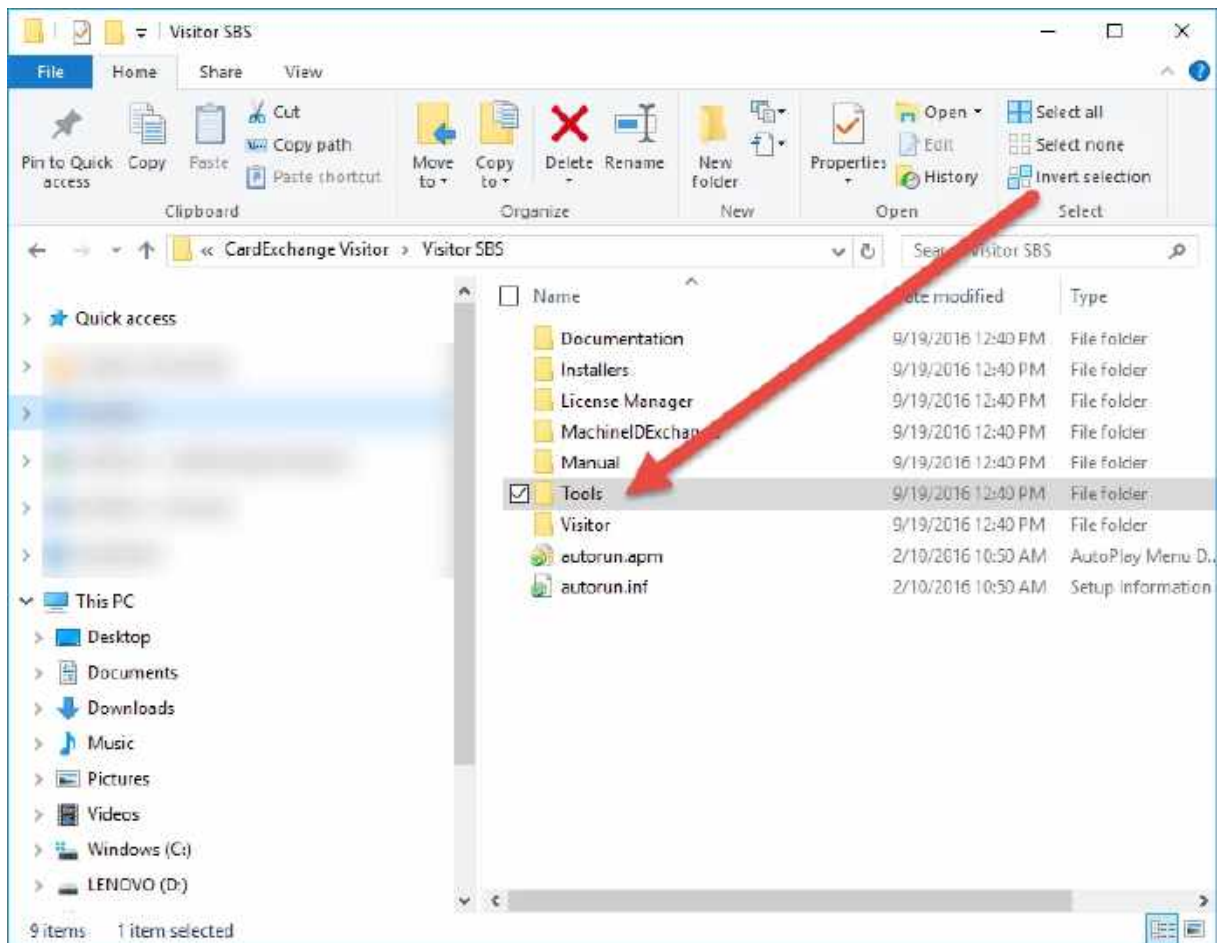
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**Back to Main Page**

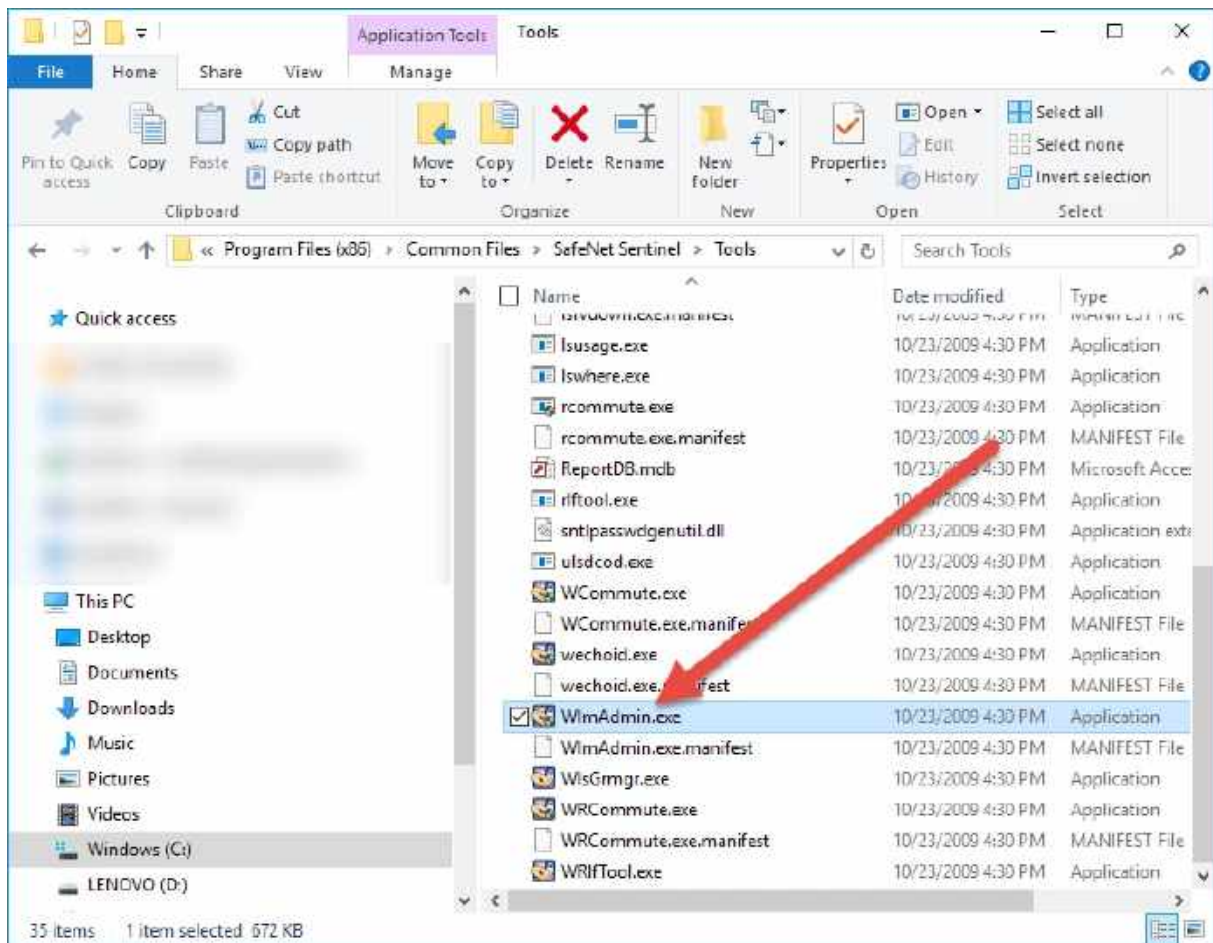
The license manager we just installed is running as a service on your system and has no interface of it's own. As we need to be able to install the licenses and manager the license manager, we need to use additional tools to configure the license manager. These so called tools can be simply copied to a location on the server or workstation the license manager is running on.

To do so just simple click on the Browse CD button and make a copy of the tools folder on the CD.

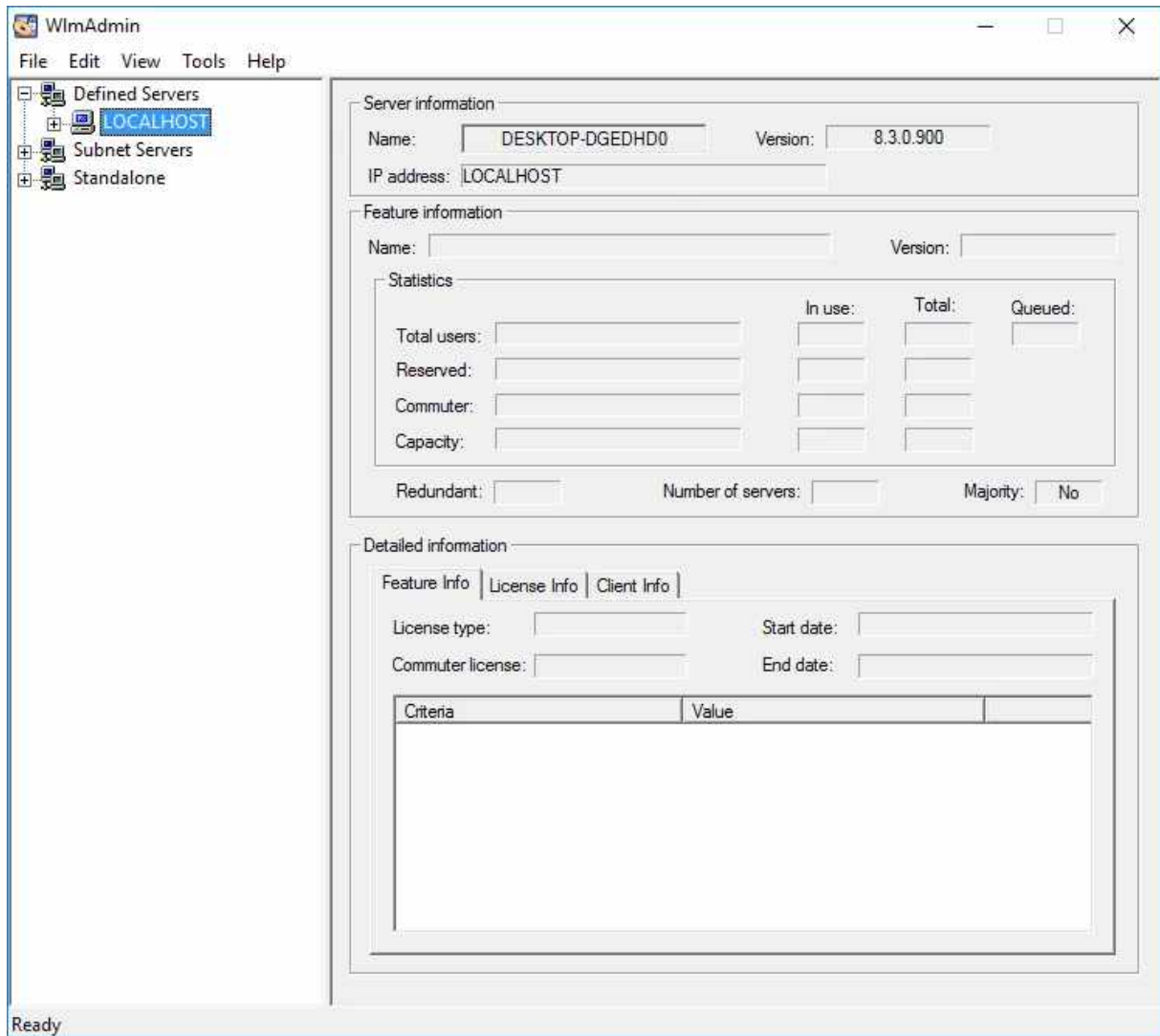


And copy this folder to a location on your server or workstation, for example to the folder C:\Program Files (x86)\Common Files\SafeNet Sentinel\Tools

Now browse the Tools folder and create a shortcut for the WlmAdmin.exe application as shown below, to any location that is convenient for you.



When you execute the WlmAdmin.exe application, an interface for the license manager will start.



This interface will inform you about the status of all your licenses, servers, and is needed to install your network licenses as explained in later steps of this help file.



### 3.2.4 Activating Network License



**CardExchange®**  
GATEWAY SUITE

[Installation Manual](#)

[Install License Manager](#)

[Install MySQL Server](#)

[Install Gateway Client](#)

[Browse CD](#)

[Retrieve Machine ID](#)

[License Activation](#)

Starting with the CardExchange® Visitor Business edition, you can also choose to use the Network License (SBS) Setup, this allow for concurrent licensing and the ability to run CardExchange® Visitor on a server operating system.

This would typically have the license manager installed on a server along with the database and configuration. The SBS client is then installed on the workstations that will be using the software.

Please open the Installation Manual and follow the steps to ensure a successful installation of CardExchange® Visitor on your system.

The CardExchange® Sales Team.

Production | Visitors | People | Events | Time

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Just like with the standard CardExchange® Producer licenses, the license manager needs to be activated to the Machine ID of the server or computer too. The only difference is that the Network License cannot be activated with a CardExchange® Producer client, but has to be done online via our website.

For activating the license we need to have the serial number, activation code, and the machine ID. The serial number and activation code are printed on the DVD box or you may have received them digitally via email. The machine ID needs to be retrieved with a simple

application that is available on this DVD. It is important that you run this application on the server or computer that is going to contain the license manager.

Now click on the Retrieve Machine ID button to start the MachineIDExchange application:

MachineIDExchange Tool Downloads:

If you don't have the MachineIDExchange tool on hand, you can download it from our [Network Utilities](#) Downloads page.

We offer two types, 10- for MAC address-based activations, and 4- for Hard disk-based activations. We recommend using 4- based activations for server installations.



If you are using an external license dongle, the machine ID will start with 80. For using an external license dongle, please install the dongle driver first. For instructions, please see the Using License Dongle section of this manual.

If you have retrieved the Machine ID and written it down, you can now open the [activation page](#) on our website.

Or click the License activation button in the menu.

Now enter all the information like serial number, activation code, and the machine ID into the fields like shown below:

## Activate a license

Serial number:

Activation code:

Machine ID:  x

When pressing the Activate button, the license will be activated by the License Server. This process can take up to 45 seconds. Please do not close this page during the activation of the license. When the activation succeeds, you will be prompted to download the file containing the activated license.

Activate

And click on Activate to start the activation process of the license. Activating a Network license can take up to 45 seconds. do not close the web page during the activation!

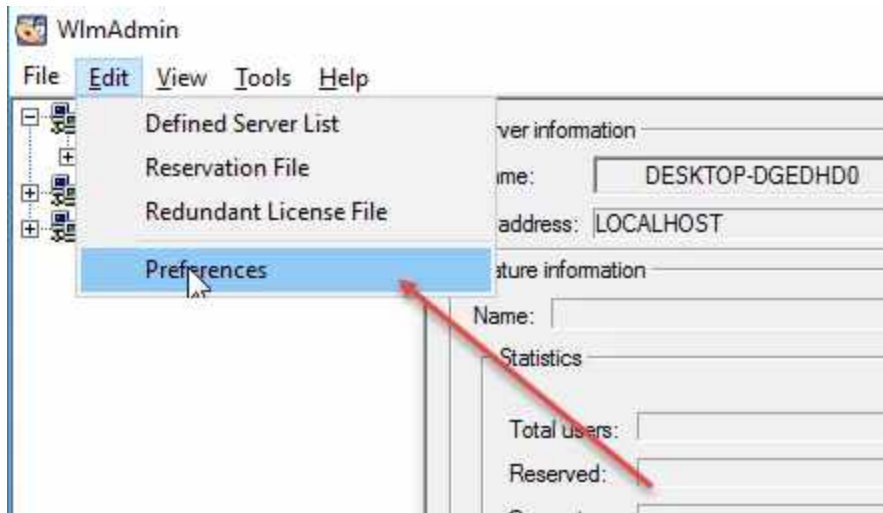
When the license has been activated you will be prompted to download the activated license file with the extension \*.LIC. This file needs to be saved to a location that can be accessed by the computer that is running the license manager

### 3.2.5 Configuring License Manager

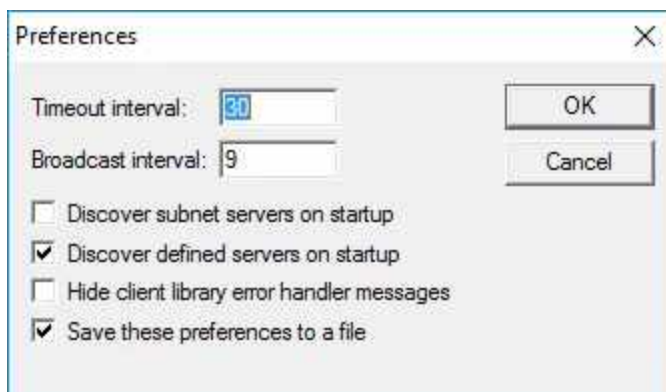
When the license has been activated, you can now configure the License Manager. To do so you have to start the WlmAdmin.exe application as explained in the License Manager Tools section of this manual.

#### **Set Preferences**

When the application is started we first need to set the Preferences of the license manager. To do so, select Preferences from the Edit menu as shown below:



This will open the Preferences window:

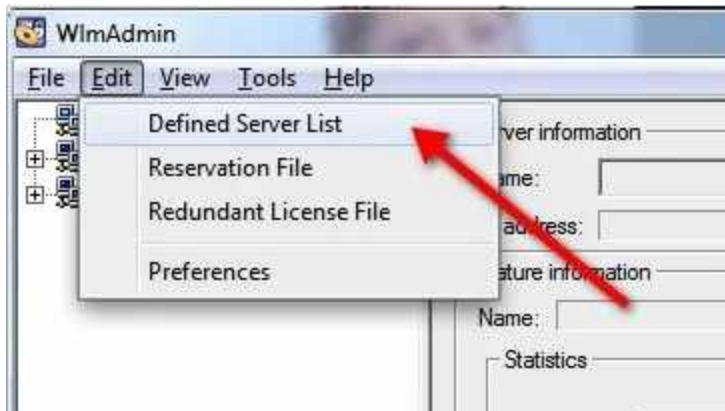


Make sure that you set all the options as shown in the screenshot; Check "Discover defined servers on startup" and "Save these preferences to a file". Click on OK to set the preferences and close the Preferences window.

---

### **Create the LOCALHOST server**

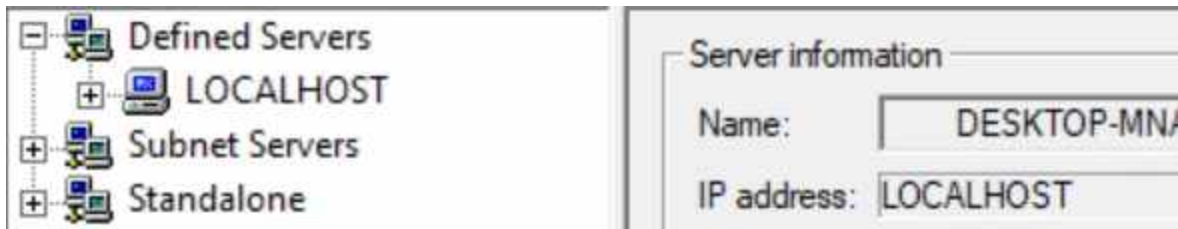
We need to define the server that is going to hold the licenses. To do so, select Defined Server List from the Edit menu as shown below:



This will open the Defined Server List window. Type "LOCALHOST" (*without the quotes*) and click on Add to add the server name and OK to close the Defined Server List window. You will be asked to add the server to the defined list:



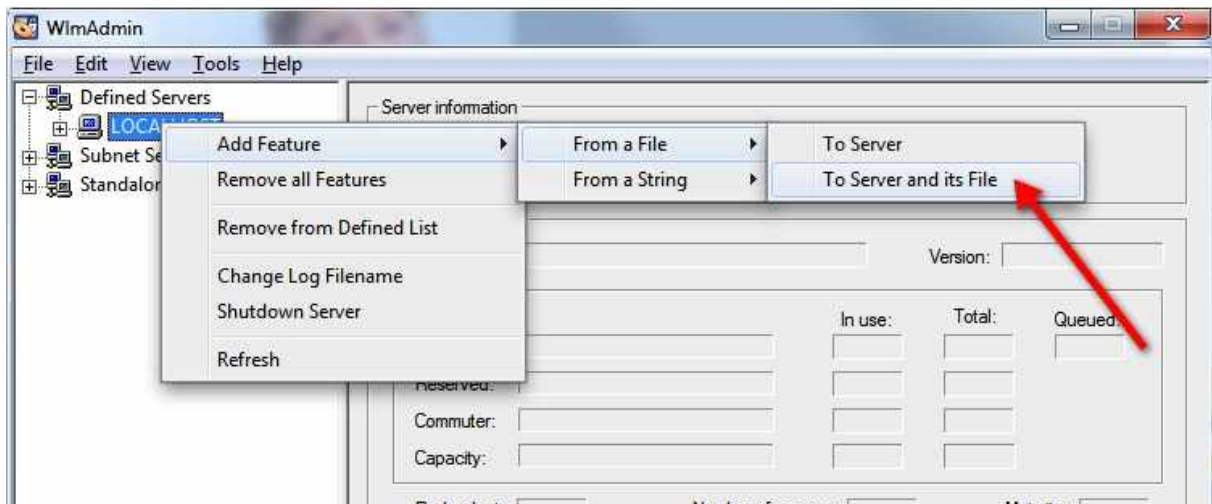
Click Yes to confirm. Your LOCALHOST server will then appear under your Defined Servers list. If you do not see it right away, it may be updating and checking for other servers. This process can take up to a minute.



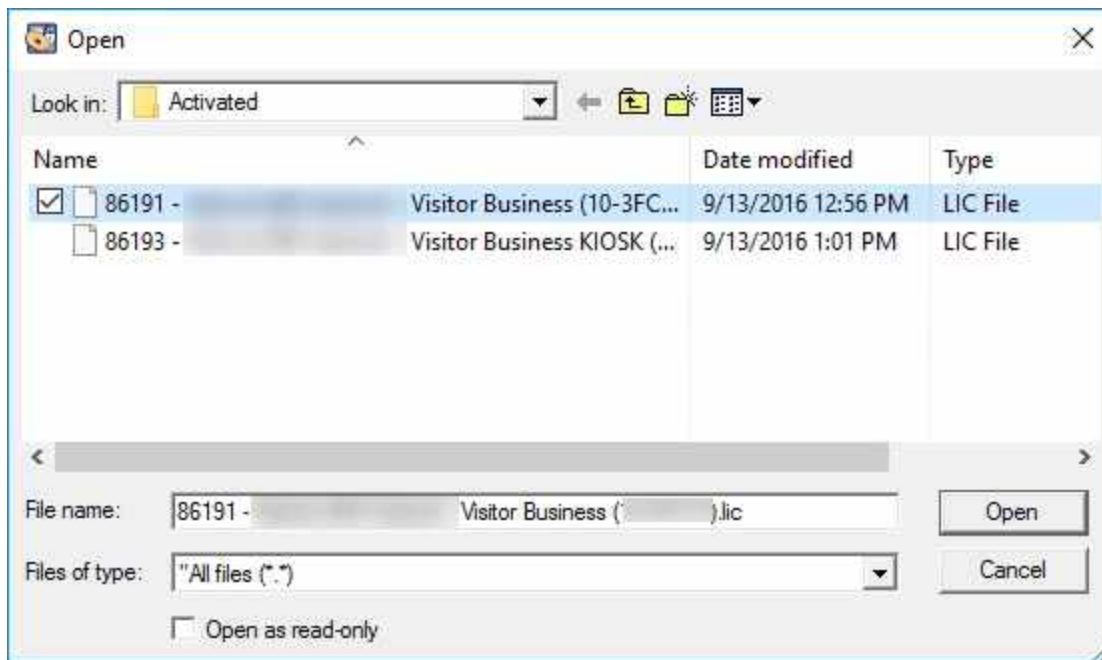
If you do not see your server in the Defined Servers list, check your Preferences and select View → Refresh All

### **Adding Licenses to the LOCALHOST server**

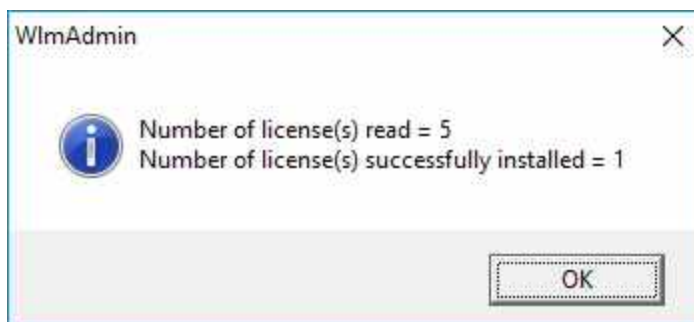
Add the license file to the license manager by right click on the LOCALHOST node in the Defined Servers tree and select Add Feature -> From File -> To Server and its File as shown below:



Browse to the location of the downloaded license file with the extension LIC, as shown below:

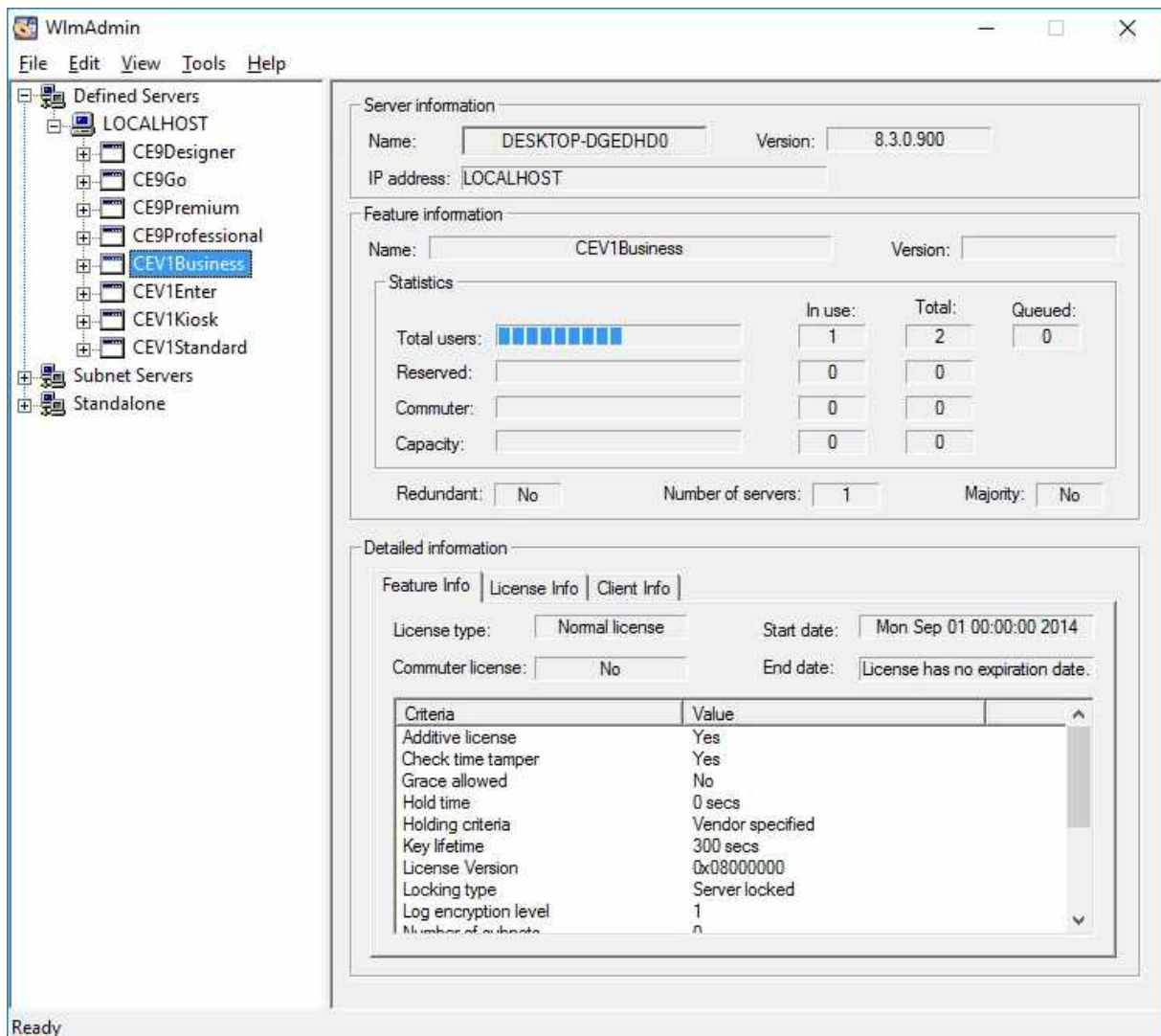


And click on Open. The licenses will now be installed and if the installation succeeds, the window below will be shown:



This message box indicates the number of licenses that it was able to read from the license file and the number of licenses that was successfully installed. This number is depending on the amount of client licenses purchased. Click on OK to confirm the installation.

The LOCALHOST node should now have one sub node for each license code as shown below:



By selecting the license, you can see in the license manager GUI how many licenses are available and how many licenses are in use.

Don't forget, the License Manager is a Windows service and this GUI does not need to be started to have the system working. After you are done with the configuration, you can close this window.

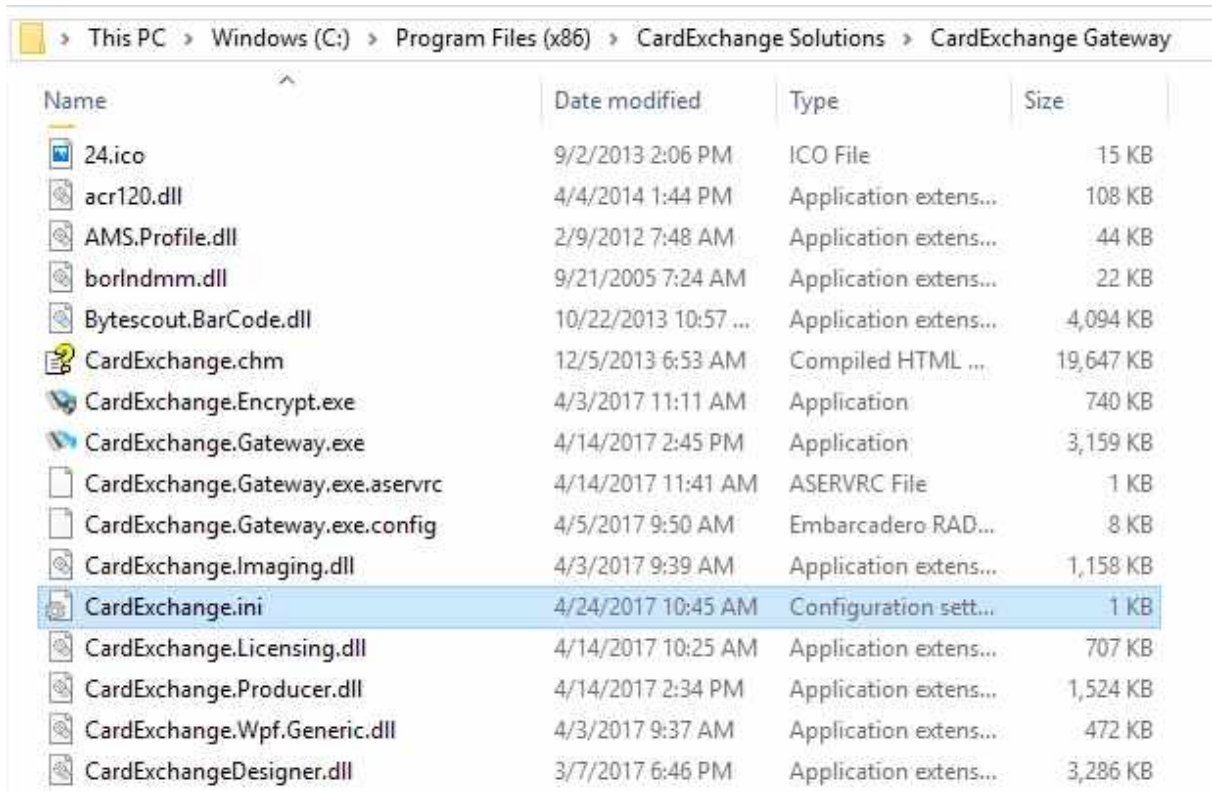
This concludes the installation and configuration of the License Manager and Procedure One. Now we start installing the CardExchange® Producer clients on Desktop computers or on the server.



### 3.2.6 Configure Client Installation

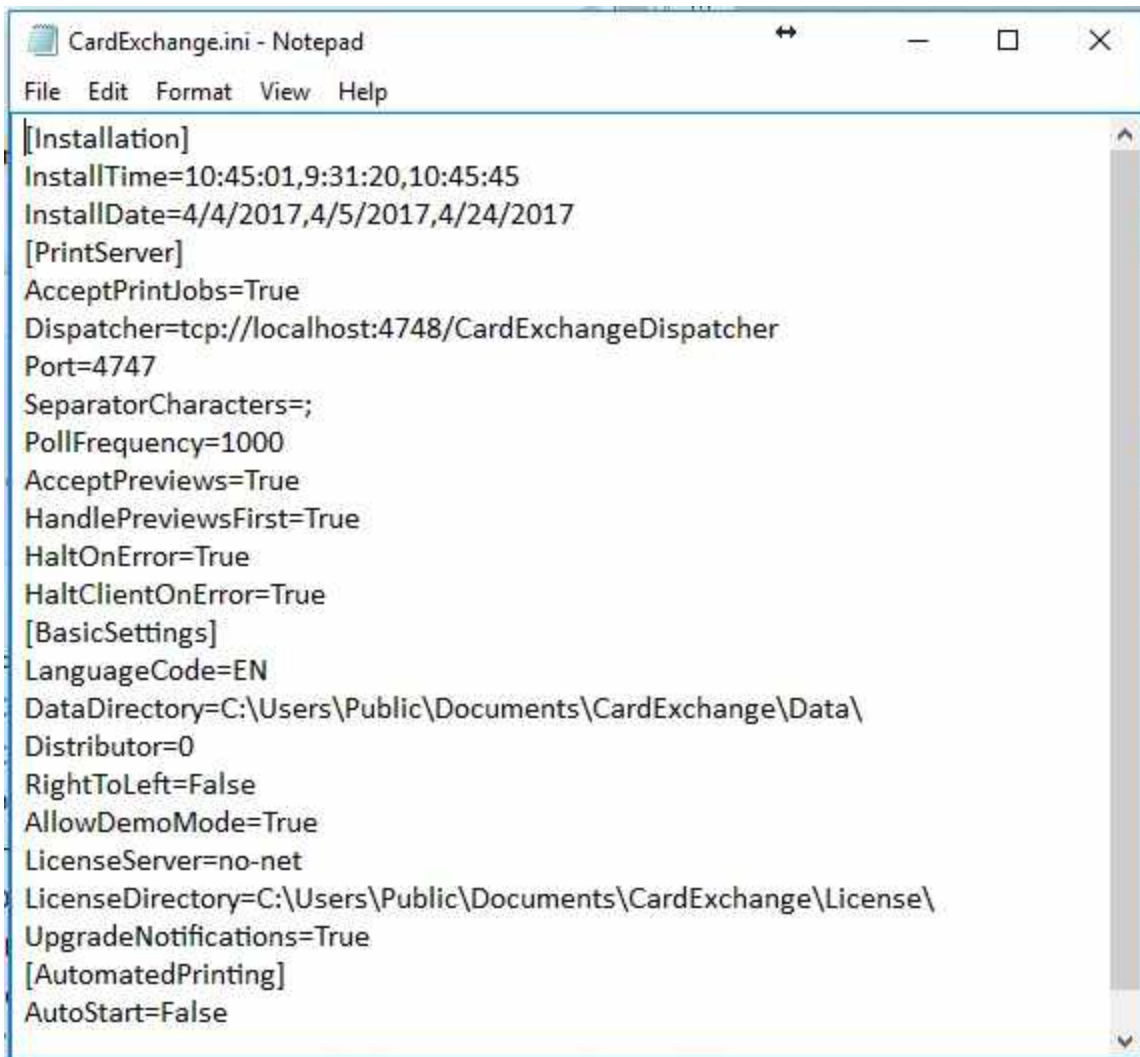
After you have installed the CardExchange® Producer Client on your system(s), each client needs to be configured to get access to the license server. The location of the license manager is set in the CardExchange® Producer configuration file.

This CardExchange.ini file is located in the installation directory you selected during the installation, typically this would by default be C:\Program Files (x86)\CardExchange Solutions\CardExchange Gateway\ for CardExchange® Producer.



Name	Date modified	Type	Size
24.ico	9/2/2013 2:06 PM	ICO File	15 KB
acr120.dll	4/4/2014 1:44 PM	Application extens...	108 KB
AMS.Profile.dll	2/9/2012 7:48 AM	Application extens...	44 KB
borindmm.dll	9/21/2005 7:24 AM	Application extens...	22 KB
Bytescout.BarCode.dll	10/22/2013 10:57 ...	Application extens...	4,094 KB
CardExchange.chm	12/5/2013 6:53 AM	Compiled HTML ...	19,647 KB
CardExchange.Encrypt.exe	4/3/2017 11:11 AM	Application	740 KB
CardExchange.Gateway.exe	4/14/2017 2:45 PM	Application	3,159 KB
CardExchange.Gateway.exe.aservrc	4/14/2017 11:41 AM	ASERVRC File	1 KB
CardExchange.Gateway.exe.config	4/5/2017 9:50 AM	Embarcadero RAD...	8 KB
CardExchange.Imaging.dll	4/3/2017 9:39 AM	Application extens...	1,158 KB
CardExchange.ini	4/24/2017 10:45 AM	Configuration sett...	1 KB
CardExchange.Licensing.dll	4/14/2017 10:25 AM	Application extens...	707 KB
CardExchange.Producer.dll	4/14/2017 2:34 PM	Application extens...	1,524 KB
CardExchange.Wpf.Generic.dll	4/3/2017 9:37 AM	Application extens...	472 KB
CardExchangeDesigner.dll	3/7/2017 6:46 PM	Application extens...	3,286 KB

You can open and edit this file using Notepad or Notepad++

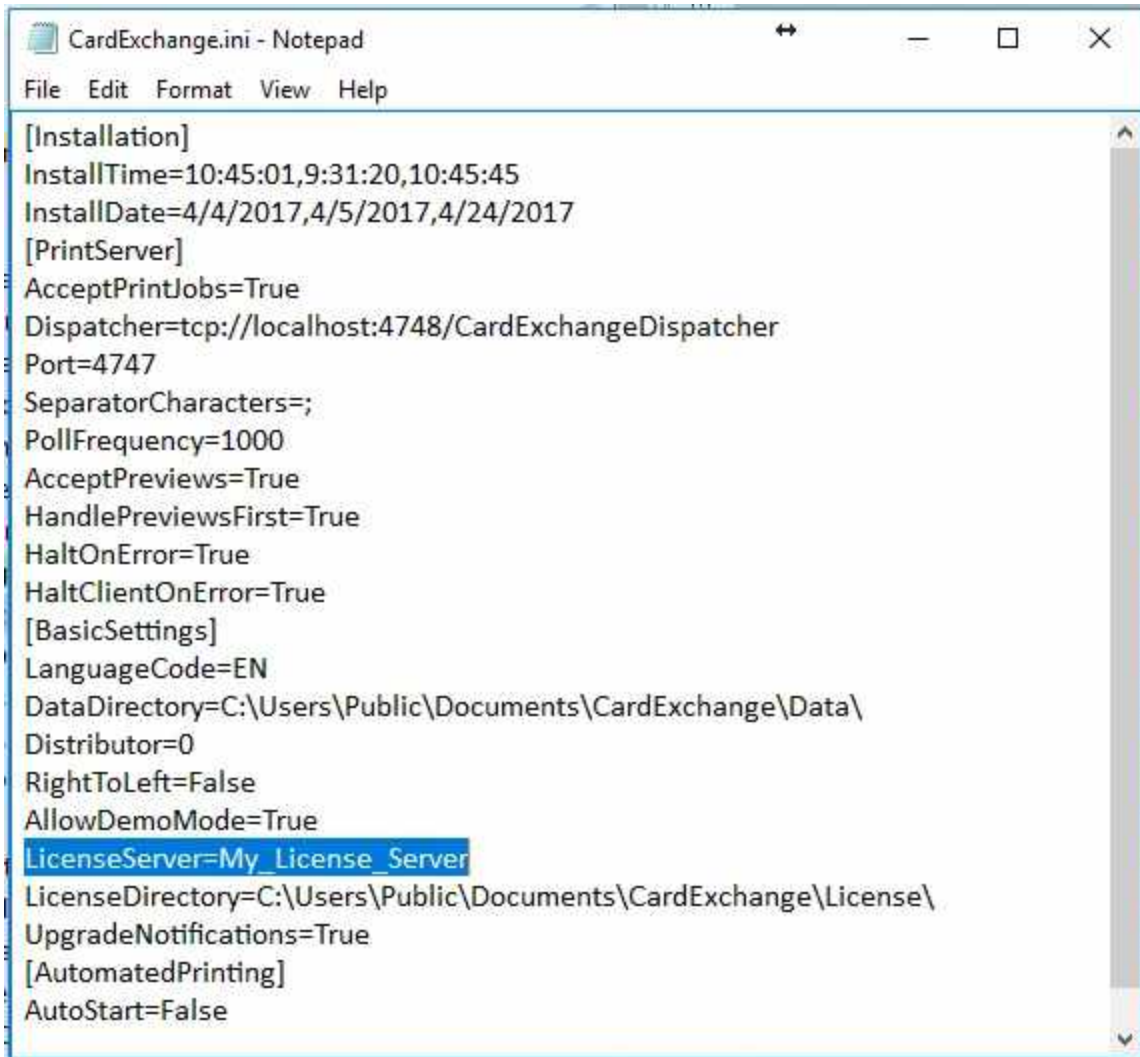
A screenshot of a Notepad window titled "CardExchange.ini - Notepad". The window contains the following configuration text:

```
File Edit Format View Help

[[Installation]
InstallTime=10:45:01,9:31:20,10:45:45
InstallDate=4/4/2017,4/5/2017,4/24/2017
[PrintServer]
AcceptPrintJobs=True
Dispatcher=tcp://localhost:4748/CardExchangeDispatcher
Port=4747
SeparatorCharacters=;
PollFrequency=1000
AcceptPreviews=True
HandlePreviewsFirst=True
HaltOnError=True
HaltClientOnError=True
[BasicSettings]
LanguageCode=EN
DataDirectory=C:\Users\Public\Documents\CardExchange\Data\
Distributor=0
RightToLeft=False
AllowDemoMode=True
LicenseServer=no-net
LicenseDirectory=C:\Users\Public\Documents\CardExchange\License\
UpgradeNotifications=True
[AutomatedPrinting]
AutoStart=False
```

The location of the license server is set as the named entry `LicenseServer`. by default this entry is set to "no-net" and CardExchange® Producer will use the `LicenseDirectory` during the start up.

Now replace the "no-net" with the name or the IP address of the server or computer that is running the license server.



```
CardExchange.ini - Notepad
File Edit Format View Help

[Installation]
InstallTime=10:45:01,9:31:20,10:45:45
InstallDate=4/4/2017,4/5/2017,4/24/2017
[PrintServer]
AcceptPrintJobs=True
Dispatcher=tcp://localhost:4748/CardExchangeDispatcher
Port=4747
SeparatorCharacters=;
PollFrequency=1000
AcceptPreviews=True
HandlePreviewsFirst=True
HaltOnError=True
HaltClientOnError=True
[BasicSettings]
LanguageCode=EN
DataDirectory=C:\Users\Public\Documents\CardExchange\Data\
Distributor=0
RightToLeft=False
AllowDemoMode=True
LicenseServer=My_License_Server
LicenseDirectory=C:\Users\Public\Documents\CardExchange\License\
UpgradeNotifications=True
[AutomatedPrinting]
AutoStart=False
```

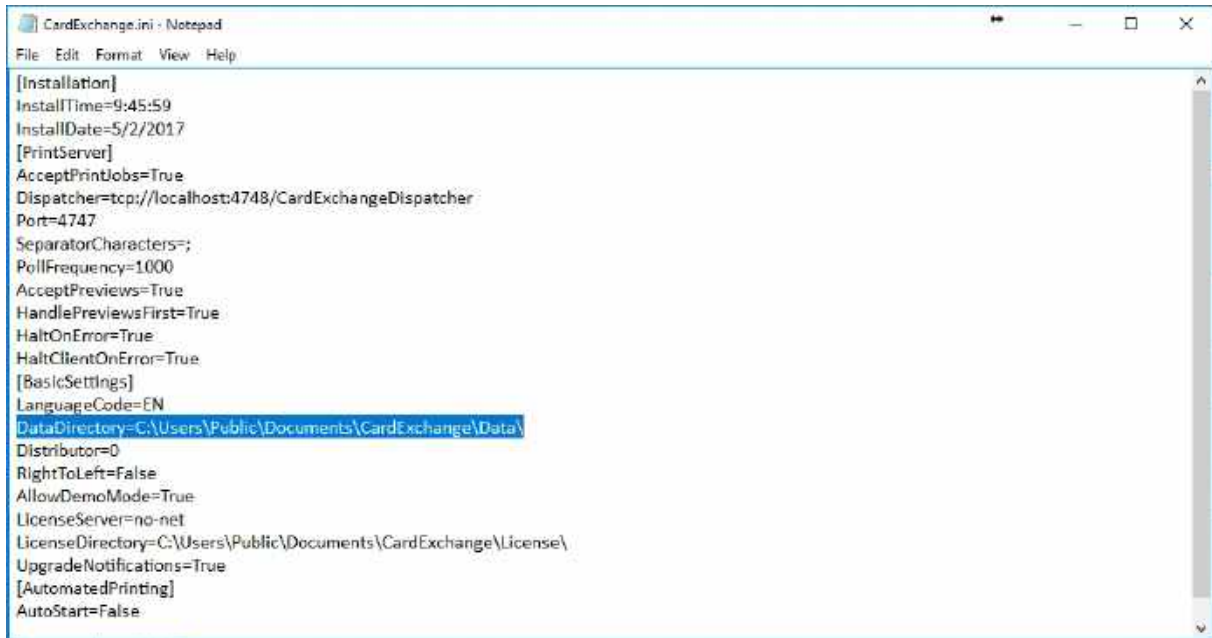
Now save the configuration file and start CardExchange® Producer. When starting the application will request a license from the license manager.

If available it will start directly, if all licenses are in use it will inform the user that all licenses are in use. As soon as another client is closed, the license will become available again.

### 3.2.7 Configure Shared Folders

CardExchange® Producer Business Edition and Enterprise Edition licenses allow multiple installations to share the same configuration, which in that case will likely be located on a network drive. Therefore all clients need to point to the same folder locations.

Usually you would just have the Data folder in a central location which would be shared with all users, this can be set by editing the CardExchange.ini file and editing the Data Directory line with the correct path.



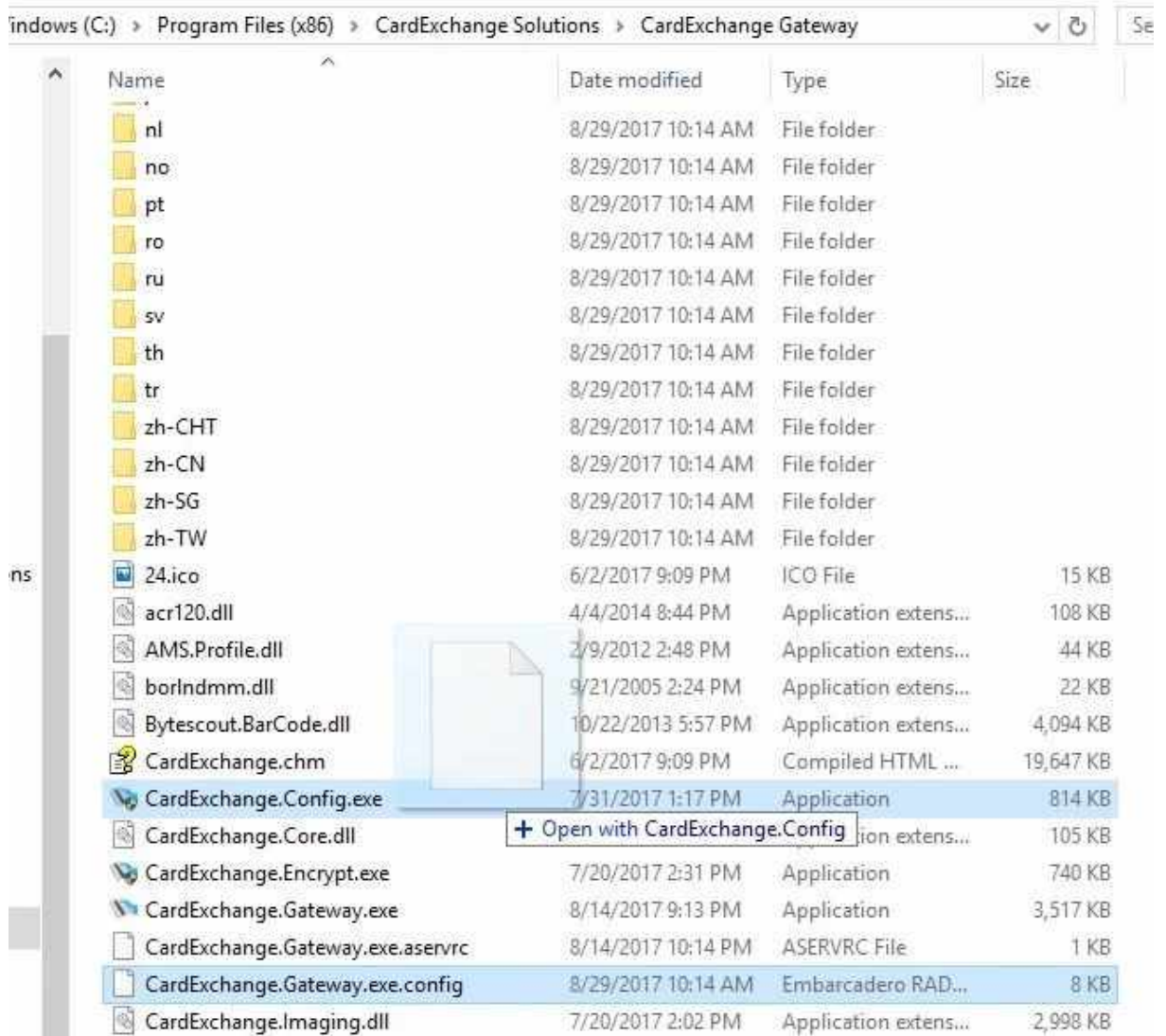
```
CardExchange.ini - Notepad
File Edit Format View Help
[Installation]
InstallTime=9:45:59
InstallDate=5/2/2017
[PrintServer]
AcceptPrintJobs=True
Dispatcher=tcp://localhost:4748/CardExchangeDispatcher
Port=4747
SeparatorCharacters=
PollFrequency=1000
AcceptPreviews=True
HandlePreviewsFirst=True
HaltOnError=True
HaltClientOnError=True
[BasicSettings]
LanguageCode=EN
DataDirectory=C:\Users\Public\Documents\CardExchange\Data
Distributor=0
RightToLeft=False
AllowDemoMode=True
LicenseServer=no-net
LicenseDirectory=C:\Users\Public\Documents\CardExchange\License\
UpgradeNotifications=True
[AutomatedPrinting]
AutoStart=False
```

Now save the configuration file and start CardExchange® Producer. When starting, it will now use the folder location as defined in this file.

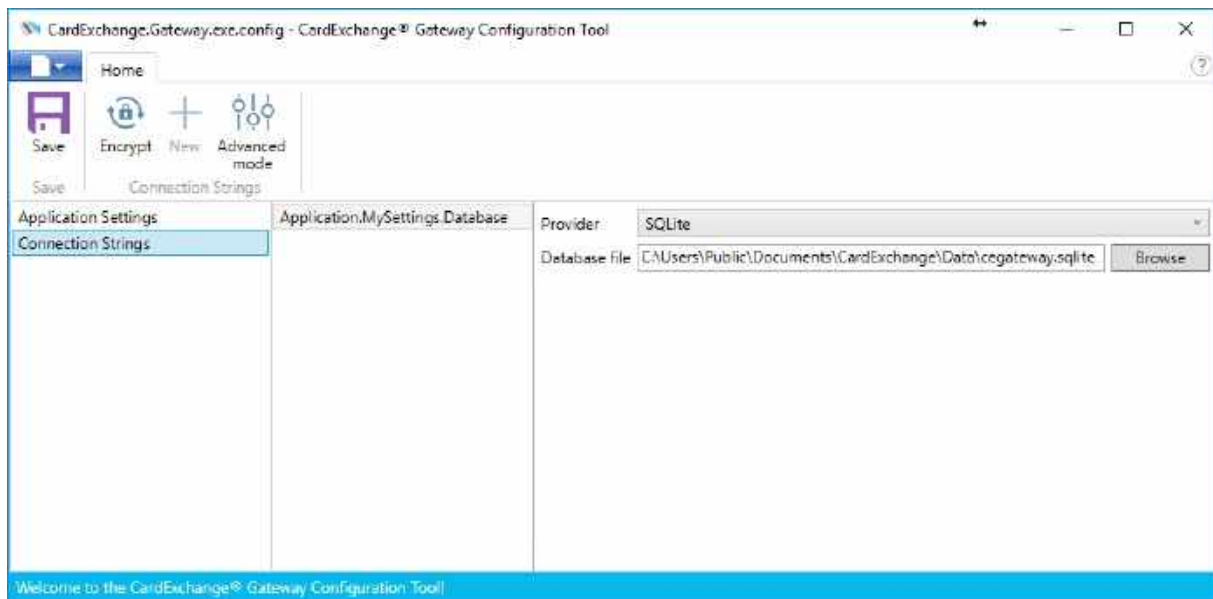
The login and permissions information is stored in the SQLite database within the Data folder, if you are planning on moving the Data folder location or you plan on sharing it among multiple users then you will need to change the path to this in the CardExchange.Gateway.exe.config file.

The database file is called cegateway.sqlite.

You can open these files using the CardExchange.Config utility in the install folder. If you drag the config file onto the config utility it will automatically open in it.

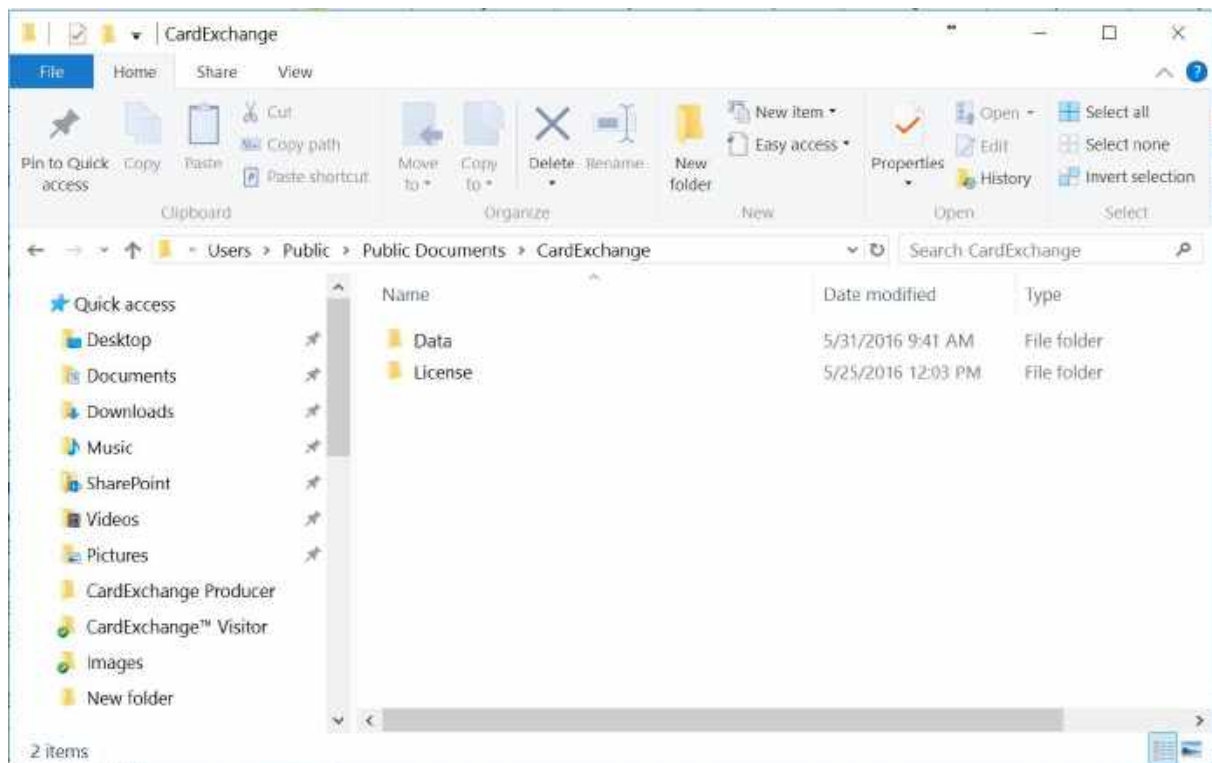


Here you can set the path to the new location under the connection strings tab.

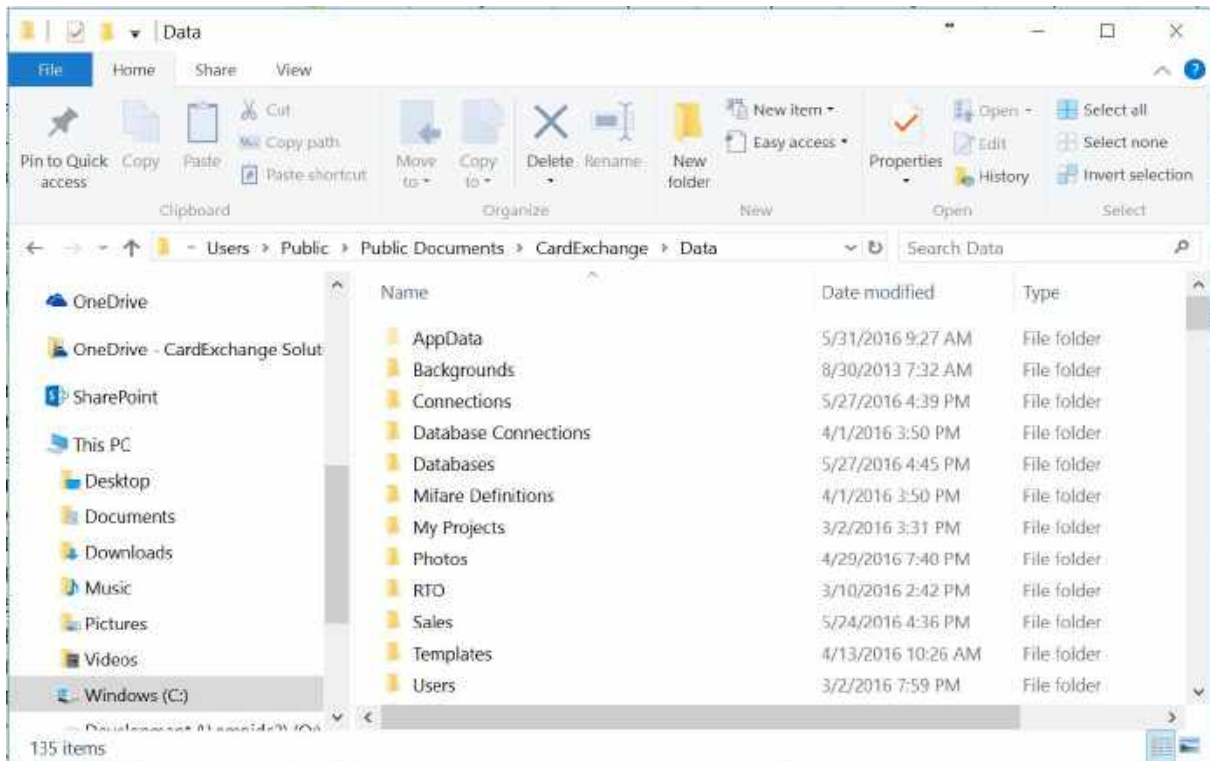


### 3.3 Data Folder

During the installation you are asked to select a location for your Data folder. By default this folder is installed in your Public Documents folder (C:\Users\Public\Documents\CardExchange\Data).



The Data folder is very powerful and unique at the same time. Everything that you design like templates, database connections, encoding files, etc., all these files are stored in the Data folder.



When you open the Data folder you see the sub folders for Backgrounds, Clipart, Database, Database Connections, Photos, and Templates. Even if you store your designs somewhere else, a local copy of of the original is always made in this Data folder.

The Data folder also contains all the configuration from all the different templates. We therefore strongly advice to make regular backups from this Data folder especially when you have made changes in your configuration.

If your computer crashes and you need to reinstall the software, or if you need to move to a new PC, you can simply install the software and activate it as you did originally. You can then restore the backup of the Data folder, start the software and all your card templates and configurations are restored allowing you to continue working.

The Data folder can be located on any location, also on a network server. The Data folder can however not be shared between different installations when using the GO Edition, Premium Edition or Professional Edition of CardExchange® Producer. Each license needs to have it's own unique Data folder.

If you want shared Data folders, you will have to use the Business Edition or Enterprise Edition of CardExchange® Producer.

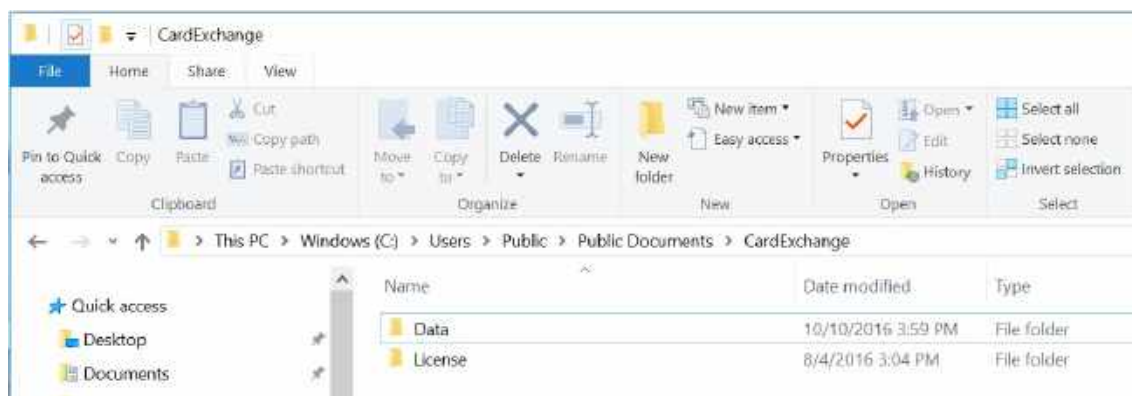


### 3.4 Transfer To New PC

If you are looking to transfer your installation to a new PC, then you can follow the below steps:

1. Install CardExchange® Producer on the new PC
2. Copy the Data directory from the old PC, by default this is located in the following location depending on the application:

[C:\Users\Public\Documents\CardExchange\Data](#)



3. Delete the Data directory from the same location on the new PC and copy in the backup from the old PC
4. Run CardExchange® Producer and check that everything is ok
5. Enter your original serial number and activation code in the activation wizard to activate to the new PC

Note

***If you are asked for an unlock when running the software, it is likely because Windows tried to merge the copied data folder with the existing one. Please make sure that you either rename or delete the existing data folder before copying over the data folder from the old PC.***

In some cases the data folder may not be in the default location, for example it may be on a network share so that it is always backed up.

If this is the case you can check the current path being used for the data folder, to do this you will need to open the CardExchange.ini configuration file from the old PC which is located in the installation directory.

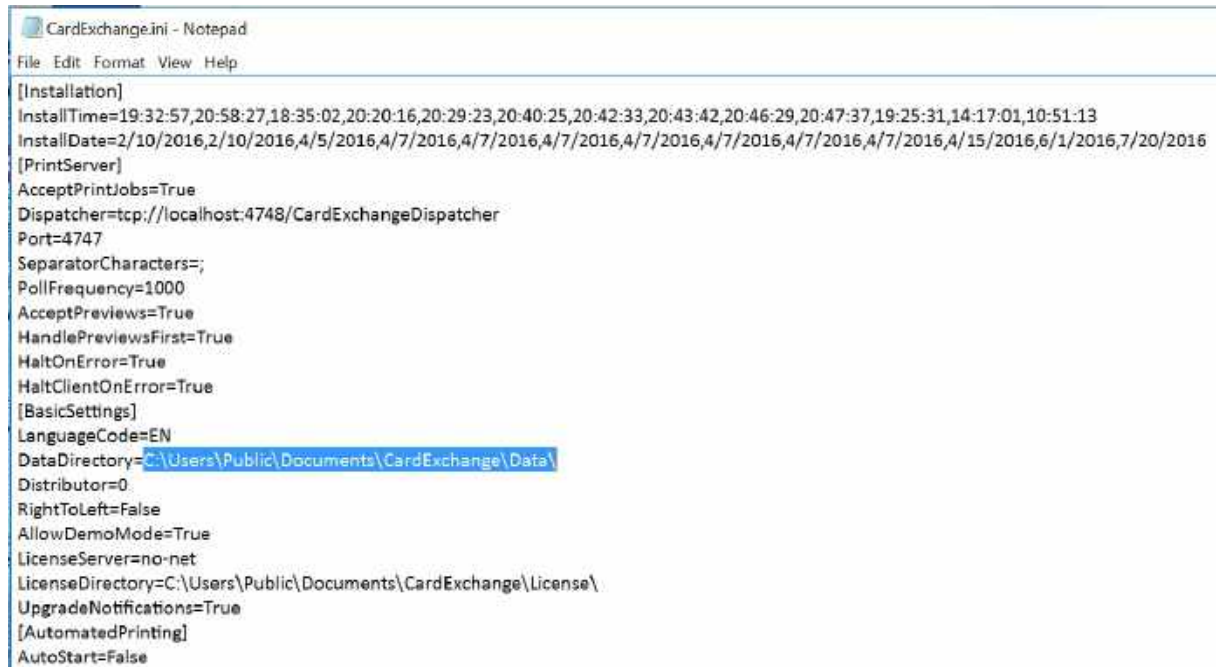
Depending on the original version that was installed this could be one of the below locations:

For CardExchange® Producer:

C:\Program Files (x86)\CardExchange Solutions\CardExchange Gateway\

C:\Program Files (x86)\CardExchange Solutions\CardExchange Producer\

C:\Program Files (x86)\ExchangeIT\CardExchange\



```
CardExchange.ini - Notepad
File Edit Format View Help
[Installation]
InstallTime=19:32:57,20:58:27,18:35:02,20:20:16,20:29:23,20:40:25,20:42:33,20:43:42,20:46:29,20:47:37,19:25:31,14:17:01,10:51:13
InstallDate=2/10/2016,2/10/2016,4/5/2016,4/7/2016,4/7/2016,4/7/2016,4/7/2016,4/7/2016,4/7/2016,4/7/2016,4/15/2016,6/1/2016,7/20/2016
[PrintServer]
AcceptPrintJobs=True
Dispatcher=tcp://localhost:4748/CardExchangeDispatcher
Port=4747
SeparatorCharacters=;
PollFrequency=1000
AcceptPreviews=True
HandlePreviewsFirst=True
HaltOnError=True
HaltClientOnError=True
[BasicSettings]
LanguageCode=EN
DataDirectory=C:\Users\Public\Documents\CardExchange\Data
Distributor=0
RightToLeft=False
AllowDemoMode=True
LicenseServer=no-net
LicenseDirectory=C:\Users\Public\Documents\CardExchange\License\
UpgradeNotifications=True
[AutomatedPrinting]
AutoStart=False
```

If you open the ini file in notepad you will see an entry for DataDirectory which will show you the current path. If it is a network share then you can simply point the new installation to the same network share, otherwise you can just copy the folder and change the path following the same steps above.

**Note: This Data folder is automatically backed up when an upgrade is installed, however we recommend making regular backups of this folder as it contains all of the configuration files/templates/logins etc... for your installation.**

## 4 Using the Main Interface

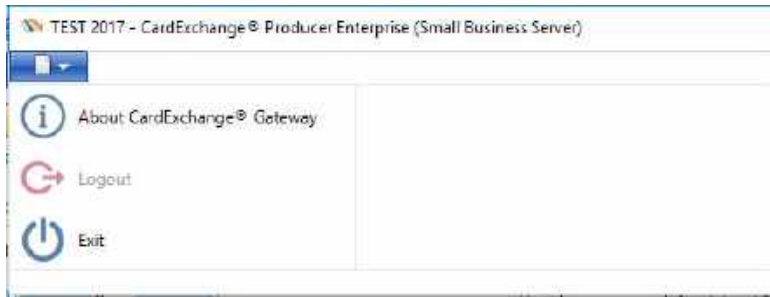
The CardExchange® Producer Main Interface is known as the most easiest to use interface in this market. After the system is configured, you only have to make a card-template selection from Loaded cards menu on the left, select a record or records that needs to be printed from the data-grid, take a picture or capture a signature via the buttons on the right, and produce the card(s) by simply clicking on the Print button.



### 4.1 Menu Overview

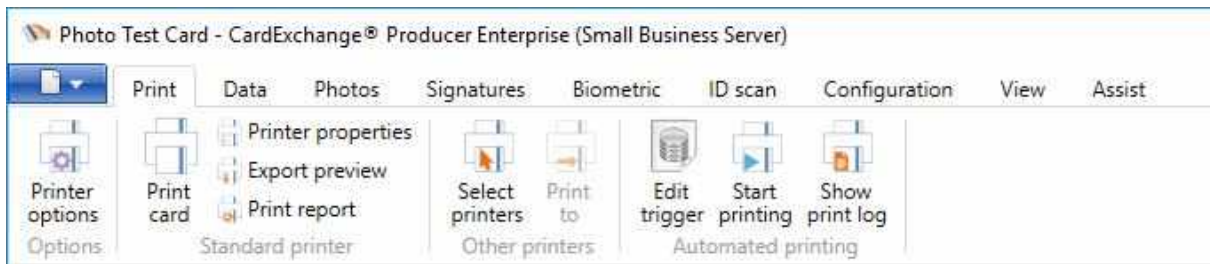
Open the menu by clicking on the Application button on the left upper corner. In this menu you can select to logout if you are using [User Authorizations](#).

You can also click on [About](#) to show you information like your serial number and installed version. Last but not least, the Exit button that closes CardExchange® Producer.



## 4.2 Ribbon Overview

CardExchange® Producer offers a lot of functionality for printing, producing, and creating cards. The Main Interface of CardExchange® Producer is especially designed to create a very user-friendly production environment.

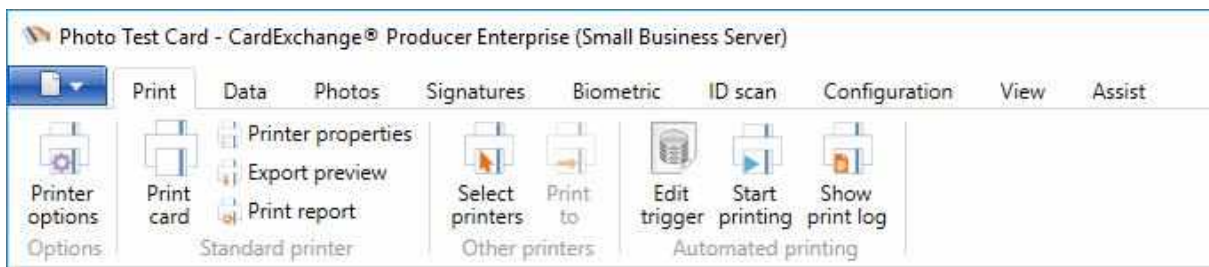


All the functionality is organized within each separate tab of the Main Interface ribbon.

TAB	DESCRIPTION
<a href="#">Print</a>	All functionality related to printing
<a href="#">Data</a>	All functionality related to data editing
<a href="#">Photos</a>	All functionality related to using photos
<a href="#">Signatures</a>	All functionality related to using signatures
<a href="#">Biometric</a>	All functionality related to using Biometric features
<a href="#">ID scan</a>	All functionality related to using ID scanner features
<a href="#">Configuration</a>	All available configuration functionality
<a href="#">View</a>	All available settings regarding the current view
<a href="#">Assist</a>	All functionality related to service and support of CardExchange® Producer

### 4.2.1 Print

The Print tab is organized in different groups with specific functionality.

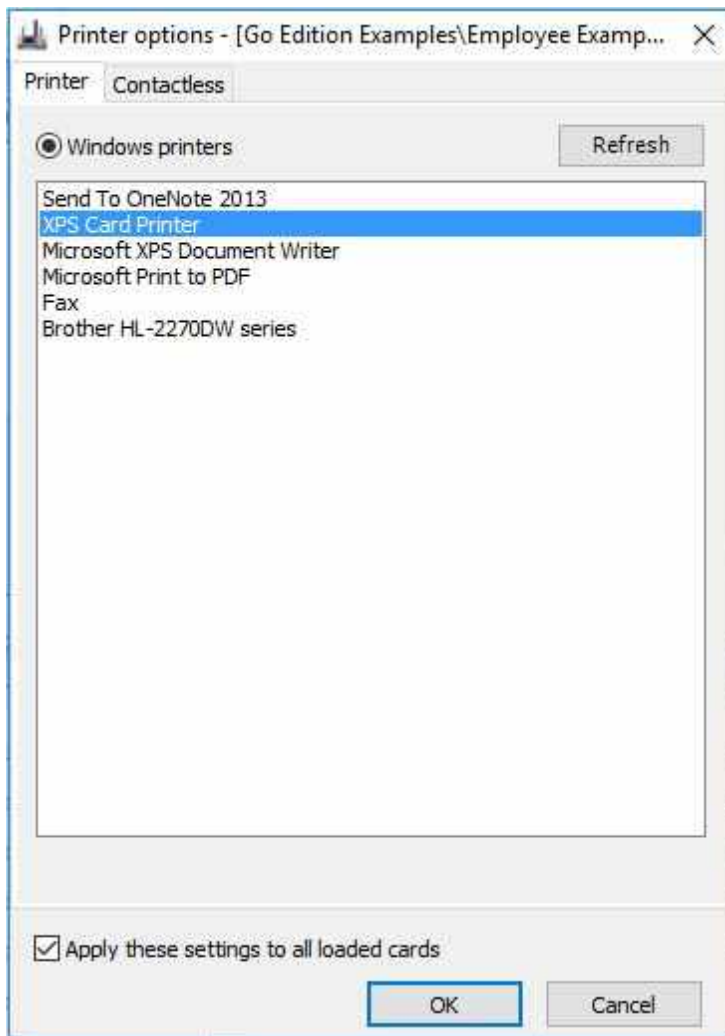


Group	Function(s)	Description
Options	<a href="#">Printer Options</a>	Configure your printer(s), contactless encoding
Standard printer	Print card	Opens the print dialog
	Printer properties	Opens the printer properties dialog of the selected printer
	Export preview	Exports a preview of the card as a file
	Print report	Opens the Print report dialog
Windows printers	<a href="#">Select printers</a>	Select printer(s) that can be directly accessed via <b>Print to</b> and the <a href="#">Explorer Menu</a>
	Print to	Print directly to the selected Printer from the drop down menu
<a href="#">Automatic printing</a>	Edit trigger	Edit and activate the printing trigger
	Start printing	Start automatic printing if configured
	Show print log	Show the print log

For more detailed information about printing, please visit the ["Printing Cards"](#) section of this Help file...

#### 4.2.1.1 Printer Options

When the printer options window is opened, it will present all the installed Windows Printers on the system CardExchange® Producer is running on. Just select the printer you want to use from the list view and click on OK to confirm.



If you want to use the selected printer for all loaded card-templates, make sure you check "Apply these settings to all loaded cards" otherwise each card-template will have it's own specific printer connected.

#### 4.2.1.1.1 Contactless

In the Contactless tab you are able to test your hardware configuration for encoding contactless cards.

Printer options - [Go Edition Examples\Employee Examp... X

Printer Contactless

Reader info

Reader type: Pro-Active

Serial port:

Baud rate: 38400

PC/SC version: 2

Reader pin code: 0000000000000000

Test reader with card movements:

Refresh Test

Time delays

Time delay before encoding: 2000 ms

Time delay after printing: 100 ms

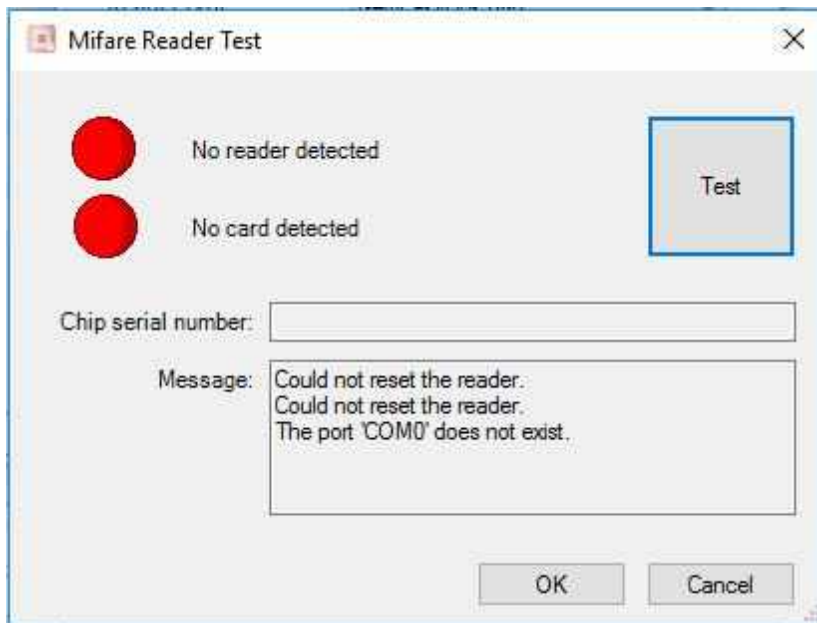
Apply these settings to all loaded cards

OK Cancel

### The Reader Info Section

- **Reader type** - Select the reader being used inside your printer or external
- **Serial port** - Select the serial port the reader communicates with (not applicable for PC/SC)
- **Baud rate** - Select the baud rate (speed) of the used reader
- **PC/SC version** - When PC/SC readers are used, select the version 1 or 2
- **Reader pin code** - If reader requires a pin for access, you have to enter it here
- **Test reader with card movements** - Set to True or False

In the Reader Info Section you can also find two buttons. The button Refresh refreshes the list of readers available in the Reader type drop down menu. When a new PC/SC reader is added to the system, this button needs to be pressed to make it available. The second button is the Test button. Depending on card movements setting, clicking this button will move the card to the encoding position of the printer that is selected in the [Printer Options](#) section and will test the reader.



In the reader test window it will indicate if CardExchange® Producer is able to communicate with the reader, and if a card is presented, can read the CSN (Chip Serial Number). These test are clearly marked with Red and Green lights.

When using older printers that works with so called escape commands to move the card in the encoding position, there is no information shared about the exact position of the card in the printer. For these printers we need to set the Time delays in the Time delays section.

There are basically two settings that can be entered; Time delay before encoding and Time delay after printing. The average time delay after printing is round 30 seconds (30.000 ms). On the the moment that the card is electronically processed, it will be set to print position. On that moment CardExchange® Producer will prepare the next card for encoding, when printing multiple cards of course. After 30 seconds, independently of the state the printer is in, CardExchange® Producer will instruct the reader to access the card. With these older printers you will have to play a little with these time delays to get the best results. Don't forget to make sure to check the Configuration settings in the [Advanced options](#) for using Factory or non-factory build in readers.

Factory build in readers normally work via SDK's (Software Development Kits) that give CardExchange® Producer full control of the printer and time delays are normally never needed and can stay in the default settings of 2000 ms.

1 sec = 1.000 ms

Of course, all these setting made can apply for all cards or the selected card only.



For more information about Contactless encoding, please see our [Using Contactless Encoding](#) section of this Help file.

#### 4.2.1.1.2 Magnetic

In the Magnetic tab you can set the start and stop commands for the printers to encode the magnetic stripe. Most common start and stop commands can be found on our [CardExchange® Producer End-Users Forum](#). Of course, these settings can apply to all cards or the selected card only.

The screenshot shows a dialog box titled "Printer options - [Go Edition Examples\Employee Examp...". It has three tabs: "Printer", "Contactless", and "Magnetic". The "Magnetic" tab is active. The dialog contains the following elements:

	Start of data	End of data
Track 1:	~1%	?
Track 2:	~2;	?
Track 3:	~3;	?

Below the table is a checkbox labeled "Convert all data to upper case" which is checked.

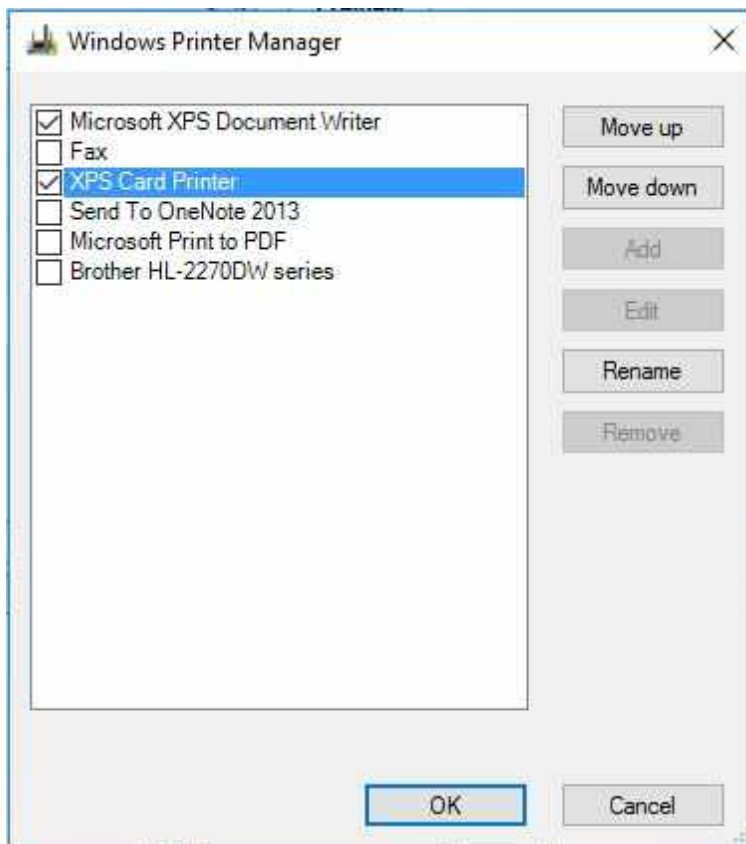
At the bottom of the dialog is another checkbox labeled "Apply these settings to all loaded cards" which is also checked. Below this checkbox are two buttons: "OK" and "Cancel". The "OK" button is highlighted with a blue border.

**IMPORTANT!** These Start and Stop commands only apply when using the old version 6 Designer! Magnetic encoding via CardExchange® Producer 7 and higher is explained in the "[Using Magnetic Encoding](#)" section

of this Help File! This Magnetic tab is hidden by default, to show it you need to enable the show advanced mappings option under [Advanced Options](#).

#### 4.2.1.2 Select Windows Printers

Besides the fact that each card-template can have it's own unique printer connected, via the Windows Printers functionality, you can make specific Windows printers available to overrule the default card-template printer which you configure in the [Printer Options](#) section.



When the Windows Printer Manager window is opened, you can make the printer available by checking the check box in the list view. You can also move printers up and down and rename them so they have more user friendly names.

The selected printers will become available in [Windows Printers](#) tab under the explorer menu.

## 4.2.2 Data

The Data tab is organized in different groups with specific functionality.

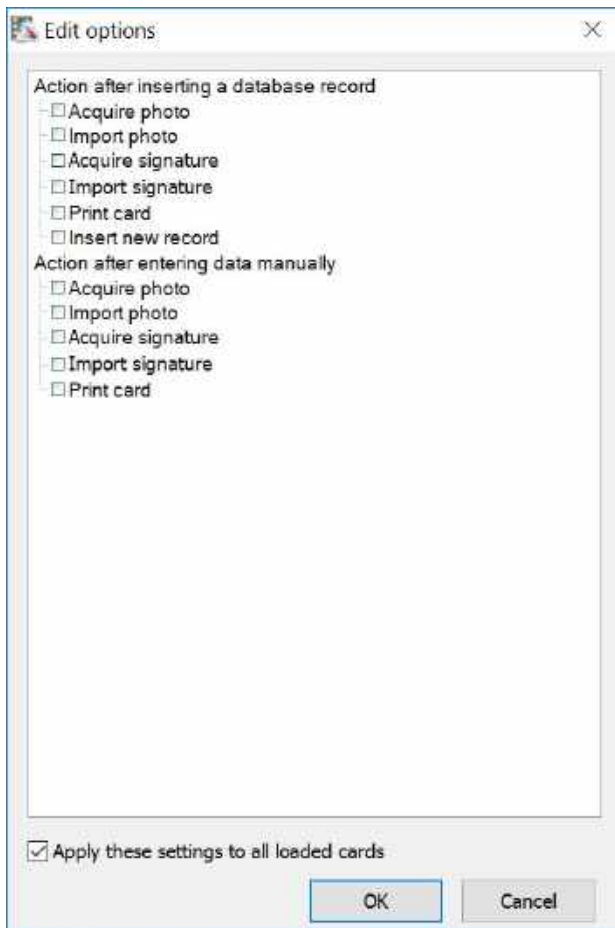


Group	Function(s)	Description
Options	<a href="#">Edit Options</a>	Opens the Edit options window
Find	Text box	Enter a value to search for in this text box
	Find	Opens the Find dialog
	Find next	Finds the next result matching with the value in the Find name dialog
	sort order	Change the sort order
	Refresh data	Refreshes the data in the data grid (name list)
	Select all	Selects all the available records in the data grid (name list)
Edit	<a href="#">Database record</a>	Opens the Database record window in the main interface
	<a href="#">Manual entries</a>	Opens the Manual data entries window in the main interface
Import/export	Import records	Import records from a csv file into the current database
	Export records	Export records from the current database
<a href="#">Filters</a>	Level one filter	Opens the Edit level one filter dialog
	Level two filter	Opens the Edit level two filter dialog
	Level three filter	Enables the level three filter for live search on the database
	Filters	Shows all the created level two filters in a drop down menu

For more detailed information about using data, please visit the ["Using Data"](#) section of this Help file...

### 4.2.2.1 Edit Options

The Edit Options window offers you two different sections to automate your processes. You can set specific actions after inserting a record into the database or after entering data manually.



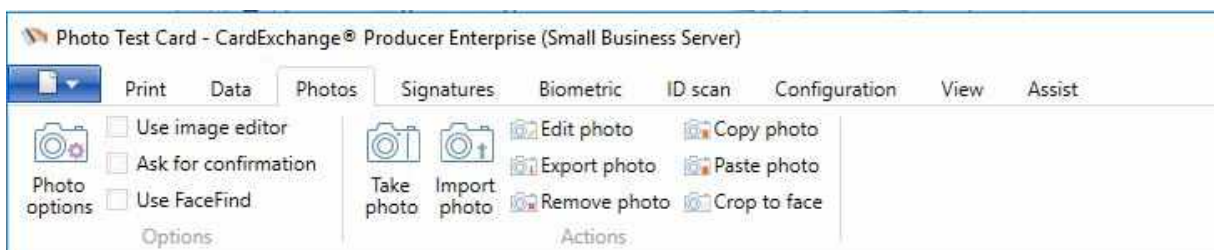
In both situations, after clicking Apply in the Data Edit window or Manual Data Entry window, CardExchange® Producer can automatically acquire a photo, import a photo, print the card, etc.

Simply select the functionality via the check box and click on OK to apply.

If you want to use these settings for all loaded card-templates, make sure you check "Apply these settings to all loaded cards"

### 4.2.3 Photos

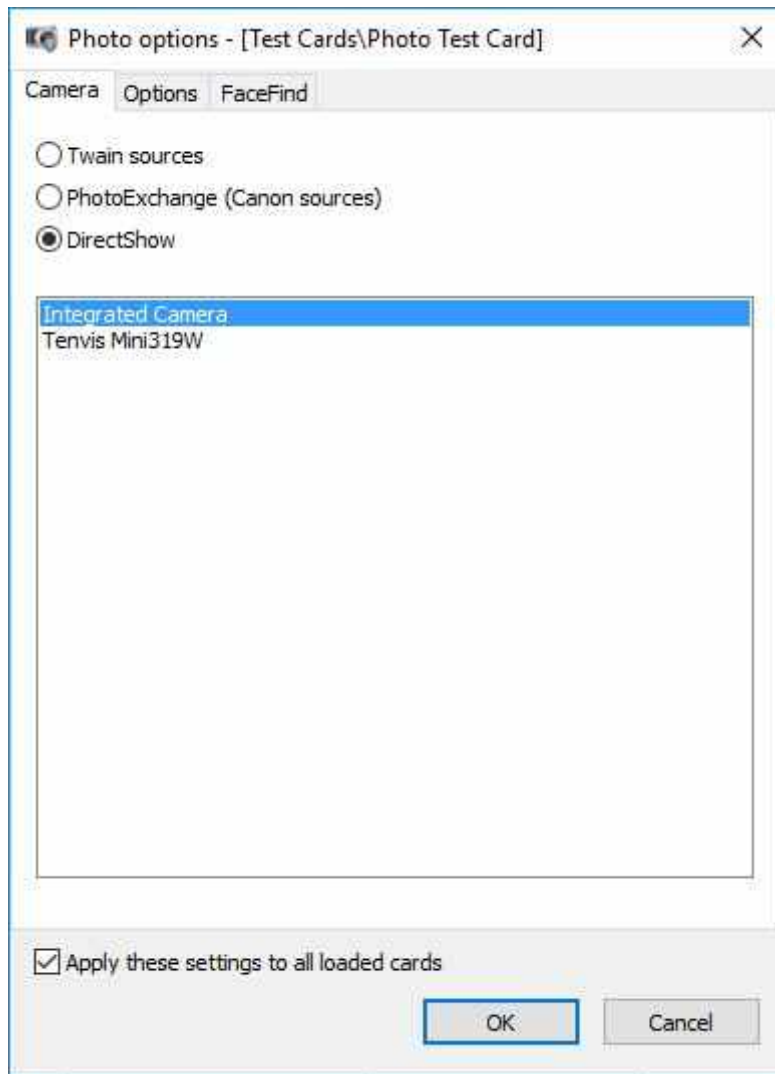
The Photos tab is organized in different groups with specific functionality.



<b>Group</b>	<b>Function(s)</b>	<b>Description</b>
Options	<a href="#">Photo options</a>	Opens the Photo options window
	<a href="#">Use image editor</a>	Select to automatically open the image editor after acquiring a photo
	Ask for confirmation	Select to ask for confirmation before storing the photo
	Use <a href="#">FaceFind</a>	Select to enable automatic face recognition (Professional and higher editions)
Actions	Take photo	Opens the photo capture window
	Import photo	Opens the file dialog to select a photo image
	Edit photo	Opens the Image editor showing the selected photo
	Export photo	Export the selected photo to a file
	Remove photo	Remove photo from file or database
	Copy photo	Copy the selected photo to clipboard
	Paste photo	Paste photo from clipboard
	Crop to Face	Use auto face recognition on the photo (Professional and higher editions)

#### 4.2.3.1 Camera

CardExchange® Producer supports all different types of cameras, supported via Twain, DirectShow, but also Canon EOS Cameras via the Canon SDK's. In the Camera tab you can select the device that you want to use for capturing photos with CardExchange® Producer.



#### 4.2.3.2 Options

By default, CardExchange® Producer does not print records if an image/photo is not available when batch printing. If you have a Premium Edition of higher of CardExchange® Producer you can change this behavior as well other actions.



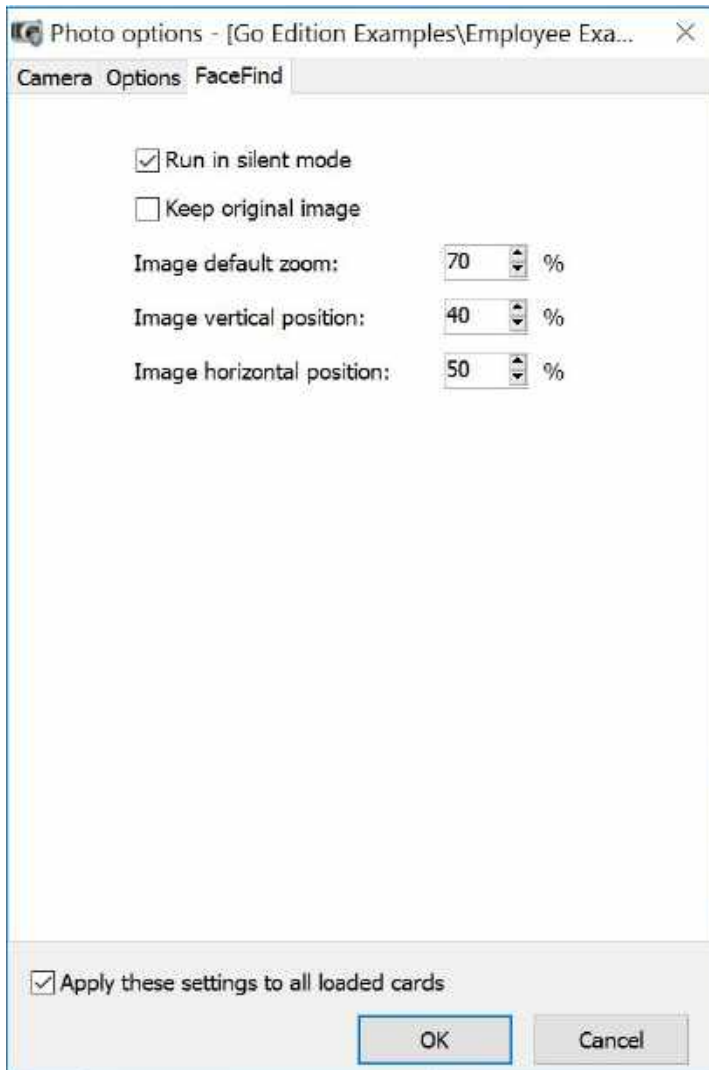
You can set print actions when image is available or not available like acquire image, skip printing, print without an image, etc.

It is also possible to set other actions like Ask for confirmation, show image editor, etc. One important and useful one is the Import instead of acquire. This changes the behavior of the Take photo button in the ribbon, but more important, the Take photo button in the [Actions pane](#). So if you are not taking photos with a camera but always import them, select this option and have easier access to your photo files.

If you want to use these settings for all loaded card-templates, make sure you check "Apply these settings to all loaded cards"

#### 4.2.3.3 Face Find

If you are using a CardExchange® Producer Professional Edition, Business Edition or Enterprise Edition, you will have access to the automatic face recognition functionality, Face Find.

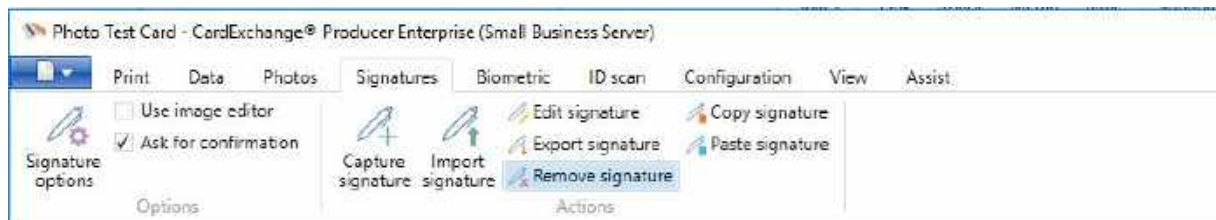


This functionality allows you to automatically crop the face to the correct size based on elements analyzed from the face on the photo. In this Application tab set all the parameters for this functionality like the size, the horizontal- and vertical offset, etc.

#### 4.2.4 Signatures

The Signature tab is organized in different groups with specific functionality.





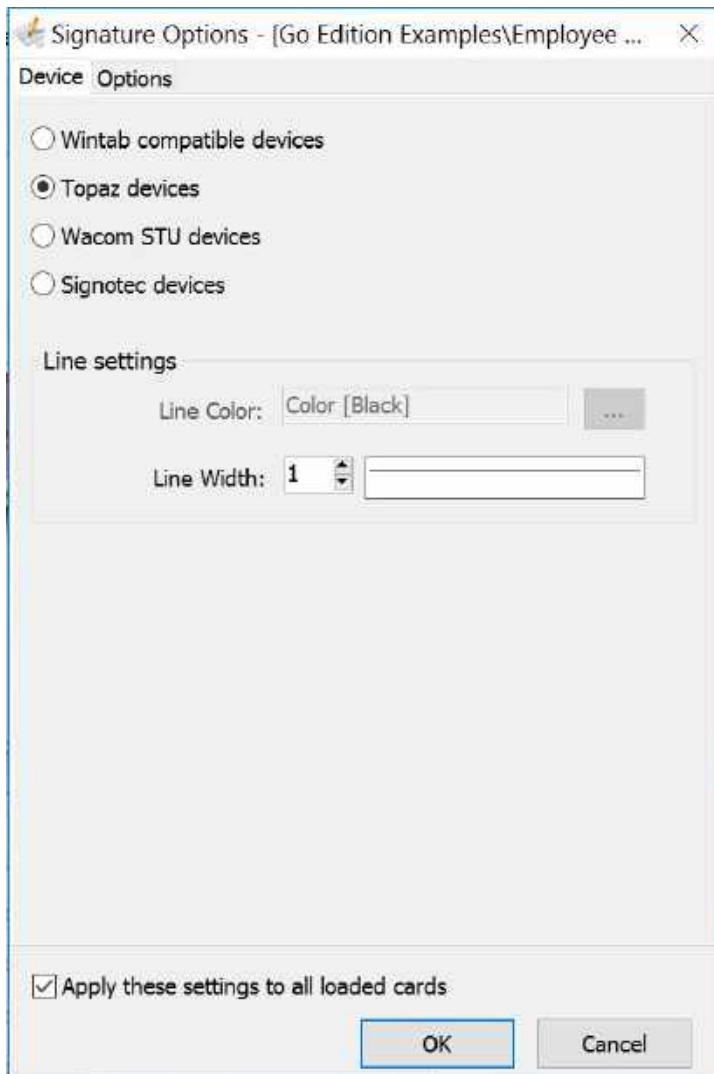
Group	Function(s)	Description
-------	-------------	-------------

Options	<a href="#">Signature options</a>	Opens the Signature options window
	Use image editor	Select to automatically open the image editor after acquiring a signature
	Ask for confirmation	Check to ask for confirmation before storing the signature confirmation
Actions	Capture signature	Opens the signature capture window
	Import signature	Opens the file dialog to select a signature image
	Edit signature	Opens the Image editor showing the selected signature
	Export signature	Export the selected signature to a file
	Remove signature	Remove signature from file or database
	Copy signature	Copy the selected signature to clipboard
	Paste signature	Paste signature from clipboard

**IMPORTANT!** Signatures are supported starting from the Premium Edition and higher!

#### 4.2.4.1 Device

When the Signature options window opens, the first selected tab available is the Device tab. CardExchange® Producer supports a large range of Signature Pads from Topaz, Wacom, and Signotec. Also standard Wintab is supported. You can find a complete overview of all supported Signature Pads on our website by [CLICKING HERE!](#)

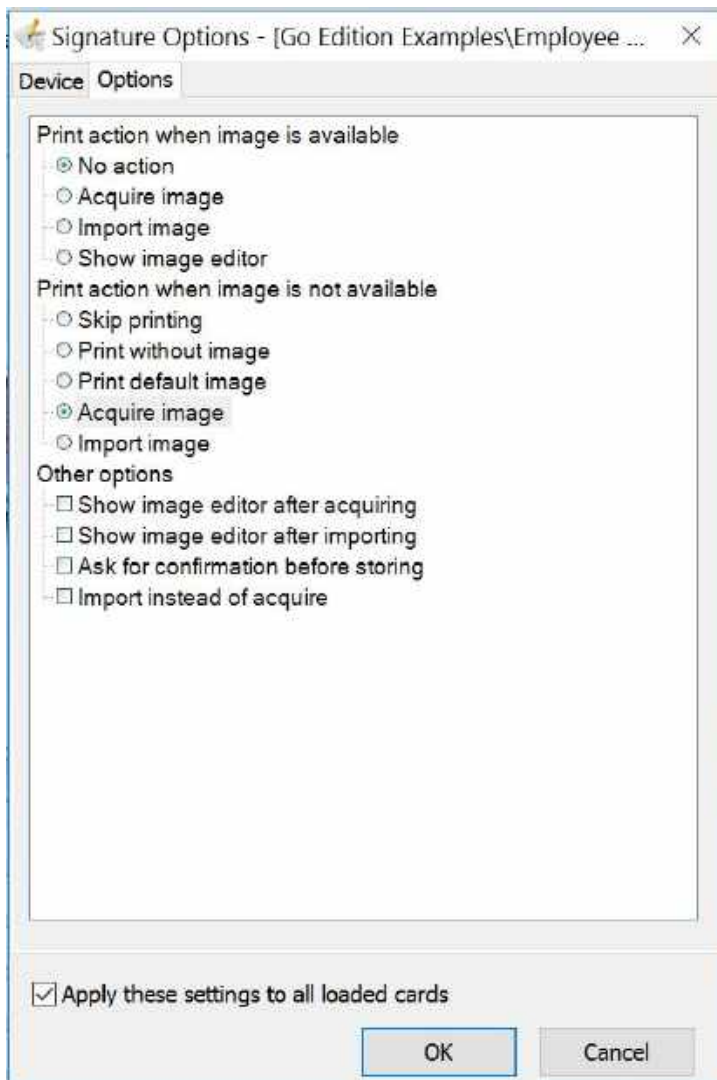


In the Device window you simply select the brand you are using, line colors if applicable, and the line width.

If you want to use these settings for all loaded card-templates, make sure you check "Apply these settings to all loaded cards"

#### 4.2.4.2 Options

By default, CardExchange® Producer does not print records if a signature is not available when batch printing. If you have a Premium or higher edition of CardExchange® Producer you can change this behavior as well as other actions.



You can set print actions when image is available or not available like acquire image, skip printing, print without an image, etc.

It is also possible to set other actions like Ask for confirmation, show image editor, etc. One important and useful one is the Import instead of acquire. This changes the behavior of the Capture Signature button in the ribbon, but more important, the Capture Signature button in the [Actions pane](#). So if you are not capturing signatures with a signature pad but always import them, select this option and have easier access to your signature files.

If you want to use these settings for all loaded card-templates, make sure you check "Apply these settings to all loaded cards"

## 4.2.5 Biometric

The Biometric tab is organized in different groups with specific functionality.

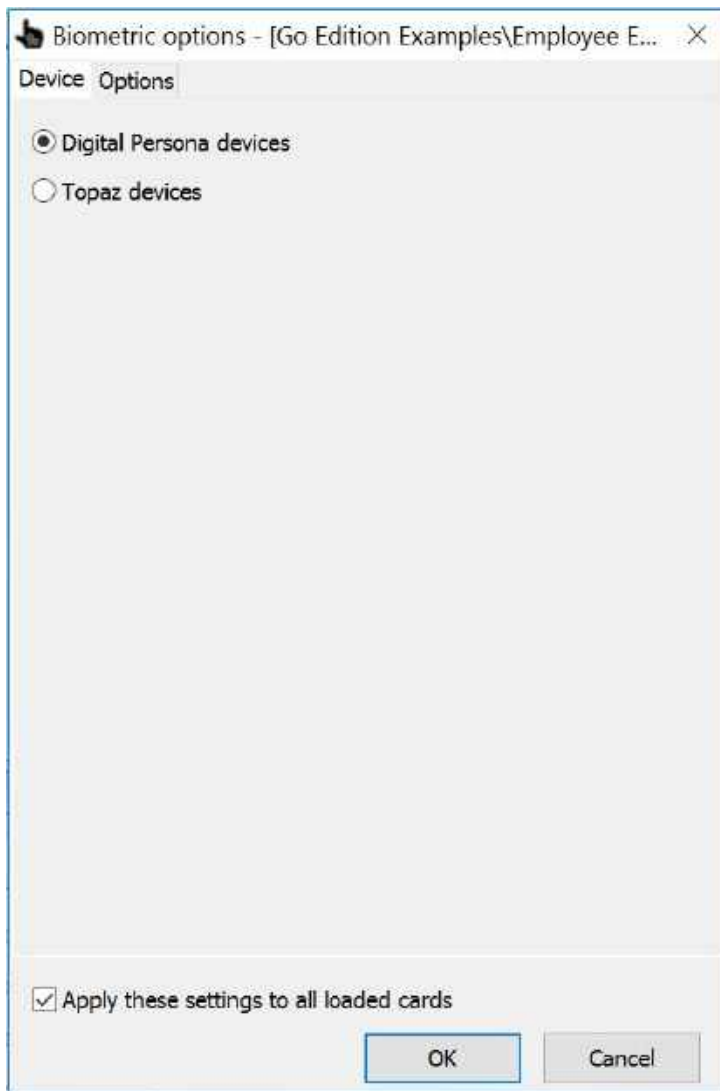


Group	Function(s)	Description
Options	<a href="#">Biometric options</a>	Opens the Biometric options window
	Ask for confirmation	Check to ask for confirmation before storing the biometric data
Actions	<a href="#">Enroll biometric</a>	Opens the biometric enrollment window
	<a href="#">Verify biometric</a>	Opens the verify biometric window
	Remove biometric	Removes the biometric data from the database

**IMPORTANT!** Biometric is supported in our BusinessBusiness Edition and Enterprise Edition!

### 4.2.5.1 Device

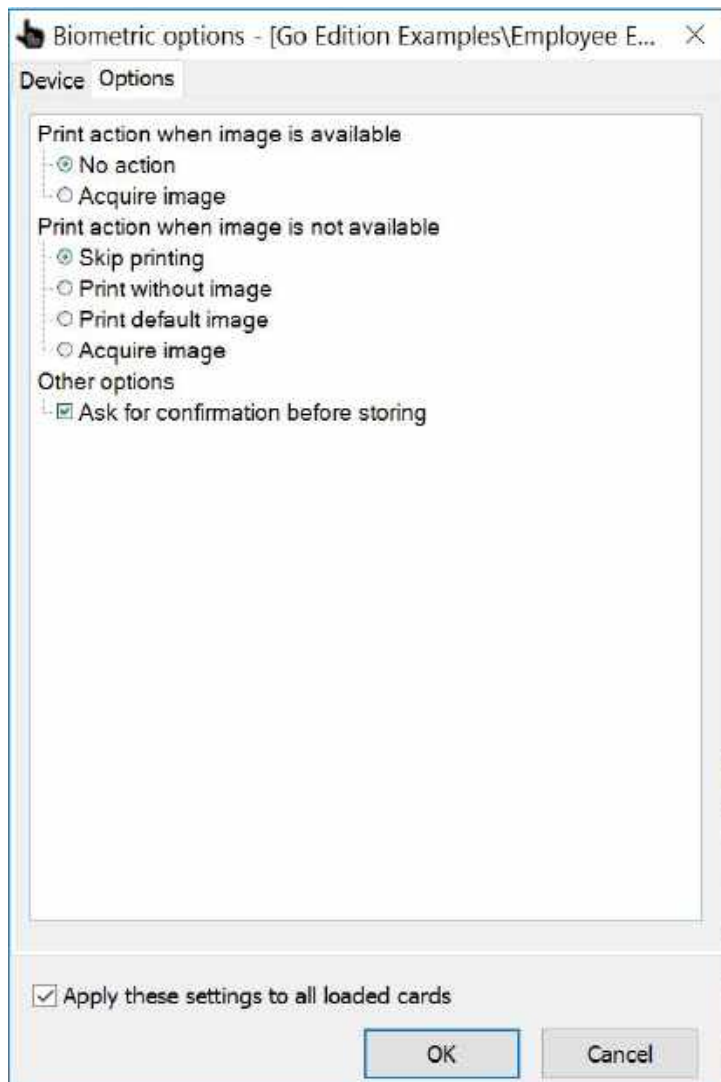
When the Biometric option window opens, the first selected tab available is the Device tab. CardExchange® Producer supports a large range of Biometric devices from Topaz and Digital Persona. You can find a complete overview of all supported Biometric devices on our website by [CLICKING HERE!](#)



In the Device window you simply select the brand you are using. If you want to use these settings for all loaded card-templates, make sure you check "Apply these settings to all loaded cards"

#### 4.2.5.2 Options

By default, CardExchange® Producer does not print records if a biometric image is added to the page design and is not available when batch printing. If you have the Business or Enterprise editions of CardExchange® Producer you can change this behavior as well other actions.

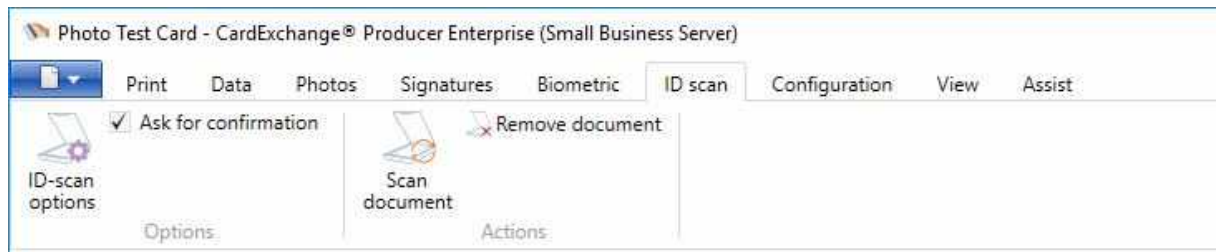


You can set print actions when image is available or not available like acquire image, skip printing, print without an image, etc.

If you want to use these settings for all loaded card-templates, make sure you check "Apply these settings to all loaded cards"

#### 4.2.6 ID scan

The ID scan tab is organized in different groups with specific functionality.

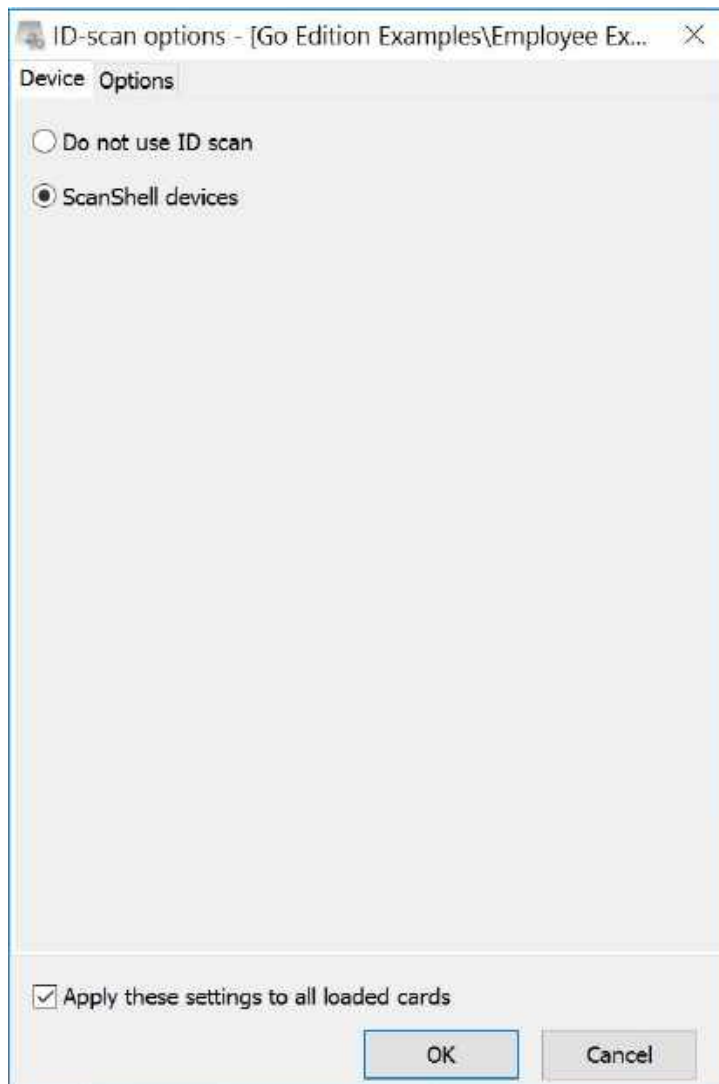


Group	Function(s)	Description
Options	<a href="#">ID-scan options</a>	Opens the ID scan options window
	<input checked="" type="checkbox"/> Ask for confirmation	Check to ask for confirmation before storing the ID scanner data
Actions	<a href="#">Scan document</a>	Opens the ID scanner window
	<a href="#">Remove document</a>	Removes the document from the database

**IMPORTANT!** ID scanning is supported in our Business Edition and Enterprise Edition!

#### 4.2.6.1 Device

When the IDscan option window opens, the first selected tab available is the Device tab. CardExchange® Producer at this moment only supports ScanShell devices. More devices are planned to be supported. You can always find a complete overview of all supported ID scan devices on our website by [CLICKING HERE!](#)



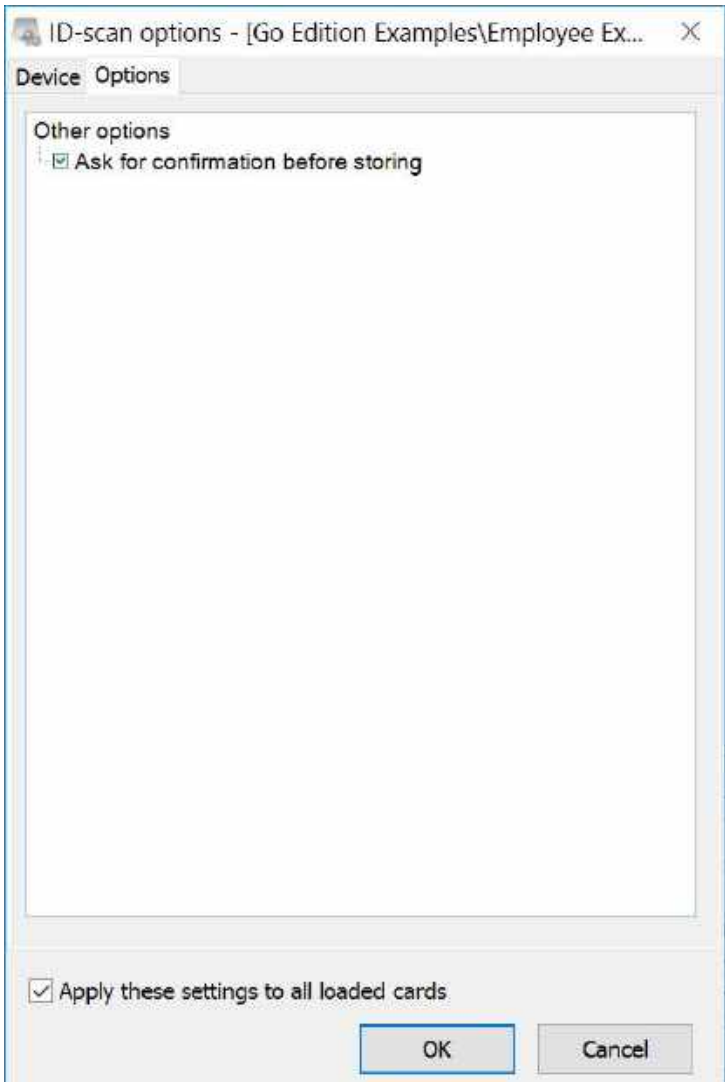
To use the ScanShell scanner you will have to install the driver and the runtime. You can download this from our download section on our website by [CLICKING HERE](#). The driver can be found in the CardExchange® Producer Driver section.

In the Device window you simply select the brand you are using. If you want to use these settings for all loaded card-templates, make sure you check "Apply these settings to all loaded cards"

#### 4.2.6.2 Options

There is only one option that applies to using ID scanners and that is to ask for confirmation before storing the data into the database. This can also be selected directly from the ID scan tab in the main window of CardExchange® Producer.





### 4.2.7 Configuration

The Configuration tab is organized in different groups with specific functionality.

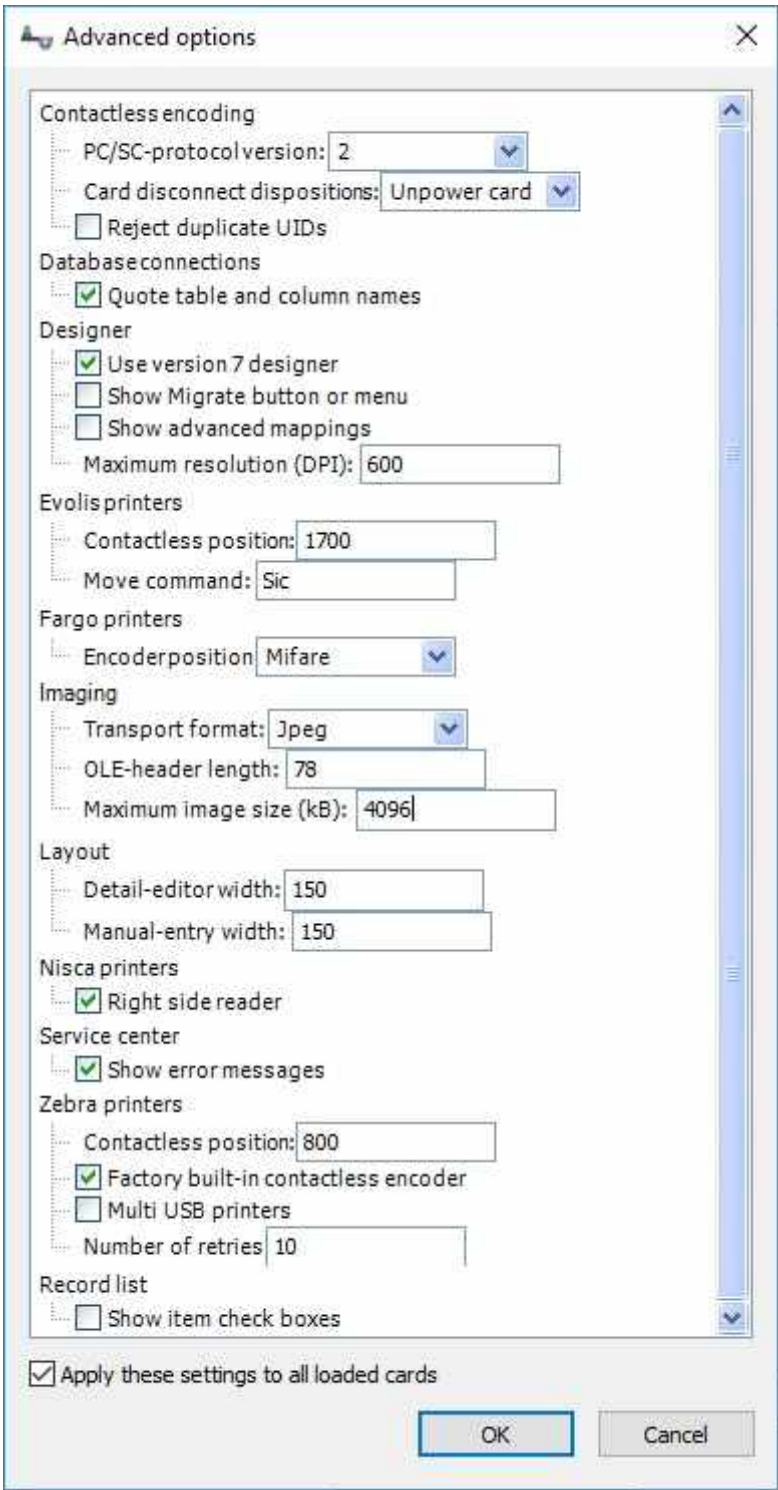


Group	Function(s)	Description
Options	<a href="#">Advanced Options</a>	Opens the Advanced options window

Loaded cards	<a href="#">Card manager</a>	Opens the Card Manager Window
	Cards	Select available cards from the drop down menu
	<a href="#">New card</a>	Select to create a new card-template
	<a href="#">Export templates</a>	Exports a complete template including database connections, etc.
	<a href="#">Import templates</a>	Imports templates including database connections, etc.
	<a href="#">Duplicate template</a>	Duplicates an existing template
Selected Card	<a href="#">Card designer</a>	Opens the Designer in configuration mode to edit the template
	<a href="#">Database setup</a>	Opens the existing Database connection to make changes
<a href="#">Authorizations</a>	Data folder sharing	Configure data folder sharing for Business and Enterprise editions
	<a href="#">Account setup</a>	Opens the wizard to create groups and users
	Enable logins feature	Enables functionality to use log in's

#### 4.2.7.1 Advanced Options

In the Advanced options window you can set some specific settings for the CardExchange® Producer application:



**Contactless encoding**

- PC/SC-protocol: Select the PC/SC protocol 1 or 2
- Card disconnect dispositions: Select Leave card, Reset card, Unpower card, Eject card

Reject duplicate UIDs: Reject cards where successive cards have the same UID

### Database connections

Quote table and column names: Select if quotes needs to be used (default). Not used with Cache DB

### Designer

User version 7 designer: If unchecked, the old version 6 designer will be used for creating and editing cards

Show Migrate button or menu: Shows the Migrate version 6 layout button in the [Configuration](#) tab

Show advanced mappings: Shows the Edit card-definition and Edit mappings button in the [Configuration](#) tab for using old version 6 templates

Maximum resolution DPI: Set the maximum resolution (Default 600DPI)

### Evolis printers

Contactless position: Tune the offset for the card under the contactless reader

Move command: Set the specific move command to be used. Differs for printers with contact

### Fargo printers

Encoder position: Set the position for the contactless reader

### Imaging

Transport format: This is the format that is used internally. Default is Jpeg because this is small and fast. You can also select bitmap (slower performance), and Handle (unsecured)

OLE-header length: This is the amount of bytes to remove from the OLE header for MS Access databases. Default 78 is when using an English MS Access version

Maximum image size (kB): Set the maximum image size for images on the card design (Default 4096 kB)

### Layout

Detail-editor width: Set the size of the detail-editor text boxes that in the database record pane (Default 150)

Manual-entry width: Set the size of the manual-entry text boxes (Default 150)

### Nisca printers

Right side reader: Check this option if the contactless reader is located on the right side instead of at the top location

### Service center

Show error messages: Check this option to show error messages when content is not loaded in the publishing portal under the Assist tab

### Zebra printers

Contactless position: Tune the offset for the card under the contactless reader

Factory built-in contactless encoder: Select if the printer has a factory built-in encoder so

CardExchange® Producer will use the internal SDK in stead of escape commands

Multi USB Printer: Check this option if you have multiple ZXP printers being used on the same PC, if any of the printers are busy CardExchange® Producer will wait and then retry to communicate with the printer

Number of retries: When using multiple printers as above you can specify the number of retry attempts

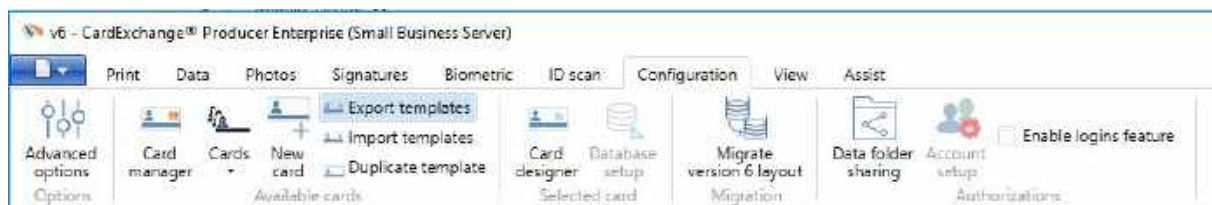
### Record list

Show item check boxes Show check boxes next to each record in the names list to allow them to be selected easily

If you want to use these settings for all loaded card-templates, make sure you check "Apply these settings to all loaded cards"

#### 4.2.7.2 Migrate Layout

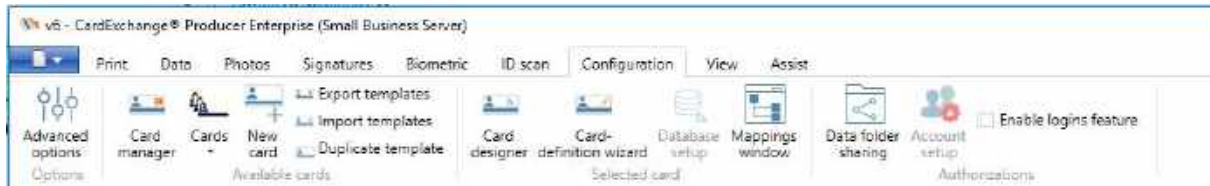
When you have selected to show the Migrate button or menu, you know see an extra button in the ribbon:



Group	Function(s)	Description
Migration	Migrate version 6 layout	Migrates the selected version 6 layout to the current version, this will create a copy of the card template with the same name appended by the word "Migrated".

### 4.2.7.3 Advanced Mappings

When you have selected to Use Advanced Mappings in the [Advanced Options](#) window, in the Select Card Group you now see two extra buttons appearing:



Group	Function(s)	Description
Selected Card	Card-definition wizard	Opens the Card-definition wizard to make advanced changes
	Mappings window	Opens the Card-definition wizard on the mappings section

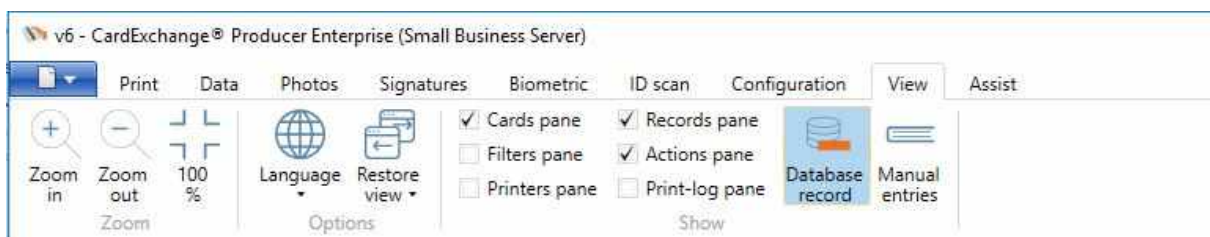
Users with version 6 card-templates will work with the Card-definition wizard. Most features are now included in the Card designer, so if you are using the latest version then you are unlikely to need either of these options.

The exceptions that need to be configured here are:

- External Plugins
- .net functions
- Storage items where either the card preview or an environment variable need to be stored back to the database.

### 4.2.8 View

Under the view tab it is possible to set the language for CardExchange® Producer, you can also restore views and hide different panes.

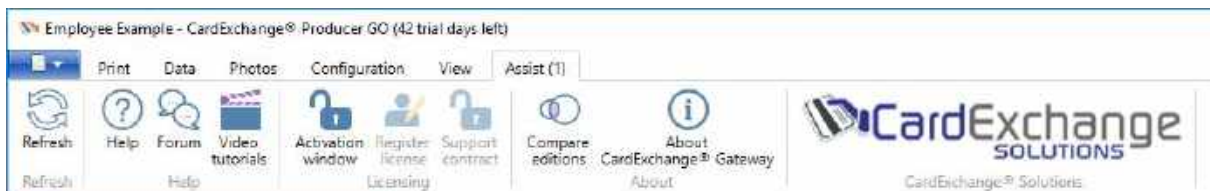


Group	Function(s)	Description
Zoom	Zoom in	Zoom in the card preview
	Zoom out	Zoom out the card preview
	100%	Set the card preview to 100%

Options	Language	Set the language of the CardExchange® Producer
	Restore view	Restore the default view
Show	Cards pane	Show or hide the cards pane
	Filters pane	Show or hide the Filters pane
	Printers pane	Show or hide the Printers pane
	Records pane	Show or hide the records pane
	Actions pane	Show or hide the Actions pane
	Print-log pane	Show or hide the Print-log pane
	Database record	Show or hide the Database record section to edit database records
	Manual entries	Show or hide the manual entries window section to edit manual entries

#### 4.2.9 Assist

The Assist tab is organized in different groups with specific functionality.



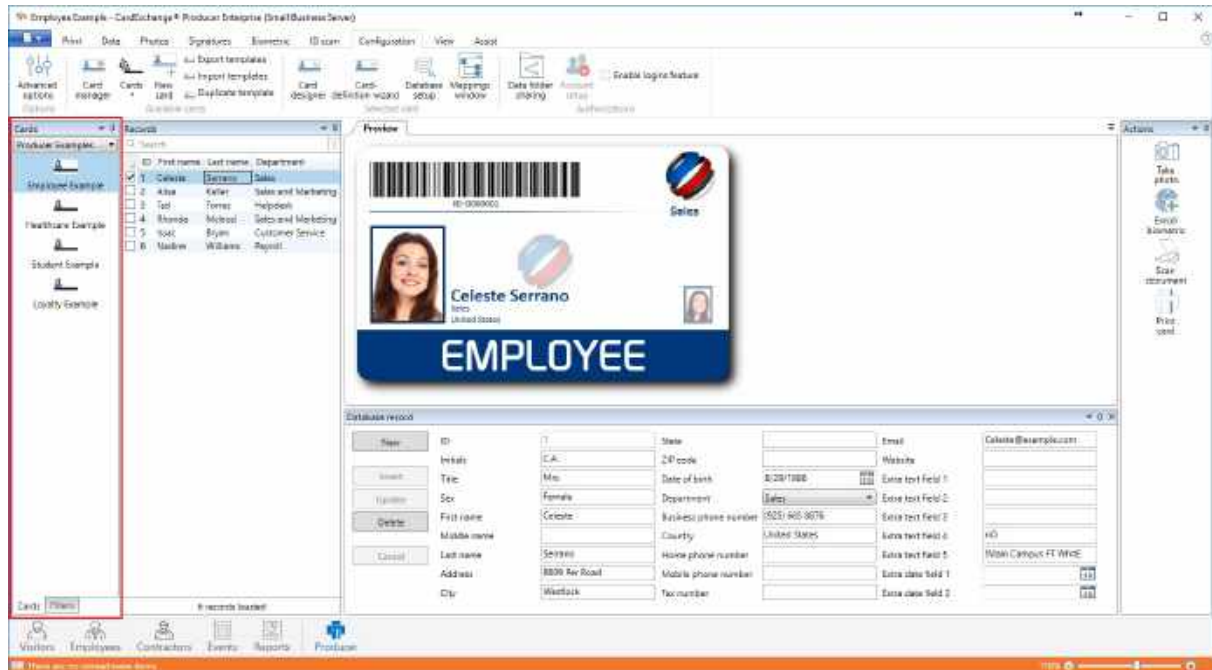
Group	Function(s)	Description
Refresh	Refresh	Refreshes the available news items
Help	Help	Opens this online help file
	Forum	Opens our FREE End-User Support Forum
	Video Tutorials	Opens our website at the How-To Video section
Licensing	<a href="#">Activation Window</a>	Opens the Activation Wizard window
	<a href="#">Register license</a>	Opens the Registration Wizard Window
	Support contract	Here you can activate a support contract if you have purchased one
About	Compare editions	Opens the website at the compare editions section
	About CardExchange® Gateway	Opens the About dialog containing license and MachineID information
	[Vendor] Vendor	Opens the vendor's website
	Vendor store	Opens the vendor's web store (if applicable)

For more detailed information about the Assist tab, please visit the "[Assist](#)" section of this Help file...

## 4.3 Explorer Menu

The CardExchange® Producer Explorer Menu offers three tab selections:

- [Cards](#) - This tab shows all the available card-templates
- [Filters](#) - This tab shows all available Level Two filters
- [Printers](#) - This tab shows all selected printers
- 





### 4.3.1 Cards



When the Cards tab is selected, all the available and selected card-templates are shown. By clicking on the button, the template with all the settings and configurations will be loaded in the Main interface.

The available card-templates can be divided by groups which can be selected from the drop down menu directly under the tab.

Card-templates, the availability, the position in the menu, etc., is defined via the Card manager.

For more information, please see our "[Using the Card Manager](#)" section of this Help file

### 4.3.2 Filters



CardExchange® Producer offers almost unlimited functionality to find information in the connected database and make it available for your card production.

Our level two filters are known as one of the most powerful filter options in this industry because of the customization they offer and the fact that filters can be defined for specific use by operators to have maximum error prevention.

All these defined Level Two filters are available in the Filter section of this Explorer menu and can simply be selected by the user by clicking on the button.

The filters can also be divided by groups which, if applicable, can be selected from the drop down menu directly under the Filter tab.

For more information about using and configuring Level Two filters, please visit our "[Level Two Filters](#)" section of this Help file.

Overall information of using filters with CardExchange® Producer can be found in our "[Using Filters](#)" section of this Help file.

### 4.3.3 Printers



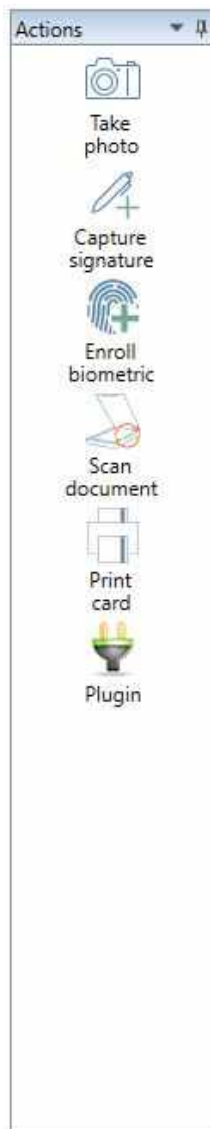
Each card-template in CardExchange® Producer can have its own printer assigned. That means that every time you click the print button, that selected printer takes care of the job.

In some situations it can be very handy to overrule this standard printer by selecting another printer without changing the whole card-template configuration.

In the section "[Select printers](#)" we have explained how to set these printers and make them available. All selected printers are presented in this Printer tab of the [Explorer Menu](#).

Simply click on the corresponding button to send the job to that printer.

## 4.4 Actions Pane



In the Actions Pane, located at the right side of the main interface, six different buttons can be shown. Starting with the GO Edition, the Actions Pane will show the Take photo and the Print card buttons.

When clicking on the Take photo button, the camera that is selected will be previewed in the photo window. Configuration of the Photo functionality is explained in the "[Using Photos](#)" section of this Help file.

If you have an Premium Edition or higher, also the Capture signature button is shown. When clicking it will start the signature pad connected. In the "[Use Signatures](#)" section of this Help file you can find out how to configure this functionality.

In the Business Edition, CardExchange® Producer supports Biometric readers, ID Card Scanners and External Plug-Ins.

Clicking on Enroll biometric will open the window to capture a persons scanned fingerprint, the "[Using Biometrics](#)" section of this manual explains how to set this up.

And in the same way clicking on Scan document will open the window to capture details from a scanned document or ID. This is explained in the "[Using ID scanners](#)" section of this manual.

External Plug-Ins contain custom functionality or embedded SDK's. For example an embedded Fingerprint Scanner. When clicking on the External Plug-In button, the fingerprint scanner will be started. More information about External Plug-Ins can be found in the "[Using External Plug-Ins](#)" section of this Help file.

## 4.5 Records Pane

In the Records Pane in the main interface of CardExchange® Producer you see all the records presented that are available in your database. When you make a database connection, in the name list page you select the columns that are shown in the Records Pane. You can find everything about making database connections in the "[Using Databases](#)" section of this Help file.

Records

Search

ID	First name	Last name	Department
<input checked="" type="checkbox"/> 1	Celeste	Serrano	Sales
<input type="checkbox"/> 2	Alisa	Keller	Sales and Marketing
<input type="checkbox"/> 3	Tad	Torres	Helpdesk
<input type="checkbox"/> 4	Rhonda	McLeod	Sales and Marketing
<input type="checkbox"/> 5	Issac	Bryan	Customer Service
<input type="checkbox"/> 6	Nadine	Williams	Payroll

6 records loaded

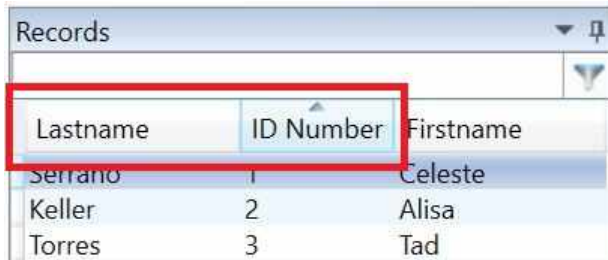
**Record Sorting**

Records

ID Number	Lastname	Firstname
1	Serrano	Celeste
2	Keller	Alisa

The Records Pane is a so called data grid showing all your available database records divided by columns. Sorting the records is just as simple as clicking on the column.

### Record Look Up



Lastname	ID Number	Firstname
Serrano	1	Celeste
Keller	2	Alisa
Torres	3	Tad

It is very simple to search for records inside the Records Pane. Enter the text that you want to search for in the text box directly above the columns. The text you enter always applies to the first column, if you want to look up records from the Lastname column, you have to drag the column to the front.

### Loaded Record Information

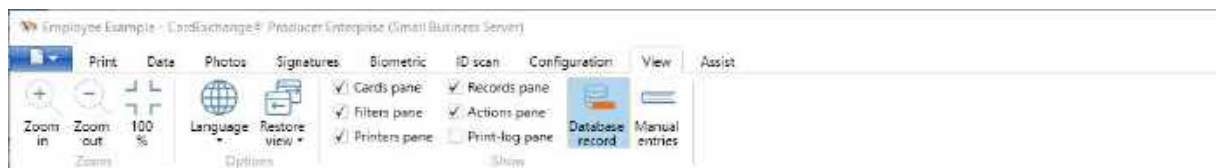


6 records loaded
------------------

In the footer of the Records Pane the total amount of loaded records is shown.

## 4.6 Data Edit Window

The Database Edit window offers the possibility to manage your connected database data. The window can be shown/hidden via the View tab in the main window by clicking on the **Database record** button.



On the left side it offers buttons for adding a **New** record, **Insert** the record, **Update** a record, **Delete** a record, and **Cancel** your entries.

Starting from the Premium Edition, this window can be customized and configured with available columns but also drop down menu's.

The 'Database record' window contains a form with the following fields and values:

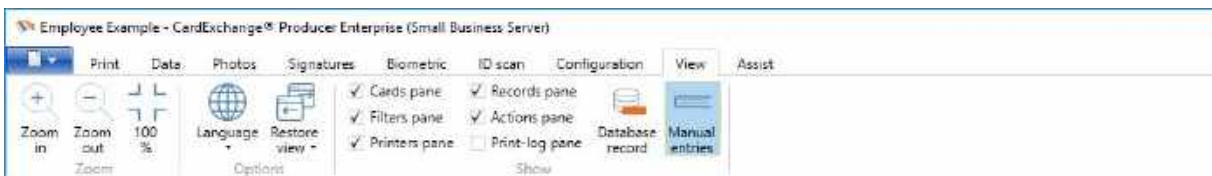
<input type="button" value="New"/>	ID Number	1	State/Province		E-mail Address	Celeste@Example.com
<input type="button" value="Insert"/>	Initials	TCAJ	ZIP/Postal Code	ABC1	Web Page	
<input type="button" value="Update"/>	Title	Mrs.	Date of Birth	8/29/1986	Extra Text Field 1	
<input type="button" value="Delete"/>	Sex	Female	Department	Sales	Extra Text Field 2	Photocopying
<input type="button" value="Cancel"/>	Firstname	Celeste	Business Phone	(925) 665-8876	Extra Text Field 3	
	Middle Name		Country	United States	Extra Text Field 4	VOIP
	Lastname	Serrano	Home Phone		Extra Text Field 5	
	Address	8609 Per Road	Mobile Phone		Extra Date Field 1	Select a date
	City	Westlock	Fax Number		Extra Date Field 2	Select a date

More about the configuration of this window can be found in the "[Using Data](#)" section of this Help file. More information about database configuration, please see the "[Using Databases](#)" section of this Help file.

**IMPORTANT!** CardExchange® Producer does not support deleting for MS Excel files. MS Excel can only be inserted and updated.

## 4.7 Manual Entry Window

The Manual Entry window offers the possibility to enter information into the created manual entries. The window can be shown/hidden via the View tab in the main window by clicking on the **Manual entries** button.



Simply enter the information and click on Apply to make the entered information available. On the left side it offers buttons to **Clear** the entries, **Apply** the entries, and **Cancel** your entries.

The 'Manual entries' window contains the following fields and buttons:

<input type="button" value="Clear"/>	Department	Sales
<input type="button" value="Apply"/>	Date Of Birth	01/01/1970
<input type="button" value="Cancel"/>		

For more information about manual entries, please see our "[Using Manual Entries](#)" section of this Help file.

## 5 Using the Designer

CardExchange® Producer Designer follows the latest Windows technology and is completely developed under the Windows Presentation Foundation (WPF) platform. For printing graphically, XPS printing technology is used.



The interface look and feel follows the latest Windows and Office look and feel. For the setup of the functionality we have chosen to follow flow of Microsoft PowerPoint which will make it very easy to find your way inside of CardExchange® Producer Designer.

The CardExchange® Producer Designer is also sold as a separate edition of the CardExchange® Producer family and is fully integrated in all higher editions. CardExchange® Producer Designer is not only a separate sold edition which can be used to print cards, it is also used for all the configuration of higher editions of CardExchange® Producer. When running the GO Edition or higher, the Designer will open mentioning the edition used, showing in Configuration Mode.

All configuration is done in the Designer, even database connections are made here. Via easy drag and drop functionality (click functionality and drag it to the card design, the need for creating variables is limited to only very specific functionality like scripting.

Talking about scripting, this Designer contains full Python scripting language. General information about Python can be found by [CLICKING HERE](#). For more detailed information about Python please [CLICK HERE](#).



## 5.1 Explorer Menu



Just like in the [Main Interface](#), CardExchange® Producer Designer also contains an Explorer menu. Also here the Explorer Menu is based on the Explorer Menu as it is available in Microsoft® PowerPoint.

This Explorer Menu contains three tabs which are described in sub sections of this Help file.

The Explorer Menu gives an overview of all your created layouts, pages, connected data, etc.

As we informed you in the [Using the Designer](#) section of this Help file, the Designer can be used as a separate edition or as the configuration tool for your GO and higher editions. You always open the actual [Template](#) selected in the [Main Interface](#) or the standalone edition template.

### 5.1.1 Pages



When selecting the Page tab (default) all available and created Layouts and the available pages per layout are shown.

Simply click on the page or the layout header to select. Specific settings for the available Layouts can found in the [Page Setup](#) section of this Help file.

How to [Add Layouts](#) and [Pages](#) can be found in these specific sections.

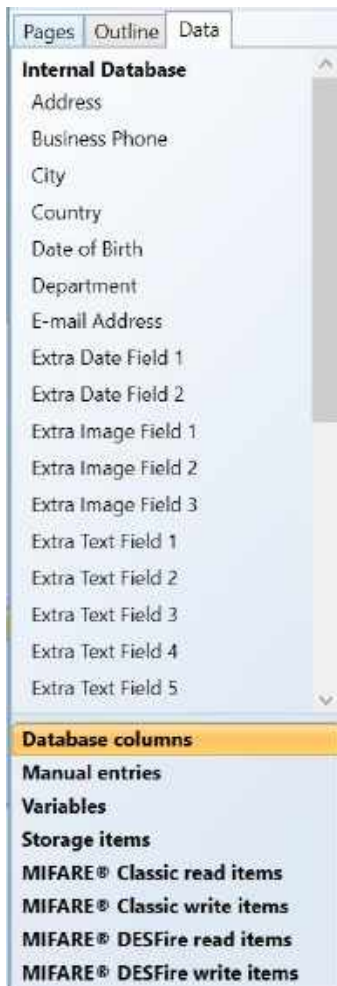
## 5.1.2 Outline



When the Outline tab is selected you find a quick overview of all the available objects on the pages, in the Layouts, in the Template.

It is presented as a tree view and by hovering over each available object, a preview of the object is shown like in the screen shot, hovering over the Photo object shows the preview of the Photo.

### 5.1.3 Data

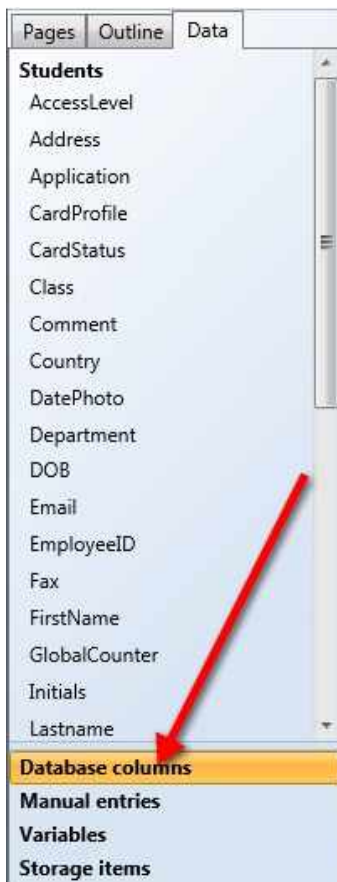


The Data tab is offering, depending on the edition used, eight sub tabs:

- [Database columns](#)
- [Manual entries](#)
- [Variables](#)
- [Storage items](#)
- [MIFARE® Classic read items](#)
- [MIFARE® Classic Write items](#)
- [MIFARE® DESFire read items](#)
- [MIFARE® DESFire write items](#)

Not all tabs are available in every edition. In the Designer edition you have no option to connect to databases and therefore the Database columns tab will not be available for example.

### 5.1.3.1 Database Columns



When using the GO Edition or higher and you are connected to a database or MS Excel file, this tab contains all the available columns of the connected database/file.

Simply select the item and drag and drop it on your card design. Specific Properties can be set in the [Properties](#) window.

How to configure databases is explained in the "[Using Databases](#)" section of this Help file.

In the Designer edition this option is not available.

### 5.1.3.2 Manual Entries



All defined Manual entries are available in the Manual entries tab. You can drag and drop these fields onto your Page layout.

Please visit the [Manual Entries](#) section of this Help file for more information about creating and configuring Manual Entries.

### 5.1.3.3 Variables

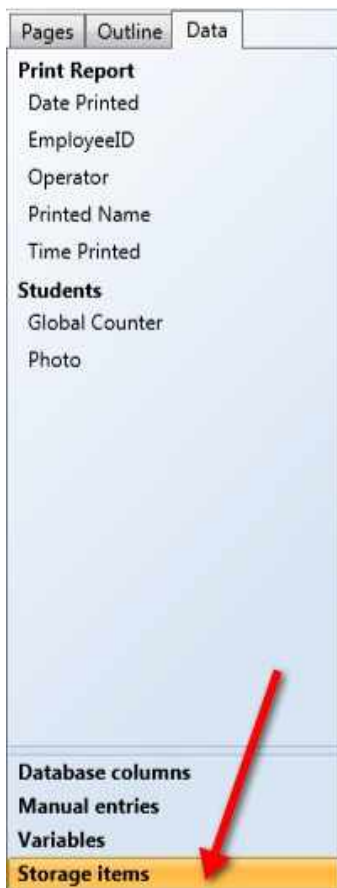


The variables in the CardExchange® Producer Designer can be used as input for Python scripts and their value can be mapped to for example a database column or a manual entry. Mappings are made via the [Content](#) tab in the [Properties](#) window.

Please visit the [Variables](#) section of this Help file for more information about using Variables.

Variables are available in the Ultimate edition.

#### 5.1.3.4 Storage Items



If you want to store data into the connected databases, you need to define storage items. Storage items contain the information of the column name in which you want to save your information like photos or print dates. These Storage Items mappings are made via the [Content](#) tab in the [Properties](#) window.

Please visit the [Storage Items](#) section of this Help file for more information about using Storage Items.

Storage Items are available in the Premium Edition and higher.

### 5.1.3.5 MIFARE Classic read items



When using the Business Edition or Enterprise Edition, this tab contains all of the Mifare® Classic read items that have been defined.

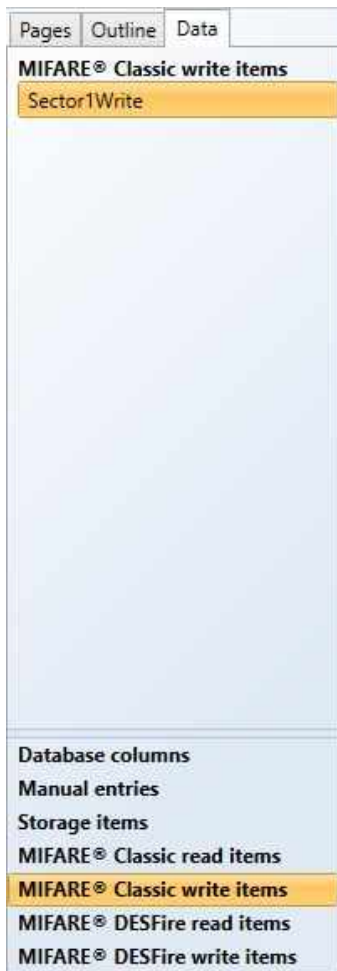
Simply select the item and drag and drop it on your card design.

You can also select Mifare® Classic read items as sources for other objects such as Storage items by selecting them from the drop down of available sources in the properties window.

How to configure Mifare® Classic read items is explained in the "[Mifare® Classic](#)" section of this Help file.



### 5.1.3.6 MIFARE Classic write items



When using the Business Edition or Enterprise Edition, this tab contains all of the Mifare® Classic write items that have been defined.

Simply select the item and then set the source for the data to be encoded using the properties window.

How to configure Mifare® Classic write items is explained in the "[Mifare® Classic](#)" section of this Help file.

### 5.1.3.7 MIFARE DESFire read items



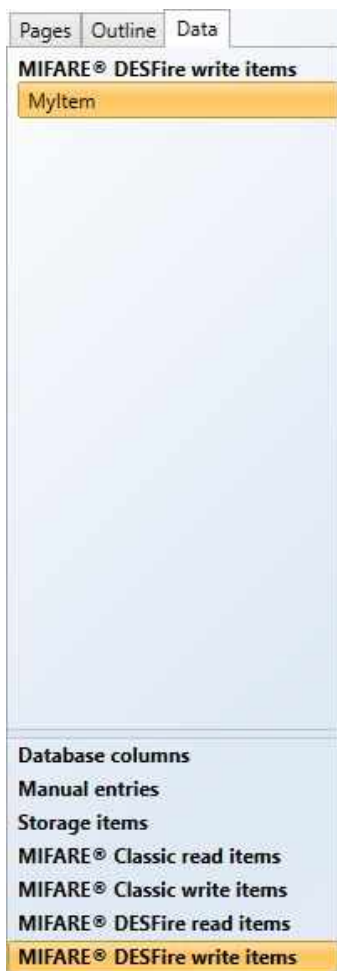
When using the Enterprise Edition, this tab contains all of the Mifare® DESFire read items that have been defined.

Simply select the item and drag and drop it on your card design.

You can also select Mifare® DESFire read items as sources for other objects such as Storage items by selecting them from the drop down of available sources in the properties window.

How to configure Mifare® DESFire read items is explained in the "[Mifare® DESFire](#)" section of this Help file.

### 5.1.3.8 MIFARE DESFire write items

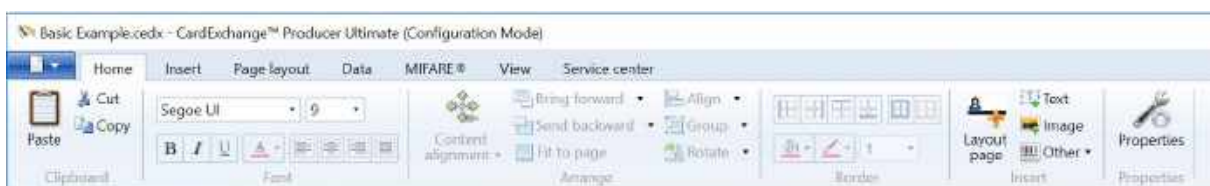


When using the Enterprise Edition, this tab contains all of the Mifare® DESFire write items that have been defined.

Simply select the item and then set the source for the data to be encoded using the properties window.

How to configure Mifare® DESFire write items is explained in the "[Mifare® DESFire](#)" section of this Help file.

## 5.2 Ribbon Overview



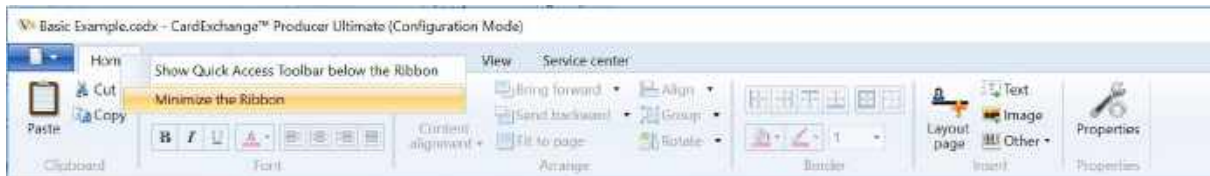
Following the structure of Microsoft® Office, the Home tab reflects all the most common functionality needed most.

Clipboard functionality for easy Copy, Cut, and Pasting. In the Font group you can easily set the font type, size, color, and outline the text.

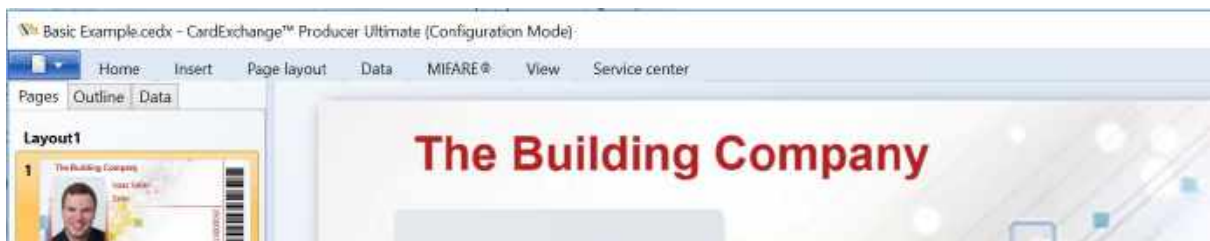
CardExchange® Producer offers almost unlimited possibilities to outline your text and objects. Also borders can be easily set and colors can chosen.

The main objects for inserting are also available from the Home tab in the Insert group. Last but not least, the [Properties](#) window is called from the Home tab too.

It is also possible to minimize the ribbon if you need more space on your design because you are using a smaller screen.



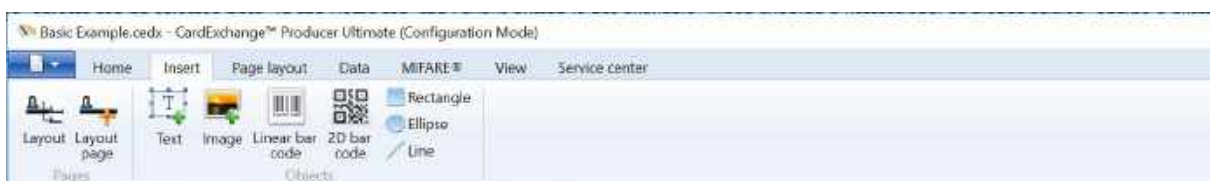
Right mouse click on one of the available tabs to open the context menu and select **Minimize the Ribbon**.



Now you only see the headers of the tabs and more space is offered. Clicking on the tab will have the Ribbon information expand. After selecting the functionality it will close again.

To restore the Ribbon, simple right mouse click on one of the tabs and deselect **Minimize the Ribbon** from the context menu.

## 5.2.1 Insert



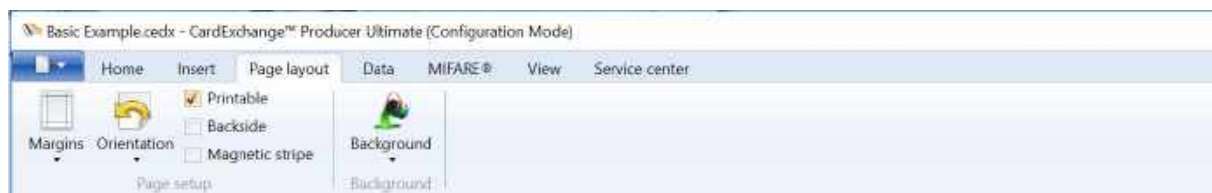
Just like in the Home tab, objects can be selected here. In the Home tab, the Layout button is not available. When running a Professional or higher edition, adding a extra Layout needs to be selected here.

Via the Insert tab you can insert the following objects:

- [Text](#)
- [Images](#)
- [1D Barcodes](#)
- [2D Barcodes](#)
- [Rectangles](#)
- [Ellipses](#)
- [Lines](#)

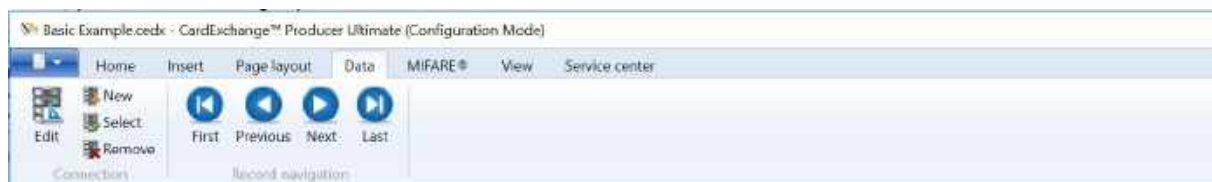
**IMPORTANT!** The Layout button is not available in the GO Edition, and Premium Edition. Multiple Layouts are supported from the Professional Edition and higher.

## 5.2.2 Page Layout



The Page Layout tab reflects the first tab (Page) of the Page Setup window. If you want to add a Background color or Background Image, you can add this via the Background button. More information about the Page Setup can be found in the "[Page Setup](#)" section from this Help file. More information about how to use Backgrounds, please refer to our "[Using Backgrounds](#)" section of our Help file.

## 5.2.3 Data



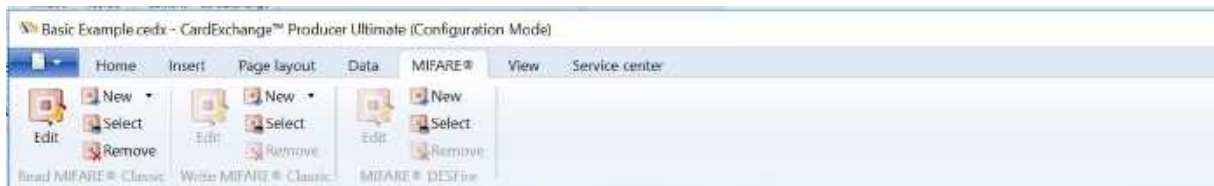
When the Data tab is selected, you find two different groups:

Group	Function(s)	Description
Connection	Edit	Opens the Database wizard to edit the existing database connection

	New	Opens the Database wizard to create a new database connection
	Select	Opens the file dialog window to select an existing database connection
	Remove	Disconnects and removes the existing database connection
Record Navigation	First	Navigates to the first available record in the database
	Previous	Navigates to the previous database record in the database
	Next	Navigates to the next record in the database
	Last	Navigates to the last record in the database

For more information about creating and editing database connections, please see our "[Using Databases](#)" section of this Help file.

## 5.2.4 Mifare



When the MIFARE® tab is selected, you will find three different groups:

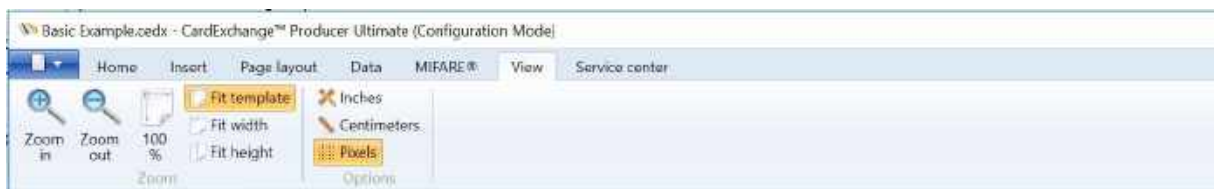
### Read MIFARE® Classic

Function	Option	Description
Edit		Opens the selected MIFARE® wizard to edit the settings
New	New MIFARE® Classic 1K read definition	Opens the MIFARE® definition wizard to create a new MIFARE® read definition
	New MIFARE® Classic 1K write definition	Opens the MIFARE® definition wizard to create a new MIFARE® write definition
	New HID Proximity read definition	Opens the MIFARE® definition wizard to create a new xxx read definition
Select		
Remove		

For more information about creating and editing MIFARE® definitions, please see our "[Using Contactless Encoding](#)" section of this Help file.

**IMPORTANT!** This MIFARE® tab is only available in the Business Edition and Enterprise Edition.

## 5.2.5 View



When the View tab is selected, you find two different groups:

Group	Function(s)	Description
Zoom	Zoom in	Zoom in on the current page
	Zoom out	Zoom out on the current page
	100%	Zoom to 100%
	Fit template	Zooms the page that it fits the window
	Fit width	Zooms the page that the width of the page fits the width of the window
Options	Fit height	Zooms the page that height of the page fits the height of the window
	Language	Change the display language of the Designer (Designer edition only)
	Inches	Change the display units to inches
	Centimeters	Change the display units to centimeters
	Pixel	Change the display units to pixels

## 5.2.6 Assist



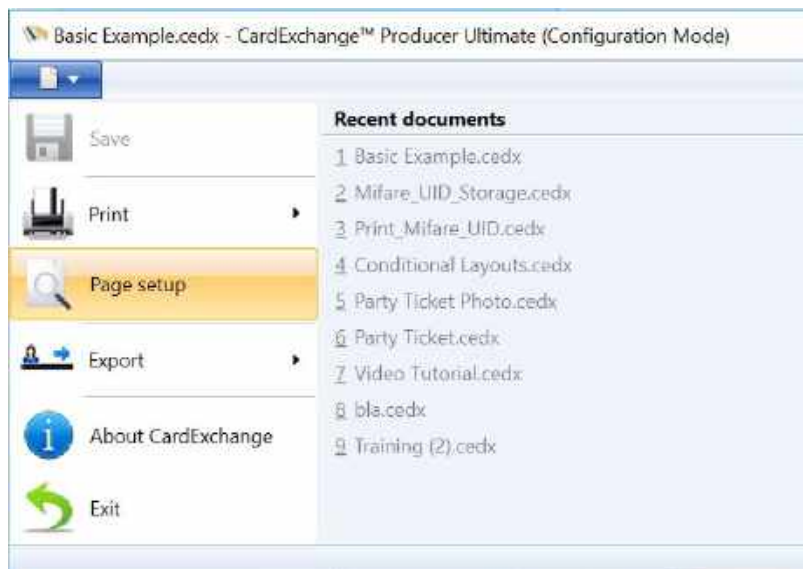
The Assist tab is organized in different groups with specific functionality.

Group	Function(s)	Description
Refresh	Refresh	Refreshes the available news items
Help	Help	Opens this online help file
	Forum	Opens our FREE End-User Support Forum
	Video Tutorials	Opens our website at the How-To Video section
Licensing	Activation Window	Opens the Activation Wizard window
	Register License	Opens the Registration Wizard Window

About	Compare editions	Opens the website at the compare editions section
	About CardExchange	Opens the About dialog containing license and machineID info
[Vendor]	Vendor	Opens the vendor's website (Default is CardExchange Solutions)
	Vendor store	Opens the vendor's web store (if applicable)

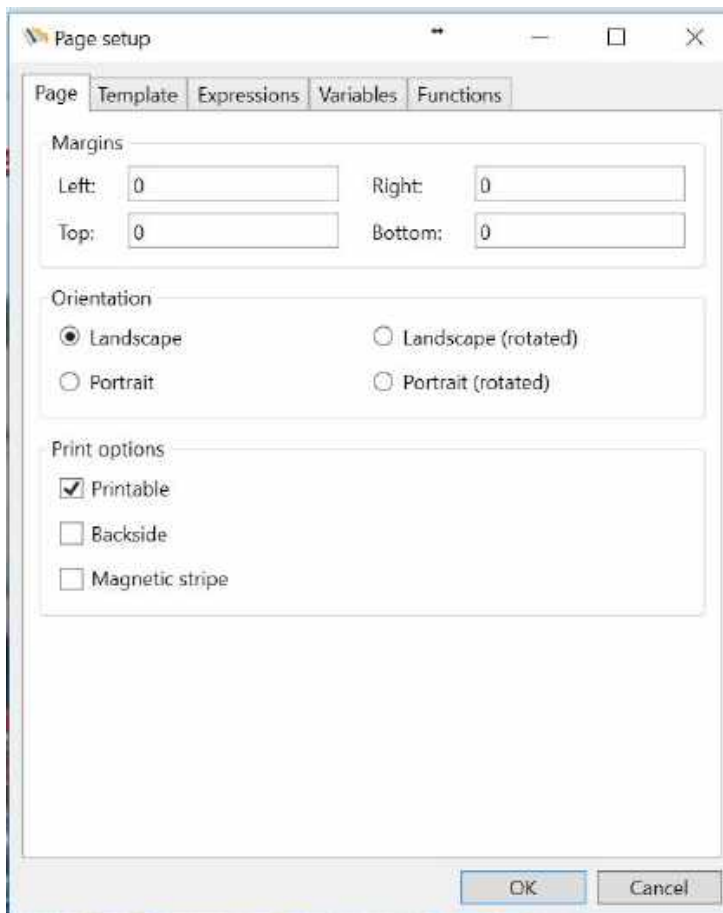
For more detailed information about the Assist Tab, please visit the "[Assist](#)" section of this Help file...

### 5.3 Page Setup

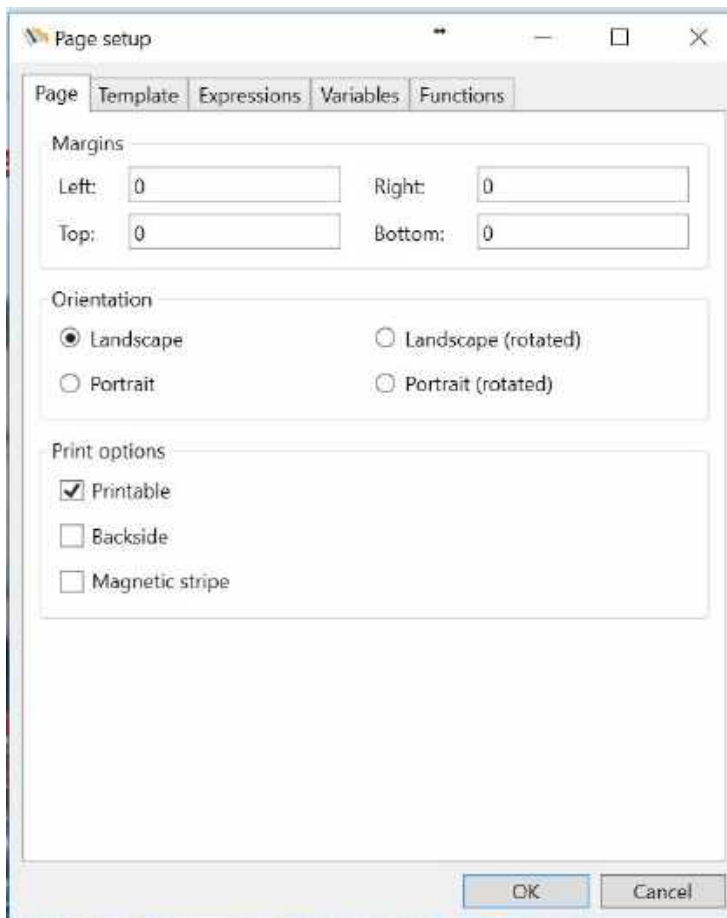


To start the Page Setup window, click on the Page Setup button in the [Main Menu](#).





### 5.3.1 Page



For each selected page in your layout, specific settings can be made. For example, if you are having a double sided print with two pages, the front page can be set to Landscape and the backside can be set to Portrait.

#### **Margins**

- Enter the page margins

#### **Orientation**

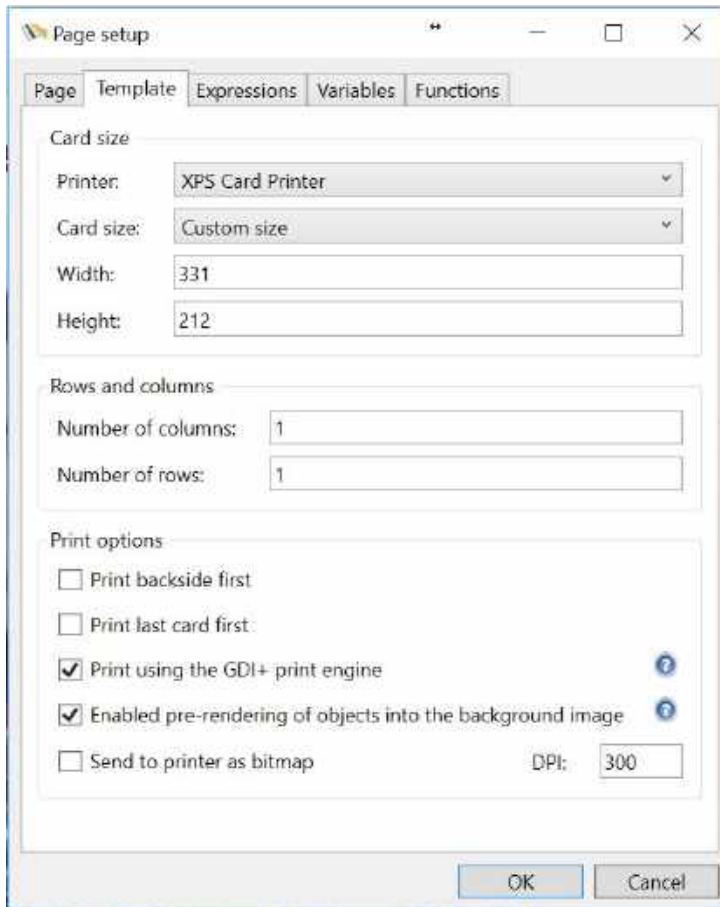
- Change the orientation for landscape or portrait

#### **Print options**

- Set the print options for the layout;
  - Select printable for graphical printing the page
  - Select or deselect Backside to print or not print the backside

- Select magnetic stripe if magnetic encoding is used

### 5.3.2 Template



Every Card (Template) designed with CardExchange® Producer can contain multiple layouts and multiple pages. Each [Layout](#) and [Page](#) can have its specific settings but the template itself holds some specific information like the connected printer being used to print the different pages.

In this section you can define all the specific template settings like selecting the printer being used, card size, etc.;

#### Card size

- **Printer** - Select the printer to be used
- **Card size** - Select the specific card size
- **Width, Height** - Enter custom card sizes

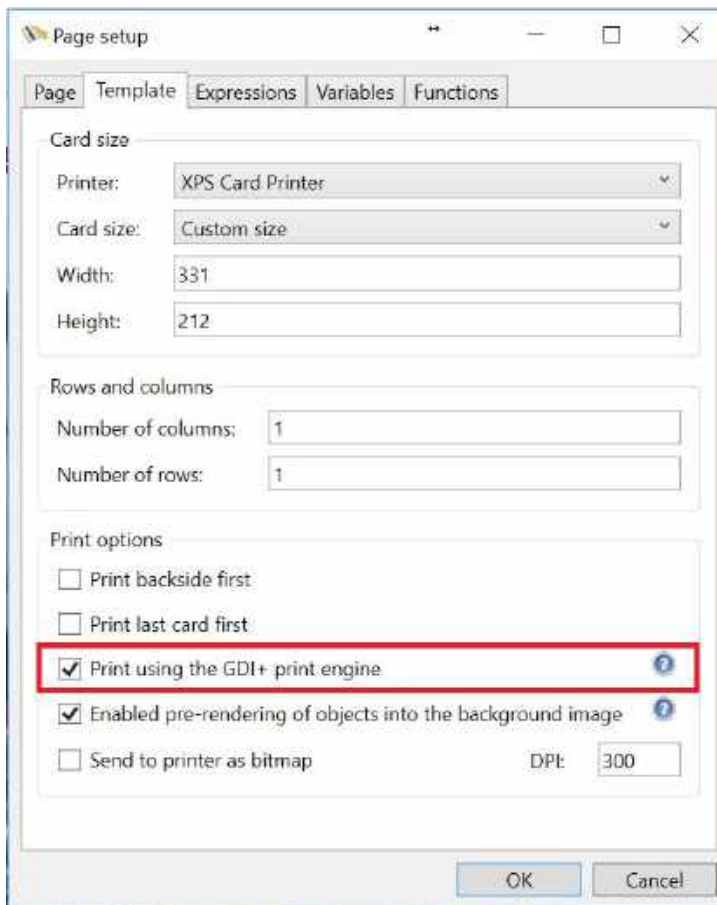
### Rows and columns

- In this section you can define how many columns and rows need to be printed on one page. If you set the Number of rows to 3, 3 records will be printed on, for example, the front page of the card. This technology can be used to print multiple records for, for example, the use of breakable cards. See more information about how to use [Rows and Columns](#).

### Print options

- Print backside first - Select this option if the backside of the card needs to be printed first
- Print last card first - Select this option if you want to print the last card from the batch first
- Print using the GDI+ print engine - Select this option for non-compatible XPS printers to ensure highest print quality. For more information [CLICK HERE](#).
- Enabled pre-rendering of objects into the background image - For more information [CLICK HERE](#).
- Send to printer as bitmap - Select this option if you want to have CardExchange® Producer create a bitmap image first and send it to the printer in stead of sending all objects separately

### 5.3.2.1 Using GDI+ Printing



CardExchange® Producer is developed using the latest Microsoft technology and uses their XPS printing engine for printing. XPS is the technology that is going to replace the printer driver technology as it has been used since the beginning of Windows.

Unfortunately not all ID card printer manufacturers supply drivers that support XPS technology. Therefore CardExchange® Producer offers also a GDI+ print engine. At this moment we know that Evolis and Datacard are supporting XPS printing.

When ID card printers do not support XPS printing, this can result in poor quality of images and problems with resin printing. When this occurs you can set the system to print via GDI+ printing.

As CardExchange® Producer uses advanced graphical objects that sometimes are not supported by GDI+, you can use this technology in combination with [Pre-rendering](#) of objects.

### 5.3.2.2 Pre-rendering of Objects

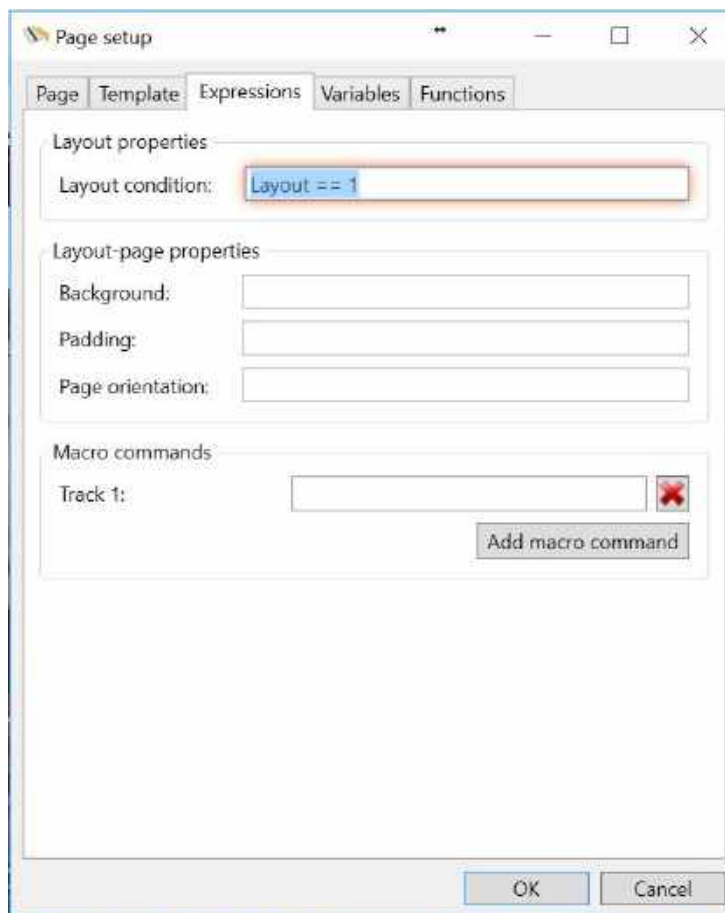


This option enables pre-rendering of objects into the background image of the layout page. When selected, all objects that have been flagged for pre-rendering, together with the background image or brush of the layout page, will be rendered to a bitmap image and sent as such to the printer.

By default, only image objects are flagged for pre-rendering, but on the [Visibility](#) tab of the Properties window, pre-rendering can be enabled or disabled for any individual object. Pre-rendering is needed when printing via the GDI+ if your design uses graphics that are not supported by the GDI+.

Pre-rendered objects will always show behind any other objects in the printed result, even if that is not the case on the preview.

### 5.3.3 Expressions



The CardExchange® Producer Designer integrates a powerful script language that offers users a high level of flexibility when it comes to personalizing their card layouts. Instead of assigning fixed values to layout or layout-page properties, it is possible to control their values through expressions that yield different results in different circumstances. For example, CardExchange® Producer can inspect a field in the database and then decide to set a different background color, or even show a completely different card layout.

The Expressions tab of the page-setup window allows for specifying expressions for the layout condition, a number of layout-page properties and any number macro commands. The layout condition is available for the Professional and Ultimate editions. The layout-page properties and the macro commands are only available in the Ultimate edition.

Expressions are written in IronPython (see <http://ironpython.net>), which is the .NET implementation of Python, (see <http://www.python.org>). Since the documentation of Python

is publicly available on these websites, this help file will limit itself to explaining how Python can be used within CardExchange® Producer and giving some practical examples.

### **Layout condition**

When a card template consists of multiple layouts, the layout-condition property can be used to determine whether a layout applies or not. Imagine, for example, that the template has two layouts and that we type

```
layout == 'A'
```

for the layout condition of the first layout. When pressing the Enter or Tab key or clicking OK, CardExchange® Producer will detect that a new variable called 'layout' was introduced and prompt for a default value. You could set the default value to 'A', as shown in the screen shot below.

Now close the page-setup window, select the second layout and open the page-setup window again. Type in the Expressions tab the layout condition

```
layout == 'B'
```

CardExchange® Producer will not prompt for a default value anymore, because the variable 'layout' is already part of the variables collection. Now when you look under the data tab of the explorer menu, you will see a sub tab for variables which contains a variable called layout. You can select this and from the properties window and map it to the field in the database that contains the layout condition.

The first layout will be shown for records that have the value 'A' in that field, while the second layout will only show if that field contains 'B'.

Layout conditions can be controlled by expressions that are much more complex than this. The expressions can contain functions and they can use multiple variables. It is possible to define the layout conditions in such a way, that for some records multiple layouts apply and for others no layout at all. CardExchange® Producer will print multiple cards for the same record if multiple layouts apply. If no layouts apply, CardExchange® Producer will skip the record when executing a print batch.

### **Background**

Three layout-page properties can be controlled by expressions: the background color, the margins and the page orientation. Background colors are specified using HTML color



names ('AliceBlue', 'AntiqueWhite', 'Aqua', etcetera) or using HTML color tags, for example, '#FFCD853F', specifying the alpha, red, green and blue channels respectively. The simplest way of getting a flexible background color is by just typing a variable name in the expressions box, like

```
backgroundcolor
```

CardExchange® Producer will prompt again for a default value, where you can type, for example, 'AliceBlue'. In the mappings window, the variable name will appear among the visible items and can be mapped to a database column that contains the desired color name for each record.

If the color is determined by a flag that does not reflect the color name directly, it is necessary to define a function in the Functions tab, like for example

```
def getcolor(flag):
    if flag == 'A':
        return 'Red'
    elif flag == 'B':
        return 'Green'
    else:
        return 'Blue'
```

This function can be used in the expression for the background color by typing

```
getcolor(flag)
```

where the variable 'flag' should be mapped to a database column that can contain the values 'A' or 'B'. As a result, CardExchange will show a red or green background if that column contains the value 'A' or 'B' respectively. The background will be blue for all other values.

## Padding

The padding is the space between the edge of the card and the printed area, more commonly designated as margin when talking about pages. It is not commonly controlled by expressions. The result of the expressions should be either an integer value that specifies the width of the margin in pixels, or a string containing two or four numbers, optionally separated by a comma. The string '10 20' or '10,20' would set a margin of 10 pixels on the left and right sides and a margin of 20 pixels to the top and bottom sides. The string '1 2 3

4' or '1,2,3,4' would set a left margin of 1, a top margin of 2, a right margin of 3 and a bottom margin of 4.

### **Page orientation**

For the page orientation, it is still more unlikely that you want to control it with an expression. The value that the expression should return are 'Landscape', 'Portrait', 'ReverseLandscape' or 'ReversePortrait', where the last two refer to an orientation that has been rotated 180 degrees.

### **Macro commands**

Macro commands are text strings that are sent to the printer as printable characters, but that are interpreted by the printer as special commands. The most common application of macro commands is using them for magnetic encoding. The printer recognizes text strings as macro commands by inspecting the first and sometimes the last characters. For example, on certain printer brands, the string '~1%XXXXX?' is interpreted as a command to encode the characters 'XXXXX' on track 1 of the magnetic stripe.

Although you could define macro commands for magnetic encoding in the Expressions tab of the page-setup window, you normally will not do that, because it is much more user friendly to enable the magnetic-stripe object in the Page-layout ribbon and configure it in the properties window. However, some printers support other types of macro commands, for example for defining holographic overlays, in which case you can manually add those commands in the page-setup window.

### 5.3.4 Variables



When expressions are used to determine property values, CardExchange® Producer detects whether any variables were used in the expression. If so, it prompts for default values and adds the variables to the template's variable collection. Under the data tab in the explorer menu, the template's variables will appear under the variables sub tab and their values can be mapped to external data, like database columns or manual entries by selecting them and changing the drop down in the properties window.

The Variables tab in the page-setup window, lists the complete variable collection and allows for following actions:

- Changing a variable name by clicking on it in the list and typing a new name. If you rename a variable, be sure that you also adapt any expressions that are using that variable.
- Changing the default value of a variable by typing in the value box.

- Removing a variable by clicking on the button with the red cross. You should only do this if you are sure that the variable is not being used by any expressions.
- Adding a new variable by clicking on the Add-variable button.

If you want the default value of a variable to represent an image, you can click in the image button to show some additional controls that helps you defining the image.

The select-image button allows you to select an image file from the computer. The point-to-file check box allows you to set the default value to the file path instead of the image data.

When you hover over the image, you see two additional buttons that are for editing and removing the image respectively. Please, note that edited images cannot be of the point-to-file type. When you edit a point-to-file image, the point-to-file box will be unchecked automatically. On the other hand, if you check the box for an edited image, the image will revert to the original one.

### 5.3.5 Functions



The Functions tab in the expressions window shows a single text box where you can type any global definitions you want to use in your Python scripts. When typing here, you need to follow the Python syntax (see <http://www.python.org>). Normally, you will use this space to define custom functions to be used in expressions. An example shown before was the function we defined to determine the background color

```
def getcolor(flag):
    if flag == 'A':
        return 'Red'
    elif flag == 'B':
        return 'Green'
    else:
        return 'Blue'
```

It is also possible to define global variables, that is, variables that can be used in expressions or functions, but that will not be listed under the visible items. For example, we could change the above function definition to

```
colorA = 'Red'
colorB = 'Green'
colorC = 'Blue'

def getcolor(flag):
    if flag == 'A':
        return colorA
    elif flag == 'B':
        return colorB
    else:
        return colorC
```

To get a taste of the level of complexity you can achieve with custom functions, see the below definition of a function that converts a string to name casing. It uses the regular-expressions module of Python (see <http://www.python.org> for more information).

```
import re

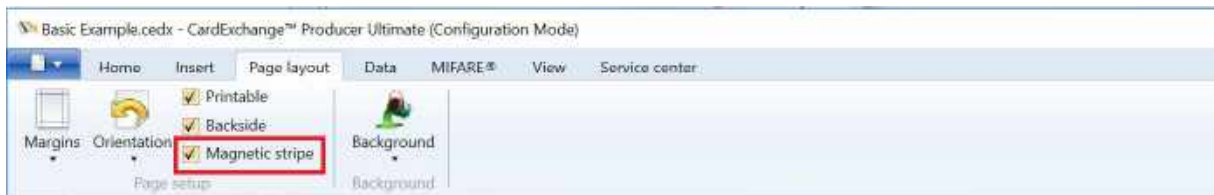
def namecase(s):
    return re.sub('\w+', capitalizematch, s)

def capitalizematch(m):
    return capitalize(m.group(0))

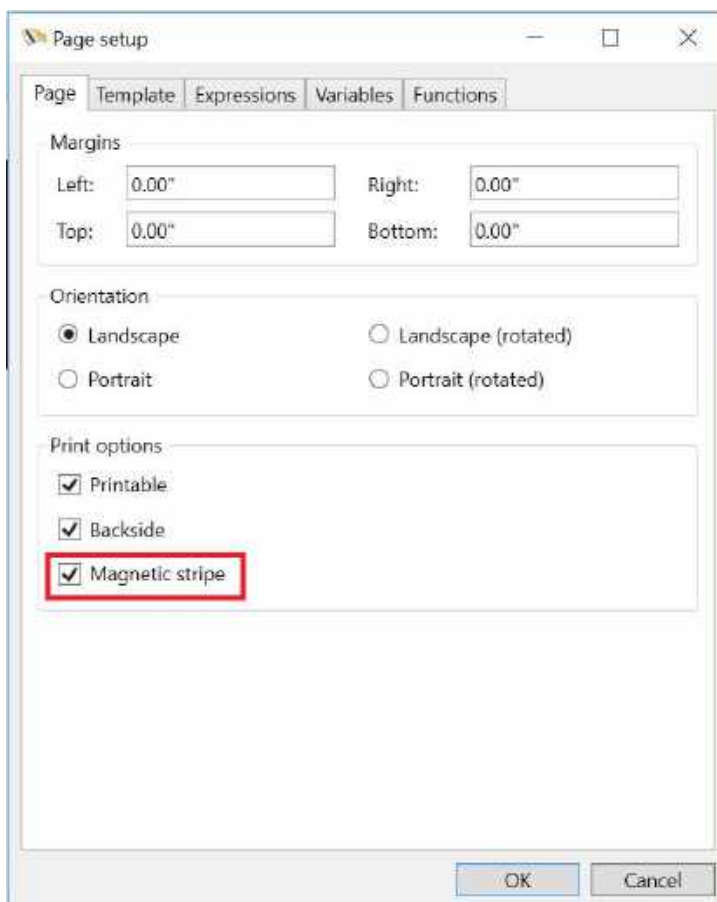
def capitalize(s):
    if len(s) > 1:
        return s[:1].upper() + s[1:].lower()
    elif len(s) == 1:
        return s.upper()
    else:
        return s
```

With the name-case function, you can convert a string like 'jOHn SMith' into 'John Smith'.

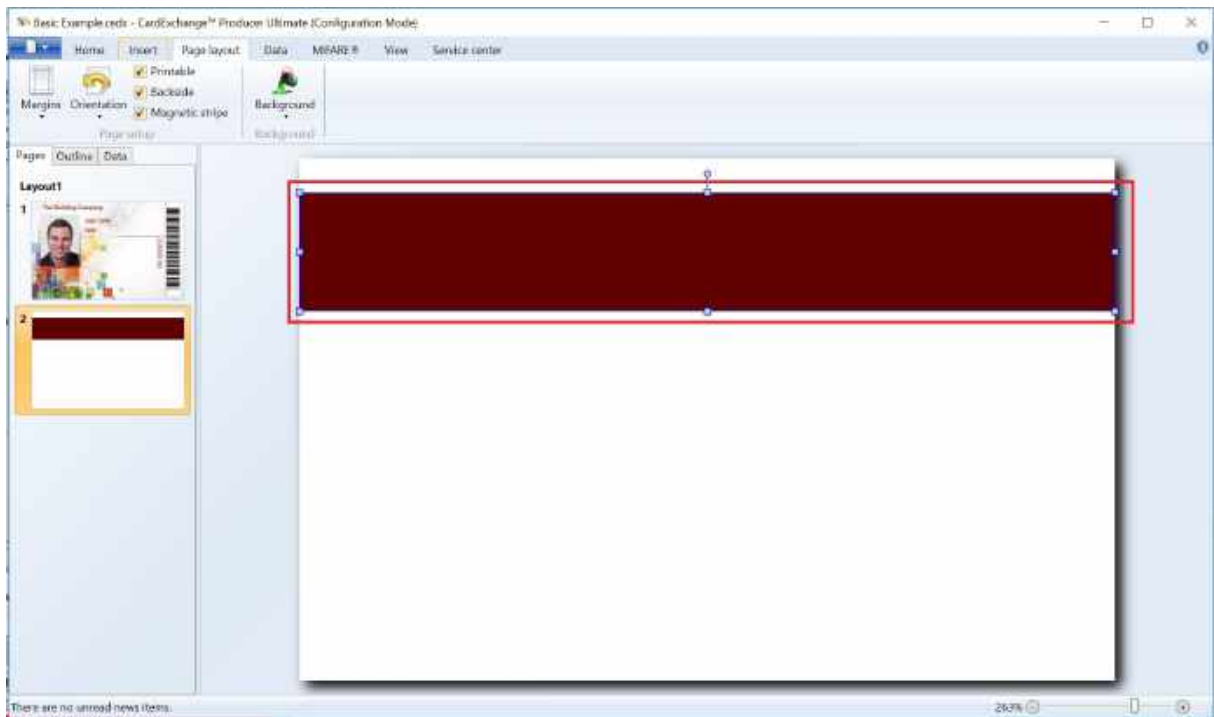
## 5.4 Magnetic Encoding



Magnetic encoding with CardExchange® Producer is very easy to configure. Just check the **Magnetic stripe** check box in the [Page layout](#) tab or select Page Setup from the Menu.



Select the Page and check the Magnetic stripe check box.



In the Page design you now see a red magnetic stripe rectangle appearing as indicated with the **red** rectangle. Now make sure that you have the [Properties](#) window open and make sure the [Content](#) tab is selected and that the magnetic area on your page design is selected.



Properties

Manual entries | MIFARE® | Expressions | Variables | Functions

Content | Position | Text | Border | Colors | Visibility | Database columns

Magnetic encoding

Track 1: ISAAC

Track 2: 5

Track 3: 123456789

Track 1:

Track 2:

Track 3:

Start and stop sentinels

Printer: XPS Card Printer Apply defaults

Track 1: ~1% ?

Track 2: ~2; ?

Track 3: ~3; ?

Close

In the Properties window you now see three sections:


- Magnetic encoding
- Track 1, Track 2, and Track 3
- Start and stop sentinels

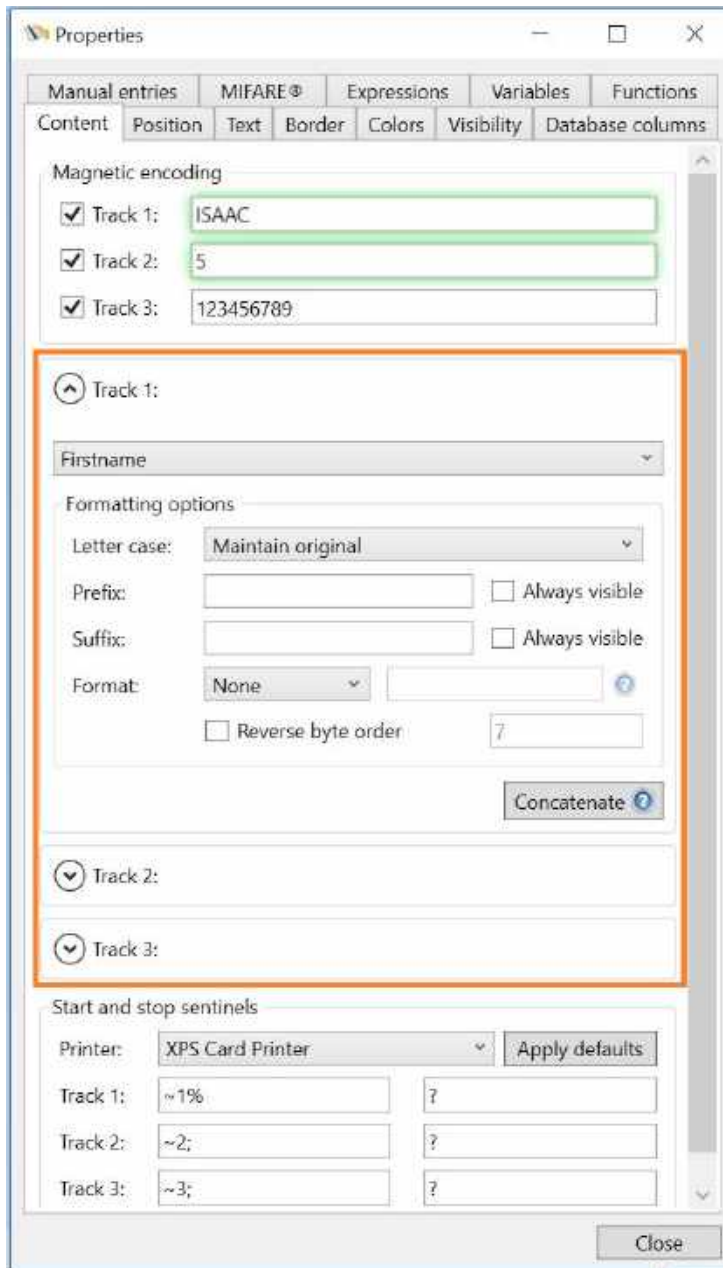
### Magnetic encoding

In this group, indicated with the **red** rectangle, you select which track you want to write to. Just select the check box for each track to make it available. In the text box next to the

Track you can directly enter information (fixed value) or drag a database column into it. For each selected track the track object, indicated in the **orange** rectangle, will become available.

### Track 1, Track 2, and Track 3

In this group, indicated with the **orange** rectangle you can set or change the information that is being coded to the magnetic stripe. Click on the  to expand the Track info.



Just like with normal objects, with the Magnetic Encoding you can also use the [Standard Object Types](#) to connect.

### Start and stop sentinels

The screenshot shows a 'Properties' dialog box with several tabs: 'Manual entries', 'MIFARE®', 'Expressions', 'Variables', and 'Functions'. The 'Content' tab is selected, and the 'Database columns' sub-tab is active. The 'Magnetic encoding' section is visible, with three tracks checked: Track 1 (ISAAC), Track 2 (5), and Track 3 (123456789). Below this, there are three collapsed sections for Track 1, Track 2, and Track 3. The 'Start and stop sentinels' section is highlighted with a blue border and contains a printer selection dropdown set to 'XPS Card Printer' with an 'Apply defaults' button. Below the printer selection are three rows of input fields for Track 1, Track 2, and Track 3, each with a question mark in the second column.

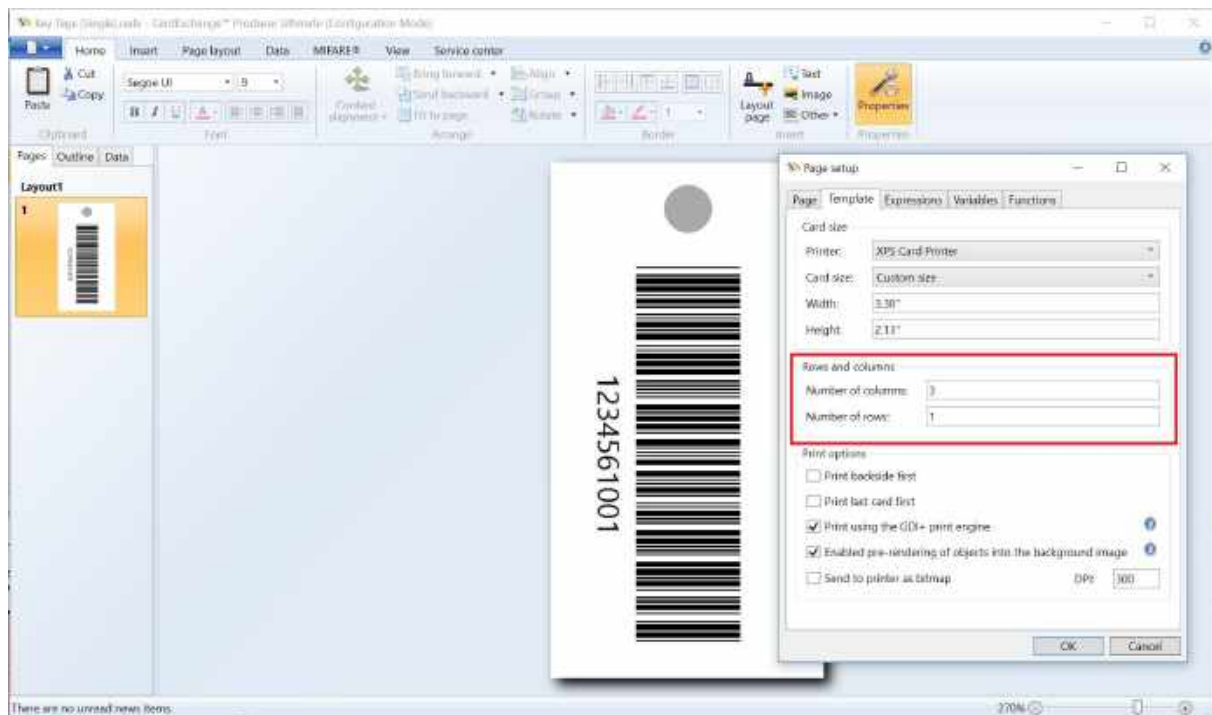
Track	Start Sentinel	Stop Sentinel
Track 1:	~1%	?
Track 2:	~2;	?
Track 3:	~3;	?

All ID Card Printers are using start and stop sentinels for moving the card into encoding position. Although encoding of magnetic cards is based on an ISO standard, the commands used are mostly different per manufacturers brand.

To make sure you are using the correct start and stop commands, the most common commands are available via CardExchange® Producer directly. Just select the printer you are using from the printer drop down menu and click on Apply defaults.

If you are using specific start and stop sentinels, you can directly enter them into the text boxes.

## 5.5 Rows and Columns



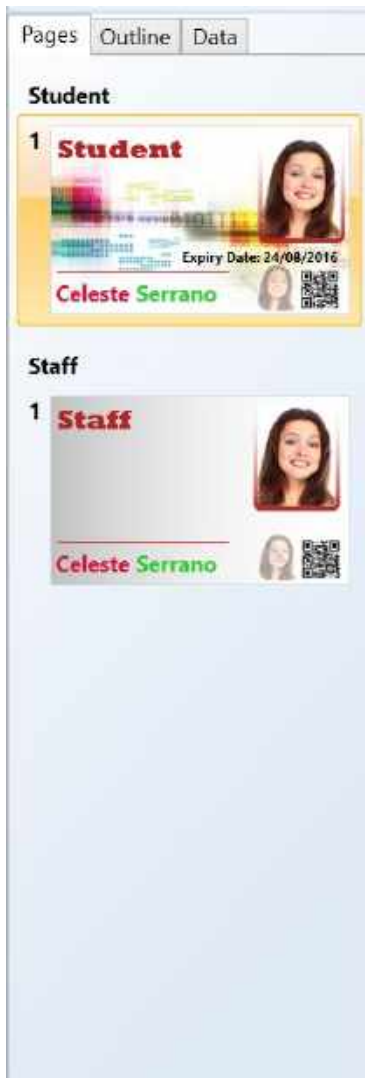
CardExchange® Producer offers the possibility to print multiple records on a your card. This can be very handy when printing, for example, breakable cards for key chains.

Select the [Layout](#), open the [Page Setup](#) window, and select the Template tab. Here you can find the Rows and Columns section. Enter the amount of columns and rows you want to use. For example, using 3 columns and 1 row will have the following print result:



Of course, because CardExchange® Producer supports Windows printers, you can also use this to create face books for your A4 or Letter printers.

## 5.6 Templates



As you have read in the [Designer Interface](#) section of this Help file, all your configuration is done in the Designer. Therefore the CardExchange® Producer Designer works based on templates.

To understand how CardExchange® Producer works, it is important to take special note of this section of the Help file.

Basically every time you create a new card with CardExchange® Producer you are creating a new Template.

In the [Main Interface](#) of CardExchange® Producer you always switch between the different available Templates (see the "[Loaded Cards](#)" section).

With the Designer you always create a new or open the selected **Template**. But it is always **ONE Template!**

Each **Template** has always one ID Card Printer connected, one Database connection, one MIFARE® Classic or DESFire connection, one External Plug In, etc.

Each **Template** can have Multiple Layouts. In the screen shot you see "Student" and "Staff". These are the layouts inside the template. Each layout can have it's own unique conditions like [Magnetic Encoding](#) settings. By selecting the layout, you can simply call the [Page Setup](#) window from the [Main Menu](#) to set the specific conditions.

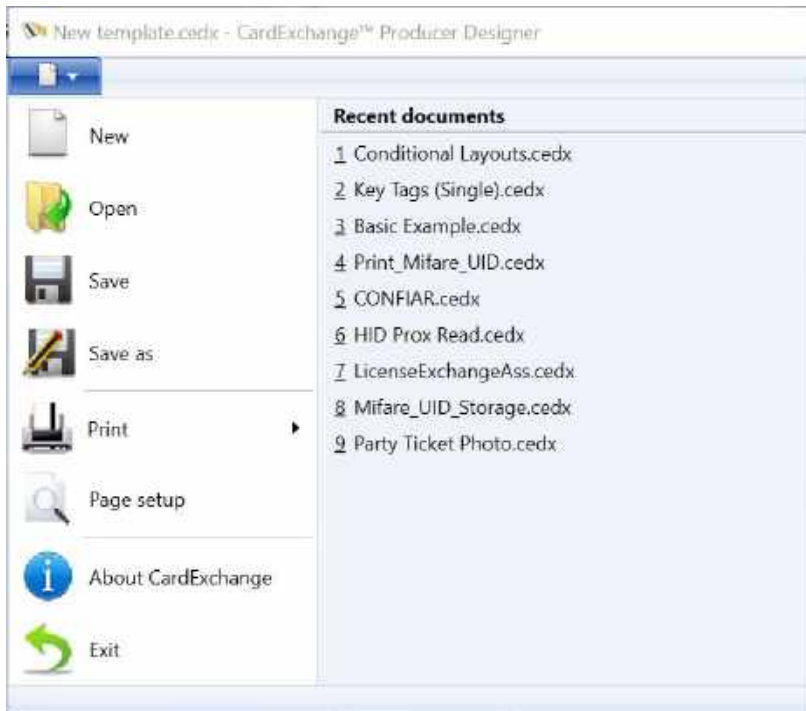
This offers very powerful functionality. Using Multiple Layouts inside one Template makes it for example, possible to automatic switch between the different available Layouts within the Template. More information how to create this type of functionality can be found in the [Expressions](#) section of this Help file.

More information about Layouts can be found in the "[Adding Layout\(s\)](#)" section of this Help file.

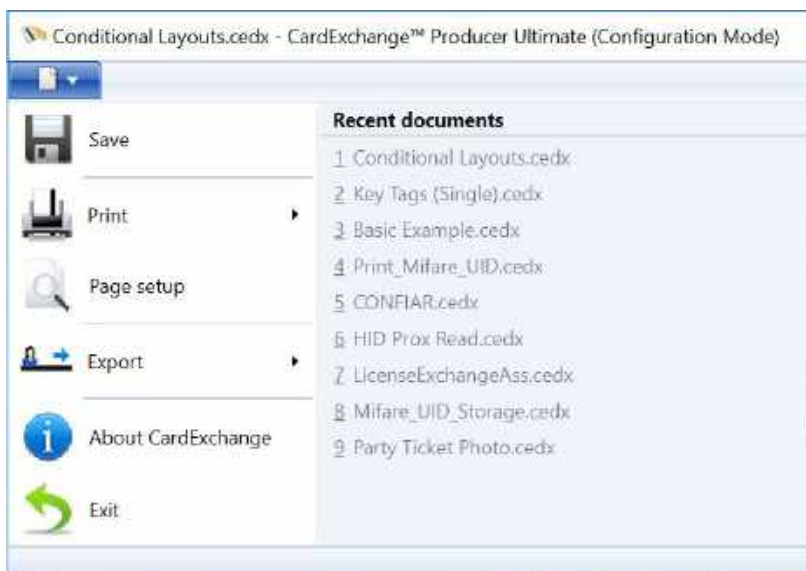
Each Layout can have Multiple Pages. You can have a Page for the Front Side, a Page for the Back Side, but also a Page for a UV panel on the Front and/or a UV panel on the Back. Each Page holds all the objects like text, image, barcode, etc., objects.

## 5.7 Menu Overview

In the Main menu of the Designer you can find all common functionality needed to load, save, print, etc., your card. It is very important to be aware that there are basically two versions of this menu. The version for the Designer as shown below:



And the version for the Go and higher editions as shown below:



In the Designer menu you can create a new template, open an existing template, and save an existing template under a different name.

When you are using a Go or higher edition, this functionality is not available because the creation of new templates is managed via the Card Manager. More information about the Card Manager can be found in our "[Using the Card Manager](#)" section of this Help file.

### Available functionality

- **New \*** Create a new template (Only available in the Designer edition. In all other editions adding goes via the Step-by-Step wizard). For more information about Adding cards, please see our "[Add a Card](#)" section of this Help file.
- **Open \*** Open an existing template (**Designer Edition only**)
- **Save** Save the template and/or the modifications you made
- **Save as \*** Save the template as (**Designer Edition only**)
- **Print** This menu has three sub items:
  - **Print** (Select the printer, the amount of copies, etc.)
  - **Quick Print** (Send the template directly to the default printer without making any changes)
  - **Print preview** (Preview and make changes to pages before printing)

For more information about printing, please see the "[Printing Cards](#)" section of this Help file.
- **Page setup** Opens the Page Setup window. More information about Page Setup can be found in the "[Page Setup](#)" section of this Help file
- **Export** This menu has five sub items and allows you to export the card layout as an image. You can export different formats like BMP, JPG, PNG, etc.
- **About CardExchange® Producer** This opens the about window with version information of CardExchange® Producer
- **Exit** This will quit the Designer or close the Configuration mode

## 5.8 Properties





---

All objects used with the CardExchange® Producer Designer have more properties than shown in the Add Object window. All these properties are available in the Properties Windows. Click on the Properties button in the Home tab to open. In the Properties Window you can find specific properties for:

- [Content](#)
- [Position](#)
- [Text](#)
- [Border](#)
- [Colors](#)
- [Visibility](#)
- [Database Columns](#)
- [Manual Entries](#)
- [Mifare](#)
- [Expressions](#)
- [Variables](#)
- [Functions](#)



## 5.8.1 Content

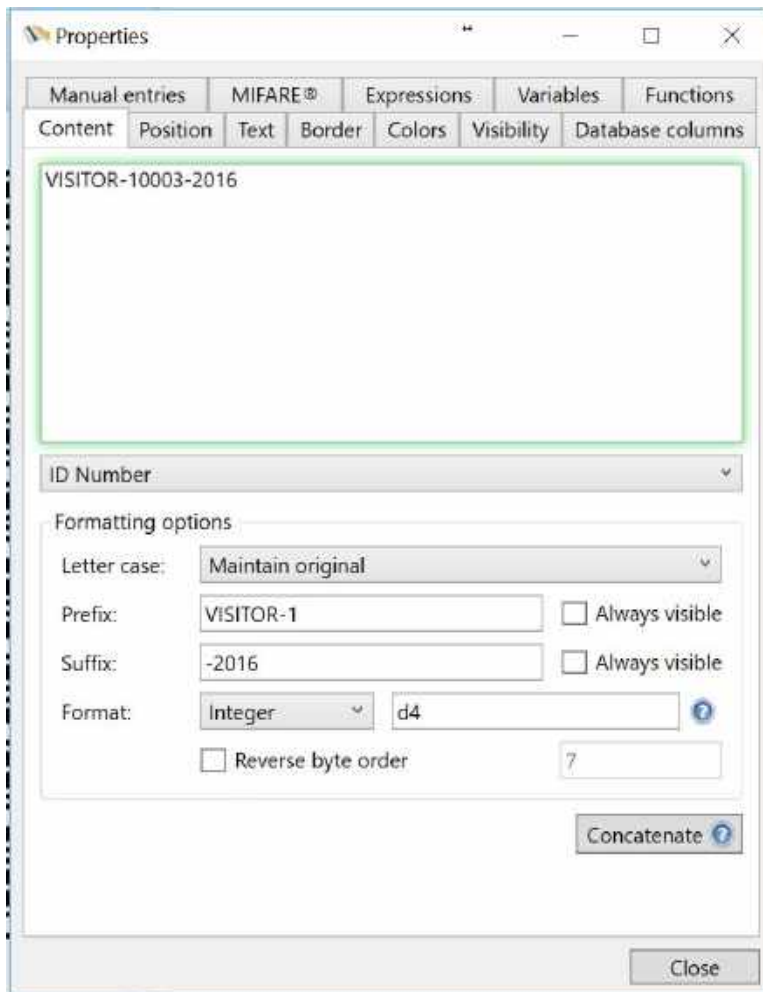


In the content tab you can enter information when you are using a [Fixed Value](#) object. This information will then be presented on the Page design in the [Text](#) object. Of course when connected to a database, this Content tab will show the data from the connected column. The box around the text area will be **GREEN** when it contains information coming from a connected database, **ORANGE** when it contains [Manual Entry](#) information, and **RED** when it contains information from Scripts. When using fixed text, it will have no color and look like the screen shot.

You can change the information by selecting a different [Standard Object Type](#). But can also be set for using photos, signatures, etc. More information can be found in the "[Using Images](#)" section of this Help file.

In stead of selecting a Standard Object, the information can also simply be changed by selecting a database column from the [Data Menu](#) in the [Explorer Menu](#) and drag and drop this field directly into the Content text area.

## Formatting Options



The Content tab also offers the possibility to do some advanced formatting. In the Formatting Options group you can set the Letter case for the content. You have four options for the Letter case:

- **Maintain Original** - No changes to the original
- **Lowercase** - Makes the content Lowercase
- **Uppercase** - Makes the content Uppercase

- **Namecase** - Makes all the first letters Uppercase

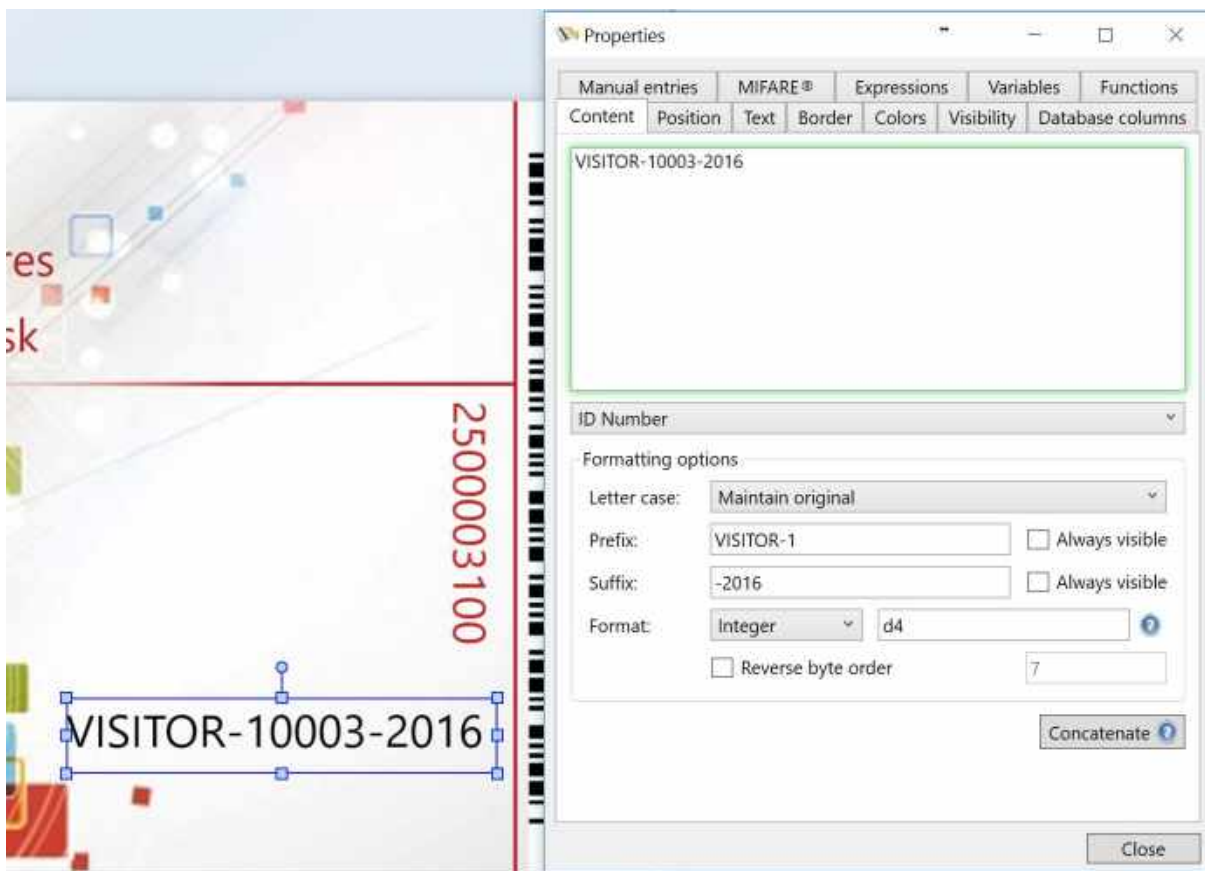
You can add a prefix and a suffix to your content and make it always visible. By default it is unchecked which means that if there is no content available, for example from the database, the prefix or suffix information will not shown.

You can also set the Format of the content. This can be handy if you want to make sure that it is always a integer, date, text, etc., content. You can select the following Formats:

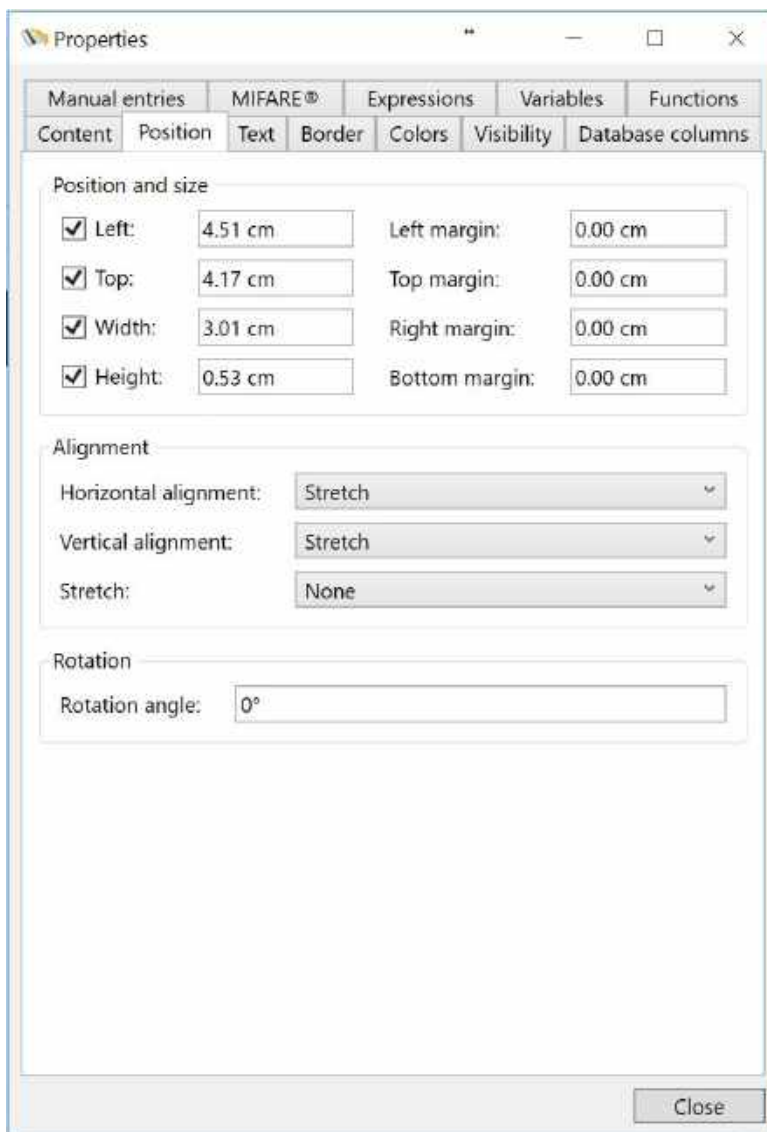
- **Date/Time**
- **Decimal**
- **Floating Point**
- **Integer**
- **None**
- **String**

You can also format the content based on kinda script. For example in the screen shot we entered '**d4**'. That means that the content will be representing four digits. So if the value from the database is 1, setting it to **d4** will show **0001**.

Now bringing it all together, the screen shot with the specific settings will represent the follow information on the card to be printed:



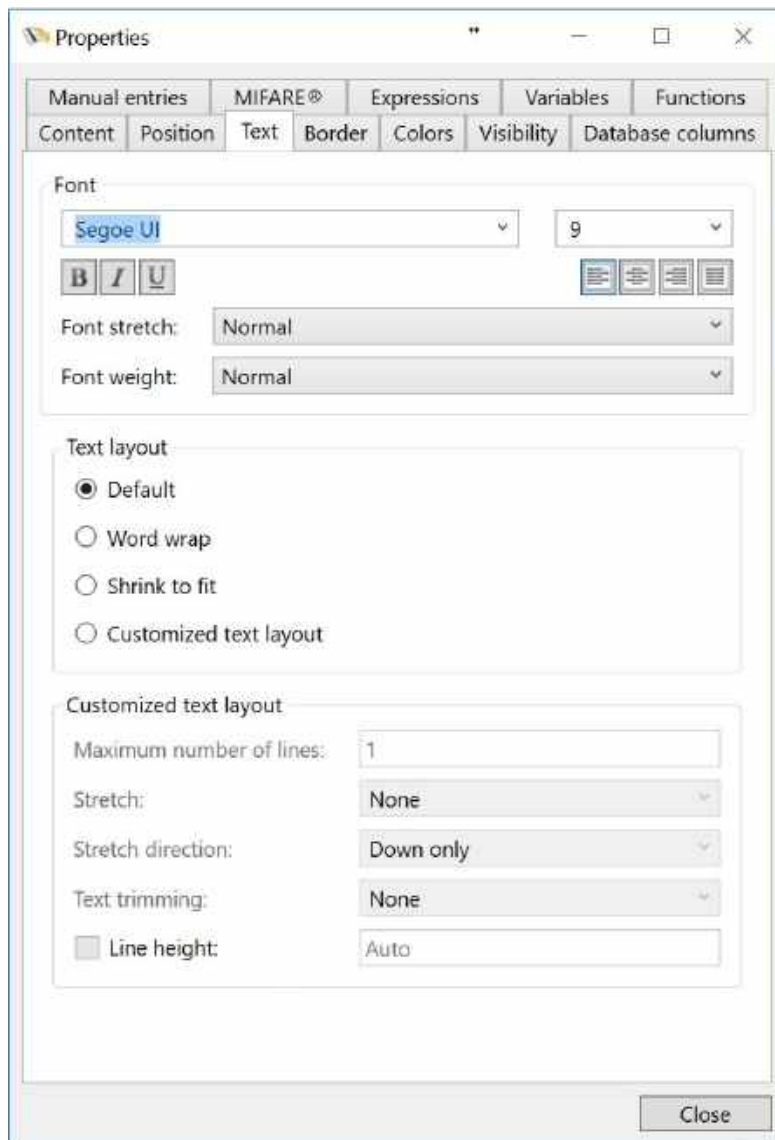
## 5.8.2 Position



In the Position tab you can set the specific position, sizes, and margins. Of course this reflects the position on the Page as you dragged and dropped it so you may not need to change them. However in some situations you will have to set the positions, sizes, and margins based on specs provided by the customer. Instead of trying to accomplish this with a very stable hand, you can here directly enter the values.

Also the Horizontal and Vertical alignment can be set. Set the preferred stretch setting and, if applicable, enter the rotation angle in degrees.

### 5.8.3 Text



In the Text tab you can set the Font Type and the Font Size in the Font Group. Besides the alignment options, you can set the Font Stretch. The Font Stretch is not the same as the text stretch because it determines the intense of the font when stretching while the standard stretch just make sure the text fits in the text box. With the Font Stretch you can choose from:

- **Normal** (*Default*)
- **Ultra Condensed**
- **Extra Condensed**
- **Condensed**
- **Semi Condensed**



- **Semi Expand**
- **Expand**
- **Extra Expand**
- **Ultra Expand**

In the Text Layout you can set the Maximum number of lines for the text object. That means if you set, for example, the value to 2, it does not matter how large the text object on the page is, it will only use maximum two lines for the text. If you do not use stretch functionality, it will not fit the box if it over exceeds 2 lines.

Bringing it to the Stretch option. Stretching and Stretch Direction combines the perfect functionality to get good results in your text object on the Page. In the Stretch Drop Down Menu you can select:

- **None** (*default*)
- **Fill**
- **Uniform**
- **Uniform Fill**

In the Stretch Direction you can select:

- **Up Only**
- **Down Only**
- **Both**

Now, for example, when selecting the option **Fill** in the Stretch Drop Down Menu, in combination with the **Down Only** option from the Stretch Direction Menu, the **Font** will be re-sized horizontally only.

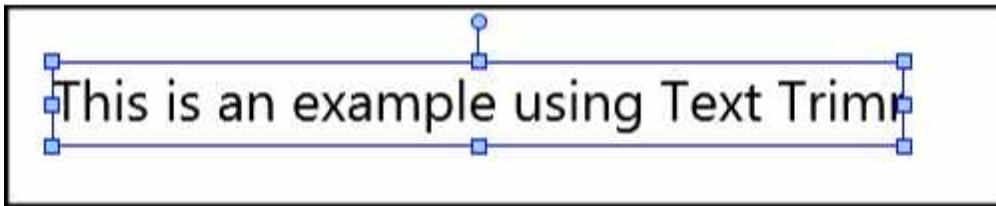


*Text Object without Stretch*

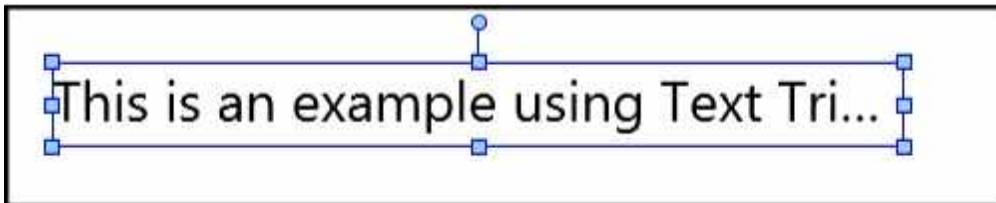


*Text Object with Stretch set to Fill, Stretch Direction to Down Only*

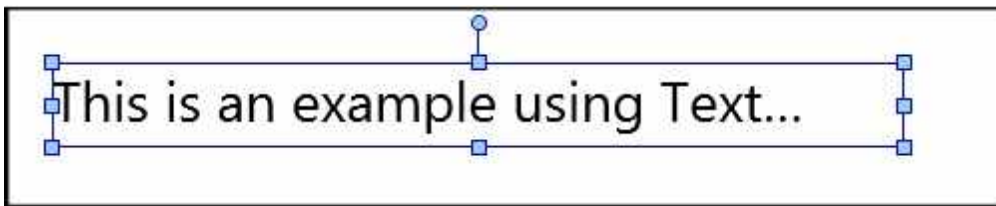
Instead of using Stretch functionality, you can also trim the text. There are basically three options for text trimming:



*Text Object without Text Trimming*

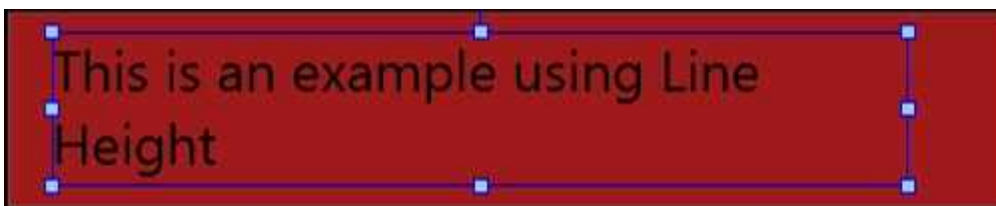


*Text Object with Character Ellipsis Text Trimming*

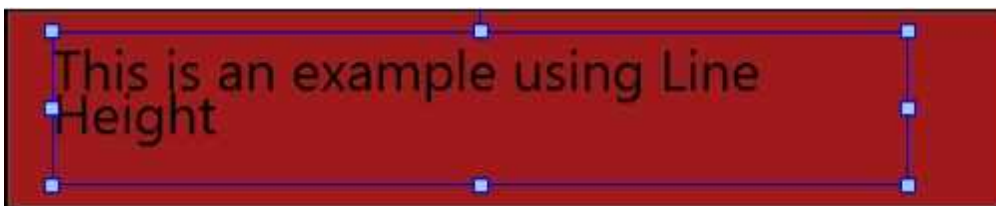


*Text Object without Text Trimming*

The last option in this Text property is setting the Line Height. By default this is not disabled and it uses the standard line heights for the Font Type. In some situations it can be that the standard will eat up to much space you have available on Page Design. When you select the check box, the text box right next to it becomes available and you can enter a value for the line height. The value used is depending on the settings you made in the Options section in the [View](#) tab, centimeters, inches, or pixels. See example below:

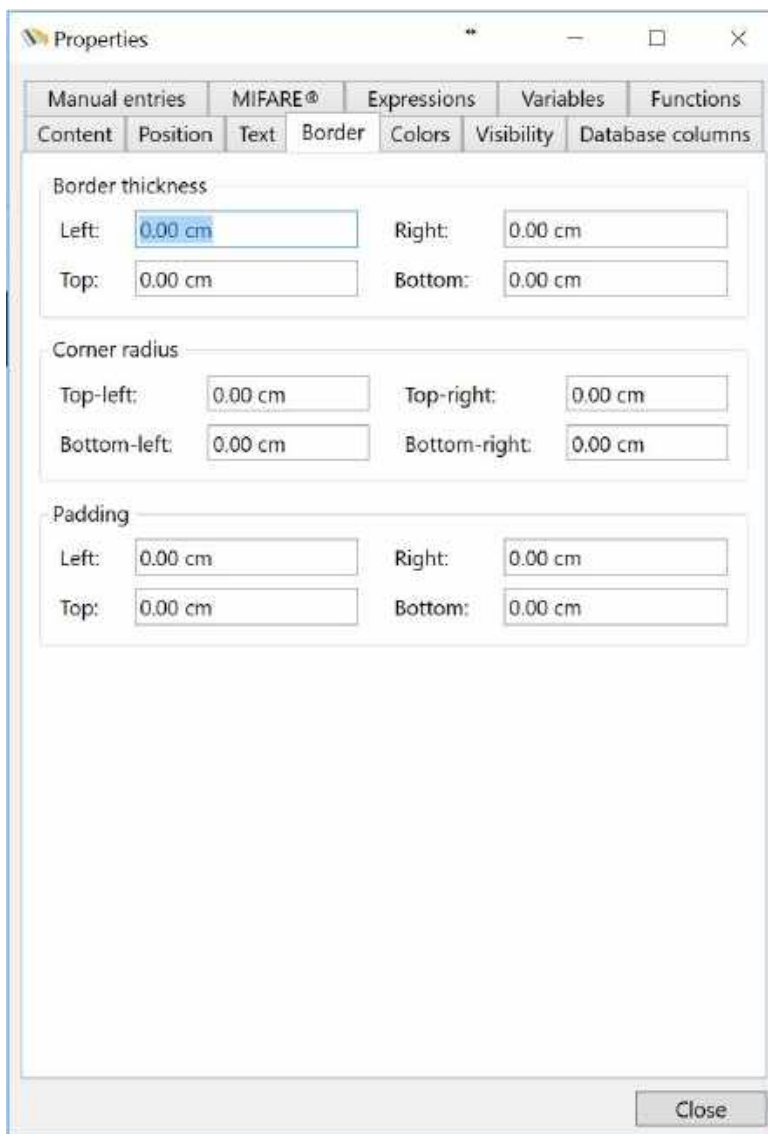


*Text Object without using Line Height*

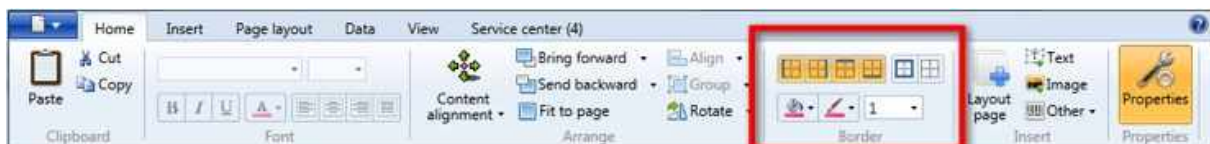


*Text Object using 0.10" Line Height*

## 5.8.4 Border



In this section of the Properties Window you can set the properties for the borders of the objects. In the first group you can define all the values for the Border thickness. For example, when adding a rectangle object to your Page Design, you can select the border thickness from the Home menu in the Border section:

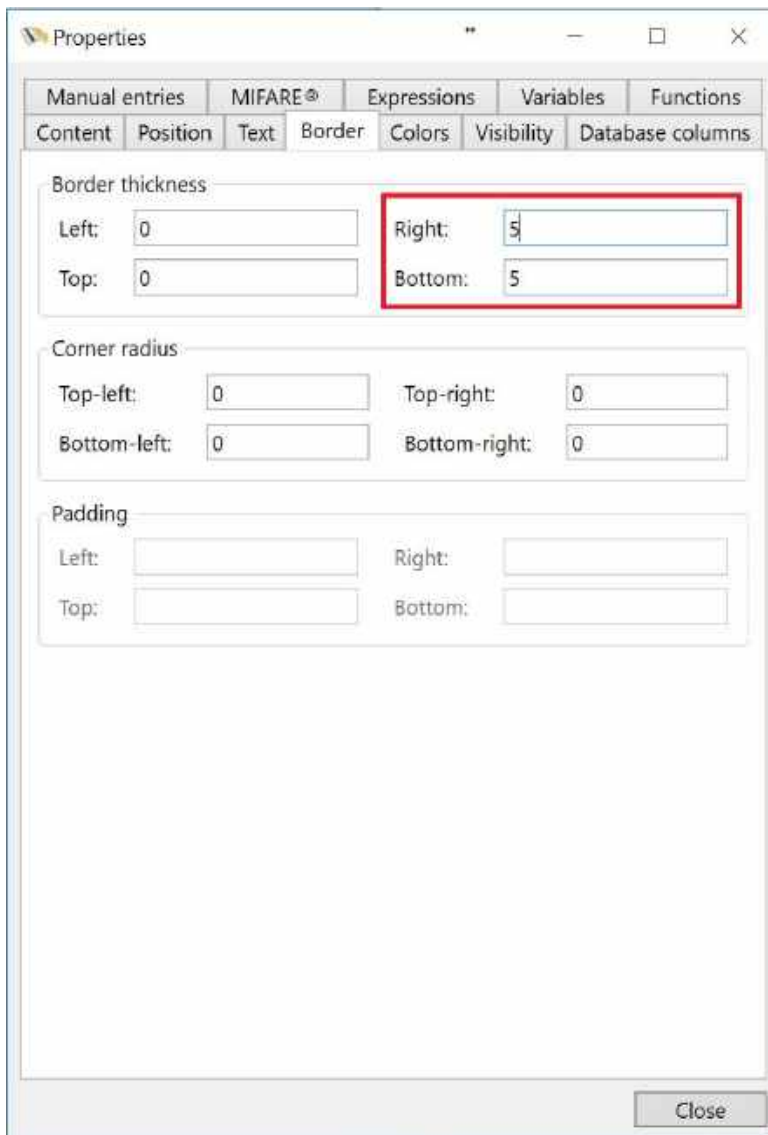


You can also enter this directly in the Border Thickness section of the Border tab. This is handy if you need to set specific values provided by your customer.

For example, we add a photo object on the Page Design and set the values for entering to pixels in the Options section of the [View](#) tab. This object looks like below:



Now we set the Border Thickness to 5 pixels for the Right and Bottom:



Now the photo object will look as below:

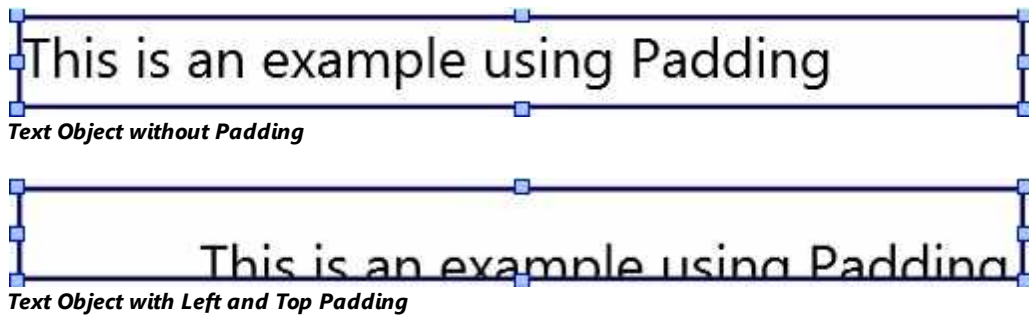


Now you get totally fancy by combining this with the Corner Radius. For example, we set the Corner Radius for the Top-Left and the Bottom-Right to 25 pixels and see the result below:

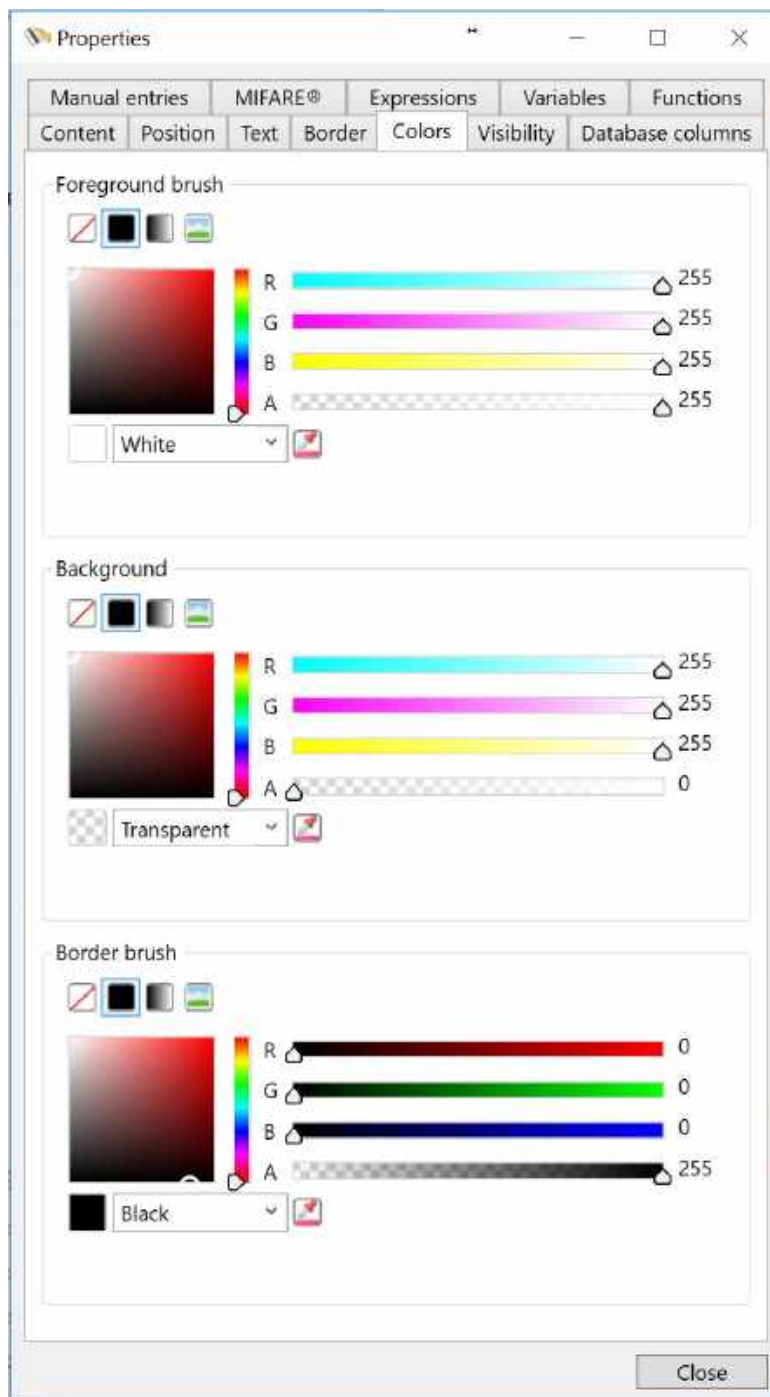


This can be done with all existing objects available with CardExchange® Producer. It even can become more advanced if we are combining the objects borders with colors and backgrounds. More about this in the [Colors](#) section of this Help file.

Last but not least, when using Text Objects you can use padding. Padding is the space inside the object and is therefore not the same as Margin as that is the space outside of the object.



## 5.8.5 Colors





Depending on the object used on the [Page](#) design, different color options are available divided in three different groups:

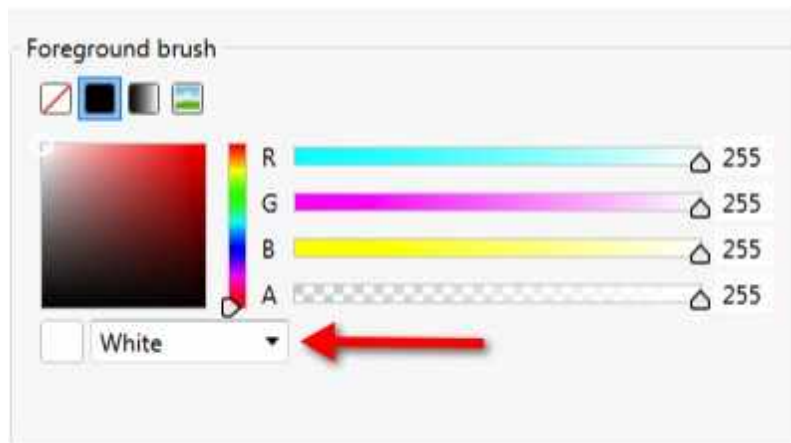
- **Foreground brush** - sets the foreground color of the object
- **Background** - sets the background color for the object

- **Border brush** - sets the border color for the object

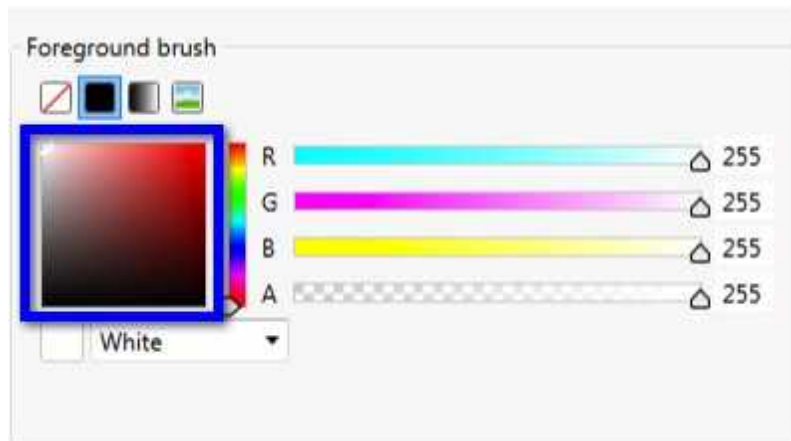
Each group offers four different style options:

-  **Transparent**
-  **Solid color**
-  **Gradient**
-  **Image**

Colors can be selected directly from the drop down menu as indicated with the **red arrow**:

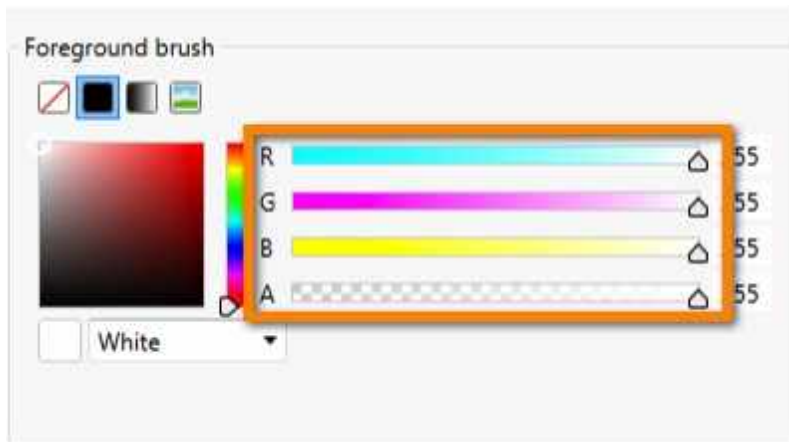


Picked from the color selection area as indicated with the blue rectangle:

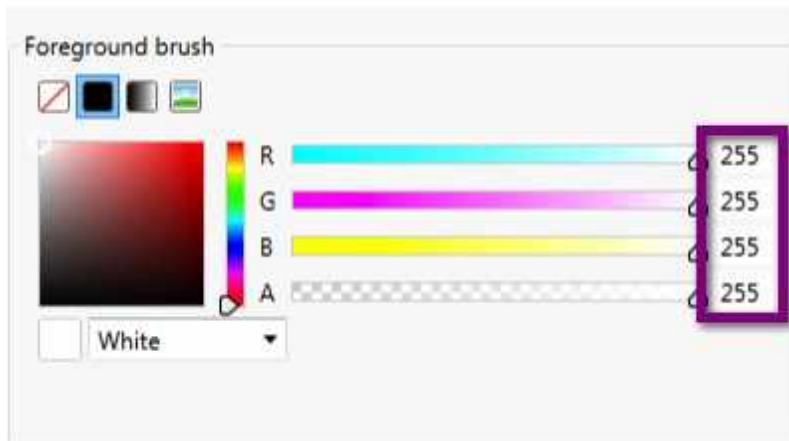


Created by moving the color sliders to the preferred position as indicated with the orange rectangle:





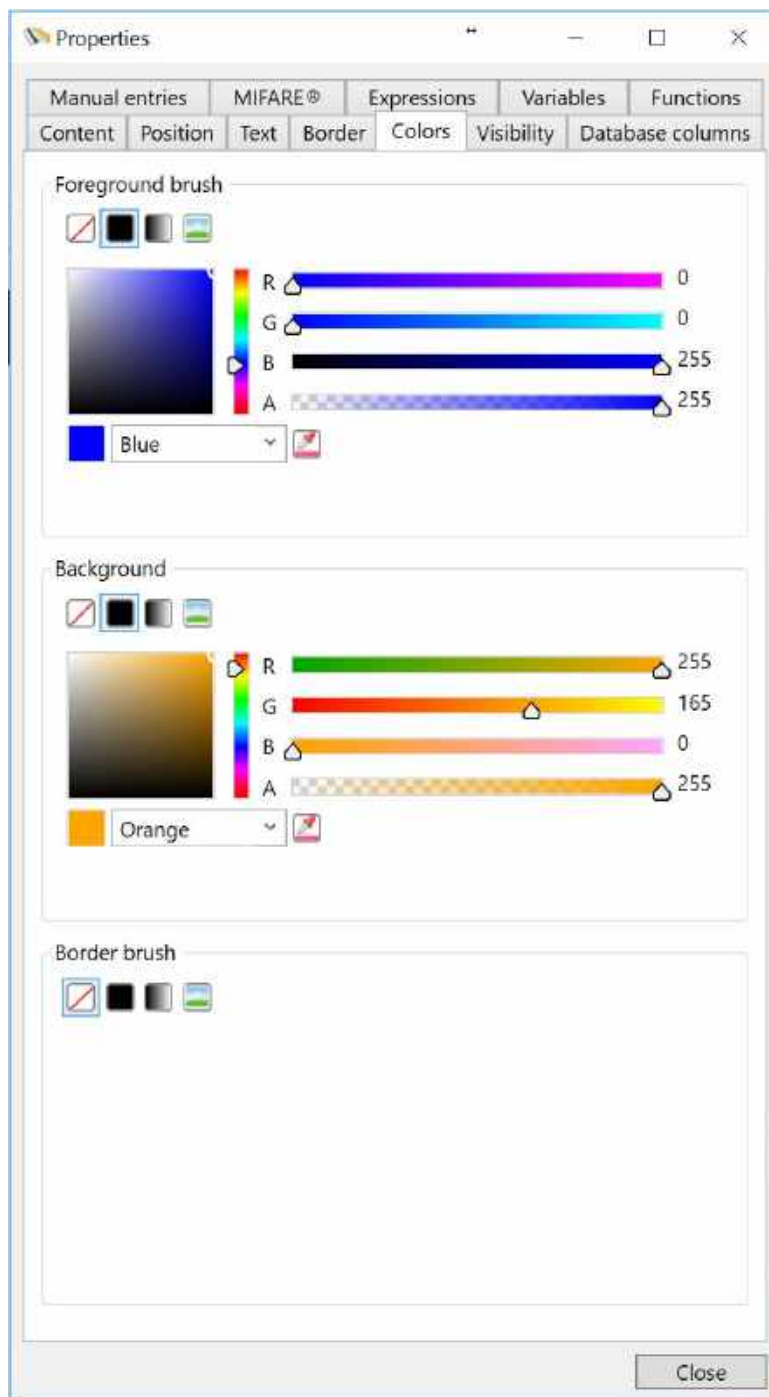
Or directly entered into the text boxes right from the color sliders as indicated with the purple rectangle:



There are so many possibilities to combine that it is impossible to explain them all. We have created a couple of examples which are explained in the sub sections of this Color subject.

#### 5.8.5.1 Text Object Example

For this example we added a text object to the Page design and set the colors as shown below:

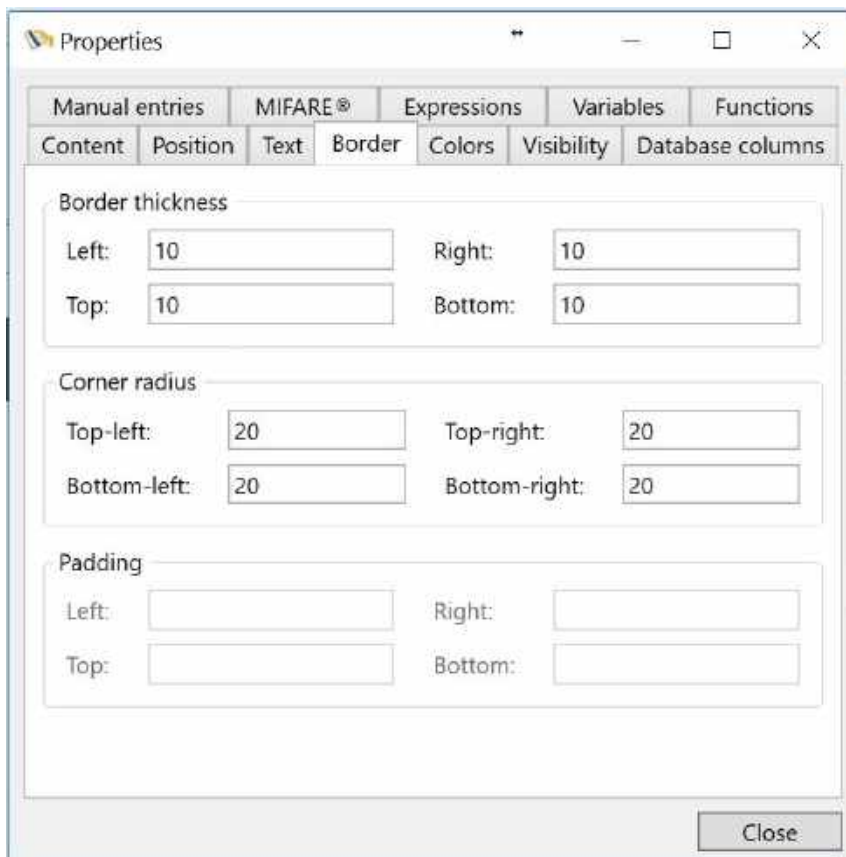


The foreground color is set to blue and for the background color we used orange with a gradient style which creates the result below:

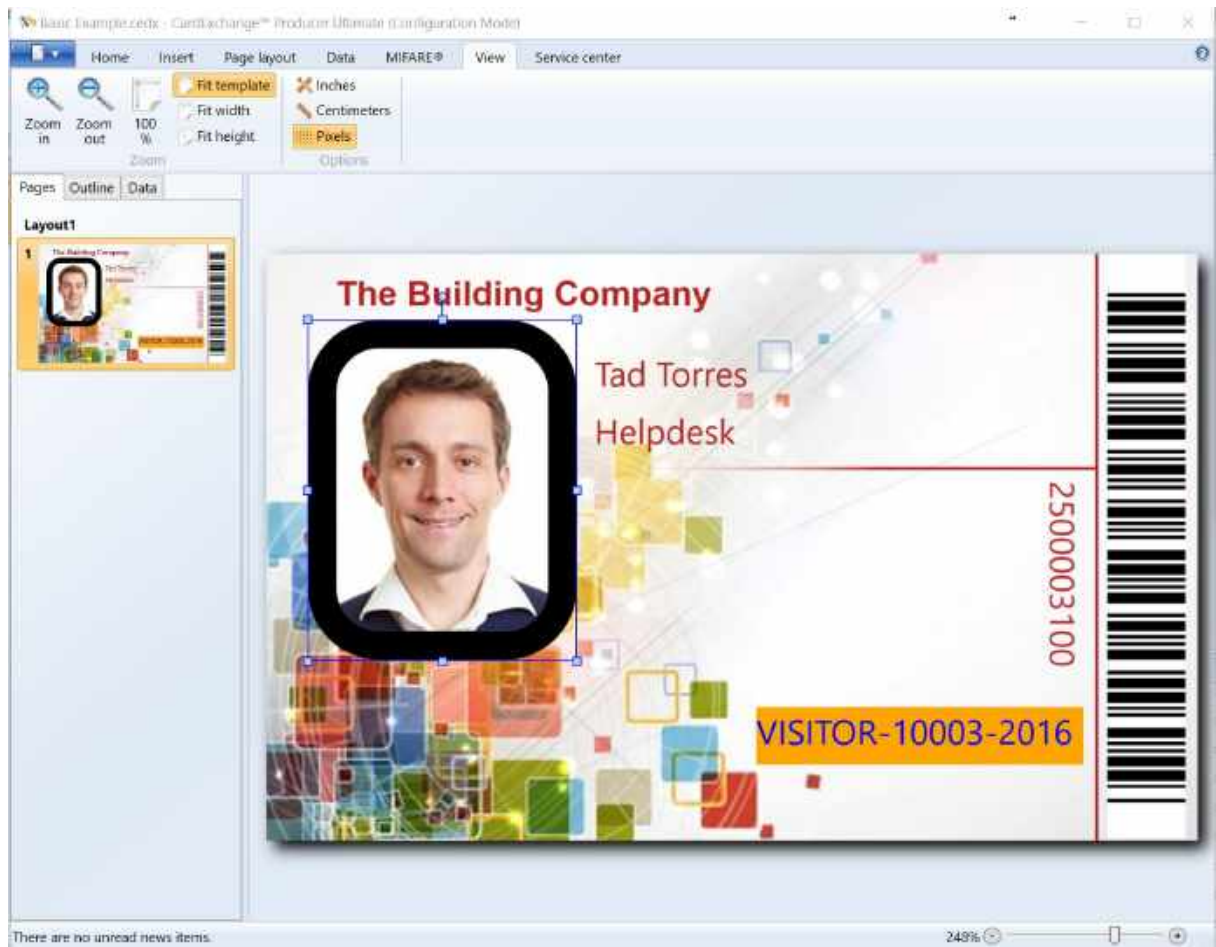
# Using Color with an Text object...

## 5.8.5.2 Image Object Example

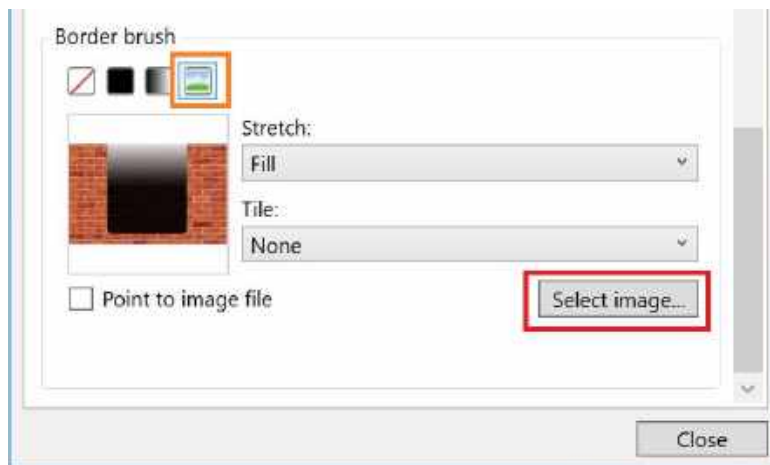
For this **Image Object** example we added a **Image** of a photo to the [Page](#) design and created a border via the [Border](#) tab. We have set the system to use pixels and we have set the properties as following:



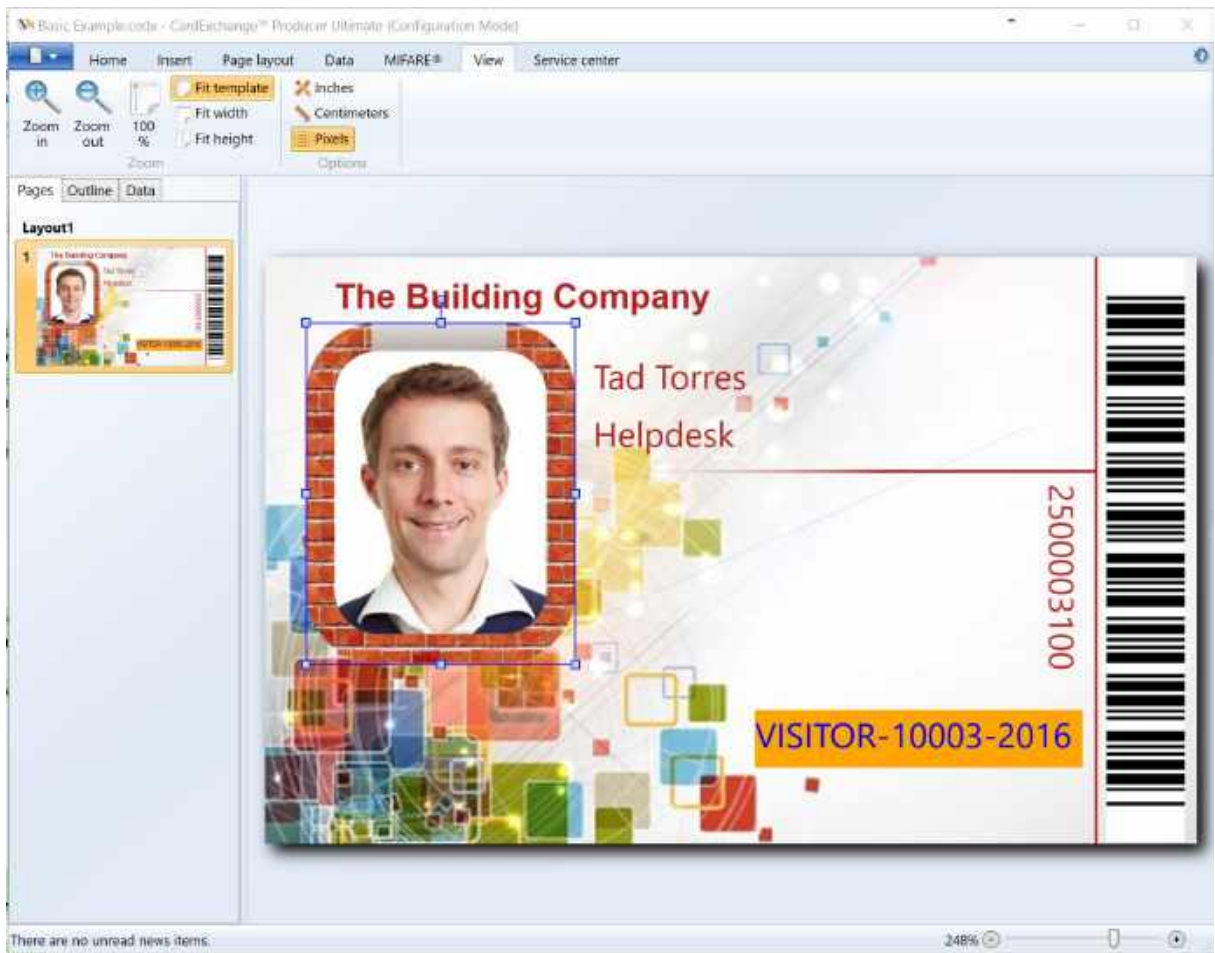
Now the **Image object** on the [Page](#) design looks like below:



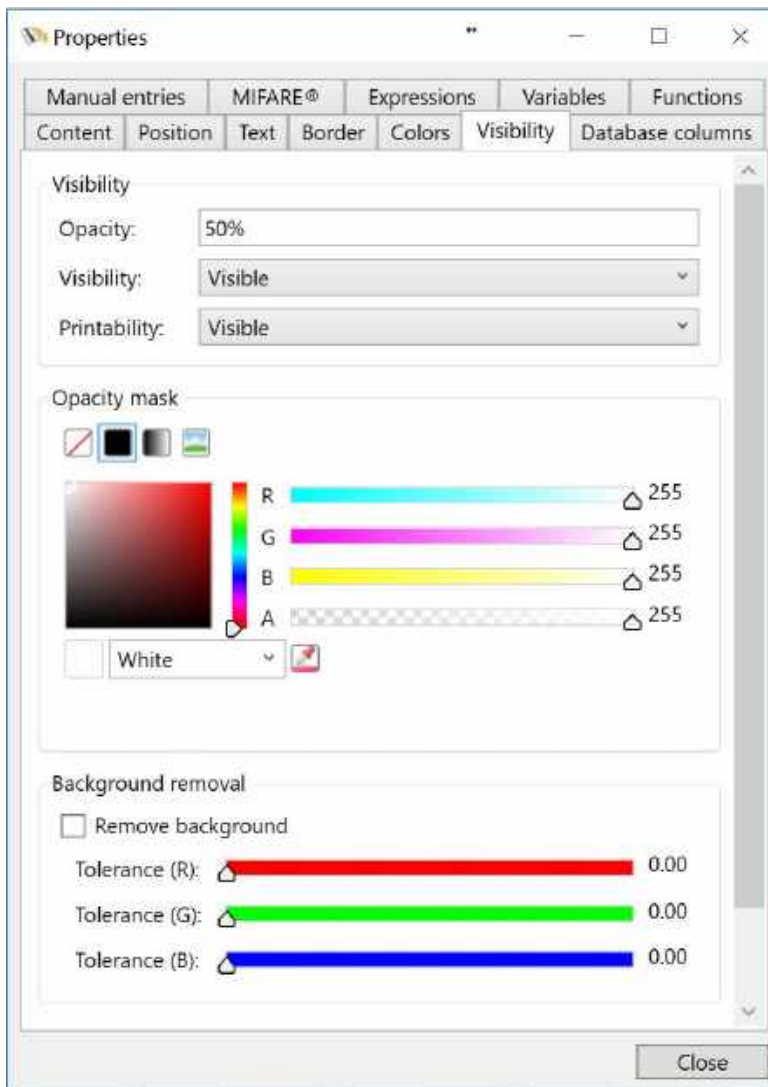
What we will do now is replace the **Solid Color Border** with an Image that we will load.



In the **Border brush** group we select the Image style as indicated with the **orange arrow** and we select an image by clicking on the **Select image...** button as indicated with the **red arrow**. When the image is loaded, the [Page](#) design will show the following result:



## 5.8.6 Visibility



The Visibility tab contains three separate group sections:

- Visibility
- Opacity mask
- Background removal

### Visibility

In the visibility group you can set the opacity of the image on the Page design. This can be used to create ghosting images. For example, as shown in the screenshot, see the differences in the images shown below:

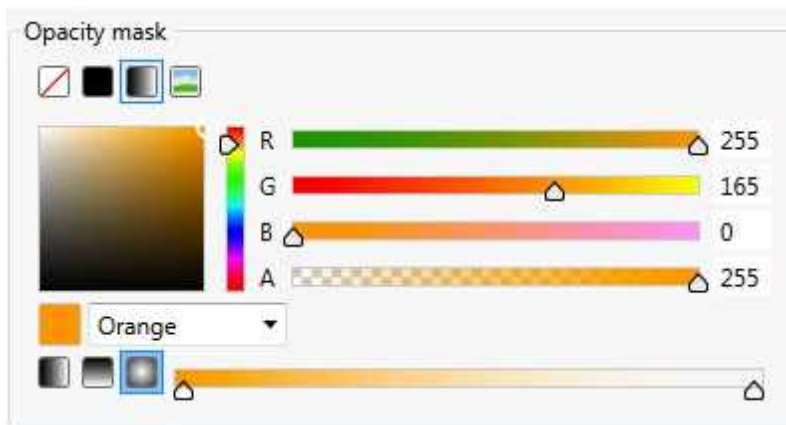
**No Opacity****Opacity 50%**

Besides setting the opacity for the image, you can also select the visibility of the image as well the printability. Each drop down menu offers three selections:

- Visible
- Hidden
- Collapsed

### Opacity Mask

With the Opacity mask you can do some great and advanced stuff. For example, we have created an opacity mask using the gradient tool and the background color orange.



Now take a look at the photo images below. On the left you have the original and on the right the photo with the opacity mask.

**No Opacity****Using Opacity Mask**


But you can also load images or use solid colors.


### Background Removal


CardExchange® Producer offers advanced background removal. Use the sliders to define the correct removal. You can also enter the values directly into the text boxes right from each color slider. For example, we removed the background based on the slider configuration below.

Background removal

Remove background

Tolerance (R):  0.10

Tolerance (G):  0.10

Tolerance (B):  0.12

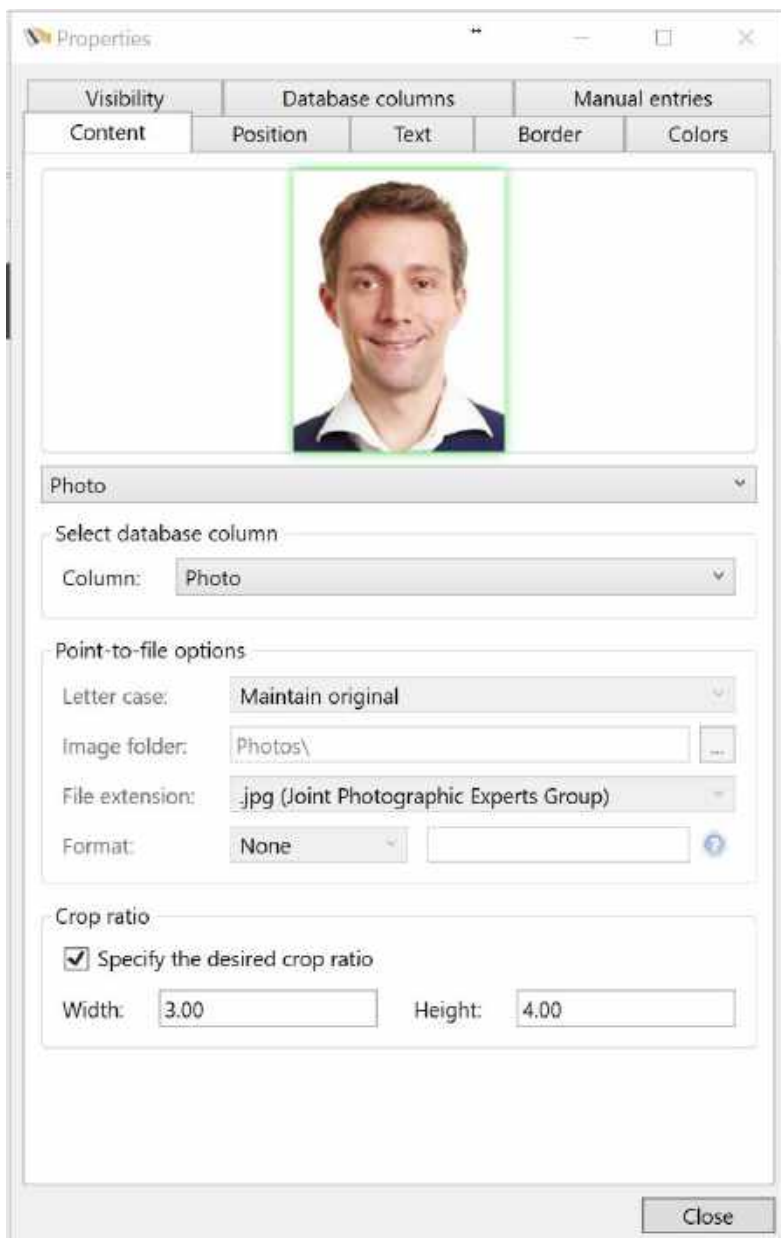
Now take a look at the photo images below. On the left you have the original and on the right the photo with the background removed.

**No Removal****Background Removed**



It is important to realize that the result of the background removal depends on the quality of the image and the used background. Always try to use real blue or green backgrounds when taking photos as this offers the best removal result.

### 5.8.7 Database Columns

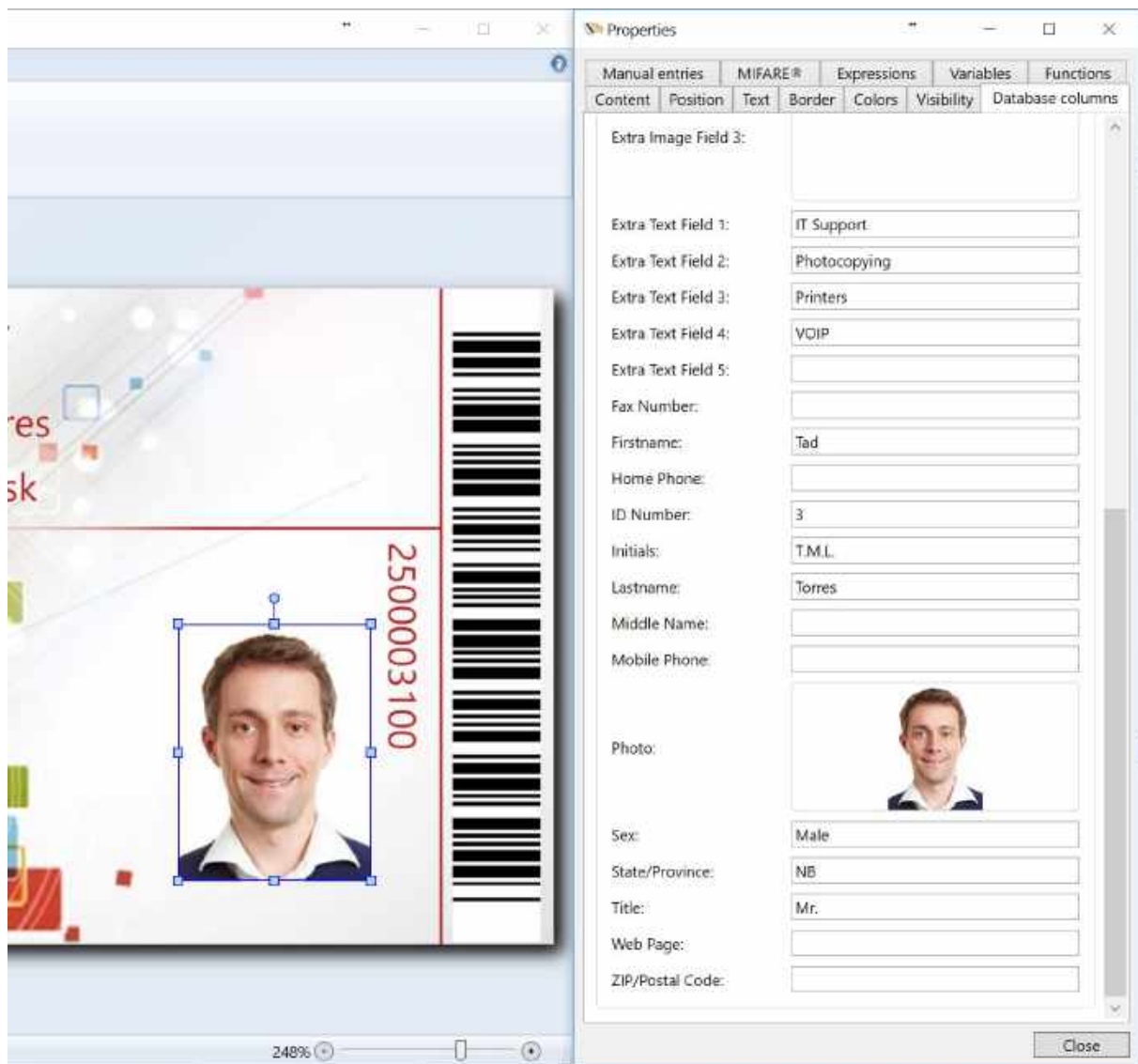


When you are connected to a **Database**, all the available database columns become available in the **Database columns** tab of the [Properties](#) window. See our [Database](#) section of this Help file for more information about connecting to and using Databases.

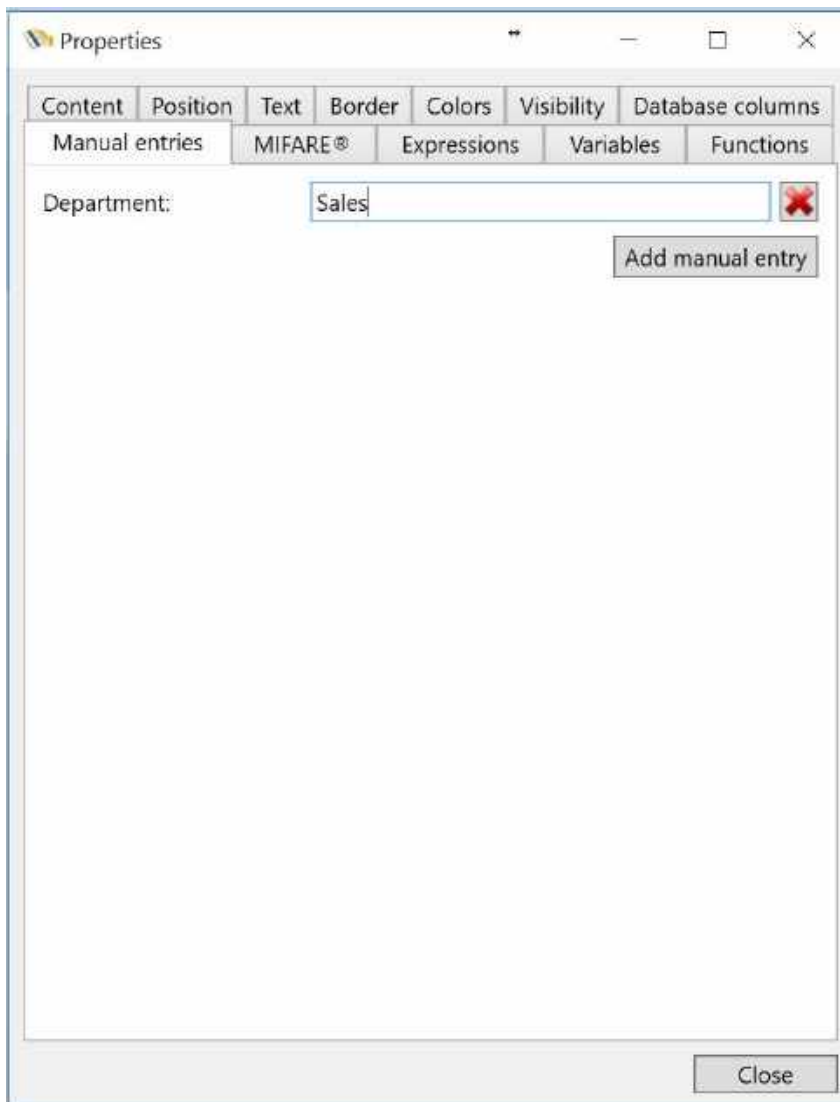


Via the **Record navigation** section in the [Data](#) tab, you can easily navigate between the different available records and the selected record will be shown in the Database columns tab.

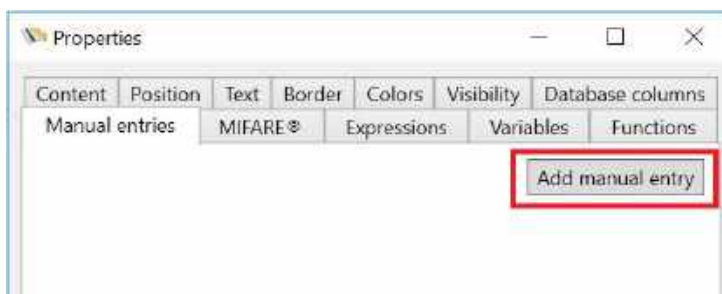
Just like with the [Manual entries](#), these database columns can be directly drag and dropped to the Page design via the Data tab of the Explorer menu as explained in the [Add Database](#) section of this Help file.



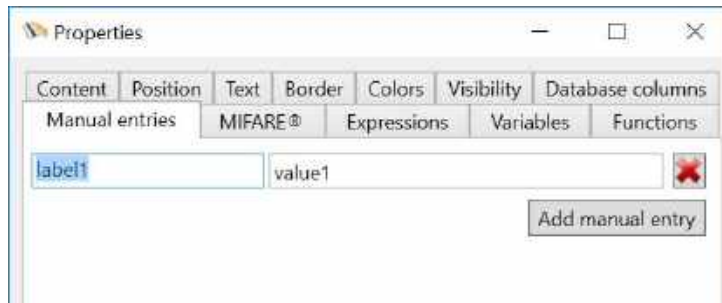
## 5.8.8 Manual Entries



The [Manually Entry Window](#) gives you the possibility to enter data that should appear on the card without the intervention of a database. To be able to manually enter data, you first have to define Manual Entries. To add a manual entry, select the Manual entries tab of the Properties window.



And click the **Add manual entry** button indicated in **red**.



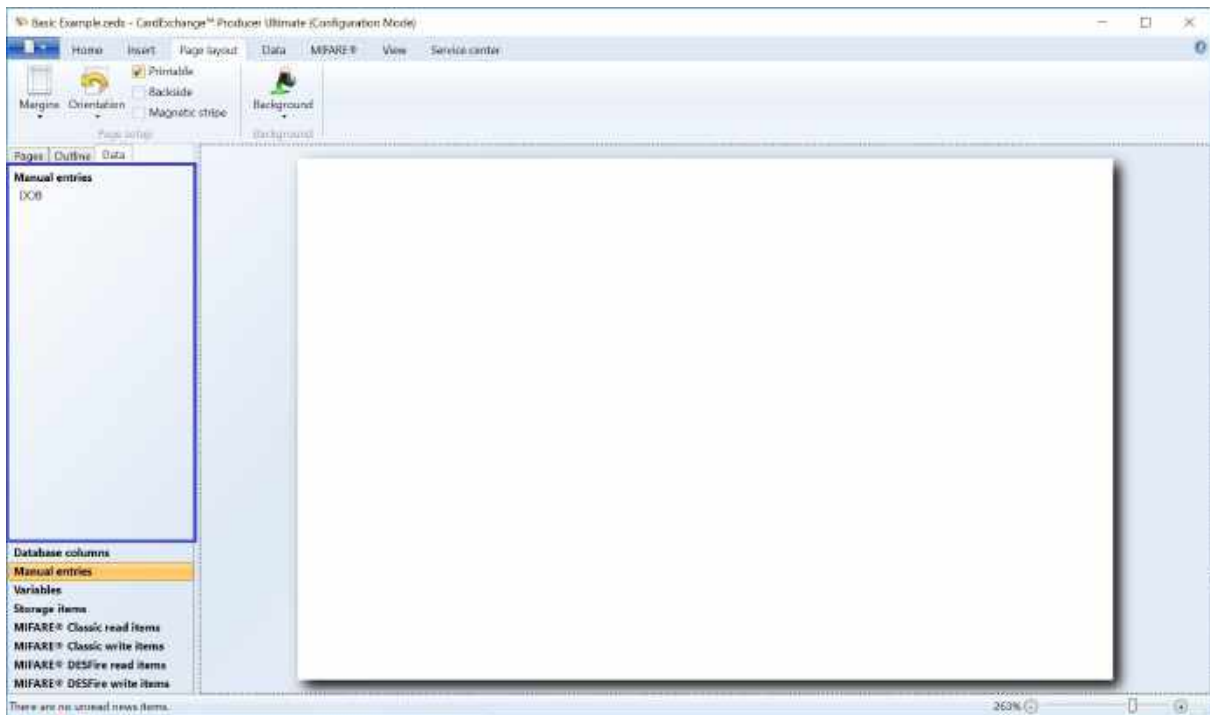
When the Entry is added, you start with entering a name for the label, indicated with **label1**. For example, DOB (Date of Birth). Next you enter a value or a informing text in the value1 field. This can be, for example, **Enter the Date of Birth** or you can also put a value like **100** if you are using the entry to always store the same value.



The label of the manual entry reflects the label of the [Manually Entry Window](#) indicated with the **red rectangle** and the value reflects the text box indicated with the **black rectangle**.

You can add unlimited **Manual entries** to your [Page](#) design.

Now when you are done adding your Manual entries, they will become available for adding them to you [Page](#) design in the [Data](#) tab of the [Explorer](#) menu.



When you select the [Data](#) tab of the [Explorer](#) menu, you will see the Manual entries tab as indicated. When you select this tab, the added Manual entries become available as shown in the blue rectangle. Now you can simply drag and drop them to your [Page](#) design.

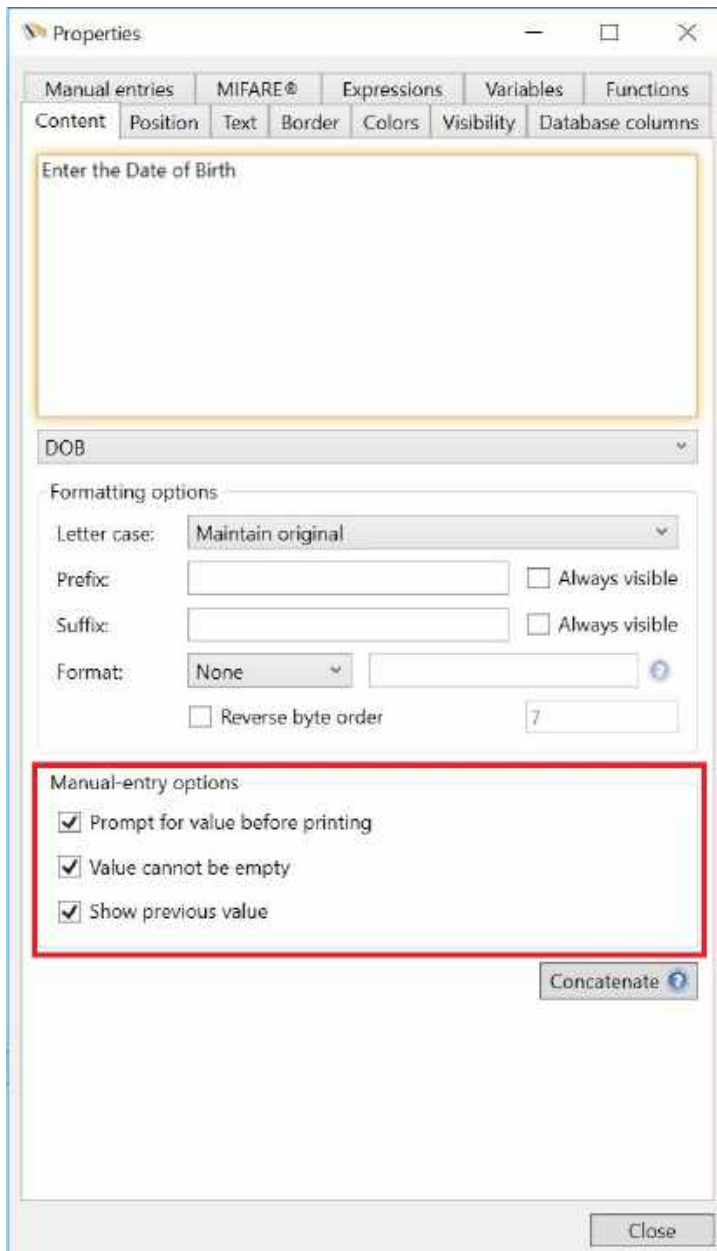


This can also be done from the **Manual entries** tab in the [Properties](#) window.

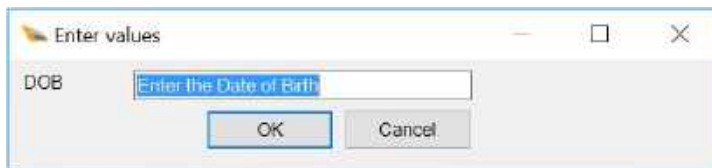
### 5.8.8.1 Options



When you added a Manual Entry to your Page design, specific properties become available in the [Content](#) tab of the [Properties](#) window.



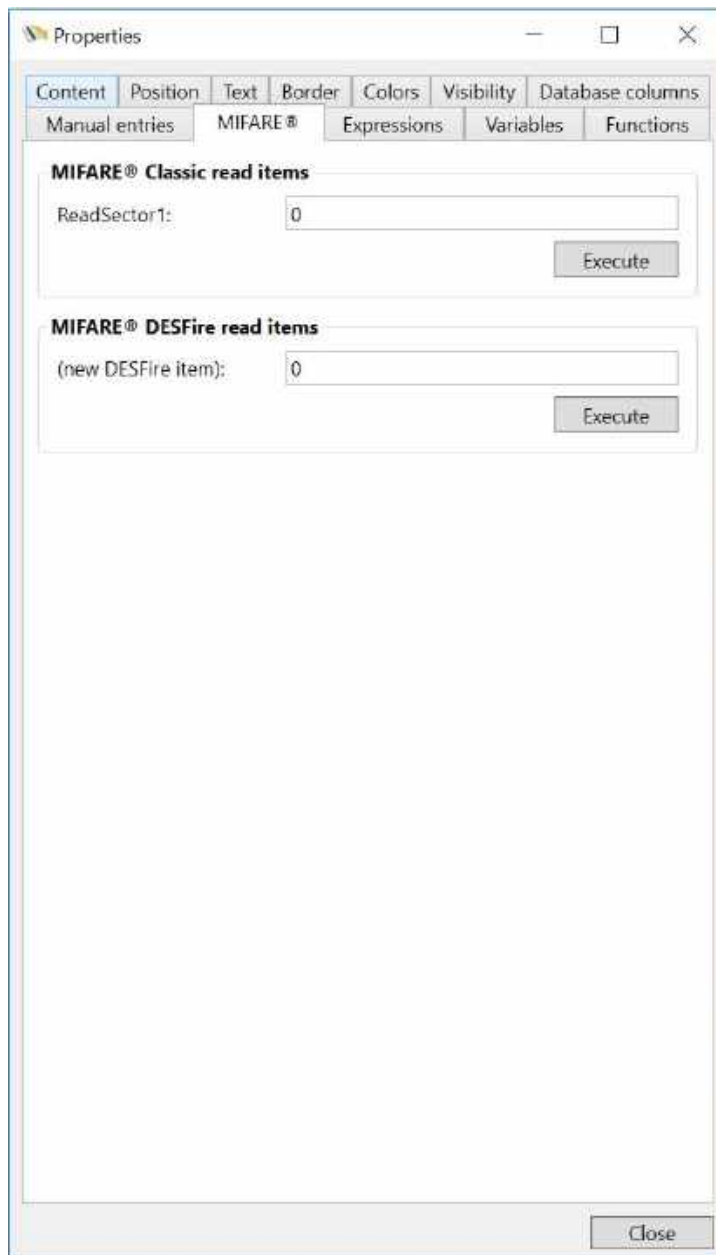
In the [Content](#) tab you now see a group named **Manual Entry Options**. Here you can set the options **Prompt value before printing** which will prompt the dialog below:





Besides prompting for a value, you can also indicate that a value needs to be entered by selecting **Value cannot be empty** and you can show the previous value by selecting **Show previous value**.

### 5.8.9 Mifare

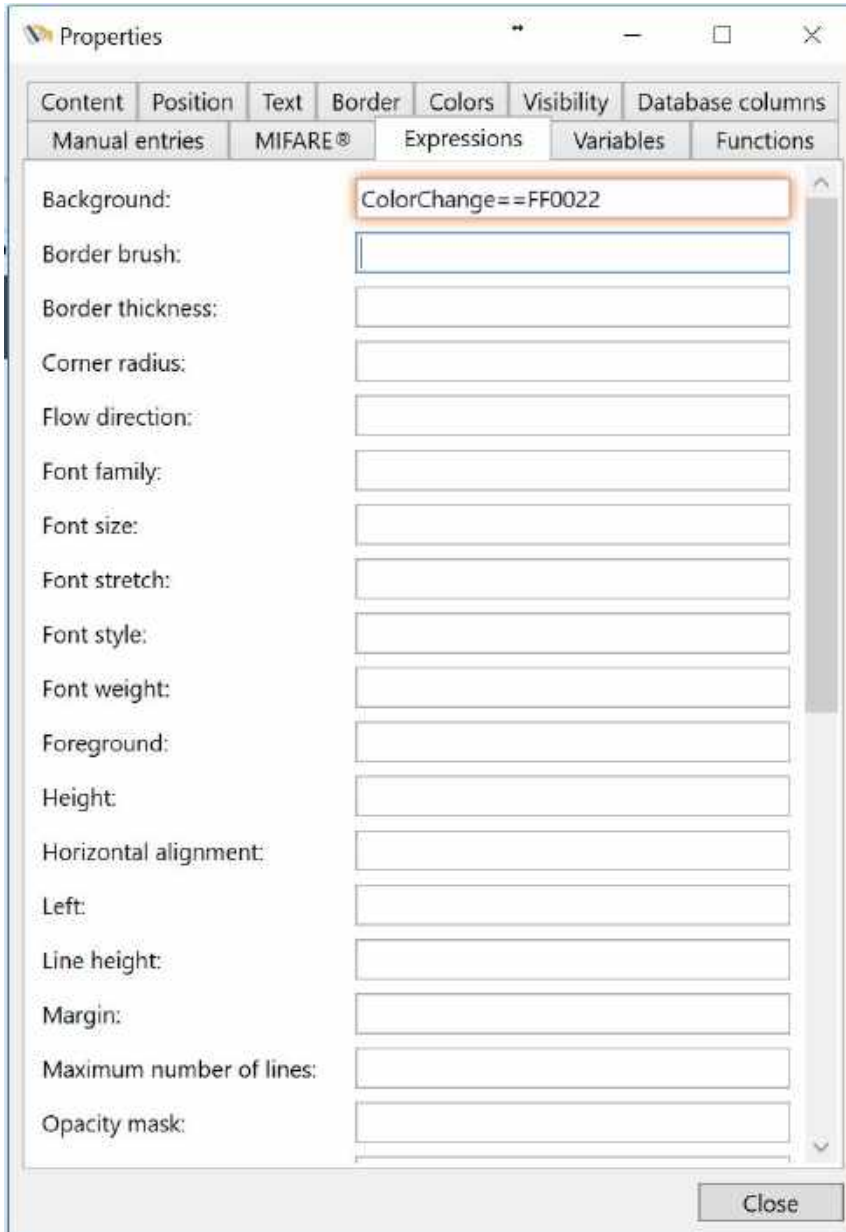


The screenshot shows a 'Properties' window with a tabbed interface. The 'MIFARE®' tab is selected, showing two sections for read items. The first section, 'MIFARE® Classic read items', has a 'ReadSector1:' label and a text input field containing '0', with an 'Execute' button to its right. The second section, 'MIFARE® DESFire read items', has a '(new DESFire item):' label and a text input field containing '0', also with an 'Execute' button to its right. A 'Close' button is located at the bottom right of the window.

If you have MIFARE® Classic read items or MIFARE® DESFire read items defined they will show under the MIFARE® tab in the properties window.

Here you can manually execute the read definitions to obtain sample values from a MIFARE® card.

### 5.8.10 Expressions



**IMPORTANT!** Expressions are supported in our Ultimate edition only!

The **Expression** tab of the [Properties](#) window makes it possible to control any property of a **Page** object by means of a Python script, a **Database** column or a **Manual Entry**.

To control an object property with a script, select the object and enter the Python script in the text box next to the property name. For example, select a text object on the card layout and enter the following script for the Background property of that text object (in this case the script is just a single variable name):

### ***vColor***

After pressing **Enter**, the designer will prompt for a default value for the script variable *vColor*. Here you can type, for example:

### **Red**

After closing the pop-up window, the background of the text object will be **red**. The text box where the script was entered will show a red glow to indicate that this value is now controlled by a script. Changing the value of the script variable in the [Variables](#) tab of the [Properties](#) window, will make the background color of the text object change accordingly.

For any script defined in the **Expressions** tab, it is important that the result value can be converted to the correct data type. CardExchange® Producer recognizes many text representations, like **'Red'** in the above example. Please, note that CardExchange® Producer recognizes the standard color names as well as the HTML representation of a 32-bits ARGB color, for example:

### **#FFFF0000**

Scripts can only contain a single line of code. For that reason, it will generally be necessary to define functions in order to program more complex functionality. For the **Background** property, one can, for example, define the following function in the [Functions](#) tab (For more information about [Functions](#), please see the [Functions](#) section in this Help file).

```
def IsValid(s):
    if s == 'OK':
        return 'Transparent'
    else:
        return 'Red'
```

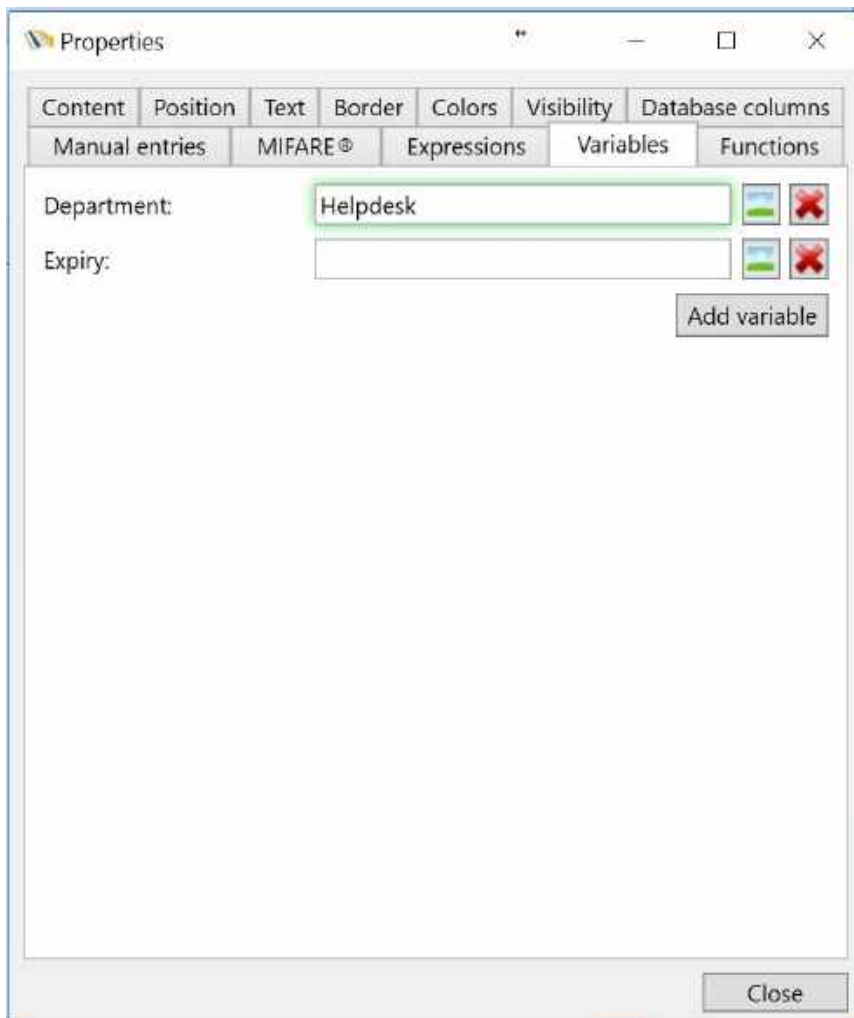
With this function, the script for the Background property can look like

### **IsValid(vStatus)**

If the variable **vStatus** has the value 'OK', the background of the text object will be **transparent**, and **red** otherwise.

It is also possible to control the **value** of a **property** directly by a **database column** or **manual entry**, without the intervention of a **script**. This can be achieved by dragging and dropping a **database column** or **manual entry** from the [Data](#) tab of the main window and drop it on the text box in the **Expressions** tab. Database-column mappings are characterized by a **green** glow and Manual Entries by a **yellow** glow.

### 5.8.11 Variables



**IMPORTANT!** Variables are supported in our Ultimate edition only!

Whenever a script is typed in the CardExchange® Producer designer, the **variables** used in that script are automatically added to the **template**. With the **Variables** tab it is possible to

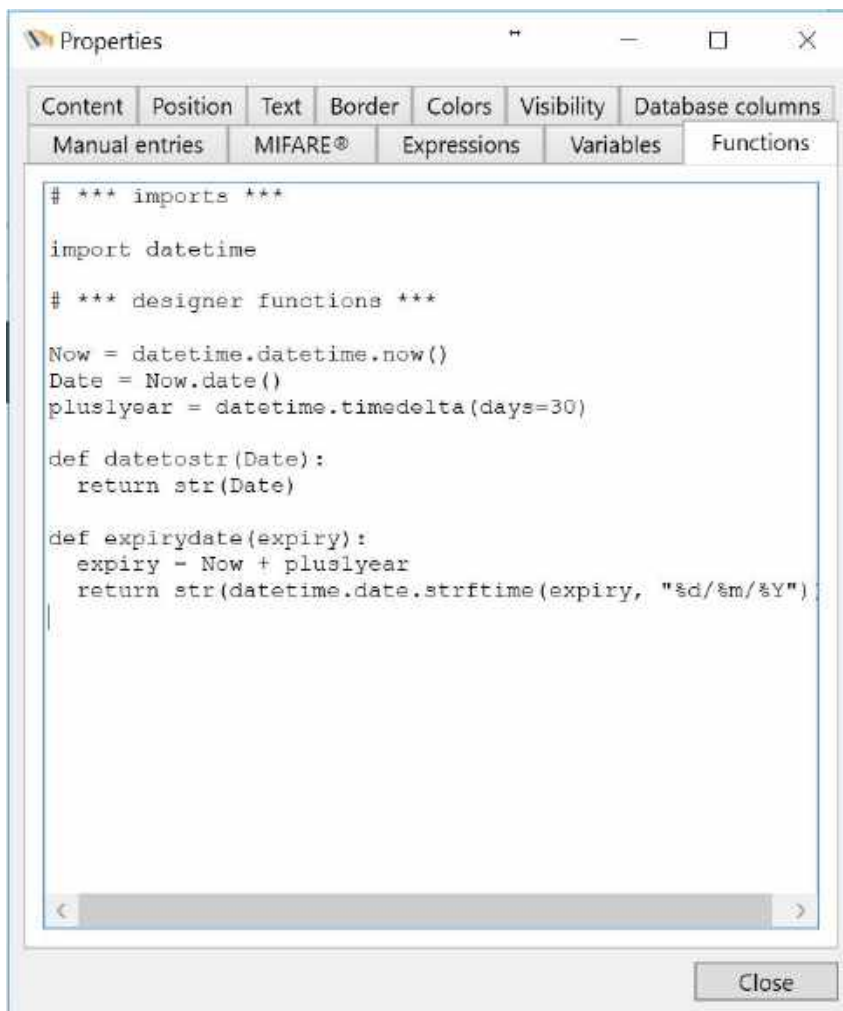
see all variables that have currently been defined and manage their properties. The following actions are possible:

- **Rename** a variable by clicking on its name and typing a new name.
- **Change** variable's value by typing in the text box next to its name.
- **Set** the variable's value to an image by clicking on its image button and selecting an image.
- **Remove** a variable by clicking on its remove button.
- **Add** a new variable by clicking on the Add-variable button.
- **Connect** a variable to a database column by dragging the column from the Data tab and dropping it in the text box
- **Connect** a variable to a manual entry by dragging the column from the Data tab and dropping it in the text box
- **Create** a text object on the card layout content is mapped to the variable by dragging the variable name from the Variables tab and dropping it on the card layout.

Please, note that any variable that has not been connected to variable data in the designer will be available in the Advanced Mappings window in the configuration section of the main interface. This provides a way to use the advanced data mappings instead of the integrated mapping functionality in the designer.

Please visit the [Advanced Mappings](#) section of this Help file for more information.

## 5.8.12 Functions



**IMPORTANT!** Functions are supported in our Ultimate edition only!

In the **Functions** tab, it is possible to define global **variables**, **functions** and **references** that can be used in **Python scripts**. By using well-defined functions, the scripts in the [Content](#) and [Expressions](#) tabs can be kept consistent. It would not be possible to use much of the power of **Python** in scripts, if you could not define functions.

A function definition should strictly follow the **Python** syntax as described in the **Python** documentation. An example of a function is:

```
def IsValid(s):
    if s == 'OK':
        return 'Transparent'
```

```
else:  
    return 'Red'
```

This function returns either **'Transparent'** or **'Red'** depending on the value of the input parameter **s**.

**Global variables** can be defined in the **Function** tab with a simple assignment statement. Once defined, they can be used in **functions** and **scripts**. For example, instead of the above function, we could make the following definition, with the global variable **warningColor**:

```
warningColor = 'Red'  
  
def IsValid(s):  
    if s == 'OK':  
        return 'Transparent'  
    else:  
        return warningColor
```

Finally, the **Functions** tab can be used to reference **Python** modules, in order to use them in **functions** and **scripts**. The following example imports the **.NET Framework System** module and uses it to re-format a date string:

```
import System  
  
def FormatDate(s):  
    d = System.DateTime.Parse(s)  
    return d.ToString('dd-MM-yyyy')
```

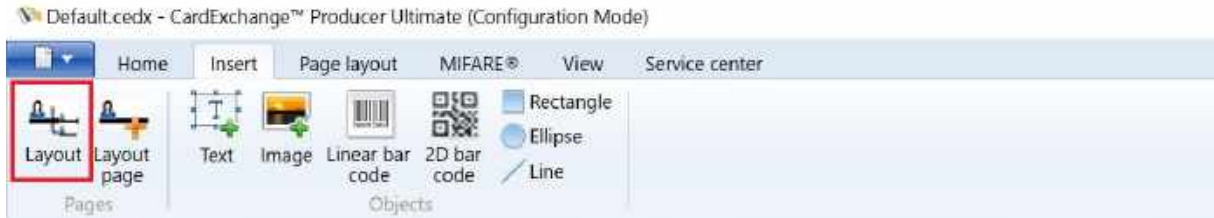
CardExchange® Producer uses **IronPython** for executing scripts. **IronPython** is the **.NET Framework** implementation of the well-known **Python scripting language**. For extensive documentation on **IronPython**, please visit [www.ironpython.org](http://www.ironpython.org).

## 5.9 Layouts

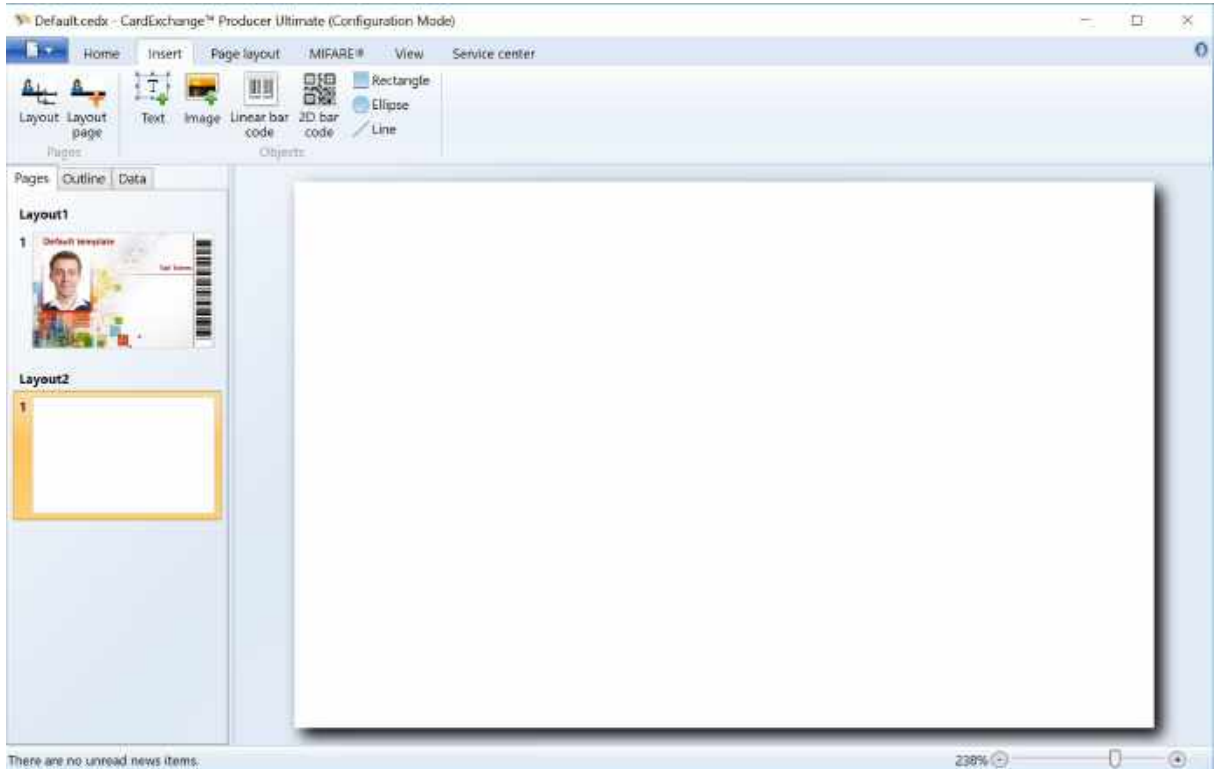
As explained in the [Templates](#) section of this Help file, Layouts can contain one or more Pages. If you are running a Go, or Premium Edition, only one layout is allowed. When running a Professional or Ultimate editions, you can use multiple layouts within your template.

Layouts are very powerful as they offer you the possibility to change based on information out of the connected database. Also each layout can have it's own setting like for example, no magnetic encoding or magnetic encoding.

### 5.9.1 Adding Layout(s)



Adding a Layout is simple clicking on the Layout button and a new layout will be added.

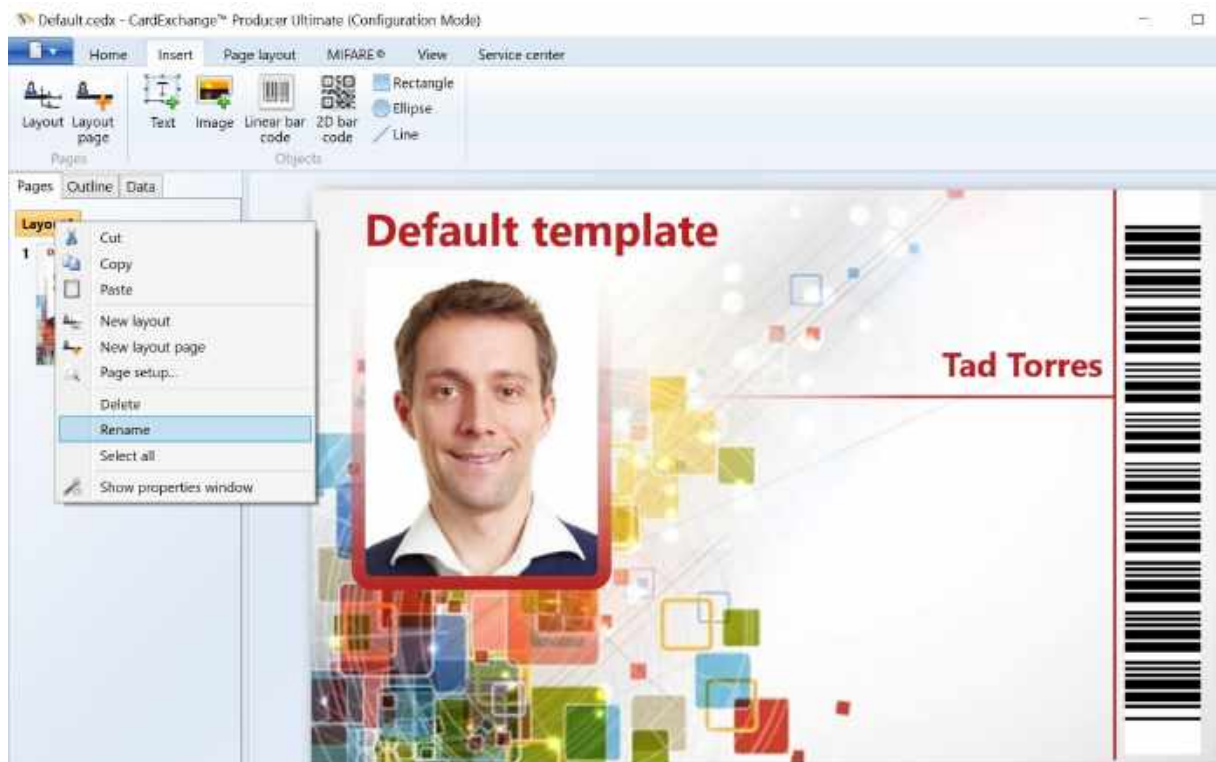


When adding a layout, it always adds a layout based on the previous layout. So for example in the screen shot Layout2 contains only one page because Layout1 contains only one page. If Layout1 would had two pages, Layout2 would also have two pages.

Each page can be setup via the [Page Setup](#) window as described in that section of this Help file.

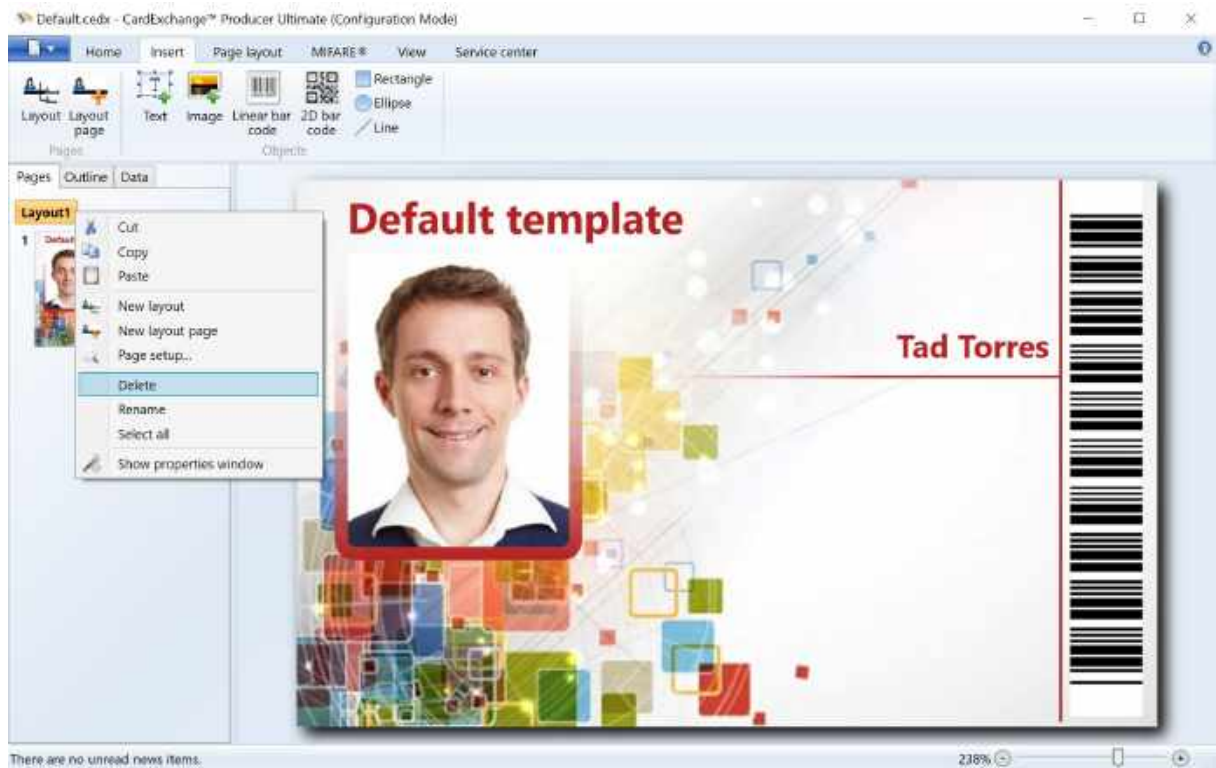


## 5.9.2 Edit Layout(s)



For your own convenience it is possible and advisable to rename the Layout(s). When you right click on the Layout name a context menu will be show and you select Rename. You can also double click on the Layout name and change it.

### 5.9.3 Delete Layout(s)



You can easily delete a Layout from your template by selecting the Layout and press Delete on your keyboard. By selecting the Layout and right click on the mouse, in the presented context menu you choose Delete.

You can always undo your deleting by pressing Ctrl+Z.

### 5.10 Page(s)

Every Layout can basically have unlimited Pages. A Layout can have for example a Front-side Page, a Back-side Page, a Front-side UV Page, etc.

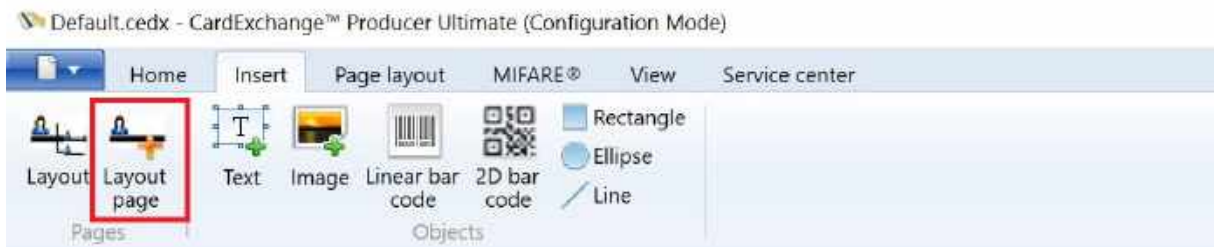
Each Page can be set to Portrait or Landscape and of course can have it's own unique objects.

In this section of the Help file we will explain how to Add pages to your layout and how to Delete them.

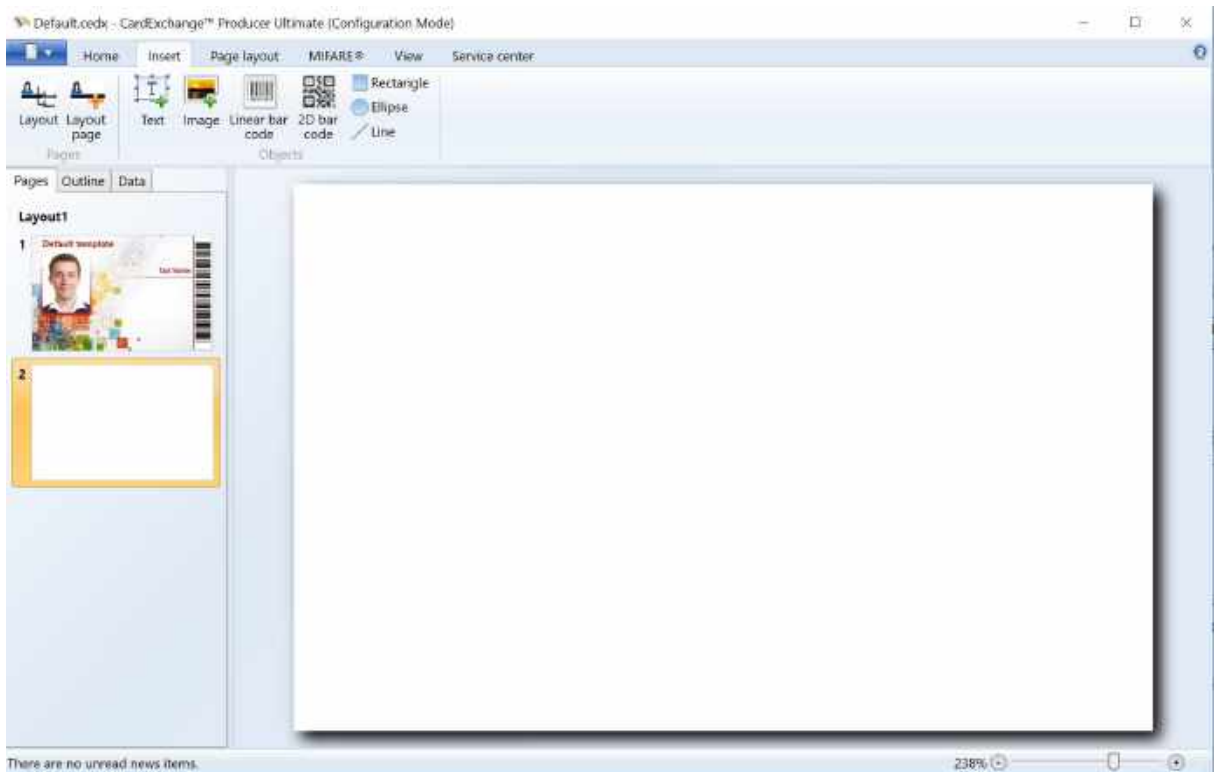
### 5.10.1 Adding Page(s)



When you have selected your layout, you can add a page by clicking on the Layout Page button in the Home tab.



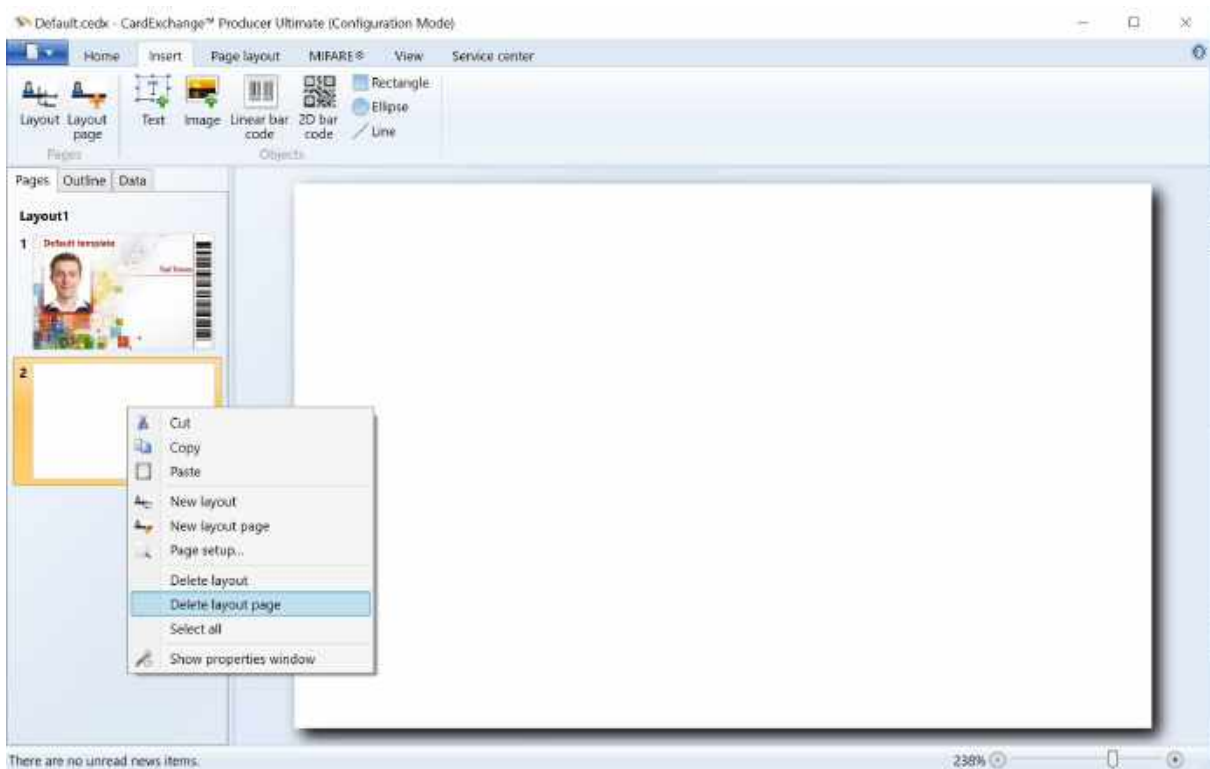
You can also add a Page via the Layout page button in the Insert tab.



Click on Layout page to add the page as shown in the screen shot.

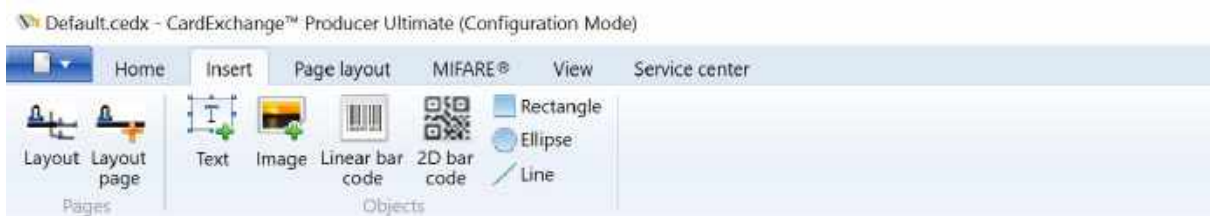
Each page can be setup via the [Page Setup](#) window as described in that section of this Help file.

### 5.10.2 Delete Page(s)



You can delete a page by selecting it and click on Delete on your keyboard or via the right mouse click content menu, selecting Delete layout page.

## 5.11 Objects

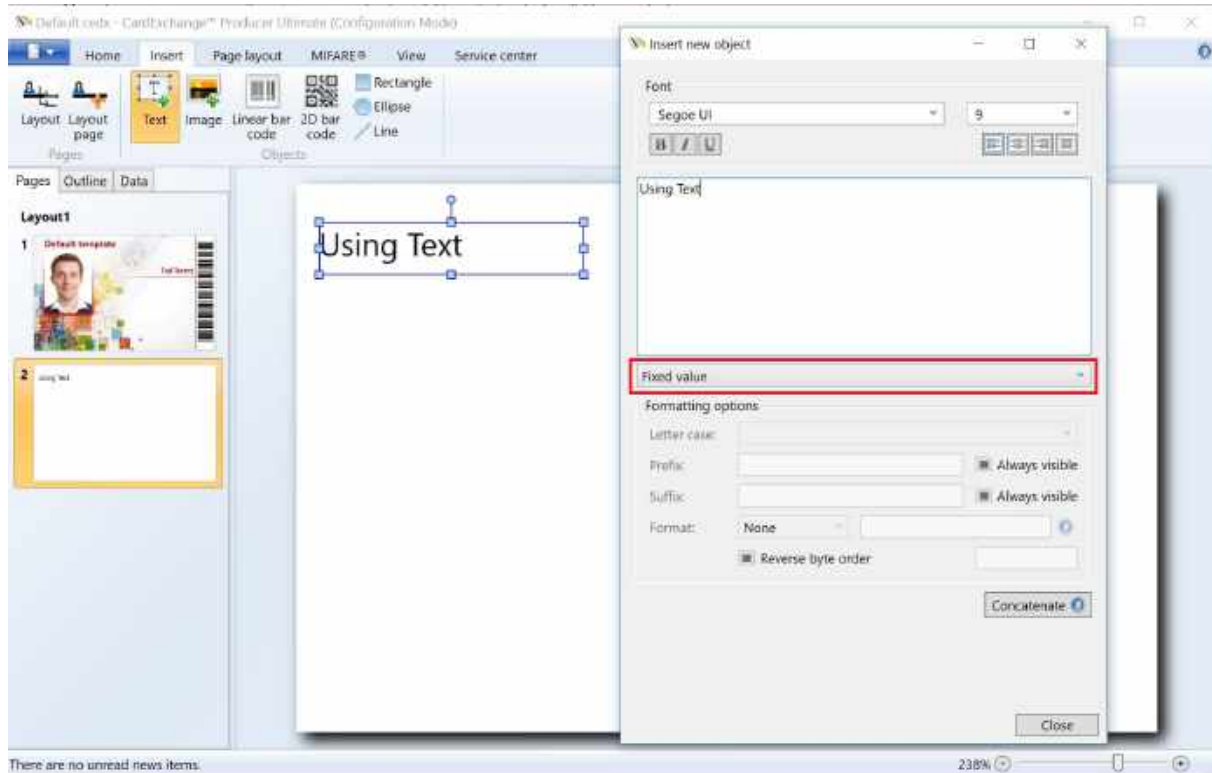


CardExchange® Producer offers a lot of objects to design your card. From standard text objects to image objects for photos and signatures to 1D and 2D barcodes, lines, etc.

Each object comes with a collection of Properties that can be used to customize your objects to your wish. The properties of the objects are explained in the [Properties](#) section of this Help file.

In this section we will go over each available object and how to use it.

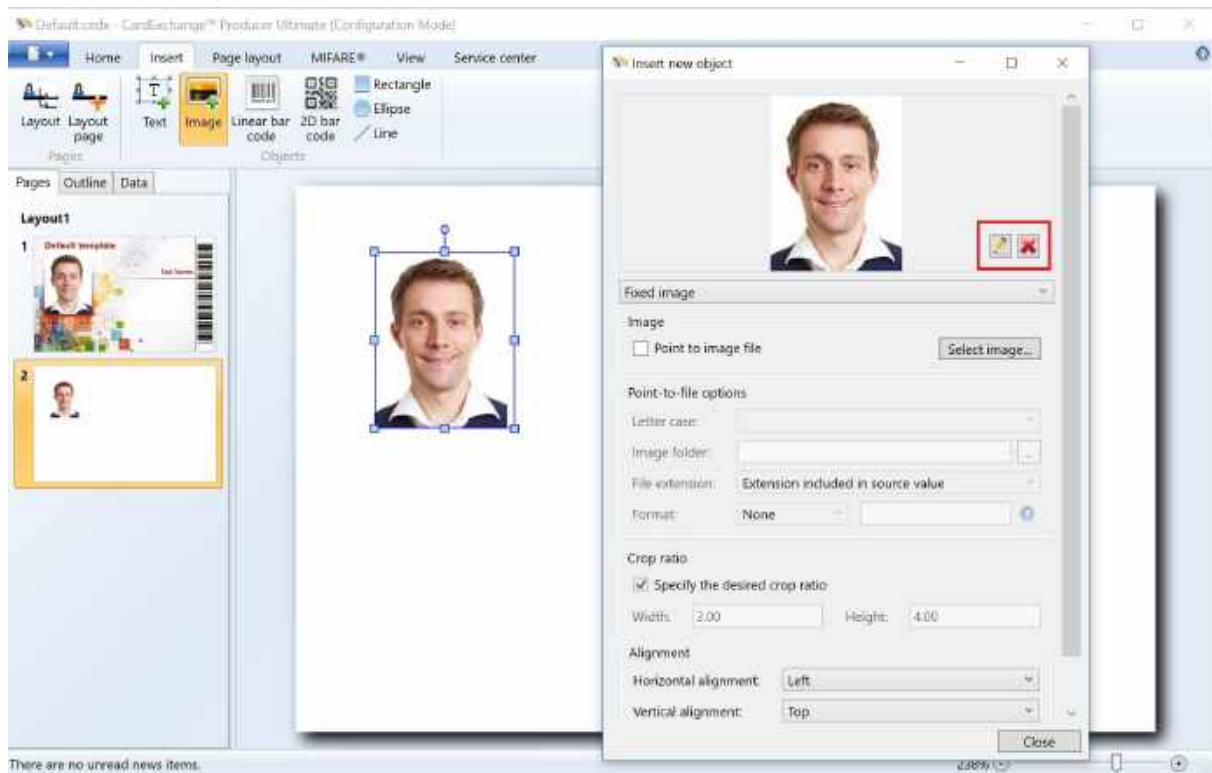
### 5.11.1 Text



Select the Text object from the Insert tab or from the Insert section of the Home tab. Click with the mouse on a location of the page and select one of the available Standard Object Types from the drop-down menu. Select the font type, size, outlining, etc.

For more information about the different Standard Objects, please see the "[Using Standard Objects](#)" section of this Help file.

### 5.11.2 Image(s)





Select the Image object from the Insert tab or from the Insert group at the Home tab and place this on the page by clicking on a location on the page.

When the Insert new object window opens, it is default set to Fixed Image. You can also select [Photo](#), [Signature](#), [Variable Image](#), and [Script](#). You can find more information about these configurations in the specific sections of this Help file.

When using the Fixed image, you can select an Image by clicking on the Select image... button. When the image is presented, you can check the 'Point to image file' check box. By default it is unchecked which means that the image is embedded into the page. If the check box is checked, a reference to the file is made. The advantage of this is that it keeps your templates small because it does not contain images, disadvantage is that if the folder that contains the folder is moved or removed, your image will not be shown anymore.

Of course it is also possible to align the image to your wished. You can align the image horizontal, vertical, and stretch.

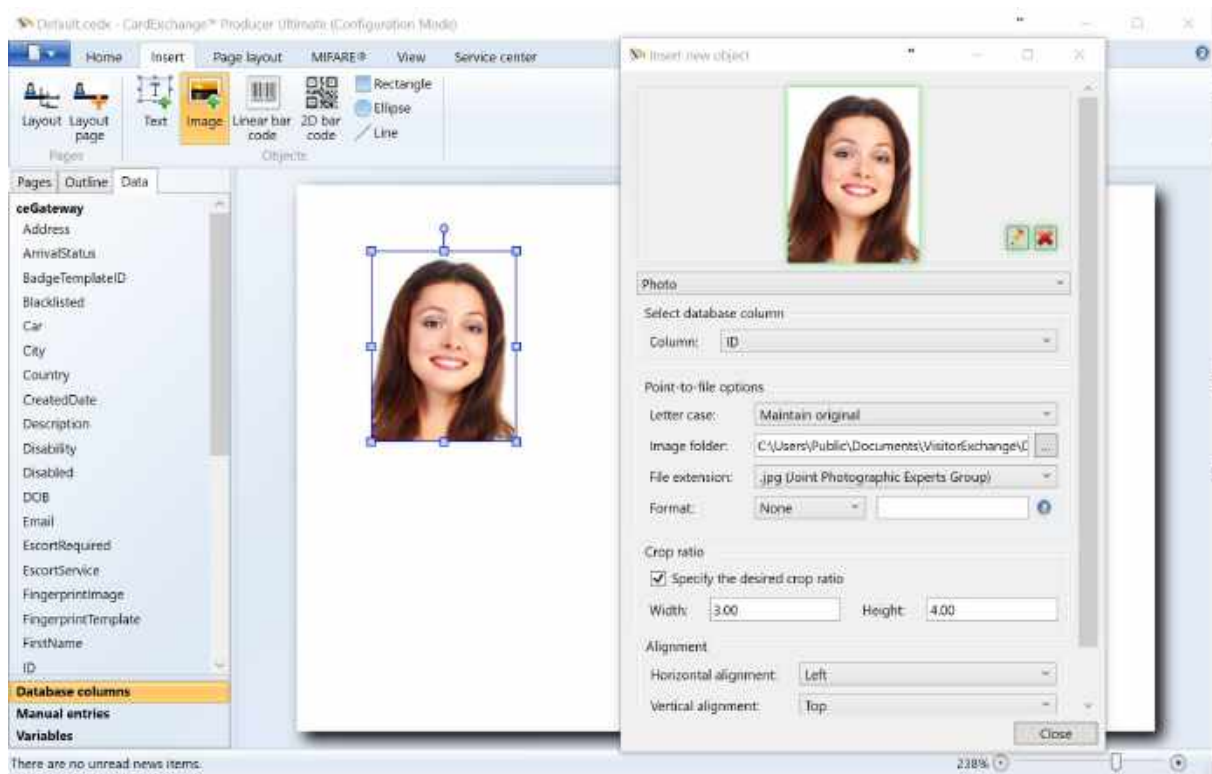
When you hover over the presented image, you will see two buttons appearing. The  button will delete the previewed image, the  button will open the [Image Editor](#) to make change to the image.



More information about using the Image Editor can be found in the "[Using Image Editor](#)" section of this Help file.

**IMPORTANT!** Every object in CardExchange® Producer has many Properties which are not shown in the **Insert new object** form. Please see the [Properties](#) section of this Help file for more information about specific use of functionality.


#### 5.11.2.1 Photo(s)



You can select and dedicate an image to a specific photo field in the database or a reference to a photo in a folder based on a 'Point to image file' reference.

The process for adding the image is exactly the same as explained in the "[Using Images](#)" section of this Help file.

Select **Photo** from the object drop down box and the Select database column drop down box will become available. If you select the ID field of the connected database, the system will automatically make it a 'Point to image file' connection. It can also be that your database contains the complete reference to image file locations if that is the case, please leave the Image folder location empty and set the file extension to 'Extension included in source value'.

The image folder location can be entered directly as it can also be selected by clicking on the  button. Select the file extension of the image, we currently support BMP, JPG, PNG, GIF, and TIFF.

You can also set the format of the value coming from the database you know for sure there is no mismatch.

If the database contains the image data and you have selected the image column, the 'Point-to-file options' section will be disabled.

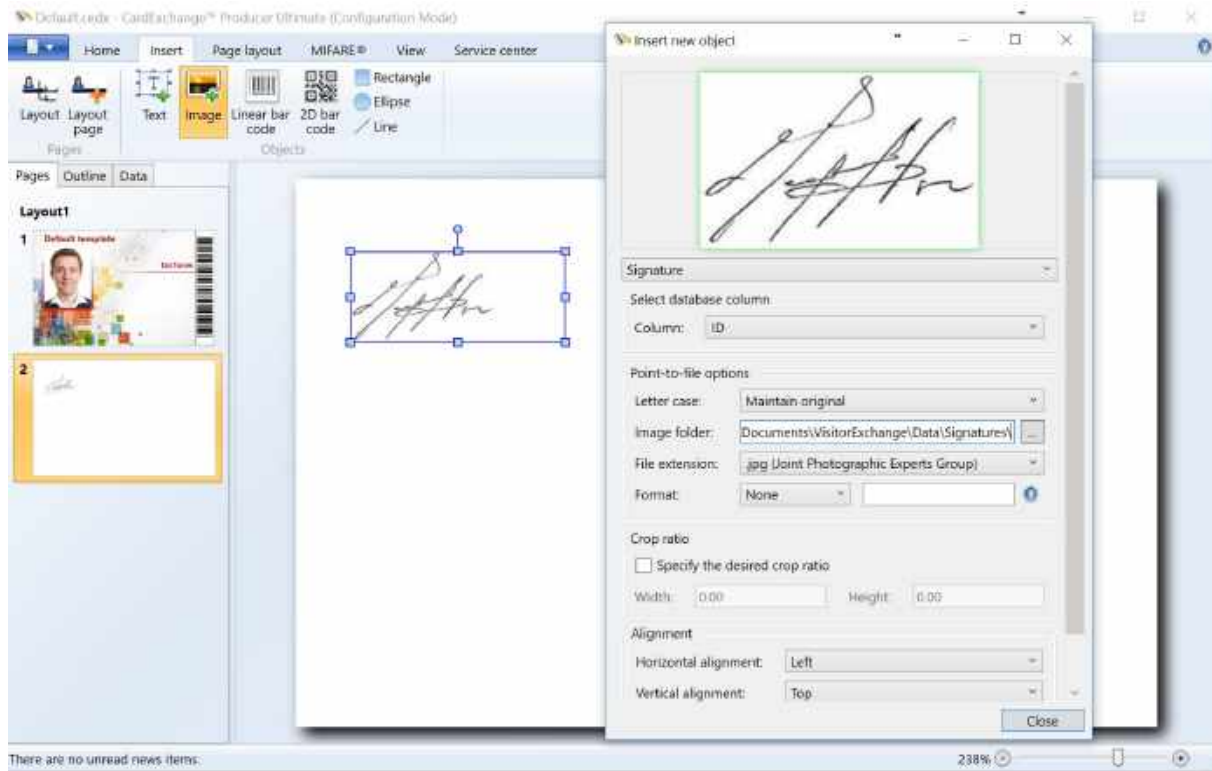


More information about Photos can be found in the "[Using Photos](#)" section of this Help file.

Check for more options like colors, borders, visibility, etc., the [Properties](#) section of this Help file.

### 5.11.2.2 Signature(s)


**IMPORTANT!** This Signature option is available from Premium editions and higher!



Starting from Premium, you can select and dedicate an image to a specific signature field in the database or a reference to a signature in a folder based on a 'Point to image file' reference.

The process for adding the signature is exactly the same as explained in the "[Using Images](#)" section of this Help file.

Select **Signature** from the object drop down box and the Select database column drop down box will become available. If you select the ID field of the connected database, the system will automatically make it a 'Point to image file' connection. It can also be that your database contains the complete reference to image file locations if that is the case, please leave the Image folder location empty and set the file extension to 'Extension included in source value'.

The image folder location can be entered directly as it can also be selected by clicking on the  button. Select the file extension of the image, we currently support BMP, JPG, PNG, GIF, and TIFF.

You can also set the format of the value coming from the database you know for sure there is no mismatch.

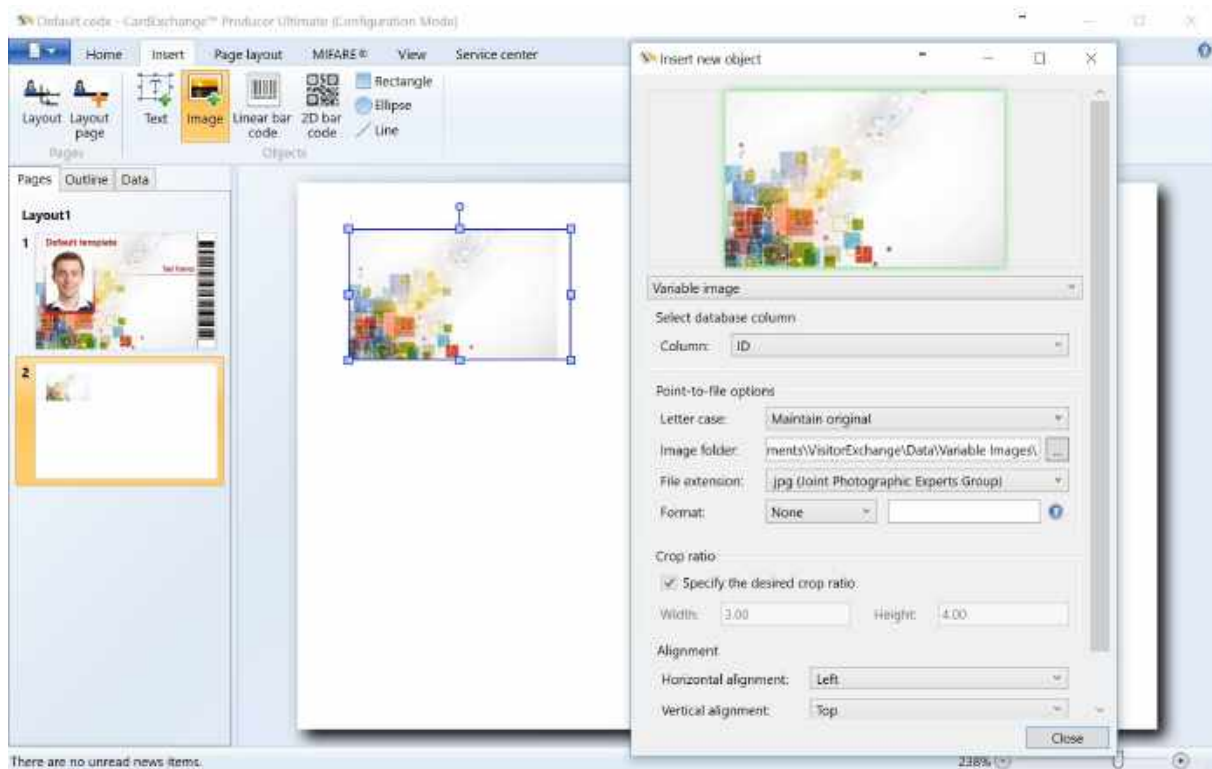
If the database contains the image data and you have selected the image column, the 'Point-to-file options' section will be disabled.

More information about Signatures can be found in the "[Using Signatures](#)" section of this Help file.

Check for more options like colors, borders, visibility, etc., the [Properties](#) section of this Help file.

### 5.11.2.3 Variable Image(s)


**IMPORTANT!** This Variable Image option is available from Premium editions and higher!



Our Premium Edition offers a unique feature that allows you to switch images based on a value of the database.

The process for adding the Variable Image is exactly the same as explained in the "[Using Images](#)" section of this Help file.

Select **Variable image** from the object drop down box and the Select database column drop down box will become available. If you select the ID field of the connected database, the system will automatically make it a 'Point to image file' connection. It can also be that your database contains the complete reference to image file locations if that is the case, please leave the Image folder location empty and set the file extension to 'Extension included in source value'.

The image folder location can be entered directly as it can also be selected by clicking on the  button. Select the file extension of the image, we currently support BMP, JPG, PNG, GIF, and TIFF.

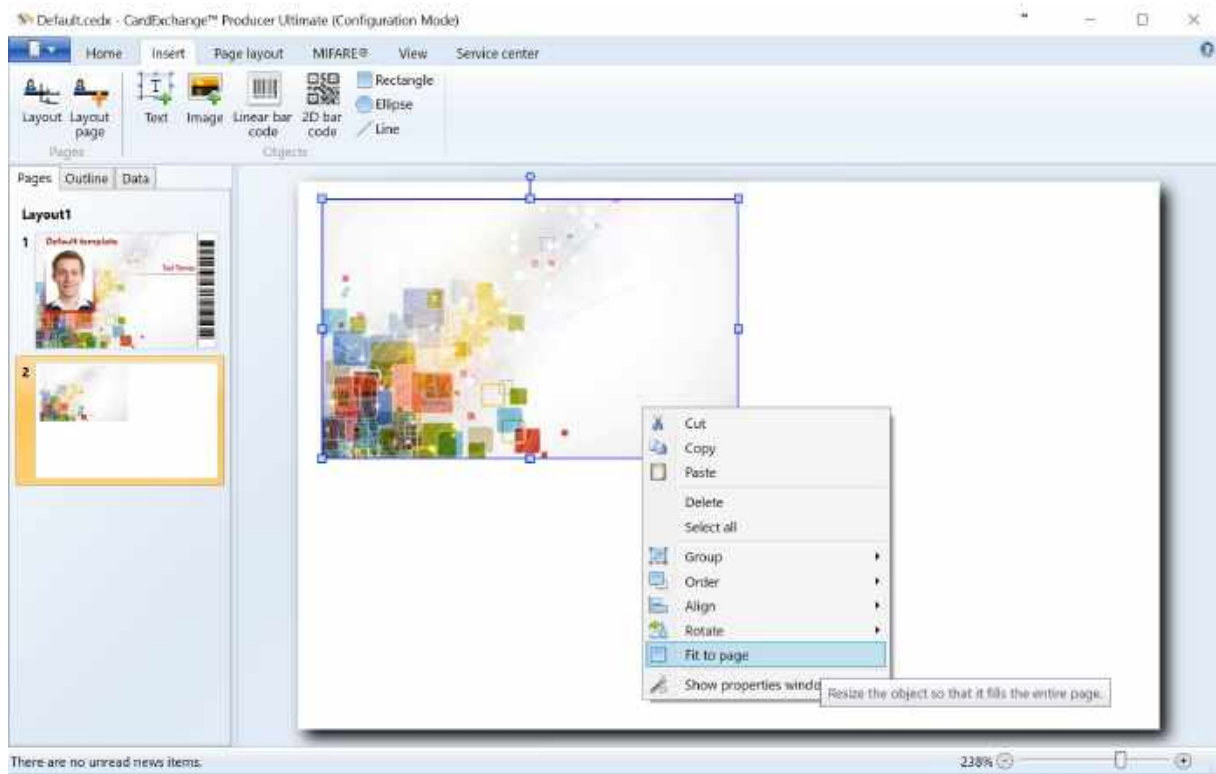
You can also set the format of the value coming from the database you know for sure there is no mismatch.

If the database contains the image data and you have selected the image column, the 'Point-to-file options' section will be disabled.

Check for more options like colors, borders, visibility, etc., the [Properties](#) section of this Help file.

#### 5.11.2.4 Backgrounds

There are basically two ways to use backgrounds on your page. You can simply add an Image object to your Page, select the Image to use, and select Fit to page.



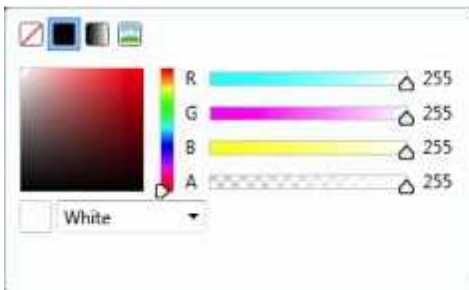
A better way to go is using the Background functionality offered in the Page Layout tab.



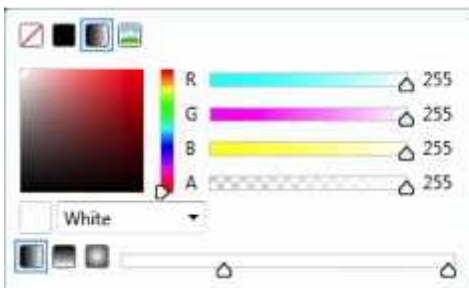
When you click on the Background button, four options are offered.



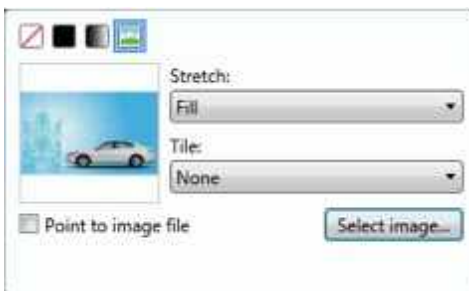
Use no color or image...



Choose from a one solid color...



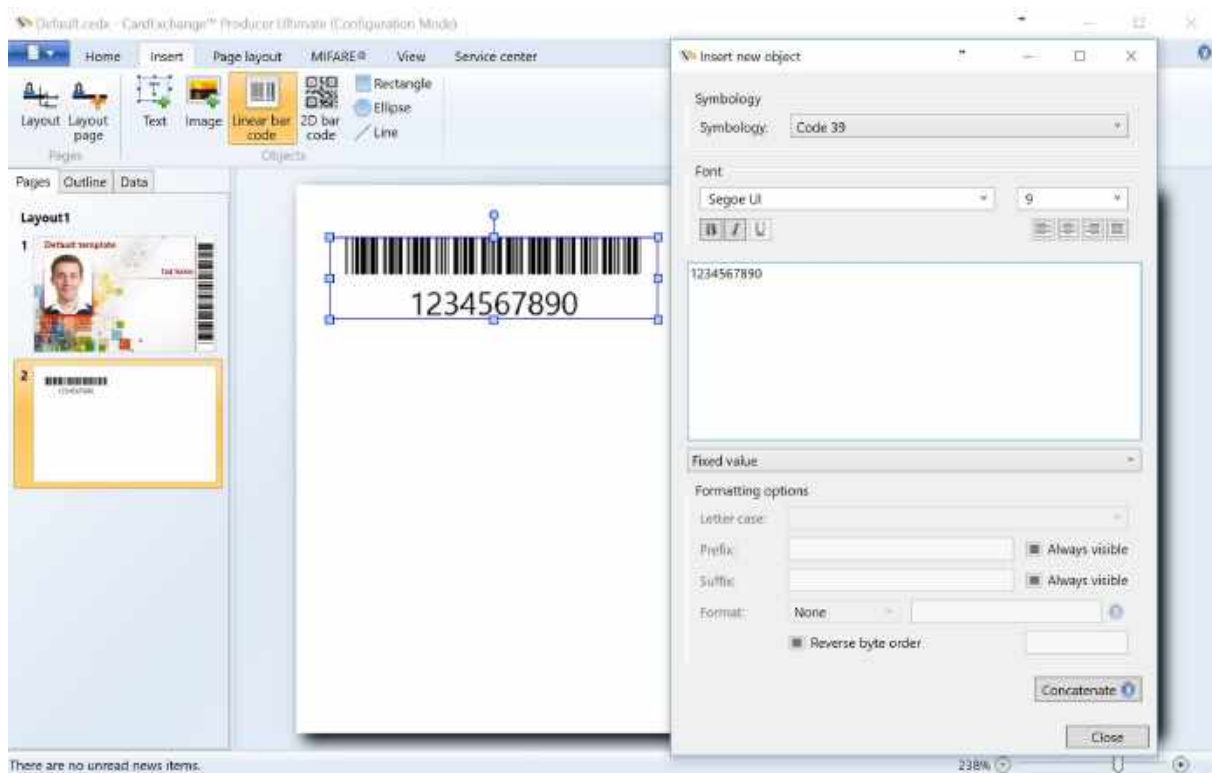
Use a Gradient color...



Or use a background image.

The advantage of using a background via the Page Layout tab is that it will always make sure that it completely covers the whole card. As you know, the card sizes vary when using a Direct-to-Card printer or a re-transfer printer. With a re-transfer printer the print size of the page layout is larger and using this Background functionality makes sure that your image is always fitting the page and you will have no white lines with printing.

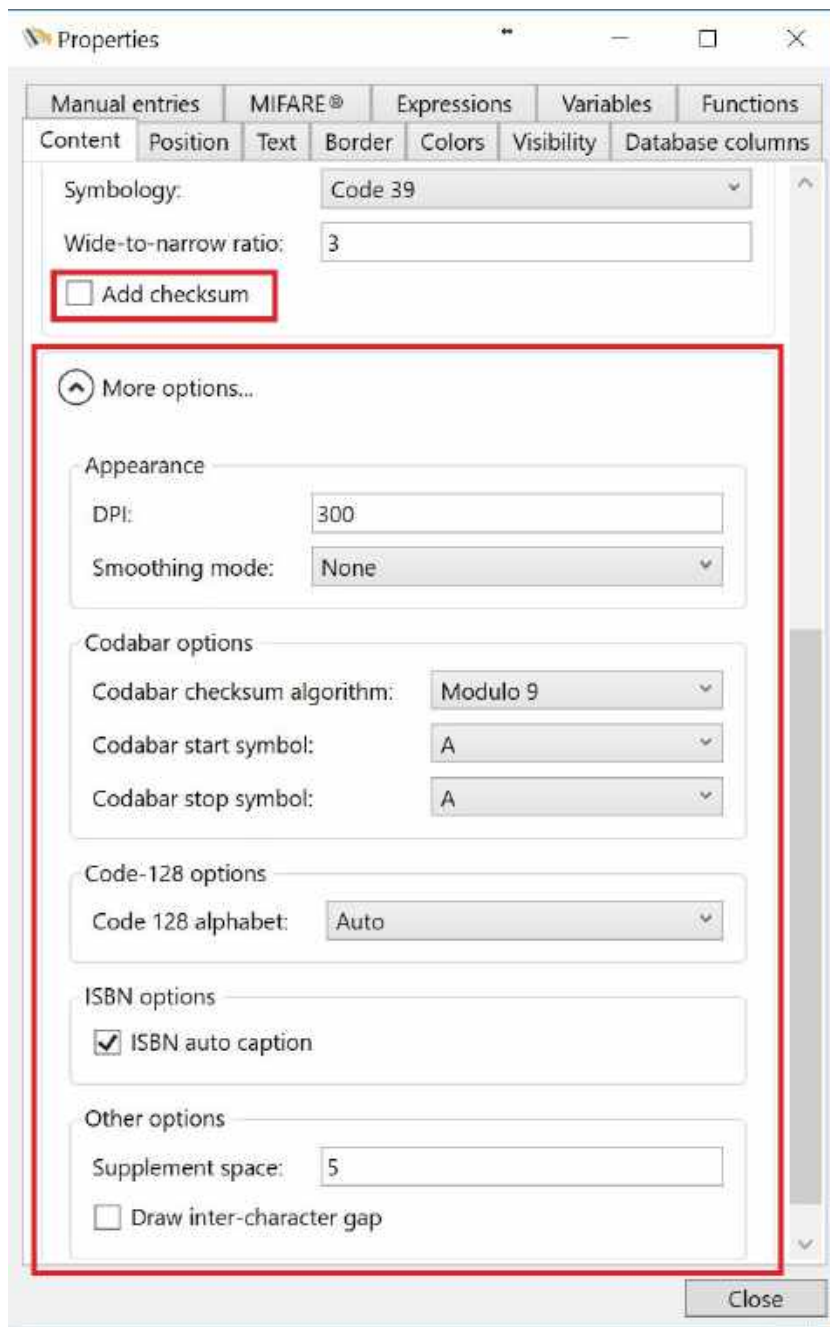
### 5.11.3 1D Barcode



To add a 1D barcode object to your page, just select the **Linear barcode** button from the Insert tab and click on a location on the page to place it. Now select the Symbology that you want to use from the drop down menu. All most common 1D Barcodes are supported.

Standard the Fixed value is selected, for using other values please see the "[Using Standard Object Types](#)" section of this help file.

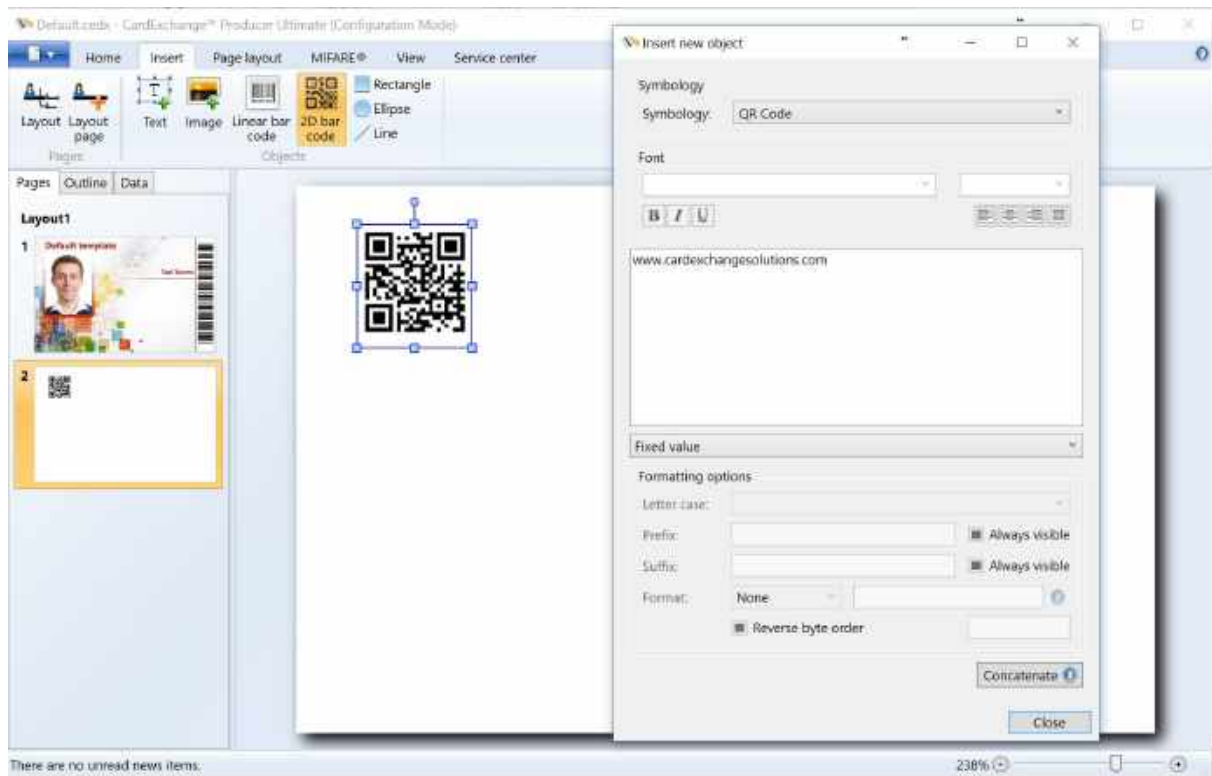
Of course a lot of extra options are available for the 1D Barcodes but they need to be accessed via the [Properties](#) window of the Designer. When the properties window is opened, select the Content tab.



You can add a checksum, set the options for specific barcodes like Codabar, Code-128, etc.

#### 5.11.4 2D Barcode

**IMPORTANT!** This 2D Barcode option is available from the Premium Edition and higher!

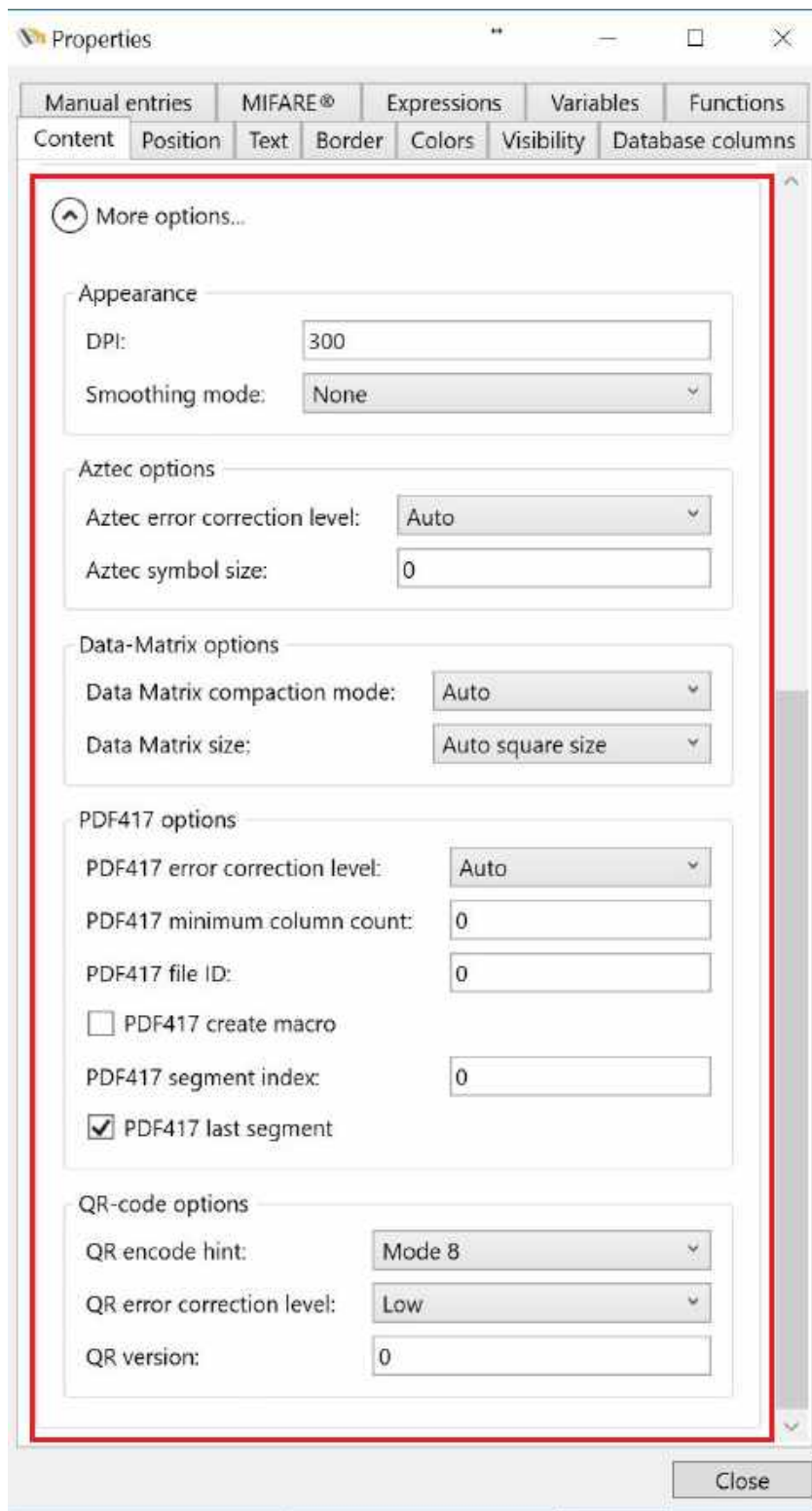


To add a 2D barcode object to your page, just select the **2D barcode** button from the Insert tab and click on a location on the page to place it. Now select the Symbology that you want to use from the drop down menu. All most common 2D Barcodes are supported.

Standard the Fixed value is selected, for using other values please see the "[Using Standard Object Types](#)" section of this help file.

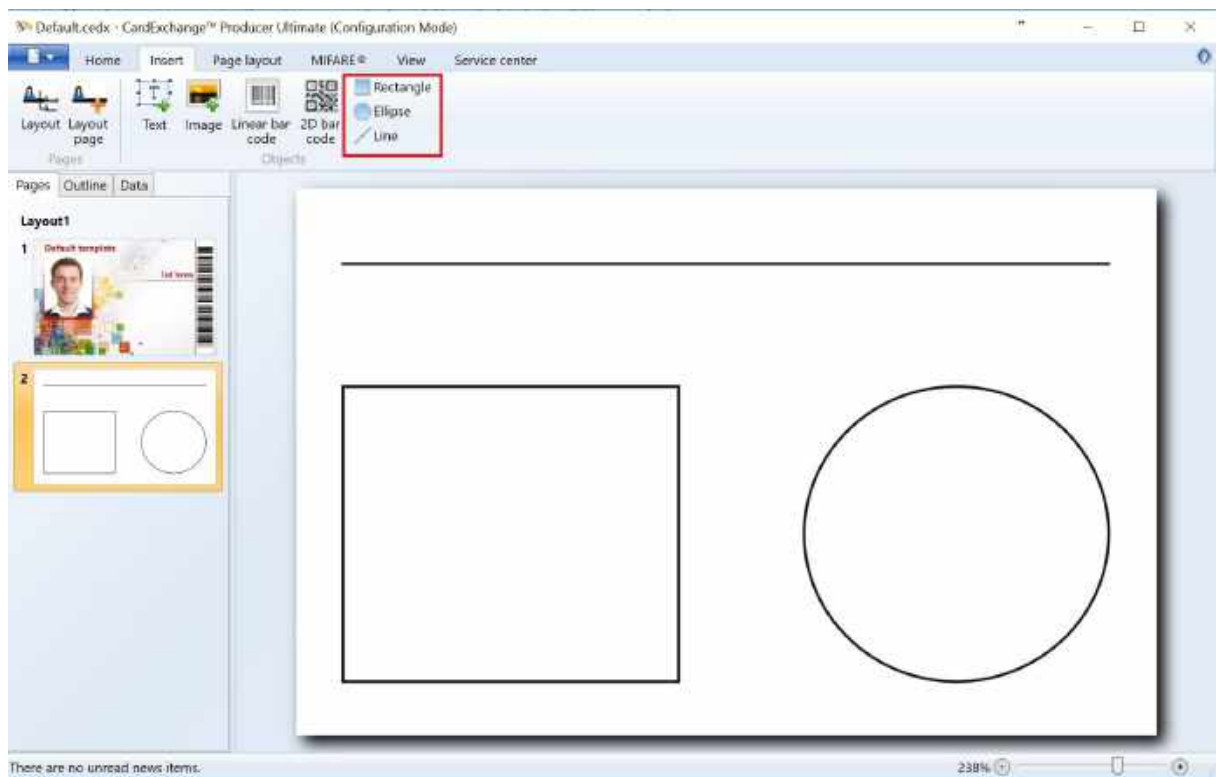
Of course a lot of extra options are available for the 2D Barcodes but they need to be accessed via the [Properties](#) window of the Designer. When the properties window is opened, select the Content tab.





Just like with the 1D barcodes, a lot of specific 2D barcode options can be set.

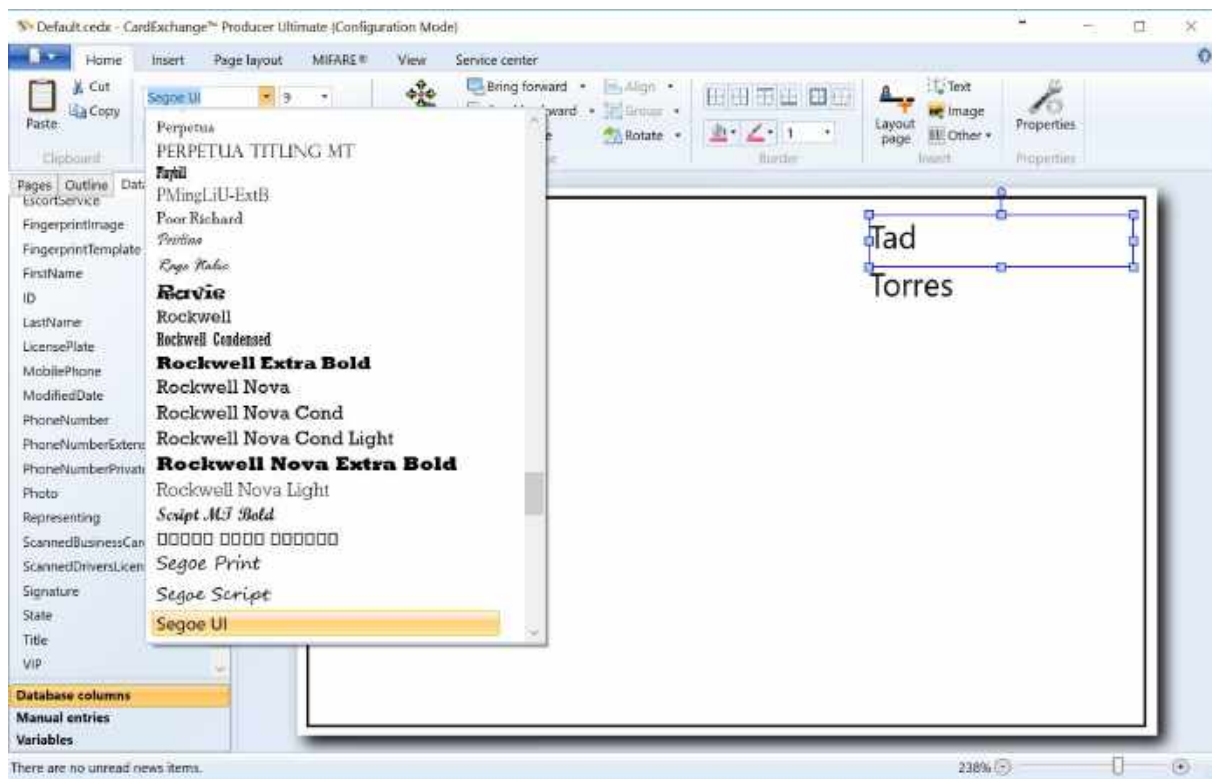
### 5.11.5 Drawing Objects



Select the Line, Rectangle, or Ellipse button to add it to the page.

Check for more options like colors, borders, visibility, etc., the [Properties](#) section of this Help file.

## 5.11.6 Formatting Objects



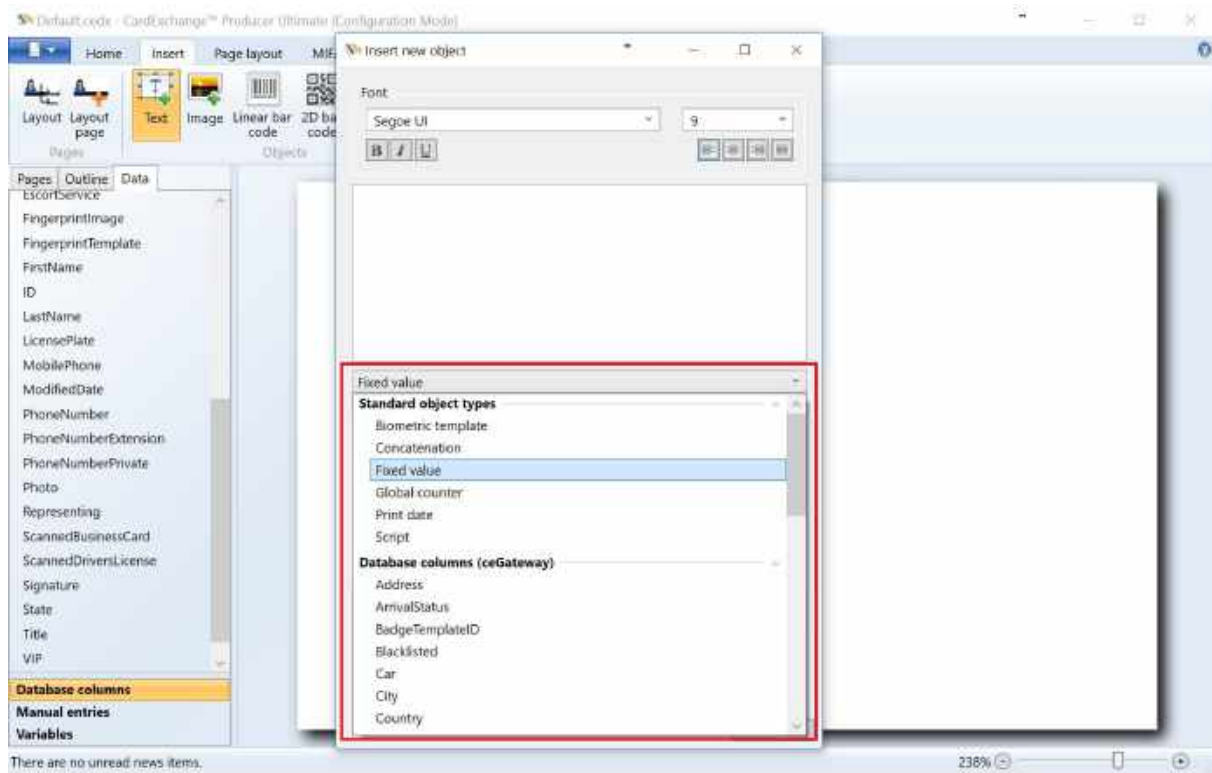
In the Home tab you can select the font, font size and font color that you want to use for your object. For more information about formatting of objects, please see our "[Properties](#)" section of this Help file.

### 5.11.7 Arranging of Objects



CardExchange® Producer offers a lot of functionality to arrange your objects on the page. All the arranging functionality is available via the Arrange group in the Home tab or via the Context menu.

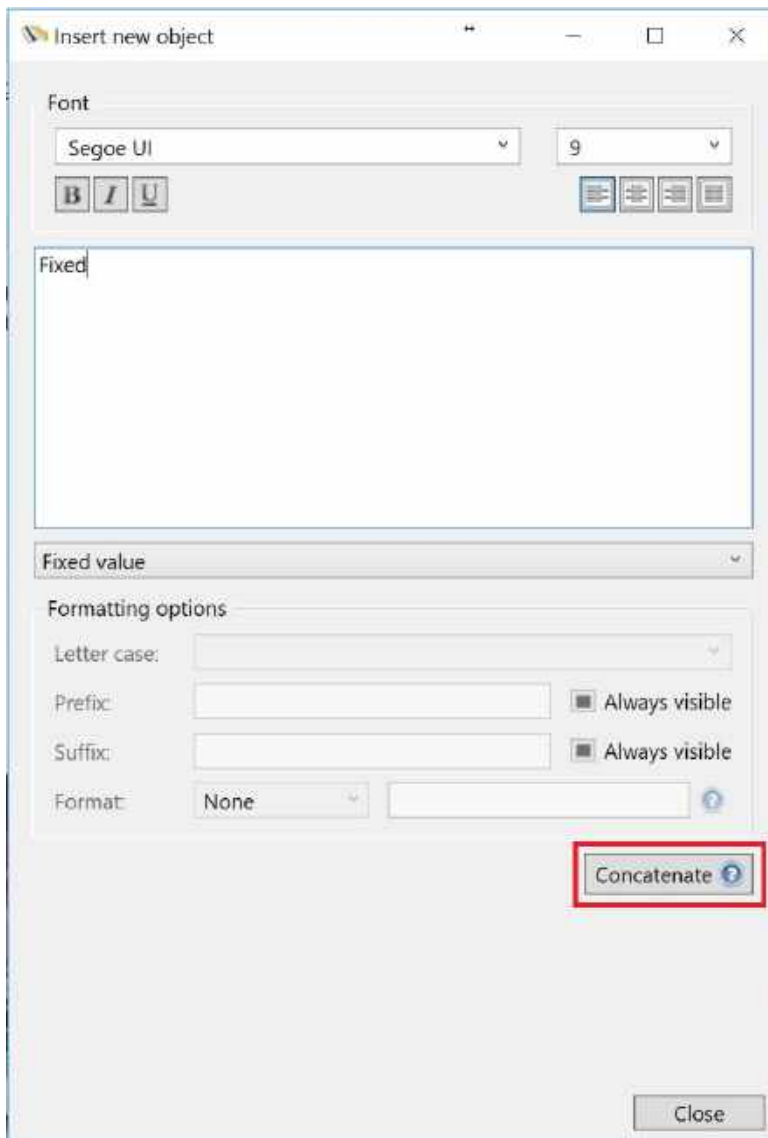
## 5.12 Standard Object Types



With exception for the Image object, CardExchange® Producer offers Standard Object Types. **Standard Object Types** is functionality that can be connected to the object. In this section we will inform you how to use these **Standard Objects Types**.

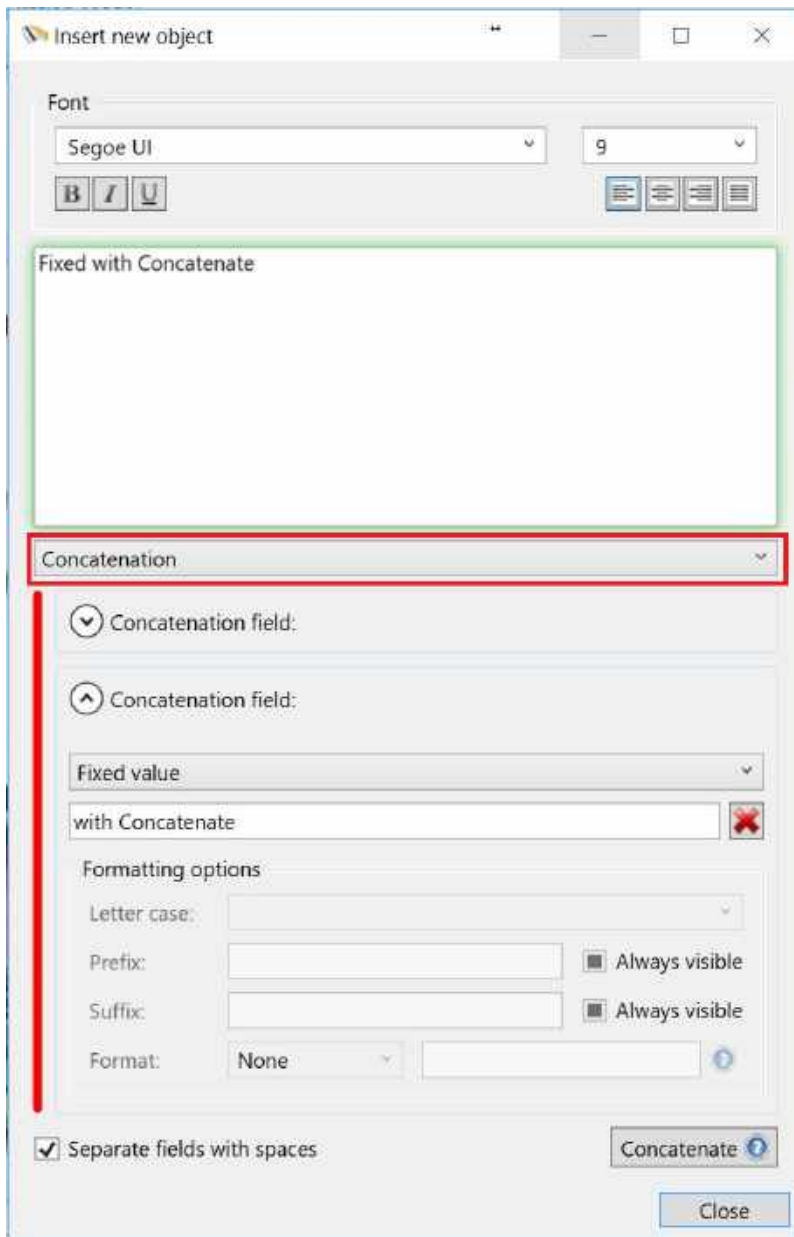
**Standards Objects Types** can be selected when adding a new object to your Page designer or via the [Content](#) tab in the [Properties](#) window.

### 5.12.1 Concatenation




Concatenation is very powerful functionality offered in CardExchange® Producer. It offers you unlimited ways to present or store data.

In this example we are adding a new [Text object](#) to our [Page](#) design and we have it set to the default **Standard Object Type, Fixed Value**, and we enter a name into the text area, in this case "Fixed" Now we click on the **Concatenate** button under the formatting options.



Now we get a new option to select a **Standard Object Type**, in this case, also a **Fixed Value** is used but this can be any **Standard Object Type** available.

Now you see that the **Standard Object Type** is changed from Fixed Value to **Concatenation** as indicated with the **red** square above.

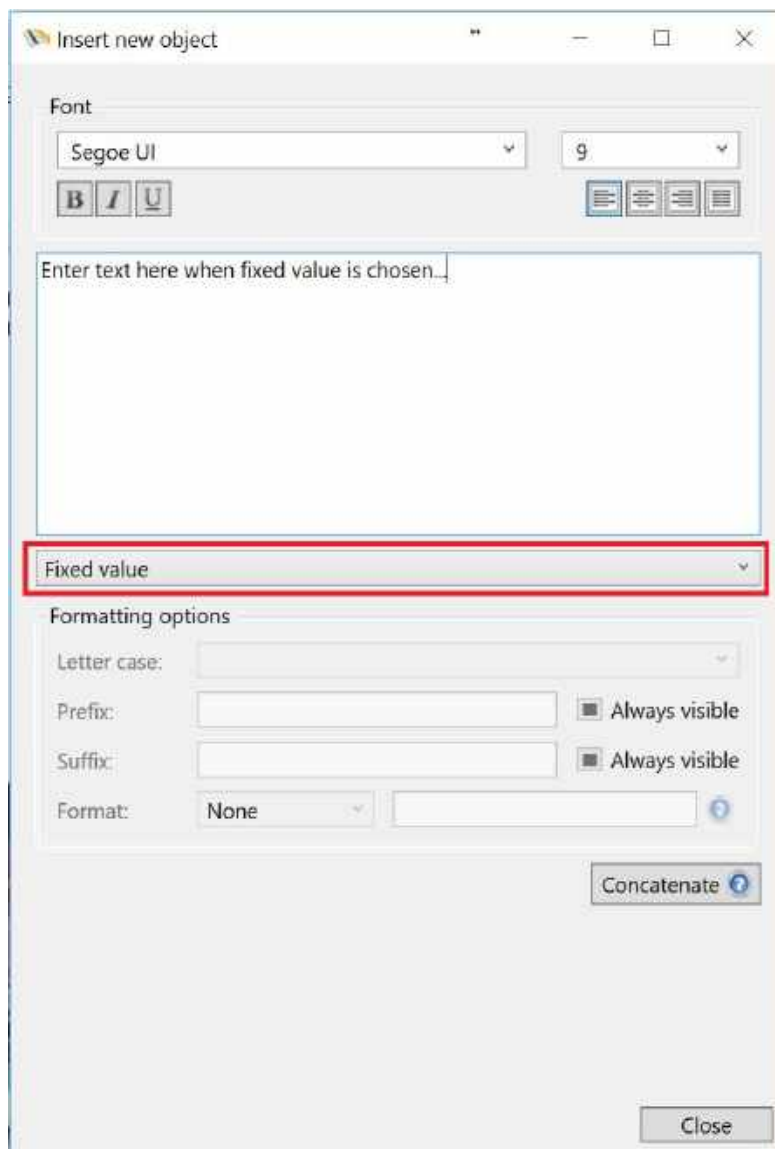
The **Concatenations** are divided by expandable tabs. When you click on the left down arrow  it will open the selected one and close the previous opened:

The screenshot displays the configuration window for a Concatenation field. At the top, there are two 'Concatenation field:' dropdown menus, both highlighted with red boxes. Below these is a 'Fixed value' dropdown menu. A text input field labeled 'with Concatenate' contains the text 'with Concatenate' and has a red 'X' icon to its right. Underneath is a 'Formatting options' section with four rows: 'Letter case:' with a dropdown, 'Prefix:' with a text field and an 'Always visible' checkbox, 'Suffix:' with a text field and an 'Always visible' checkbox, and 'Format:' with a dropdown set to 'None' and a text field. At the bottom left, there is a checked checkbox for 'Separate fields with spaces'. At the bottom right, there is a 'Concatenate' button with a help icon.

You also see a **red vertical** line on the left. This indicates the group of **Concatenations**. There are no limitations to the amount of **Concatenations** you can make. You can always change your **Concatenations** in the [Properties](#) window at the [Content](#) section.



## 5.12.2 Fixed Value



Select **Fixed Value** from the **Standard Object Type** drop down menu, indicated with the **red rectangle** and enter the text into the text area.

### 5.12.3 Global Counter

Insert new object

Font

Segoe UI 9

B I U [Alignment icons]

30

Global counter

Formatting options

Letter case: Maintain original

Prefix: [ ] Always visible

Suffix: [ ] Always visible

Format: Integer d

Global-counter options

Next value to be printed: 30

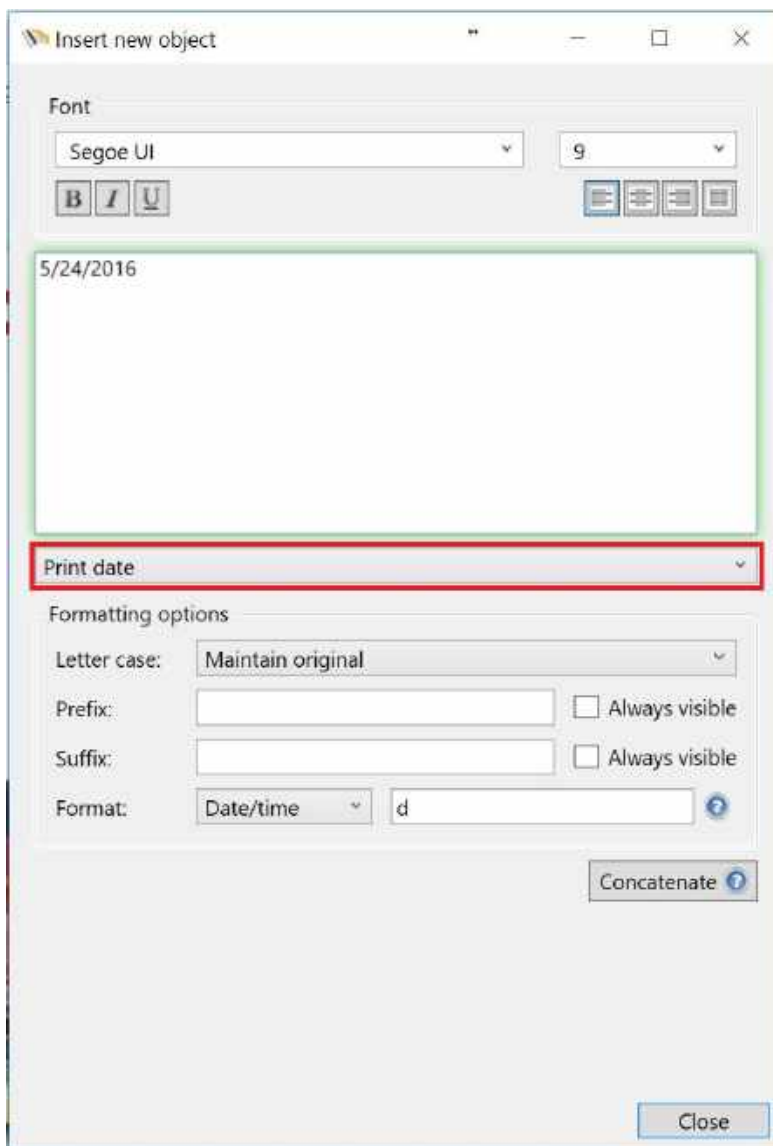
Increment value: 1

Concatenate

Close

Select **Global Counter** from the **Standard Object Type** drop down menu, indicated with the **red rectangle** and set the **Global Counter** options in the group indicated with the **orange rectangle**. When using the **Global Counter**, you see that the text area is indicated with a **green rectangle**. This means that the value shown is generated based on the settings for the Global Counter and cannot be changed in the text area.

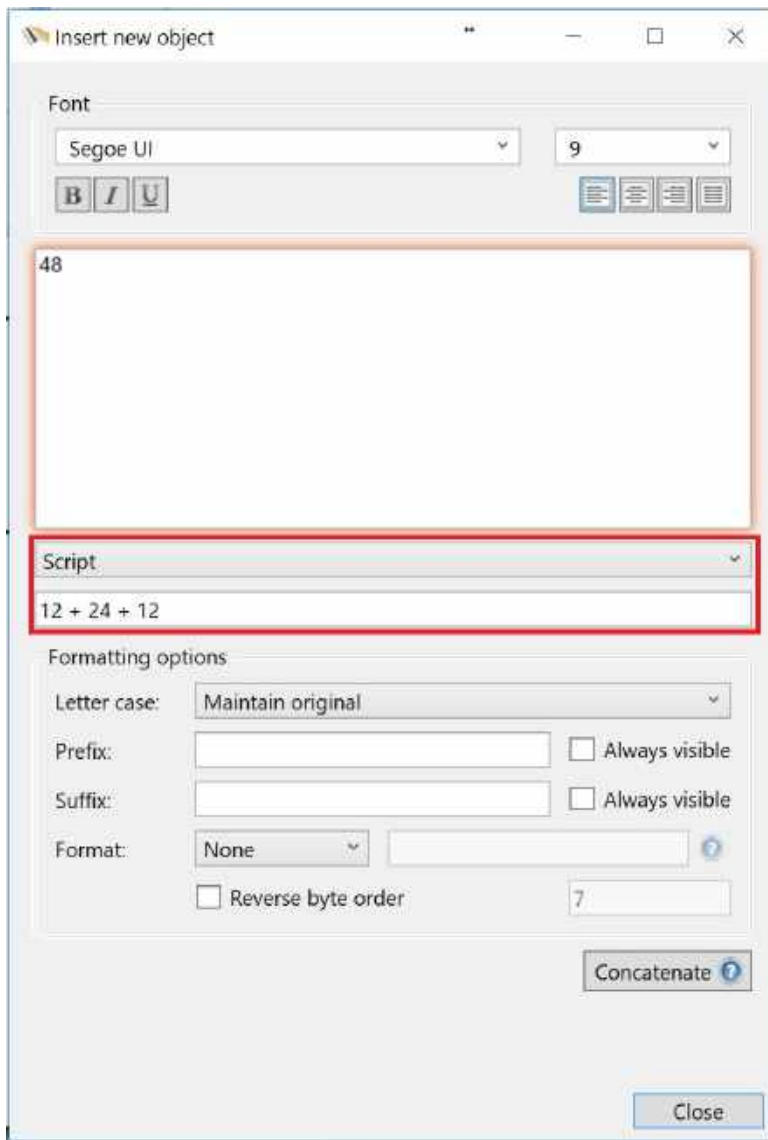
### 5.12.4 Print Date



Select **Print Date** from the **Standard Object Type** drop down menu, indicated with the **red rectangle** and it will directly present the date. You can also show the date and time or time only by setting the date format options. When using the **Print Date** you see that the text area is indicated with a **green rectangle**. This means that the value shown cannot be changed in the text area.

The date reflect the date and time as available on your computer.

### 5.12.5 Script

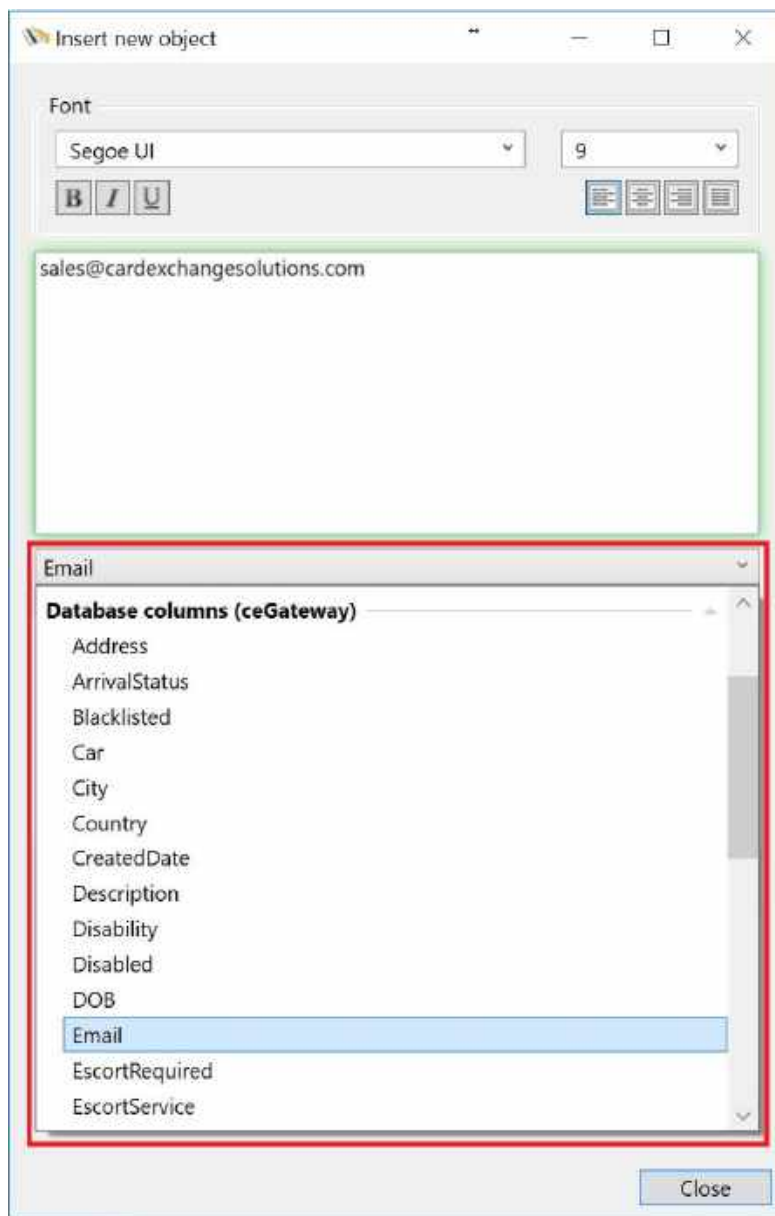


Select **Script** from the **Standard Object Type** drop down menu, indicated with the **red rectangle** and enter the script in the text field under the drop down menu.

You will see that the text area is now indicated with a red/orange color which means that the value shown is calculated based on the script.

**IMPORTANT!** Scripting is only available in the Business Edition and Enterprise Edition.

## 5.12.6 Database Columns



When you are connected to a database, in the **Standard Object Type** drop down menu all the database columns are available for selecting. The **Standard Object Type** Database columns also indicates the name of the connected database in the header. In this example it mentions 'Database columns (Students)'. Because CardExchange® Producer offers multiple database connections in the Professional Edition and higher, multiple databases and columns can be selected here.

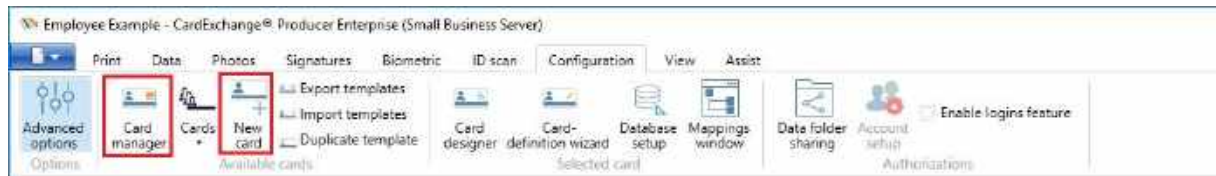
When selecting a database column from the list, you will see that the text area is indicated with a **green rectangle**. This means that the data shown is coming from the connected database and cannot be edited in the text area.

See our [Database](#) section in this Help file for more information about using databases.

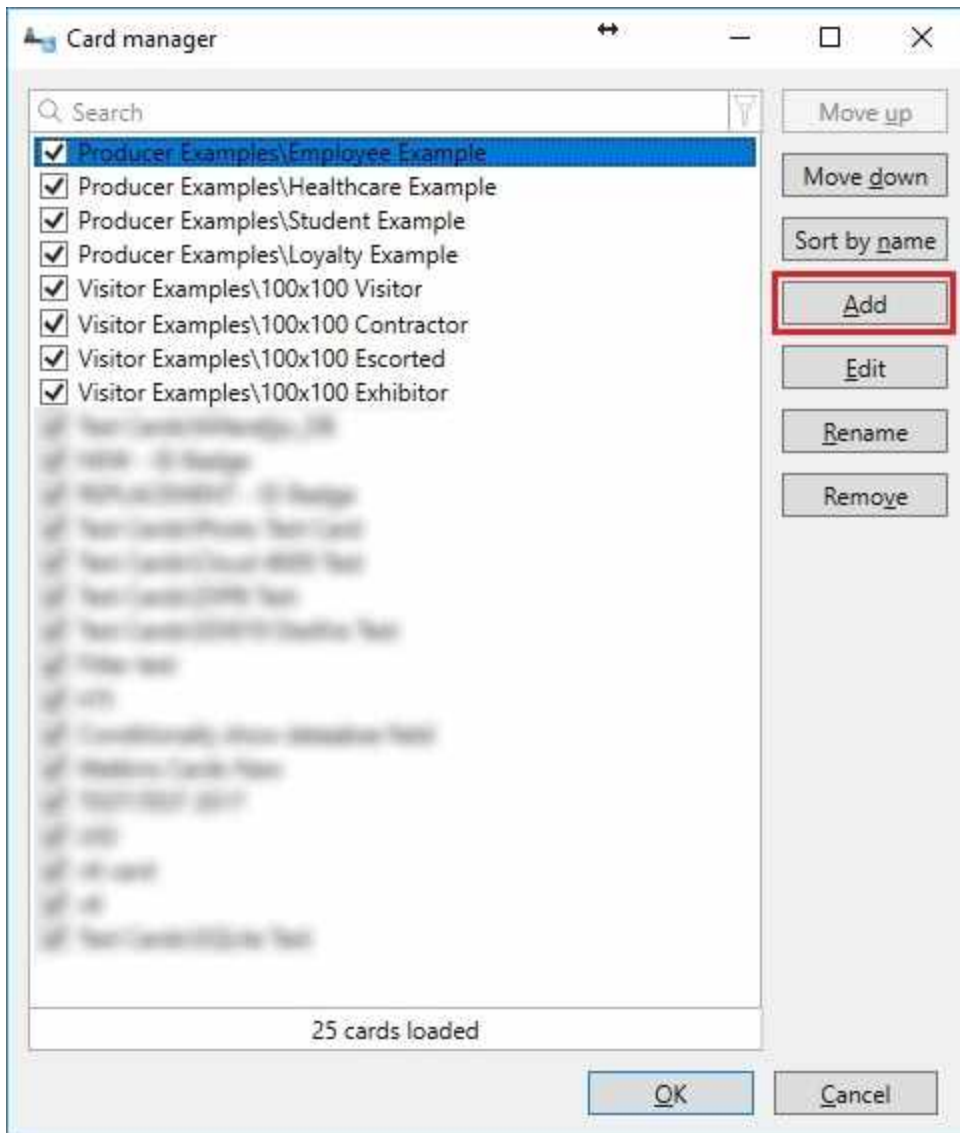
## 6 Adding Card Templates

There are two ways in CardExchange® Producer to add a new card-template. You can do it basically from scratch using the Designer or you can use the CardExchange® Producer User Guided Wizard. But whatever you choose, you start by clicking some buttons.

You can create a new card-template in two ways:

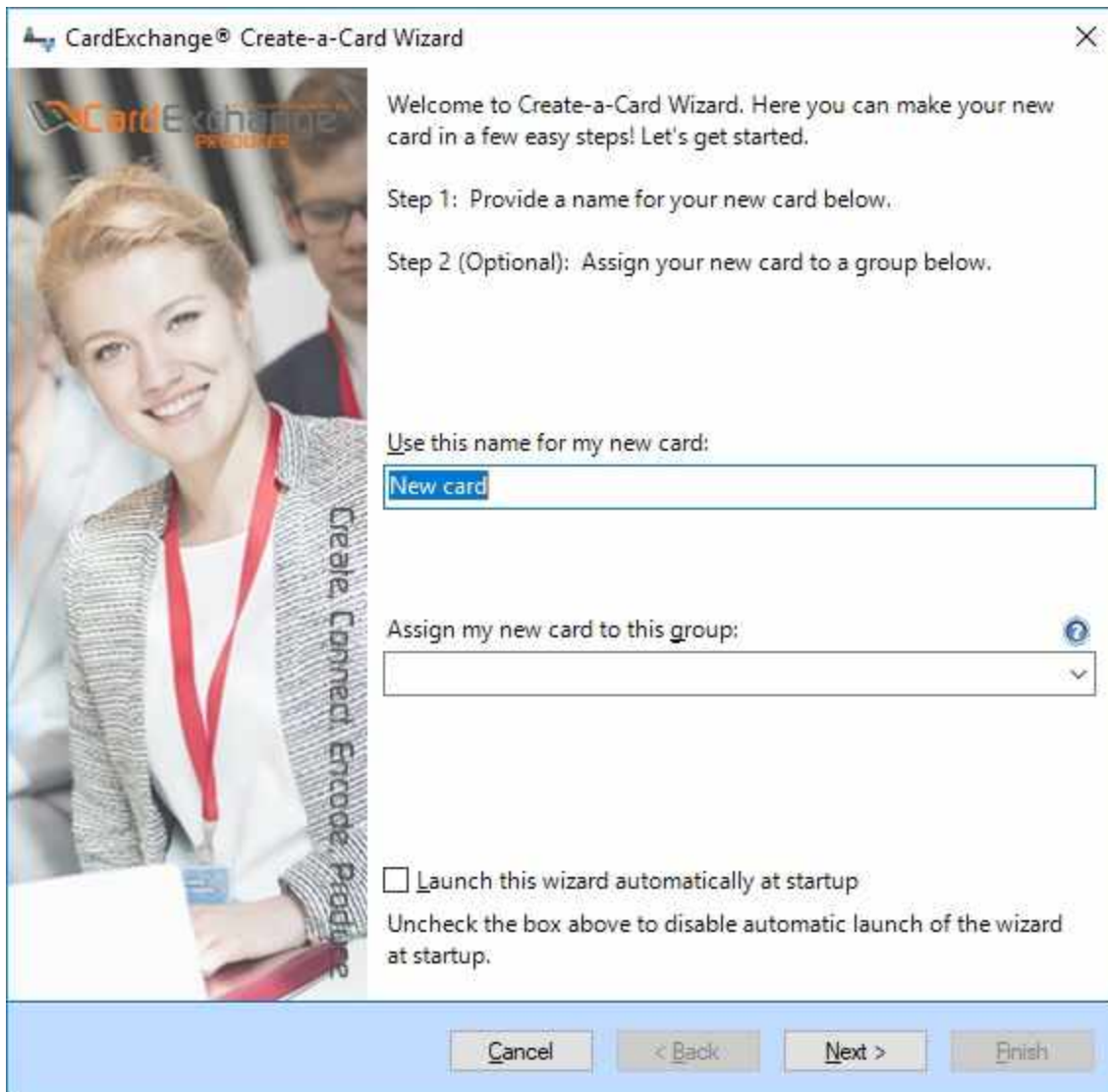


When you select the Configuration tab, in the Loaded Cards group you can directly select New card or you can click on the Card manager.



And click on Add. For each process it starts in the CardExchange® Producer User Guided Wizard. When clicking on add, this wizard will start.

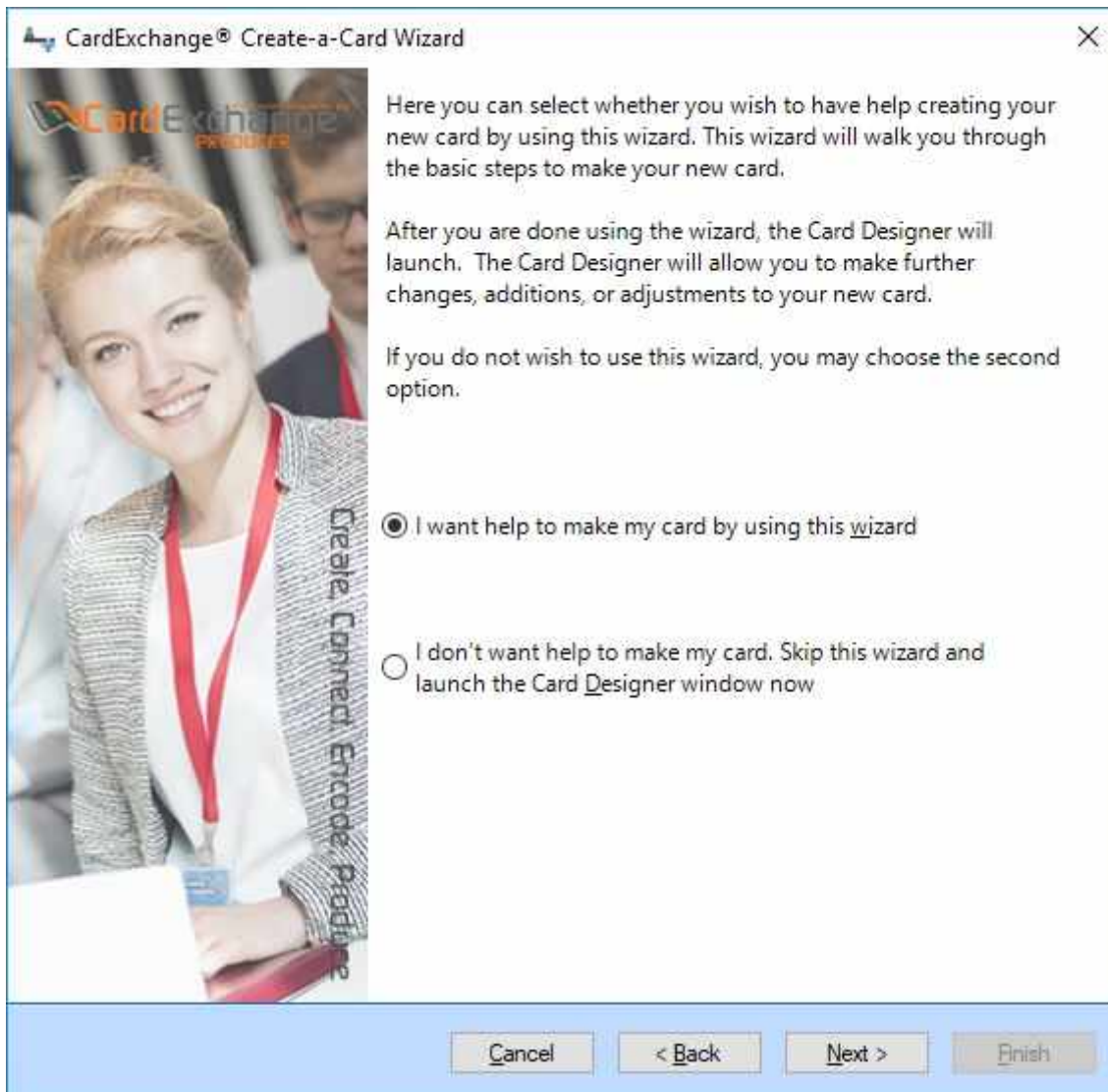




If you use or not familiar with the wizard, the new card-template needs to have a name, so provide that in this window, but it can also be assigned to a category. Categories are presented in a drop down menu directly under the [Loaded Cards](#) tab in the [Explorer](#) menu. Categories are very powerful especially if you are using a lot of different card-templates. A couple of standard categories are available, but if you want to use another category, just simply type the name of the category in the drop down menu field and it will be available for future card-templates.

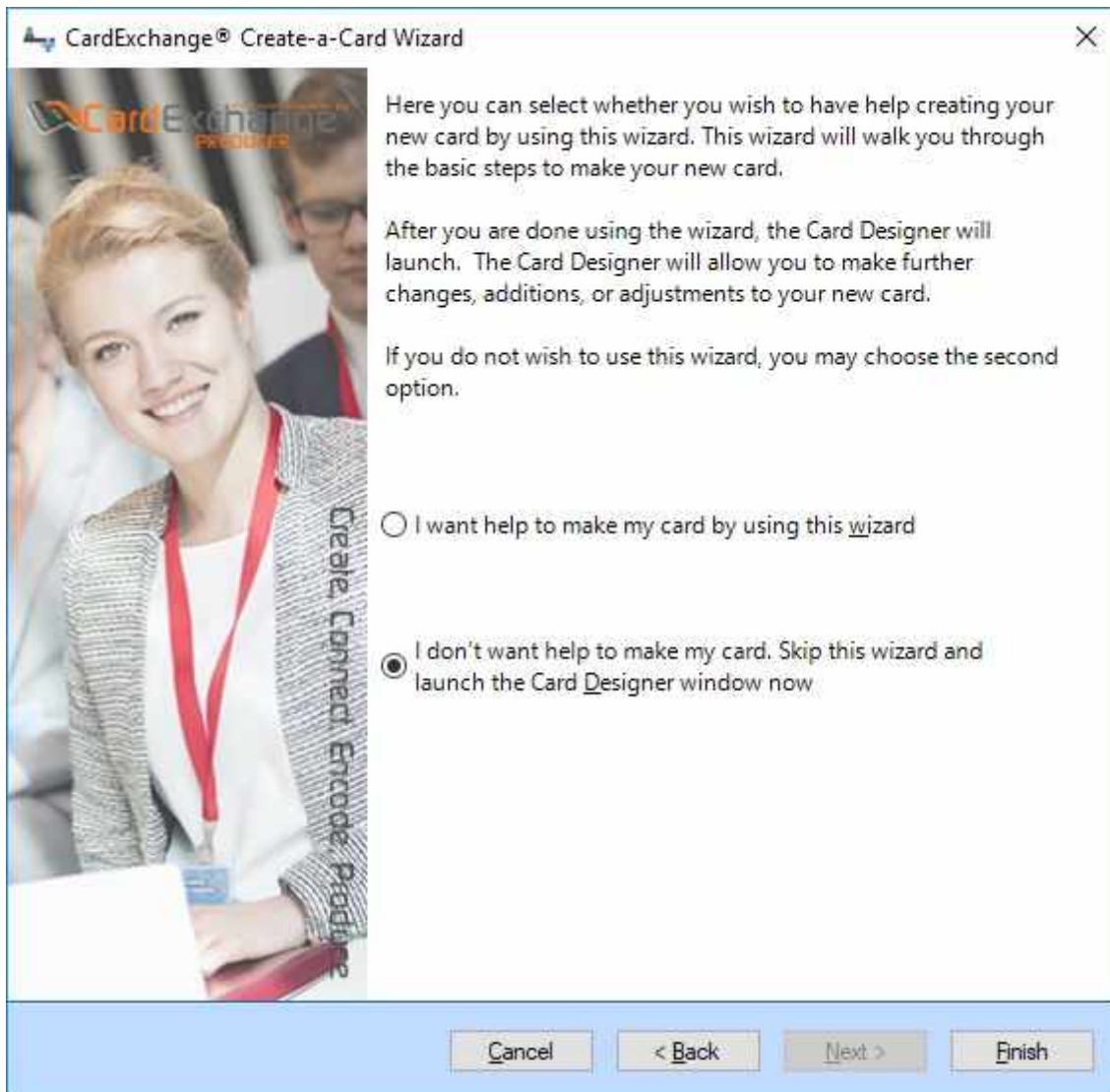
By default this wizard starts up when you start CardExchange® Producer. Uncheck the "Launch this wizard automatically at startup" option if you do not want this.

When you have entered all the information in this first page of the wizard, proceed with Next to go to page 2.



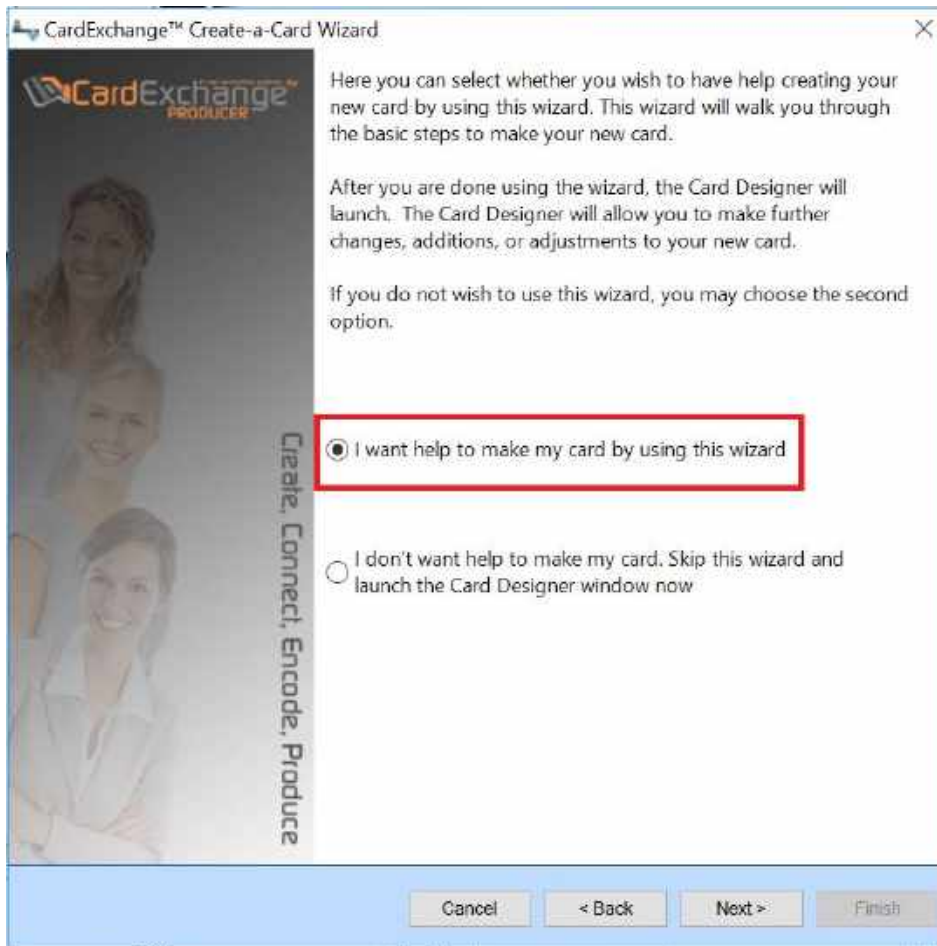
In this page of the wizard we determine what we are doing... using the wizard to create a new card-template or do it from scratch. When the first option is selected "I want help to make my card by using this wizard" (default), you will be taken through the wizard ending up with a card-template shown. How to add a card-template using the wizard is explained in the section "[Using the Wizard](#)" of this Help file.

When you selected to skip the wizard option and want to do it from scratch,



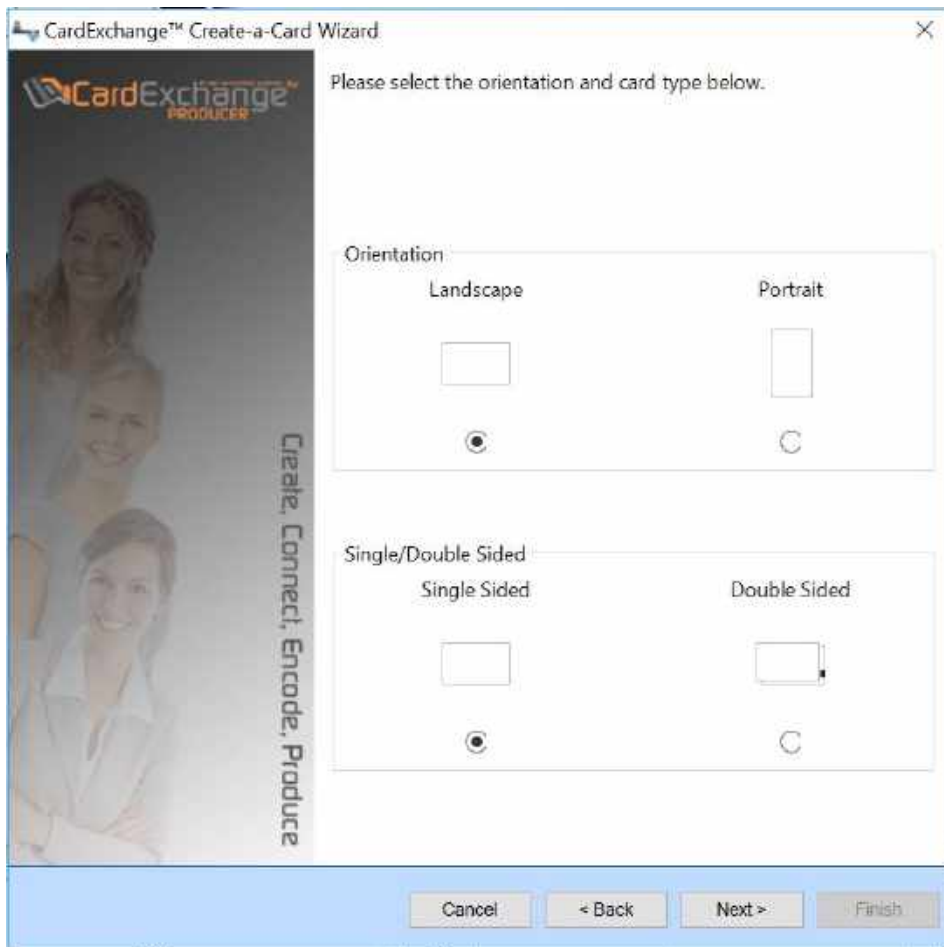
Just click on the Finish button. The whole process is explained in the "[Using the Designer](#)" section of this Help file.

## 6.1 The Wizard



Using the wizard is in most of the cases the best way to go. From this point, in seven clear explained steps you will be heading towards a complete designed card-template including or not including database connections, Barcodes, backgrounds, logo's, etc. Let's proceed and click on Next!

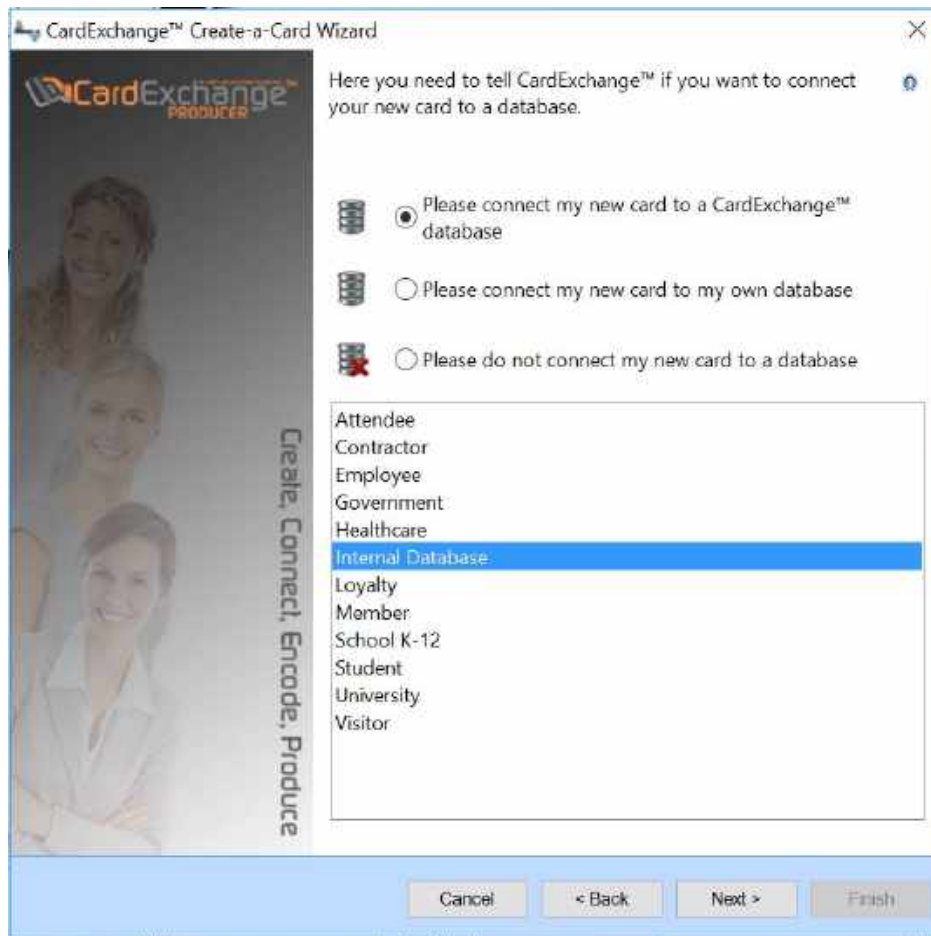
### Step 1



In this page you need to select if you want to create a single or a double sided card-template. Also the orientation needs to be set. Choose Landscape or Portrait. When done, click Next to proceed.

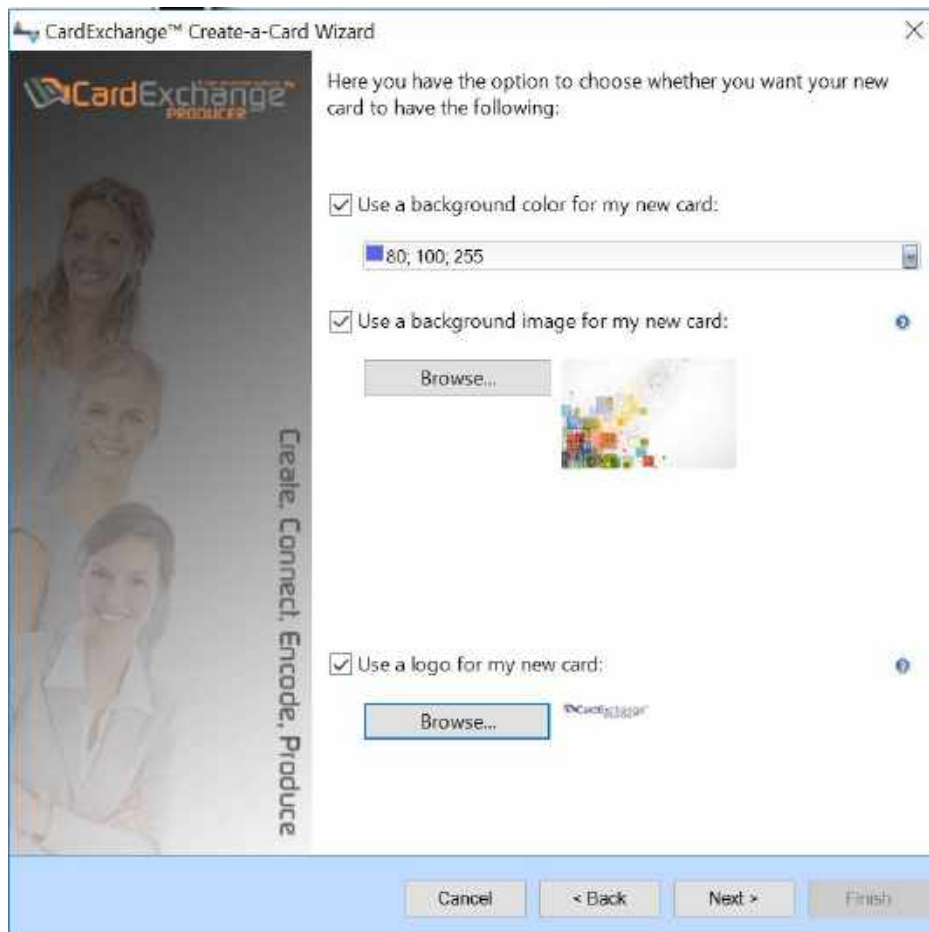
## Step 2

In this page you need to select if you want to connect to a database or not. In this Help file we are using the connection to the database option.



CardExchange® Producer offers unlimited ways to use databases, multiple databases, etc. In the wizard we are offering a selection of basic database templates you can choose from for MS Excel files as well for MS Access. For using MS Access database you need at least a Premium Edition. If you want to use one of the provided database templates, simply select one of them. Of course it is also possible to add your own database connection and make all fields available in the wizard. The whole adding of a new database connection is explained in the "[Add Database](#)" section of this Help file. When you are done, hit Next to proceed.

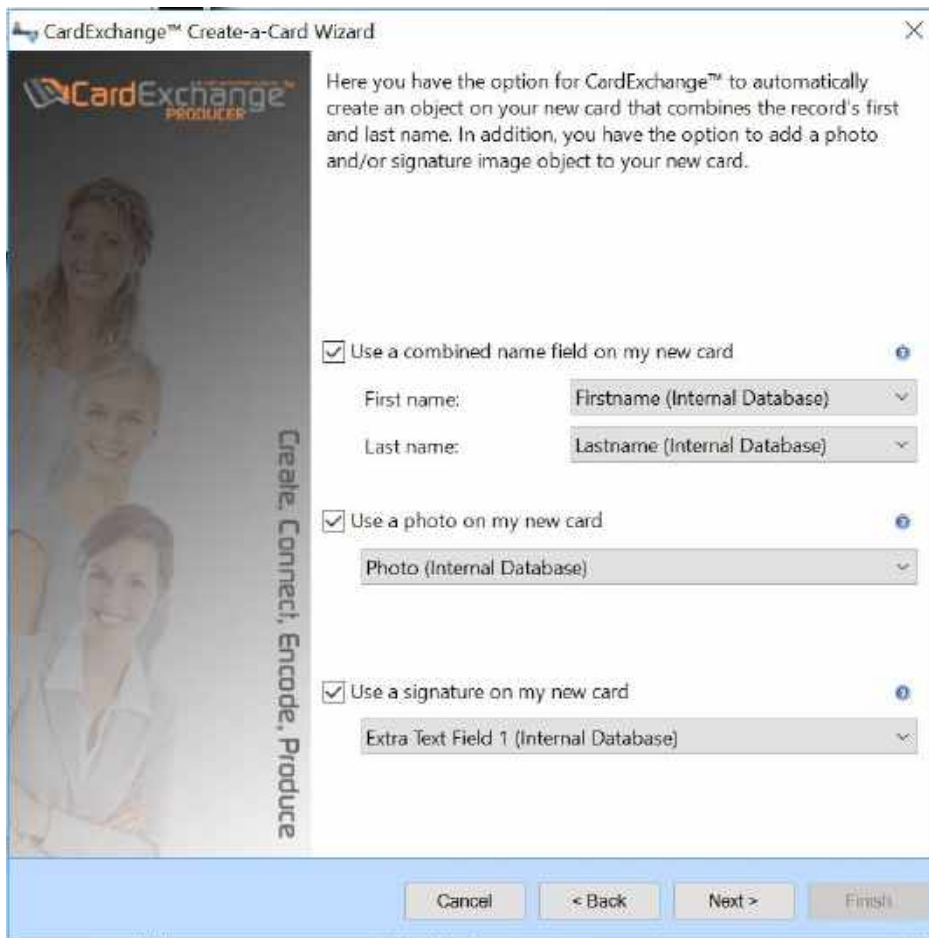
### Step 3



A card always looks better when using a background color or a background image. In this page of the wizard you can choose to have one of them or both. Select the color needed from the drop down menu or click on Browse and select the background image you want to use.

Who doesn't want one... a logo. Here you can also select the logo that you want to add to your design. Just click on the Browse button, select the logo you want, and click on Next to proceed.

#### Step 4

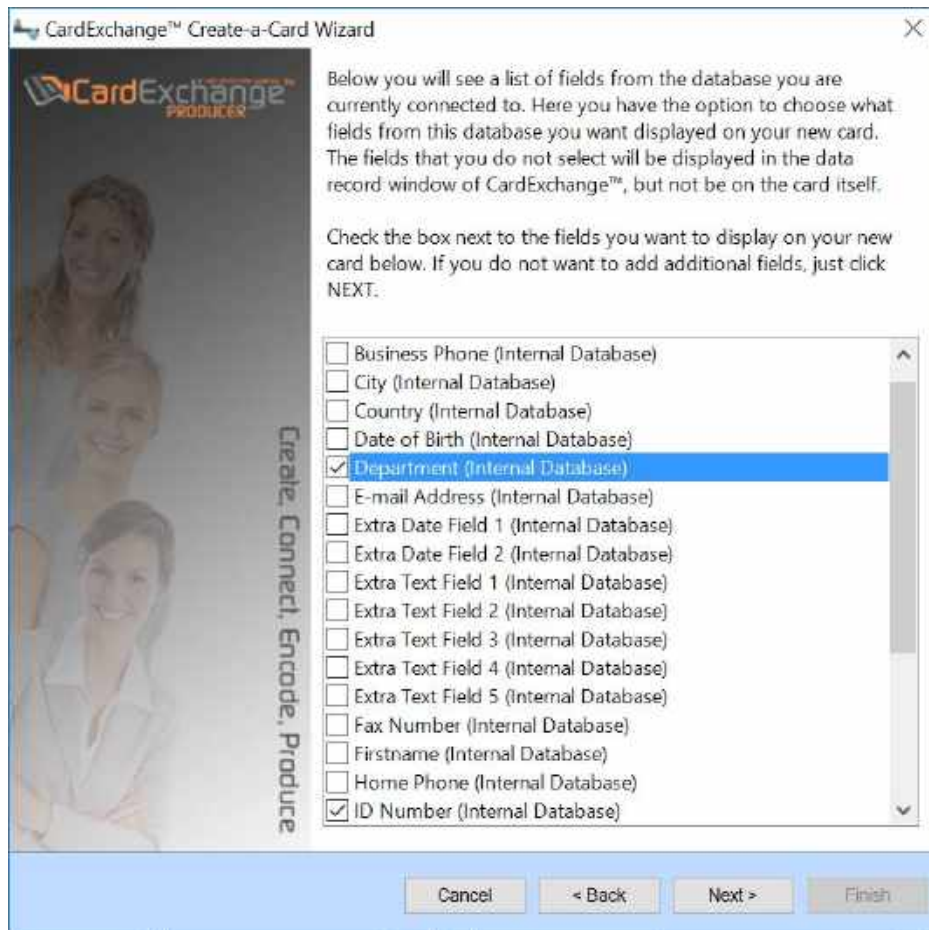


It is usual that you would want to show a name on the card design, here you can choose to have a combined name field where you just need to select the First name and Last name fields from the database.

Photos and signatures are important objects for your design. In this page of the wizard you can also select to add a photo or signature to your design. For using signatures, a Premium or higher edition is needed. When you select Add a photo, you can select the referring database column from the drop down menu. If you are using a connection to an MS Excel file, using a photo will always be a "Point-to-image-file" connection as MS Excel cannot contain binary photo information. If that is the case, we strongly advice to use a field from the database that is really unique like the ID field. Keep in mind, names are not unique! Proceed with Next when you have made your selection.

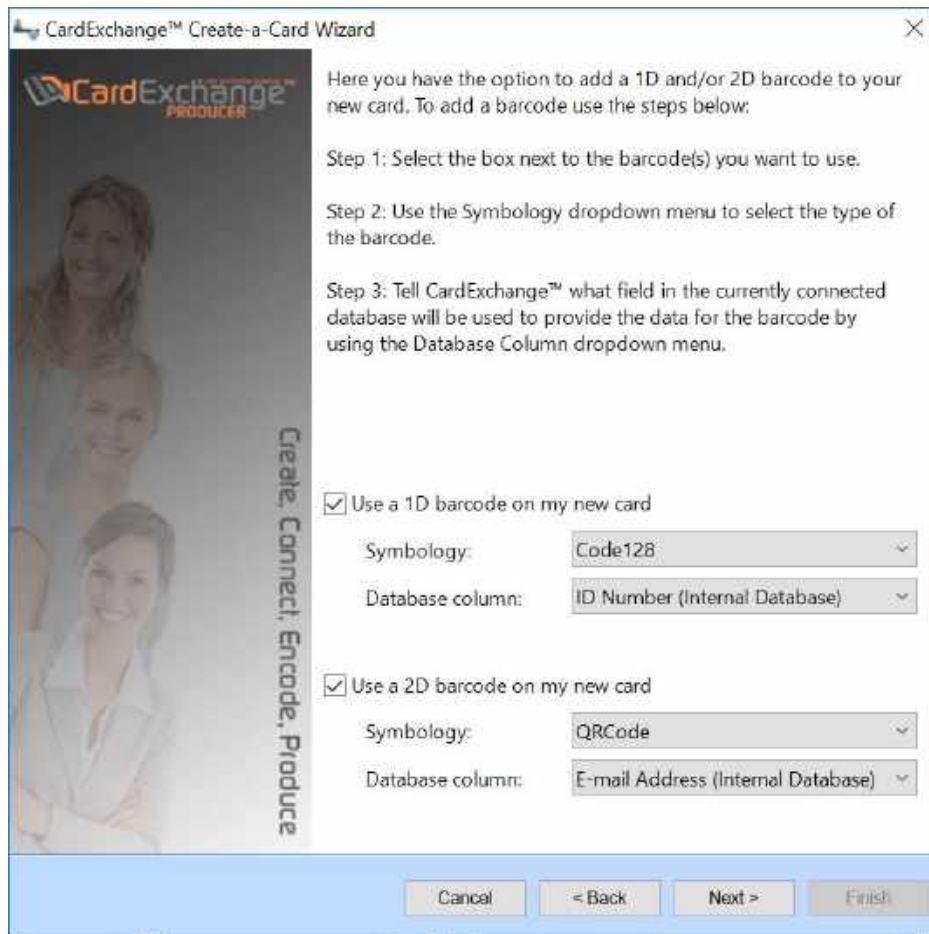
## Step 5





On this page all the available columns are made available for you to select. To add the field to your design, just click on the check box before the column name. When all the needed columns are selected, proceed by clicking Next.

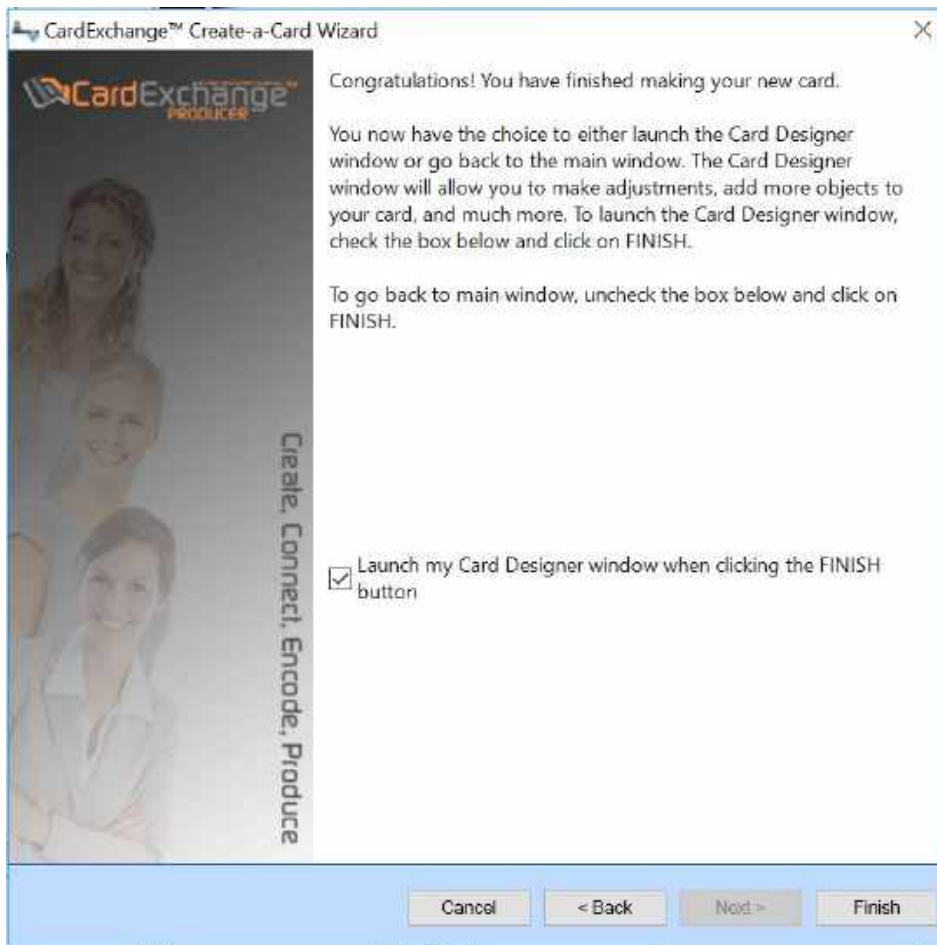
### Step 6



1D Barcodes are available starting from the GO Edition and 2D Barcodes are available starting from the Premium Edition. We offer a large variety of Barcodes including all the standard symbologies.

The Barcode symbology can be selected from the drop down menus as well as the database column that contains the information. Last step to take, click Next to proceed.

### Step 7

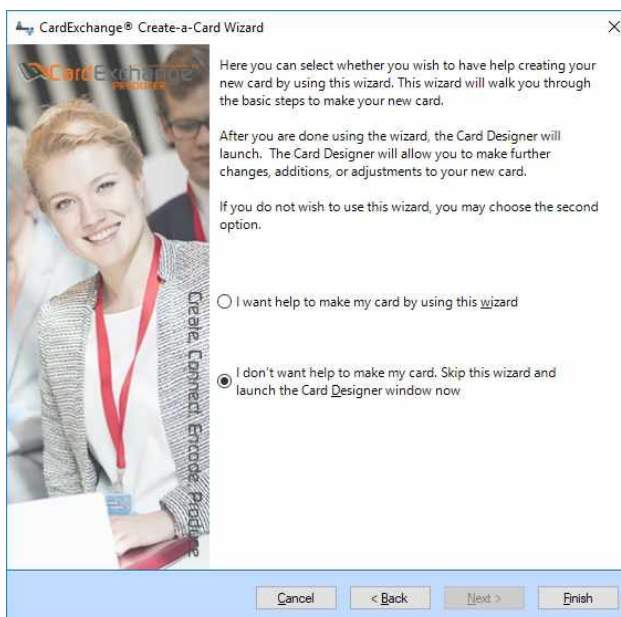


CardExchange® Producer has now all the information to generate the card-template and as soon as you click on Finish, the template will be generated. If you have the check box selected, the Designer will open offering you the possibility to make adjustments to the created design, if not, the card will be directly show in the Main Interface and the database, if applicable, will be loaded and shown. And that's all she wrote.

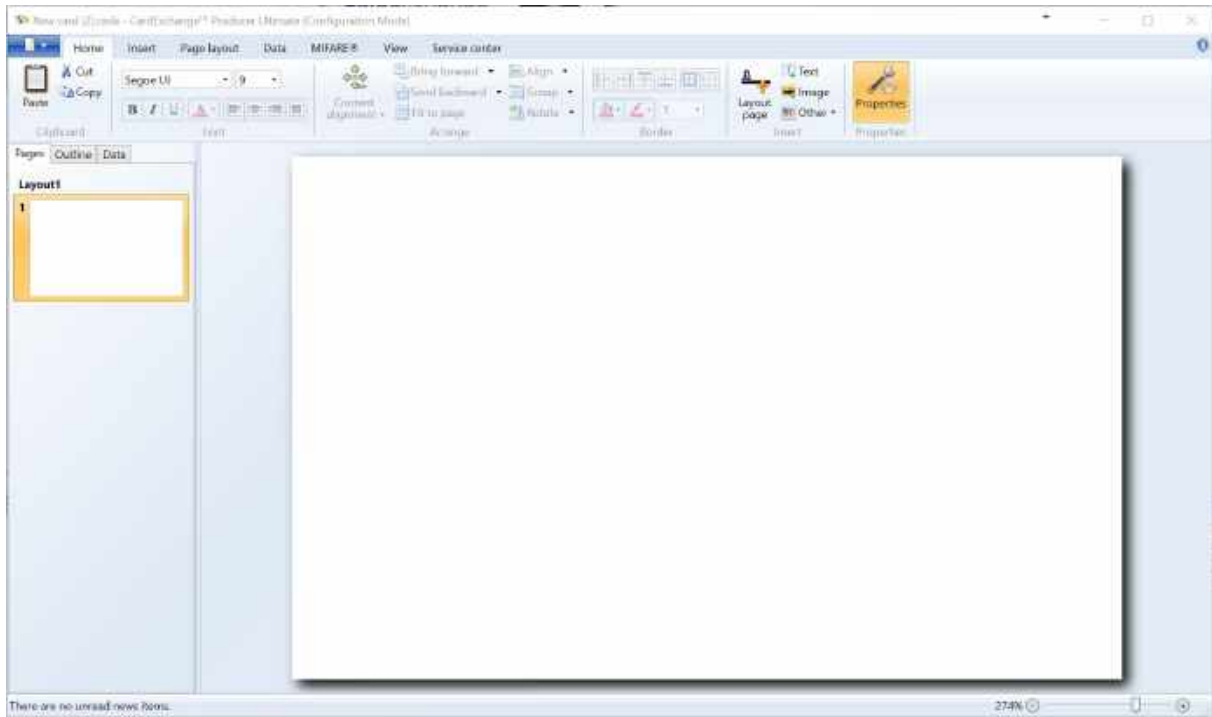


More information about editing the design can be found in the "[Using the Designer](#)" section of this Help file.

## 6.2 The Designer

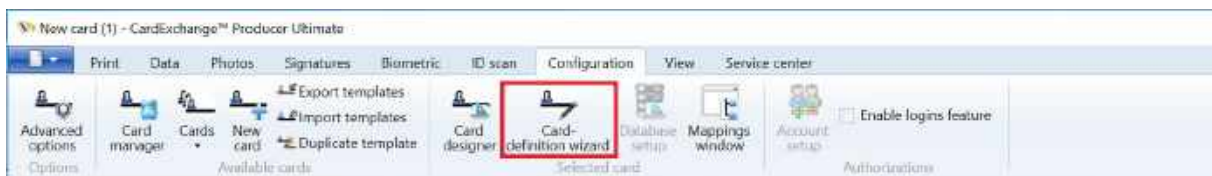


When you directly want to enter the Designer and create your template from scratch you have to select to skip the wizard and click on Finish.



The CardExchange® Producer Designer will open with a blank template. Take notice of the caption which is mentioning 'CardExchange® Producer Ultimate (Configuration Mode)'. Starting from Go editions, the caption always reflects the edition you are using and mentioning the configuration mode status indicates that it is not working as a stand alone Designer license.

### 6.3 Edit Card Definitions



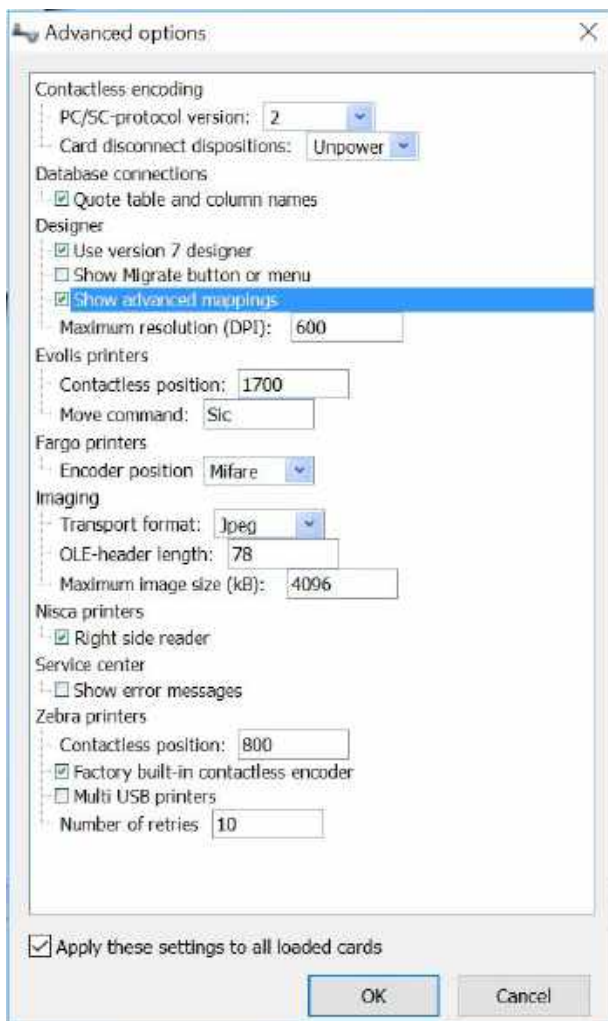
In older versions of CardExchange® Producer configuration was done through the Card-Definition Wizard. Although this wizard seemed logical, a lot of our customers found it very hard to work with. Most of the functionality that is and was available via this wizard should now be configured in the Card Designer but not all options are available . For more advanced features like external plug ins, this wizard is still needed. But you also still need it when you still use old version 6 layouts and have not converted them.

At this moment, when you are not using [External Plug In's](#), you should not need this wizard anymore. When you are using [Plug Ins](#) you still need to use the old [Card-Definition wizard](#)

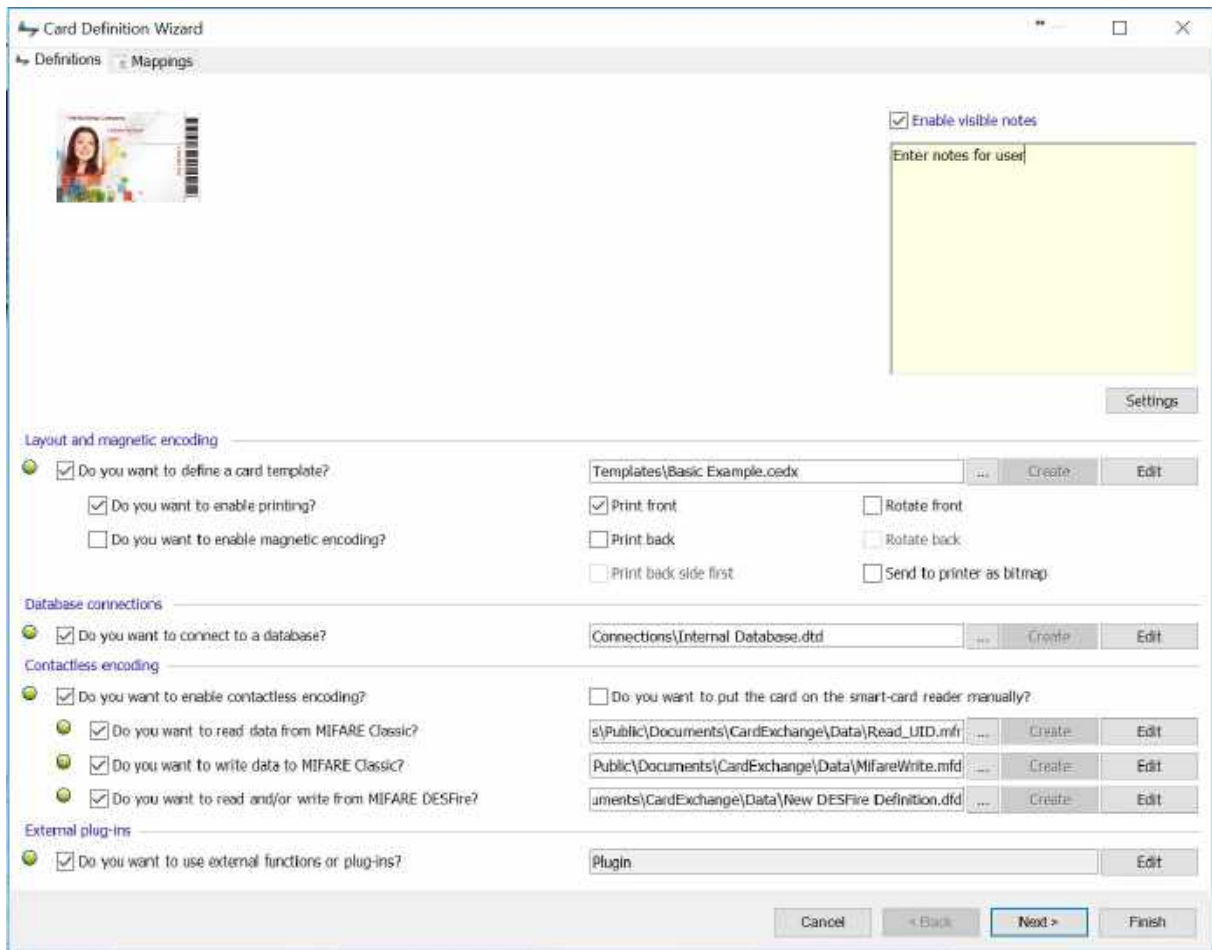
and [Advanced Mappings](#) Window. Along the way, more and more functionality will be embedded into the Designer so at the end, this Card-Definition wizard will become obsolete.

The Card-Definition wizard contains two pages. The first page contains all the information about the layout, database connections, contactless encoding, and plug in's. Both pages are explained in the sections [Card Definition Wizard](#) and [Advanced Mappings](#).

By default the Edit card definition button is hidden to avoid confusion, you can enable it by checking the box for "Show advanced mappings" under the advanced options in the Configuration tab.



### 6.3.1 Card Definition Wizard

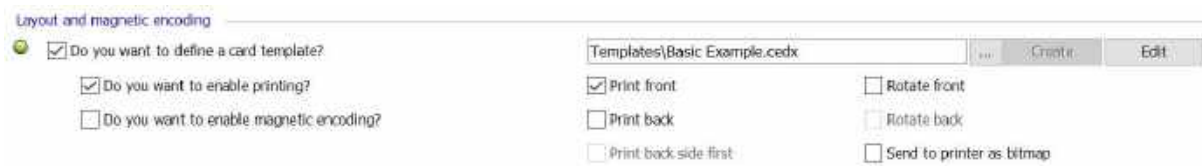


Depending on the edition you are using, the definition setup is divided in 4 sections:

- **Layout and magnetic encoding**
- **Database connections**
- **Contactless encoding**
- **External Plug Ins**

Besides of the different sections, the definition wizard also offers functionality to create a visible note per card definition that will be shown on the main window of CardExchange® Producer. Simply type the information that you want to show to the user, click on Settings to make some changes to the fonts and colors, and the note will be available for the user.

### 6.3.1.1 Layout and Magnetic Encoding



In this section of the wizard you are defining the card templates. You can create new ones, edit existing ones, or select card template files. All the basic settings that have to do with producing a card are available in this section. Because CardExchange® Producer is a card production application, a card layout always needs to be created. Other selections are:

Functionality	Description
<b>Do you want to enable printing?</b>	<i>Select this option if you want to produce cards. Deselect if you want to use CardExchange® Producer to encode cards only...</i>
<b>Do you want to enable magnetic encoding?</b>	<i>Select this option if you want to encode magnetic cards. For more information about magnetic encoding see 'Using magnetic encoding' section...</i>
<b>Print front</b>	<i>Default this option is set to the settings of the card layout. If the card layout is created as double sided, this option will be checked. Deselect this option if you have a double sided card layout and you don't want to print the frontside...</i>
<b>Print back</b>	<i>Default this option is set to the settings of the card layout. If the card layout is created as double sided, this option will be checked. Deselect this option if you have a double sided card layout and you don't want to print the backside...</i>
<b>Rotate front</b>	<i>When selecting this option, CardExchange® Producer will rotate the complete front of the card 180 degrees and send it to the printer driver.</i>
<b>Rotate back</b>	<i>When selecting this option, CardExchange® Producer will rotate the complete back of the card 180 degrees and send it to the printer driver.</i>
<b>Print backside first</b>	<i>In case of the use of printers with laminators, and when using double sided card layouts, you want to print the backside first because the front of the card needs to be laminated. Setting this option makes sure that the backside will be printed first and the front side last, which means that the lamination will be placed on the front...</i>
<b>Send to printer as bitmap</b>	<i>Most printers printing based on layer information. Occasionally printers cannot work with that, like the Zebra P600 series, the print a correct card with these printers the complete layout needs to be processed and send to the printer driver as a</i>



*Bitmap for the best result. Selecting this option sends the card layout as an image to the printer driver...*

### 6.3.1.2 Database Connections



In this section of the wizard you are defining your database definitions. You can create new ones, edit existing ones, or select database definition files.

Functionality	Description
<b>Do you want to connect to a database?</b>	<i>Select this option if you want to connect to a database and want to create a database definition... Click on Create to create a new definition or click on Edit to edit a existing one.</i>

### 6.3.1.3 Contactless Encoding



In this section of the wizard you are defining your contactless encoding definitions. You can create new ones, edit existing ones, or select definition files:

Functionality	Description
<b>Do you want to enable contactless encoding?</b>	<i>Select this option if you want to use CardExchange® Producer to encode contactless cards. Only available as Premium with the contactless module...</i>
<b>Do you want to put the card on the smart-card reader manually?</b>	<i>Select this option if you have a external encoder. CardExchange® Producer will ask, after graphical personalization of the card, to put the card on the external reader before executing the next print job...</i>
<b>Do you want to read data from MIFARE® Classic?</b>	<i>Select this option if you want to read information from a MIFARE® Classic card</i>
<b>Do you want to write data to MIFARE® Classic?</b>	<i>Select this option if you want to write information to a MIFARE® Classic card.</i>
<b>Do you want to read and/or write from MIFARE® DESFire?</b>	<i>Select this option if you want to use CardExchange® Producer to read and/or write from a MIFARE® DESFire card.</i>

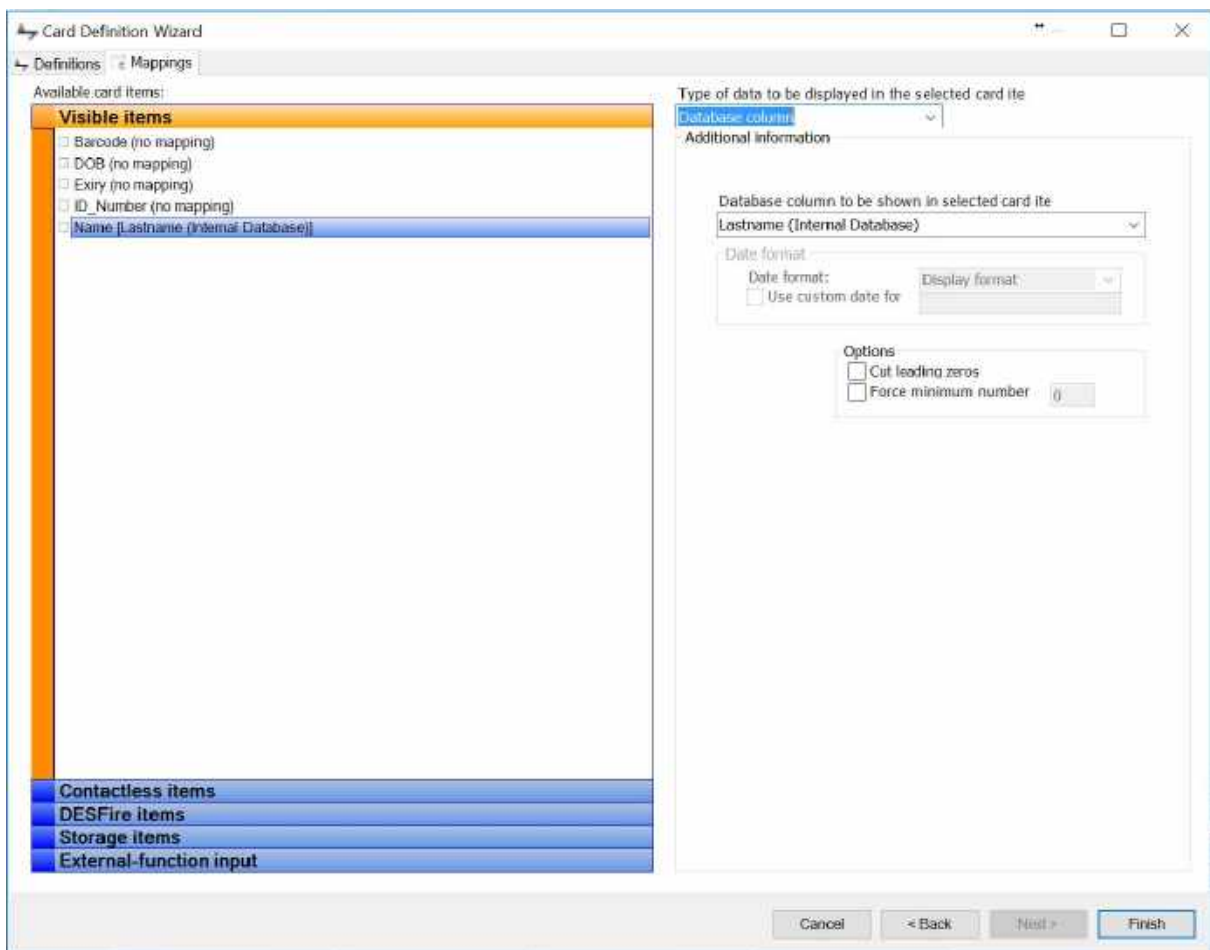
### 6.3.1.4 External Plug In



CardExchange® Producer offers unlimited possibilities to embed any non-existing, business logic, or third party Software Development Kits. In this section of the wizard you define your external plug in settings.

Functionality	Description
<b>Do you want to use external functions or plug-ins?</b>	Select this option if you have received a external plug that needs to be configured for use inside of CardExchange® Producer.

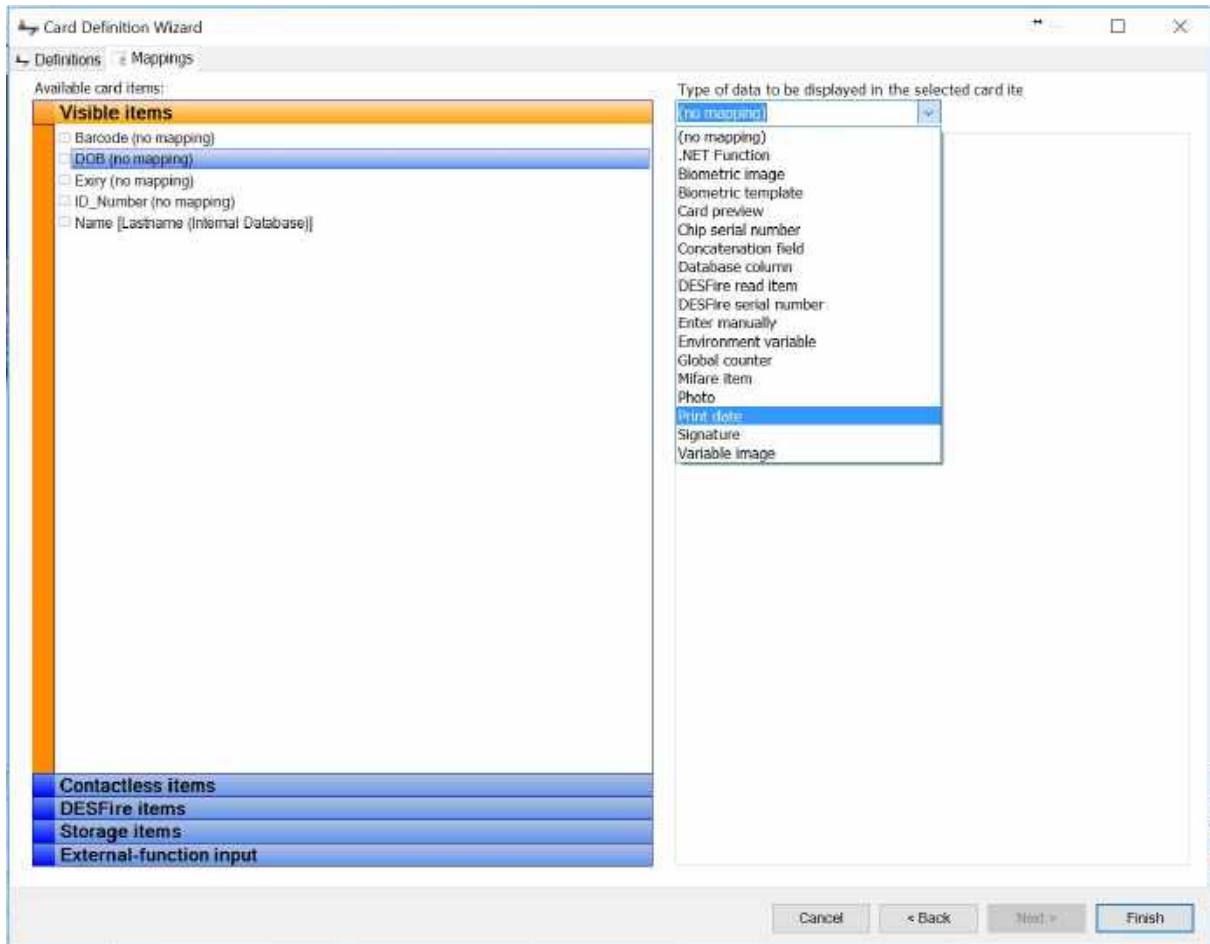
### 6.3.2 Advanced Mappings



At the left-hand side you see a navigator object with up to six tabs, depending on whether you are using the magnetic or contactless encoding options. The tab Visible items shows all

ordinary card objects that you have given a name to in CardExchange® Producer Designer. Visible items can be text fields, images or Barcodes. The card design of this example has named card items like Name, ID\_Number, Barcode, etc.

Simply select the Tab of the Explorer on the left side to make the mappings available.



From the drop down menu, as indicated, you can select all types of Standard Object Types to map to the items in the Explorer on the left side. Most of the functionality is already available in the new Designer and these objects are linked to that separate section of the Help file.

Depending on the edition running, it offers Standard Object Types for:

- .NET Function
- Biometric image
- Biometric template
- Card preview
- Chip serial number
- [Concatenation field](#)

- [Database Column](#)
- DESFire read item
- DESFire serial number
- [Enter manually](#)
- Environment variable
- External Plug In Result
- [Global counter](#)
- MIFARE Item
- [Photo](#)
- [Print date](#)
- [Signature](#)
- [Variable image](#)

## 7 Managing Card Templates



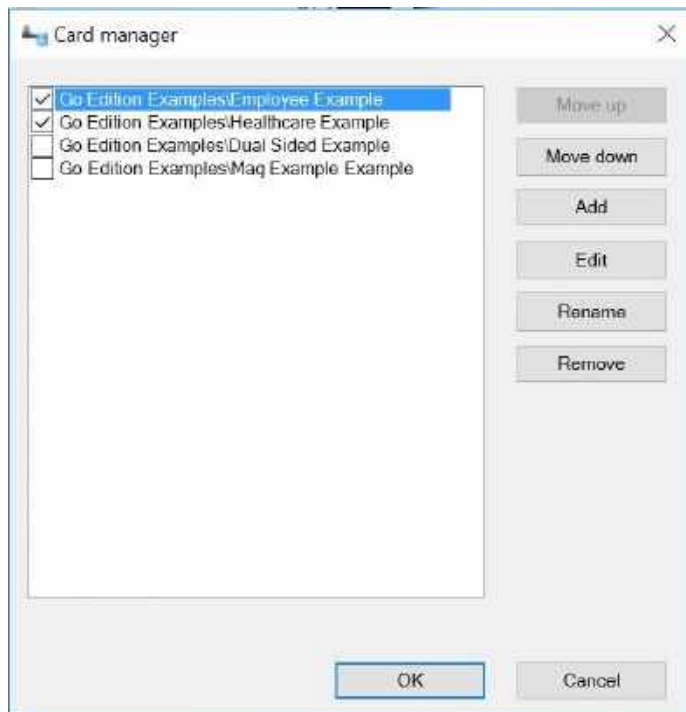
In CardExchange® Producer we offer the possibility to manage unlimited card-templates. A card-template is a collection of card-layout(s), card-page(s), and/or database connections, and/or contactless encoding, etc. All available card-templates are managed from the [Card Manager](#). How to work with the Card Manager is explained in the [Using the Card Manager](#) section.

### 7.1 The Card Template Manager

In CardExchange® Producer all card-templates are managed via the Card Manager.



The Card Manager is called from the [Configuration](#) tab of the CardExchange® Producer Main window.



In this Card Manager window, all loaded card-templates are presented in a selectable list on the left side. You can check and uncheck card-templates by clicking on the check boxes for the card-template names. Unchecking a card-template means that it will not be visible in the [Explorer Menu](#) under the [Cards](#) tab.

With the buttons on the right side of the Card Manager window you can perform the following actions:

Button	Description
Move up	Moves the selected card up in the <a href="#">Loaded Cards</a> tab
Move down	Moves the selected card down in the <a href="#">Loaded Cards</a> tab
Add	Add a new card-template and opens the card-template wizard
Edit	Opens the card-template in the Designer for editing
Rename	Rename the selected card as it appears in the <a href="#">Loaded Cards</a> tab
Remove	Remove the card-template

By clicking OK, the window will be closed and all changes will be saved. Hitting Cancel will cancel all changes made except the ones done via the Edit functionality.

For more information about how to add new card-templates, please see our "[Add a Card](#)" section of this Help file.

## 7.2 Migrating Version 6 Layout(s)

Although CardExchange® Producer still supports version 6 templates we can imagine that you would like to use your old card-templates with the new Designer and take benefit of all the new functionality offered now. Because we can imagine that you do not want do redo all your existing version 6 card-templates, CardExchange® Producer offers functionality to migrate the old templates to the new version.



When selecting the [Configuration](#) tab, you can find the **Migrate version 6 layout** button. If this button is not shown, please see the "[Advanced Options](#)" section in this Help file and check the **Show Migrate button or menu** option in the Advanced Options window.

When the button is available, simply click on the **Migrate version 6 layout** button and the selected card-template (\*.ced) will be migrated to the new version 7/8/9 format (\*.cedx).



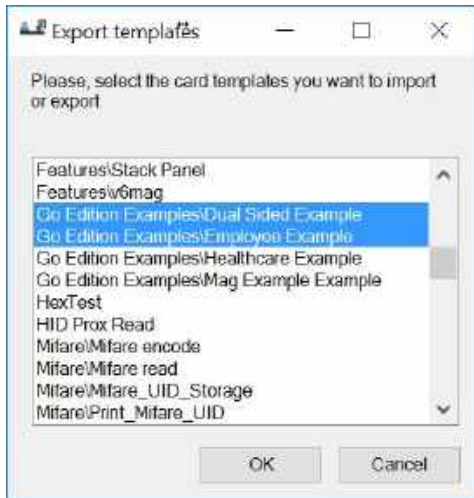
When the card template is migrated, the new template will be loaded and clearly marked as **(migrated)**. You do not loose your original template!

## 7.3 Export Templates



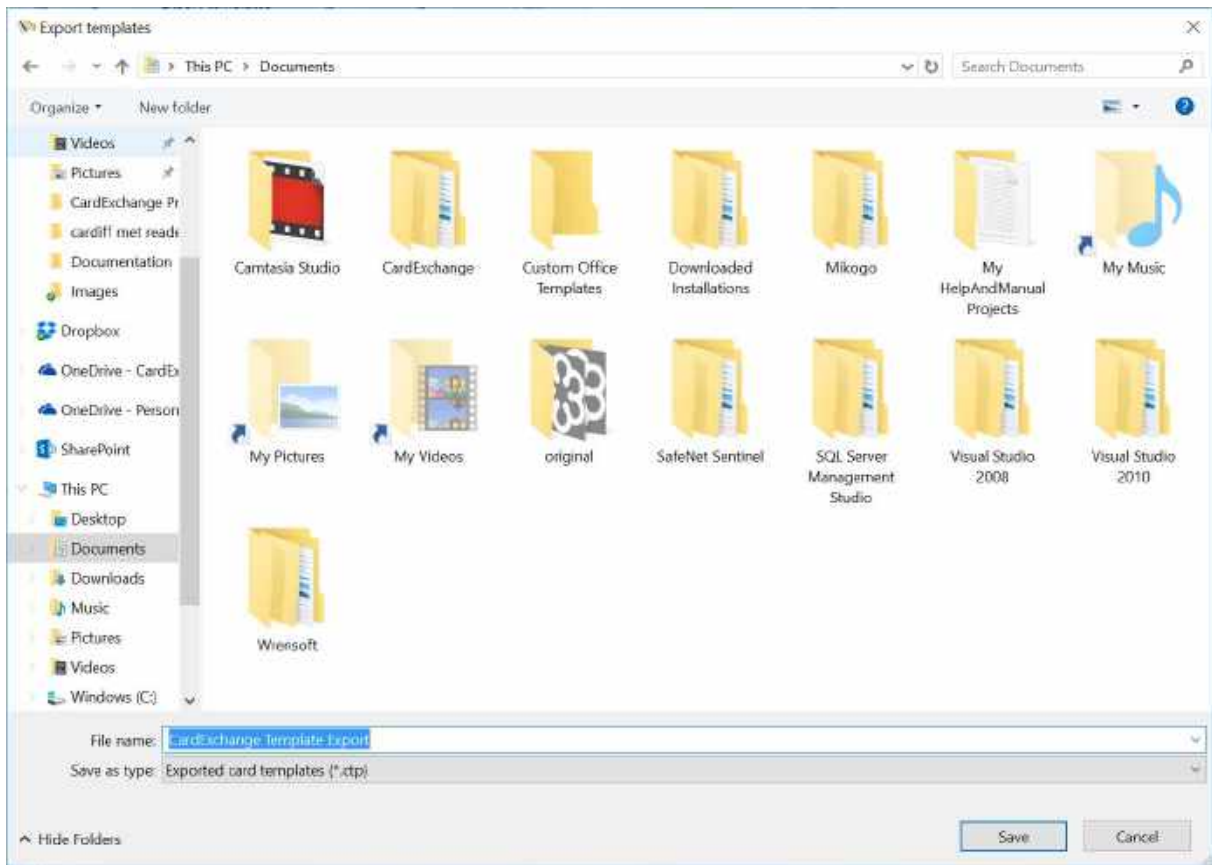
CardExchange® Producer (starting from version 9.1) has the option to export card templates. This includes the card design (.cedx), database definition (.dtd) and any Mifare Definition files (.mfr, .mfd etc..).

This can be beneficial from a support perspective but also from a configuration point of view as designs can be setup prior to an installation.



Clicking on Export template will prompt you to select the desired templates that you wish to export, when you click ok you can specify the location to export them to as well as the name for the exported (.ctp) file.



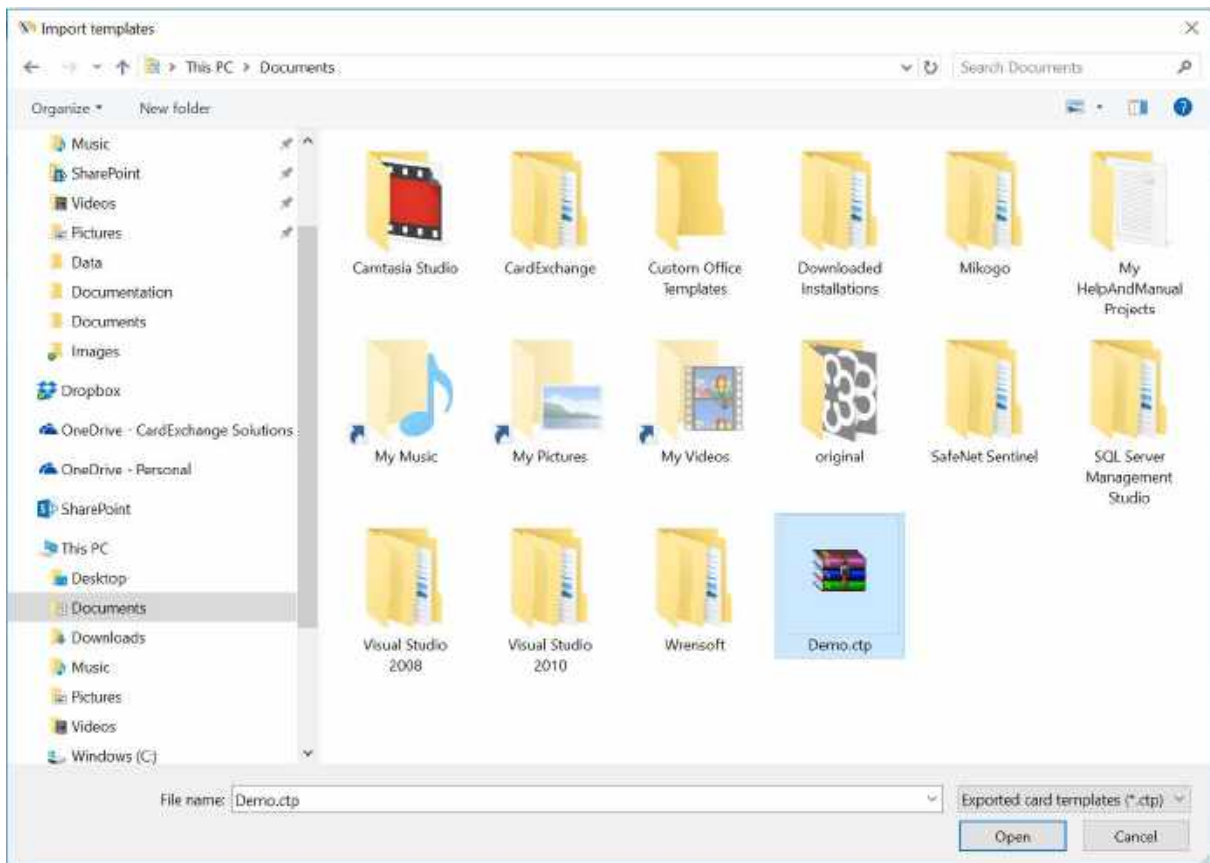


## 7.4 Import Templates

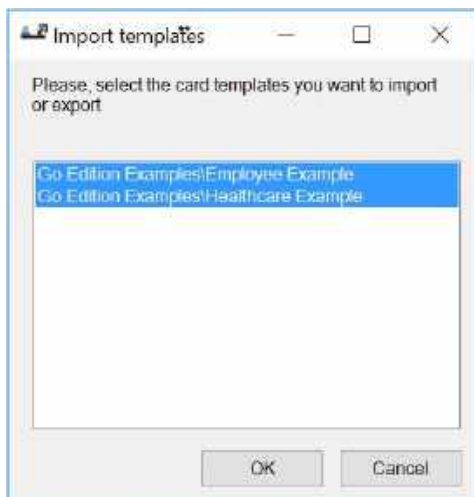


CardExchange® Producer (starting from version 9.1) also has the option to import card templates. This includes the card design (.cedx), database definition (.dtd) and any Mifare Definition files (.mfr, .mfd etc.).

This can be beneficial from a configuration point of view as designs can be setup prior to an installation and imported later.



When you click on Import template you just need to browse to an already exported template and click on open.



As exports can contain multiple templates you can then select which templates you wish to import, by default all templates are selected.

When clicking on OK the template is imported and will appear in the Cards tab of the explorer view in the main window.

## 7.5 Duplicate Templates



CardExchange® Producer also offers the possibility to duplicate an existing card template. This can be useful if you want to have a second card design that has just a few changes from an existing card design.



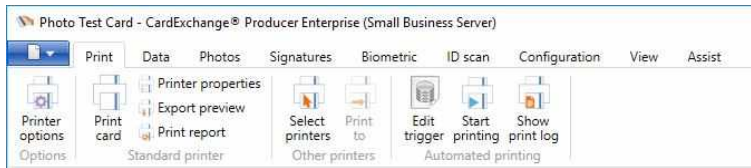
First select the card template that you wish to duplicate, then click on the Duplicate template button. You will then be prompted to enter a new name for the template, this name has to be unique.



Once you click on OK, you will see the duplicated template in the cards tab of the explorer window.

**IMPORTANT!** Duplicated templates share the same database definitions, Mifare definitions and plugin settings as the original template. Any settings changed will apply to both templates.

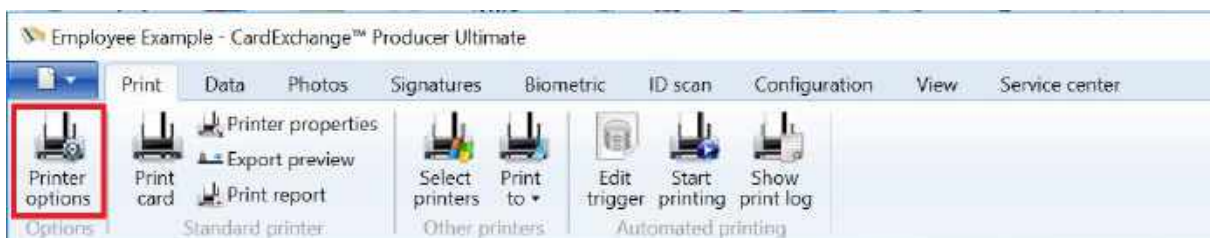
## 8 Printing Cards

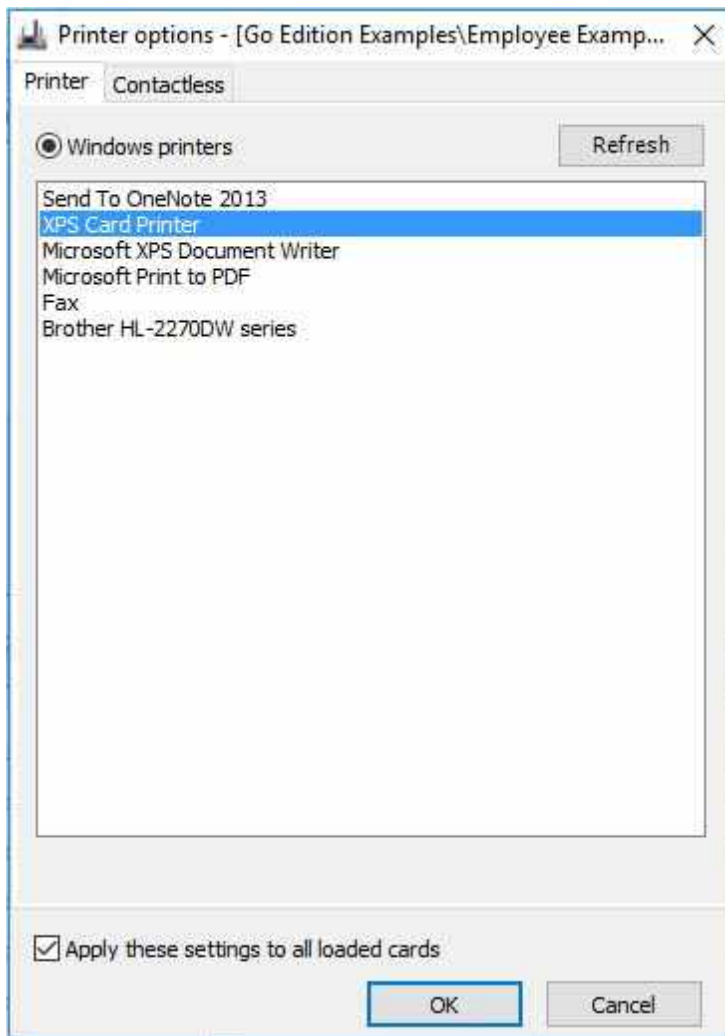


The Print tab is organized in different groups with specific functionality.

Group	Function(s)	Description
Options	<a href="#">Printer Options</a>	Configure your printer(s), Contactless encoding, Magnetic encoding
Standard printer	Print card	Opens the print dialog
	Printer properties	Opens the printer properties dialog of the selected printer properties
	Export preview	Exports a preview of the card as a file
Windows printers	Print report	Opens the Print report dialog
	<a href="#">Select printers</a>	Select printer(s) that can be directly accessed via <b>Print to</b> and the <a href="#">Explorer Menu</a>
<a href="#">Automatic printing</a>	Print to	Print directly to the selected Printer from the drop down menu
	Edit trigger	Edit and activate the printing trigger
	Start printing	Start automatic printing if configured
	Show print log	Show the print log

### 8.1 Select Standard Printers

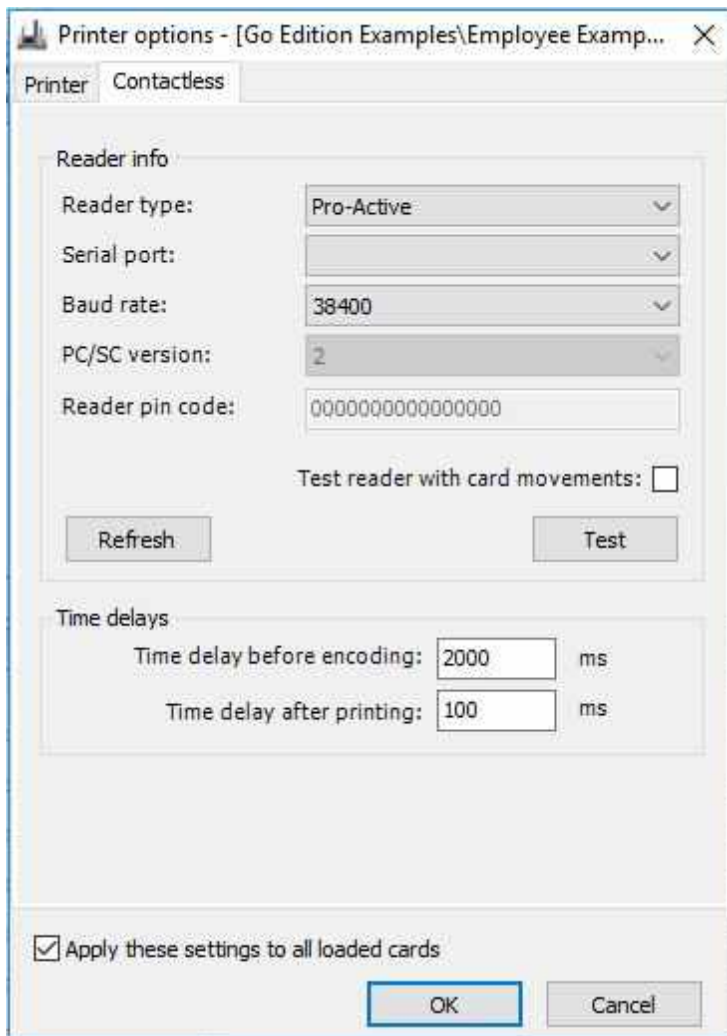




When the printer options window is opened, it will present all the installed Windows Printers on the system CardExchange® Producer is running on. Just select the printer you want to use from the list view and click on OK to confirm.

If you want to use the selected printer for all loaded card-templates, make sure you check "Apply these settings to all loaded cards" otherwise each card-template will have it's own specific printer connected.

## 8.1.1 Contactless

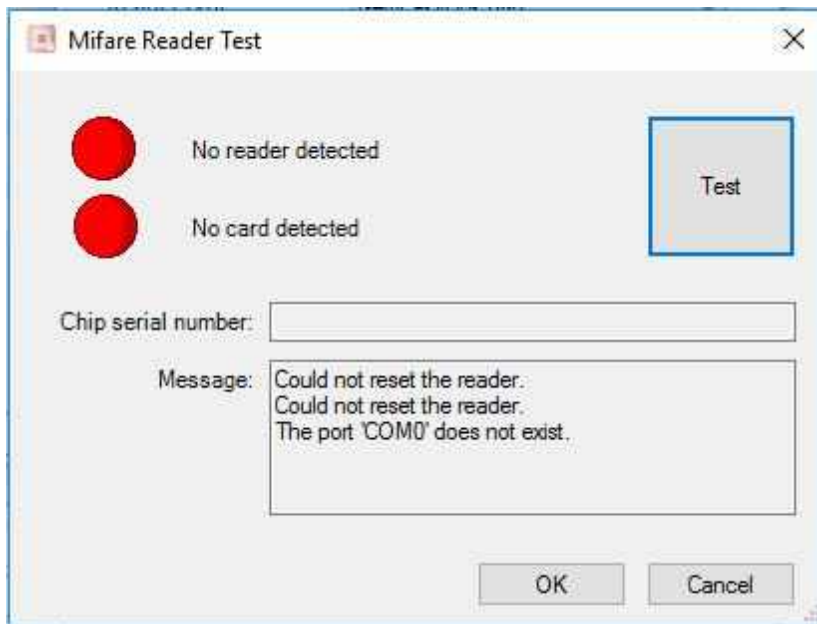


In the Contactless tab you are able to test your hardware configuration for encoding contactless cards.

### The Reader Info Section

- **Reader type** - Select the reader being used inside your printer or externally
- **Serial port** - Select the serial port the reader communicates with (not applicable for PC/SC)
- **Baud rate** - Select the baud rate (speed) of the used reader
- **PC/SC version** - When PC/SC readers are used, select the version 1 or 2
- **Reader pin code** - If reader requires a pin for access, you have to enter it here
- **Test reader with card movements** - Set to True or False

In the Reader Info Section you can also find two buttons. The button Refresh refreshes the list of readers available in the Reader type drop down menu. When a new PC/SC reader is added to the system, this button needs to be pressed to make it available. The second button is the Test button. Depending on card movements setting, clicking this button will move the card to the encoding position of the printer that is selected in the [Printer Options](#) section and will test the reader.



In the reader test window it will indicate if CardExchange® Producer is able to communicate with the reader, if a card is presented, and can read the CSN (Chip Serial Number). These test are clearly marked with Red and Green lights.

When using older printers that works with so called escape commands to move the card in the encoding position, there is no information shared about the exact position of the card in the printer. For these printers we need to set the Time delays in the Time delays section.

There are basically two settings that can be entered; Time delay before encoding and Time delay after printing. The average time delay after printing is round 30 seconds (30.000 ms). On the the moment that the card is electronically processed, it will be set to print position. On that moment CardExchange® Producer will prepare the next card for encoding, when printing multiple cards of course. After 30 seconds, independently of the state the printer is in, CardExchange® Producer will instruct the reader to access the card. With these older printers you will have to play a little with these time delays to get the best results. Don't forget to make sure to check the Configuration settings in the [Advanced options](#) for using Factory or non-factory build in readers.

Factory built in readers normally work via SDK's (Software Development Kits) that give CardExchange® Producer full control of the printer and time delays are normally never needed and can stay in the default settings of 2000 ms.

1 sec = 1.000 ms

Of course, all these setting made can apply for all cards or the selected card only.

For more information about Contactless encoding, please see our [Using Contactless Encoding](#) section of this Help file.

## 8.1.2 Magnetic Encoding

Printer options - [Go Edition Examples\Employee Examp... X

Printer Contactless Magnetic

	Start of data	End of data
Track 1:	~1%	?
Track 2:	~2;	?
Track 3:	~3;	?

Convert all data to upper case

Apply these settings to all loaded cards

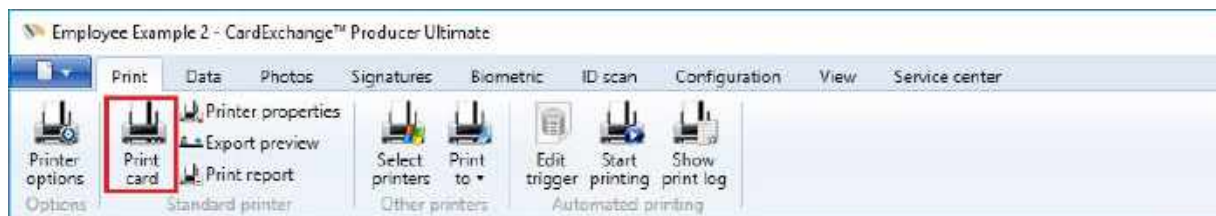
OK Cancel



In the Magnetic tab you can set the start and stop commands for the printers to encode the magnetic stripe. Most common start and stop commands can be found on our [CardExchange® Producer End-Users Forum](#). Of course, these settings can apply to all cards or the selected card only.

**IMPORTANT!** These Start and Stop commands only apply when using the old version 6 Designer! Magnetic encoding via CardExchange® Producer 7, 8 and 9 is explained in the "[Using Magnetic Encoding](#)" section of this Help File!

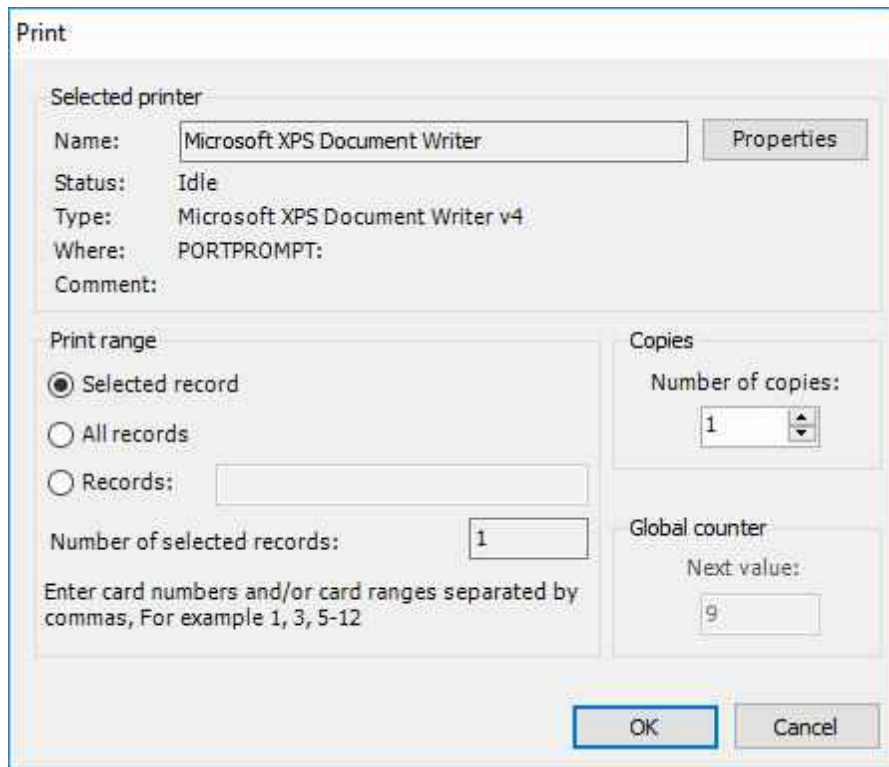
## 8.2 Print Using Standard Printer



There are three ways to print a card to the standard printer.

- Click the **Print** button in the Standard printer section of the Print tab,
- Select the **Print** option in the [Actions Pane](#) or
- Press **Ctrl+P** on your keyboard

If you use the print option in the Actions Pane, CardExchange® Producer will start printing directly, using the default settings. Otherwise, CardExchange® Producer displays the window shown below.



In the **Selected printer** group you can find the information of the printer you are printing too like the **Name** of the printer, the **Status** of the printer, **Type**, etc.

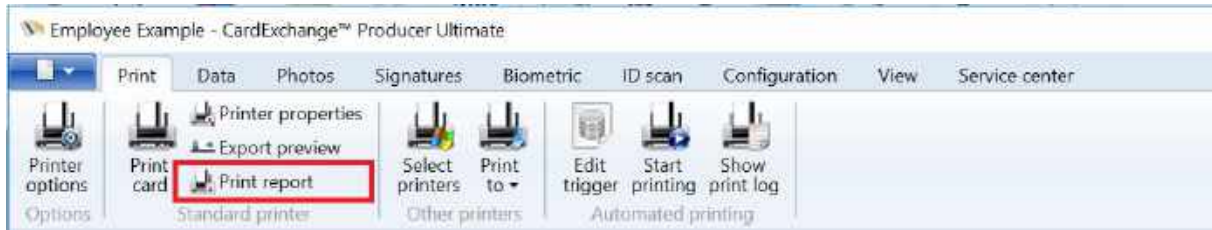
Just like in normal Microsoft Office Applications, in the **Print range** group you can set to print the **Selected record**, **All records**, or a selection of **Records**. The **Number of selected records** is indicated in this named field.

Next to the name, the button **Properties...** gives access to the **printer-properties** window, allowing to adjust any settings before starting to print. Generally, it is not necessary to change the printer properties once they have been defined for the first time.

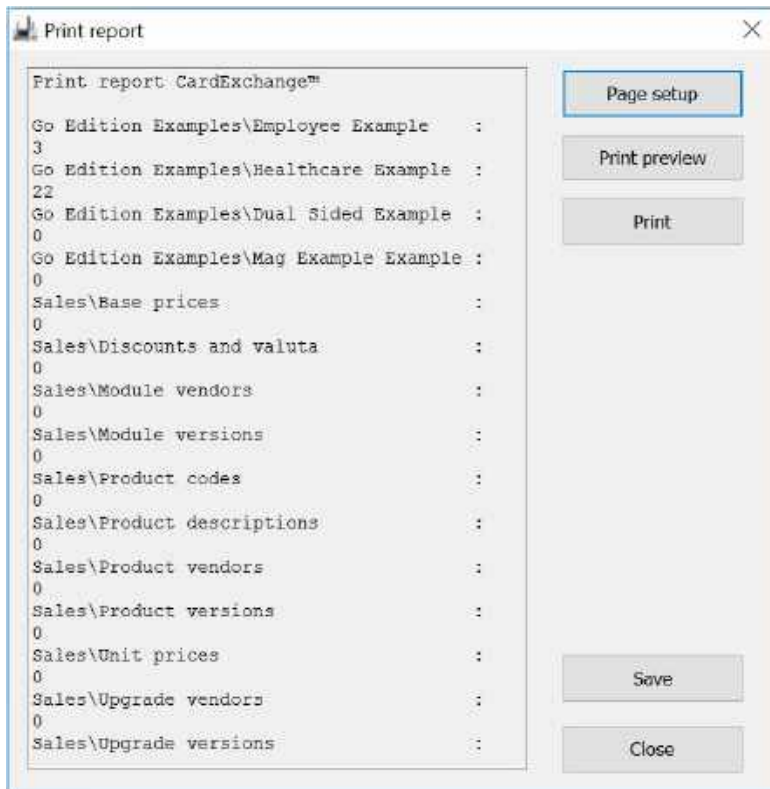
In the **Copies** group you can enter or select the amount of copies that needs to be printed. By default CardExchange® Producer prints one copy.

If the card uses a global counter, in the **Global counter** group you can see the number indicating the global counter number that will be used for the first card to be printed. For each consecutive card the global counter will be incremented by one. The global counter can be edited to change this number to another value. It is up to the user to decide whether changing the default value is necessary.

### 8.3 Viewing the Print Report



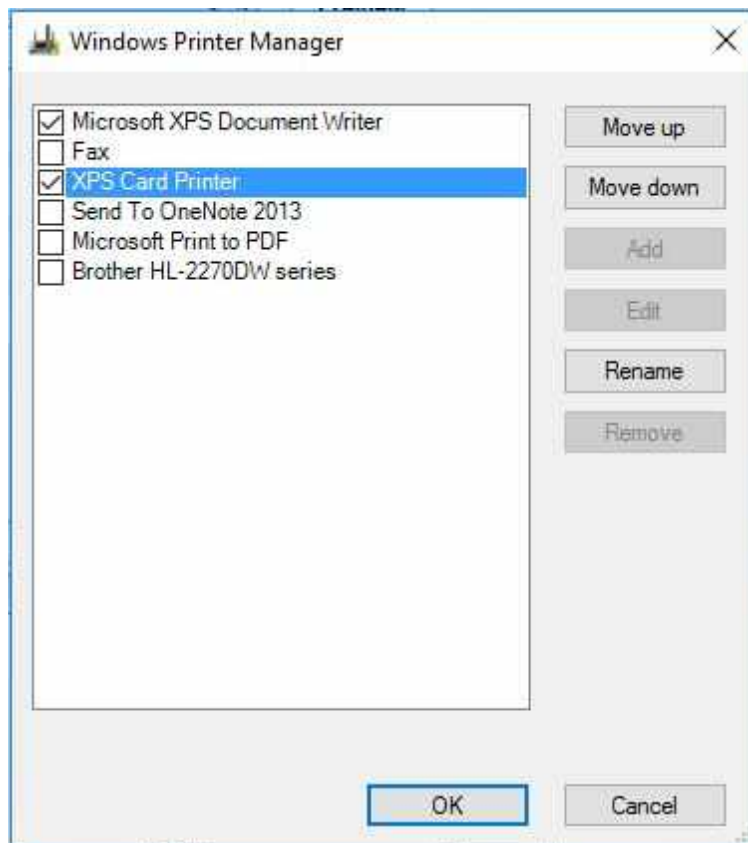
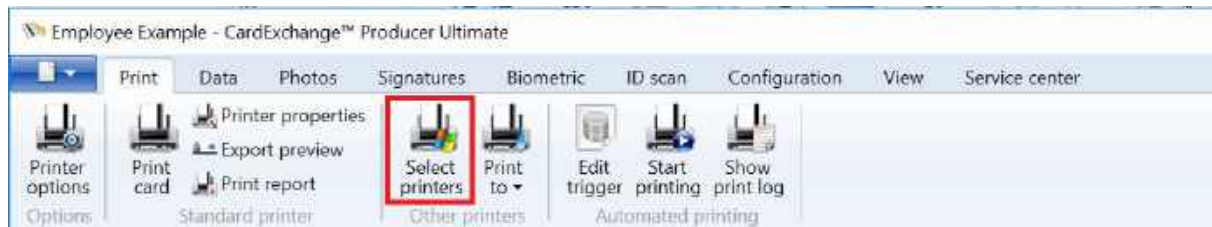
You will find the Print report option under the **Standard printer** section of the **Print** tab. If you click this option, a simple report will be displayed showing how many prints have been made of the loaded cards since the system administrator loaded them into CardExchange® Producer.



The **Print** button allows you to send the summary to a printer. Use the **Page setup** button to specify the layout options you want to use. Use the **Print preview** button to view the result before printing it.

You can also save the summary in a file. To do this click **Save**. Then choose the folder into which you want to save the overview and specify the file name. The summary can only be saved as a text document.

## 8.4 Select Windows Printers

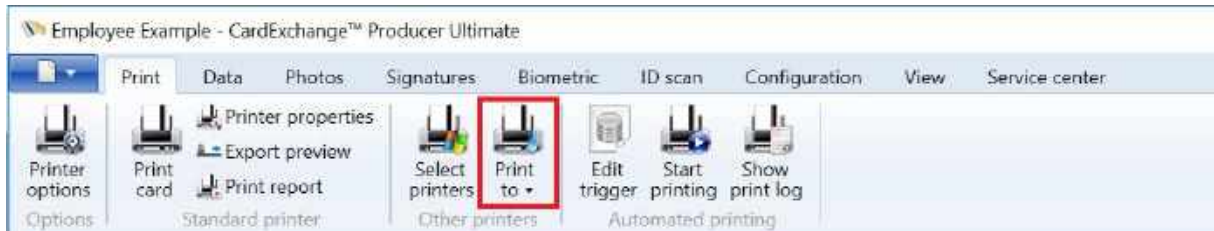


Besides the fact that each card-template can have its own unique printer connected, via the Windows Printers functionality, you can make specific Windows printers available to overrule the default card-template printer which you configure in the [Printer Options](#) section.

When the Windows Printer Manager window is opened, you can make the printer available by checking the check box in the list view. You can also move printers up and down and rename them so they get more understandable names.

The selected printers will become available in [Windows Printers](#) tab under the explorer menu.

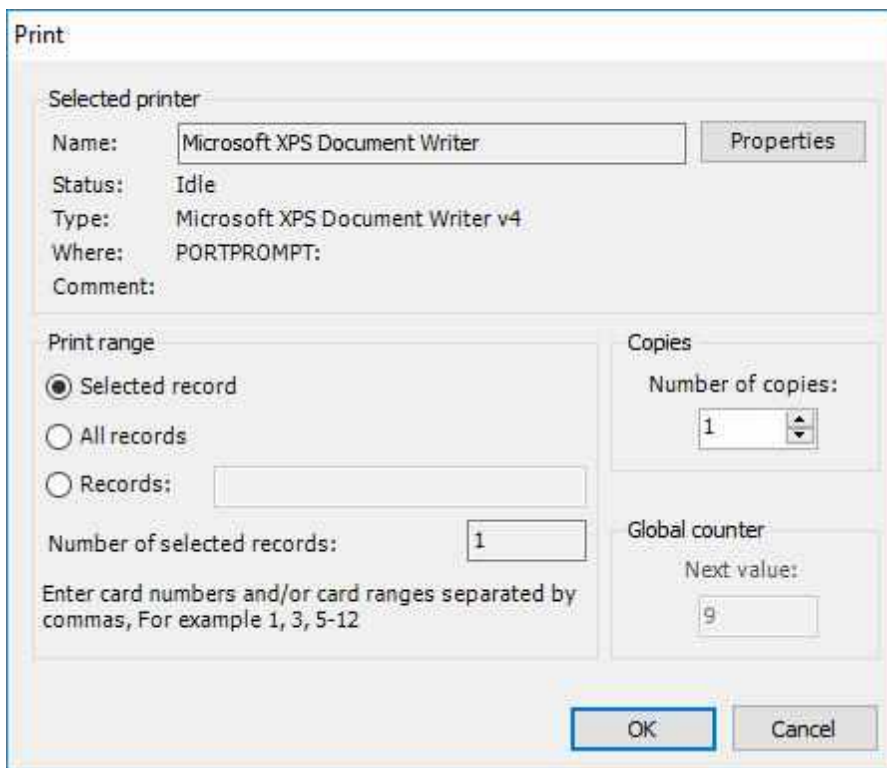
## 8.5 Print Using Windows Printer



There are two ways to print a card to a Windows printer instead of the standard printer.

- Click on the **Name** of the printer in the [Windows printers](#) tab in [Explorer Menu](#) or
- Select the **Printer Name** from the drop down menu in the Windows printers section of the Print Tab.

In both cases, the Print command window appears.



In the **Selected printer** group you can find the information of the printer you are printing too like the **Name** of the printer, the **Status** of the printer, **Type**, etc.

Just like in normal Microsoft Office Applications, in the **Print range** group you can set to print the **Selected record**, **All records**, or a selection of **Records**. The **Number of selected records** is indicated in this named field.

Next to the name, the button **Properties...** gives access to the **printer-properties** window, allowing to adjust any settings before starting to print. Generally, it is not necessary to change the printer properties once they have been defined for the first time.

In the **Copies** group you can enter or select the amount of copies that needs to be printed. By default CardExchange® Producer prints one copy.

If the card uses a global counter, in the **Global counter** group you can see the number indicating the global counter number that will be used for the first card to be printed. For each consecutive card the global counter will be incremented by one. The global counter can be edited to change this number to another value. It is up to the user to decide whether changing the default value is necessary.

## 8.6 Automated Printing

With **Automated Printing** you are able to fully automate the print process for each connected card layout through your own application. That means that when Automated Printing is configured and you add a new record through your own application, for example an **Access control application**, CardExchange® Producer monitors the database from this application and when the new record appears in the database, CardExchange® Producer will automatically print the connected card.

The **Automated Printing** functionality is based on creating triggers on the database. These Triggers are created by means of the powerful [Storage Items](#) in our **Database Connection Wizard**. By setting a trigger condition, like checking if the assigned database field is empty, CardExchange® Producer monitors what happens in your database. Together with this functionality we introduce a new filter level, which will be set independently of any other filter created. These triggers can be set for every connected card template in CardExchange® Producer and for each trigger you are able to set trigger intervals.

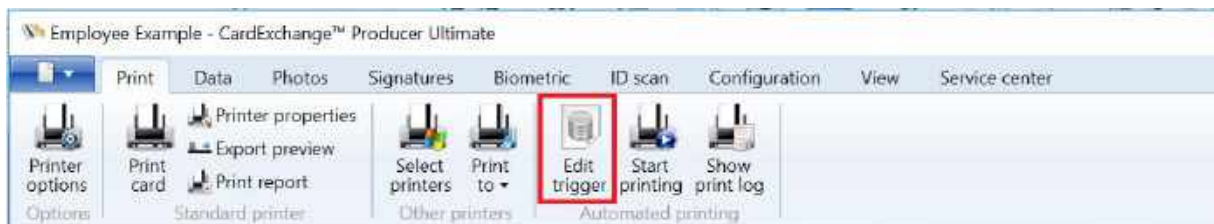
**Automated Printing** allows you to have CardExchange® Producer working in the background, but CardExchange® Producer monitors and reports all jobs that it prints. This window contains information about records that are printed, card-layouts, printer errors, etc.

***IMPORTANT!** Automated Printing is available for the Professional Edition and higher!*

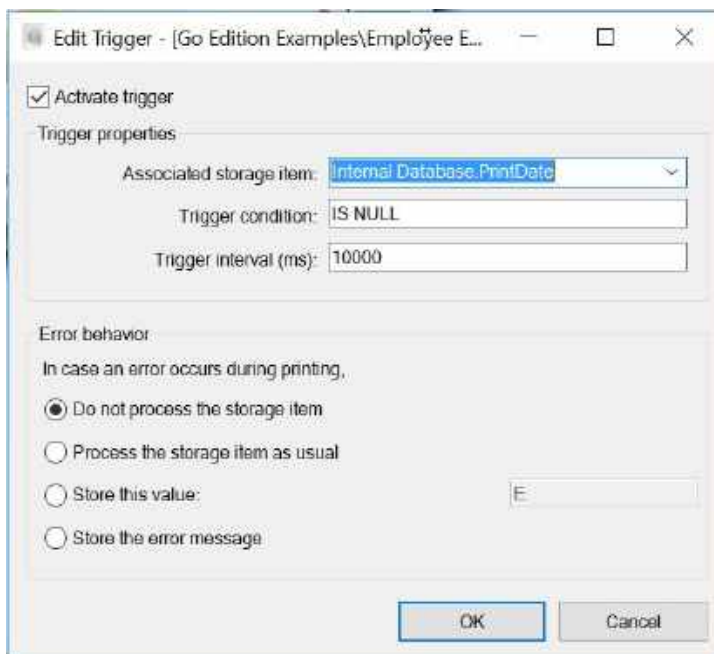
## 8.6.1 Configure

**Automated Printing** is based on creating a trigger on a field in the connected database. This means that for using this functionality, [Storage Items](#) needs to be created. Based on the Storage Item, CardExchange® Producer will monitor any changes of the field. [Storage Items](#) are created when the database connection is made. Connecting to a database and creating storage items is mentioned in section '[Databases](#)' of this Help file.

Considering the fact that the [Storage Item](#) is created we need to address and set the trigger for monitoring the database for changes.



Select **Edit trigger** from the **Automated printing** section of the **Print** tab. This will open the **Edit Trigger** window.



When the **Edit Trigger** window is opened you need to **Activate** the trigger to set all the properties. By checking the check box '**Activate trigger**' you will have access to three important properties. First you need to select the field where CardExchange® Producer needs to trigger on. This can be selected from the drop down menu '**Associated storage item**', here will be all the created storage item presented.

The next step is to set the trigger condition. This condition is executed on the database field. In this case the record will be printed when the triggered database field (**PrintDate**) **IS NULL** (default).

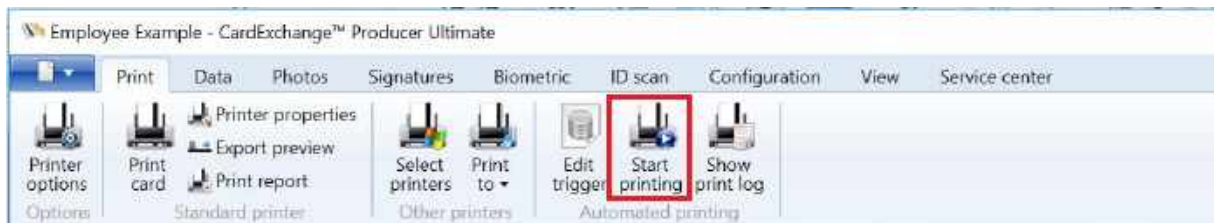
The last step is to set the trigger interval. In this example, CardExchange® Producer will look every 10 seconds if there are records in the database where the **PrintDate field is NULL**. When it finds a field that follows the trigger condition it will print that record.

It is also possible to define the Error behavior in case of something happens during the printing process. You have four different options:

- **Do not process the storage item** - *When an error appears, the storage item is not processed*
- **Process the storage item as usual** - *When an error appears, the storage item will be processed*
- **Store this value** - *When an error appears, the value entered in the text box will be stored*
- **Store the error message** - *When an error appears, the error message will be stored*

Automated printing can be configured for every connected card layout in CardExchange® Producer.

### 8.6.2 Start and Stop



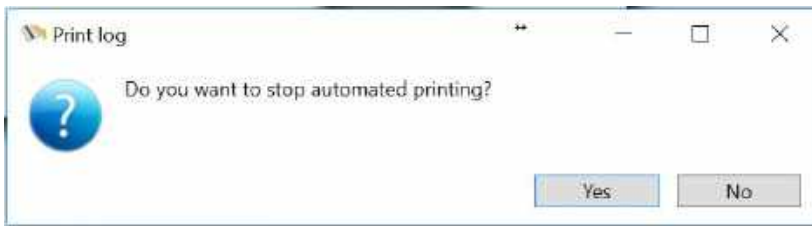
When all the triggers are set and activated we need to start **Automated Printing**. Select from the **Automated printing** section in the Print tab **Start printing**.



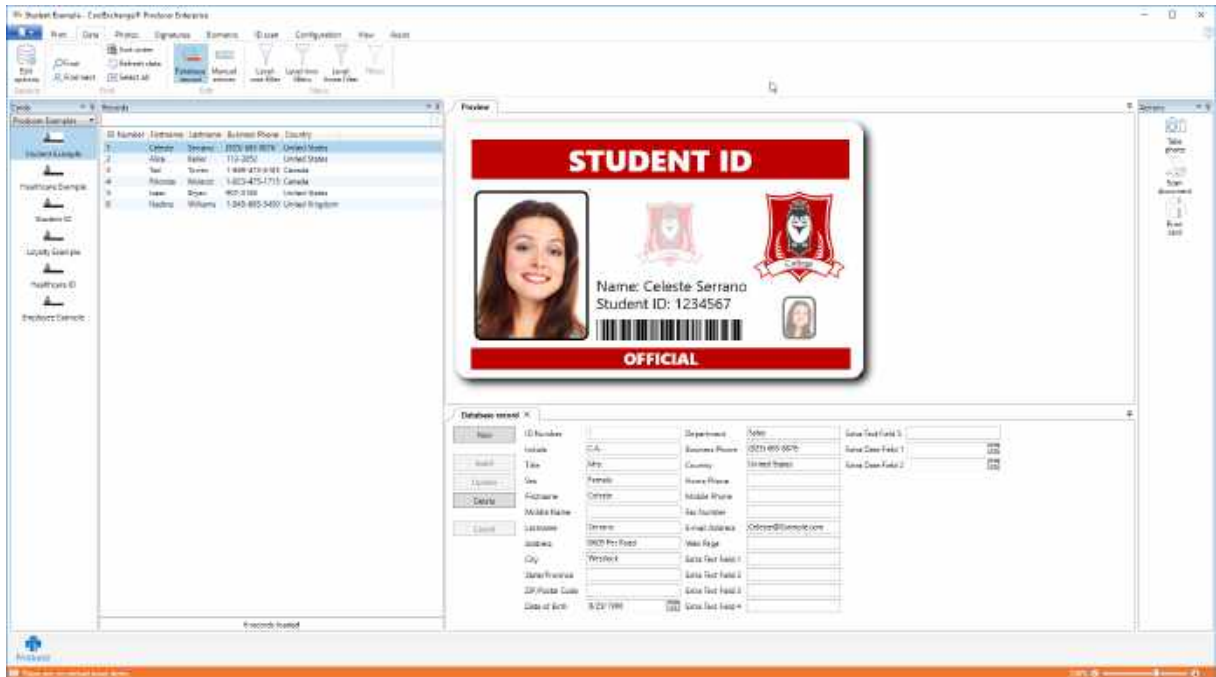
The **Print log** screen will be displayed and it will show all activity of the print server. CardExchange® Producer is locked during the process of **Automatic printing**.



To stop the process just click on the **Stop** button in the **Print log** window and no triggers will be processed.



## 9 Using Data



Viewing and Managing data from a connected database is very important to having a smooth production environment. CardExchange® Producer offers many ways to look up data, enrich data, view data, etc.

In this section of the Help file we will go over all the functionality available like using Filters, Update your Database, etc.

### 9.1 Edit Data

The Database record window gives you direct access to the personal data stored in the database. Provided that the CardExchange® Producer administrator has given you permission to do so, you also can edit this data and add or remove records.



You can open the **Database record** window by selecting **Database data** in the **Edit section** of the **Data** tab. A dockable window will appear in the lower part of the main window. By clicking on the bar with the text Edit database record, you can dock the window to the upper part or to the sides. You can even turn it into an independent window by dragging it to a position away from the edges of the main window. Clicking on the pin will cause the window to minimize. Clicking on the cross will close the window.

On the left part of the docked window, there are five buttons for performing database operations. On the right part, all names and values of the database records that apply to the selected person are displayed. If you select another record, the Edit database record will load automatically the data associated with the selected record.

With the buttons, you can perform three types of database operations: **Insert** records, **Update** records, and **Delete** records. The following sections will describe these actions one by one.

### 9.1.1 Insert Database Records

A database record can be inserted in four steps:

- Open the **Database record** window.
- Click on the **New** button in the **Database record** window. Note that all fields will be cleared in order to enable you to enter new data. The cursor will be positioned automatically on the first field that can be edited. The buttons **Insert** and **Cancel** will be enabled.
- Enter the data you need into the empty fields.
- Click on the **Insert** button to load the data into the database, or on the **Cancel** button if you do not want that.

While inserting a new record, all functions of the main window are disabled. These will be enabled as soon as the **Insert** or **Cancel** button is clicked on. You can only insert a new database records if the administrator has given you permission to do so and if no more than one name has been selected in the name list.

### 9.1.2 Update Database Records

A database record can be updated in four steps:

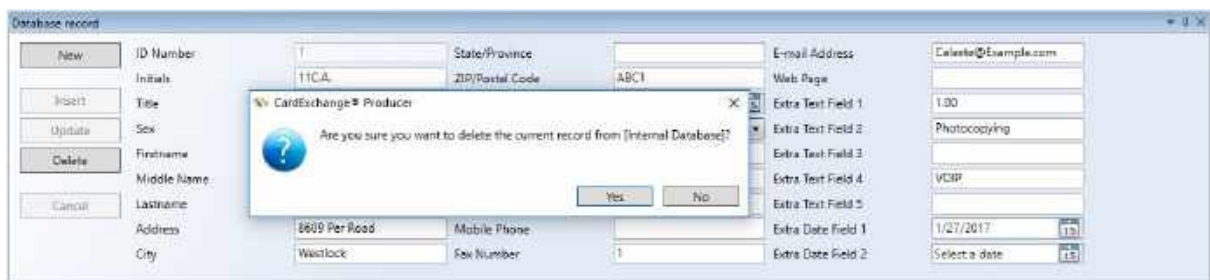
- Open the **Database record** window.
- In the [Data Record View](#), select the record you want to change.
- Click on the field you want to change and change it. Instead of using the mouse, you can also press **F2** to position the cursor on the first field that can be edited and

use the Tab key to move to the desired field. The buttons **Update** and **Cancel** will be enabled as soon as you start typing.

- Click on the **Update** button to load the data into the database, or on the **Cancel** button if you do not want that.

While updating a new record, all functions of the main window are disabled. These will be enabled as soon as the **Update** or **Cancel** button is clicked on. You can only update a database records if the administrator has given you permission to do so and if no more than one name has been selected in the name list.

### 9.1.3 Delete Database Records



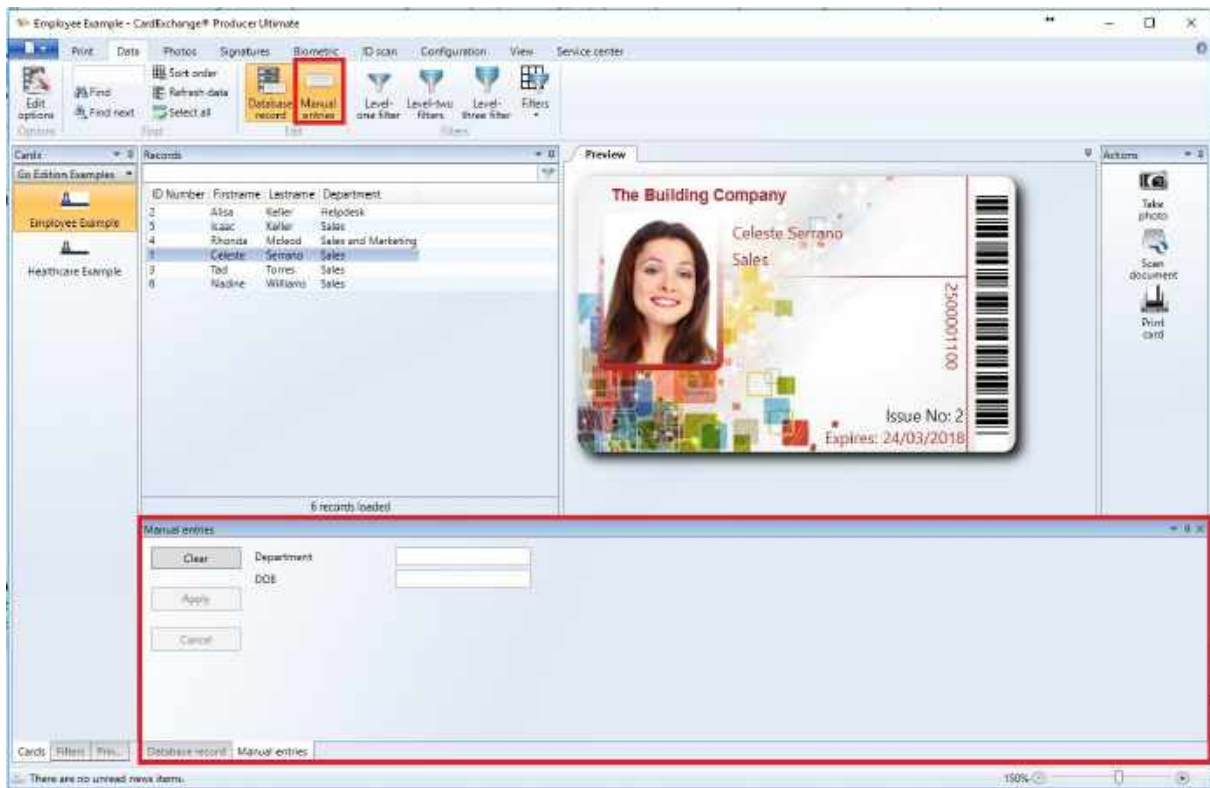
A database record can be deleted in four steps:

- Open the **Edit database record** window.
- In the [Data Record View](#), select the record you want to remove from the database.
- Click on the **Delete** button in the **Edit database record** window.
- Say **Yes** to the question if you really want to delete the record. Say **No** if you do not want that.

You can only delete database records if the administrator has given you permission to do so and if no more than one record has been selected in the [Data Record View](#). So you cannot delete more than one record at the same time.

*Important!* Deleting records from connected MS Excel files is not supported.

## 9.1.4 Using Manual Entries



The **Manual entries** window gives you the possibility to enter data that should appear on the card without the intervention of a database. In order to enable this window, Manual Entries have to be defined. How to create [Manual Entries](#) can be learned in the [Manual Entries](#) section of this Help file. Only these created [Manual Entries](#) will appear in the **Manual entries** window.

You can open the **Manual entries** window by selecting the option **Manual entries** in the **Edit** menu as shown in the screenshot. A so-called **dockable window** will appear in the lower part of the main window. By clicking on the bar with the text **Manual entries**, you can dock the window to the upper part or to the sides.

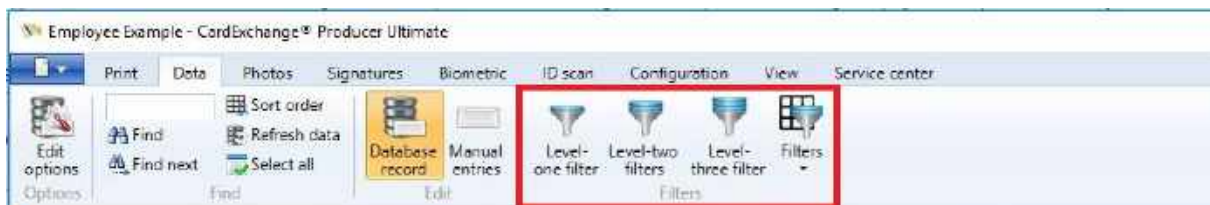
You can even turn it into an independent window by dragging it to a position away from the edges of the main window. Clicking on the pin will cause the window to minimize. Clicking on the cross will close the window.

In the example shown above, the administrator has defined four [Manual Entries](#). For each [Manual Entries](#) a text box appears where the operator can type data. The left part of the window shows a **Clear** button that can be used to clear all text boxes before typing new data. While typing data, the **Apply** and **Cancel** buttons are enabled. The **Apply** button should be pressed in order to confirm the data entered and display it on the print preview.

By pressing the **Cancel** button, the manual data entry is canceled and the former values are restored.

## 9.2 Filters

If you have a very large database, initial loading or refreshing the list of names can take some time. If the only reason to refresh the data is to retrieve the details of one person, you will probably consider it a nuisance to have to wait until the entire list of names has been loaded. Therefore, CardExchange® Producer offers you the possibility of filtering out the data you do not need at the database level. To do this, you have to access the Data tab.



CardExchange® Producer has three distinct filter levels. The **first level** is a filter that is defined by the administrator and that is always applied. Using this filter, the administrator can avoid that the user has access to certain records in the database. For example, if there is an employee table, this filter can be used to show only employees that are still in service and hide any historical information. It is very likely that the user is not even aware of the fact that a level-one filter is applied. However, it is useful to know that this filter type exists. It helps to understand, for example, why a certain record is visible in another application but not in CardExchange® Producer.

The **second filter** level consists of a series of named filters that the operator can activate or deactivate freely in order to limit the number of names shown in the [Data Record View](#). The filters at this level are defined and named by the administrator. The filter names are shown as buttons in the [Filters Tab](#) of the [Explorer Menu](#). By clicking on a filter button or menu option, the filter in question is activated while all other filters are deactivated. By clicking the button or menu option with the text (no filter) all filters are deactivated. The status bar shows which level-two filter is active. In the above screen shot, one level-two filter called "No photo" has been defined and is shown in the tool bar.

Level-two filters are meant to divide the records in the [Data Record View](#) into logical groups. With a single mouse click, the operator can limit the records shown in the [Data Record View](#) to a specified logical group.

For example, one could define a level-two filter for each school class (if the card has been coupled to a students database). Other possibilities are creating a level-two filter for each employee for whom there is no photo in the database, or all employees for whom more than one card has been printed. It is not possible to activate two level-two filters at the

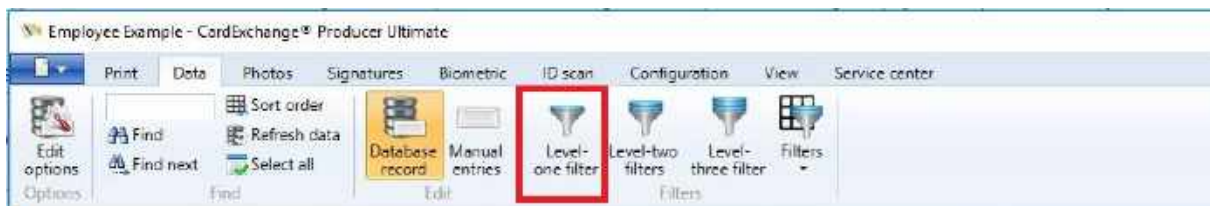
same time, but you can use levels one and two simultaneously. After all, a user can never deactivate the first level, not even by selecting the button (no filter).

Finally, there is also a **third filter level**. This level can be switch on or off by the administrator. When activated, the user himself can determine in what manner he wants to filter his data. Every time he requests information from the database (for example, by selecting Refresh data under the Data ribbon tab section Find), a window prompts for the desired filter conditions.

***IMPORTANT!** For using filters the Premium Edition or higher is needed!*

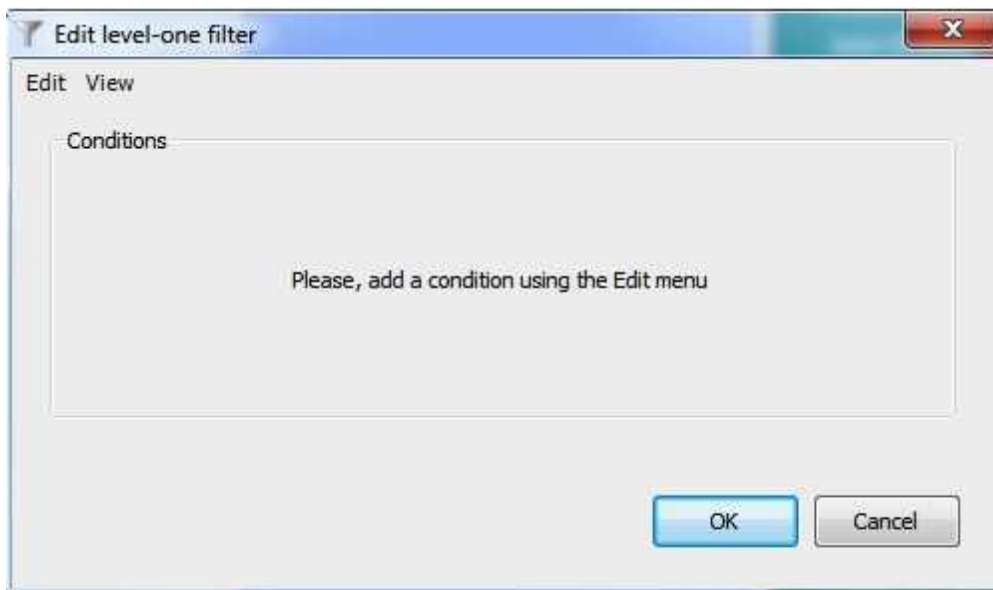
### 9.2.1 Level One Filters

The level-one filter is normally defined by the administrator and is that filter that always applies. Using this filter, the administrator can avoid that the user has access to certain records in the database. For example, if there is an employee table, this filter can be used to show only employees that are still in service and hide any historical information. It is very likely that the operator is not even aware of the fact that a level-one filter is applied. However, it is useful to know that this filter type exists. It helps to understand, for example, why a certain employee is visible in another application but not in CardExchange® Producer.

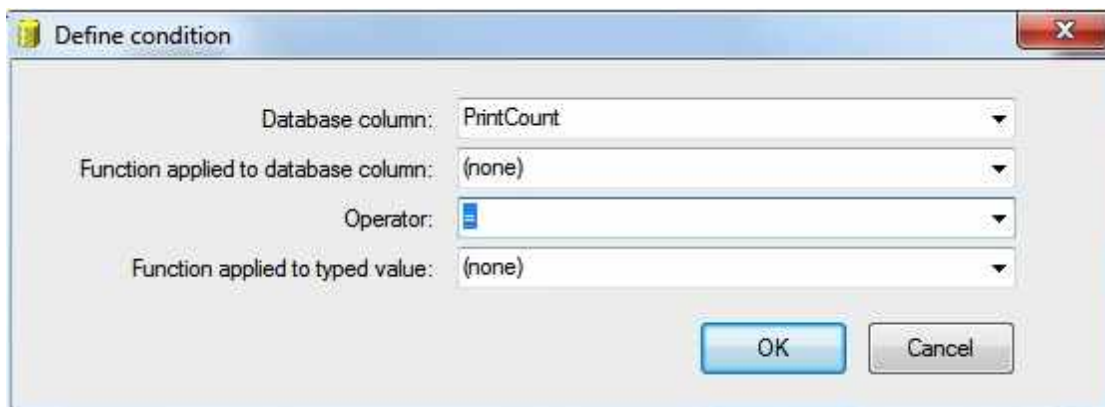


The **Level One** filter can be edited by choosing the option Edit level-one filter in the Filters section. If no filter has been defined before, the following window appears:



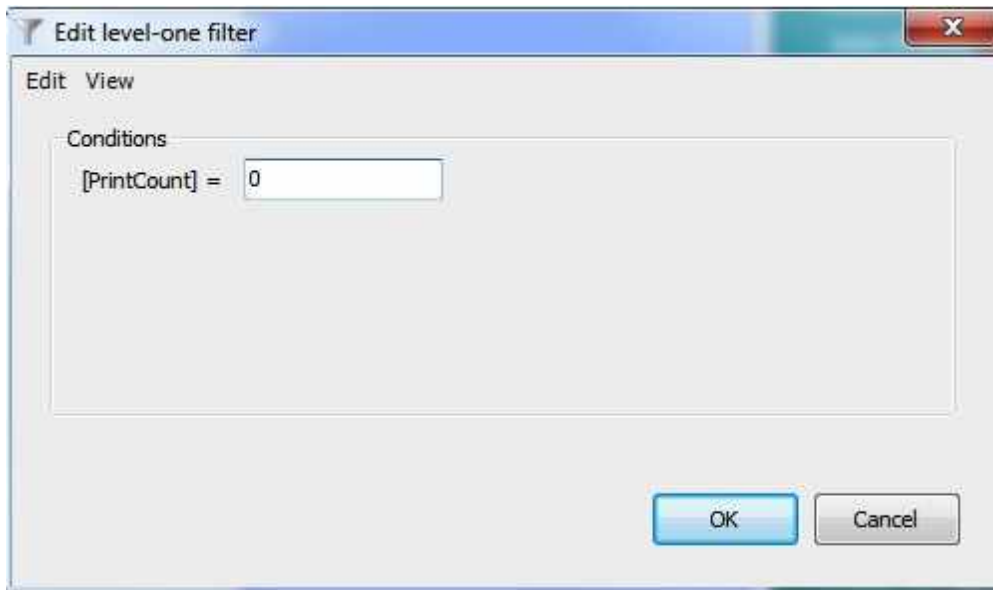


Now, you can add a filter condition with the menu option **Add conditions** in the **Edit menu** (you can also press the Insert key). A screen will be shown in which you can choose the database column and functions and operators to use in your filter. In the example below the column **PrintCount** is used for filtering, without applying any database function. The result is compared to the entered value using the is-equal-to operator.



*Note!* The functions and operators you can choose are database dependent.

Once you clicked **OK** to close the filter-definition window, the new condition will appear as follows. You can use the text box to enter the value to which you want to compare. In the example below the filter only passes records for which the field **PrintCount** is equal to zero.

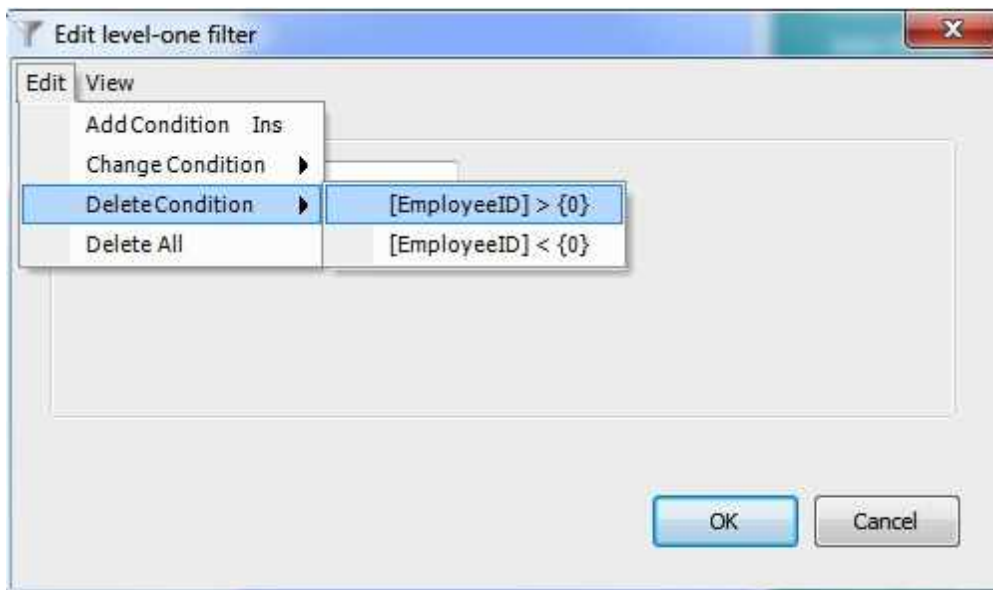


In the same manner, you can enter a second condition. In fact, there is no limit on the number of conditions. Each condition will have its own field in which values can be entered. When using multiple conditions, the following rules apply:

- If you leave a field empty, the condition will not be applied,
- If you enter values for more than one condition, only records are selected that meet both conditions,
- If you type null or NULL and the operator is = or LIKE, only records are selected for which the database column contains a null value,
- If you type null or NULL and the operator is <>, != or NOT LIKE, only records are selected for which the database column contains a value,
- If you type null or NULL with another operator, no records are selected.

When you click on the **OK** button, the **Level One** filter will be applied immediately. The next time you choose **Edit level-one filter**, the conditions will displayed exactly as defined before. With the Edit menu, you can change or delete them, or add more conditions.

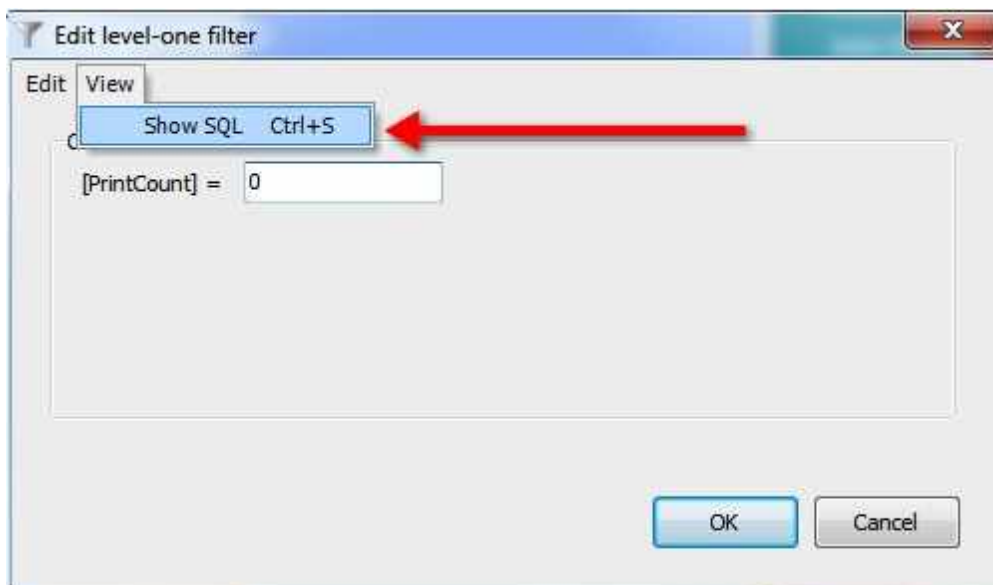
It is also possible to Change or Delete your conditions.



Just select **Change Condition** or **Delete Condition** from the Edit menu. You can also **Delete All** at once.

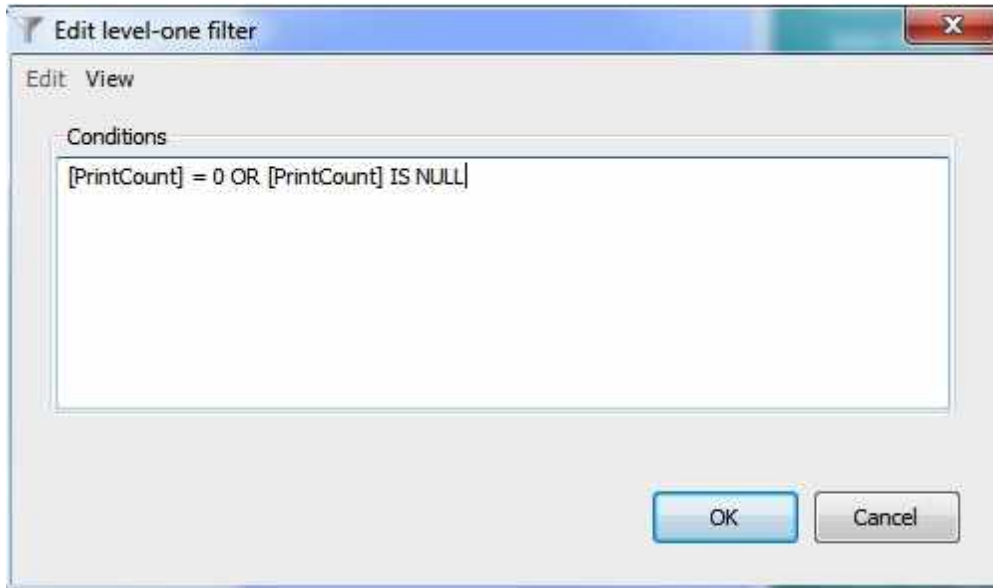
Please visit the "[Tips and Tricks](#)" section of this Help file for more information about configuring filters.

#### 9.2.1.1 The SQL View



In a limited number of situations, the standard **Level One** filter described in the previous section does not offer the flexibility needed to define the desired restrictions. In that case, you have the possibility to choose the option **Show SQL** in the **View** menu of the **Edit level-one filter** window.

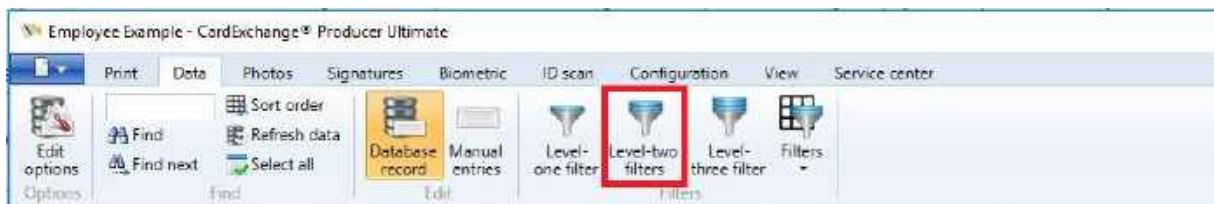
In this window, you can define your **Level One** filter using the SQL of the connected database. By default, you will see the SQL equivalent of the conditions defined in the standard view of the **Level One** filter, but you can change it the way you want.



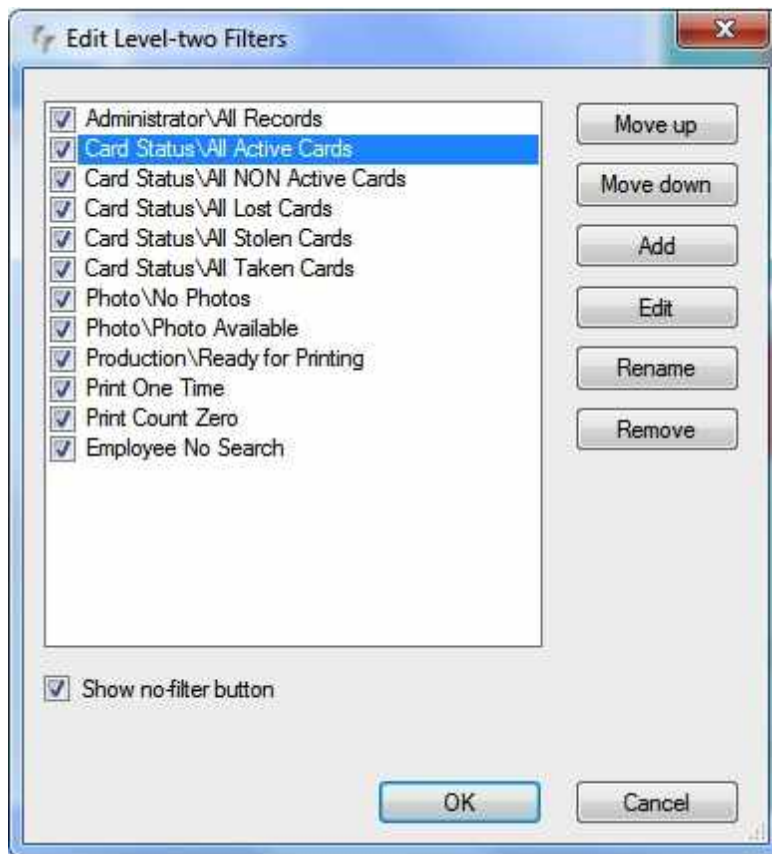
The SQL you enter will be stored in the internal database, but will be lost if you switch back to the standard view. In that case, you will see the conditions as you defined them before activating the **Show SQL** option.

## 9.2.2 Level Two Filters

**Level Two** filters are a series of named filters that the operator can activate or deactivate freely in order to limit the number of records shown in the [Data Record View](#). They are normally defined and named by the administrator. The filter names are shown as **buttons** in the [Filters Tab](#) of the [Explorer Menu](#). By clicking on a filter button with the text (no filter) all filters are deactivated. The status bar shows which Level Two filter is active.



Adding **Level Two** filters starts by clicking on the **Edit level two filters** button in the Filters section of the Data tab.



The Window that opens manages the different created **Level Two** filters. This manager offers you to add or edit new and existing filters, rename or remove them, or change the position in the [Filters Tab](#) of the [Explorer Menu](#) by moving them up or down. Administrators can protect normal operators to view all data by not presenting the No filter button to the user. By deselecting the 'Show no-filter button' the user will only have access to data that is offered when executing the defined **Level Two** filters.

Adding new filters works exactly the same as described in the section [Level One Filters](#). In fact, for adding a **Level Two** filter, you can follow the same procedure and there is no need to repeat the actions here. After adding a condition via the **Edit menu**, your window will look similar to the one shown below.

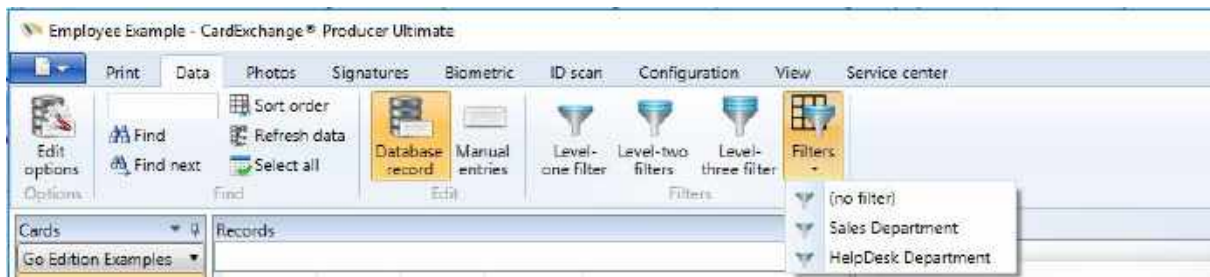


One major difference with the Level One filters is that with the Level Two filters you can define that a condition needs to be asked when the filter is activated. In the screenshot you see that "[Photo]=NULL". When we check "Ask for condition when activated", a window will pop-up asking you to enter the condition for the filter. This can be handy if you create a filter that looks up a employee or student numbers. After clicking **OK**, you will be prompted to enter a name for the filter.



When entering a name for the filter, just like with the card templates, also the filters can be divided into groups. As in the screenshot above, everything before the backslash '\' is considered to be the **Group Name** and is selectable in the drop down menu directly under the [Filters Tab](#) of the [Explorer Menu](#). Everything behind the "\" is considered as the name of the filter appearing as the **button**. Of course you can also directly enter only the name for this defined filter.

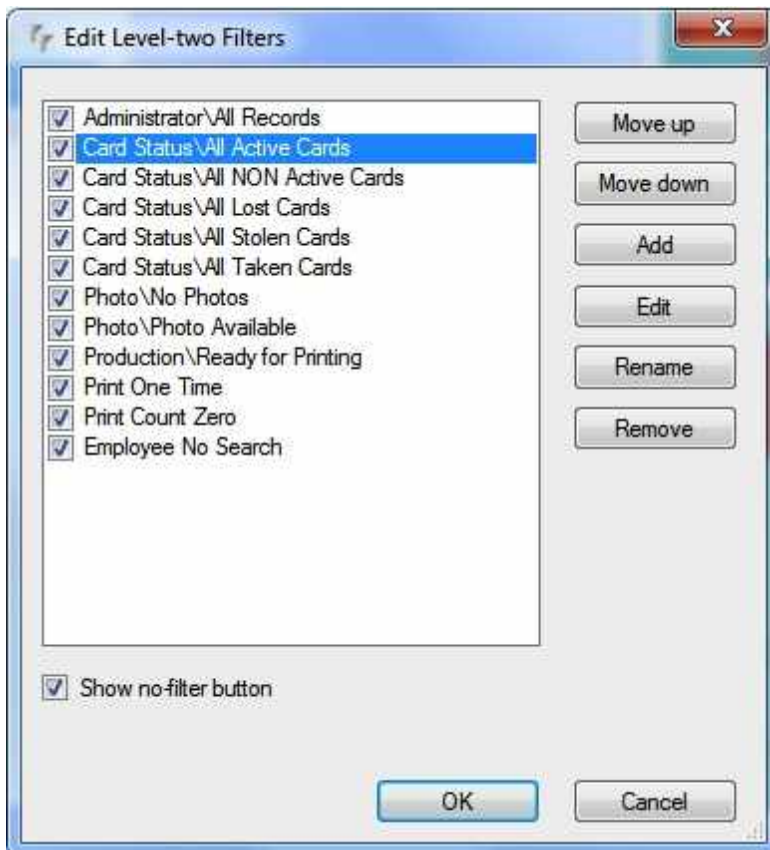
Click on OK to save the filter, the filter will be shown in the [Filters Tab](#) of the [Explorer Menu](#). The defined Level Two Filters are also available via the drop down menu in the **Filters** in the **Filters** section of the **Data** tab.



Furthermore, the filter will be applied, showing you how the defined conditions actually affect the data in the [Data Record View](#).

### 9.2.2.1 Edit Level Two Filters

Existing **Level Two** filters can be **Edited**, **Renamed** and **Removed** by choosing Edit level-two filters from the Data tab, the following window appears:

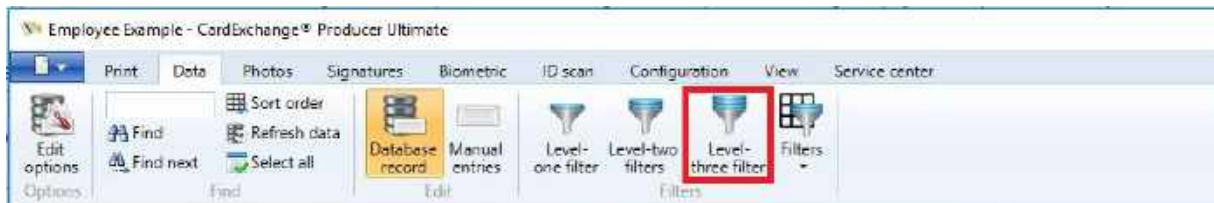


In the list box, you see all **Level Two** filters that have been defined. With each **Level Two** filter you can perform one of the following actions:

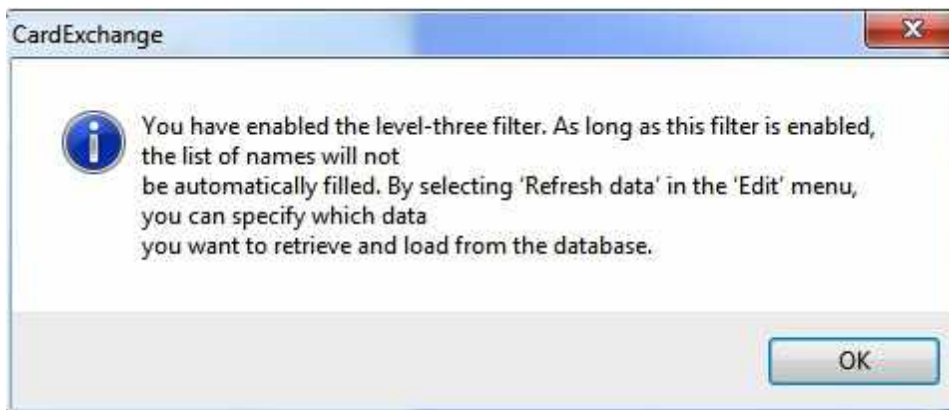
- Hide the filter (without removing it) by deselecting the check box that appears before the filter name.

- Change its position in the [Filters Tab](#) of the [Explorer Menu](#) by using the **Move up** and **Move down** buttons.
- Add a new **Level Two** filter by clicking on the **Add** button
- Edit the conditions that make up the filter by clicking the **Edit** button.
- Change its name by clicking the **Rename** button and entering another name.
- Remove the filter by clicking the **Remove** button and confirming that action by clicking Yes.
- Show or don't show the No filter button

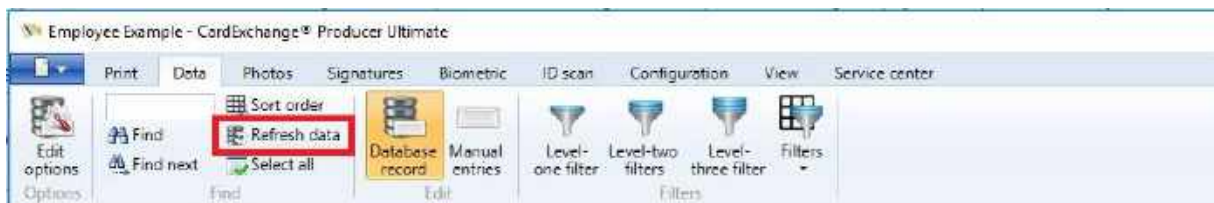
### 9.2.3 Level Three Filters



Generally, activating the Level Three filter can only be done by the administrator and is done via selecting the **Enable level three filter** button in the **Filters** section. If authorized, you can activate the **Level Three** filter by checking the **Enable level-three filter** option in the Data tab. CardExchange® Producer will display the following warning message to make clear that the [Data Record View](#) will no longer be automatically filled.

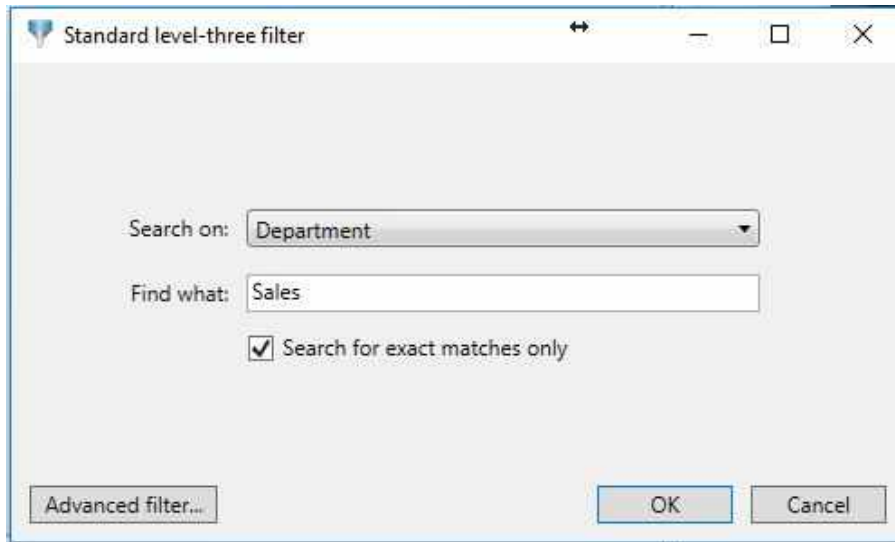


So do not be surprised if you no longer see any records. When activated, the operator himself can determine in what manner he wants to filter his data.





Every time the operator requests information from the database, for example, by selecting **Refresh data** in the **Find** section or pressing **F5** on the keyboard, a window prompts for the desired filter conditions.



In this standard window you have the option to search on any field in the connected database.

In the **Find what** text box you enter the information you are looking for and if you want to find exact matches only, you have to select the '**Search for exact matches only**' check box.

Now if you click on OK, CardExchange® Producer will execute the SQL directly to the connected database and will present the result in the [Data Record View](#).

The advantage of this filter is that when connecting to databases with hundred of thousands of records, you only load the information needed for your production without constantly loading the [Data Record View](#) with information that is not needed.

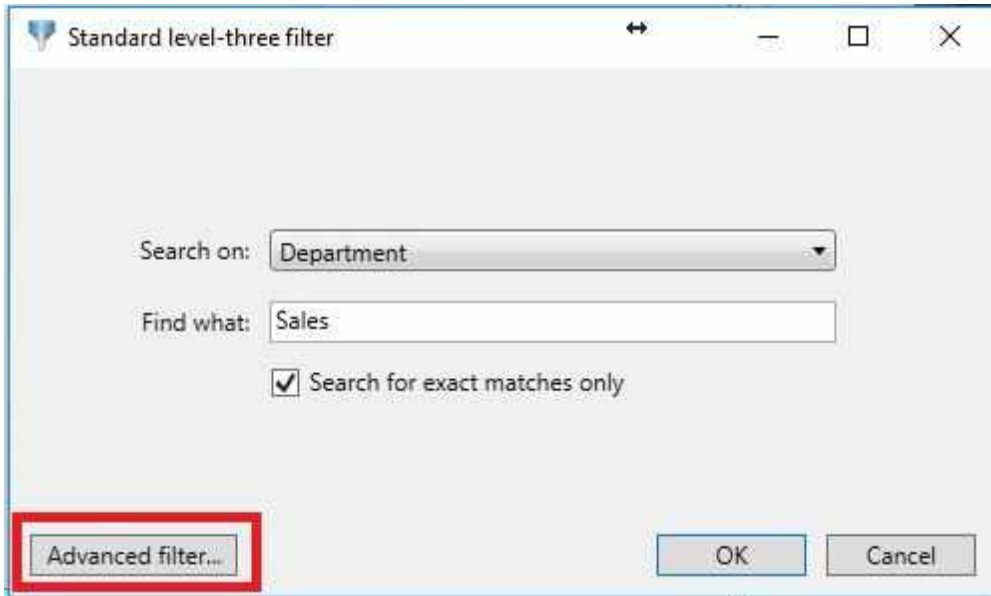
An example using this filter could be when taking pictures of students. The student enters the room, the operator enters the student number into the Find what field, hits OK to search, when the record is found, takes a photo of the student, and saves the record.



Disable the filter by clicking on the 'Disable level three filter' button and click on Refresh data or press F5 to reload the database data into the [Data Record View](#).

### 9.2.3.1 The Advanced Filter

In case the standard **Level Three** filter does not offer the functionality you need to select the desired records, you can switch to the **Advanced Level Three** filter.



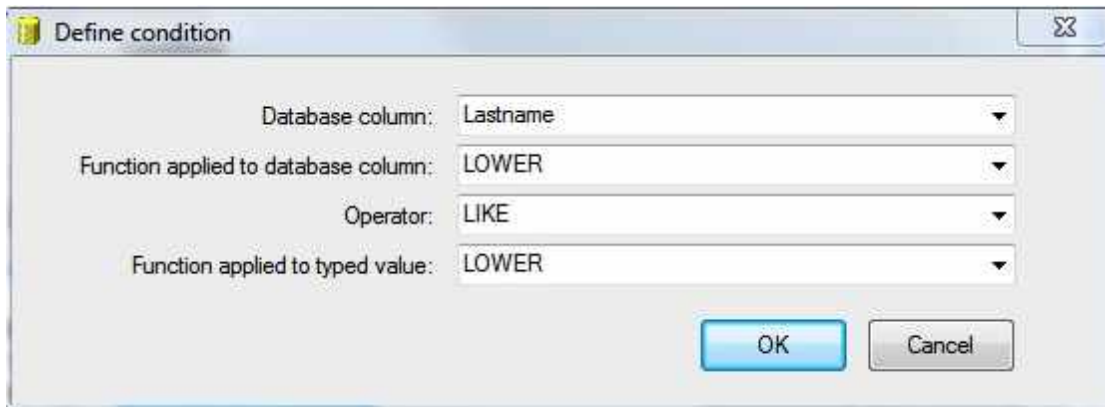
This is achieved by switching on the **Level Three** filter, calling the standard filter by choosing **Refresh data** or using the **F5** button on your keyboard, and clicking the **Advanced Filter** button and the following window will be shown:



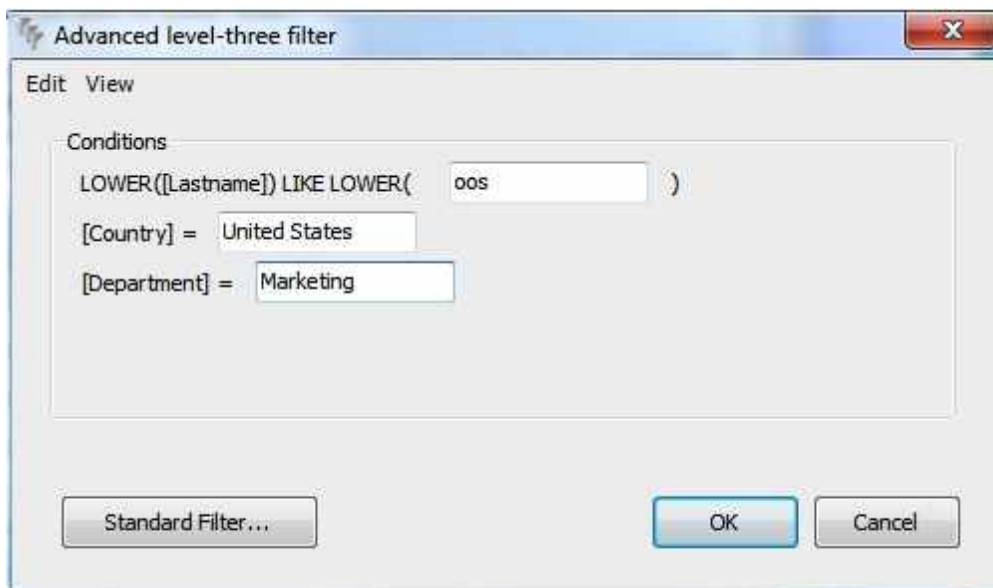
Now, you can decide yourself which database columns you want to use for filtering. You can add filter conditions with the menu option **Add conditions** in the **Edit menu**. A screen

will be shown in which you can choose the database column and functions and operators to use in your filter.

In the example below the column **Lastname** is converted to lower case characters using the function **LOWER**. The result is compared to the entered value using the **Like** operator. The functions and operators you can choose are database dependent. For example, the function **LOWER** exists in **SQL SERVER**, but not in **MS Access**. In the latter case, you can use the **LCase** function to convert the characters to lower case.



Once you have defined some conditions, the advanced database filter window will look something like screen shot shown below.



In the text boxes you can type the values that complete the conditions. These have to meet the following rules:

- If you leave a field empty, the condition will not be applied,

- If you enter values for more than one condition, only records are selected that meet both conditions,
- If you type **null** or **NULL** and the operator is = or **LIKE**, only records are selected for which the database column contains a null value,
- If you type **null** or **NULL** and the operator is <>, != or **NOT LIKE**, only records are selected for which the database column contains a value,
- If you type **null** or **NULL** with another operator, no records are selected.

When you click on the **OK** button, all the records that meet the conditions are retrieved from the database.

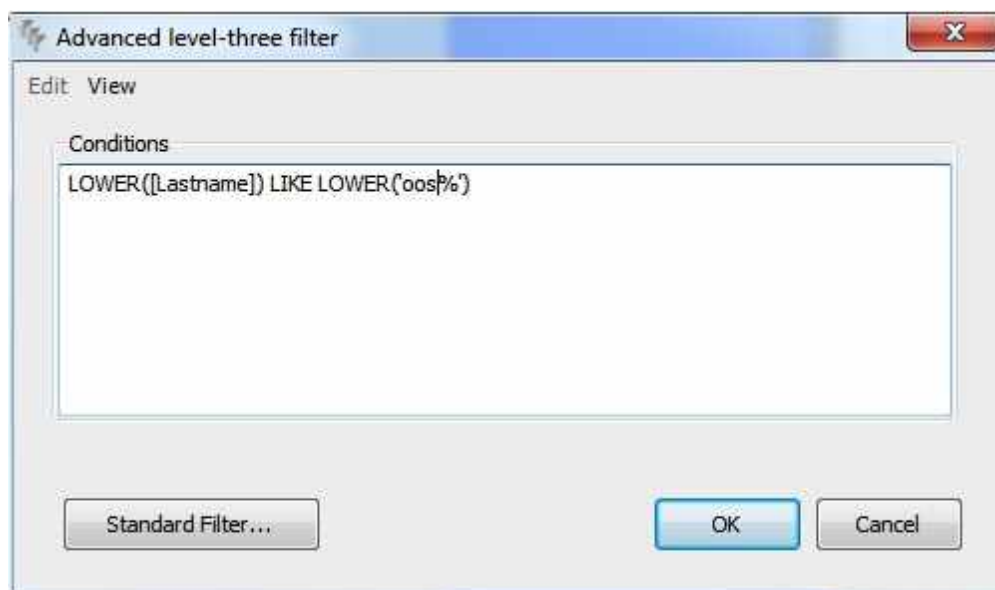
With the Edit menu, you can change and delete existing conditions. All definitions are stored in the internal database of CardExchange® Producer and will be reloaded in the next session.

CardExchange® Producer remembers that you want to use the advanced filter for the current database connection. The next time you refresh the data with **F5**, the advanced filter window will open immediately and there is no need to pass through the standard filter window.

With the button **Standard filter**, you can always return to the previous situation.

#### 9.2.3.2 The SQL Filter

In a limited number of situations, even the advanced filter does not offer the flexibility needed to make the precise selection. In that case, you have the possibility to choose the option **Show SQL** in the **View menu** of the **Advanced database filter** window. The following screen will be shown:



In this window, you can define your filter conditions using the SQL of the connected database. By default, you will see the SQL equivalent of the conditions defined in the **standard view** of the **advanced filter**, but you can change it the way you want. The SQL you enter will be stored in the internal database, but will be lost if you switch back to the standard view. In that case, you will see the conditions as you defined them before activating the Show SQL option.

## 9.2.4 Tips and Tricks

### Upper and lower case

When filtering on a string variable, like the last name of the persons in the database, you often do not want to care about whether you enter upper or lowercase characters. You can accomplish that by applying at both the left and the right hand side of the condition a function that converts the characters to lowercase (LOWER for Oracle and SQL Server and LCase for Microsoft Access).

### The Like operator

It is also possible that you do not want to enter the complete name or that you do not know how to spell a certain part of the name. By using the Like operator instead of the equal sign, you can realize that, since Like allows for the use of wildcards. The most important wildcards are the percent sign (%), that represents zero or more characters, and the underscore (\_), that represents a single character. Furthermore, you can give alternative characters by putting them between square brackets ([]). Some examples of the use of wildcards are:

- **LOWER("LASTNAME") LIKE 's%'** selects all names that start with an s
- **LOWER("LASTNAME") LIKE 'cart%er'** selects both Carter and Cartner
- **LOWER("FIRSTNAME") LIKE 'Eri\_'** selects all four character names that start with Eri
- **LOWER("FIRSTNAME") LIKE 'Eri[ck]'** selects all persons called Eric or Erik

### Numeric values

When you want to filter on numeric values, you have to take care that you use the correct decimal separator (comma or point). In the advanced database filter, you have to follow the configuration of your operating system. However, in the SQL view, you always have to use a point.

### Dates

Microsoft Access, SQL Server and Oracle store dates as date-time values. If you want to compare these values, not only the date part, but also the time part has to match. If you

only want to check for equal date parts, you can achieve this by using the following conditions:

- Microsoft Access: **Int([BirthDate]) = DateValue('10-apr-1968')**
- SQL Server: **[BirthDate] >= '10-apr-1968' AND [BirthDate] < '11-apr-1968'**
- Oracle: **TO\_DATE("BIRTHDATE") = TO\_DATE('10-apr-1968')**

In all cases, BirthDate is a date-time field and only those records will be selected for which the date part is 10 April 1968.

Microsoft Access stores the date-time value as a floating point number. The part before the decimal point represents the date part, whereas the decimals represent the time part. The function Int removes the time part, setting it to 0:00:00 AM. The function **DateValue** always results in a date-time value whose time part is 0:00:00 AM, so that the condition above effectively compares only the date part of **BirthDate**.

In Oracle, the same effect can be achieved by using the **TO\_DATE** function on both sides. In SQL Server, a similar function does not exist, but this can be circumvented by defining two conditions. In this way, all records are selected, for which **BirthDate** is between 10 April 1968 0:00:00 AM and 11 April 1968 0:00:00 AM.

### 9.3 Record Lookup

The screenshot displays the CardExchange Producer Ultimate interface. The 'Records' table is highlighted with a red box and contains the following data:

ID Number	Firstname	Lastname	Department
1	Celeste	Serrano	Sales
2	Aissa	Keller	Relpodesk
3	Ted	Tarres	Sales
4	Rhonda	Mcleod	Sales and Marketing
5	Nico	Keller	Sales
6	Nadine	Williams	Sales

The 'Preview' window shows a business card for Isaac Keller, Sales, with a photo and a barcode. The card includes the text: 'The Building Company', 'Isaac Keller', 'Sales', 'Issue No: 1', and 'Expires: 24/03/2018'.

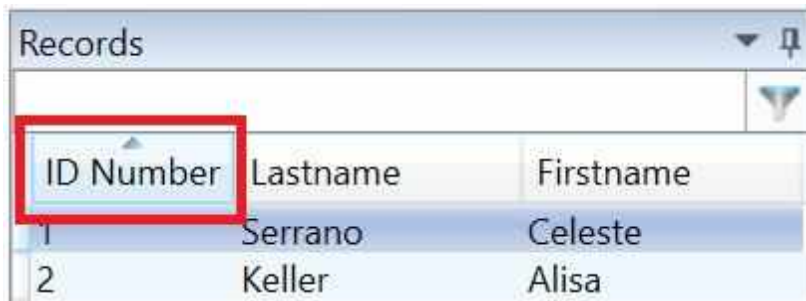
The 'Database record' form shows the following fields and values:

ID Number	1	State/Province	NI	E-mail Address	utricies@so.edu
Initials	BA	ZIP/Postal Code		Web Page	
Title	Mr.	Date of Birth	3/4/1972	Extra Text Field 1	82806099
Sex	Male	Department	Sales	Extra Text Field 2	
Firstname	Isaac	Business Phone	907-5180	Extra Text Field 3	black
Middle Name	Bryan	Country	United States	Extra Text Field 4	orange
Lastname	Keller	Home Phone		Extra Text Field 5	
Address	Ap #355-8677 Et Avl	Mobile Phone		Extra Date Field 1	1/25/2017
City	Whitehorse	Fax Number		Extra Date Field 2	Select a date

The simplest way of adding the correct record details to the card is to use the [Data Record View](#) that is displayed at the left-hand side of the main window. You can use the scroll bar to scroll through the list to find the correct record and then select it by clicking. The [Data Record View](#) may be sorted in various ways and is not necessarily alphabetical. You must take this into account when searching for a record.

In the [Data Record View](#) in the main interface of CardExchange® Producer you see all the records presented that are available in your database. When you make a database connection, in the name list page you select the columns that are shown in the Data Record View. You can find everything about making database connections in the "[Using Databases](#)" section of this Help file.

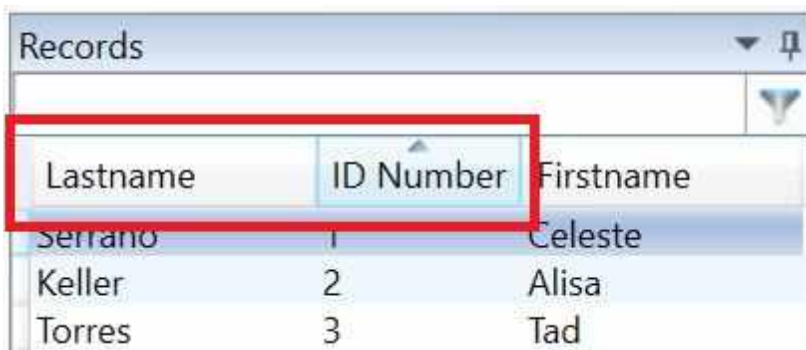
### Record Sorting



ID Number	Lastname	Firstname
1	Serrano	Celeste
2	Keller	Alisa

The Data Record View is a so called data grid showing all your available database records divided by columns. Sorting the records is just as simple as clicking on the column.

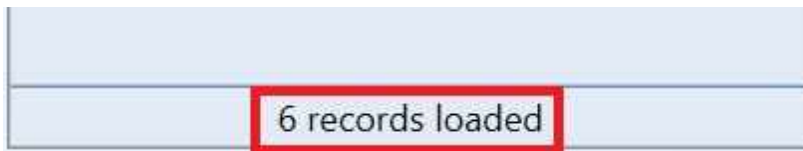
### Record Look Up



Lastname	ID Number	Firstname
Serrano	1	Celeste
Keller	2	Alisa
Torres	3	Tad

It is very simple to search for records inside the Data Record Overview. Enter the text that you want to search for in the text box directly above the columns. The text you enter always applies to the first column in the Data Record View. If you want to look up records from the Lastname column, you have to drag the column to the front.

### Loaded Record Information



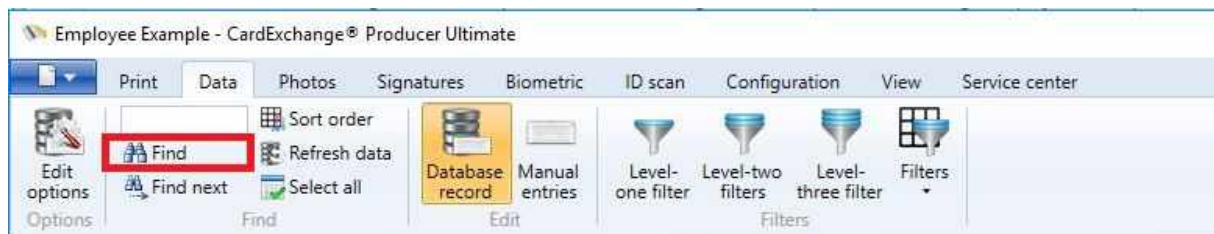
In the footer of the Data Record View the total amount of loaded records is shown.

You will notice that this method becomes less attractive if the list is very long and that you need a more directed manner of finding the correct data. The following alternative find methods are available:

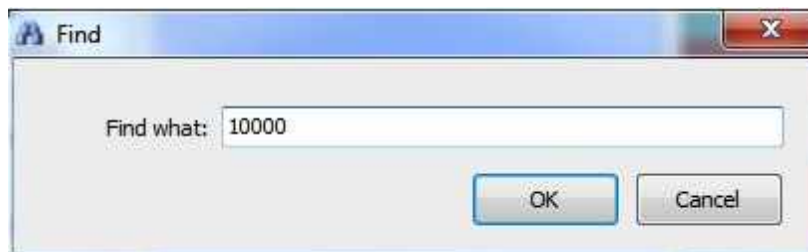
- Finding names using the **Find section** in the **Data** tab,
- Finding names using the **Keyboard**
- Finding names using the Database Filters

The first two methods will be explained in the following sections. For an explanation of the database filters, please refer to the section [Filters](#) of this Help file.

### 9.3.1 Using Find



In the **Find** section of the Data tab you can find the functionality **Find**. If you select this option, you enter a dialog window in which you can enter a combination of letters or digits to search on (only alphanumeric characters).



If you then click OK, the first element from the list of names that contains the requested combination is selected.



If the first match is not the one you are looking for, you can **search** on the same combination by selecting the Find next in the **Find** section of the Data tab. You can repeat this until you have found the correct person.

The advantage of searching in this way is that the text you enter does not need to be at the start of an element in the [Data Record View](#). The search does not make a distinction between upper- and lowercase characters.

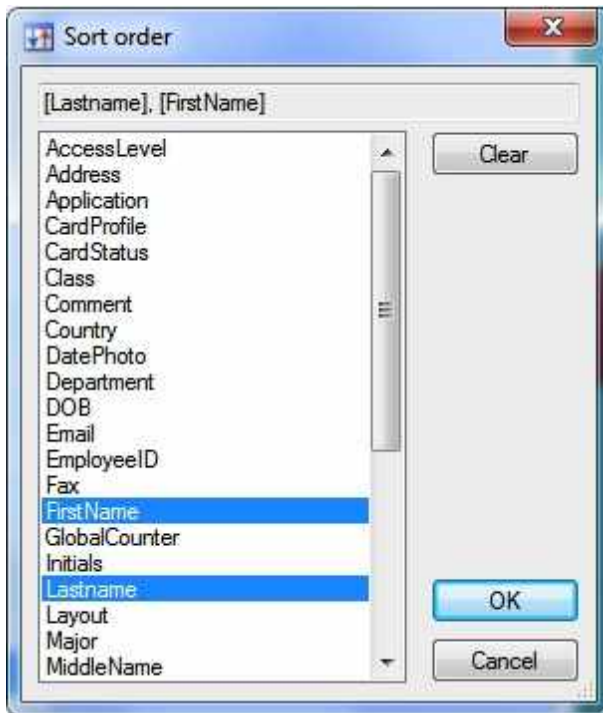
With this **Find** function, all elements in the [Data Record View](#) remain visible. Any restrictions to the number of records that are displayed, which would normally apply as a result of what you have entered in the text field, are overruled.

### 9.3.2 Using Keyboard

The **find** functions that have been discussed in the section [Using Find](#) are also available from the keyboard. You can display the window Find by simultaneously pressing the **control key** and the letter **f**. You can repeat the search as often as is required to find the correct person by pressing the **F3** function key.

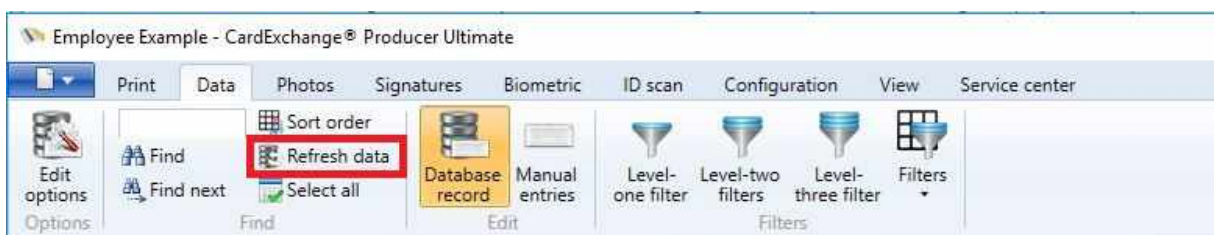
### 9.3.3 Changing Sort Order

To facilitate the selection of records, especially when making multiple selections in order to start a print batch, the order in which the names in the [Data Record View](#) appear can be changed. Choose Change sort order in the Find section of the Data tab to call the following window.



The text box at the top of the window shows the database columns on which the records will be sorted. In this particular case, the list is sorted on the field **FirstName** and then on the field **Lastname**. Up to **three** database columns can be selected to determine the sort order. To change the sort order, press the **Clear** button to remove any previous settings and then click the fields on which you want to sort, starting with the leading one.

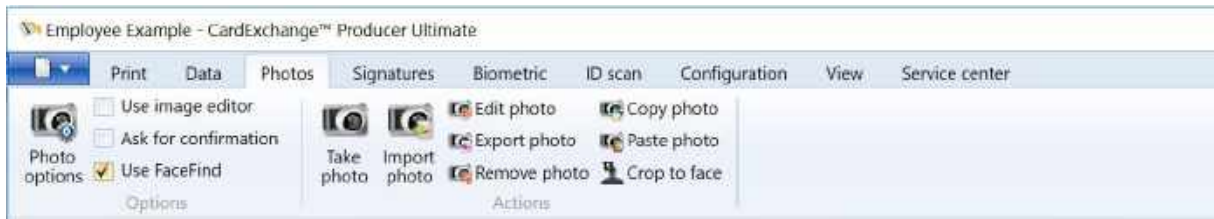
### 9.3.4 Refresh Data



It is possible that you cannot find the intended record because it has only just been entered into the database. The details of the record in question have already been entered into the database, but CardExchange® Producer has not yet, as it were, seen it. You can solve this problem by selecting the **Refresh data** option in the Find section (or by pressing the **F5** function key). CardExchange® Producer will retrieve the list of records from the database again.

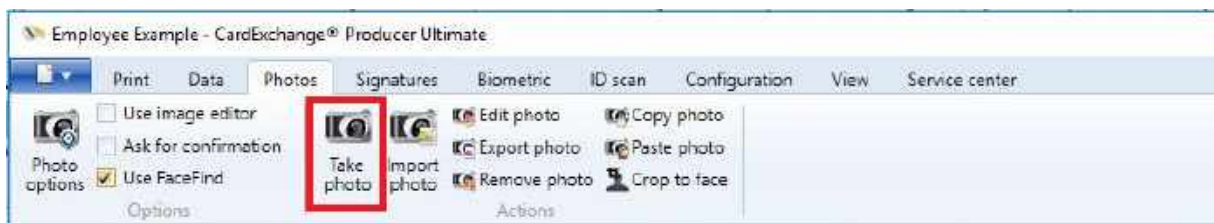
Doing this ensures that the most recent data for the record concerned is displayed.

## 10 Using Photos



In this section of the help file you can find all the information of how to use photos with CardExchange® Producer.

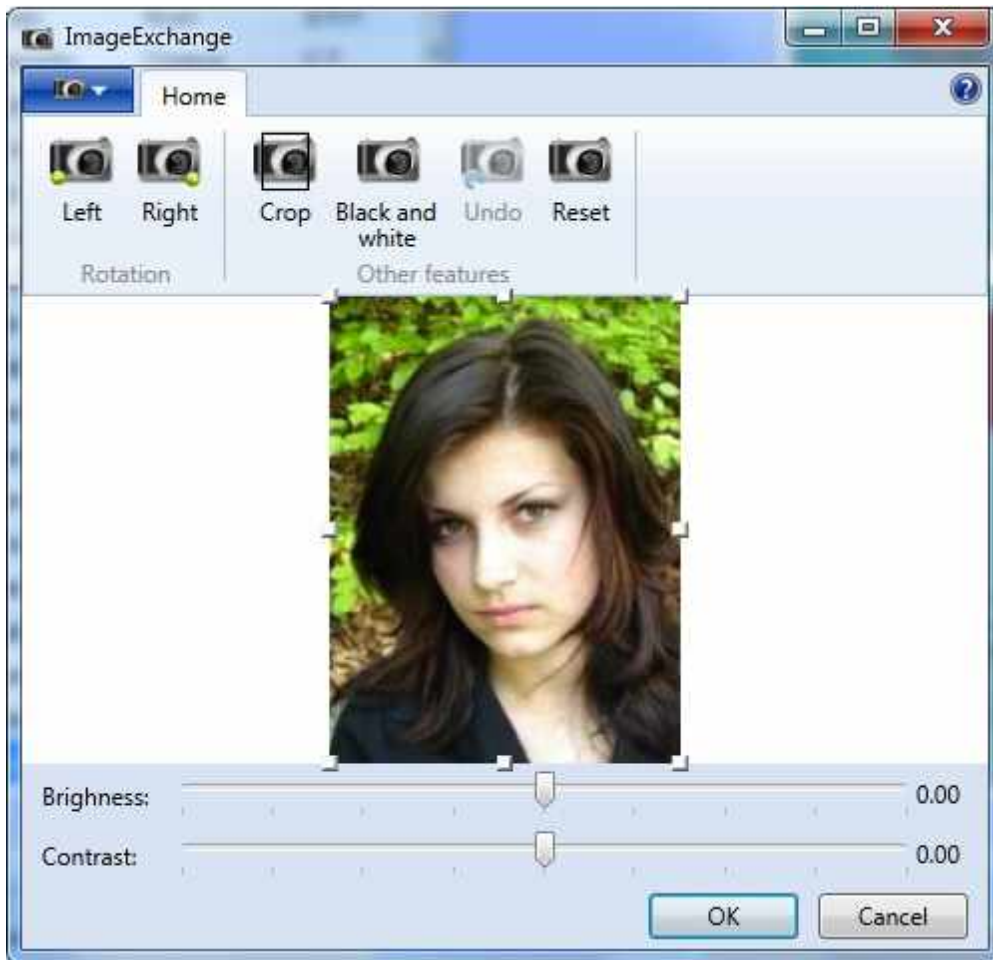
### 10.1 Take Photos



When you have selected the correct card template and the correct record, you can add a photo of the person to the database, or, if you want, replace the existing photo. This function is accessible in the following ways.

- Click **Take photo** button as indicated in red,
- Press the **F6** key.

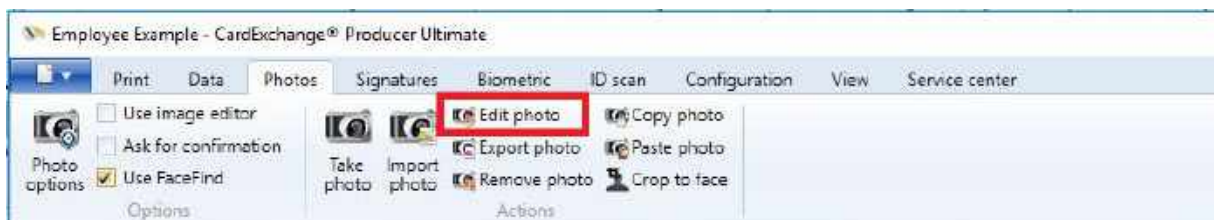
After you have taken the photo, you will enter the Image Editor window of CardExchange® Producer, the ImageExchange®.



Please see the [Using Image Tools](#) section of this Help file for more information about using this ImageExchange® Image Editor.

If you click on the OK button, the photo will be automatically cropped and the Image Editor will be closed. If a photo was already available in the database, CardExchange® Producer asks whether you want to update it. If you click Cancel, the original photo will be restored on the print preview. You can disable this option in the Photo tab by unchecking the Use Image Tools check box.

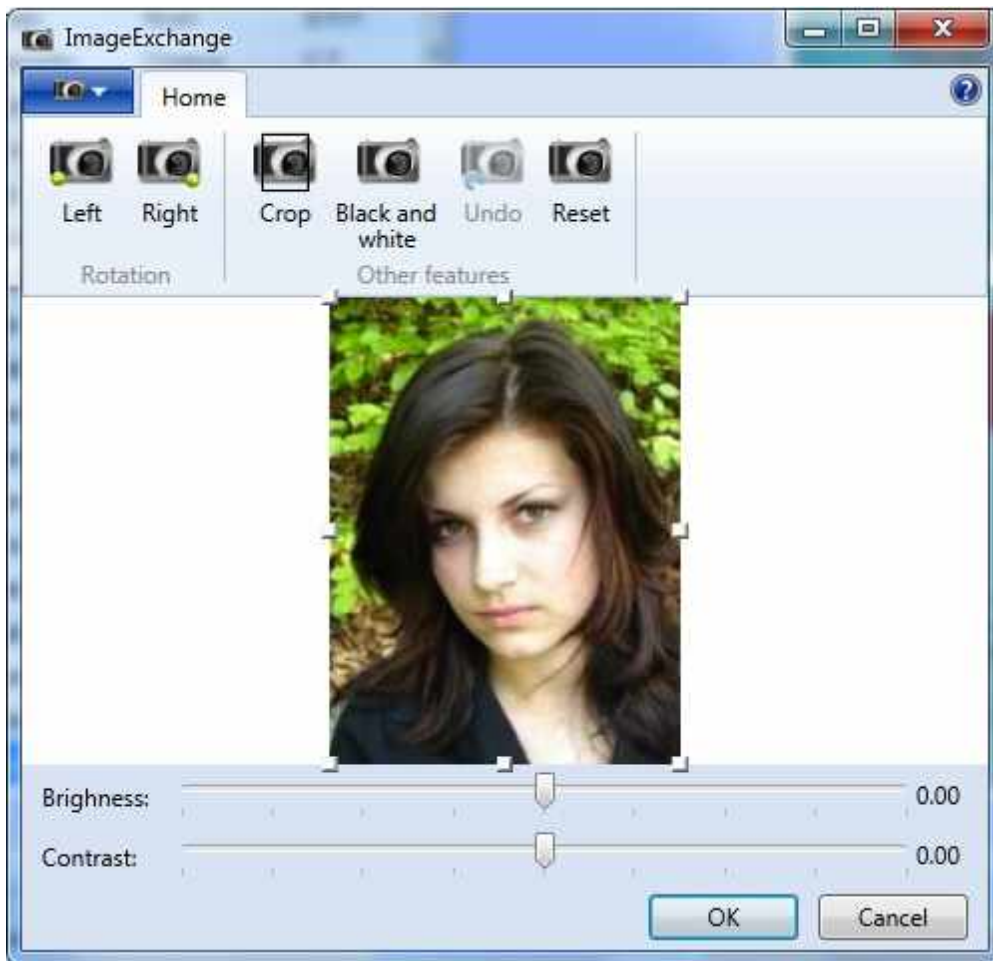
## 10.2 Edit Photos



Photos that were taken earlier can be edited using Image Editor. This function is accessible in the following ways.

- Click **Edit photo** button as indicated in red,

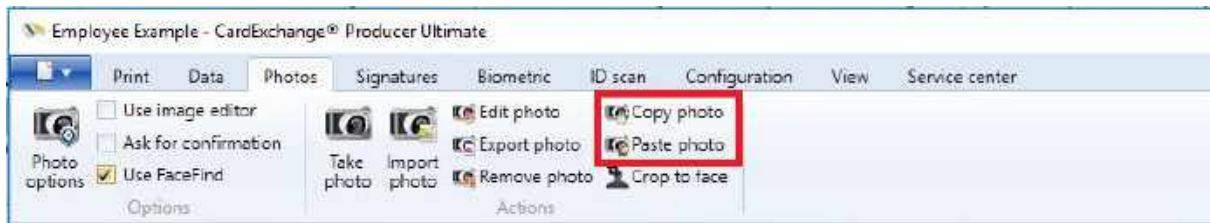
After you have taken the photo, you will enter the Image Editor window of CardExchange® Producer, the ImageExchange®.



Please see the [Using Image Tools](#) section of this Help file for more information about using this ImageExchange® Image Editor.

If you click on the **OK** button, the photo will be automatically cropped and the Image Editor will be closed. If a photo was already available in the database, CardExchange® Producer asks whether you want to update it. If you click **Cancel**, the original photo will be restored on the print preview. You can disable this option in the Photo tab by unchecking the Use Image Tools check box.

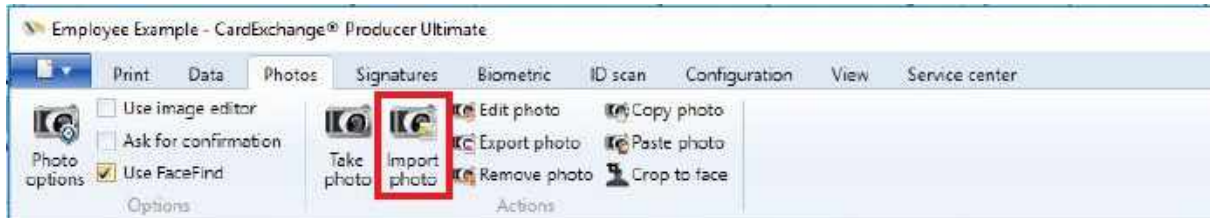
## 10.3 Copy and Paste



The **Actions - Copy photo** option allows you to copy the photo displayed on the Page preview to the photo clipboard of CardExchange® Producer. You can then choose another record (or even another card that is linked to another database) and, by using the **Paste photo** option, link the photo on the clipboard to the selected record.

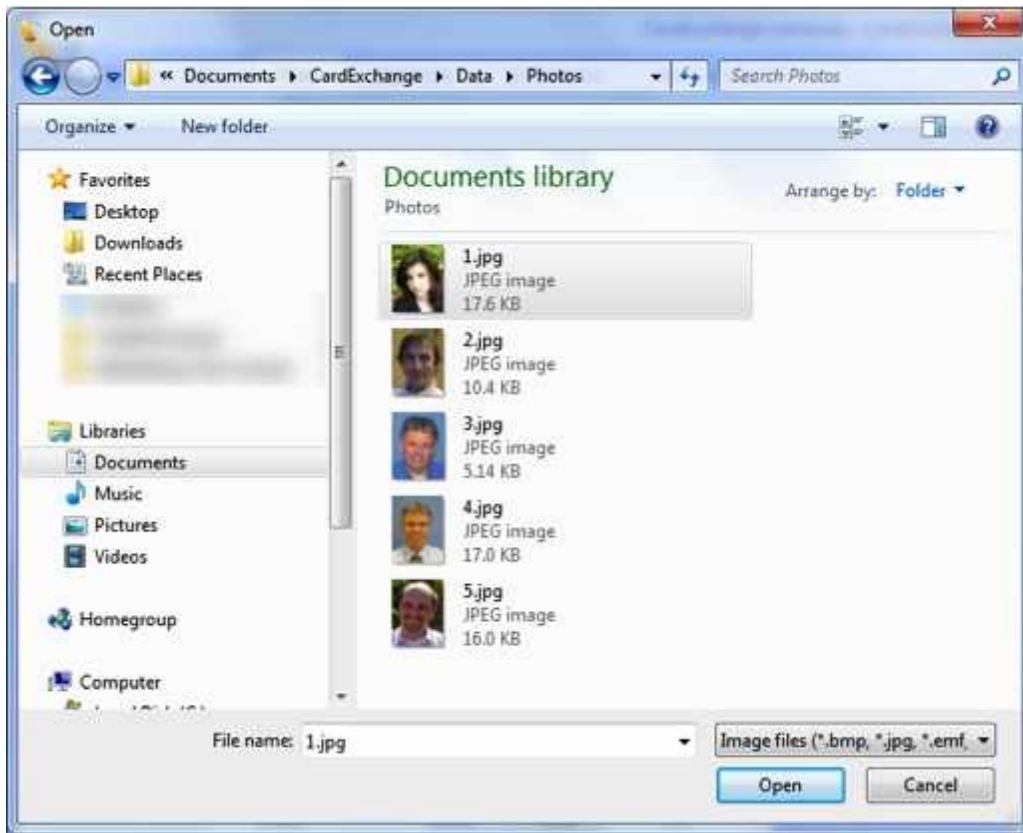
This function can be handy if the same record must be entered under a different name or personnel number in the database. You do not need to take a new photo. As long as you do not copy another photo and do not shut down CardExchange® Producer, the copied photo will remain on the clipboard.

## 10.4 Import Photos



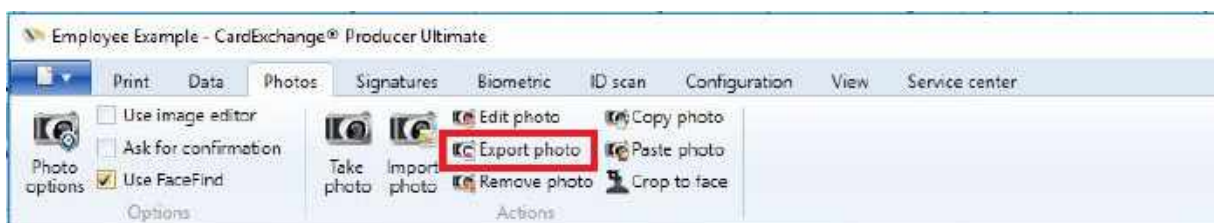
It is possible that you do not want to take a photo of someone because you already have his/her photo. If this photo is in one of the usual formats (bitmap, jpeg, png, etc.), you can use the **Import photo** function indicated in **red** to import it and display it on the card that you have opened in CardExchange® Producer. You can then save the photo in the database.

If you click **Import photo**, you enter a dialog window that allows you to select the photo file.

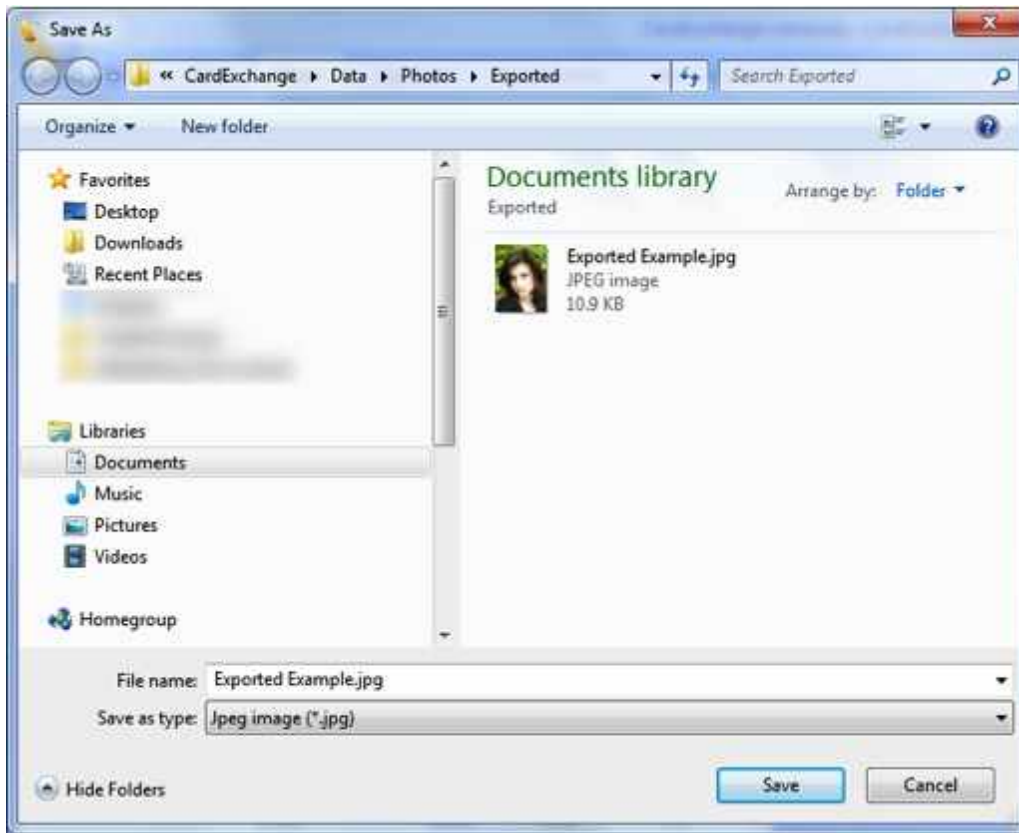


If you have found and selected the file, click **Open** and the photo will be displayed in the [Image Editor](#) window. Here you can crop the photo to the right size and perform any other editing operations.

## 10.5 Export Photos



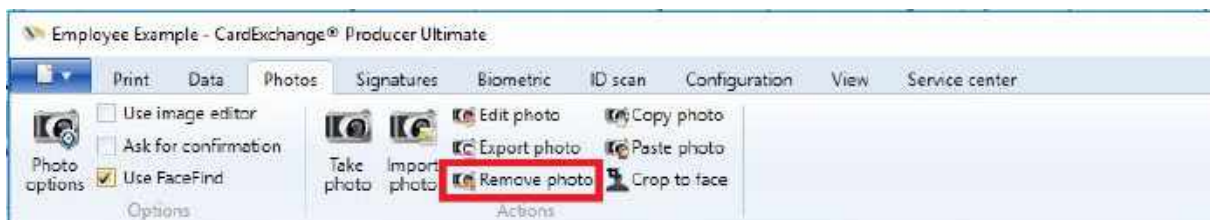
The opposite to import photo is also possible. You can export an existing photo from the database to a file. To do this, click the **Export photo** button indicated in **red** in the **Actions** section. Once more a dialog window will be displayed in which you can specify the name and location of the file that must contain the photo.



You can choose between two supported file formats: **Bitmap**, **jpg**, **emf**, **gif**, **png**, and **tiff**.

Click on **Save** and the photo is exported to the selected location.

## 10.6 Remove Photos



Photos can be removed from the database by clicking the **Remove photo** button from the **Actions** section indicated with the **red** arrow. The user will be asked to confirm the remove operation with the following question.





When you click **Yes**, the photo will be removed from the database.

## 10.7 Using Image Tools



CardExchange® Producer offers for all editions an Image Editor tool. The Image tool offers some interesting functionality to help you upscale your photos or images.

When you **take a photo** or **capture a signature** and the **Use Image Tools** option is checked, this Image tool will open. It also opens if you click on the **Edit photo** button.

The Image tool has some functionality available via the File menu and the ribbon.

### The File Menu



When you take a photo, capture a signature, etc., the image will be automatically be show in the Image tool. It is also possible to Load another image via the **Load** function in the **File menu**.

When the image is edited and you click on **OK**, the image will be saved automatically. If you want to store the image to another location just click on **Save** and select the destination in the **File Explorer** and click on **Save**.

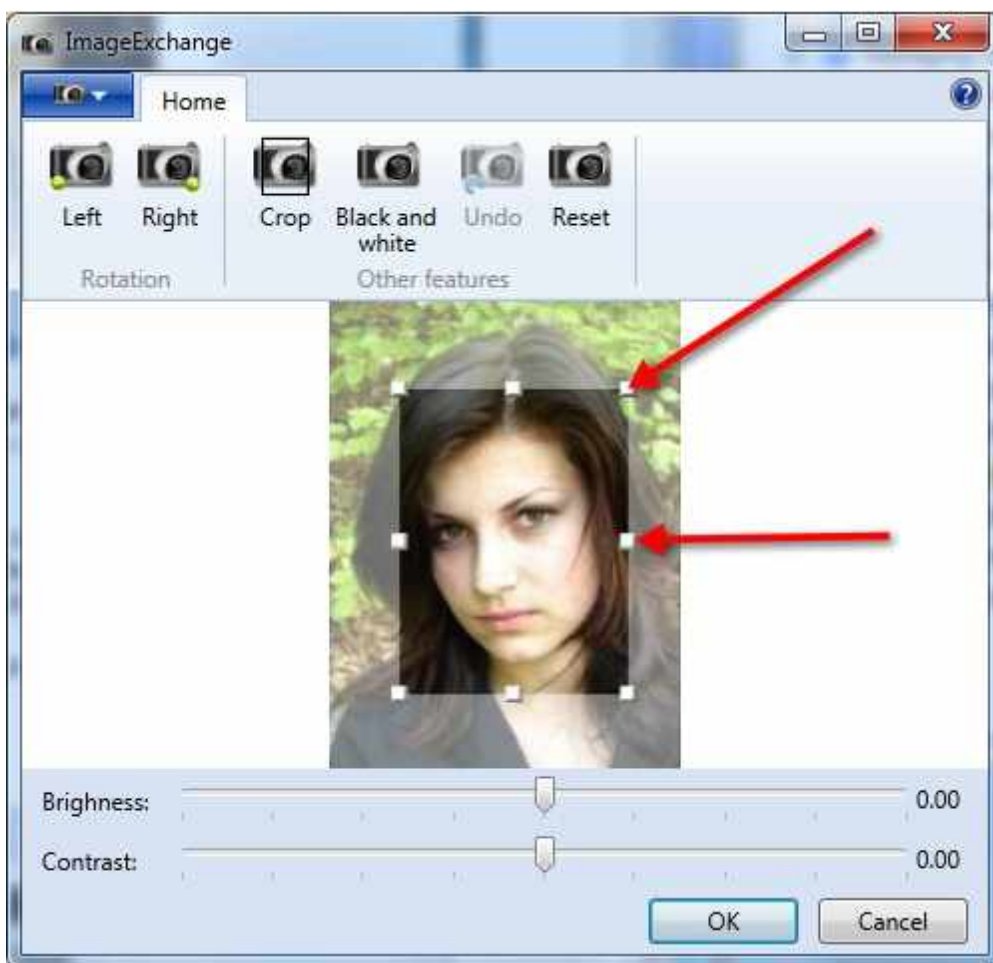
**Exit** just closes the Image tool without saving and works as the **Cancel** button.

Overview of the Ribbon



When the image is loaded, you can apply some standard functionality to it. If the image needs to be rotated, just click on the Left or Right buttons in the Rotation section.

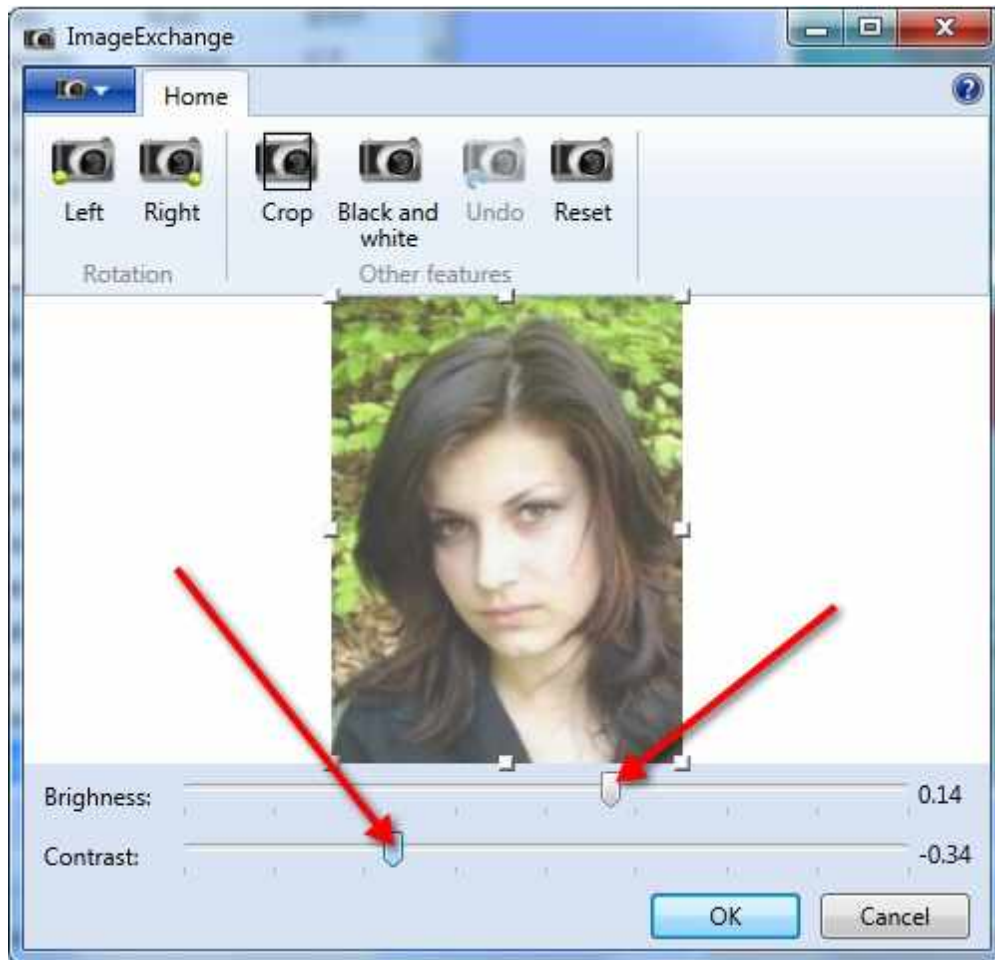
You can also crop the loaded image when you have adjusted the size.



When you move the rectangle to required size, as indicated with the **red** arrows, and you click on **Crop**, the image will be cropped according to the settings made.

When you click on the **Black and white** button, the whole image is converted to Black and White and of course you can undo all your settings by clicking on the **Undo** button or click on **Reset** to go back to the original loaded image.

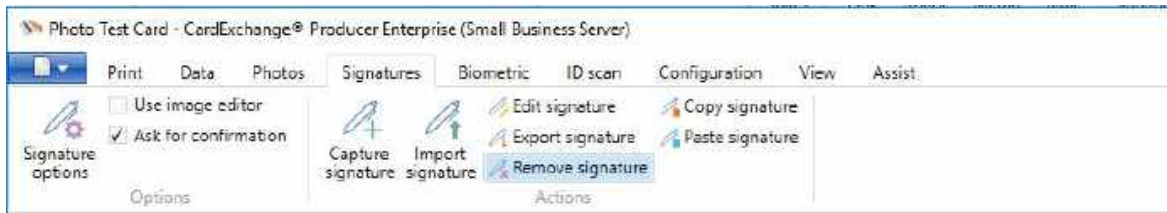
## Brightness and Contrast



Move the sliders, indicated with the **red** arrows, to change the **Brightness** and/or **Contrast** of the loaded image.

Click on **OK** to store the image or click on **Cancel**.

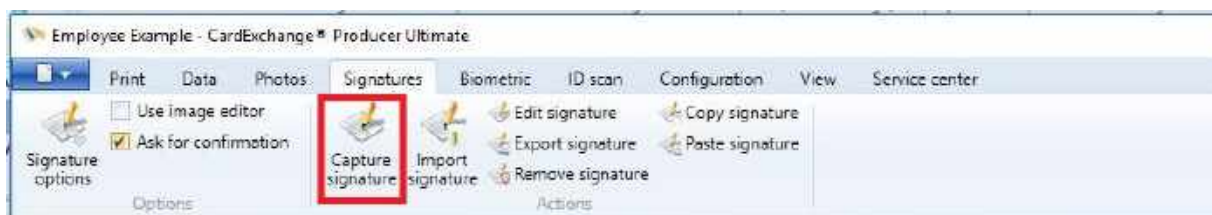
## 11 Using Signatures



**IMPORTANT!** Signatures are supported starting from the Premium Edition and higher!

In this section of the help file you can find all the information of how to use signatures with CardExchange® Producer.

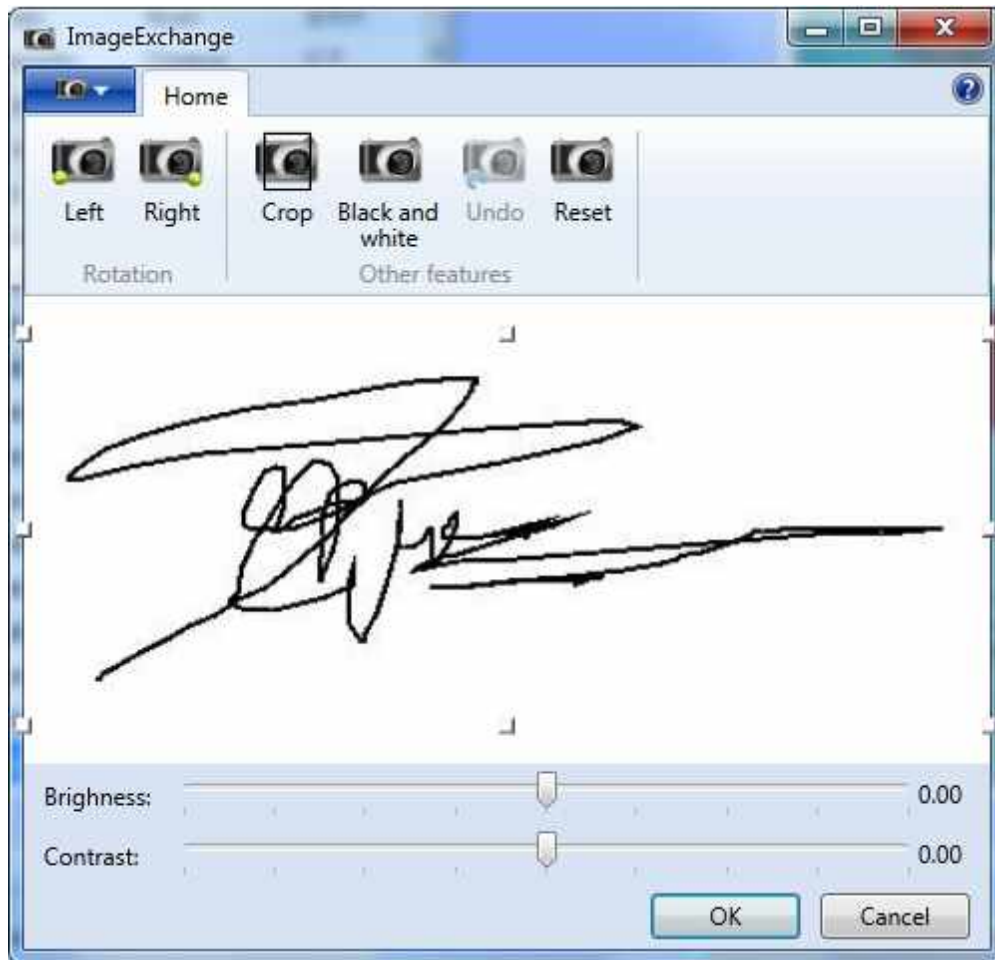
### 11.1 Capture Signatures



When you have selected the correct card template and the correct record, you can add a signature of the person to the database, or, if you want, replace the existing signature. This function is accessible in the following ways.

- Click **Capture signature** button as indicated in red,

After you have captured the signature , you will enter the Image Editor window of CardExchange® Producer.



Please see the [Using Image Tools](#) section of this Help file for more information about using this Image Editor.

If you click on the OK button, the signature will be automatically cropped and the Image Editor will be closed. If a signature was already available in the database, CardExchange® Producer asks whether you want to update it. If you click Cancel, the original signature will be restored on the print preview. You can disable this option in the Signature tab by unchecking the Use Image Tools check box.

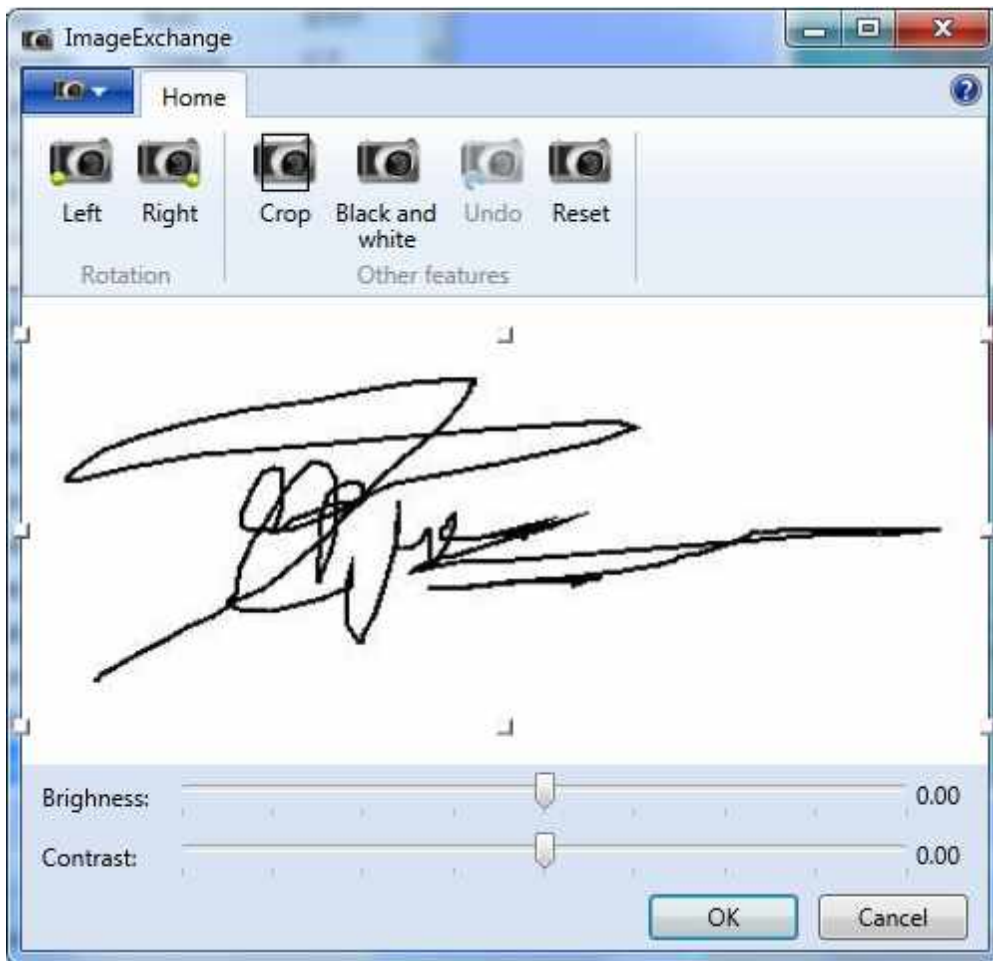
## 11.2 Edit Signatures



Signatures that were captured earlier can be edited using Image Editor. This function is accessible in the following ways.

- Click **Edit signatures** button as indicated in **red**,

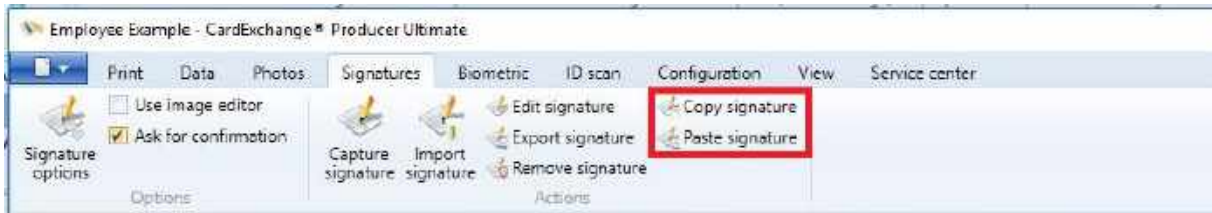
After you have captured the signatures, you will enter the Image Editor window of CardExchange® Producer.



Please see the [Using Image Tools](#) section of this Help file for more information about using this Image Editor.

If you click on the **OK** button, the signature will be automatically cropped and the Image Editor will be closed. If a signature was already available in the database, CardExchange® Producer asks whether you want to update it. If you click **Cancel**, the original signature will be restored on the print preview. You can disable this option in the Signature tab by unchecking the Use Image Tools check box.

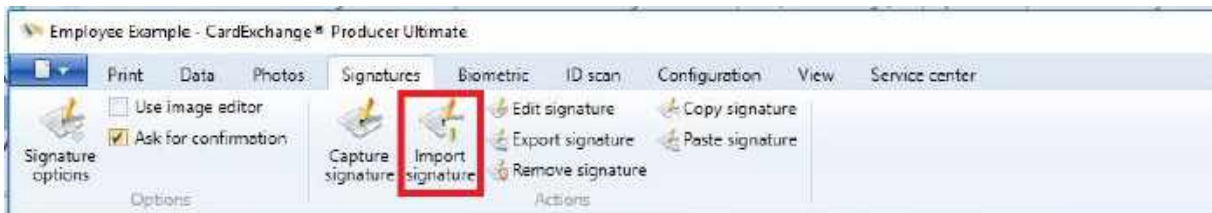
## 11.3 Copy and Paste



The **Actions - Copy signature** option allows you to copy the signature displayed on the Page preview to the signature clipboard of CardExchange® Producer. You can then choose another record (or even another card that is linked to another database) and, by using the **Paste signature** option, link the signature on the clipboard to the selected record.

This function can be handy if the same record must be entered under a different name or personnel number in the database. You do not need to capture a new signature. As long as you do not copy another signature and do not shut down CardExchange® Producer, the copied signature will remain on the clipboard.

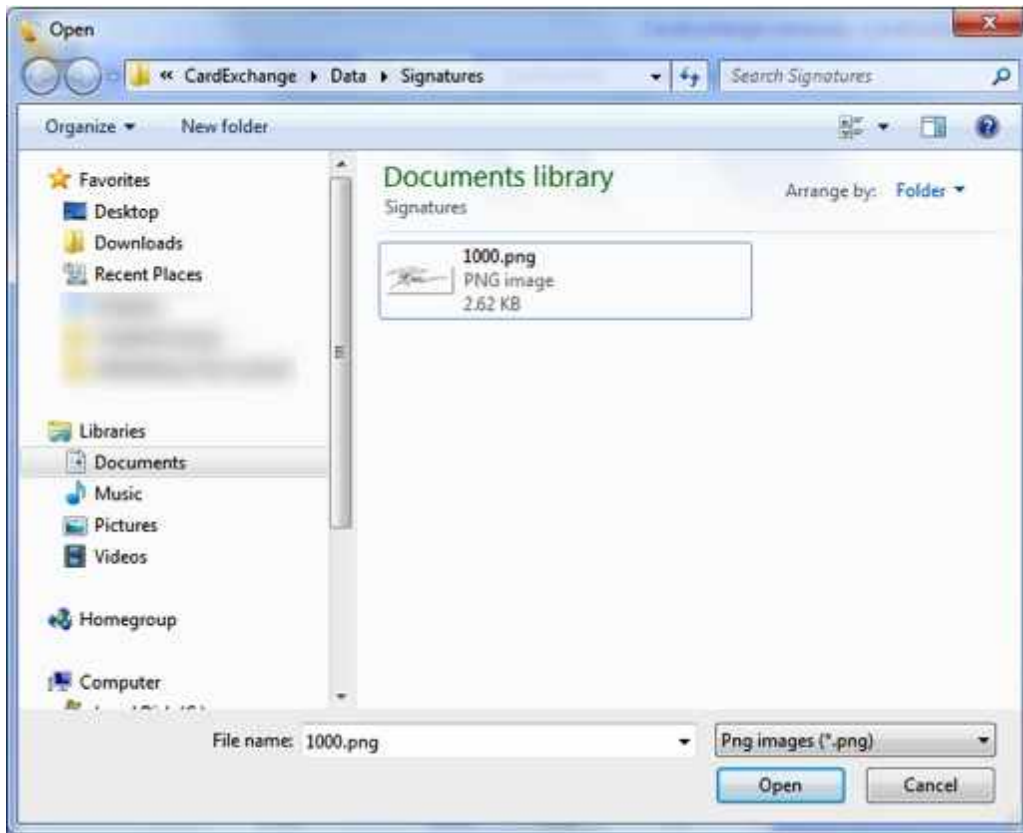
## 11.4 Import Signatures



It is possible that you do not want to capture a signature of someone because you already have his/her signature. If this signature is in one of the usual formats (bitmap, jpeg, png, etc.), you can use the **Import signature** function indicated in **red** to import it and display it on the card that you have opened in CardExchange® Producer. You can then save the signature in the database.

If you click **Import signature**, you enter a dialog window that allows you to select the signature file.



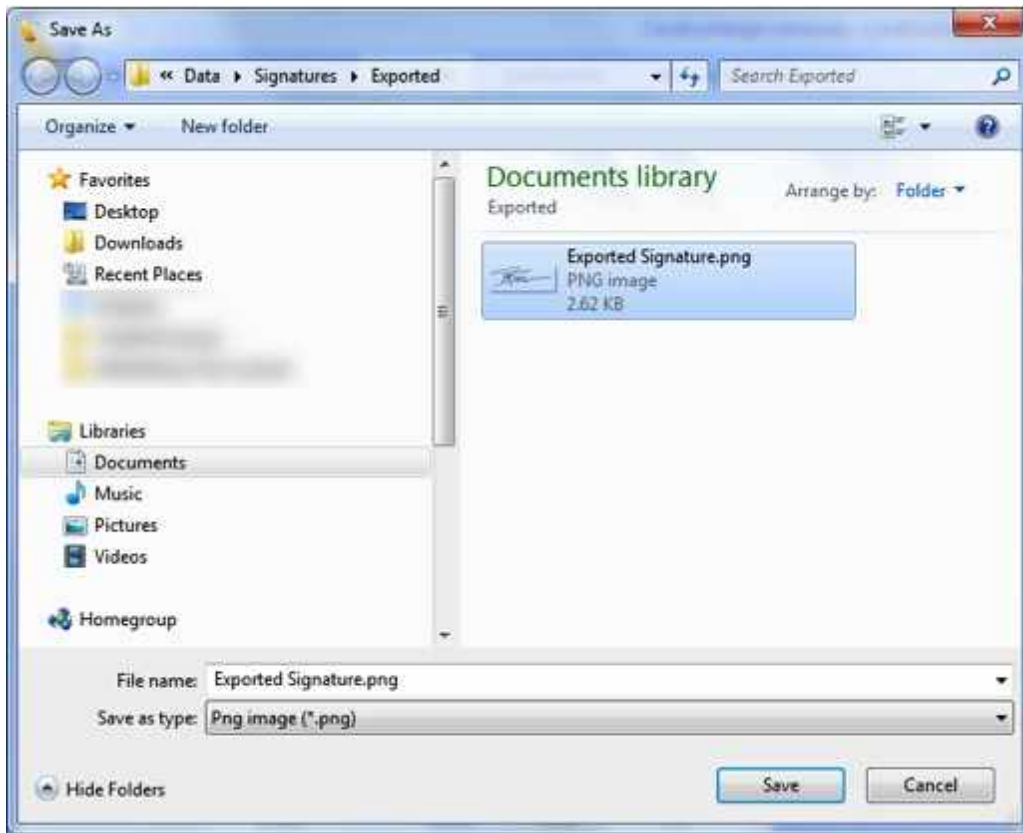


If you have found and selected the file, click **Open** and the signature will be displayed in the [Image Editor](#) window. Here you can crop the signature to the right size and perform any other editing operations.

## 11.5 Export Signatures



The opposite to import signature is also possible. You can export an existing signature from the database to a file. To do this, click the **Export signature** button indicated in **red** in the **Actions** section. Once more a dialog window will be displayed in which you can specify the name and location of the file that must contain the signature.



You can choose between two supported file formats: **Bitmap**, **jpg**, **emf**, **gif**, **png**, and **tiff**.

Click on **Save** and the signature is exported to the selected location.

## 11.6 Remove Signatures

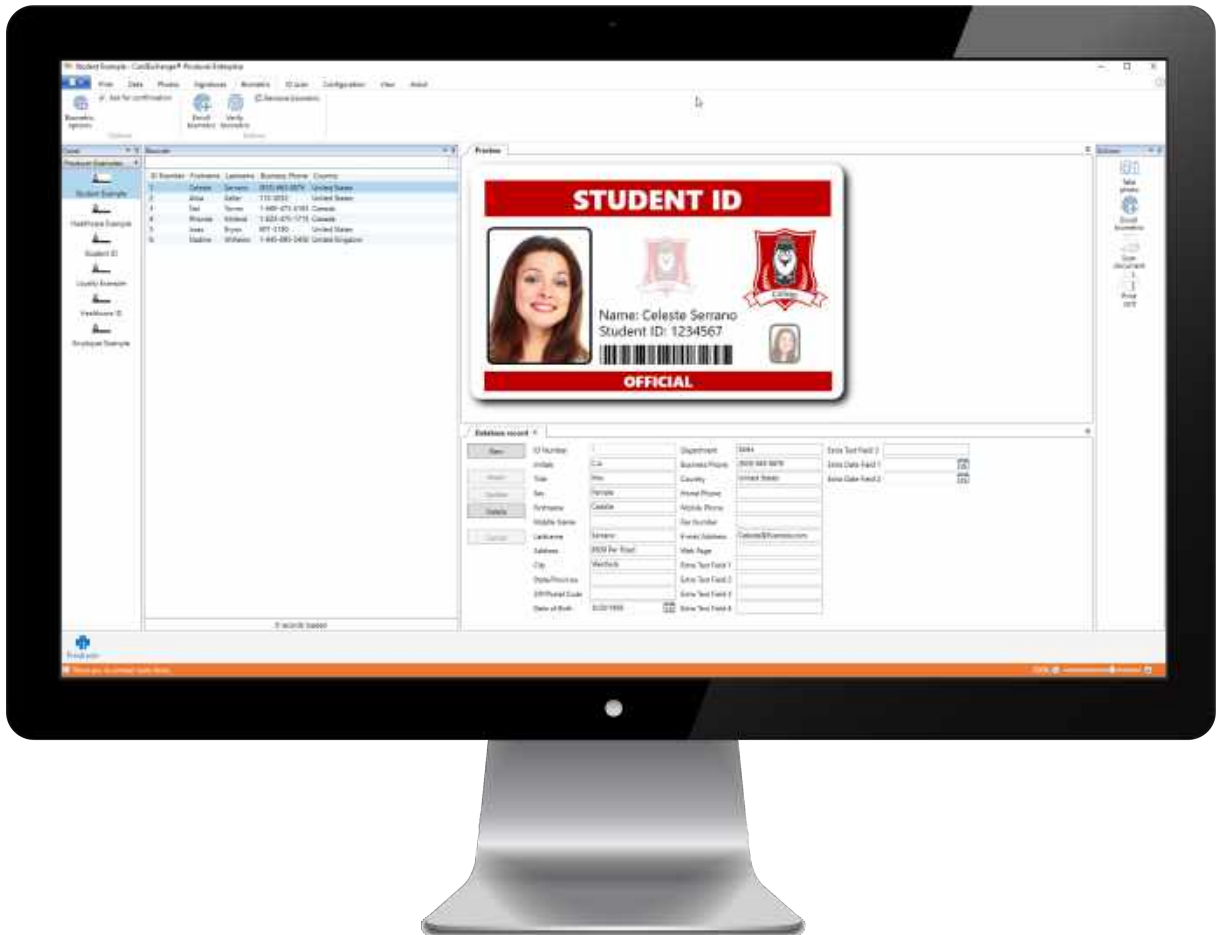


Signatures can be removed from the database by clicking the **Remove signature** button from the **Actions** section indicated in **red**. The user will be asked to confirm the remove operation with the following question.



When you click **Yes**, the signature will be removed from the database.

## 12 Using Biometric



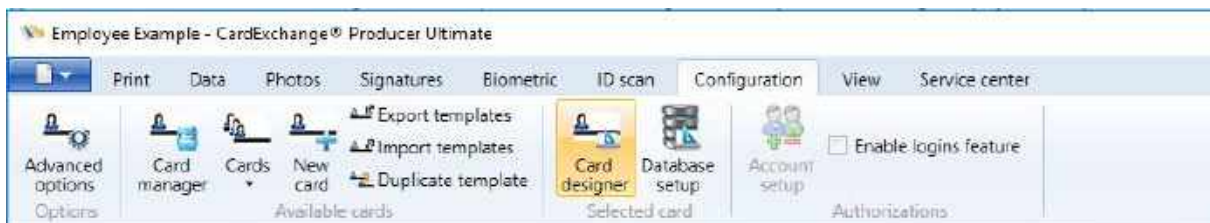
With CardExchange® Producer Business Edition or %ENTERPRISE EDITION NAME% you have access to using biometric devices. You can do complete enrollments of biometric and we offer verify functionality to make sure all your stored data is correct. In this section of the help file you can see how this works.

## 12.1 Biometric Setup

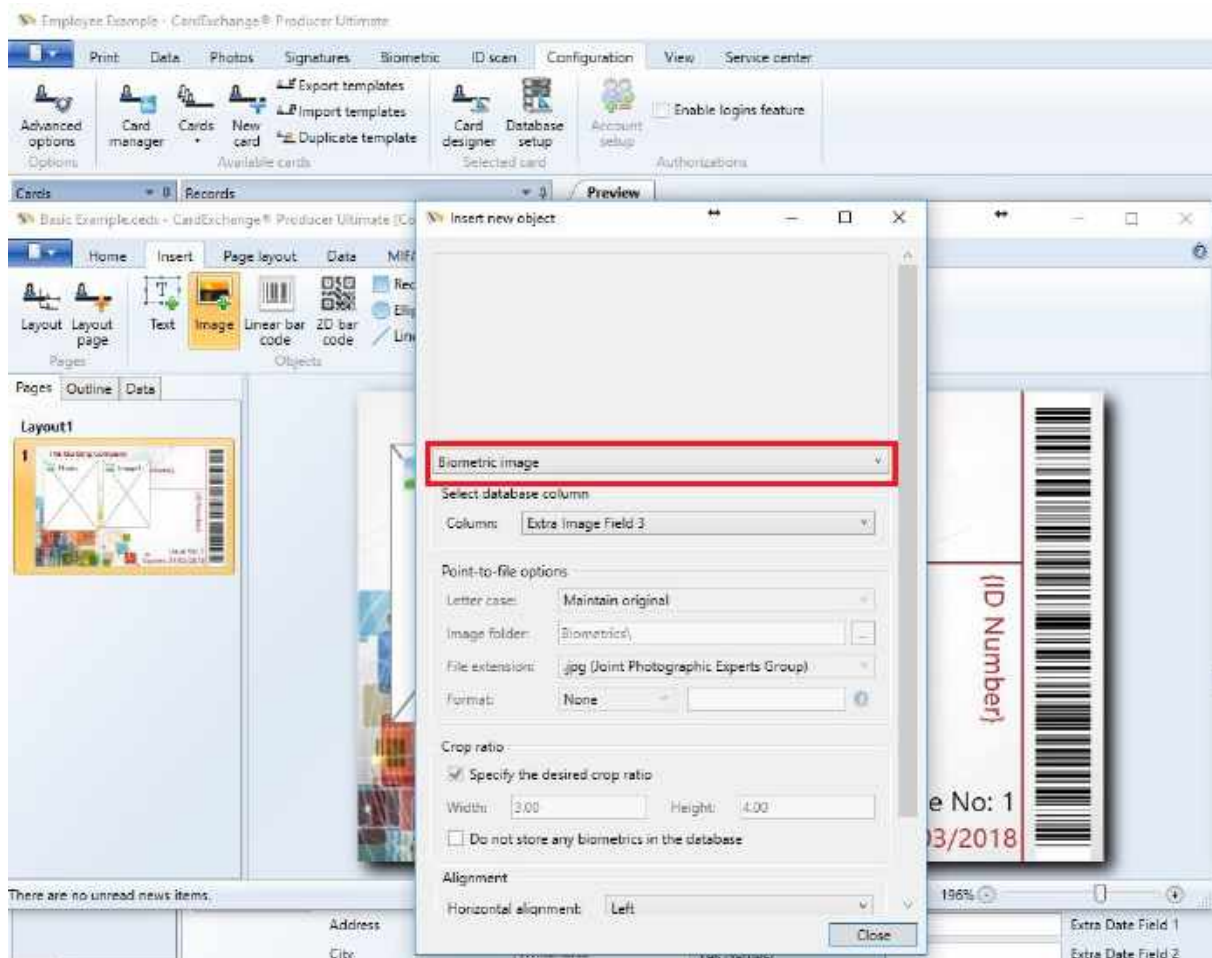


When a biometric device is connected to CardExchange® Producer you have the possibility to print the biometric image on the card or store it into the connected database. You can also store the biometric template into the database. In this section we will explain how to do this.

### 12.1.1 Printing the Image



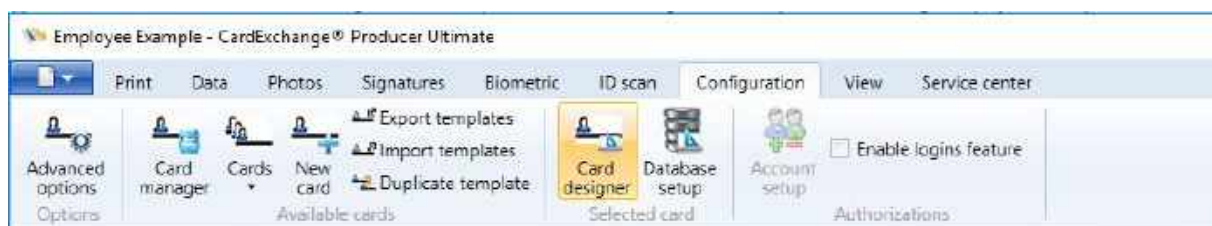
When you want to print the scanned biometric image on your ID card you will have to add an object to your Page design. Click on Card Setup in the Configuration tab in the Main window to start the Designer.



When the Designer is opened, select the Image object from the Home menu and drag and drop an image box on the design page. When the Insert new object window appears, select Biometric image from the drop down menu, as indicated with the red rectangle, and select the database column from the Database column selection drop down menu.

Click Close to add the object to the design, Save the template, and close the Designer.

### 12.1.2 Storing Biometric Data

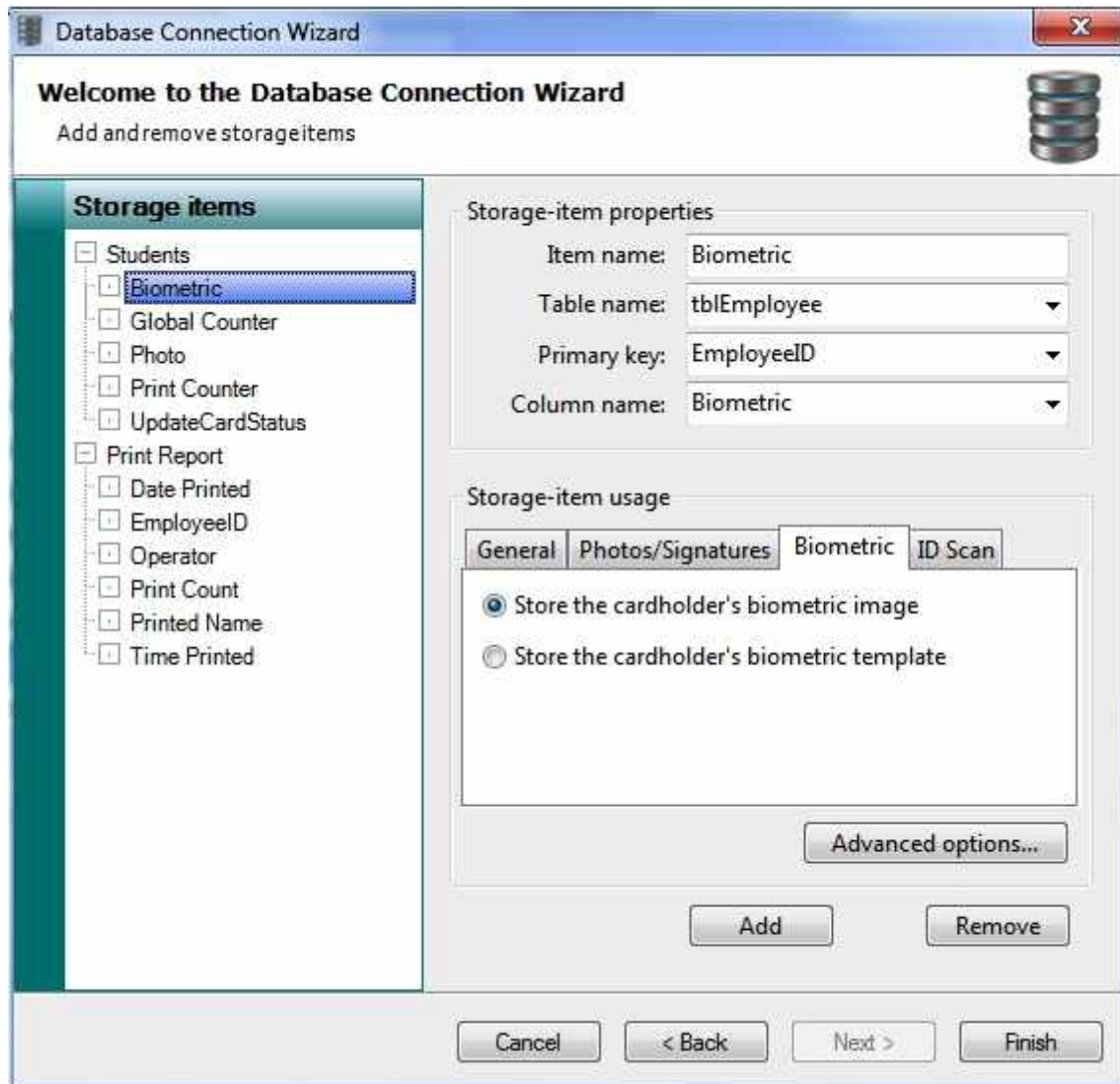


Biometric data can also be stored into the database. You can store the image data and the template. The template is based on ISO standard and can be used to create verify

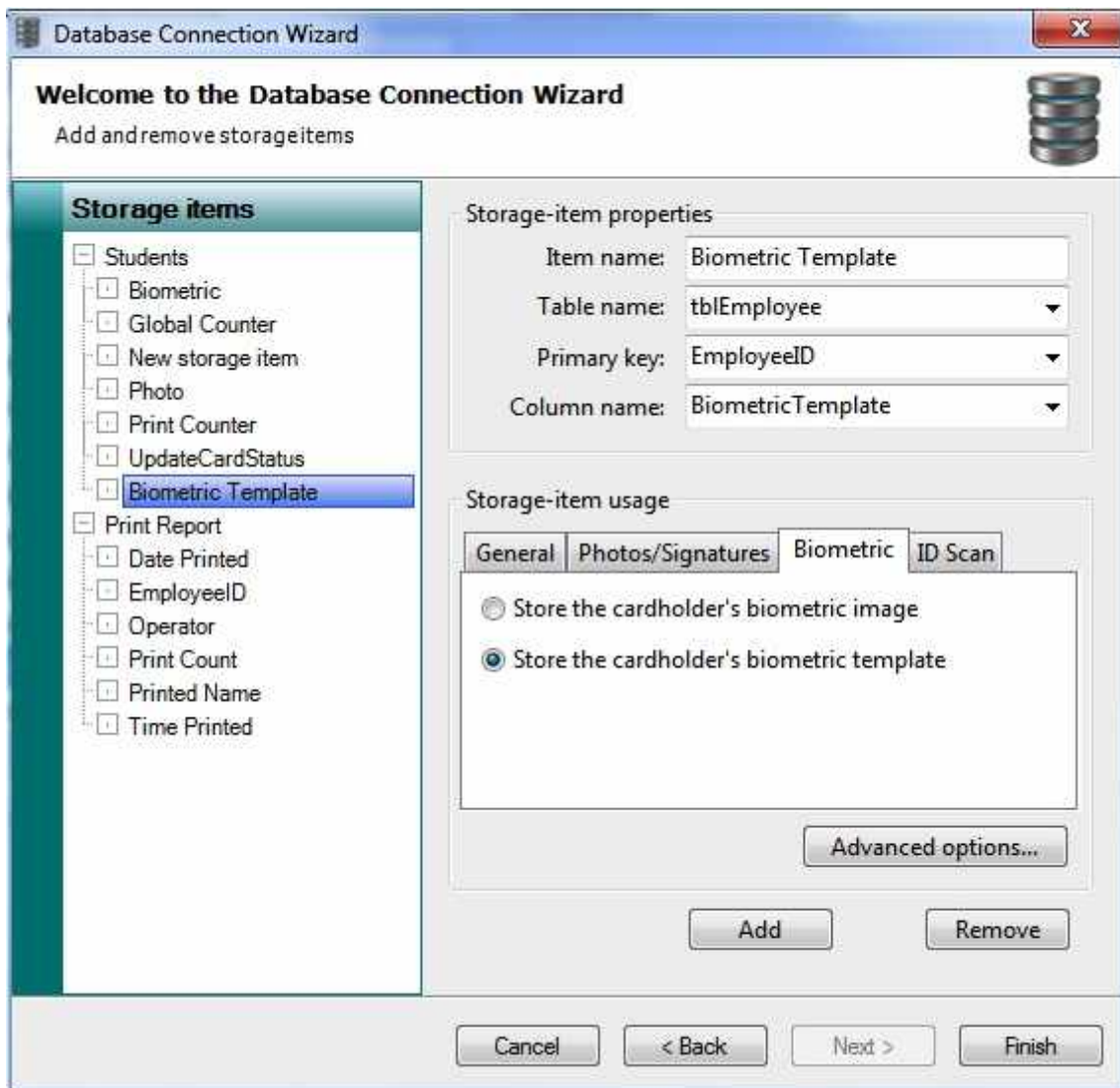
processes, also supported by CardExchange® Producer. You can find more information about this in the [Verify Biometric](#) section of this Help file.

To store information in the database we need to create [storage items](#). How to use database and creating of storage items is explained in the [Database](#) section of this help file.

When you have opened the Designer and started the Database Connection wizard, you navigate to the last page of the Database Connection wizard, the Storage Items.



First we add a storage item named "Biometric". Select the Biometric tab and select "Store the cardholder's biometric image".

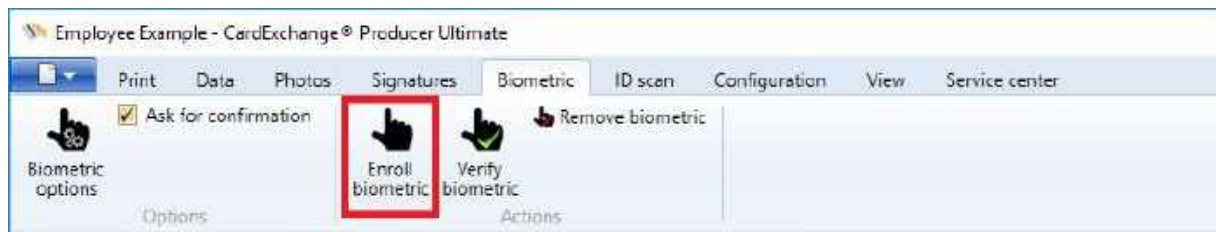


If you also want to store the template, add a storage item named Biometric Template. Select the Biometric tab and select "Store the cardholder's biometric template". The template is an XML file so make sure that the database column type is big enough to store a large text file.

When you are done you click on Finish to save all settings and close the Database Connection wizard.



## 12.2 Biometric Enrollment



To get your biometric information into the database or on your card design, you will have to do the enrollment. The enrollment of biometric is on this moment fixed on four (4) readings. If these readings match, you will be able to store the information.

To enroll a fingerprint select the record that you want to do the enrollment for and click on the **Enrollment biometric** button in the Biometric tab of the main window, indicated with the red arrow.

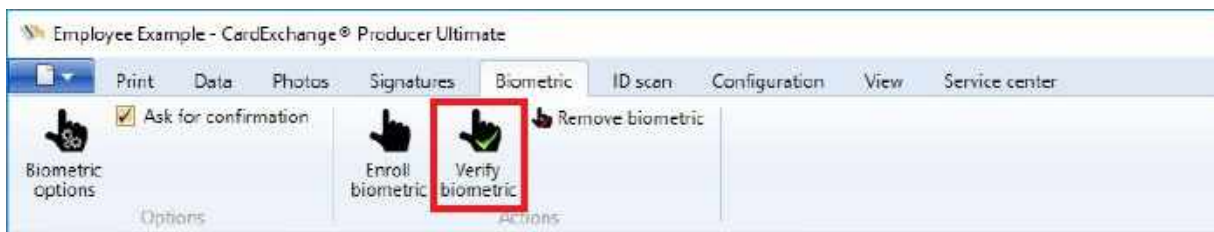


When you clicked on the button, the enrollment window appears requesting you, in this example, to place your finger on the reader.



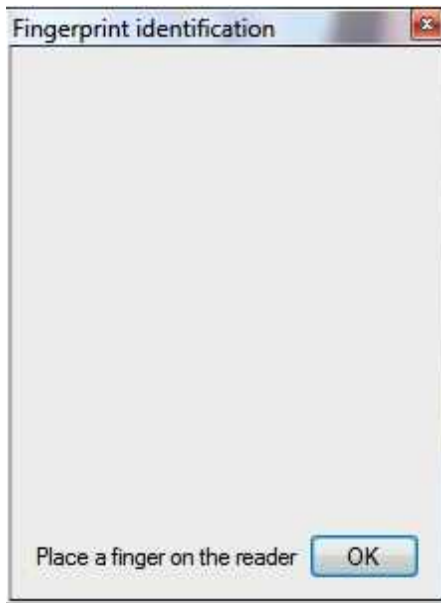
When you have finished the full enrollment you can click on Save to store all the information into the connected database and/or show as an image on the card.

## 12.3 Verify Biometric



CardExchange® Producer does not only offer functionality to enroll your biometric but also offers functionality to verify your enrollment.

To verify your enrollment click on the **Verify biometric** button and the window below will appear:



To verify the enrollment, in this example, the finger needs to be placed on the reader. The moment that the finger is placed, the scan will verify this with the template information in the database. When the enrollment is succeeded and verified, the photo of the person will be shown, if applicable, in the window as shown below:

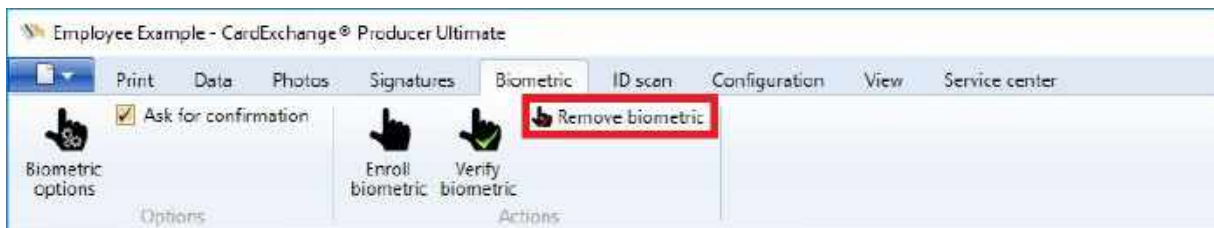


If there is no match the window below will be shown:

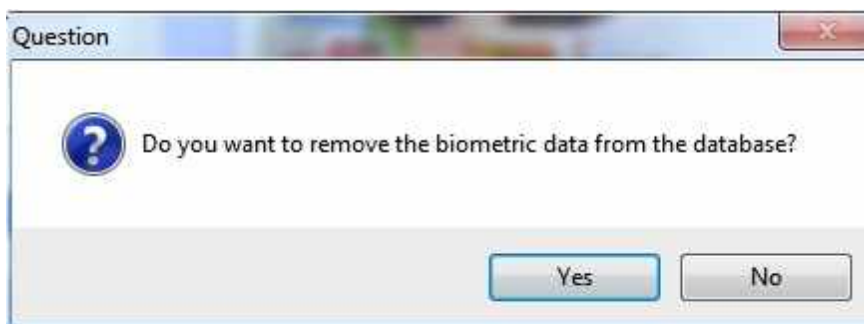


Please be aware that this functionality only works with the template of the scan, not with the image only. You need to store the biometric template into the connected database.

## 12.4 Remove Biometric



Biometric data can be removed from the database by clicking the **Remove biometric** button from the **Actions** section indicated with the **red** arrow. The user will be asked to confirm the remove operation with the following question.



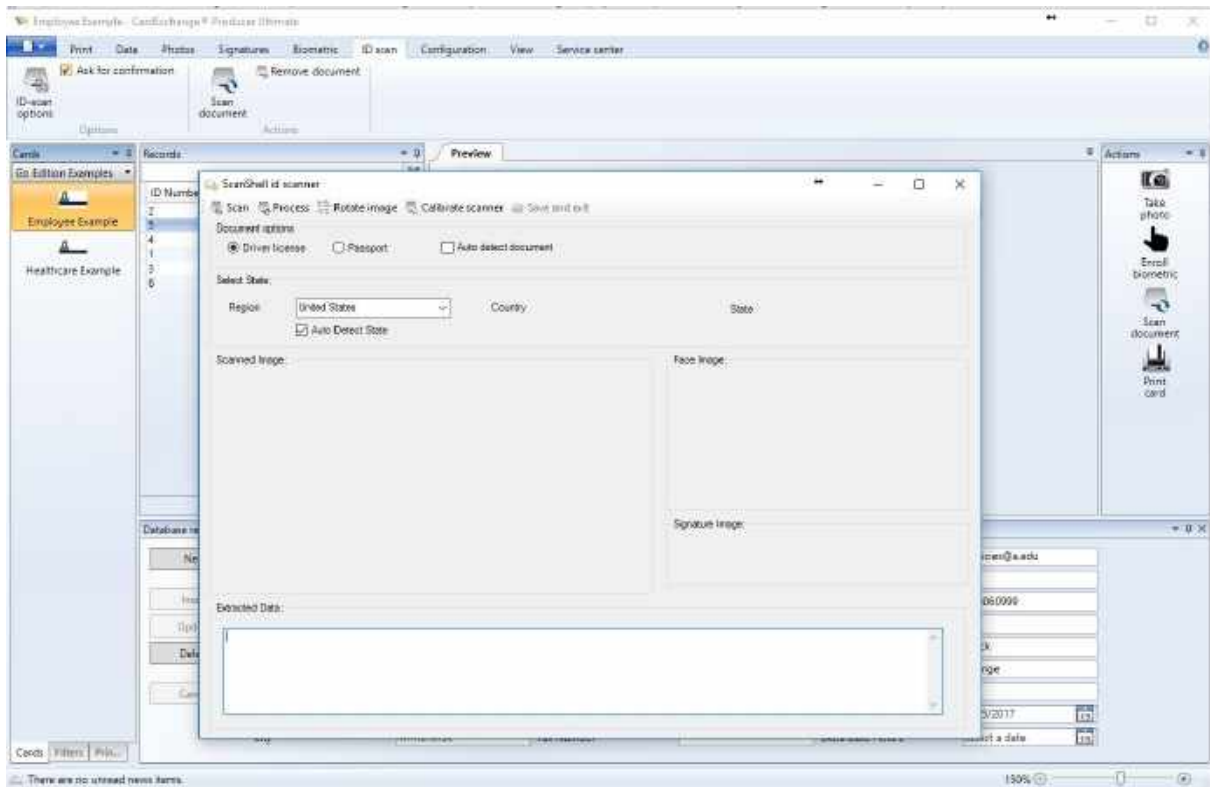
When you click **Yes**, the biometric data will be removed from the database.

## 13 Using ID scanners



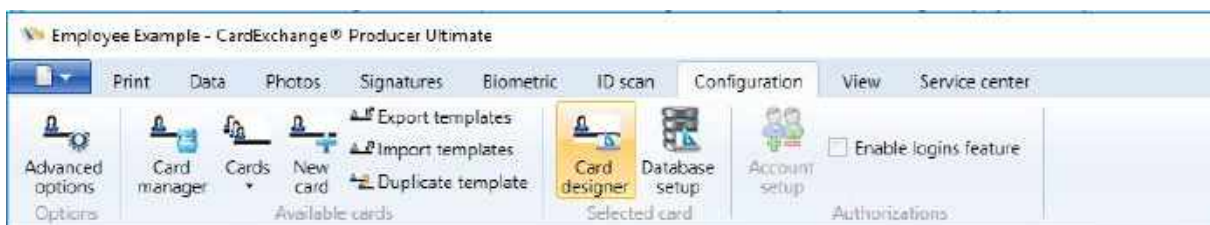
If you have an CardExchange® Producer Business Edition or Enterprise Edition you can use ID scanners. How to use these scanners is explained in this section of this help file.

## 13.1 ID Scanner Setup



When a ID scanner device is connected to CardExchange® Producer you have the possibility to print the scanned document information on the card or store it into the connected database. In this section we will explain how to do this.

### 13.1.1 Printing Images

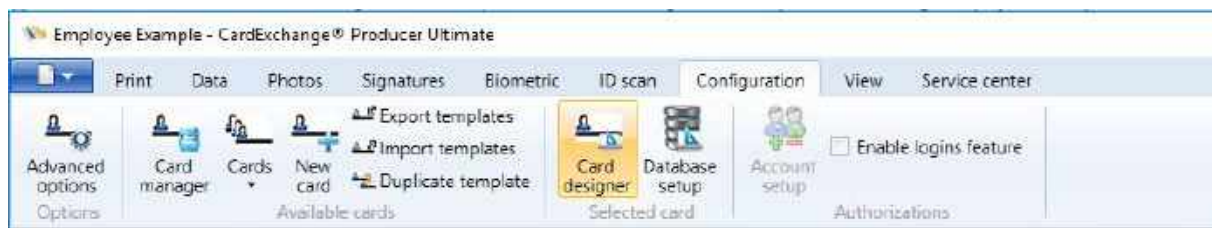


When you want to print the scanned document information your ID card you will need to have the information stored into your database.

Showing and printing data from the scanned document works the same as showing photos or text from a database as explained in the [Adding Card Templates](#) section of this help file.

Click Close to add the object to the design, Save the template, and close the Designer.

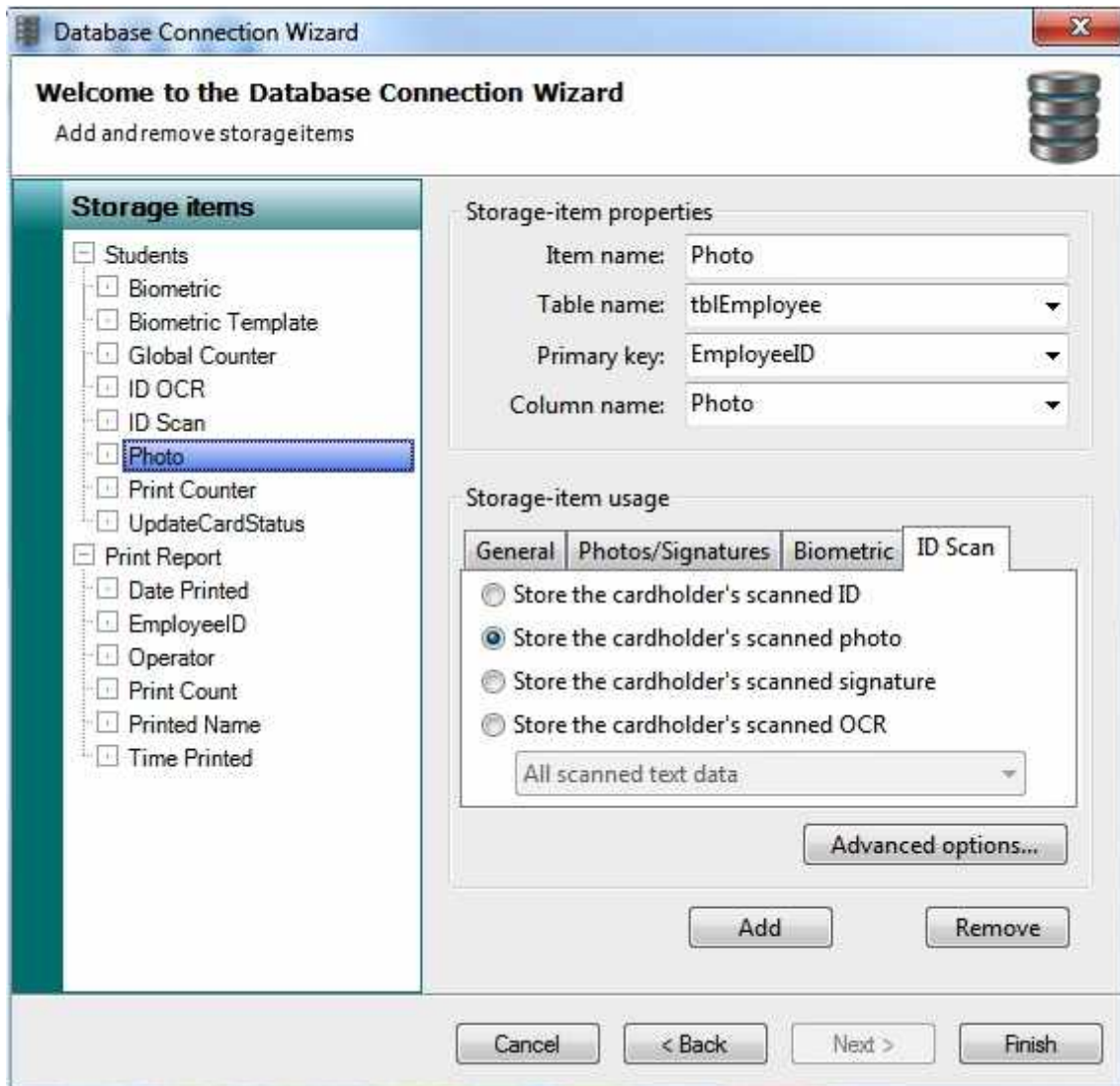
### 13.1.2 Storing ID Scanner Data



ID scanner data can also be stored into the database. You can store the image data like photos and signatures but also the OCR data or address information, etc..

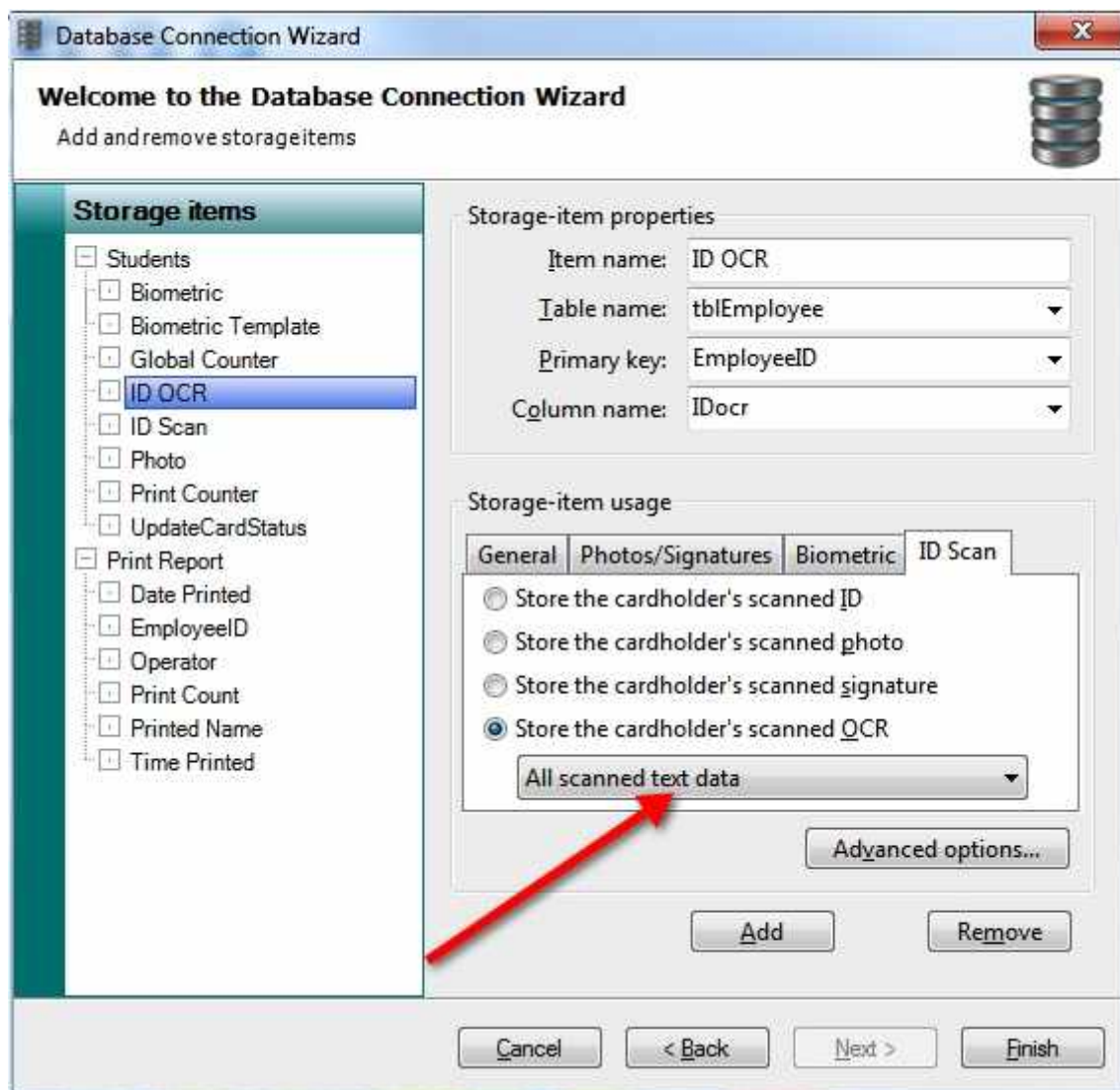
To store information in the database we need to create [storage items](#). How to use database and creating of storage items is explained in the [Database](#) section of this help file.

When you have opened the Designer and started the Database Connection wizard, you navigate to the last page of the Database Connection wizard, the Storage Items.



First we add a storage item named "Photo". Select the ID Scan tab and select "Store the cardholder's scanned photo".

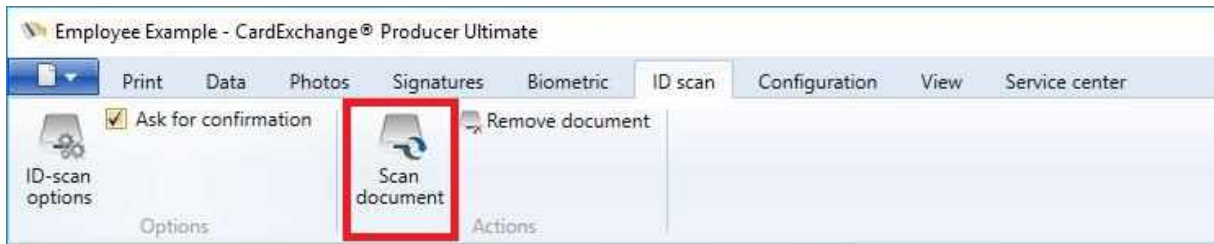




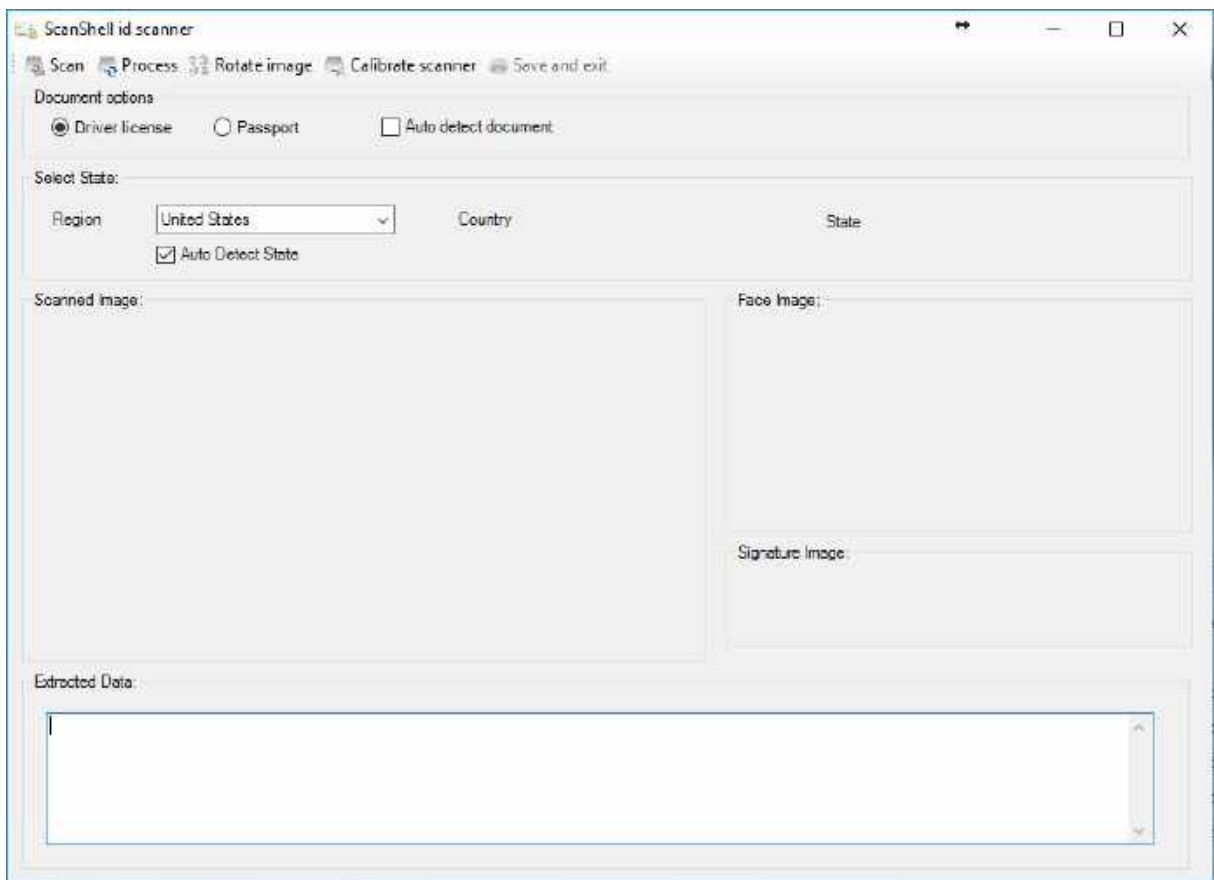
If you also want to store the OCR, add a storage item named ID OCR. Select the ID Scan tab and select "Store the cardholder's scanned OCR". Via the drop down menu you can select the data you want to store.

When you are done you click on Finish to save all settings and close the Database Connection wizard.

## 13.2 Scan Document



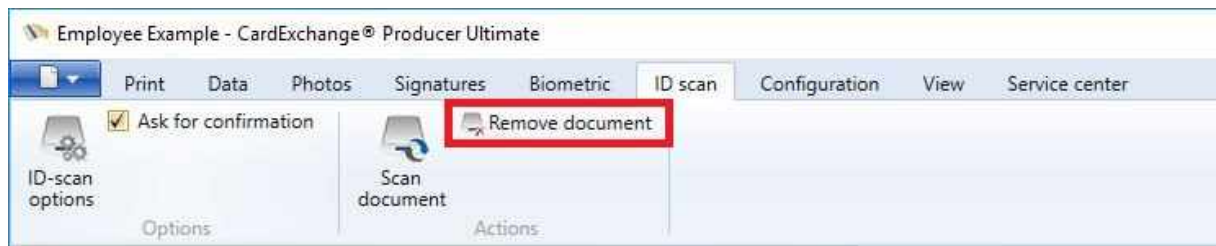
When everything is configured you can start scanning your documents. Click on the Scan document button in the ID scan tab as indicated with the **red** rectangle which will start the scanner.



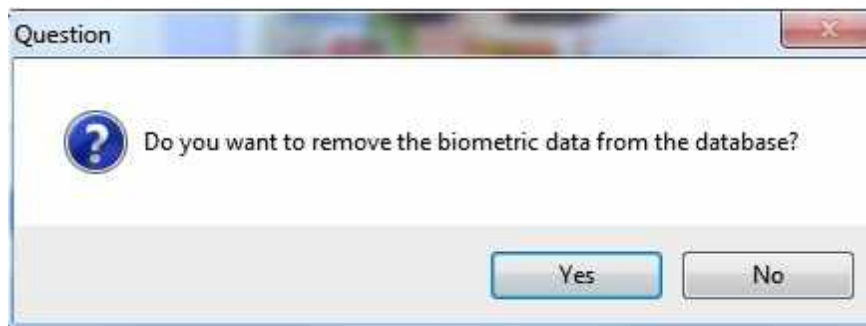
When the scanner interface is opened you need to select in the "Select State" group box the region as ID documents differ per country. In the Document options group you select what type of document you are scanning; Driver license or Passport.

In the menu at the top you can click on Scan to scan the document. When the document is scanned you can rotate the image, and save and exit. The information will be stored into the database and the information will be shown on the card, if configured.

### 13.3 Remove Document



Your scanned document data can be removed from the database by clicking the **Remove document** button from the **Actions** section indicated with the **red** rectangle. The user will be asked to confirm the remove operation with the following question.



When you click **Yes**, the document data will be removed from the database.

## 14 Using Databases



Starting at the Premium Edition, CardExchange® Producer offers database connections. Database connections and the stability of these connections has always been one of the key factors for developing connections.

Besides the variety of offered connections, all the major database connections are created based on direct (native) connections. Therefore for all the major database systems, we have their native connectors embedded. That will ensure 100% stable and secure connections.

CardExchange® Producer does not only offer these type of connections, it also offers multiple database connections with true Push-Pull technology. Sometimes there is some confusion about push and pull, but CardExchange® Producer does not use internal database structures to transport data from one database to the other database. That ensures that with CardExchange® Producer you never have to worry about the privacy of the information because it this information stays where it should be... in your database!

The different type of database connections offered, are available per edition as shown below:

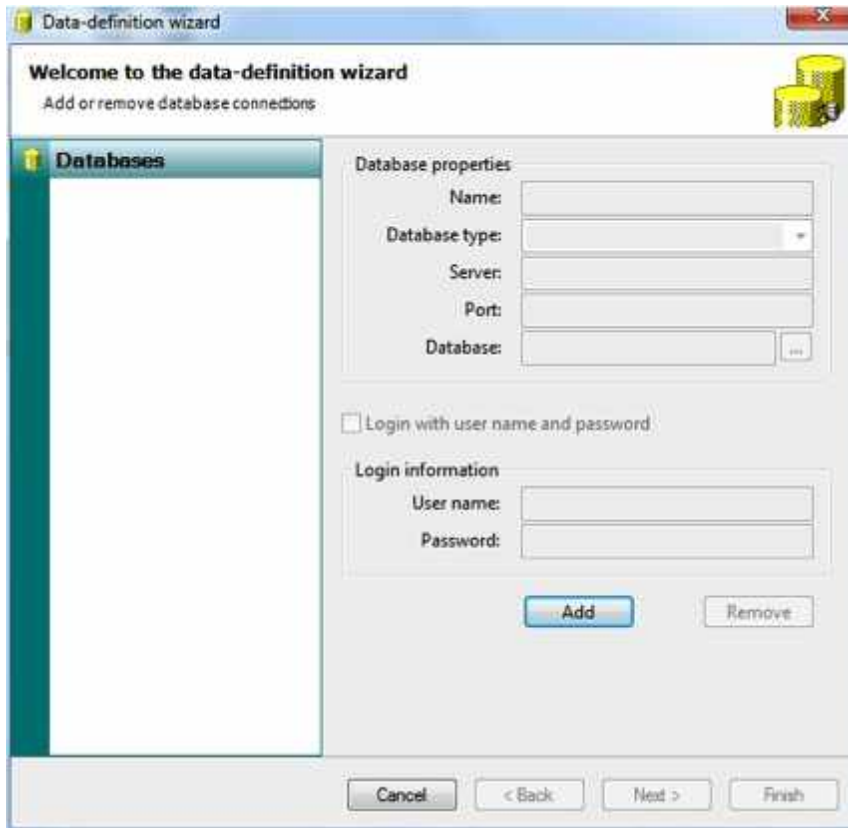
Edition	Supported Database Connections
<b>Go</b>	Internal MS Access Database
<b>Premium</b>	MS Excel (all formats), CSV, and TXT files, MS Access (all formats), Paradox
<b>Professional</b>	MS Excel (all formats), CSV, and TXT files, MS Access (all formats), Paradox, MS SQL, MySQL, Oracle, DB2, PostgreSQL, Ingris, SQLite, ODBC, Multiple Databases
<b>Ultimate</b>	MS Excel (all formats), CSV, and TXT files, MS Access (all formats), Paradox, MS SQL, MySQL, Oracle, DB2, PostgreSQL, Ingris, SQLite, ODBC, Multiple Databases

With CardExchange® Producer your data is secured processed with 128 bit encrypted connections.

## 14.1 Add Database



Adding a database connection starts in the Configuration Mode of your Edition. Select the Data tab and in the Connection group you select New from the group to start the Database Connection Wizard.



In the sections "[Using MS Excel](#)", "[Using MS SQL Server](#)", and "[Using Multiple Databases](#)" we will demonstrate how to configure a new database connection for the mentioned database structures.

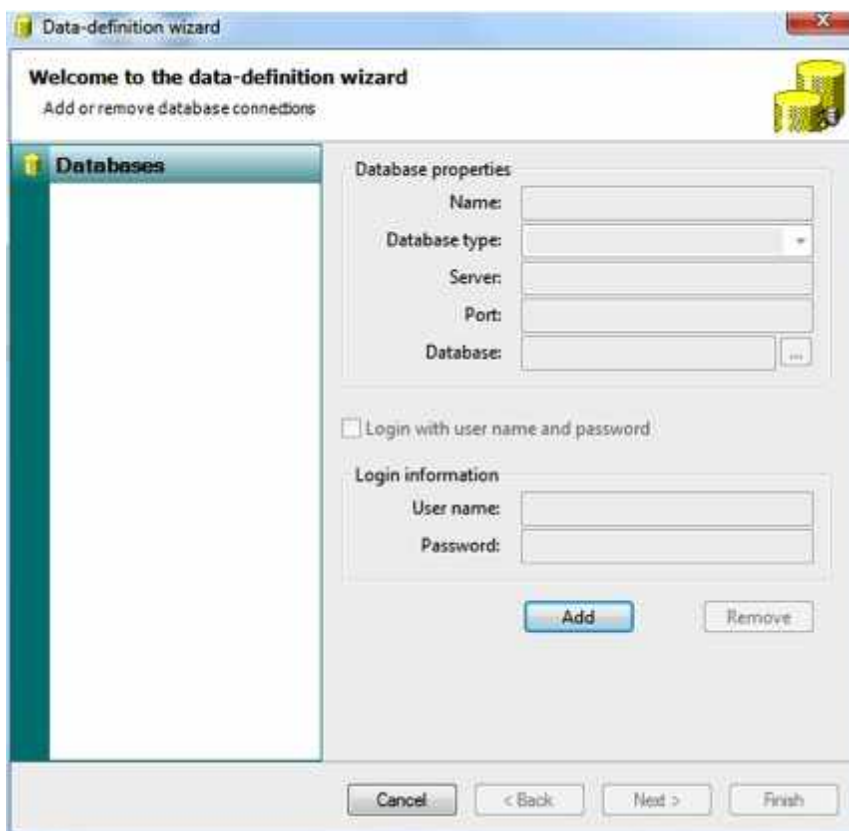
One of the most powerful functionality of the database connections are the Storage Items. Storage Items allow you to store any type of data back into the connected database. This can be Photos, Signatures, Print Dates, Print Counts, Environment Variables, etc. Storage Items are supported for Premium Editions and Higher.

### 14.1.1 Using MS Excel

Although it is not an database, MS Excel is one of the most used files to connect to ID Badging software, and that also goes for CardExchange® Producer. We will demonstrate how to create a connection to an MS Excel file using CardExchange® Producer. You can create a database connection in four easy steps and make the information available for presenting and printing.

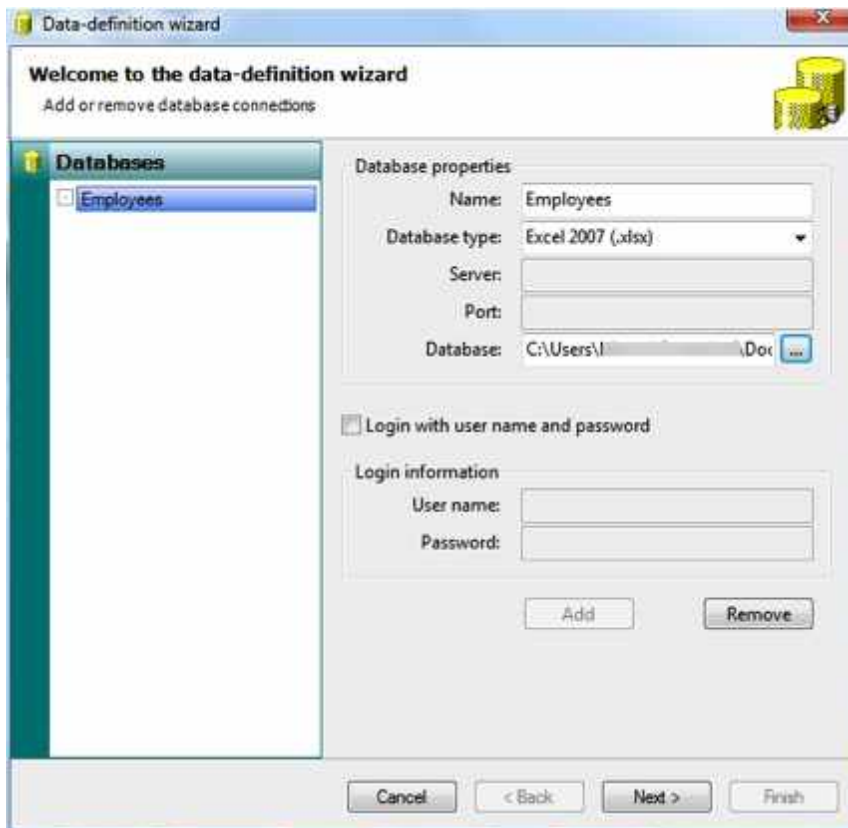



Click **New** to start the Database Connection Wizard.



When the wizard opens you click Add to start making the connection.

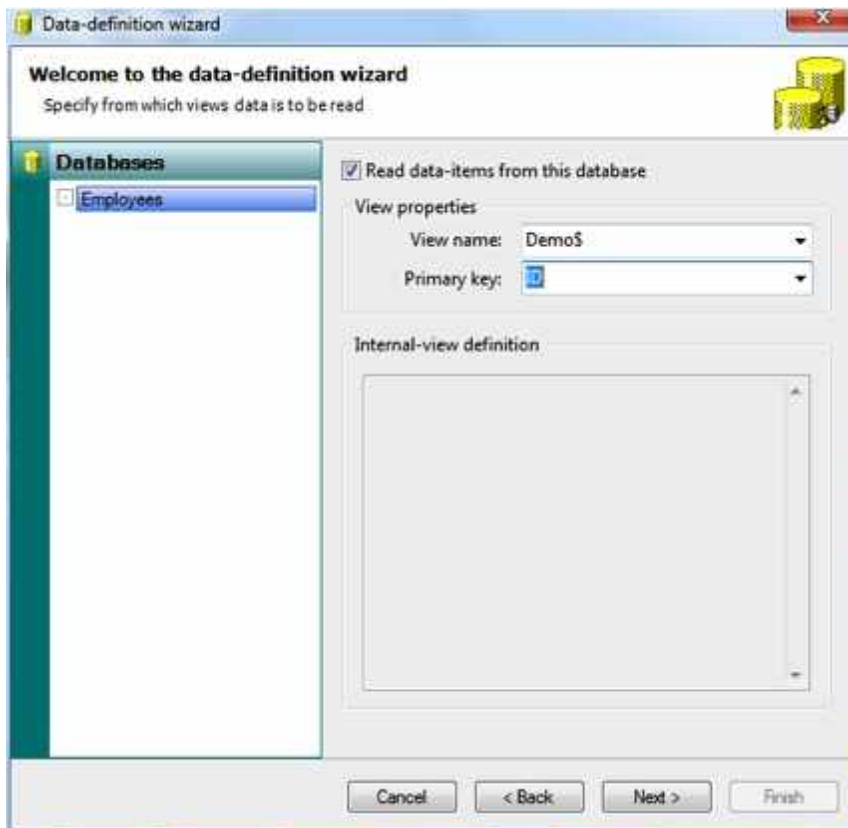
### Step 1



Enter a name for the database connection, select the correct database type, and select the database file by typing the whole path with extension into the Database text box or click on the  button to browse to the file location. Click Next to proceed. It is important to know that on the moment you click the Next button, the wizard will check the connection with the file or database. If all is correct, the wizard will enter the second page of the wizard. If a problem appears, and database error will be shown.

## Step 2





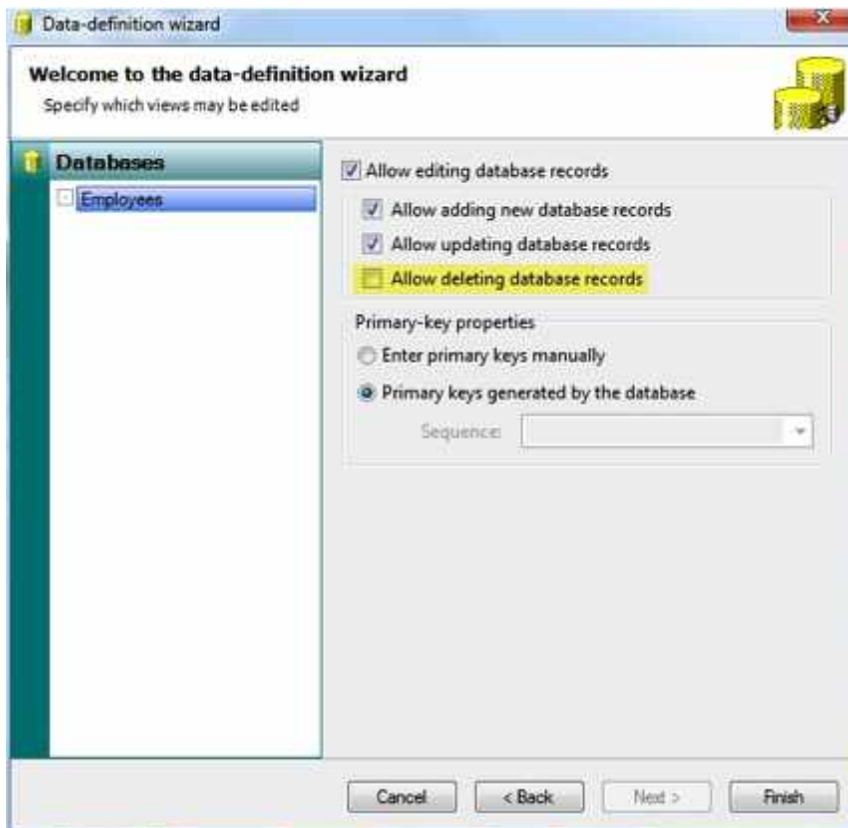
Select the check box 'Read data-items from this database', select the corresponding sheet in the 'View name' drop menu, and select the 'Primary Key' from the drop down menu. The Primary Key is the unique identifier of the record in your database. Click Next to proceed.

### Step 3

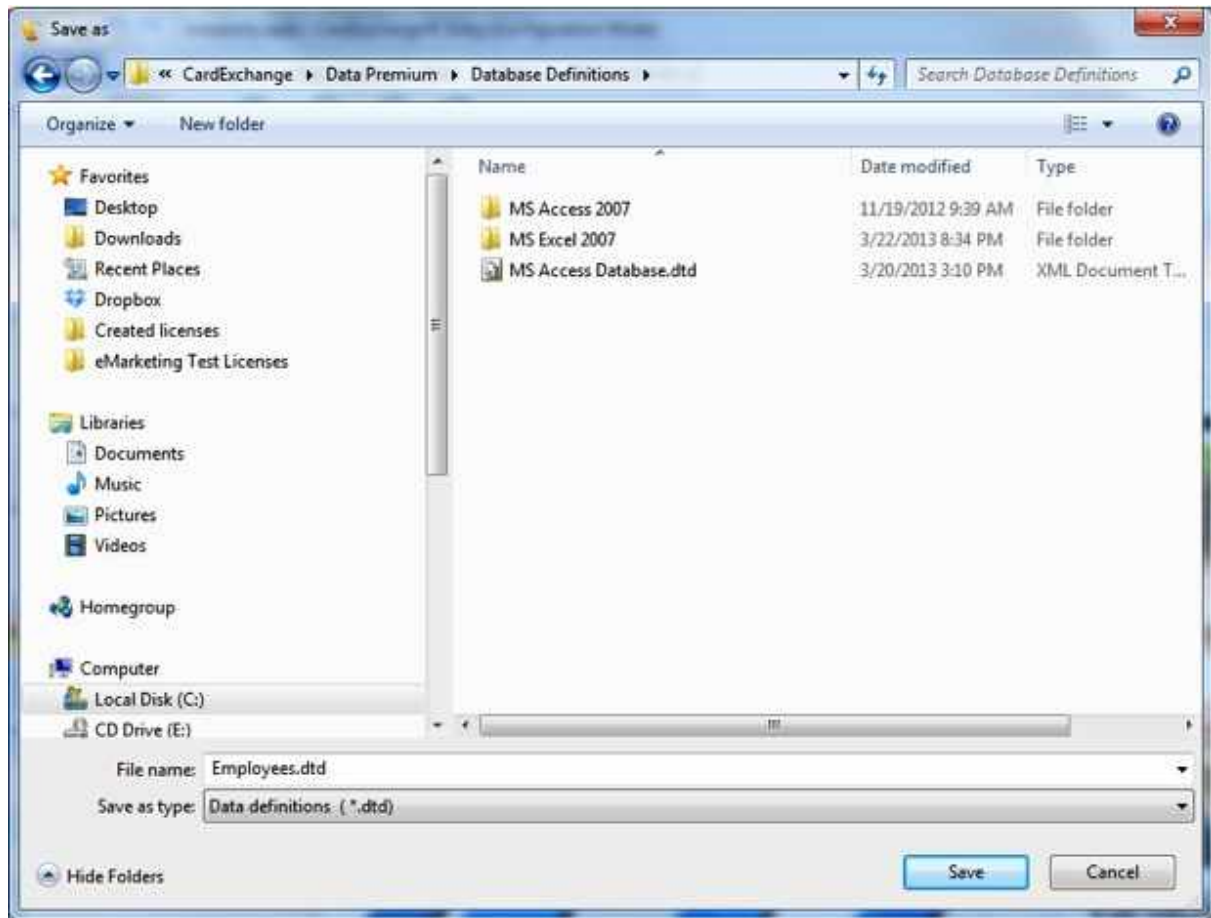
The screenshot shows a 'Data-definition wizard' window. The title bar reads 'Data-definition wizard'. The main heading is 'Welcome to the data-definition wizard' with a sub-heading 'Select where to retrieve the name info from'. Under 'Data database', the 'Database' dropdown is set to 'Employees' and there is an unchecked checkbox for 'Switch on level-three filter'. Under 'Data columns', there are seven rows: 'Last name' (LastName) with a checked checkbox, 'First name' (FirstName) with a checked checkbox, 'Middle name' (none) with an unchecked checkbox, 'Initials' (none) with an unchecked checkbox, '2nd Last name' (none) with an unchecked checkbox, '2nd Middle name' (none) with an unchecked checkbox, and 'Personal number' (ID) with a checked checkbox. At the bottom are buttons for 'Cancel', '< Back', 'Next >', and 'Finish'.

In the Main Interface of CardExchange® Producer you find the [Data Record View](#) showing all the records available in the database in a so called data grid. In this page of the wizard we connect the columns of the database to the data fields. The first field always needs to be connected. All other fields are optional. If you connect the database column, left from the drop down menu you see the check box selected. If the check box is checked, the column will be shown in the [Data Record View](#). Click Next to proceed with the last and final step of this Database Connection Wizard.

#### Step 4



In this page of the wizard you can set the rights to edit the connected database, or in this case, the connected MS Excel file. Click on the check box '**Allow editing of the database records**' to enable this functionality. Separate from this selection you can set that the user is allowed to add new records to the database and update existing records. Deleting is deselected because deleting records in an MS Excel file is not supported. In the Primary-key properties section you can select to enter the primary keys manually. If you are not using numbers as primary keys, this check box needs to be selected but for each new record, a unique primary key needs to be entered by the user. We advice to use numbers and leave the check box as is by default, primary keys are generated by the database. Normally real databases support this functionality itself, but because MS Excel is not a database, we have embedded a unique number generator so your primary keys are taken care of by CardExchange® Producer. Now click on Finish



and save your database connection to a location on your computer. We advice to store your data in the [Data Folder](#) of CardExchange® Producer.

Now in four simple steps you have created the connection to your MS Excel file and now the columns are available in the Designer for adding to your design.

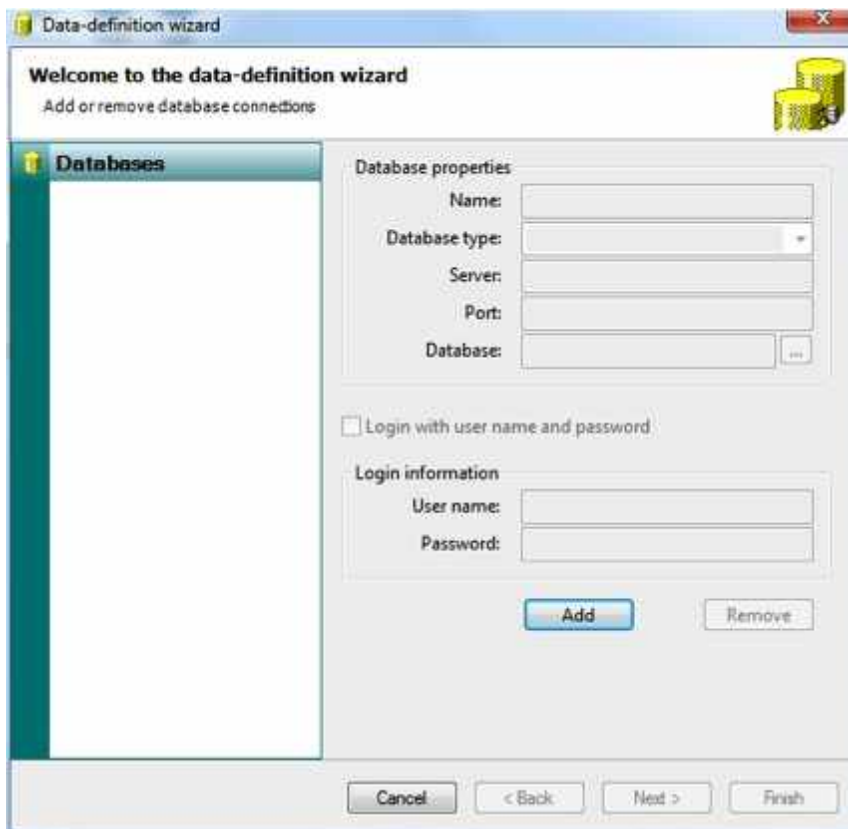


## 14.1.2 Using MS SQL Server

For using MS SQL Server connections a Professional or higher edition is needed. In this example we will demonstrate how to make a connection to the MS SQL Server database. For most of the database servers available, the setup for connecting works the same.

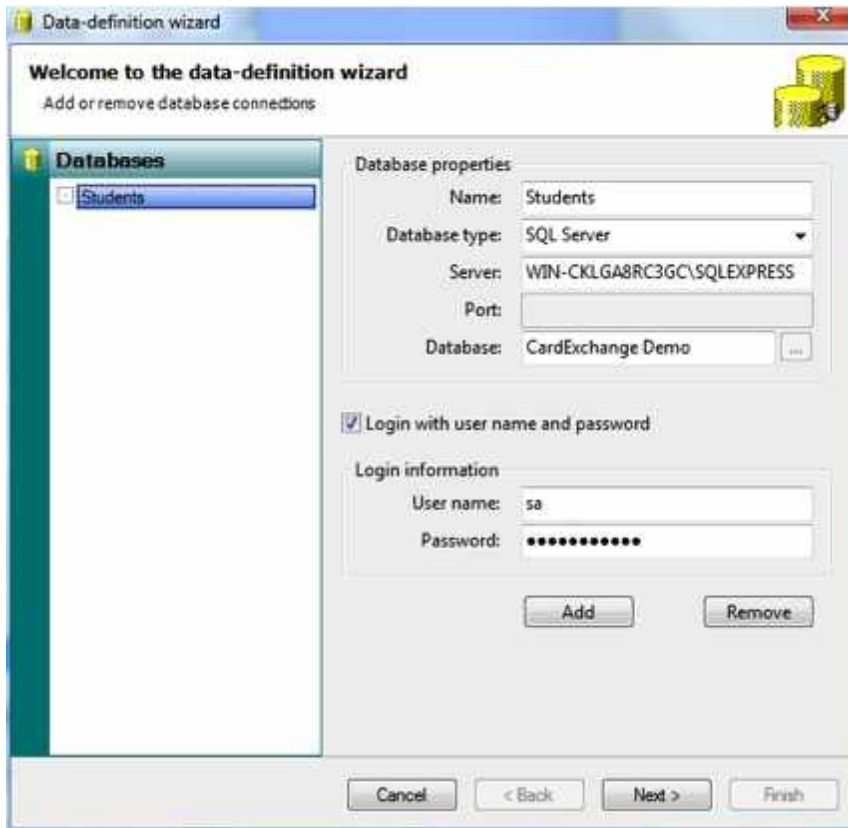


Click **New** to start the Database Connection Wizard.



When the wizard opens you click Add to start making the connection.

### Step 1



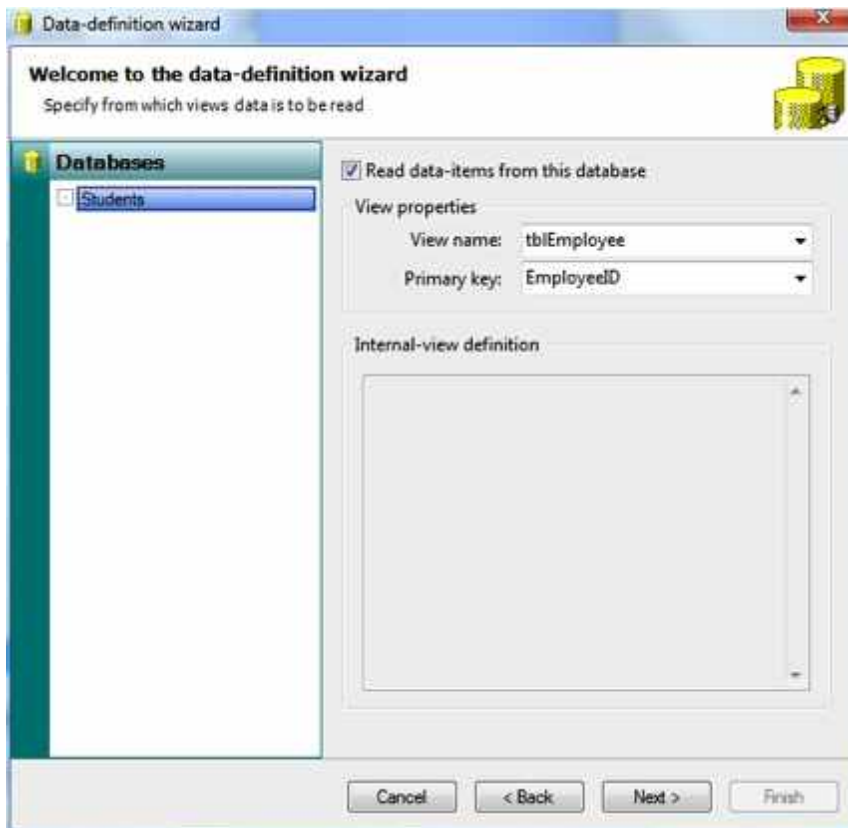
Enter a name for the database connection, select the correct database type, enter the name or IP address of the SQL Server. We advice to use the server name as CardExchange® Producer supports Load Balancing via TNS. If used in your organization, you will always have access to your data if one of the servers goes down and the other takes over. Using IP is more static and you need to know for sure that IP addresses are not changing. Entering a port number with MS SQL Server is not needed.

When you are using Oracle, a port number needs to be entered. Enter the name of the database running on the MS SQL Server.

If MS SQL Server is set to use Windows Authorizations, you can leave the Login option unchecked. If not, check this option and provide a user name and password so CardExchange® Producer can log in to the database server. All user name and password information is encrypted with AES 128 bit technology.

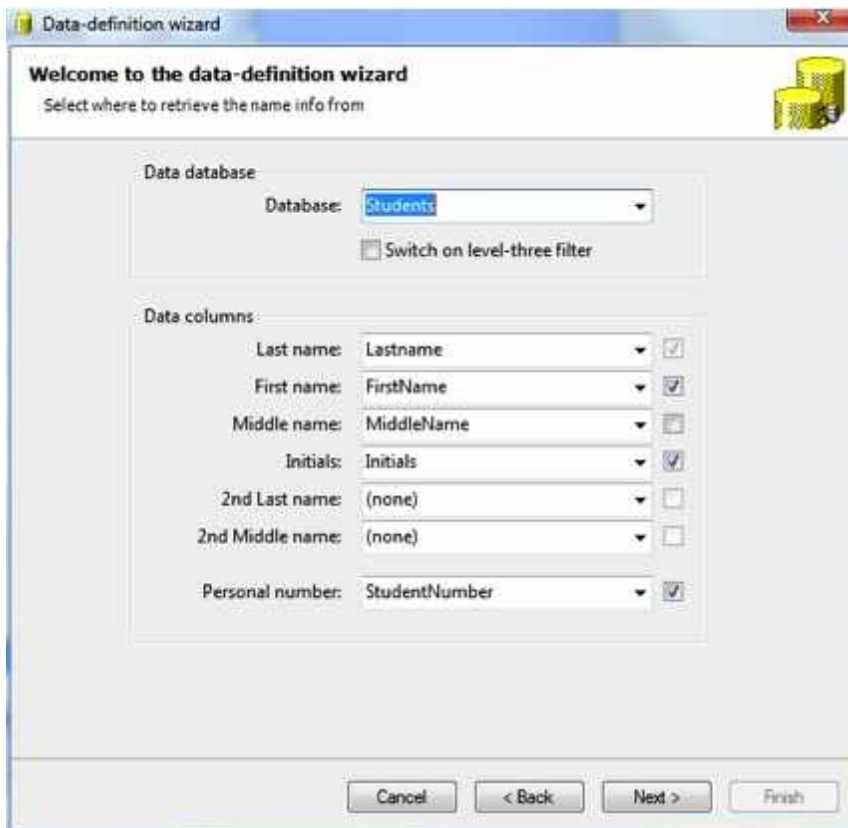
**IMPORTANT!** If you are connecting to an Oracle Database Server make sure you have installed the Oracle.NET provider!

## Step 2



Select the check box 'Read data-items from this database', select the corresponding view/table in the 'View name' drop menu, and select the 'Primary Key' from the drop down menu. The Primary Key is the unique identifier of the record in your database. Click Next to proceed.

### Step 3

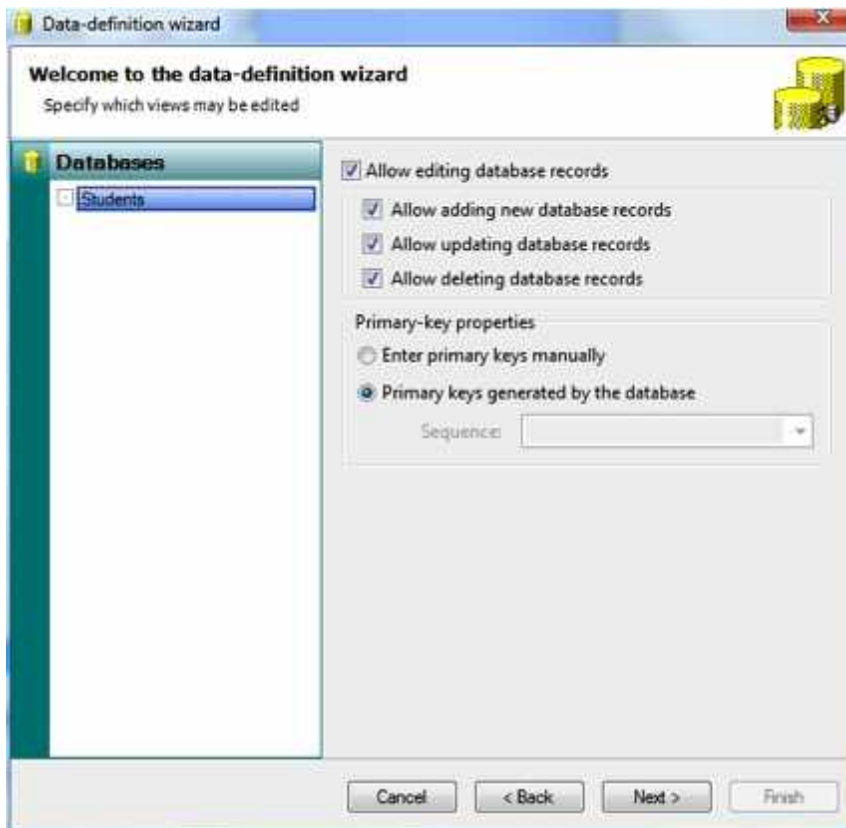


In the Main Interface of CardExchange® Producer you find the [Data Record View](#) showing all the records available in the database in a so called data grid. In this page of the wizard we connect the columns of the database to the data fields. The first field always needs to be connected. All other fields are optional. If you connect the database column, left from the drop down menu you see the check box selected. If the check box is checked, the column will be shown in the [Data Record View](#). Click Next to proceed with the last and final step of this Database Connection Wizard.

If you are connecting to a database with a huge amount of records and you want to prevent loading all these records directly after the connection is made, check the 'Switch on level-three filter' check box. This will prevent CardExchange® Producer from loading all the records and allows you to first create all needed filters for your configuration. For more information about the [Level Three Filters](#) or any other filters, please see our "[Using Filters](#)" section of this Help file.

#### Step 4

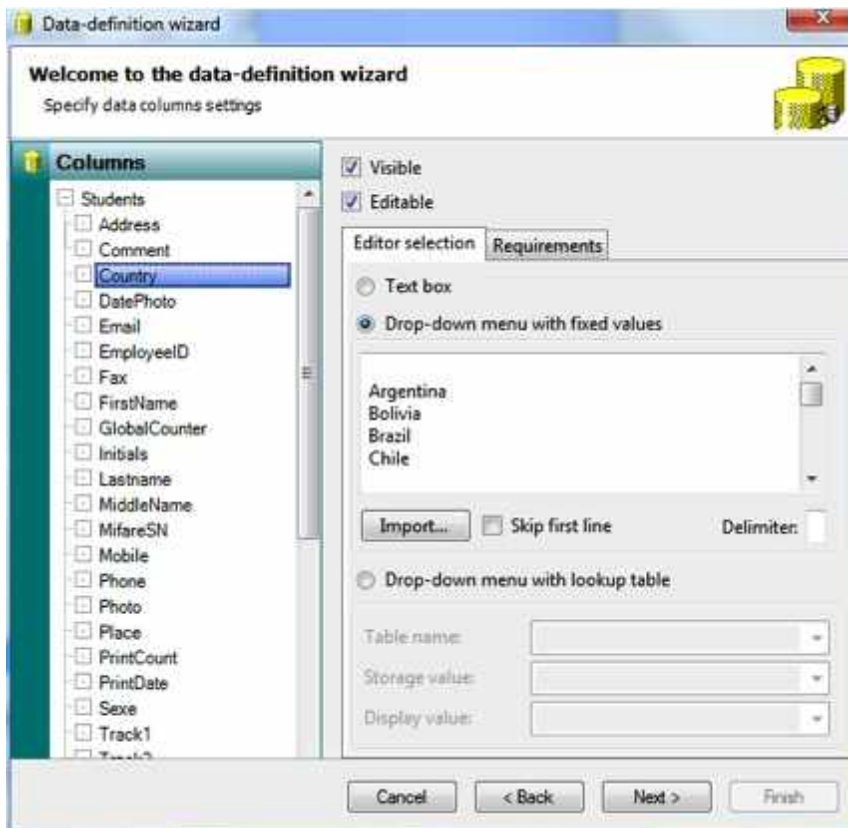




In this page of the wizard you can set the rights to edit the connected database, or in this case, the connected MS SQL Server. Please be aware that this setting does not override the editing rights set by the DBA for record access.

Click on the check box '**Allow editing of the database records**' to enable this functionality. Separate from this selection you can set that the user is allowed to add new records to the database, update existing records, and Delete records. In the Primary-key properties section you can select to enter the primary keys manually. With real databases like MS SQL Server, Primary Key fields are always available and we advise not to enter keys manually. One not for Oracle users, when connecting to an Oracle Database Server, Primary Keys are generated based on created sequences. When Oracle is connected, select the correct Sequence from the drop down menu. If no Sequences are available, please contact your DBA (Database Administrator). Click Next to Proceed.

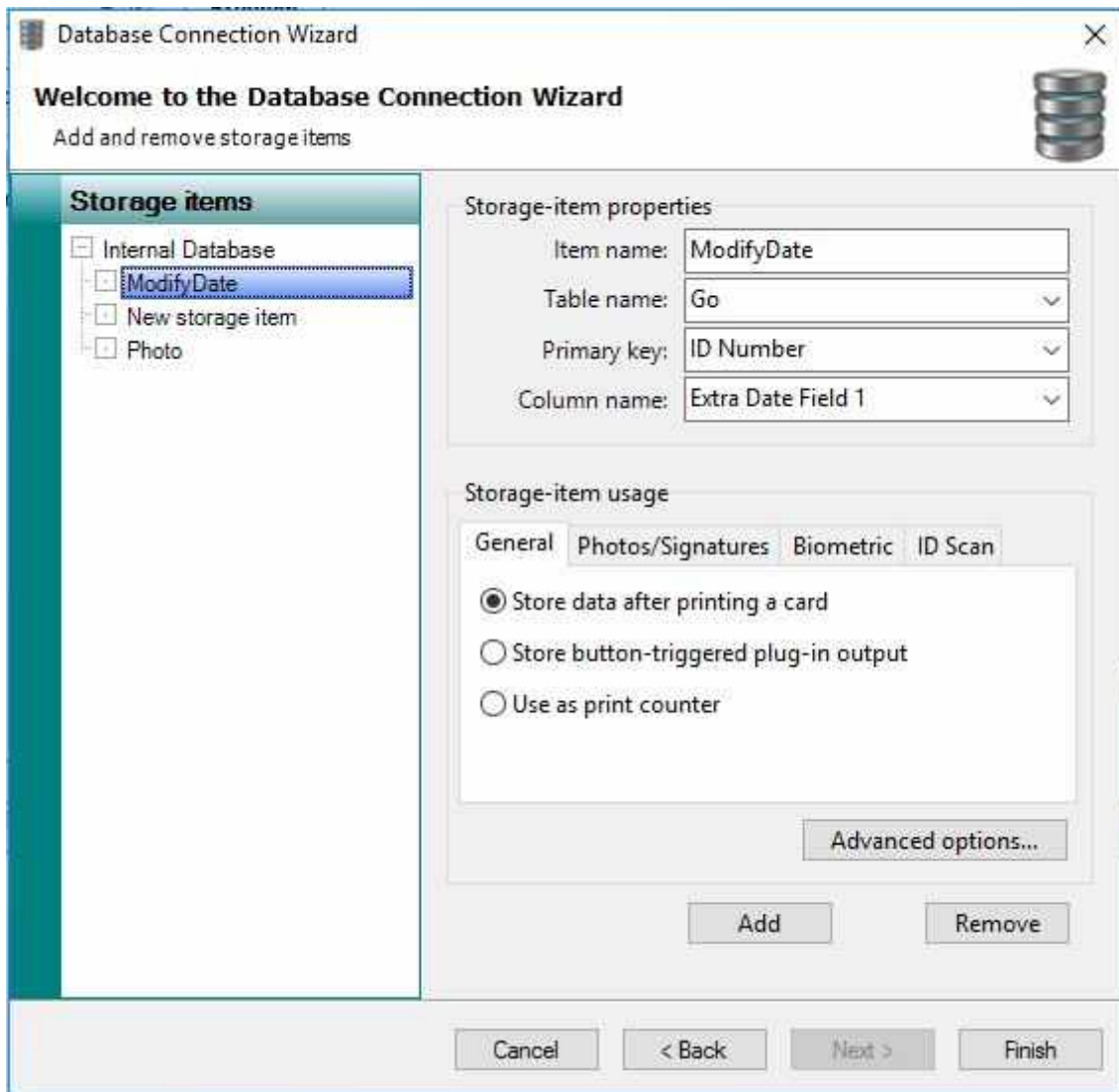
## Step 5



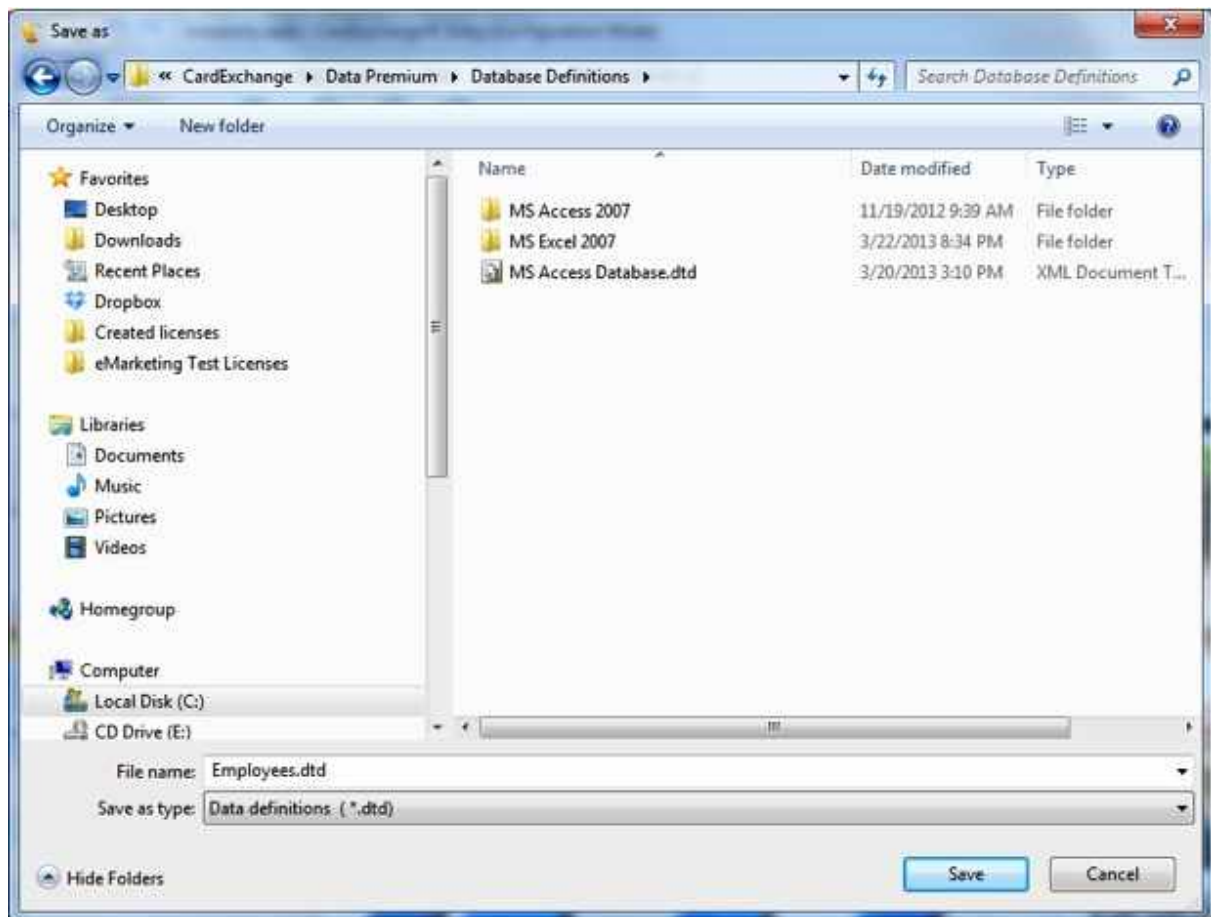
Starting from CardExchange® Producer Premium Edition, we offer advanced data column handling. With this functionality you can set per available column if it needs to be visible or not visible in the [Data Edit Window](#) or visible and not editable. In the Editor selection you can also define drop down menus. For more information about how to create drop down menu's, please see the "[Using Drop Down Menu's](#)" section of this Help file.

When you are using a Professional or higher edition you also will have access to functionality to set specific requirements per column like Column is required for printing, Halt batch when the column does not contain any data, etc. Wanna know how to use the requirements, please the "[Using Data Requirements](#)" section of this Help file. Click Next to Proceed.

## Step 6

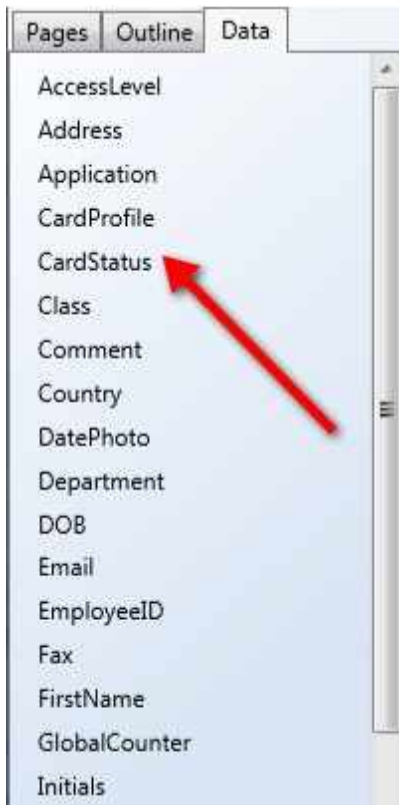


Starting from the Premium Edition, CardExchange® Producer offers Storage Items. Storage Items offers you the possibility to store any type of information that is important for your print process or production into your database. Print dates, Print counts, user information, photo's, signatures, etc. Everything you need to know about configuring Storage Items can be found in our "[Using Storage Items](#)" section of this Help file. Now Click Finish...



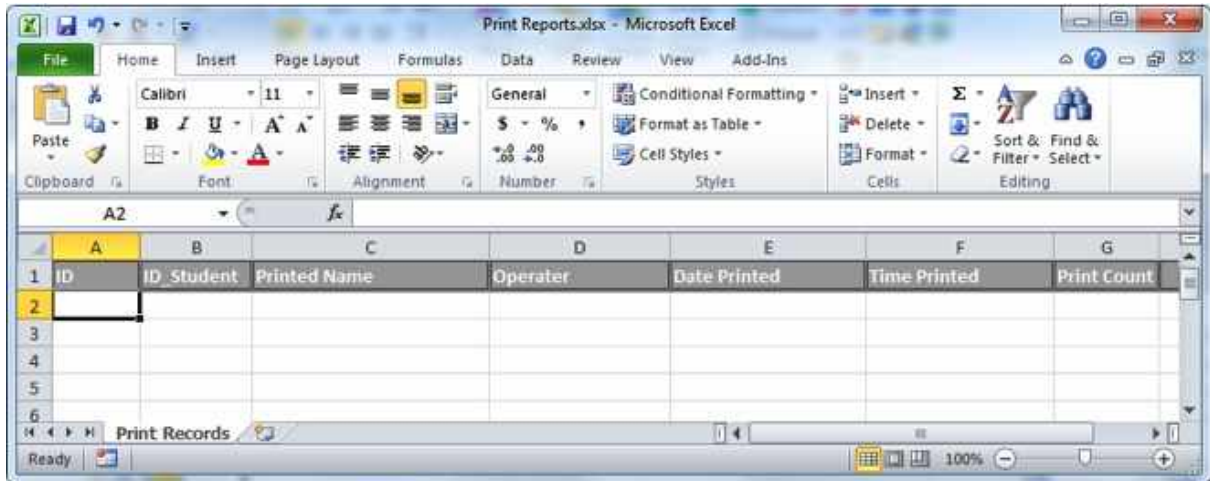
and save your database connection to a location on your computer. We advice to store your data in the [Data Folder](#) of CardExchange® Producer.

In six steps you have created the connection to your MS SQL Server and made the columns available for adding them to your design.



### 14.1.3 Using Multiple Databases

For using Multiple Database connections a Professional Edition or higher is needed. In this example we will extend the example we created with the [SQL Server](#) with a connection to an MS Excel file that is going to be used to report the amount of prints made for a record too. First we need to create an MS Excel file that is going to contain this information. As an example, below you can find a screen shot from an MS Excel created for this example.



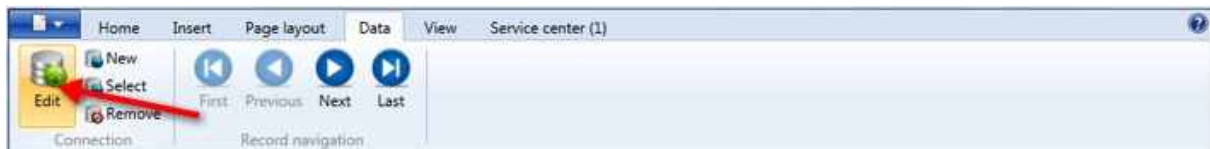
The first row is used for the columns and the following columns are created:

Column Name	Description
-------------	-------------

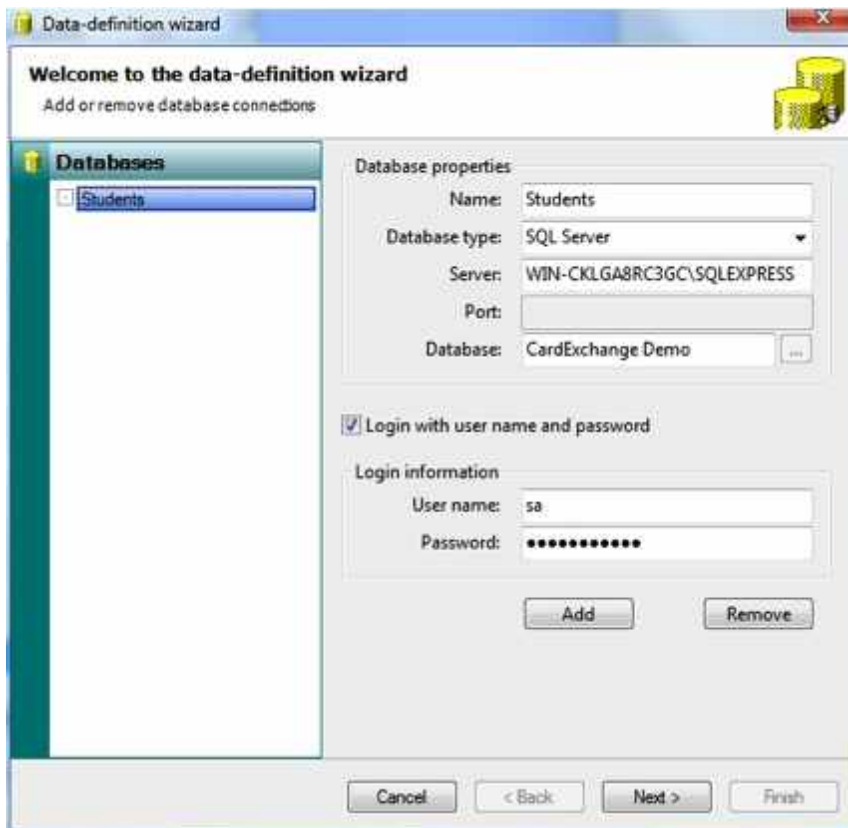
ID	Will be the unique field (Primary Key) for this connection
ID_Student	This will contain the unique ID (Primary Key) field from the Student Table
Printed Name	This field will contain the name of the student printed
Operator	This field will contain the name of the operator logged into CardExchange® Producer
Data Printed	This field will contain the date the record is printed
Time Printed	This field will contain the time the record is printed
Print Count	This field will contain the amount of times the record is printed

The standard sheet name is renamed to "Print Records" and the other two sheets are removed. Of course this is not needed, but makes it more clear what you are doing.

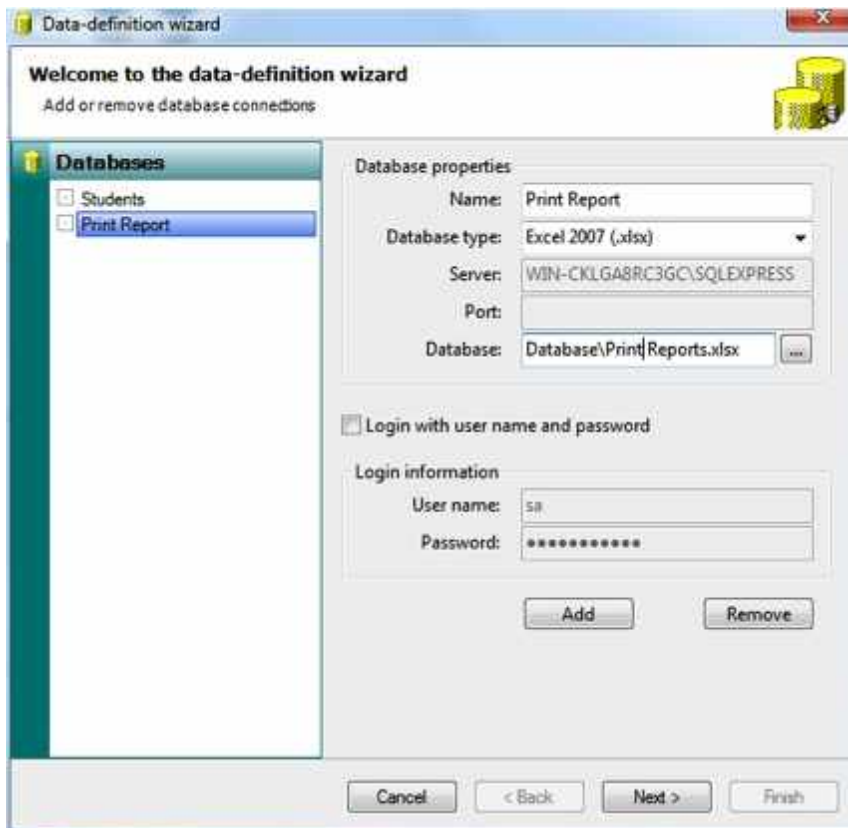
When done, save the created MS Excel file to a location, preferably in the Data folder of CardExchange® Producer. Now we proceed with



Click **Edit** to start the Database Connection Wizard and open the connection made for MS SQL Server.



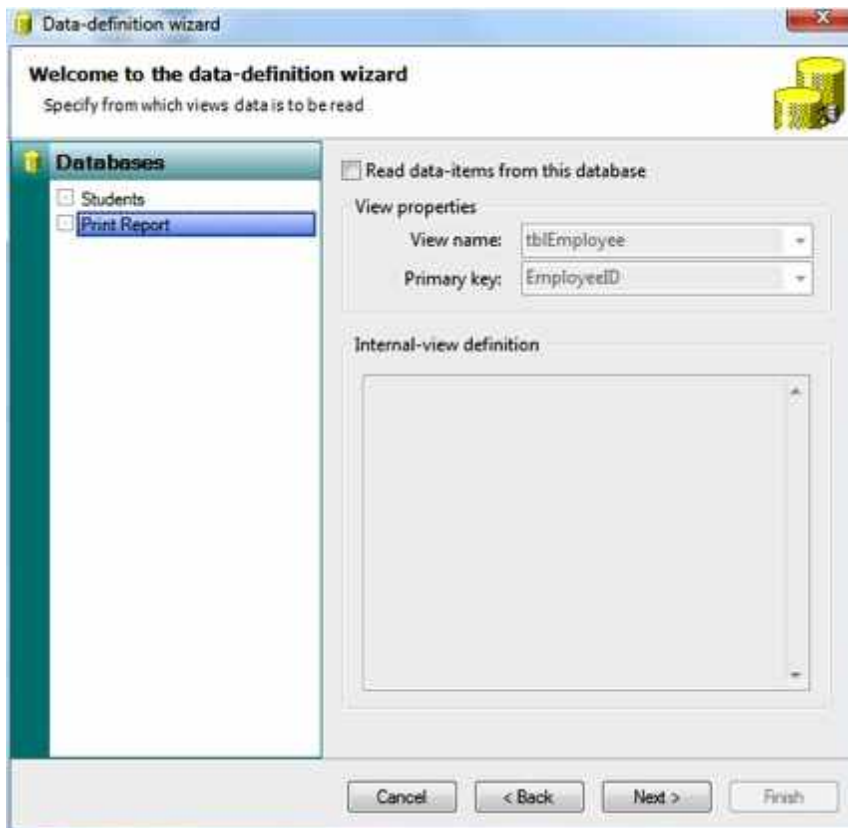
## Step 1



Now click on Add to create an extra connection. Enter the Name field information select the correct database type, etc. It is basically the same setup as with the [Using MS Excel](#) example. Select the MS Excel sheet you have created for Print Reports and click Next to proceed.

## Step 2





In this page you now see two database that can be selected. What is important to know is that you always read from ONE database only. All other connected databases are for writing only. So in this situation, make sure the 'Read data-items from this database' is unchecked and leave the Students database checked. This also shows why it is important when using multiple database connections, the naming chosen for the connections is important to be clear. Click Next to proceed.

### Step 3

Data-definition wizard

Welcome to the data-definition wizard  
Select where to retrieve the name info from

Data database

Database: Students

Switch on level-three filter

Data columns:

Last name: Lastname

First name: FirstName

Middle name: MiddleName

Initials: Initials

2nd Last name: (none)

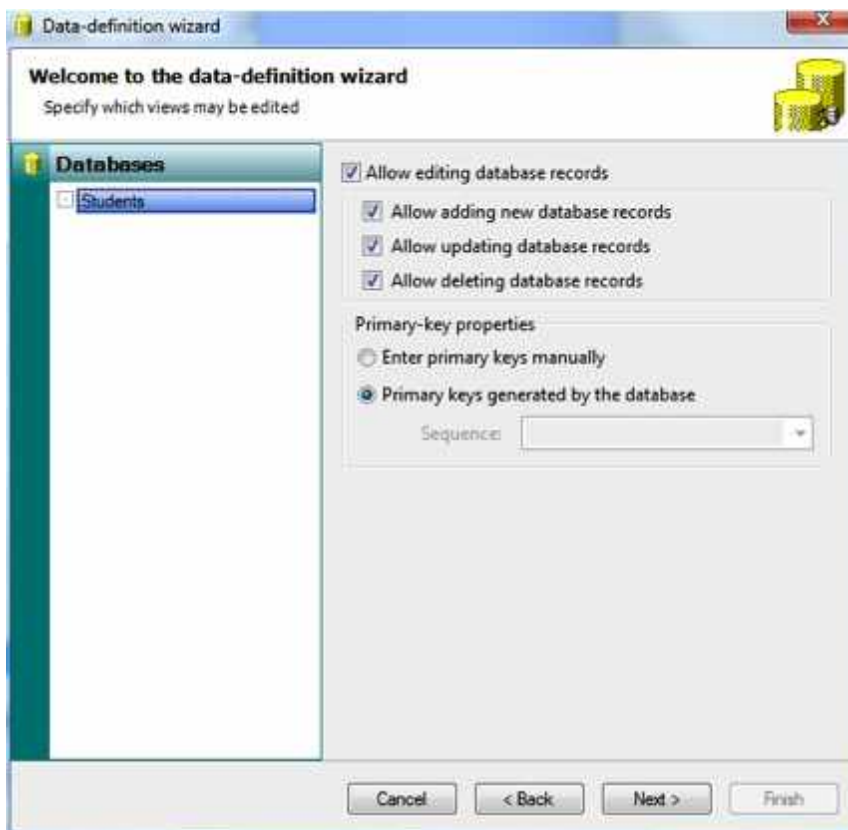
2nd Middle name: (none)

Personal number: StudentNumber

Cancel < Back Next > Finish

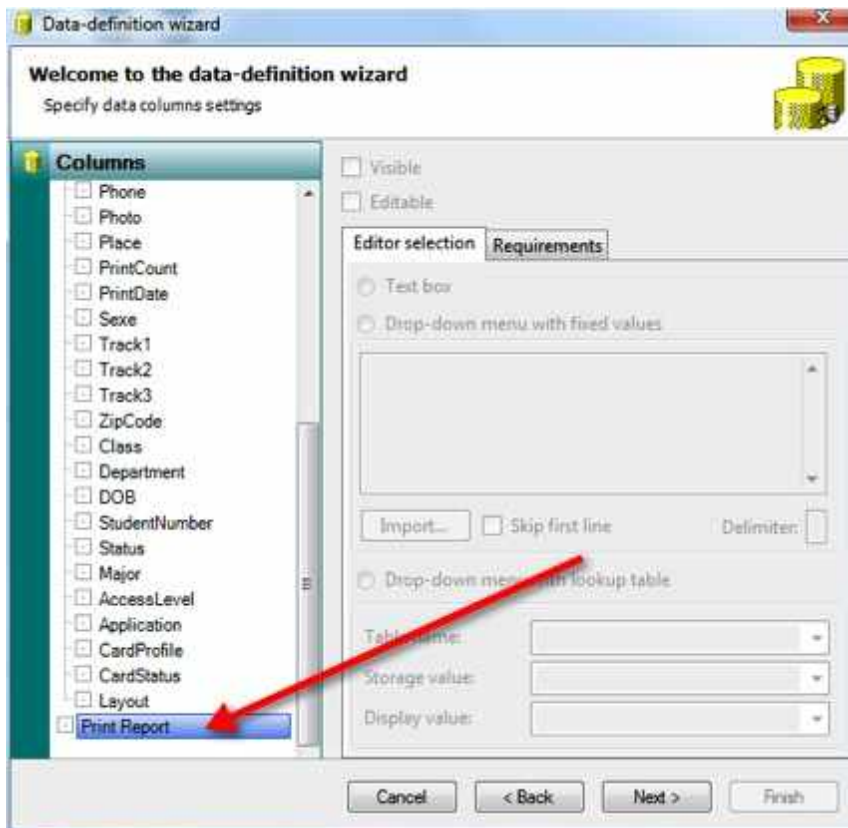
The page where the name information is set does not change and stays the same as in the [Using MS SQL Server](#) example. Click next to proceed.

#### Step 4



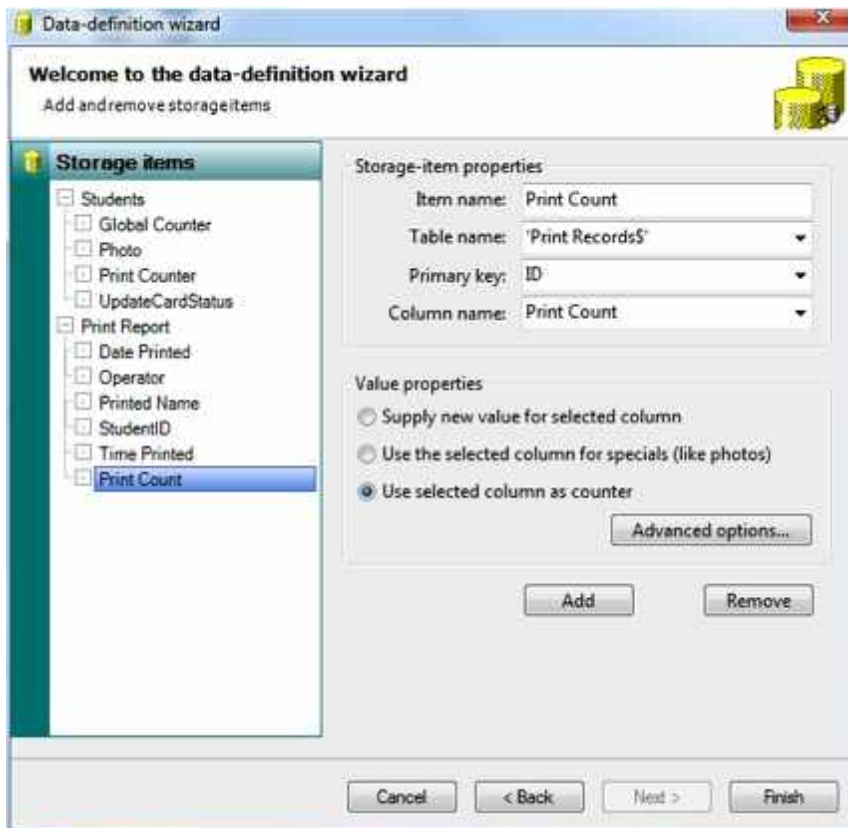
Also this does not change and stays the same as in the [Using MS SQL Server](#) example. Click next to proceed.

### Step 5

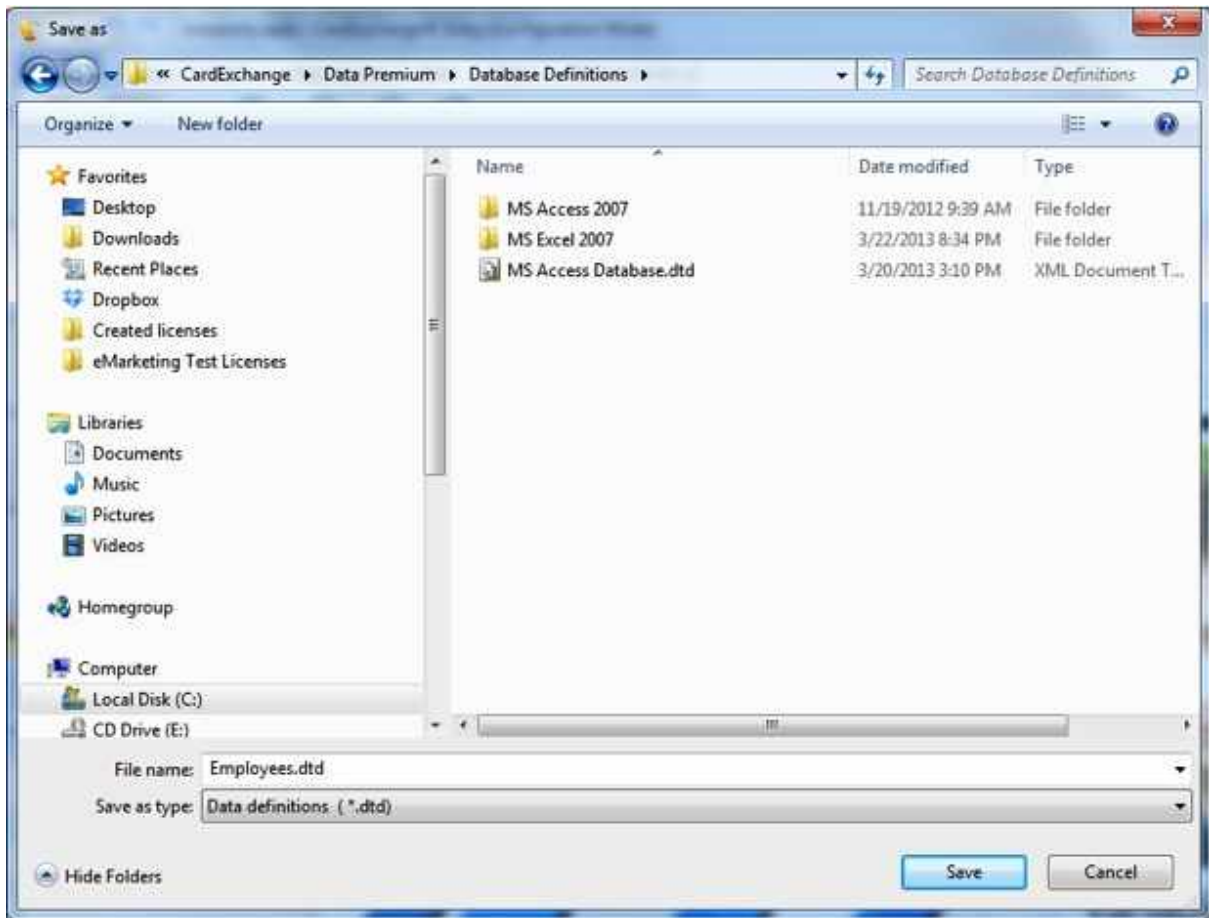


Also this page does not change. Although you can see that the new created database is available, we are only writing back to it so we cannot define any settings for the specific columns. Click Next to Proceed.

## Step 6



In the Storage Items section you now see the new database connection and you can start adding the items to the connected database. All the information about configuring the Storage Items can be found in our "[Using Storage Items](#)" section of this Help file. Now Click Finish...



and save your database connection to a location on your computer. We advice to store your data in the [Data Folder](#) of CardExchange® Producer.

In six steps you have created the extra connection and when configured correctly, every time you print, a record will be added to the MS Excel file connected.



#### 14.1.4 Data-source Plug-in's

To use data-source plug-in's you must have a CardExchange® Producer Business Edition or Enterprise Edition and you need an additional license for each specific plug-in, once you have this license you can activate it by following the steps under [Upgrade Your License](#).

Below are the current available Data-source Plug-in's.

##### **LDAPExchange**

LDAPExchange allows for using LDAP (Active Directory) as a live data source for CardExchange® Producer.

Via LDAPExchange it is possible to view and edit LDAP entries in CardExchange® Producer, you can also update these entries at print time with data from other sources.

**Note:** It is not possible to add or delete entries from LDAP via CardExchange® Producer.

##### **NET2Exchange**

NET2Exchange is a special database connector that allows for using an existing Paxton Access Net2 installation as a live data source for CardExchange® Producer.

Via NET2Exchange, it is possible to view and edit Net2 user data in CardExchange® Producer, view and manage each user's cards and create a new card record in Net2 whenever a card is printed with CardExchange® Producer.

**Note:** It is not possible to add or delete entries from Net2 via CardExchange® Producer.

#### 14.1.4.1 LDAP

LDAPExchange requires one DLL file: LDAPExchange.dll. This file, a product of CardExchange Solutions, is the data-source plug-in that needs to be called from CardExchange® Producer. This DLL file is included in the installer of CardExchange® Producer and is found in the CardExchange® Producer installation folder, which is C:\Program Files (x86)\CardExchange Solutions\CardExchange Gateway\ by default.

1. Start Notepad with administrator rights and open the file LDAPExchange.ini which is located in the CardExchange® Producer installation folder.
2. Specify the desired root node and the attributes (fields) that you want to load from the LDAP.  
The filter is set to users by default, but can be changed to other object types if desired. Leave the root-table name as is.  
Leave the path-column name as is unless the name "path" also appears in your attribute list, in which case you should choose a unique name.  
The path column will contain the full distinguished name of the LDAP entries and can serve as primary key.
3. Start CardExchange® Producer and create a new card or modify an existing one.
4. In the database setup, choose Data-source plug-in as database type, enter none for the server and the port (these fields are not used) and select the LDAPExchange.dll in the installation folder as database.
5. Check the Login option and supply the correct login details (This may not be needed for a domain user)
6. On the second page, select the People table and choose a primary key. If none of the attributes specified in LDAPExchange.ini can serve as primary key, you can use the path column. This is a long text column and hence not very efficient as primary key, but it works if needed.
7. On the fourth page, if you allow editing at all, disable the options to add and delete records, as this is not supported by LDAPExchange.



8. On the storage items page, you can create storage items, but again, it will only be possible to update existing records of the LDAP and not inserting new records.

#### 14.1.4.2 Net2

NET2Exchange requires two DLLs: Net2Exchange.dll and Paxton.Net2.OEMClientLibrary.dll. The first, a product of CardExchange Solutions, is the data-source plug-in that needs to be called from CardExchange® Producer. The second is the Paxton Access Net2 SDK, which forms the interface between Net2 and NET2Exchange. Both DLLs are included in the installer of CardExchange® Producer and are found in the CardExchange® Producer installation folder, which is C:\Program Files (x86)\CardExchange Solutions\CardExchange Gateway\ by default.

If CardExchange® Producer runs on a different computer than the one where Net2 is installed, it is necessary to install the Net2 runtime, which is distributed by Paxton Access as part of the Net2 SDK.

#### Configuration

NET2Exchange is both a data-source plug-in and an external plug-in. The data-source plug-in part manages the reading and writing of user data and the creation of new card records upon printing. The external plug-in part makes it possible to view and manage the user's card records. Both need to be configured separately.

#### Creating a new card

1. Start CardExchange® Producer and click **Configuration – New card**.
2. Provide a template name and optionally a category.
3. Click **Next** to go to the second wizard page.
4. Select **I want help to make my card by using this wizard** and click **Next**.
5. Specify whether the card is double sided, set its orientation and click **Next**.
6. Select **Please connect my new card to my own database**.
7. Click **(add a new database...)** to open the database-connection wizard.

### Creating a database connection

8. Click **Add** to add a new connection.
9. Set the connection's name to **NET2Exchange**.
10. Set the database type to **Data-source plug-in**.
11. Type the name or IP address of Net2 server. Use **localhost** if Net2 is installed locally.
12. Set the port used by the Net2 server. Normally, you should type **8025** as port.
13. Click on the browse button to select a database, navigate to the CardExchange® Producer installation folder and select the **Net2Exchange.dll**.
14. Enable **Login with user name and password** and supply the correct login information.
15. Click **Next** to go the second wizard page.
16. Enable **Read data-items from this database**.
17. Choose **Users** as view name and **UserId** as primary key.
18. Click **Next** to go the third wizard page.
19. Choose **NET2Exchange** as database, **Surname**, **FirstName**, **MiddleName** and **UserId** as record look-up fields.
20. Click **Next** to go the fourth wizard page.
21. Select **Allow editing database records** and allow both adding, updating and deleting.
22. Select **Primary keys generated by the database**.
23. Click **Next** to go the fifth wizard page.
24. Unselect the option **Visible** for the following database columns: AccessLevel, Department, UserGuid and UserImage.
25. Unselect the option **Editable** for the following database columns: Global, LastAccessTime, LastArea, LastAreald and LastUpdated.

26. Select **Drop-down menu with lookup table** for the column AccessLevelId with **AccessLevels** as table name, **Key** as storage value and **Value** as display value.
27. Select **Drop-down menu with lookup table** for the column DepartmentId with **Departments** as table name, **Key** as storage value and **Value** as display value.
28. Click **Next** to go the last wizard page.
29. Click **Add** to create a new storage item and call it **Photo**.
30. Set the table name to **Users**, the primary key to **UserId** and the column name to **UserImage**.
31. Click the **Photos/Signatures** tab and select **Store the cardholder's photo**.
32. Click **Add** to create a new storage item and call it **CardTypeId**.
33. Set the table name to **Cards**, the primary key to **CardNo** and the column name to **CardType**.
34. Click **Add** to create a new storage item and call it **UserId**.
35. Set the table name to **Cards**, the primary key to **CardNo** and the column name to **UserId**.
36. Click **Advanced options...** and select **Supply value for primary key** and **Always insert (uniqueness primary key not guaranteed)**.
37. Click **OK** to close the storage-item properties and **Finish** to close the database-connection wizard.

#### Creating a new card (continued)

38. Click **Next** to go to the next wizard page.
39. Choose a background image or color and a logo and click **Next**.
40. Select **Use a combined name field on my new card** with **FirstName UserImage (NET2Exchange)** as first name and **Surname UserImage (NET2Exchange)** as last name.
41. Select **Use a photo on my new card** with **UserImage (NET2Exchange)** as associated database column.

42. Click **Next**.
43. Choose the database columns you want to show on the card layout and click **Next**.
44. Configure a bar code if desired and click **Next**.
45. Leave the option **After Finish, start the Designer for modifying the layout...** selected and click **Finish** to open the designer.

### Mapping the storage items

46. In the designer, open the Properties window and go to the **Manual entries** tab.
47. Click **Add manual entry**, call it **Card-type ID** and set its value to **1** (or another value of choice).
48. Select the **Data** tab on the left hand side and **Storage items** on the bottom of the tab.
49. Select **CardTypeid** in the **Data** tab and select the **Content** tab in the **Properties** window.
50. Map the storage item **CardTypeid** to the manual entry **Card-type ID**.
51. Select **UserId** in the **Data** tab and map it to the database column **UserId**.
52. Select **Storage-item keys** on the bottom of the **Data** tab.
53. Select **Cards** in the **Data** tab.
54. Choose the desired mapping in the **Content** tab of the **Properties** window. The mapping will determine the card numbers created in Net2. It is possible use a manual entry, or a global counter to generate successive card numbers. It is also possible to use the chip-serial number as card number, in which case the storage-item key of the **Cards** table needs to be mapped as chip-serial number.
55. Finish the graphical card design according to your wishes. Then save and close the card template.

### Configuring the external plug-in

56. Back in the main window, click **Configuration – Advanced options**.
57. Select **Show advanced mappings** and click **OK**.

58. Click **Configuration – Card-definition wizard** to open the card-definition wizard.
59. Select **Do you want to use external functions or plug-ins?** and click **Edit**.
60. Click **Add** to add a new plug-in definition and call it **Cards**.
61. Click on the browse button to select the **Net2Exchange.dll** file.
62. Unselect **Call when printing** and select **Call using a button**.
63. Click **Finish** to close the external-functions wizard.
64. Click **Next** to go to the mappings window.
65. Select **Cards.UserId (no mapping)** in the **External-function input** tab.
66. Select **Database column** in the type-of-data drop-down menu.
67. Select the database column **UserId (NET2Exchange)** and click **Finish**.

## Usage

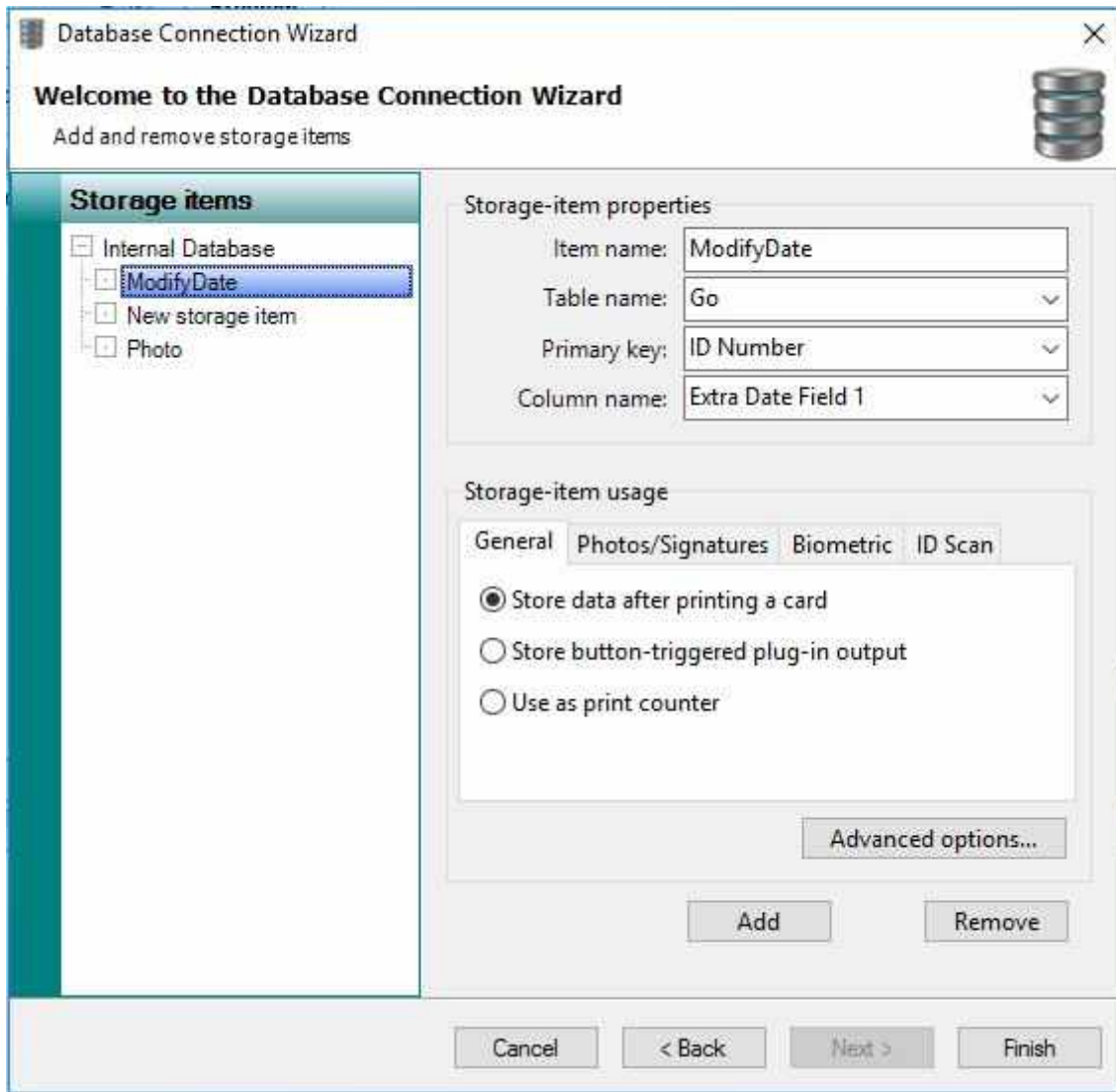
Back in the main CardExchange® Producer window, you should see the Net2 users listed in the name list. If you open database-edit window, you can view and edit the user details, using drop-down menus for the access level and the department.

When you click on the Cards button on the right-hand side, you enter a dialog that lists the card records for the current user, showing the card number, the card type and the lost-card flag respectively. In this window, you can change the card type, mark a card as lost and delete cards from the database.

As soon as you print a card for a specific user, CardExchange® Producer will create a new card record in Net2 for that user, setting the new card number to whatever you have mapped for the storage-item key in the designer.

If the card number needs to be shown on the card, as text or in a bar code, you have to make sure that the corresponding text object or bar code is mapped the same way as the storage-item key.

## 14.2 Storage Items



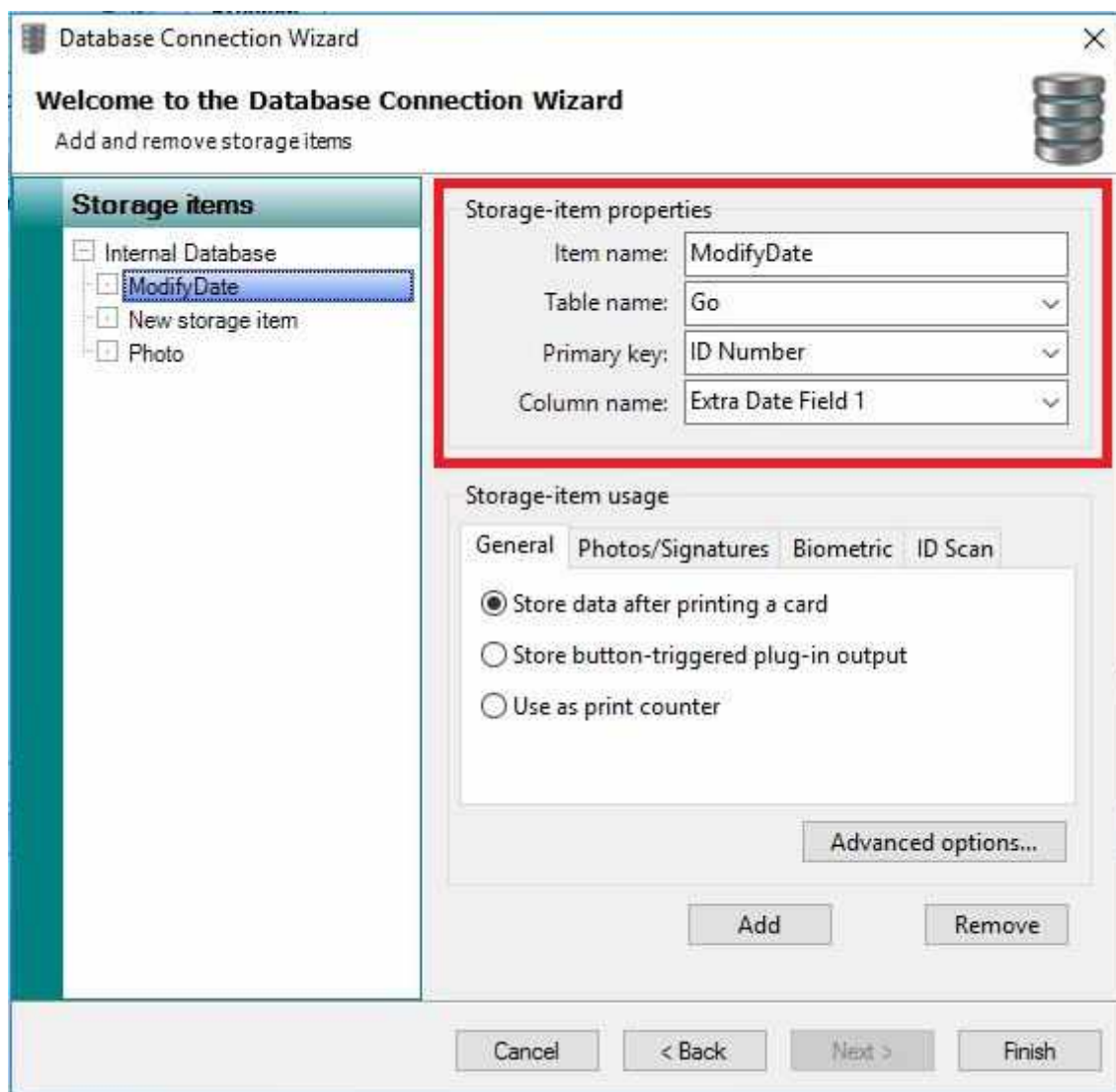
If you want to store data into the connected database(s), you need to define **Storage Items**. **Storage Items** contains the information of the column name in which you want to save your information like **photos** or **print dates**. This **Storage Items** will be presented in the [Storage Items](#) section of the [Data](#) tab in the [Explorer Menu](#) of the Designer and where they will be connect to the right Object Type. See [Objects](#) and [Standard Object Types](#) sections of this Help file for more information.

For each connected database you can define storage items. Just click on the database name on the left side to select and click on Add to define a storage item. You can add unlimited storage items for each connected database.

**Storage Items** are supported starting from Premium and Higher Editions and are configured in the last page of the **Database Connection Wizard**. For more information about the Database Connection Wizard and examples of how to make Database connections, please see the [Databases](#) section of this Help file. In this section we will explain all the available functionality of the Storage Items section of the wizard.

The Storage Items section of the wizard is divided into three different sections which are the Available Storage Items section on the left side showing all the available databases and their created storage items, The Storage Items Properties group, and the Value Properties group.

### The Storage Item Properties



This section, indicated with the **red** rectangle, shows four important properties:

<b>Storage Item Property</b>	<b>Description</b>
Item name	Enter a name for the storage item like <b>Photo</b> , <b>Print Date</b> , etc.
Table Name	Select the table from the database where you are storing the data
Primary Key	Select the Primary Key from the selected database
Column Name	Select the column name from the selected table

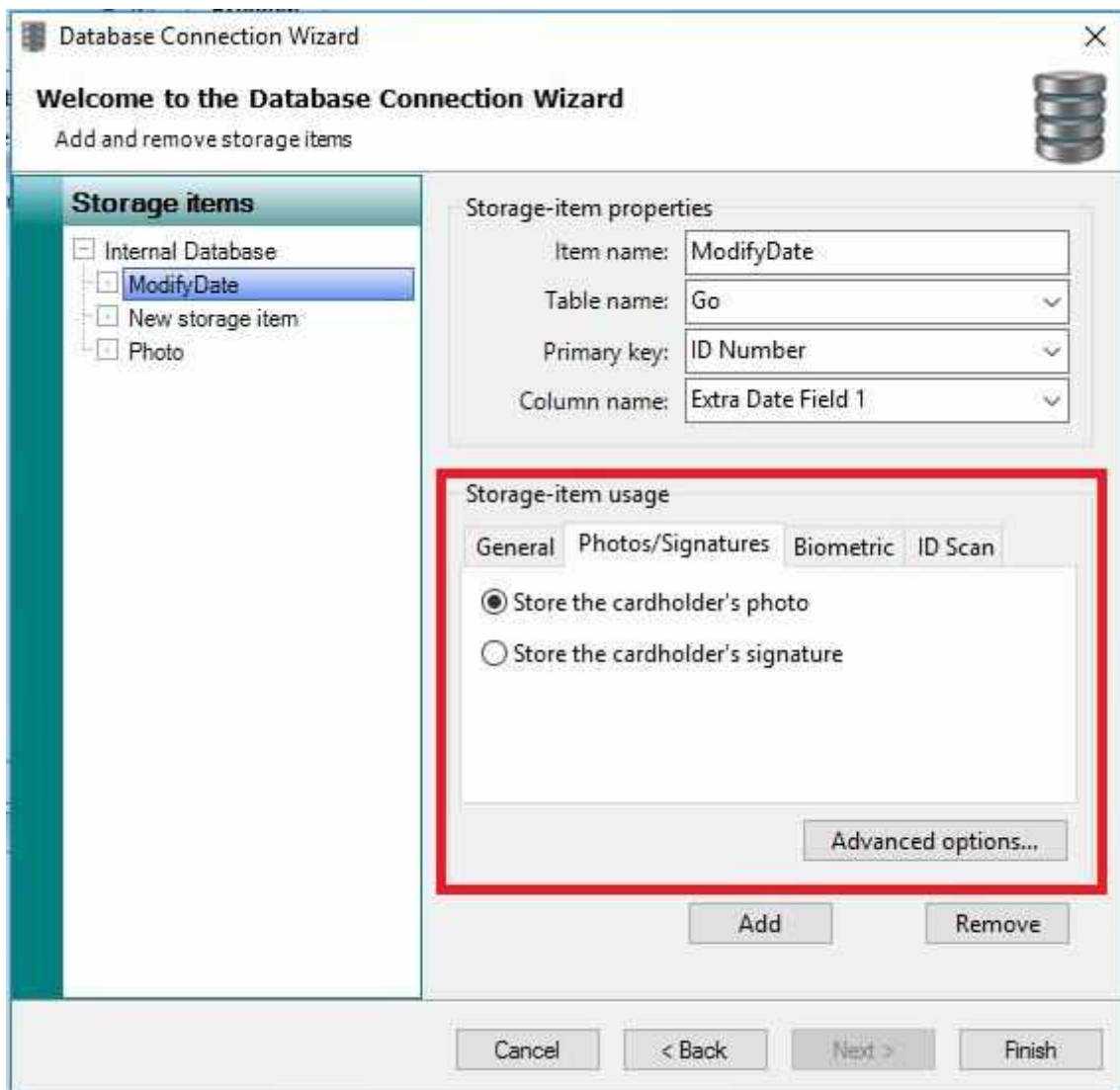
CardExchange® Producer not only offers storing data into multiple connected databases, you can also store data in multiple tables. That makes this section so powerful. For example, you are connected to a database containing a view that combines two tables, for example **Student** and **Student Photo**, with a so called **LEFT INNER JOIN** connection. A **LEFT INNER JOIN** view shows all the records of the Student table with the photos of the **Student Photo** table. Even if there is no photo for the **Student** available in the **Student Photo** table, the **Student** record will be shown.

Everybody knows that you cannot store data into the database via an **LEFT INNER JOIN** view because updating one record will update all records and therefore, in most of the competitive applications you simply cannot store information back into the database when connecting to a view like this.

With CardExchange® Producer you select directly the **Table**, **Primary Key**, and **Column Name**. In this example we would select the **Table 'Student Photo'**, the **Primary Key 'StudentID'**, and the **Column 'StudentPhoto'**. Now when we store the photo, it will be stored directly into the correct column out passing the connected view.

### **The Value Properties**



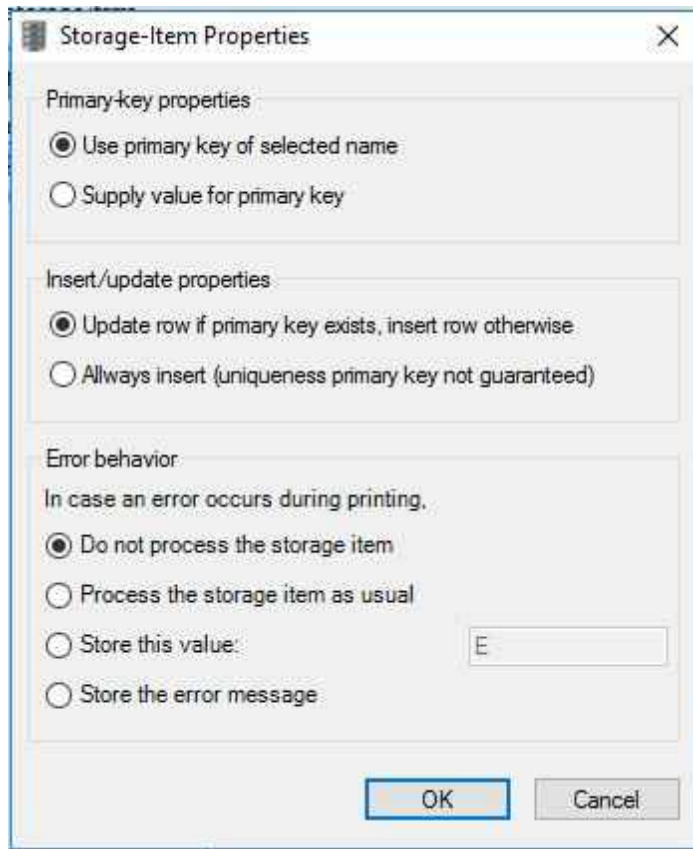


This section, indicated with the **red** rectangle, shows three properties. You can **Supply for a new value for the selected column** which means that the data will always be added to the table and will not only update the record. You can use the options under the tabs to specify the usage of the storage-item (like photos) so CardExchange® Producer knows that it will handle images instead of normal columns.

This is a very important setting because **Storage Items** are normally processed on the moment that the card is produced. Of course, when taking **photos** or **capturing** signatures, you would prefer to store the image directly and not at the end of the print process. When selecting this option, the **Storage Item** will be processed immediately.

You can also set the option **Use selected column as counter**. This will increase the column every time you print a record.

Besides these properties you can also set some advanced properties for the Primary key and Insert/update commands. Clicking on **Advanced** options will open the window below.

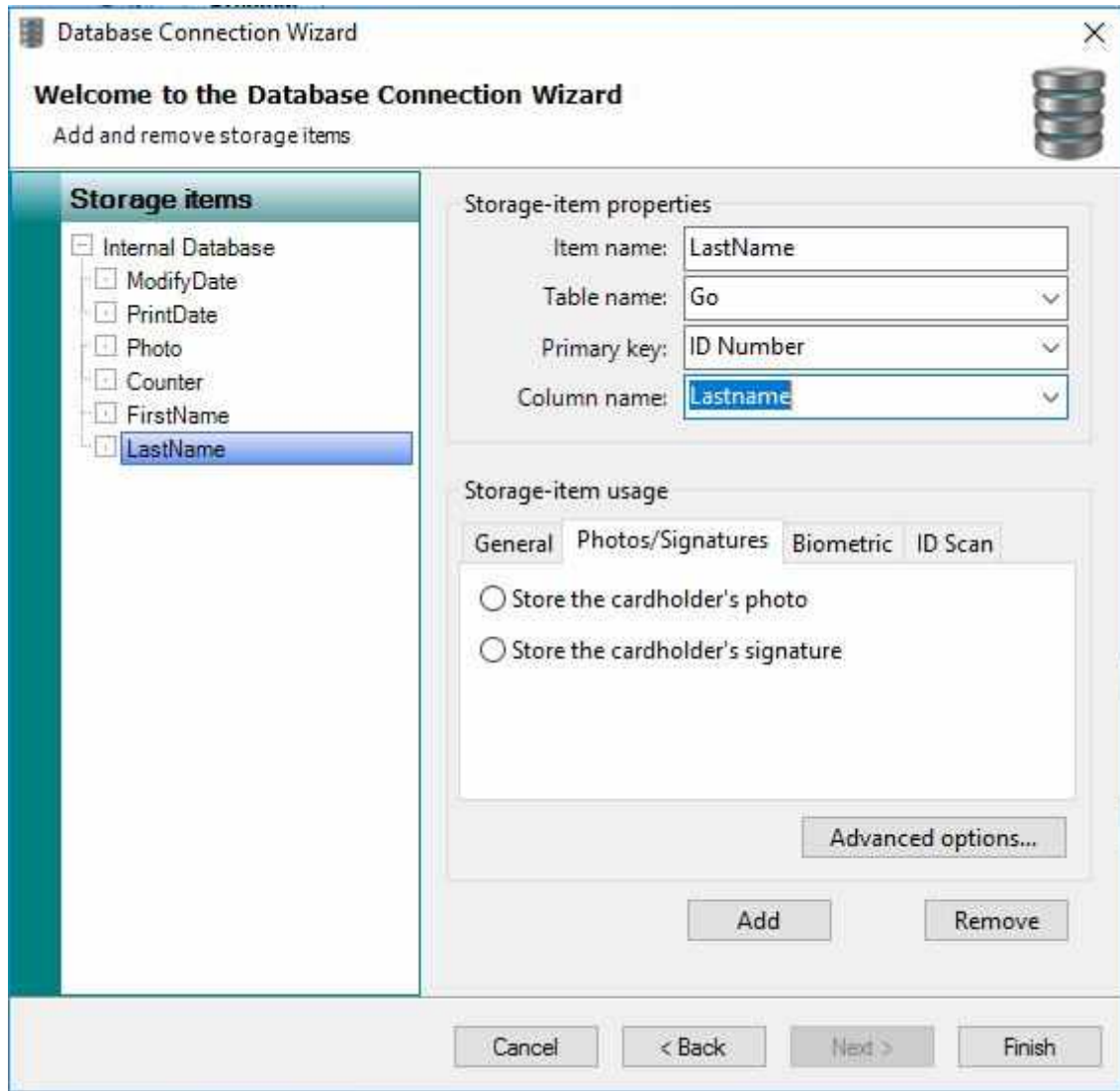


In the **Advanced Storage Item Properties** window you find three different groups that you can set. First group is the **Primary Key Properties** group. By default the system uses the **Primary Key** of the selected record for storing into the database. But it is also possible to supply the value for the **Primary Key**.

In the **Insert/Update Properties** group by default the row is always updated when the **Primary Key** exist. It will insert if not. You can also select to **Always insert**. That can be handy if, for example, the amount of prints needs to be reported with date and time. Be aware that the uniqueness of the **Primary Key** will not be guaranteed anymore.

In the last group you can set the **Error behavior** of the **Storage Item**. By default, the **Storage item** will not be processed but you also select one of the other options like **process as usual**, **store a predefined value**, or **store the error message**. Of course, in case of the last two choices it is important to make sure the database column can hold this type of content. Click on **OK** to return to the Wizard Page.

When you have created all your Storage Items, the Wizard page should look something as shown below:

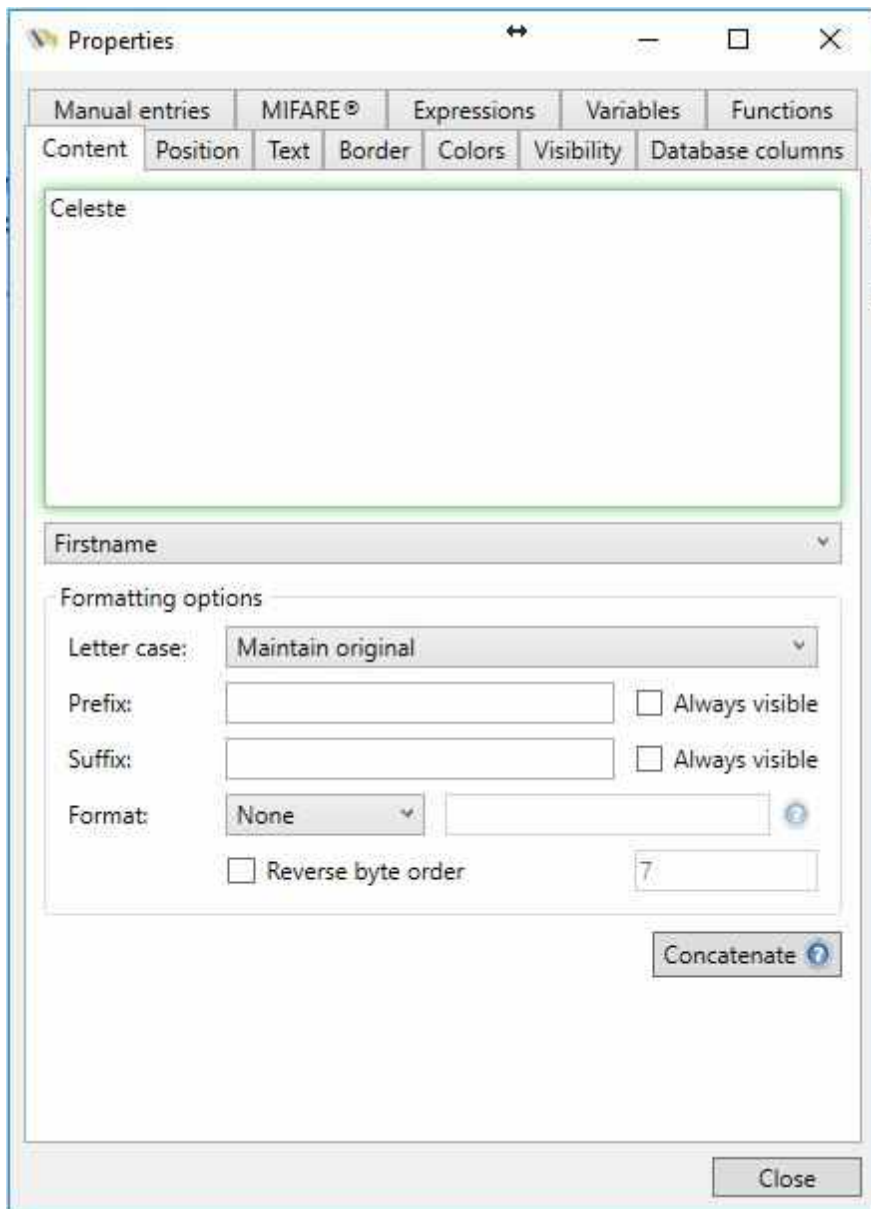


When you click on Finish, you will return to the Designer window.

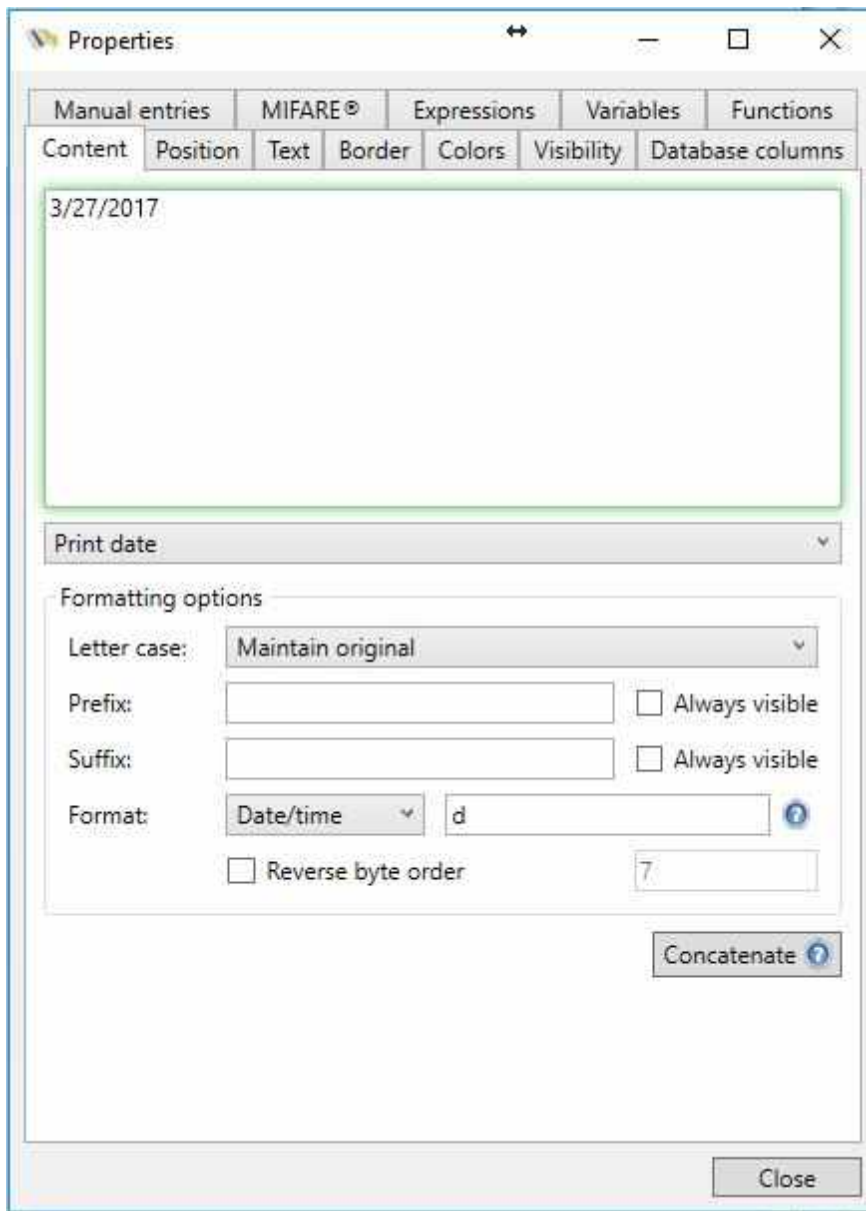


In the Designer Interface you click on the [Data](#) tab of the [Explorer Menu](#) and now you see the Storage Item tab. Click on this tab and all the created Storage Items will be shown as indicated in the area with the **red** rectangle. The **bold** name indicates the connected database and the indent are the created storage items.

Now make sure that you have the [Properties](#) window open and make sure the [Content](#) tab is selected. Select one of the Storage Items, in this example we selected the **FirstName** item from the Internal database.



The Standard option offers you the possibility to connect to any object available and works exactly the same as explained in the section [Standard Object Types](#) of this Help file. For example we want to store the FirstName into another database so we select FirstName from the list of database columns for the Storage Item selection we created.



If we wanted to store the date that the card was printed, we could select **Print date** from the [Standard Object Type](#) drop down menu. We set the **Format** option to **Date/time** and enter the **'d'** to make sure we store the short date only and not the time and you are good to go!

**Note:** When the Photo Storage Item is selected in the database setup, you will not see these options under the tab in the designer.

The same applies for Signatures, Biometric data, ID Scan and Counters

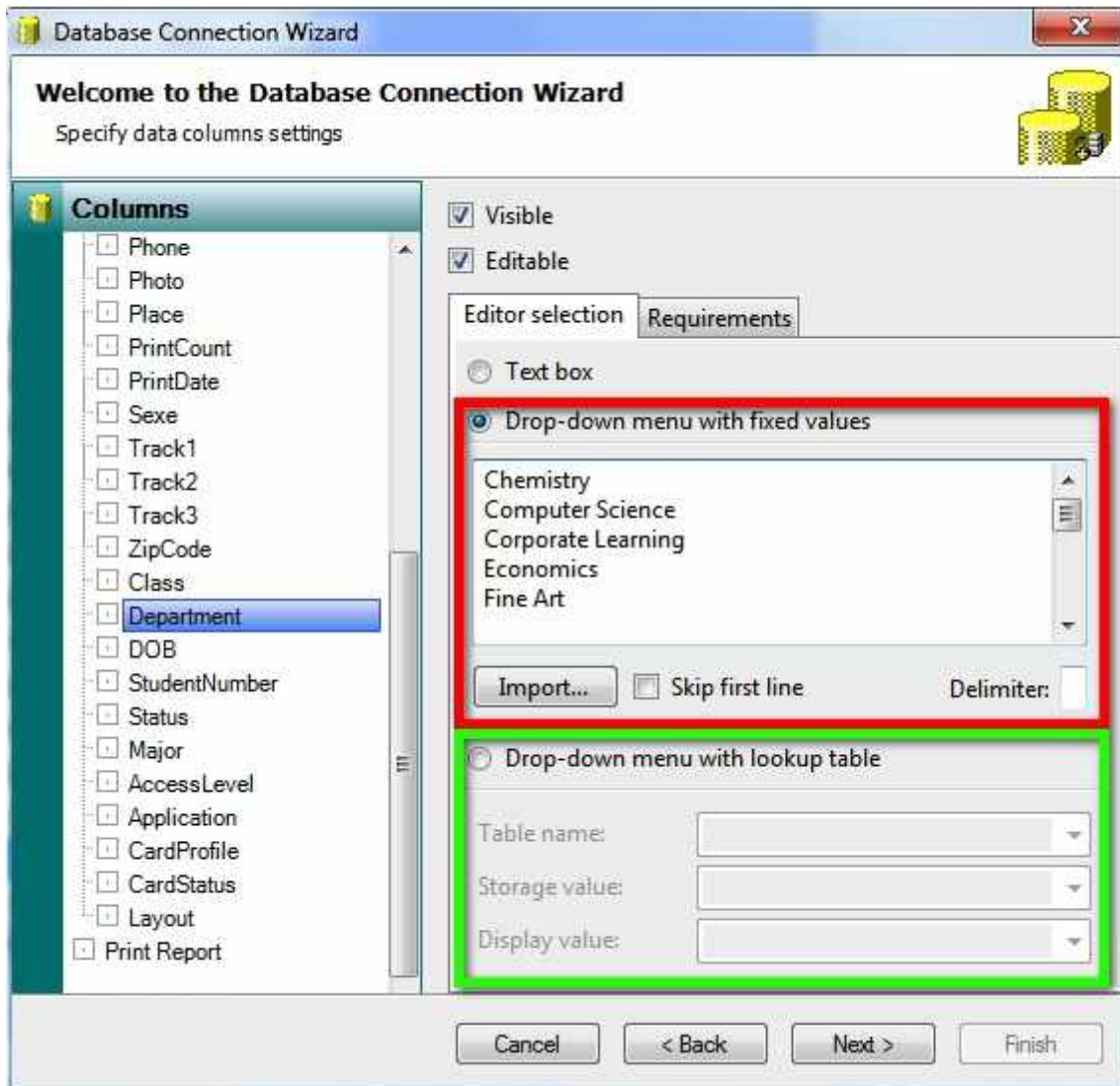
## 14.3 Drop Down Menu's



CardExchange® Producer offers great functionality to add drop down menus to your Data Edit Window. Using drop down menus limits the user error while entering new or updating existing data.

Drop down menus are supported starting from Premium Edition and higher and in this section we will explain how to configure these drop down menus.

The creation of drop down menus is a part of the Database Connection Wizard.

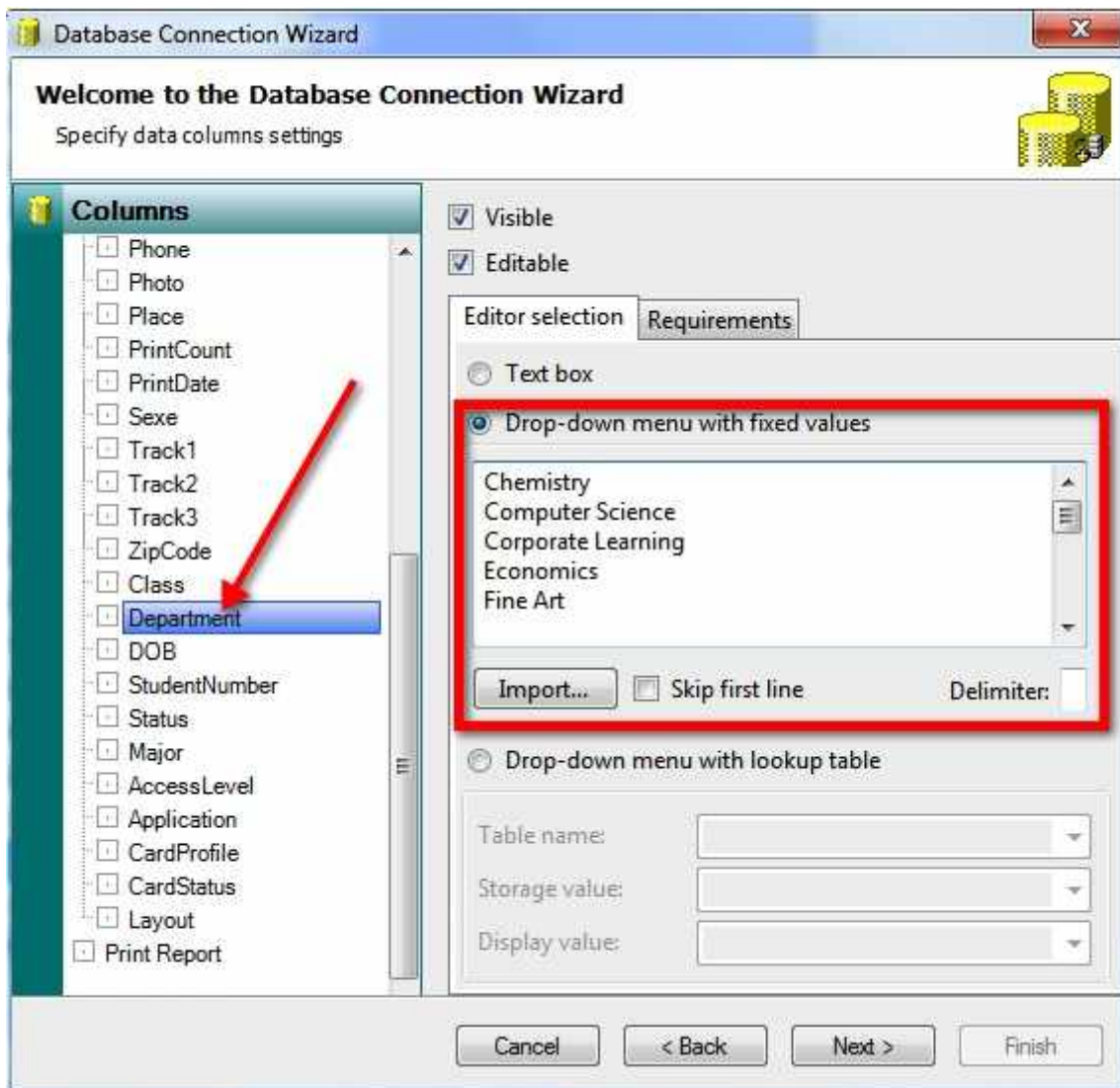


When adding a database and using a Premium or higher edition, on the **fifth** page of the wizard, where you specify the data column settings, you see a tab called Editor selection. The Requirements tab is only available starting from Professional and higher editions and is described in the [Data Requirements](#) section of this Help file.

The **Editor selection** contains two different ways to create drop down menus. The first option is creating a menu based on **fixed values** indicated with a **red** rectangle. The second option is creating a drop down menu using a **look-up table** from the connected database as indicated with a **green** rectangle.

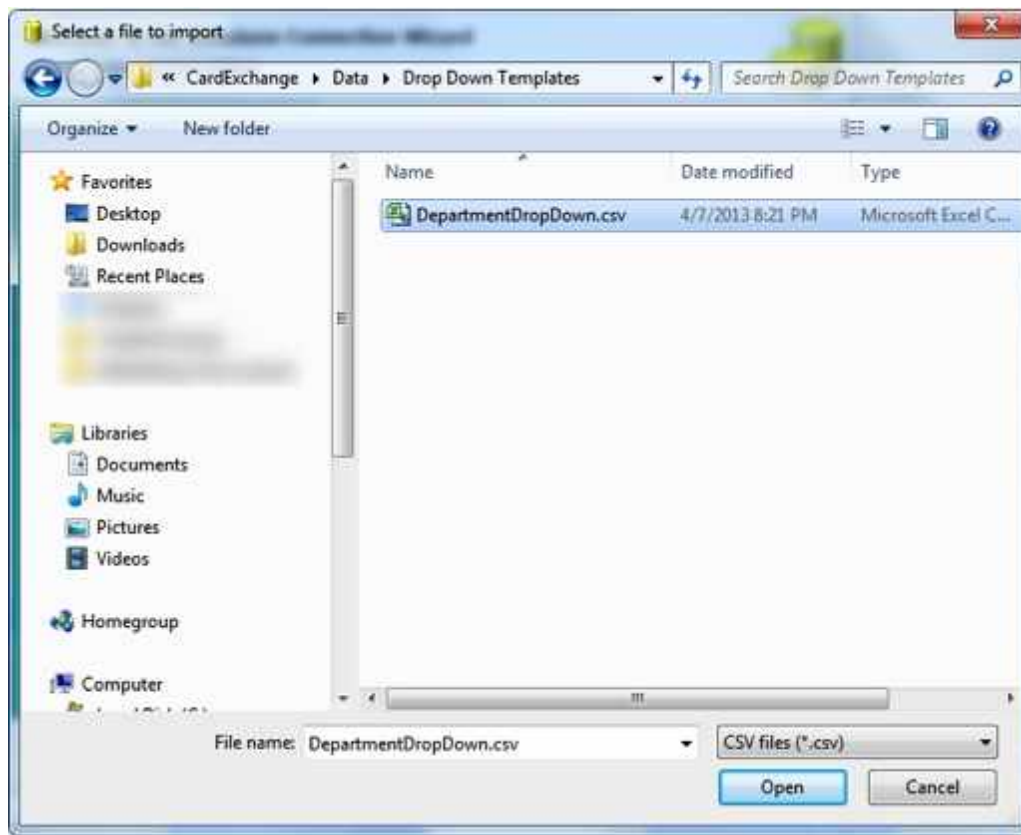
### Creating Drop Down Menus with Fixed Values



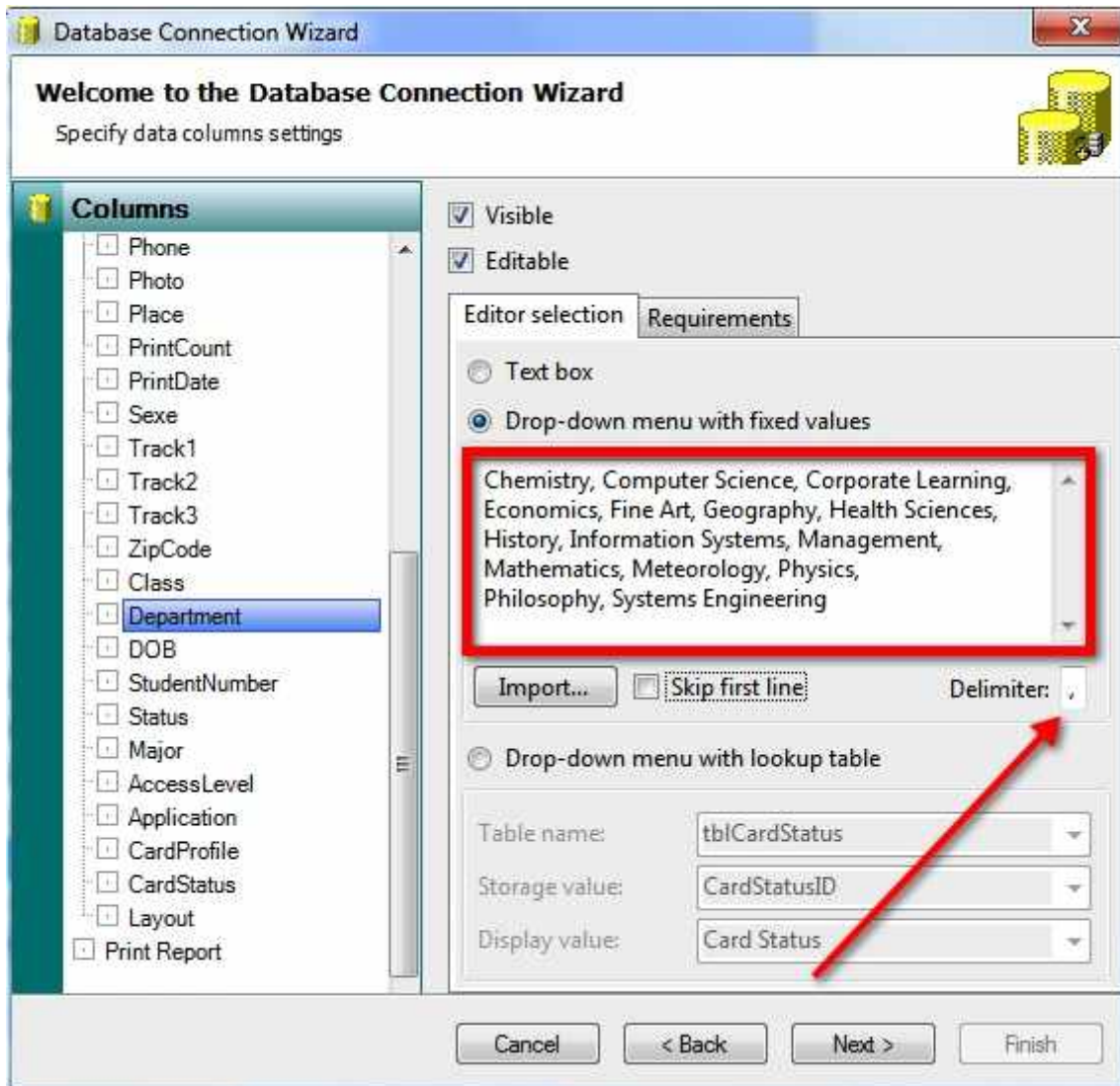


To create a drop down menu with fixed values, you first select the column from **Columns Explorer** on the left side as indicated with the **red** arrow and select the **Drop-down menu with fixed value** option from the **Editor selection** tab. The text box becomes available and you can simply add items for the drop down menu by entering them as text as shown in the screenshot above.

It is also possible to import a CSV file containing the items for the drop down menu. To do so, click on the **Import** button and browse to the file.

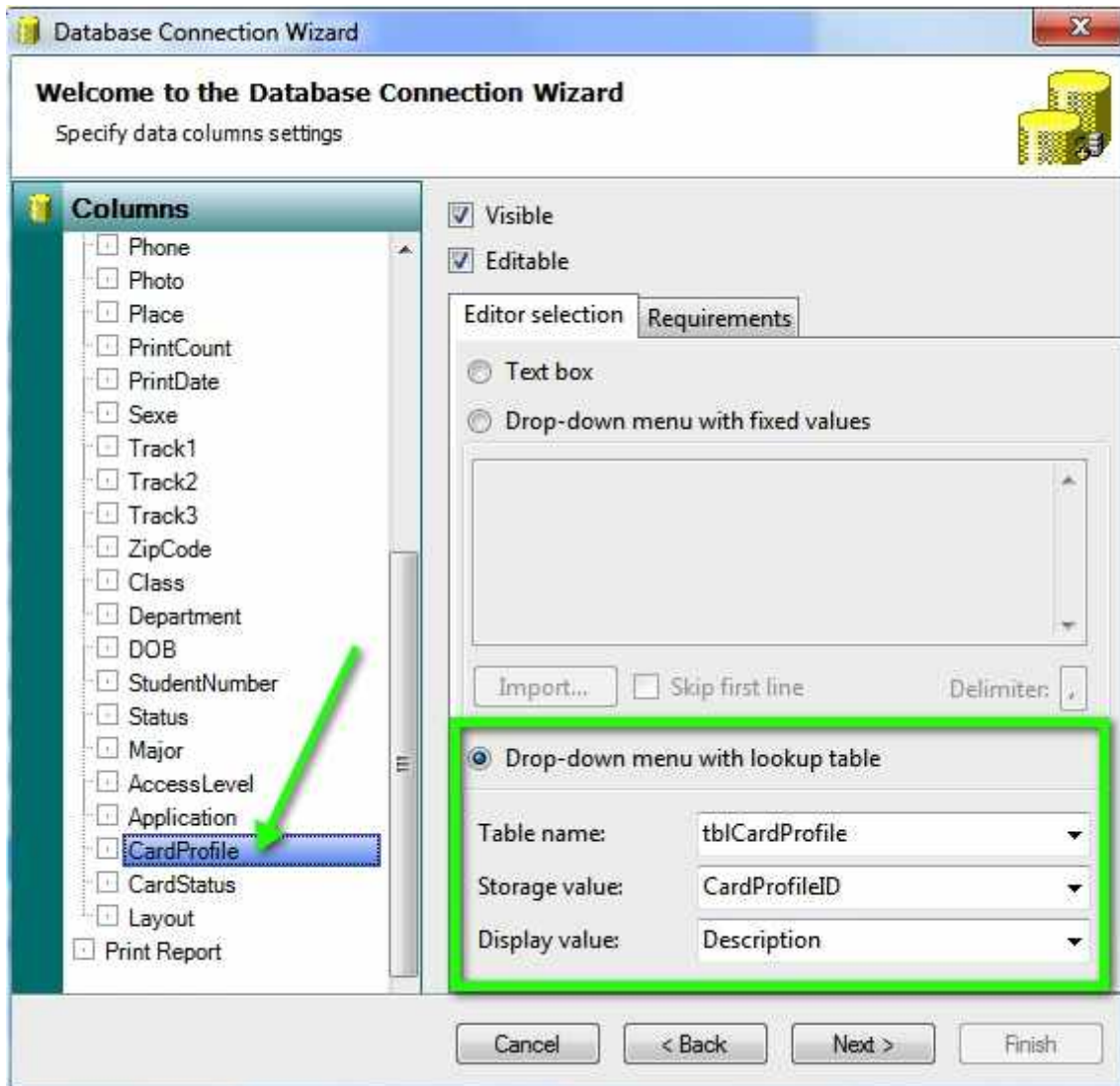


And click on Open to select the file for Import.

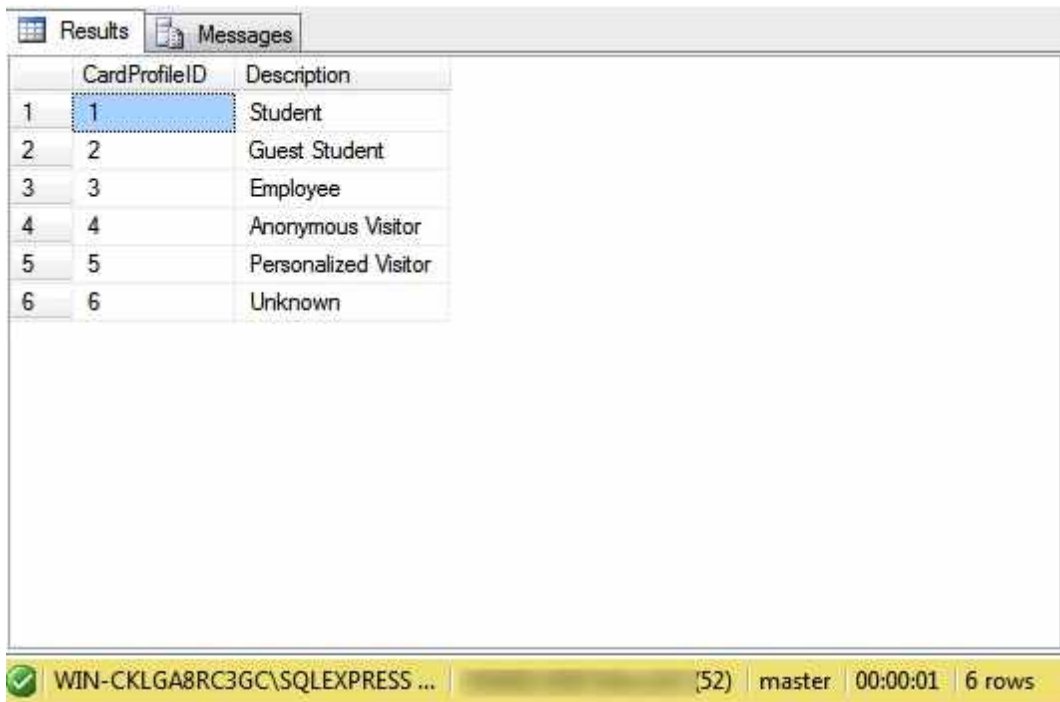


When the file is imported, the information of the file is shown in the text box indicated with the **red** rectangle. If the file contains a header, make sure the **Skip first line** is selected to make sure that it is not going to be a part of the drop down menu items, and select the **Delimiter** used for the the file, in this case a **comma**, as indicated with the **red** arrow.

### Creating Drop Down Menus with Look Up Table



To create a drop down menu using a **Look Up Table**, you first select the column from **Columns Explorer** on the left side as indicated with the **green** arrow and select the **Drop-down menu with lookup table** option from the **Editor selection** tab. Now you see that three drop down menus become available. From the drop down menu of the **Table name** field you select the table that is containing the **Look Up** data. In this example we are using a table named **tblCardProfile**, which is shown below:



	CardProfileID	Description
1	1	Student
2	2	Guest Student
3	3	Employee
4	4	Anonymous Visitor
5	5	Personalized Visitor
6	6	Unknown

WIN-CKLGA8RC3GC\SQLEXPRESS ... | (52) | master | 00:00:01 | 6 rows

In the table content we see a **CardProfileID** and a **Description**. We would like to store the **CardProfileID** into the database when inserting and/or updating so we select from the **Storage value** drop down menu, **CardProfileID**. Because a number does not make any sense for a operator of the system, we would like to present the information from the **Description** column to the operator, therefore we select **Description** from the **Display value** drop down menu.



## 14.4 Data Requirements



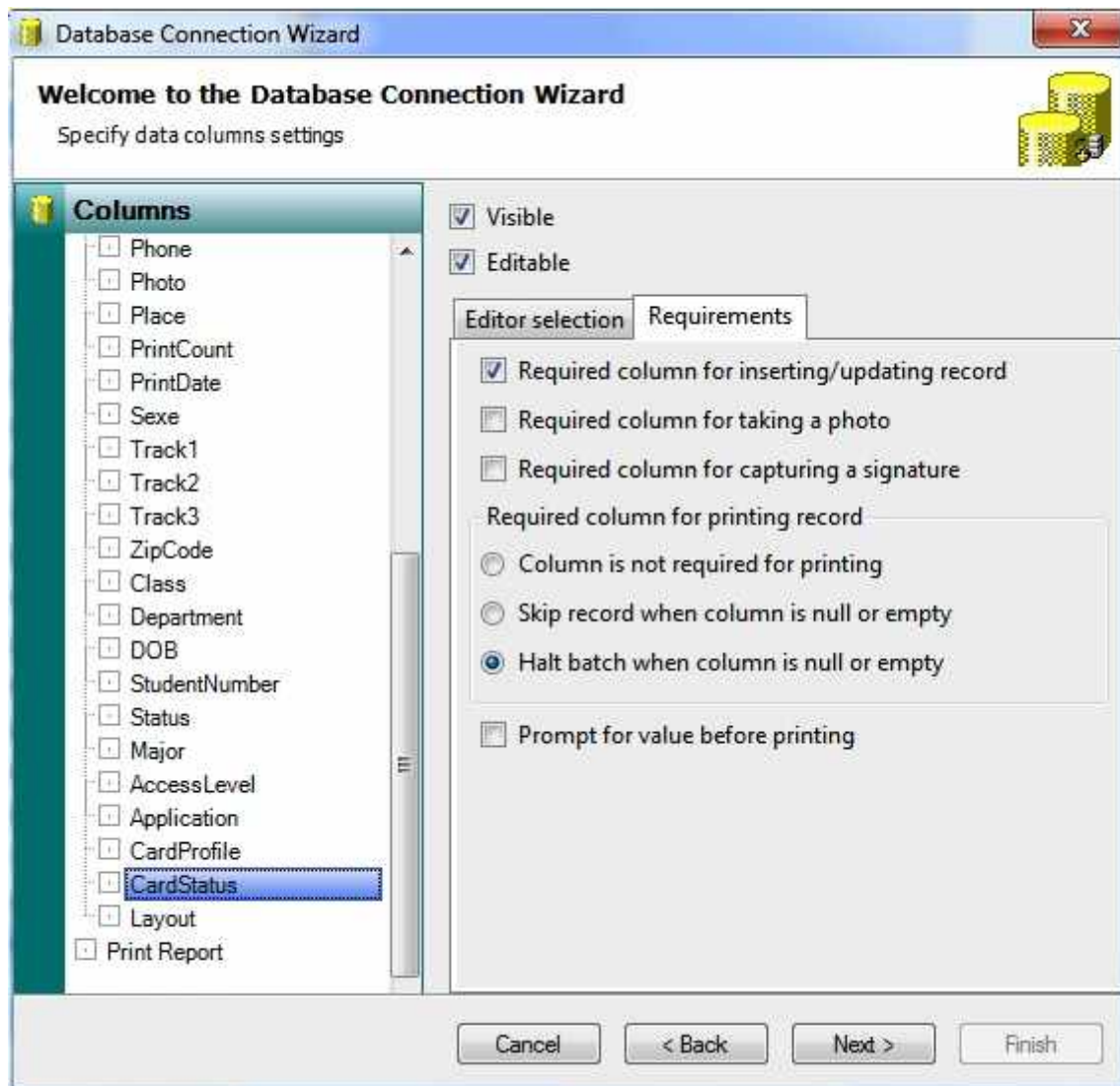
The screenshot shows a 'Database record' window with a form containing the following fields and values:

Field	Value
EmployeeID	26
StudentNumber	53455
Sex	Female
Initials	T.
Lastname	Move
Firstname	Demy
Address	102 CE Street
ZipCode	95444
Place	San Francisco
Country	United States
Phone	071 - -56 10 50
Mobile	
Email	
Class	CL-002
Department	Philosophy
DOB	1974-10-10 12:00:00
CardStatus	
CardProfile	
Application	
AccessLevel	
PrintDate	11/11/2011 12:00:00
PrintCount	1
GlobalCounter	
MfareSN	916307376


Red boxes highlight the 'Application' and 'CardStatus' dropdown menus.

When producing your cards, you want to make sure that all the data that is needed is entered and entered correctly to eliminate cards being wasted. CardExchange® Producer Professional Edition and higher offers great functionality to set specific requirements for the available columns from the connected database. In this section we will explain how to define the requirements for your connected database.

When using a Professional or higher edition, the **Data Requirement** option is a section available in the **Database Connection Wizard**.



When adding a database and using a Professional or higher edition, on the **fifth** page of the wizard, where you specify the data column settings, you see a tab called **Requirements**. The Editor selection tab is available starting from Premium and higher editions and is explained in the [Drop Down Menu's](#) section of this Help file.

When selecting the Requirements tab you find three check boxes that can be selected. These section effects the handling of the data creates the  indicator right from the text box in the [Data Edit Window](#) of the [Main Interface](#) of CardExchange® Producer.

### **Selection 1 - Required column for inserting/updating record**

When selected, the user will have to enter or select a value before the record can be updated to the database.

### **Selection 2 - Required column for taking a photo**

Because photo fields are not visible in the [Data Edit Window](#) but only in the card preview, this check box needs to be set to make sure that the operator is informed that a photo needs to be added before updating or inserting.

### **Selection 3 - Required column for capturing a signature**

Just like the photo fields, signature fields are not visible in the [Data Edit Window](#), this check box needs to be set to make sure that the operator is informed that a signature needs to be captured before updating or inserting.

### **Required column for printing record**

Besides the requirements for the data, these requirements do not always reflect the needs for print the record. It can be that a record is needed for showing in the [Data Edit Window](#) but because the field is not used on the card, it has not to effect the card production. In this group you can define the specific printing requirements for the selected column. First of all you can select the option **Column is not required for printing**. When this option is selected the card will be produced even if the column does not contain data or the requirement is set to **Required for inserting/updating**.

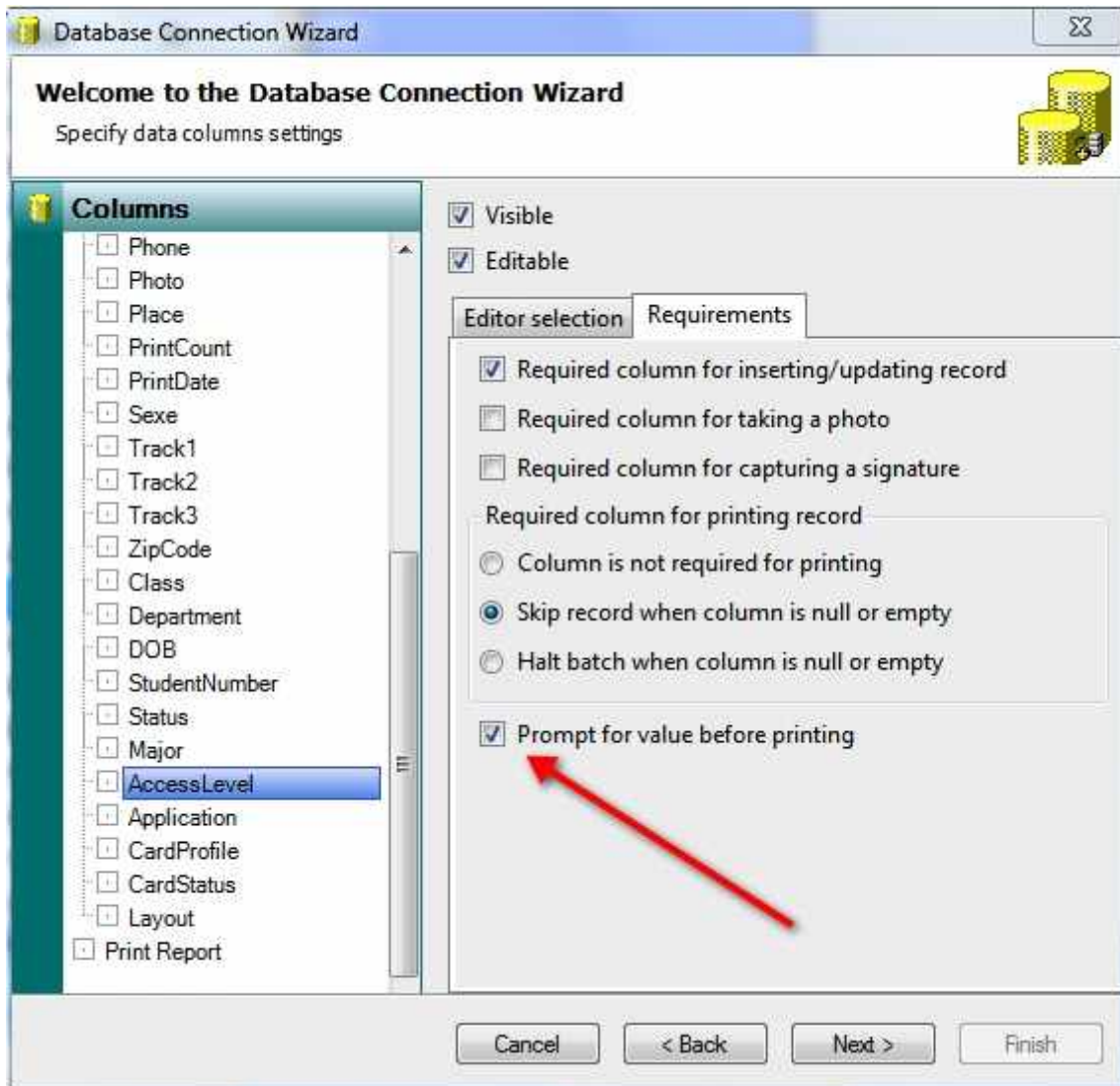
Second option is to **Skip the record when column is null or empty**. When this requirement is selected, the record will not be printed and the system will continue printing the next record.

And the third option is to **Halt batch when column is null or empty**. When this option is checked and the column does not contain any data, the system will just stop the whole batch production.

### **Prompt for value before printing**

Last but not least, it is also possible not to stop the whole batch production process but prompt for a value.





When the checked, every time the batch hits a record that has not all values needed for printing, it will prompt a dialog where the operator can select or enter the information needed for producing the card.



The screenshot shows a dialog box titled "Enter values" with a standard Windows-style title bar (minimize, maximize, close buttons). The dialog contains a list of fields, each with a dropdown menu:

- Sexe: Male
- Place: Brasilia
- Country: Argentina
- Class: CL-001
- Department: Systems Engineering
- CardStatus: New
- CardProfile: Student
- Application: (empty)
- AccessLevel: (empty)

At the bottom of the dialog are two buttons: "OK" and "Cancel".

When the values are selected or entered and the operator clicks on OK, the selected or entered values will be stored into the database and the card will be produced.

## 15 Authorizations



**User roles** and **Authorizations** are created and setup for a reason, and that reason is **security**. From the Premium Edition of CardExchange® Producer, we offer advanced user authorizations with **login** functionality.

Because of the fact that CardExchange® Producer is capable of handling multiple high level functions, such as advanced inline encoding, we need to consider that in a lot of cases we are working with information that is programmed into cards that may not be available for users of the CardExchange® Producer system. This can also be true for security issues related to database connections. CardExchange® Producer can be connected to applications such as Access Control, Payment, Time Attendance, etc. In most of these cases, the application provider has set strict rules regarding access to information that can be viewed and used within the CardExchange® Producer application. To meet the demand for more efficient management of CardExchange® Producer, Exchangelit has introduced a strict policy regarding the security of the CardExchange® Producer application.

In order to create more control for the Administrators of CardExchange® Producer, we offer the ability to create user authorization levels. This helps limit user infractions and protect areas within CardExchange® Producer that the common user should not be utilizing. This high level security allows you to protect the software connections and functionality from user errors.

During the installation of CardExchange® Producer, CardExchange® Producer creates a special file that contains all the security information called the UserAuth.dat file. This file is located in the Data folder of CardExchange® Producer. Every time CardExchange® Producer will be started, a backup is created automatically to **AppData** folder and contains the settings when closing CardExchange® Producer the last time.

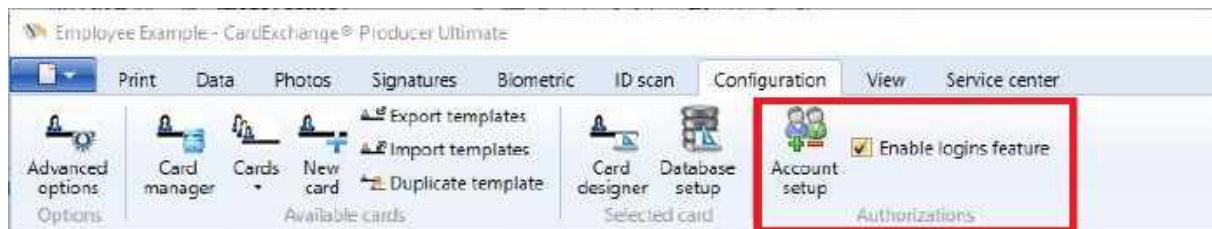
When the UserAuth.dat file is missing, CardExchange® Producer will start up in locked mode. Why can cause CardExchange® Producer to be locked?

There can be several reasons for having this situation, but the most important one is fraud. If somebody tries to get access to information that he or she is not allowed to see or access and delete the UserAuth.dat file on purpose, the system will automatically generate a response by locking itself.

In the event you have a locked CardExchange® Producer license you will have to send the Identification Code to [support@cardexchangesolutions.com](mailto:support@cardexchangesolutions.com). As soon as we receive this code, we will generate the Unlock Code that can be entered into the User authorizations file unlock window and send it back to the corresponding email address.

When the unlock code is entered and valid, CardExchange® Producer will start again and the user authorizations can be created again by the user and/or the supplier that has setup the CardExchange® Producer edition.

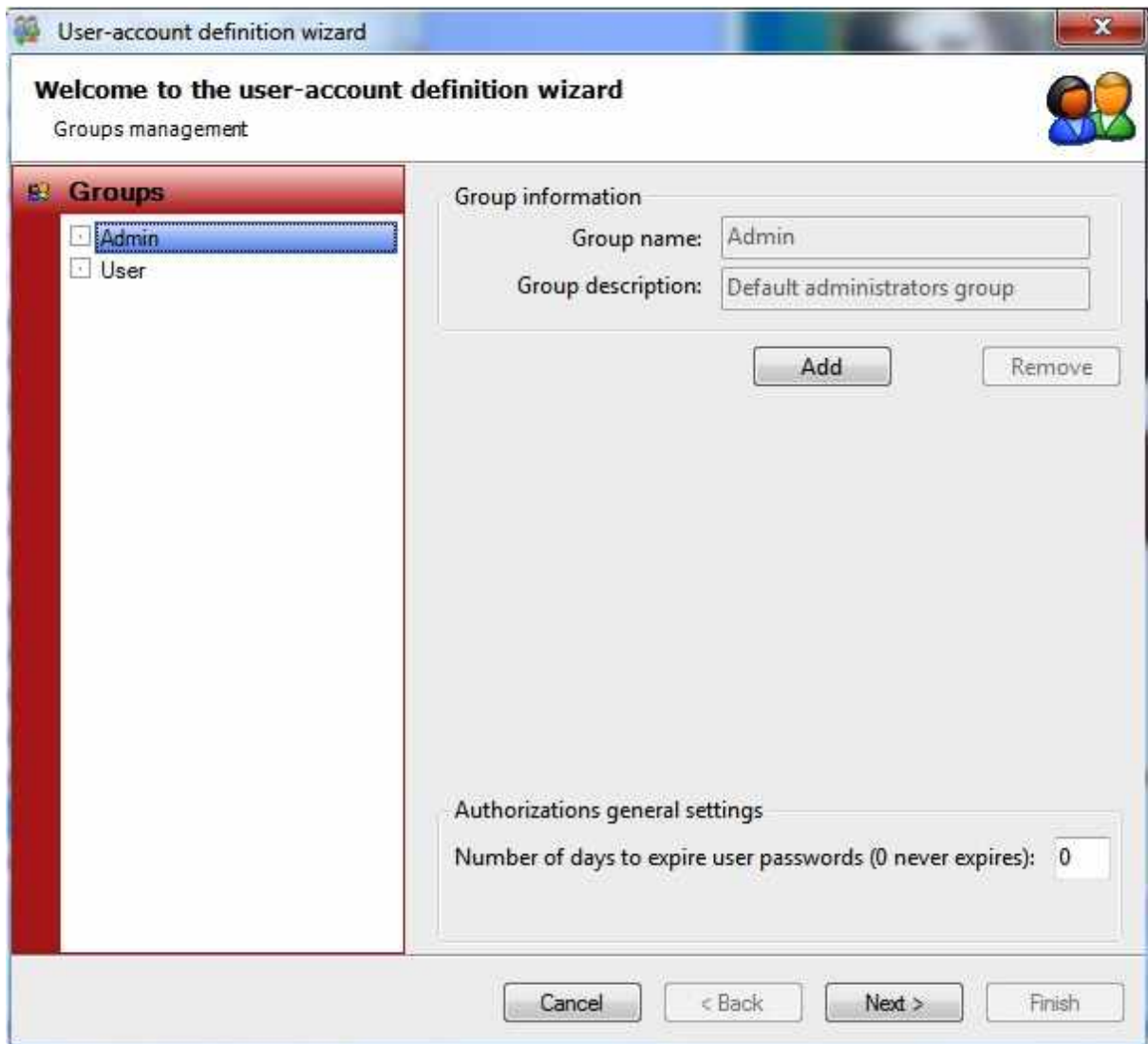
We will now continue with explaining the setup and use of the User Authorizations within CardExchange® Producer.



Setting up **User Authorizations** does not make any sense if you are not using a login mechanism therefore first select the **Enable logins feature** as indicated with the **red rectangle**. When selecting a dialog will prompt for confirmation:



When you confirm this feature, the Account setup button will become available as indicated with the **blue arrow**. When you click on Account setup, the User **Account Setup Wizard** will start.

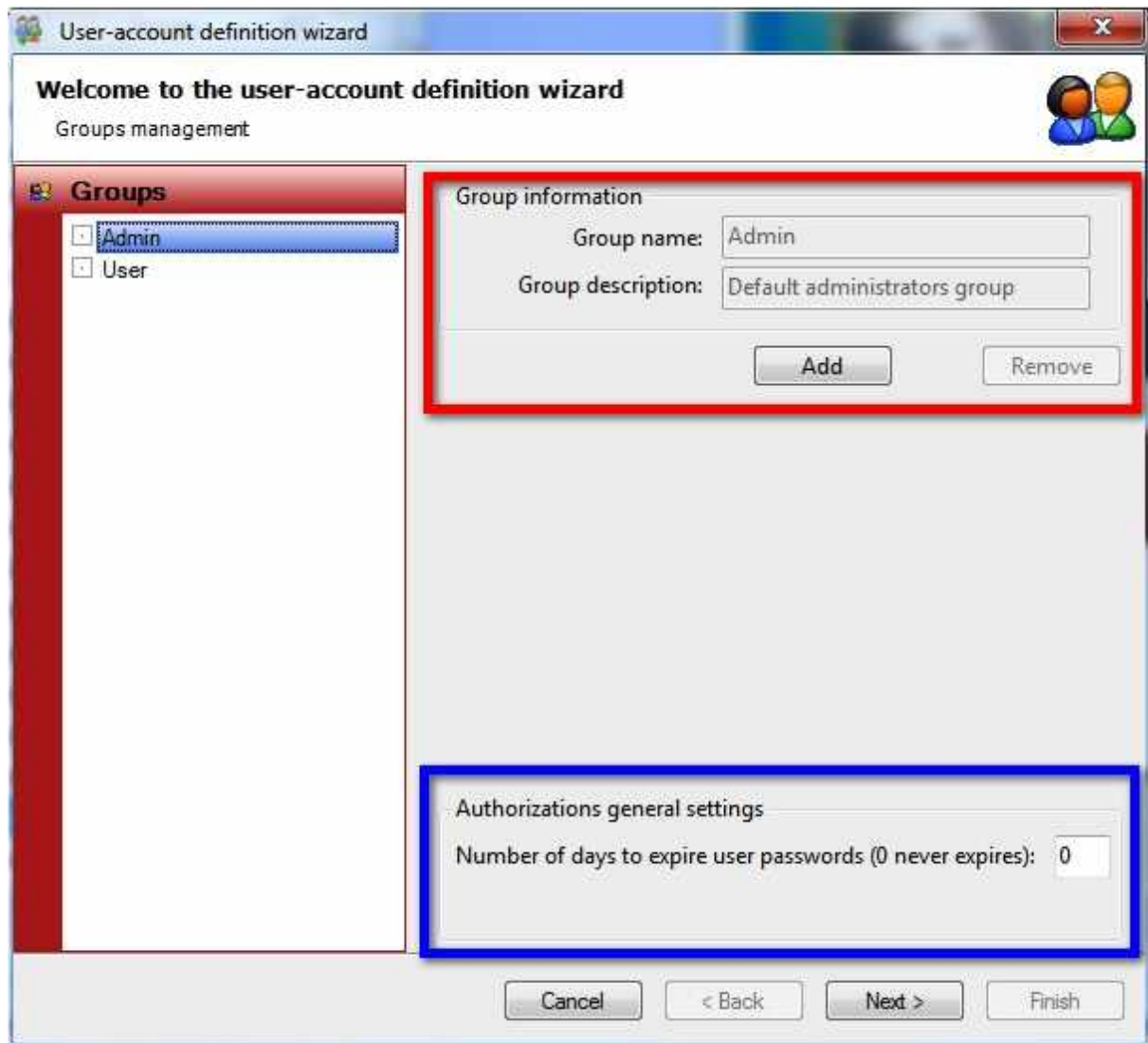


In the section [Create User Authorization](#) we will explain how to create the **user groups**, **profiles**, and **users**. To disable the **User Authorizations**, **uncheck** the **Enable logins feature** check box, a dialog will pop up:



And select **Yes** to disable the functionality.

## 15.1 Create User Authorizations

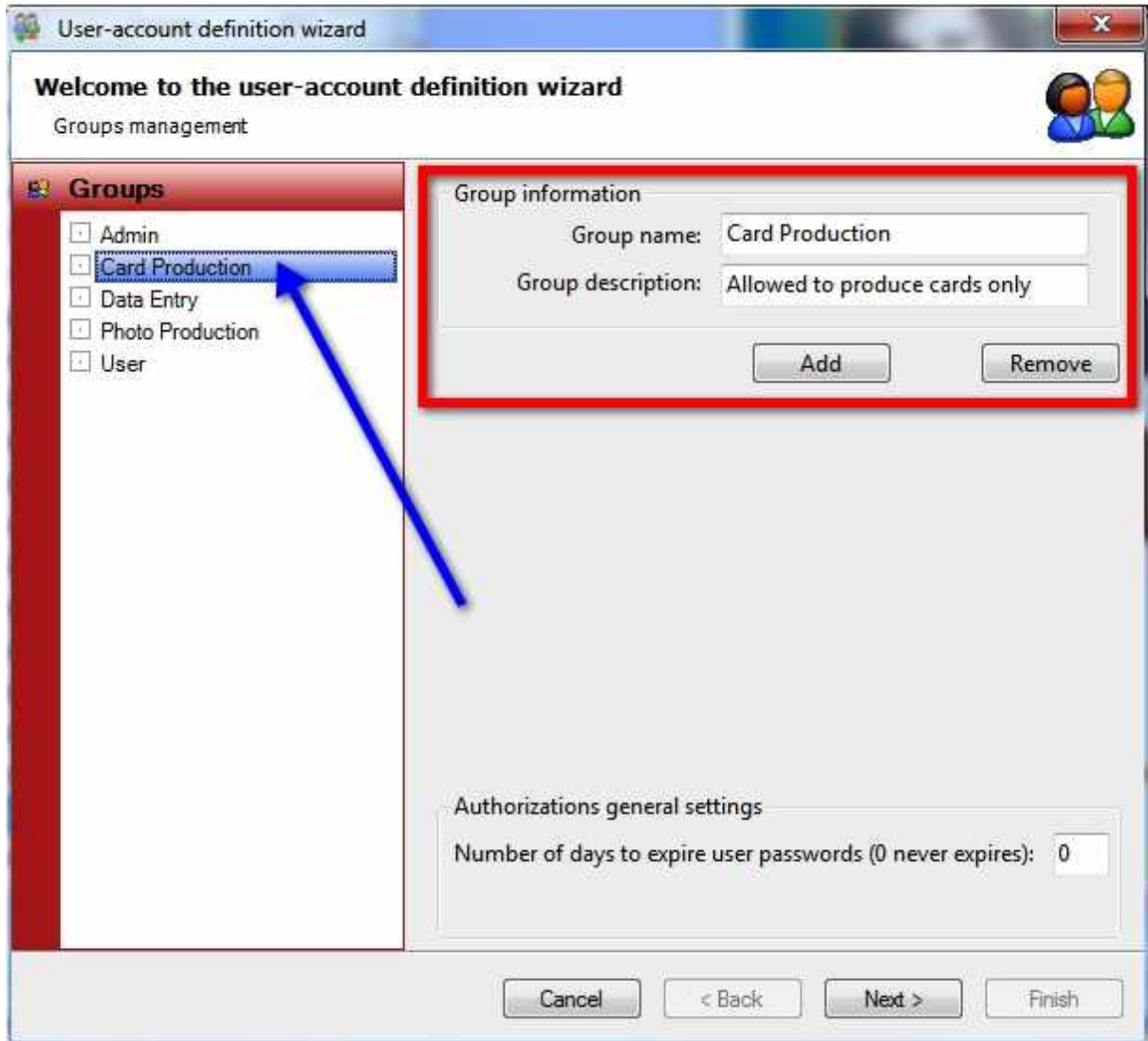


Creating **User Authorizations** starts with creating and/or managing groups. In this first page of the wizard you find two important areas; The **Group information** group, indicated with the **red rectangle**, and the **Authorizations general settings**, indicated with the **blue rectangle**. The explorer on the left side shows all the available and created groups.

*Important!* There are always two groups available; the **Admin** and the **User** group. None of these groups can be removed.

With the **Authorizations general settings** group you can indicate when the passwords need to expire. For example, putting in **30** means that after 30 days all users, when they login, **are requested to change their password**. When leaving it to **0**, **passwords will not expire**.

In the Group information section you see the Group name and the Group description. It also contains the Add and Remove button. To Add a new group, click on the Add button.



When you have entered Group name, make sure you chose logical names, and entered a Group description, the new created group will appear in the explorer on the left side as indicated with the **blue arrow**.

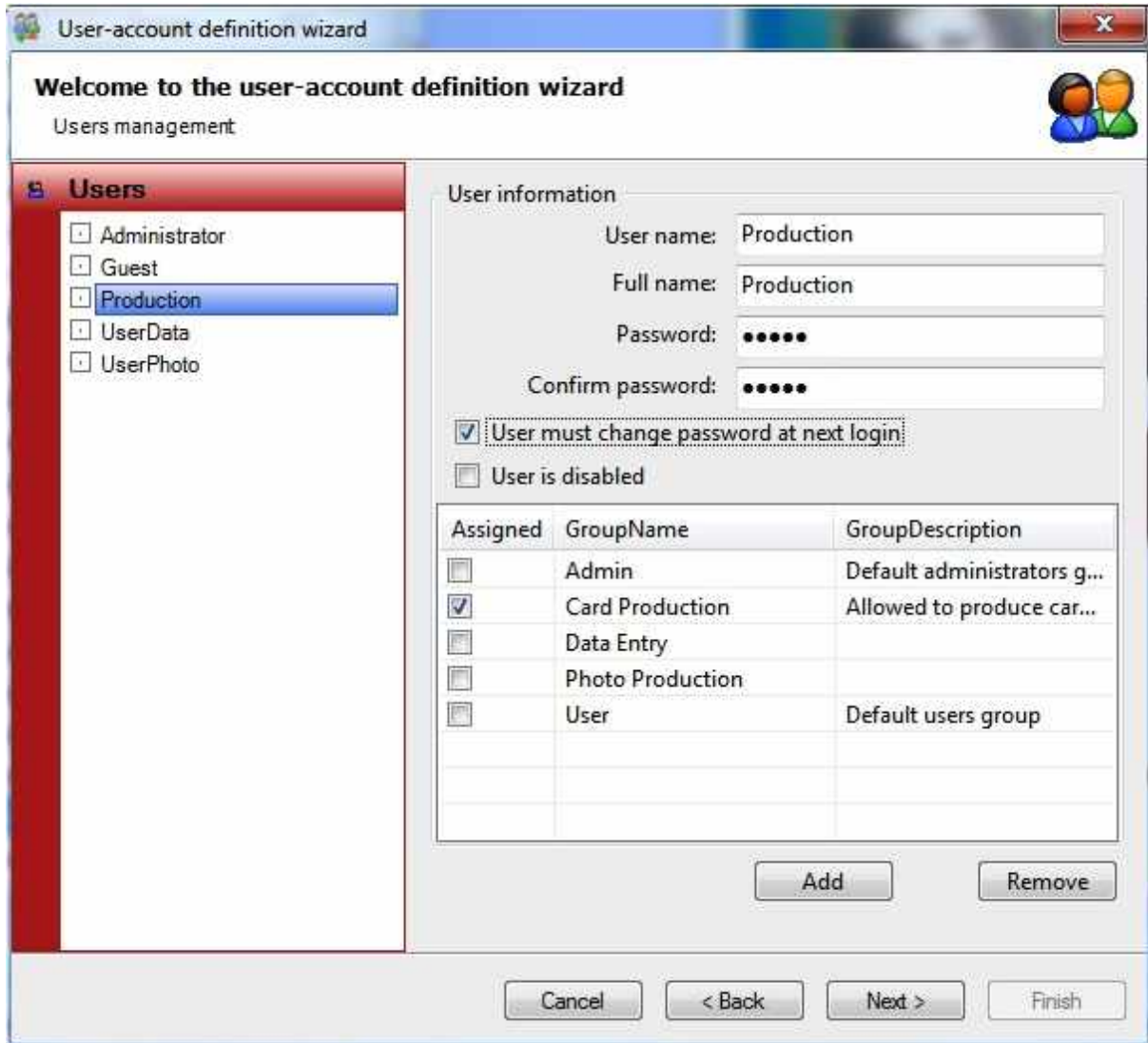
In this example we have created groups for card production, data entry, and photo production. There are no limitations on the amount of groups you can create.

If you want to delete a created group, just select the group in the explorer on the left side and click on remove. Confirm with Yes to delete! Deleting a group does not delete your users!



When you are done adding groups you can proceed to the next level of the wizard by clicking **Next**.

### User Management



In this page of the wizard you can create new or edit existing users of the system. On the explorer on the left side you can find all the available users, on the right side you can find all the user information.

When you click on **Add**, to create a **new user**, you will need to provide a **User name**, this is the name used to login to CardExchange® Producer, enter a **Full name** of the user, and enter a **Password** and **Confirm the password**.

Just like in the Group Management page of the wizard, we also have two special users; Administrator and Guest. The Guest account can be removed but the Administrator account

cannot! What you can change is the password of the Administrator and we advise to do so but keep in mind changing the password means that you need to remember the password. There is no option to retrieve or reset the Administrator password... yet.

The **default user name** for the **Administrator** account is **Administrator** and the **Password** is **Administrator** too! For the **Guest** the **password** and **user name** are both **Guest**. Passwords are **case sensitive**!

**Important!** *The Administrator has always access to all defined groups and users!*

User-account definition wizard

Welcome to the user-account definition wizard

Users management

**Users**

- Administrator
- Guest
- Production
- UserData
- UserPhoto

User information

User name: Production

Full name: Production

Password: .....

Confirm password: .....

User must change password at next login

User is disabled

Assigned	GroupName	GroupDescription
<input type="checkbox"/>	Admin	Default administrators g...
<input checked="" type="checkbox"/>	Card Production	Allowed to produce car...
<input type="checkbox"/>	Data Entry	
<input type="checkbox"/>	Photo Production	
<input type="checkbox"/>	User	Default users group

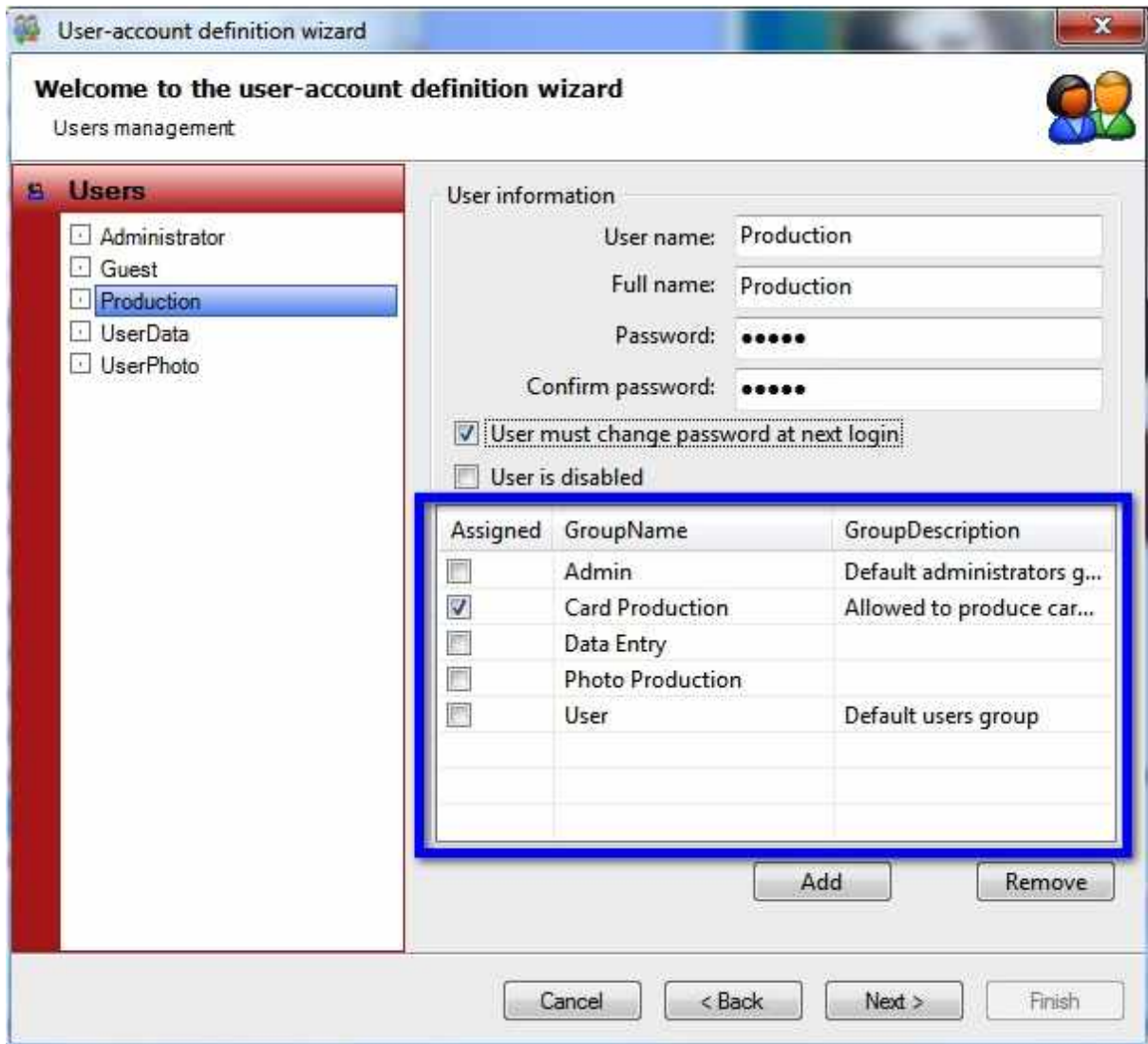
Add Remove

Cancel < Back Next > Finish

In the area indicated with the red rectangle, you find two special options. If you want the user to generate their own password, just check the box **User must change the password at next login**. This can be handy if you have a lot of different users to create but you do not want to send out all these different passwords. When you select this option, you can simply

use a standard password which first needs to be changed before the user can login to the system. If you have, like in this example, a group account it is better not to use.

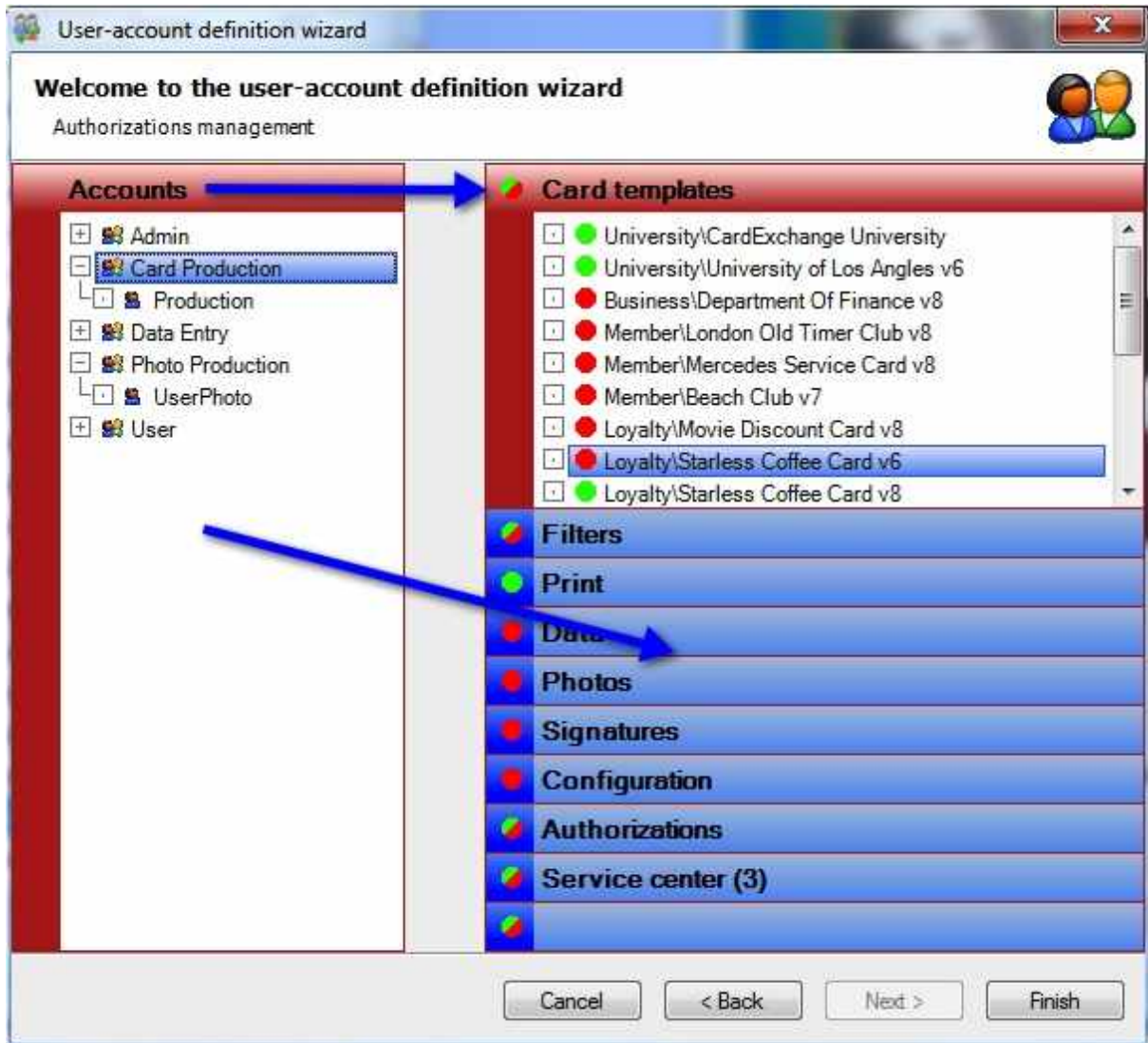
**Disabling the user** is also a handy option. By checking this box, the user cannot login to the system anymore but is not removed from the system. If later the user needs to get access to the system again, simply uncheck the **User is disabled** box and access is granted again.




In the section indicated with the blue rectangle you can specify per user to which group it will be assigned. Each user can be assigned to one of multiple groups. In this example, it makes sense that the Production user is assigned to the Card Production group but you can imagine that a some users need to have access to multiple groups.

When you have created or edited all your users of the system and assigned them to the correct groups, you can proceed with the **Authorizations management** on the next and final page by clicking **Next**.

## Authorizations management



In this last page of the wizard can assign and create the profiles per defined group or specific, per user. In the explorer on the left side you can see all the created groups. If you click on the expand sign  you can see the assigned user of the group.

On the right side, indicated with the blue arrow, you see nine separate tabs dividing the available CardExchange® Producer functionality. When you click on each available tab, the corresponding functionality will be shown. For example, in the select tab, **Card templates**, all on the system available templates are shown. Each tab and each functionality has an colored indicator. There are basically three options

- **No access to functionality**

This means that the functionality is not available in the interface. It is not greyed out, it is totally removed.

**● Access to functionality**

This means that the functionality is available for the user of the system.

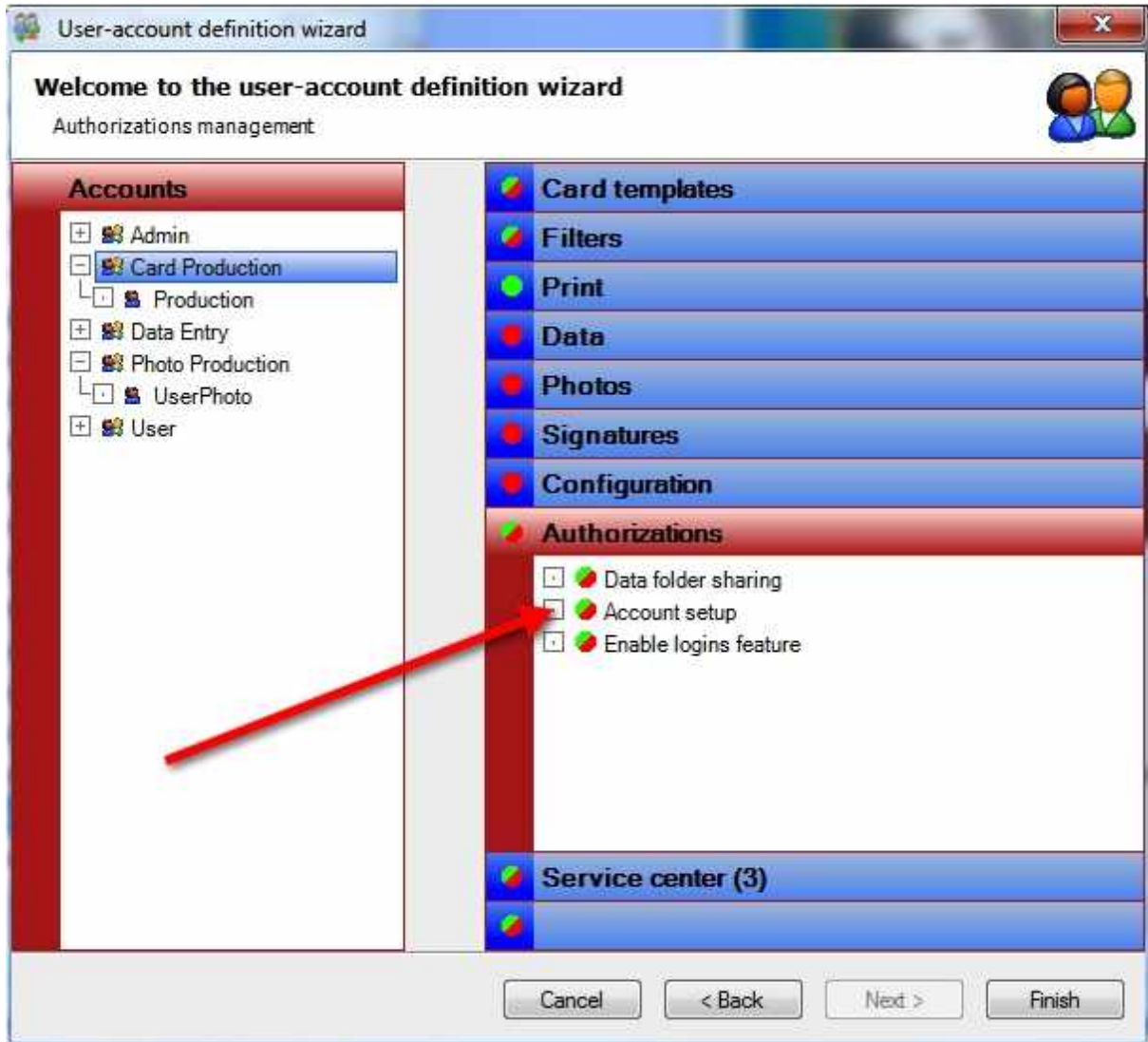
**● Administrator or selected users and groups only**

This means that all the functionality or selections of the functionality is only available for the Administrator.

For example:



For the group Card Production there is no need to do anything with the Photo functionality, Signatures, Configuration, etc. within CardExchange® Producer. By clicking on the ● you can completely change the group to no access, even though the specif functionality in the group is indicated with ●.



When the functionality is indicated with ●, only the Administrator will be able to see the functionality. Besides creating the policies for the groups, each separate user can have some different rights besides the group profile. Simple select the user name from the explorer on the left and set the correct authorizations for this user.

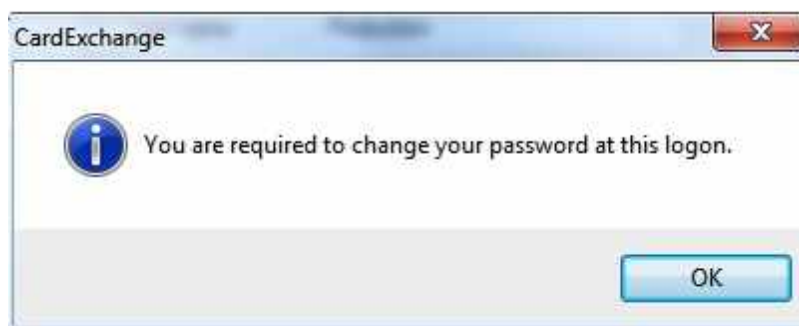
When you have defined all the groups, users, and assigned to the functionality allowed for this group and/or user, you can click on Finish to store your account definitions and close this wizard.

## 15.2 Users Login Access

When User Authorizations is enabled, every time CardExchange® Producer starts, the user have to login. If it is a new account, it can be that the Administrator has set the option to change the password at first login. When that is the case, the the standard login window will appear as show below:



When the user enters his User name and password, and the Administrator has set the option to change the password at first login, the message as shown below will appear:



To confirm this action you have to click OK and the Change Password window will appear:

CardExchange - (Change password)

User name: Production

Password: ●●●●

New password: ●●●●

Confirm password: ●●●●

OK Cancel

Enter a new password and confirm the new password and click on OK. If the User name and Password match, CardExchange® Producer will load.

Employee Example - CardExchange® Producer Ultimate

Print Service center

Printer options Print card Printer properties

Records

ID Number	Firstname	Lastname	Department
2	Allia	Keller	Helpdesk
3	Isaac	Keller	Sales
4	Rhonda	McLeod	Sales and Marketing
1	Calista	Serrano	Sales
3	Did	Torres	Sales
6	Nordine	Williams	Sales

Preview

The Building Company

Isaac Keller  
Sales

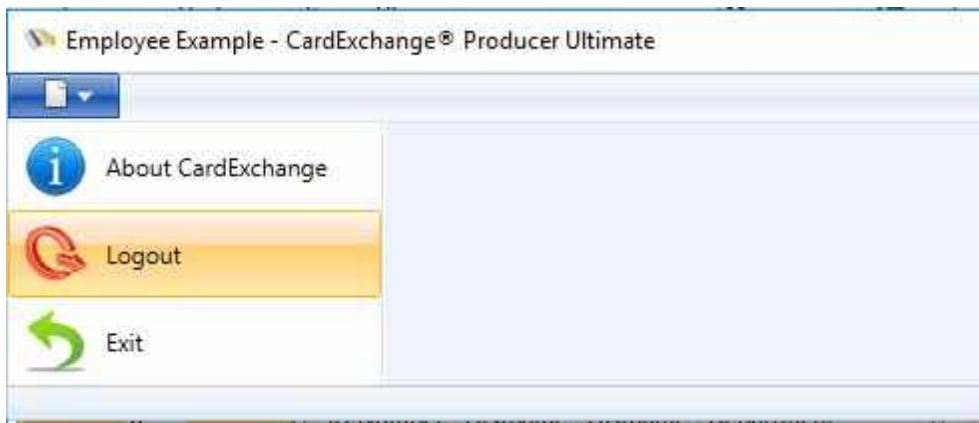
Issue No: 1  
Expires: 27/03/2018

Database record

Name	ID Number	3	State/Province	MI	E-mail Address	u1ncies@e.edu
Initials	B.M.		ZIP/Postal Code		Web Page	
First	Title	Mr.	Date of Birth	3/4/1972	Extra Text Field 1	638090999
Update	Sex	Male	Department	Sales	Extra Text Field 2	
Delete	Firstname	Isaac	Business Phone	007-3180	Extra Text Field 3	black
Cancel	Middle Name	Bryan	Country	United States	Extra Text Field 4	orange
	Lastname	Keller	Home Phone		Extra Text Field 5	
	Address	Ap #355-6677 Et. Ave.	Mobile Phone		Extra Date Field 1	1/25/2017
	City	Whitehouse	Fax Number		Extra Date Field 2	Select a date

When CardExchange® Producer is loaded, you can directly see that things have changed. First of all, the ribbon has only the Print and Service center tab available as indicated with the **red rectangle**.





When you are an **Administrator** and you need to do some maintenance on the users computer, just simply select **Logout** and enter your Administrator **User name** and **Password** to make changes.

## 16 Contactless Encoding



A contactless smart card is any pocket-sized card with embedded integrated circuits that can process and store data, and communicate with a terminal via radio waves. There are two broad categories of contactless smart cards. Memory cards contain non-volatile memory storage components, and perhaps some specific security logic. Contactless smart cards do not contain an ordinary read-only **RFID**, but they do contain a re-writable smart card microchip that can be transcribed via radio waves.

A contactless smart card is a card in which the chip communicates with the card reader through an induction technology similar to that of an **RFID** (at data rates of 106 to 848 kbit/s). These cards require only close proximity to an antenna to complete a transaction. They are often used when transactions must be processed quickly or hands-free, such as on

mass transit systems, where a smart card can be used without even removing it from a wallet.

The standard for contactless smart card communications is **ISO/IEC 14443**. It defines two types of contactless cards ("**A**" and "**B**") and allows for communications at distances up to 10 cm.

A related contactless technology is **RFID** (radio frequency identification). In certain cases, it can be used for applications similar to those of contactless smart cards, such as for electronic toll collection. RFID devices usually do not include writeable memory or micro controller processing capability as contactless smart cards often do.

There are dual-interface cards that implement contactless and contact interfaces on a single card with some shared storage and processing. An example is Porto's multi-application transport card, called Andante, that uses a chip in contact and contactless (**ISO/IEC 14443 type B**) mode.

Like smart cards with contacts, contactless cards do not have a battery. Instead, they use a built-in inductor, using the principle of resonant inductive coupling, to capture some of the incident electromagnetic signal, rectify it, and use it to power the card's electronics.

CardExchange® Producer Business Edition supports inline encoding and reading for two different type of contactless technologies;

- **MIFARE® Classic**,
- and reading of **HID® Proximity** cards.

CardExchange® Producer Enterprise Edition adds support for inline encoding of;

- **MIFARE® DESFire**,

In this section of the Help file we will explain how to use these technologies with CardExchange® Producer. It is however important to have at least basic knowledge of these technologies used by CardExchange® Producer.

Please visit <http://www.nxp.com> for more information about **MIFARE®** technology.

## 16.1 MIFARE® Classic

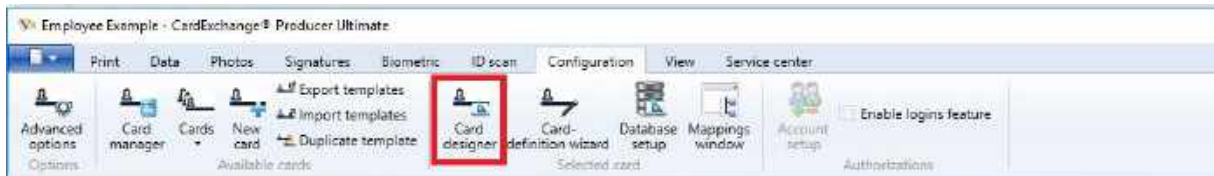
CardExchange® Producer supports inline encoding and reading of **MIFARE® Classic 1K**

and 4K cards. What information should be read or written can be configured by means of the **MIFARE® Wizard**, which will be the subject of this chapter. For a full understanding of the **MIFARE® Wizard**, it is essential to have knowledge about the functionality of the MIFARE® Classic chip. Please, refer to the MIFARE® Classic documentation published by NXP for more information

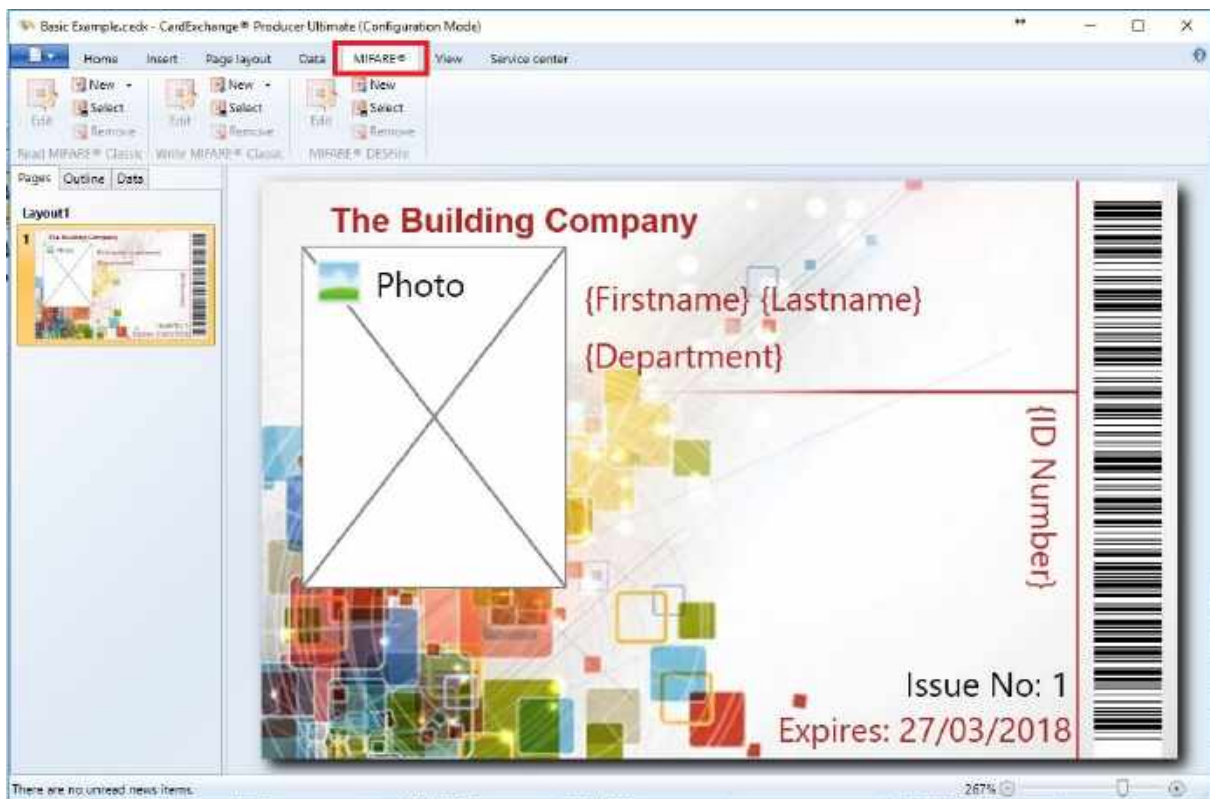
Please visit <http://www.nxp.com> for more information.

It is possible that the **MIFARE® Wizard** does not offer all functionality you need to achieve your goals. For example, you might need functionality of the **Classic** protocol that is not configurable via the wizard, or special transformations of the database data before they can be written to the chip. For this type of situations, we can offer a solution by means of an [External Plug In](#). Please, contact sales for more information about [External Plug Ins](#).

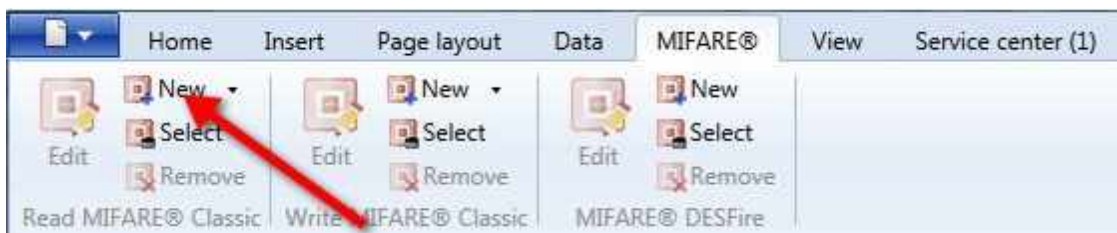
### 16.1.1 Creating Classic Encoding



To encode MIFARE® Classic encoding we have to set the system up for this. Encoding is setup via the Designer so click on **Card Designer** to start the Designer.



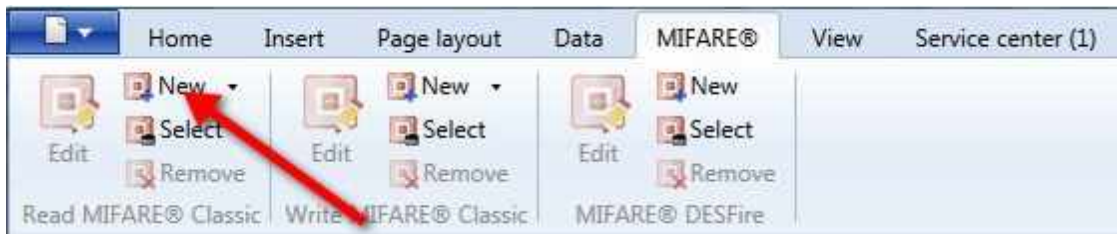
Select the MIFARE® tab as indicated with the red rectangle.



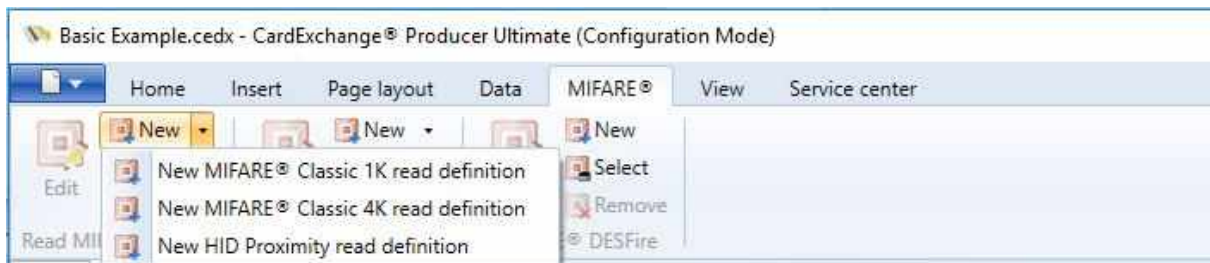
Click on New, as indicated with the red arrow to start the MIFARE® Classic Setup Wizard and follow the steps as described in the sub sections of this topic.

It is possible to select an existing **Classic setup** by clicking on the Select button. It is important to notice that, compared to using DESFire, for Classic you will need to create separate setups for **reading** and/or **writing** to the **Classic chip**. Read definitions are mostly only created if the **UID** (Unique ID) of the Classic card needs to read and stored into the database or printed on the card. In this section of the Help file we will explain how to create a definition for writing to a **Classic chip**.

### 16.1.1.1 Step 1: Selecting Memory Size



Clicking on new will directly launch the MIFARE® Classic 1K setup wizard, if you wish to select another card type/size then instead click on the small arrow next to new.

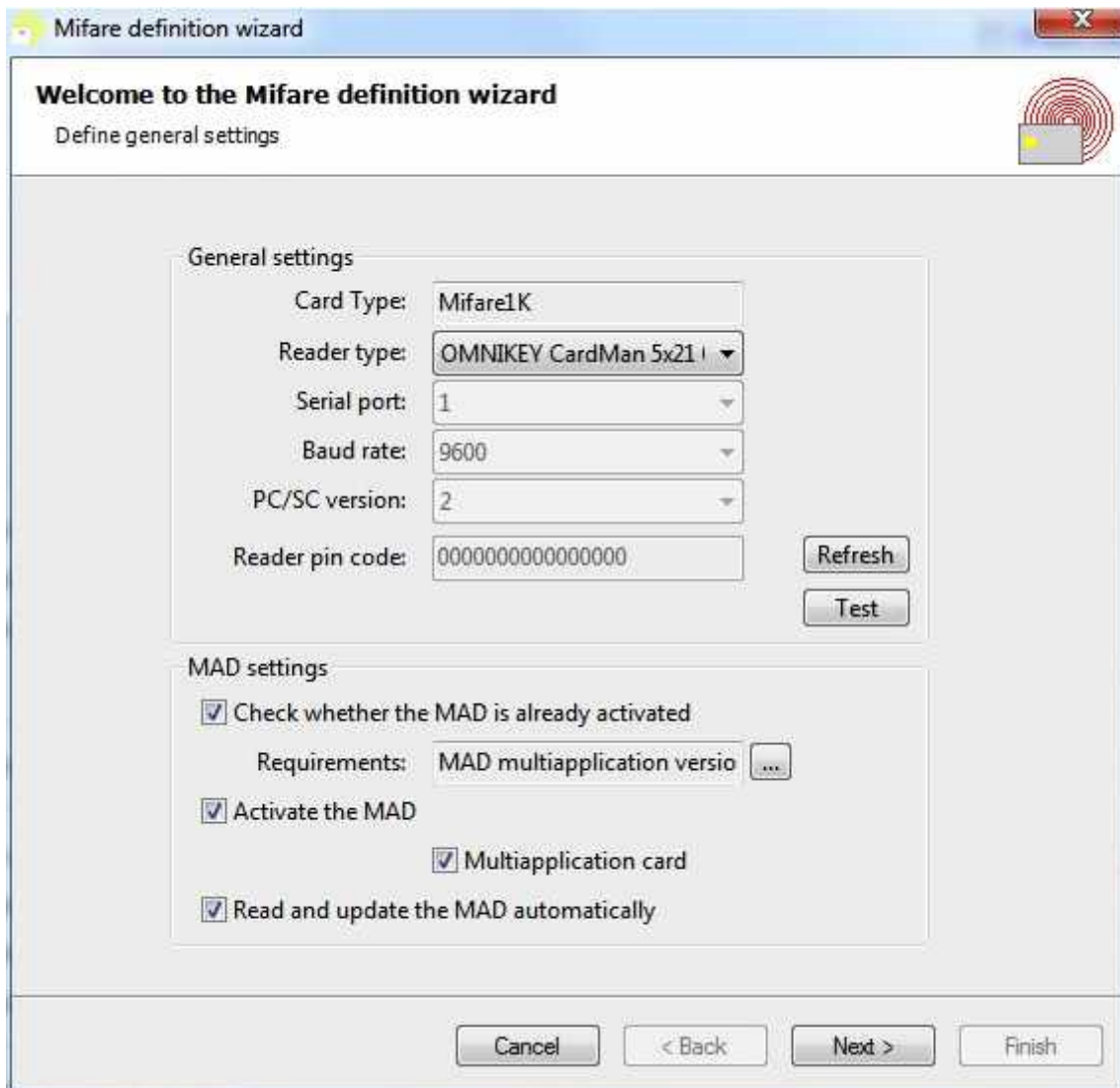


You can select to create a definition for a MIFARE® 1K or 4K card. As you can see, you can also select HID Proximity. This is because we also use the same wizard for defining HID® Proximity encoding. See our [HID® Proximity](#) section of this Help file for more information.

The most common used MIFARE® Classic chip is the 1K card, which we will use. The 4K chip basically works the same with exception of the size of the sectors starting from sector 16 and up, and it has two MAD sections.

In this case we select MIFARE® 1K and click Yes to confirm and proceed with [Step 2](#).

### 16.1.1.2 Step 2: Define General Settings



The screenshot shows a software window titled "Mifare definition wizard" with a close button in the top right corner. The main content area is titled "Welcome to the Mifare definition wizard" and "Define general settings". It features two main sections: "General settings" and "MAD settings".

**General settings:**

- Card Type: Mifare1K
- Reader type: OMNIKEY CardMan 5x21 (dropdown menu)
- Serial port: 1 (dropdown menu)
- Baud rate: 9600 (dropdown menu)
- PC/SC version: 2 (dropdown menu)
- Reader pin code: 0000000000000000
- Buttons: Refresh, Test

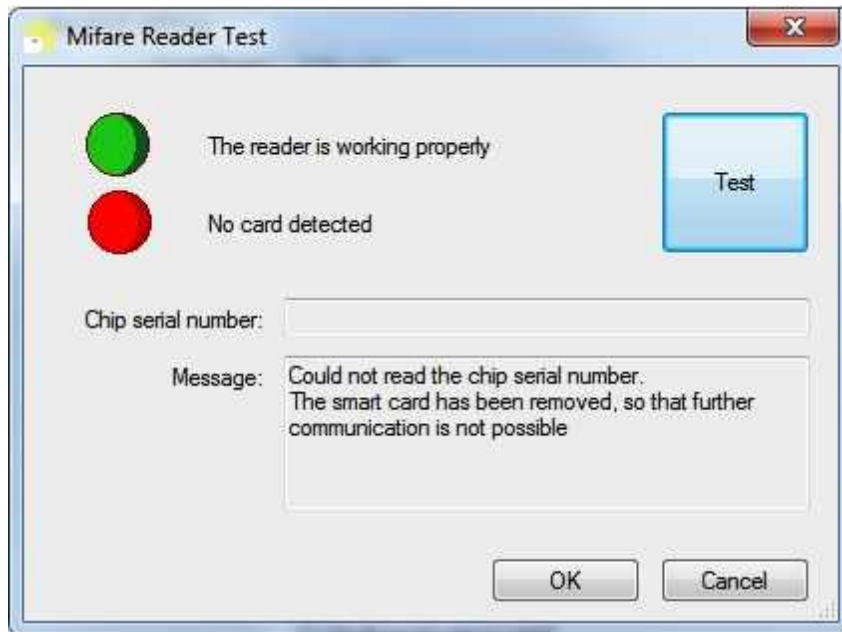
**MAD settings:**

- Check whether the MAD is already activated
- Requirements: MAD multiapplication versio (dropdown menu)
- Activate the MAD
- Multiapplication card
- Read and update the MAD automatically

At the bottom of the window are four buttons: Cancel, < Back, Next >, and Finish.

The **General settings** group box allows choosing the **reader type**, the serial port to which the reader is connected and the baud rate to be used. CardExchange® Producer supports a lot of readers for encoding MIFARE® Classic. For a current list of supported encoders please visit our website <https://cardexchangesolutions.com/producer-encoders>.

**PC/SC** readers are only available when installed on your system. If the reader is not available, please make sure it is installed properly. You can click on the **Refresh** button to reload the list with available readers. You are able to test if the connected reader is working and responding correctly. Click on the **Test** button to open the **MIFARE® Reader Test** window.




When pressing the **Test** button, CardExchange® Producer will try to connect with the reader and, if a card is present, it will try to read the **UID**. If the test succeed and the reader is working and a card is present on the reader, you will have two green lights.

The card type cannot be changed after the definition has been created, as the definition includes all information about the structure of the card memory. When reading the **UID** from the first four bytes of block 0 of sector 0, the first byte is treated by default as the least significant byte. For example, the byte series 161 198 51 70 is interpreted as 1,177,798,305. This behavior can be changed by checking the option Invert chip serial number in the [Advanced Mappings](#), as explained in [Step 5](#). If checked, the first byte will be treated as the most significant byte and the same byte series will interpreted as 2,714,121,030.

The **MAD settings** group box makes it possible to activate the **MAD**-related functionality. Checking the first check box causes the general-purpose byte of the sector trailer of sector 0 to be read and interpreted. This byte contains information about the **MIFARE® Application Directory**.





Three types of requirements can be defined by clicking on the  button right from the **Requirements** text box:

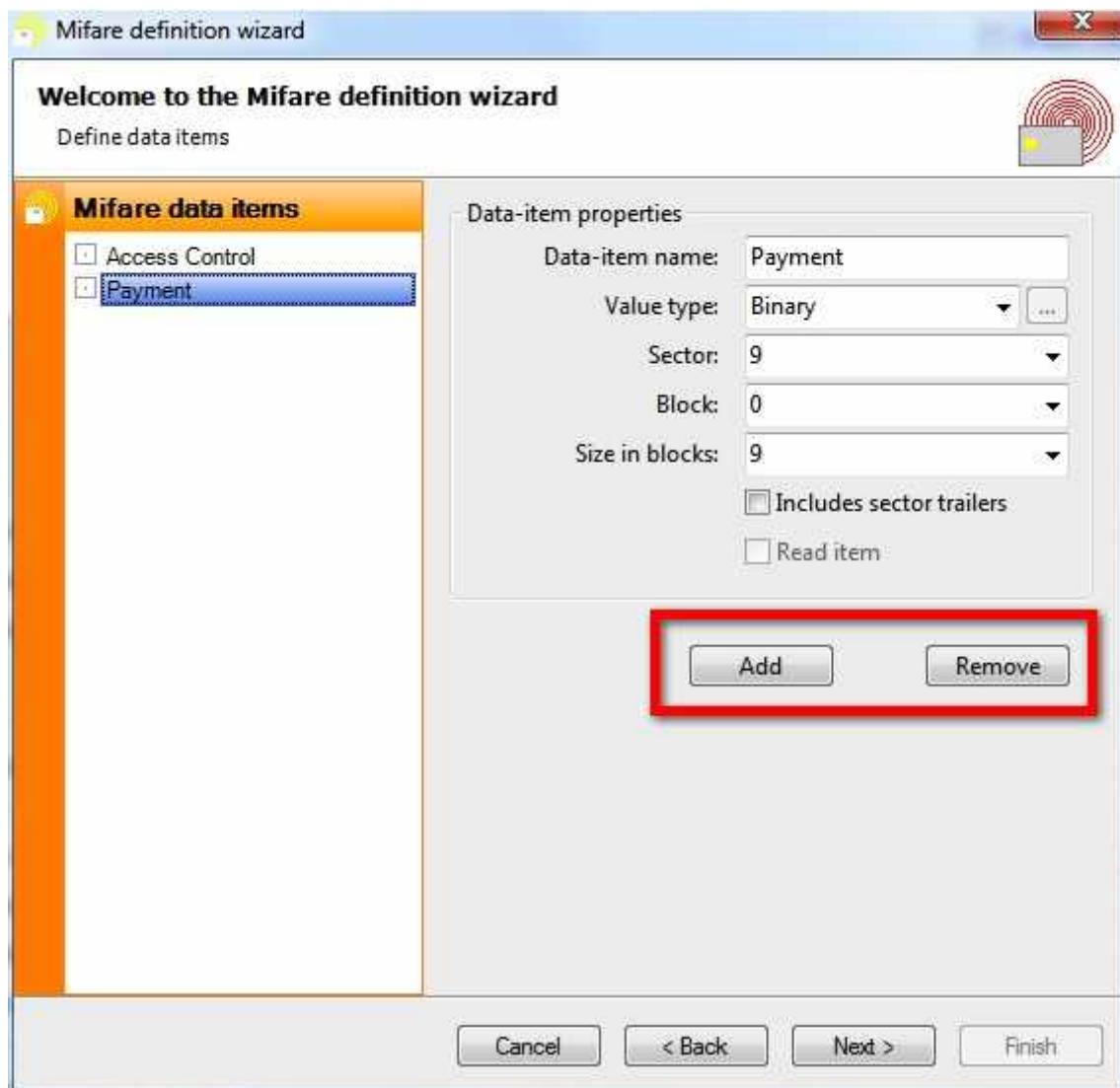
- whether the card has a MAD or not,
- whether the card is a multi- or a monoapplication card,
- and whether the MAD is version 1 (Mifare 1K) or version 2 (Mifare 4K).

The second check box makes it possible to **Activate** or change these MAD properties. If it is checked, the MAD will be **Activated**. The user can choose whether it should be a **multi-application** card or not. The **MAD** version written depends on the card type specified for this definition.

The last check box allows specifying whether the **MAD** should be **read** and **updated** automatically. If the card has a **MAD** or if the **MAD** is activated in the definition and the user does not check this option, he cannot use any **MAD**-related functionality other than setting the general purpose byte of sector 0 and he will have to define a data item to write the correct entries into the **MAD**.

Click **Next** to proceed with the creation of the **Classic Definition** and go to [Step 3](#).

## 16.1.1.3 Step 3: Define Data Items



The navigator object on the left-hand side of this page shows a list of all **Data Items** that have been defined. **Data Items** can be added and removed by using the respective buttons indicated with the **red rectangle**. By selecting a data item, its properties can be viewed and edited in the **Data-Item Properties** group on the right-hand side.

The **Data Item** name may include any character and can be freely chosen as long as the name is unique. The **Data Item** name is used in the card designer to uniquely identify the **Data Item**.

The **Value Type** determines which kind of data is **read** from or **written** to the data blocks. The options **Text**, **Binary**, **Hexadecimal**, and **BCD** treat the blocks as **read/write** blocks, whereas the option **Value** treats the blocks as value blocks. In the latter case, the size of the

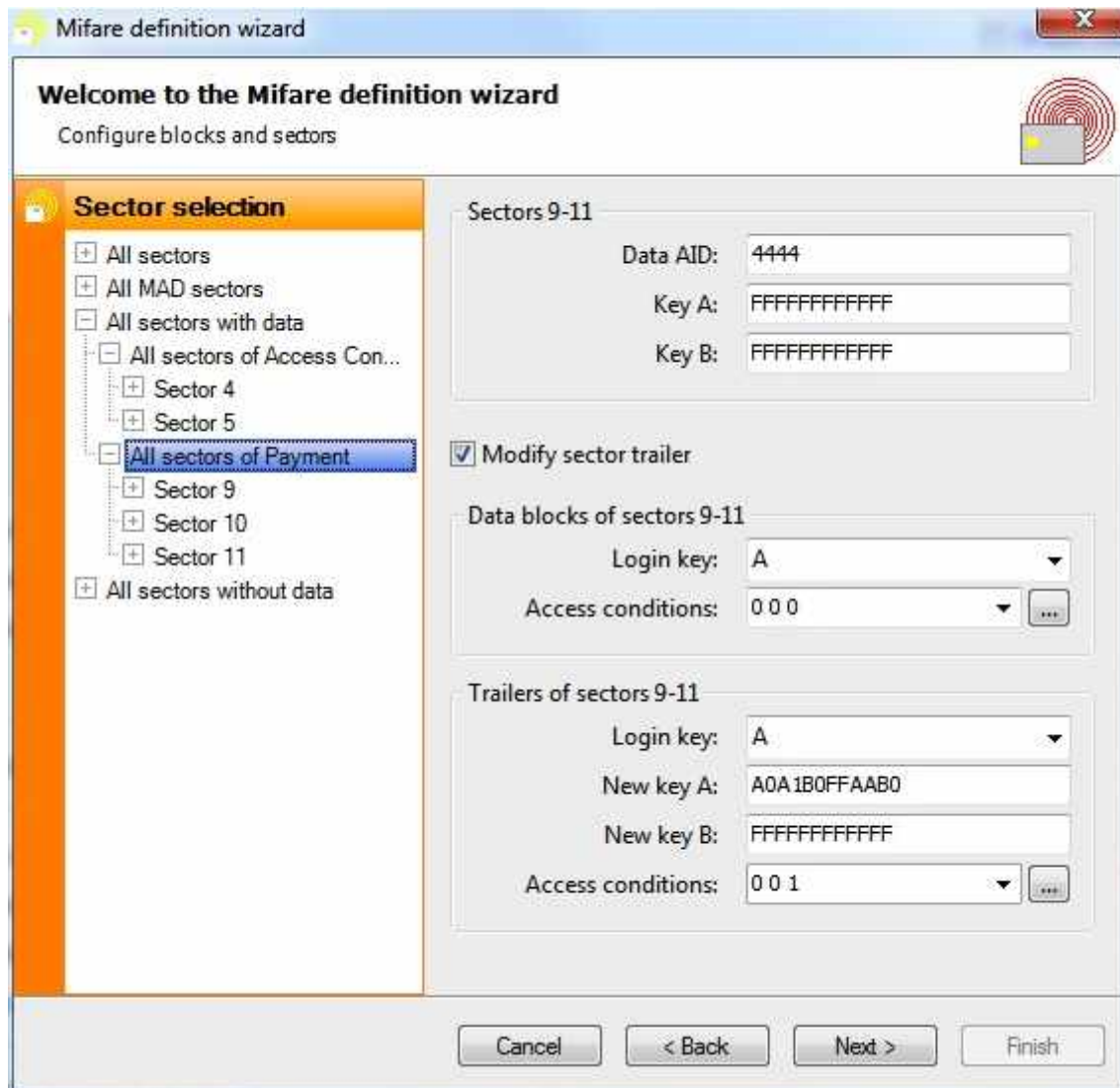
data item cannot be changed and is one by default. In the former case, data items can be an arbitrary number of blocks in size, as long as it does not exceed the size of the memory on the chip. The difference between the first three types is not in the way the data is stored, but in the way the data to be stored is provided. **Text** items expect strings and will store the **ASCII** codes of the individual characters. **Binary** items expect binary data to be copied into data blocks. **Hexadecimal** items expect strings that contain the hexadecimal representation of the binary data to be copied into the data blocks. **BCD** items expect integers and will store them as binary coded decimals.

The **Sector** and the **Block** number indicate where on the **MIFARE® Classic** card the first block of data of this item is located. **Data Items** are allowed to span various blocks, but always consist of a whole number of blocks. If a write item does not supply sufficient data for all indicated blocks, the data is supplemented with zeros.

By default, items that span various blocks will skip sector trailers when distributing the data over the subsequent blocks. If for example the item size is four blocks and the item is written to sector 3 block 1, the data will be distributed over sector 3 block 1 and 2 and sector 4 block 0 and 1, skipping the sector trailer of block 3. However, if the information to be written to the sector trailer is contained in the data item, the option Includes sector trailers should be checked to force the data item to include the sector trailers.

Click **Next** to proceed with the creation of the **Classic Definition** and go to [Step 4](#).

## 16.1.1.4 Step 4: Configure Blocks and Sectors




The navigator object on the left-hand side shows all **blocks** and **sectors** grouped in various ways and in a hierarchical manner. It allows the user to select a single data block, but also entire sectors and groups of sectors. On the right-hand side the settings for the selected sector or group of sectors and the selected **block** or **group of blocks** can be modified, and can be viewed provided that all **sectors** or **blocks** in the group share the same setting. If any modification is done, it will apply to all selected sectors and blocks. For example, if in the above screen shot the access conditions are changed for the data blocks, this setting will apply to all data blocks of sector 10. After that, it is possible to select block 0 of sector 10 and change the access conditions for this block only, without affecting blocks 9 and 11. In general, it is advisable to start a definition with settings shared by many blocks and work down to the exceptions to the general rule.

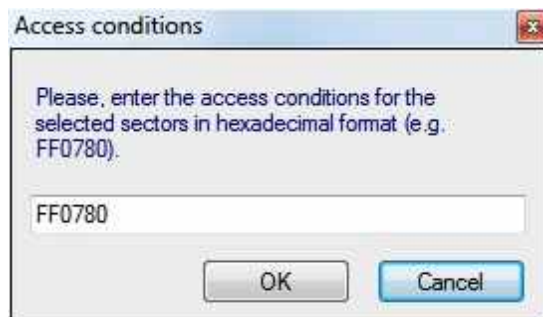
The first group of settings are defined on the sector level and contain the keys to be used to logon to the sector(s). The keys are entered in hexadecimal format. If the fields do not contain a valid hexadecimal string or contain the wrong key values, processing the definition will result in an error. If one of the keys is not used, it is not necessary to enter a specific value and the default value **FFFFFFFF** can be left unchanged. This group also contains a field called **Data AID**, that can only be edited when the selected sectors are referred to by one or more data items and when you are reading and updating the **MAD** automatically. This is the so-called **Application Identifier**, which is defined on a sector level to allow for optimal flexibility. It should be noted, however, that the **Data AID** essentially refers to the data of the **Data Items** defined for that sector and not to the sector itself. CardExchange® Producer might be allowed to **write** application data to another **sector** than specified in the definition.

If one of the selected data blocks is the target of a **Data Item**, it has to be indicated whether the **logon** to the **sectors** of those **blocks** is to be done with **key A** or **key B**. This is a property that can be set for each **block** individually and is therefore found in the second group of settings, which contains all block-level settings.

Between the **sector-level** and the **block-level properties**, a check box allows the user to indicate whether he wants to **modify the sector trailers** of the **selected sectors**. If any of those has a trailer that will be written to by a **Data Item**, this option cannot be selected. Otherwise, the user should provide the necessary information for writing to the sector trailers, which is: the key to be used to **logon** to the sector before writing the sector trailer, the new key values to be written and the **access conditions** for both the data blocks and the sector trailer itself to be written.

The **login key** for the sector trailers, the **new key values** and the **access conditions** for the **sector trailers** are grouped in the third block of settings, which contain all **trailer-level settings**.

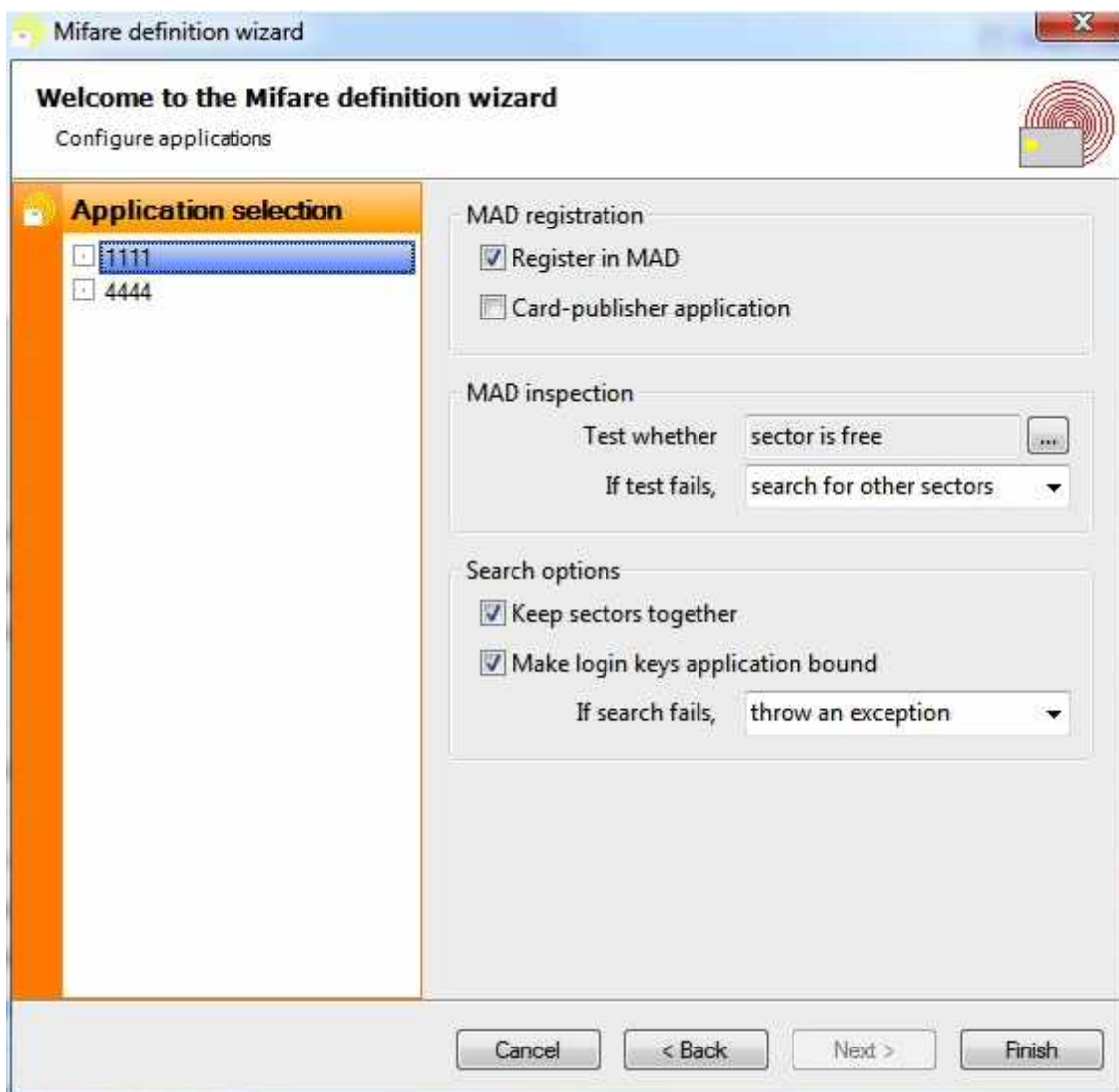
The **access conditions** for the data blocks can be set for each block individually on **MIFARE® Classic 1K**. For **MIFARE® Classic 4K**, the **access conditions** are shared between **five data blocks** and cannot be set for individual blocks. The small buttons  right of the combo boxes allow the **access conditions** to be entered in hexadecimal format.



Setting the **access conditions** this way will always affect all blocks of the selected sector, even if only one of those blocks has been selected. A six-digit (three-byte) hexadecimal string that represents a valid set of access conditions should be entered. Byte nine of the sector trailer is not considered to be part of the access conditions and will always be set to zero, except for sector 0 if **MAD** is used.

Click **Next** to proceed with the creation of the **Classic Definition** and go to [Step 5](#).

#### 16.1.1.5 Step 5: Configure Applications



The last wizard page is only visible when **reading** and **updating** the **MAD** automatically. On the left hand side the user can select an **entire application** and then define **application-specific** settings on the right hand side. The first option determines whether the application

should be registered in the **MAD**. Registration can be done for both writing and reading applications, although the latter case is somewhat awkward. At most one of the registered applications can be designated as card-publisher application. If this is done, a pointer the first sector of this application is written to the info byte in sector 0 block 1, as specified by the **MIFARE® Classic** protocol. Otherwise, the info byte will not be modified.

For each application, various tests can be performed on the **MAD** before any data item is read or written. If the test fails, the user can choose to **throw an exception**, to **skip this application** or to **search for sectors** that do fulfill the requirements. If the latter option is chosen, the search options in the second block have to be set correctly. If Keep sectors together is checked, CardExchange® Producer will only search for contiguous sectors that fulfill the requirements.

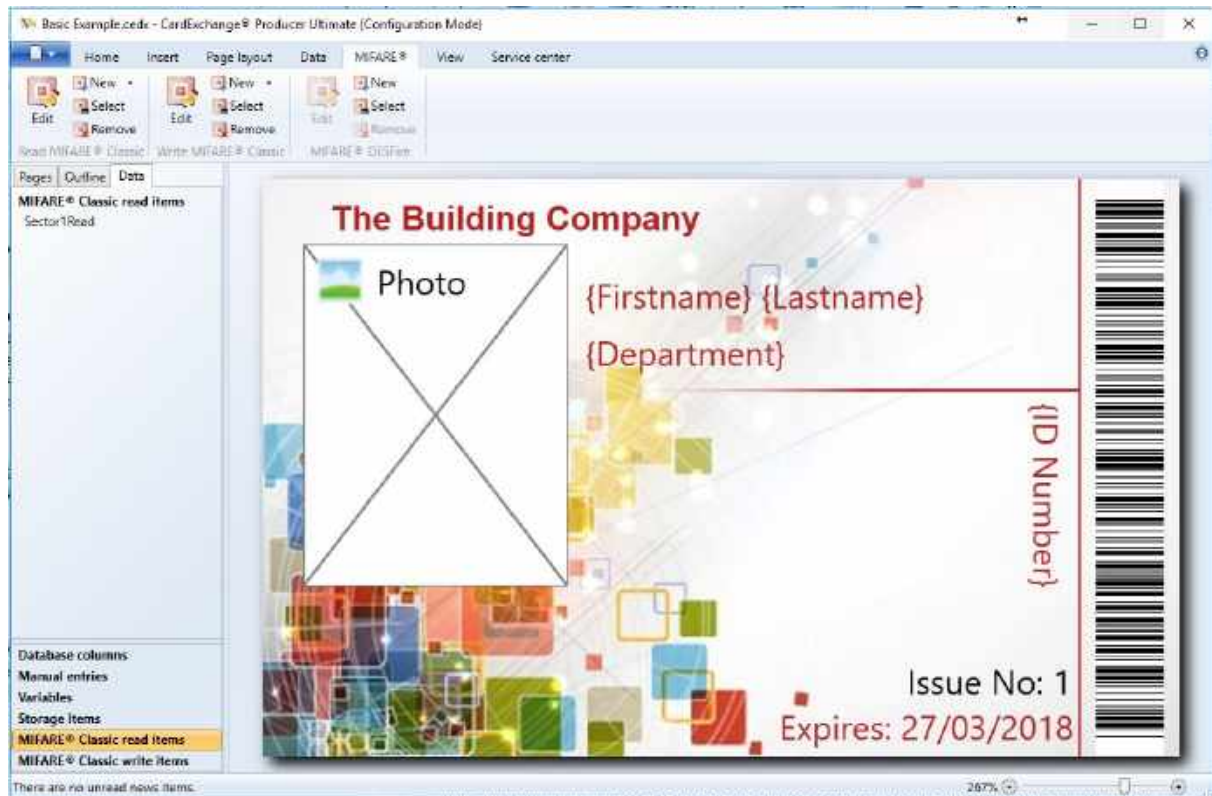
By default, CardExchange® Producer uses the **login keys** that have been defined for the sector to which the application is actually written. In other words, by default, the **login keys** defined in the previous screen are sector bound. Generally, this is the desired behavior when writing data to empty **sectors**, because in that case the keys are known for each sector individually, provided that the **sector** is still free. When reading an application, the **login keys** are usually **application bound**, that is, it is known which keys belong to a the **application**, but it is not known in which sector that application resides. By checking the corresponding check box, the **login keys** can be made **application bound**. Note that the information written to the **sector trailer**, including the new **key values**, is always **application bound**. If an **application** is written to another sector than specified in the definition, the trailer data will also be moved to the alternative sector.

When clicking on **Finish**, the wizard will prompt whether you **want to hide the keys**.



If you check the box and click ok, **the keys will not be readable anymore the next time you open the wizard**. We recommend waiting with hiding the keys until after finishing the test phase, when you are sure that all keys are correct. Once the keys are hidden, they **CANNOT** be made visible anymore.

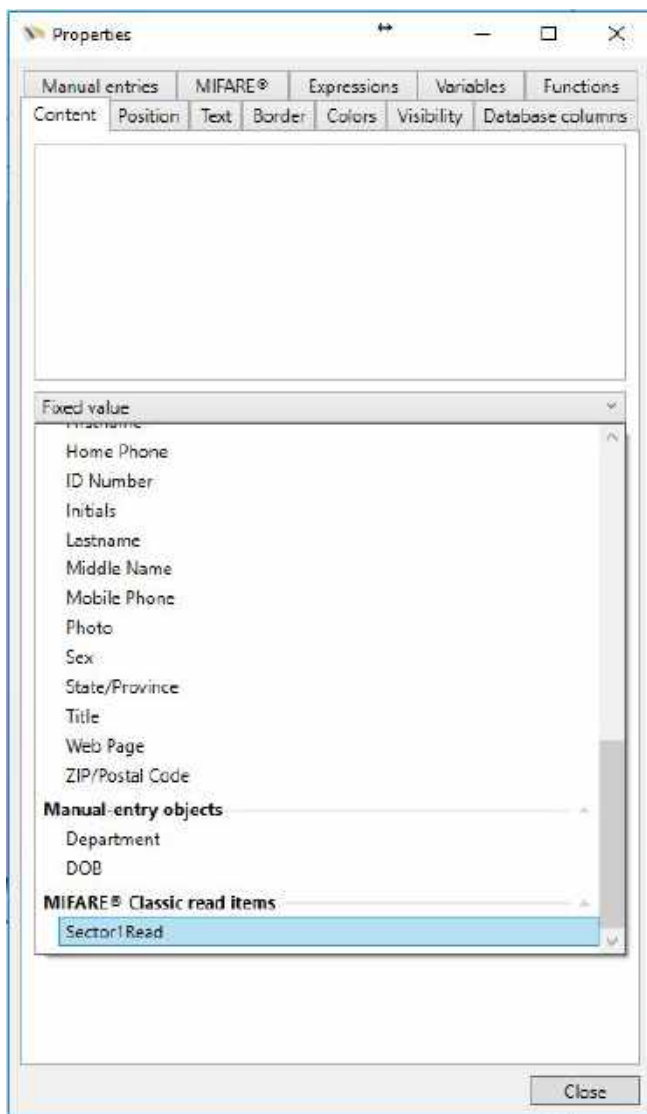
It is still necessary to map the data of the **Data Items** to **database fields**, **card objects**, **storage items**, etc. This can be done under the [data tab of the explorer menu](#) in the card designer and we refer you to the corresponding section for more information. Once your **Classic definition** is configured, the **Data Items** will be available in the data tab of the explorer menu, as shown below:



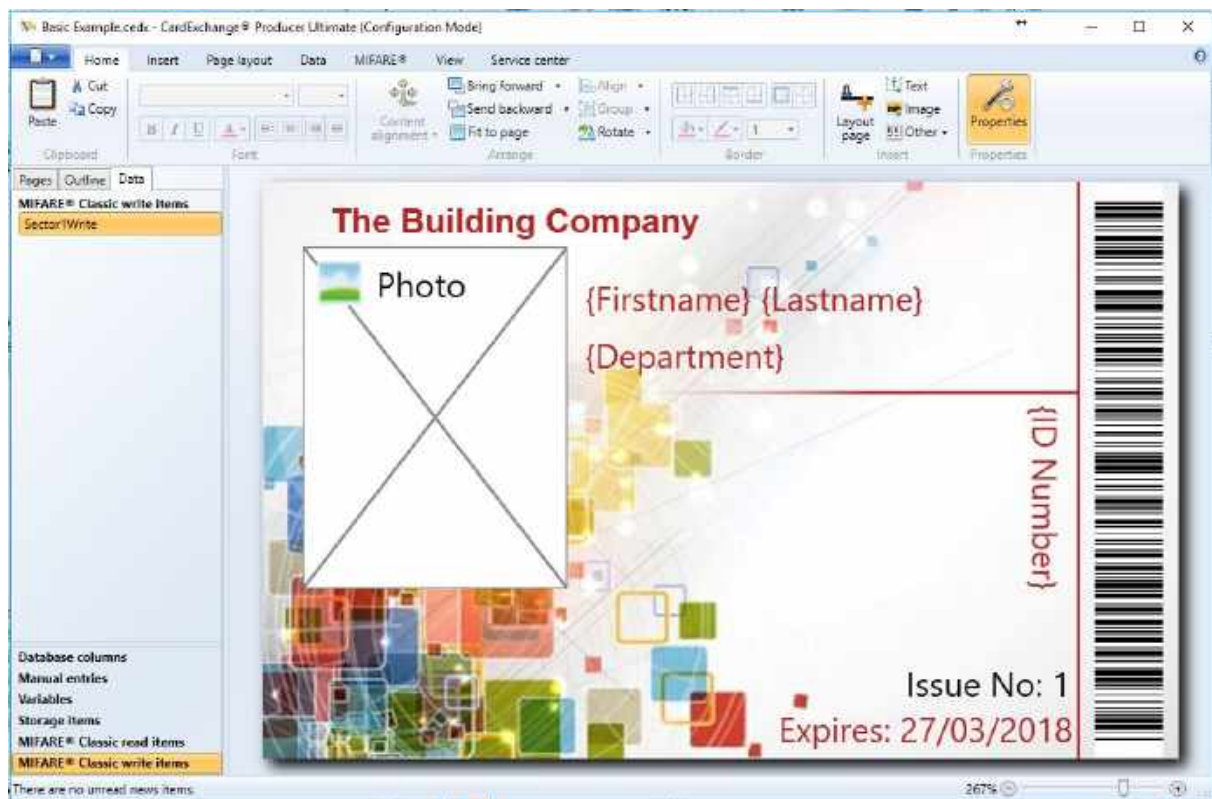
If reading from a MIFARE® card, the MIFARE® read item is available as an object from the drop down under the properties windows.

You can also drag the MIFARE® read item directly onto the card design if it is to be printed.

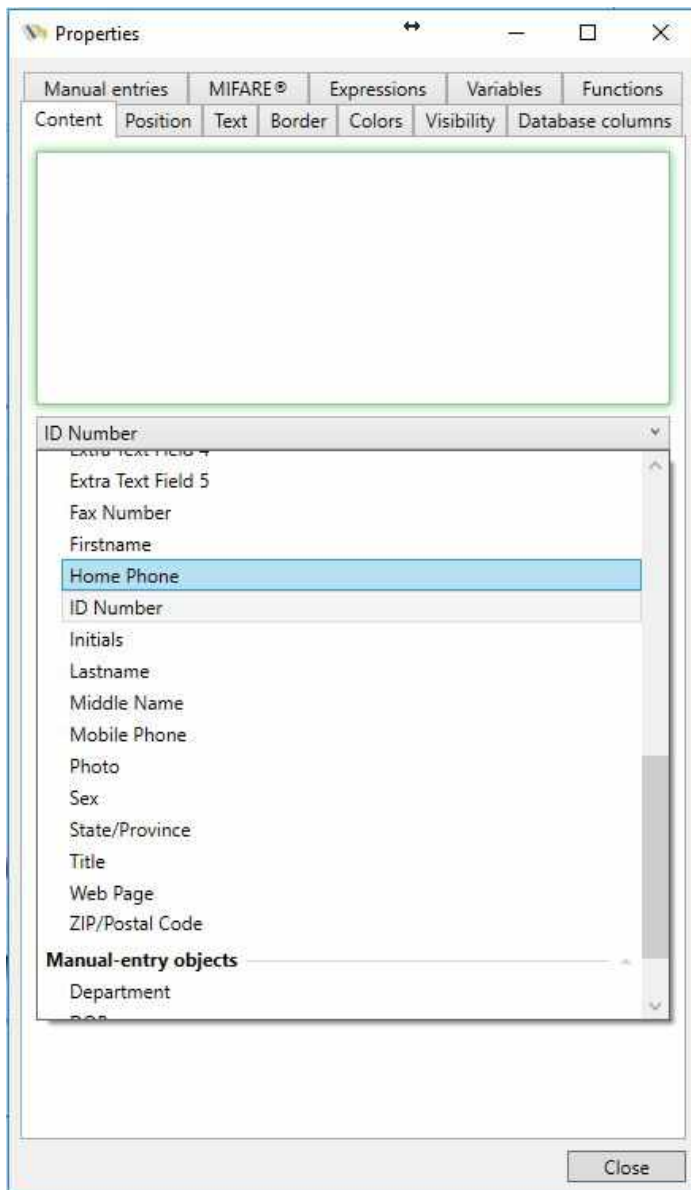




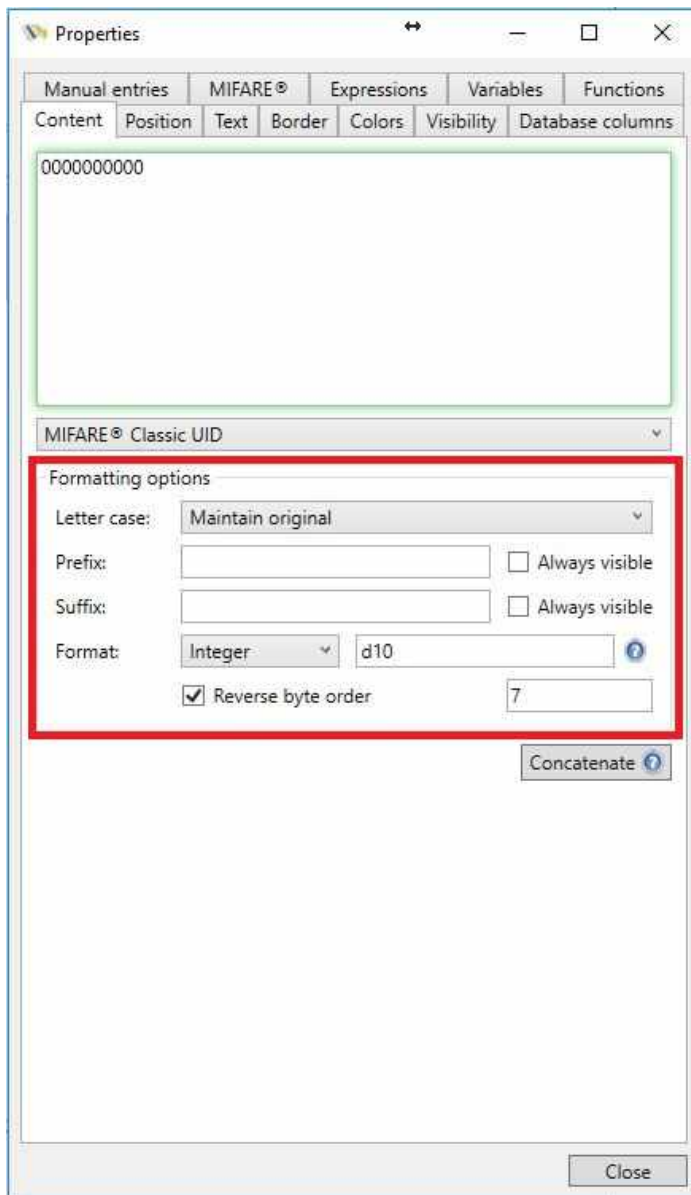
When writing data to MIFARE® classic cards, the MIFARE® write items are available under the data tab.



If you select the item you wish to setup you can then choose the object to encode into that item from the properties window:



The created **definition** always contains the possibility to read the MIFARE® Classic UID, it is possible to map this to a text object on the card or to a storage item.



Last but not least, as discussed in [Step 2](#), the UID can be formatted with a Reversed byte UID number. When selecting the MIFARE® Classic UID from the drop down menu you will have access to some advanced Format options as indicated with the **red rectangle**. For the UID you can assign a minimum number of digits, you can set the UID to Hexadecimal, Reverse the byte order, and set it to Seven-byte UID.

The last option is there because in the past MIFARE® Classic cards had a four-byte UID. When they started running out of unique UID numbers, NXP decided to start supplying Seven-byte UID numbers.

## 16.2 MIFARE® DESFire

CardExchange® Producer supports inline encoding and reading of **MIFARE® DESFire** cards. What information should be read or written can be configured by means of the **DESFire Wizard**, which will be the subject of this chapter. For a full understanding of the **DESFire Wizard**, it is essential to have knowledge about the functionality of the MIFARE® DESFire chip. Please, refer to the MIFARE® DESFire documentation published by NXP for more information

Please visit <http://www.nxp.com> for more information.

It is possible that the **DESFire Wizard** does not offer all functionality you need to achieve your goals. For example, you might need functionality of the **DESFire** protocol that is not configurable via the wizard, or special transformations of the database data before they can be written to the chip. For this type of situations, we can offer a solution by means of an [External Plug In](#). Please, contact sales for more information about [External Plug Ins](#).

Please, note that currently the following limitations exist with respect to **MIFARE® DESFire** encoding:

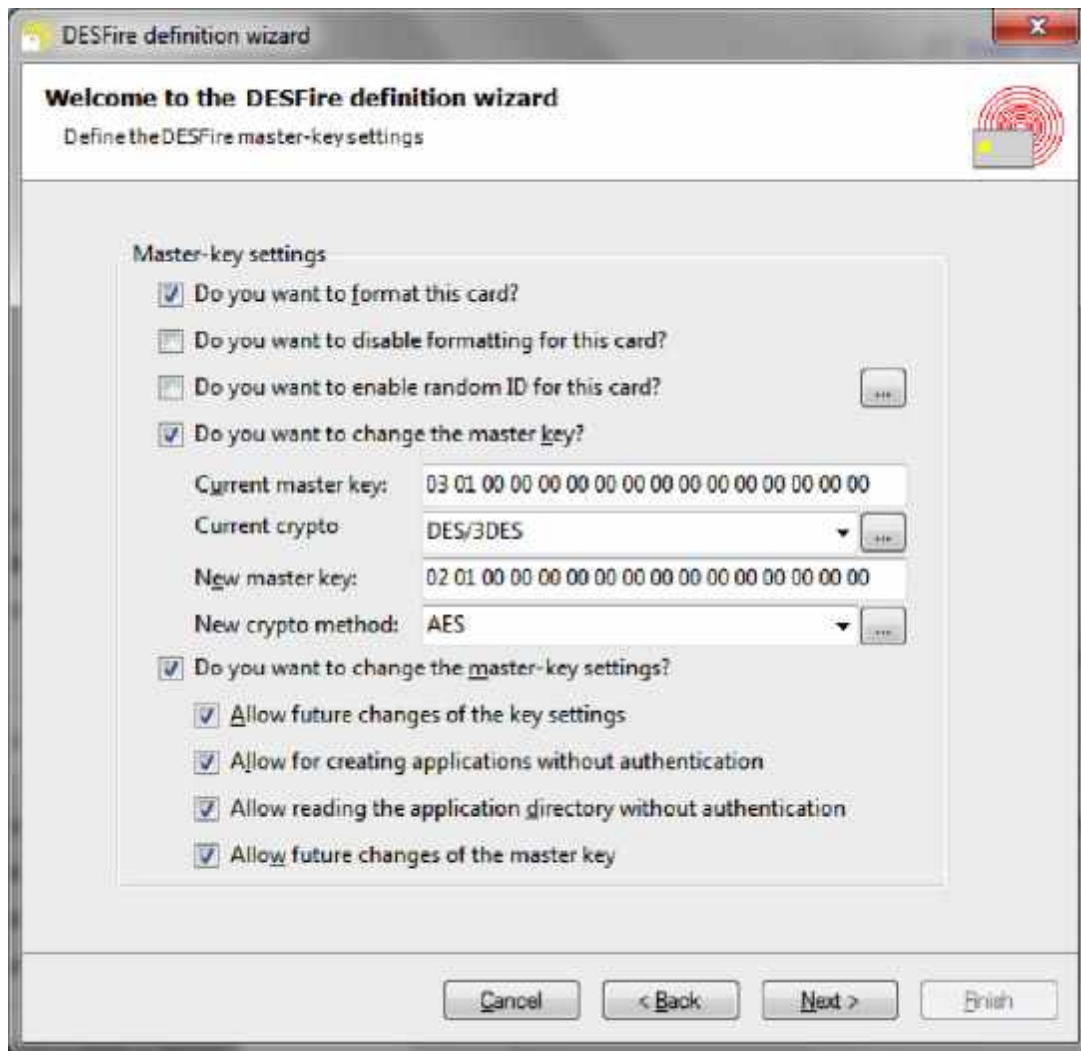
- The supported encoders are listed on our website:  
<https://cardexchangesolutions.com/producer-encoders>.
- The supported file types are **Standard data files** and **Value files**.
- **Value files** are only supported when using one of the supported **OmniKey encoders**.
- **MIFARE® DESFire EV1** is only supported for certain encoders.
- **Key diversification** is only supported for **AES keys**.
- If a **MIFARE® SAM** is used for authentication, this should be a **MIFARE® SAM AV2** and it should be inserted in a supported **OmniKey encoder**.

**Note:** *EV1 refers to the hardware version of the **MIFARE® DESFire chips**.*

**Note:** ***SAM** stands for **Secure Application Module**. It is a chip on which the **DESFire** keys can be stored in such a way, that nobody involved in the encoding process has access to the actual*

key values, not even when the CardExchange® Producer software or computer would be hacked. AV2 refers to the hardware version of the MIFARE® SAM.

## 16.2.1 Read and Write Items



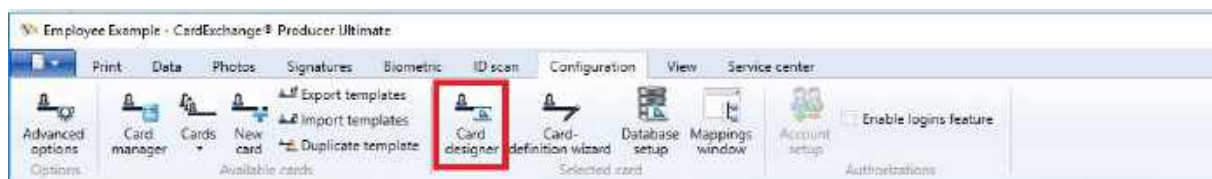
With the **DESFire Wizard** it is possible to define **DESFire read items** and **DESFire write items**. With read items, you can read data from **DESFire** and print it on the card or store it in the database. With write items, you can encode data from the database or other data sources on **DESFire**. Read and write items can be intertwined in a single **DESFire** definition,

in which case it is important to realize the order of the different actions that make up the print process.

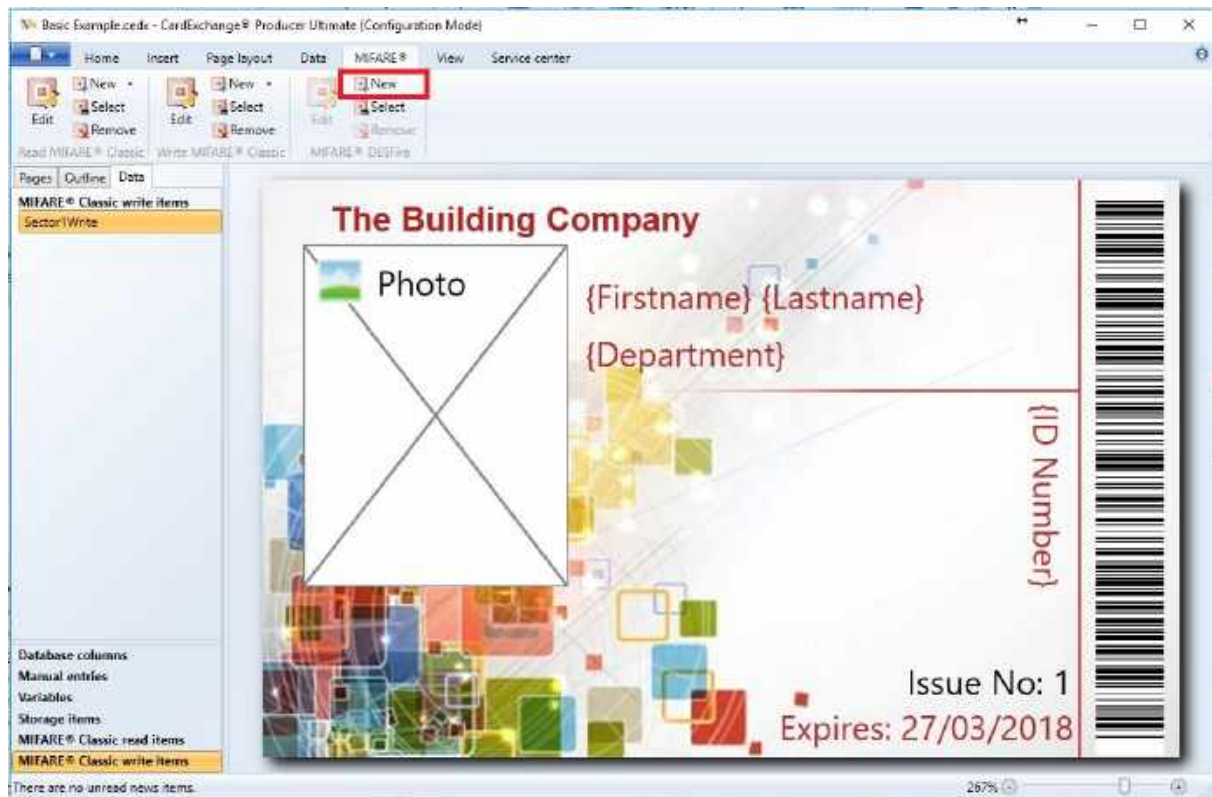
- Execute [External Plug Ins](#) with the evaluation moment '**Before moving the card into the printer**'.
- **Move** the card into encoding position.
- Execute [External Plug Ins](#) with the evaluation moment '**Before reading from MIFARE®**'.
- **Read** data from the **MIFARE®**.
- Execute [External Plug Ins](#) with the evaluation moment '**Before writing to MIFARE®**'.
- **Write** data to **MIFARE®**.
- Execute [External Plug Ins](#) with the evaluation moment '**After reading/writing to MIFARE®**'.
- **Print** the card.
- Execute [External Plug Ins](#) with the evaluation moment '**After printing the card**'.
- **Write** data to the database ([Storage Items](#)).
- Execute [External Plug Ins](#) with the evaluation moment '**Before writing to the database**'.

It is possible to read data from the chip, manipulate it with an [External Plug In](#) and write it back to the chip.

## 16.2.2 Creating DESFire Encoding



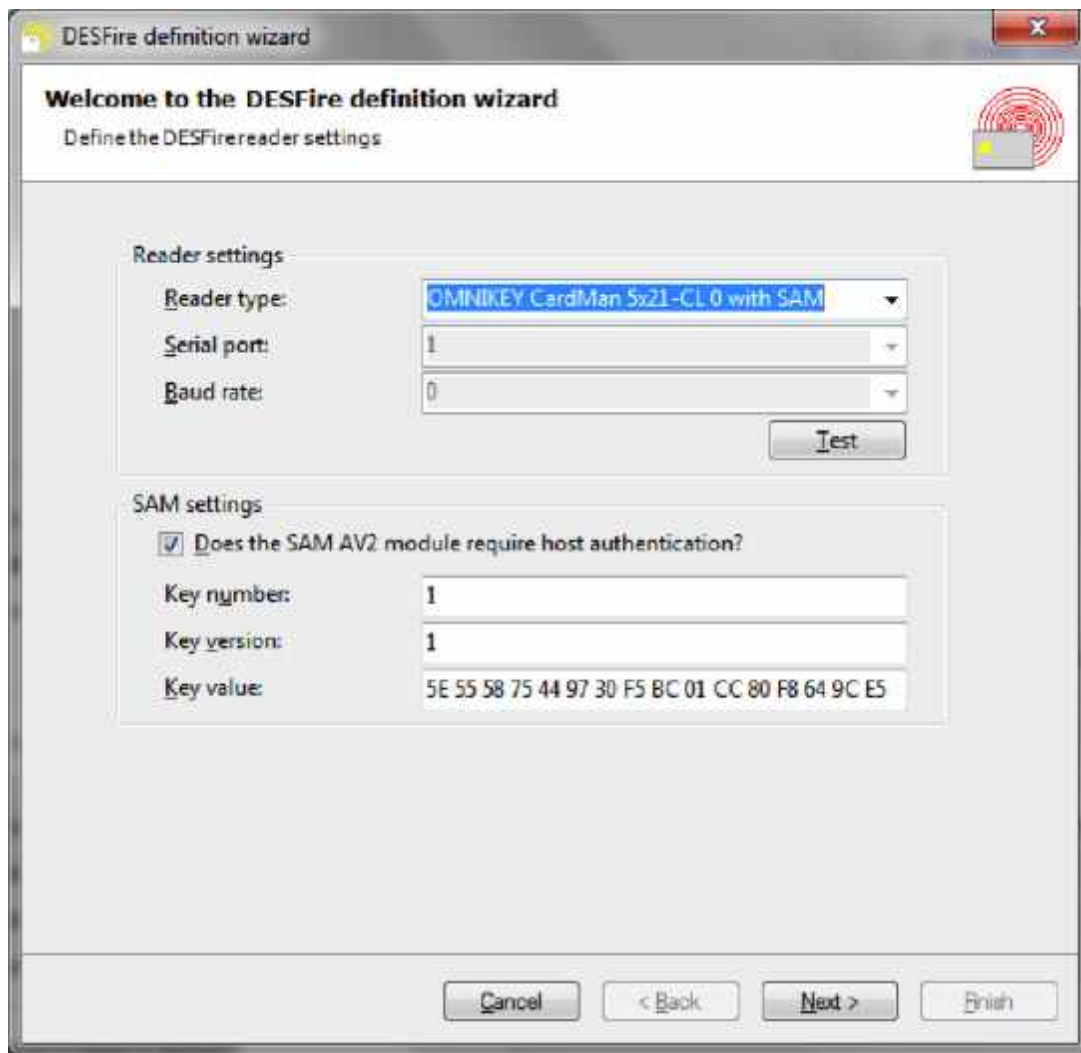
To encode MIFARE® DESFire encoding we have to set the system up for this. Encoding is setup via the Designer so click on **Card designer** to start the Designer.



Click on New, as indicated with the red rectangle to start the MIFARE® DESFire Setup Wizard and follow the steps as described in the sub sections of this topic.

### 16.2.2.1 Step 1: Define Reader Settings



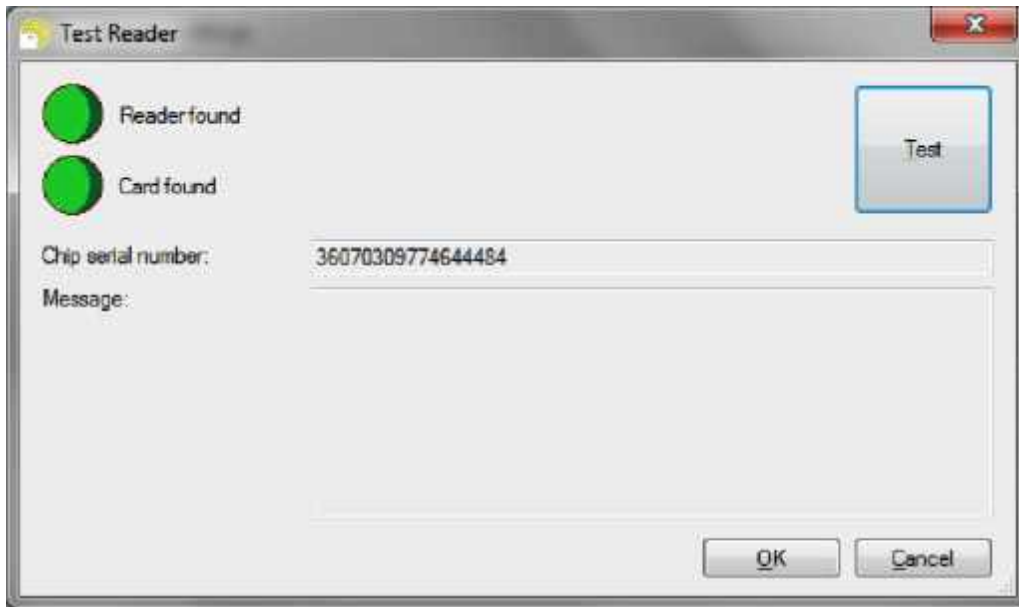


The first wizard page allows for choosing the contactless reader and setting the **SAM-authentication** settings in case a **Secure Authentication Module** is used. Use the **Reader type** drop down menu to select the contactless reader you want to use for reading/writing the DESFire card.

PCSC encoders are only shown in the menu, if they have been connected to the system and are accessible by CardExchange® Producer. The contactless readers “with **SAM**” are only listed if a supported **OmniKey** encoder is attached to the system and a **MIFARE® SAM AV2** card is inserted in the contact slot of the reader.

For some readers, it is necessary to specify the **Serial port** to which the reader is connected and the **Baud rate** at which the reader operates. For **ProActive** readers, you can either specify the correct serial port, or set the serial port to zero in order to have the CardExchange® Producer search for the first available ProActive reader.

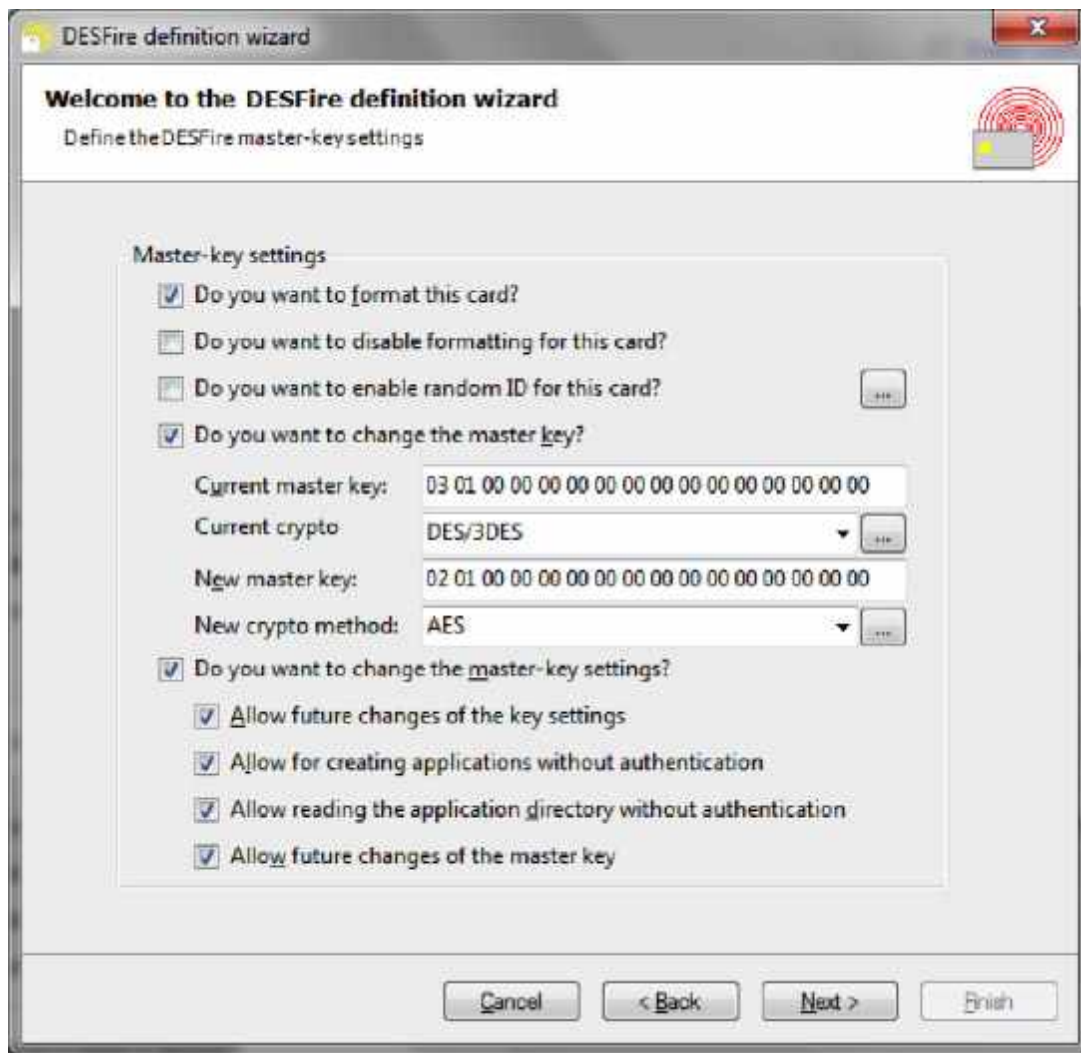
You can use the **Test** button to check whether the reader is operational and whether it recognizes a card placed on the reader. In case the card is recognized correctly, the chip serial number or unique identifier (UID) will be shown (see screen shot below). Otherwise, an error message will be shown in the **Message** box.



In case you have selected a reader “with SAM”, you have to specify whether the SAM requires host authentication (**Does the SAM AV2 module require host authentication?**). If so, specify the correct **Key number**, **Key version** and **Key value** of the hos-authentication key on the SAM. The key value should be a 16-byte hexadecimal string, with optional spaces between successive bytes, as in the above screen shot.

Click **Next** to proceed with the creation of the **DESFire Definition** and go to [Step 2](#).

#### 16.2.2.2 Step 2: Define Master Key Settings




This wizard page allows for defining **PICC-level** settings. The **acronym PICC** refers to **Proximity Integrated Circuit Chip** and is used to designate the entire chip, in contrast to specific files of applications on the chip. Enabling the option **Do you want to format this card?** (*only available on DESFire EV1*) will remove all files and applications from the card before starting the encoding. It does not reset the **PICC master key** and **key settings**. Formatting the card is only possible if you know the **PICC master key** and if the **PICC master-key** settings allow this operation. The option is mainly meant for reusing cards in a test situation.

*Please, note that formatting the card does not recover the memory space used by the files and applications. Repeatedly formatting a card will end up in exhausting the available memory space.*

The option **Do you want to disable formatting for this card?** (*only available on DESFire EV1*) disables the possibility to format the card in the future irreversibly.

The option **Do you want to enable random ID for this card?** (only available on *DESFire EV1*) offers an extra security layer for the card. It makes sure that in the future, the chip serial number or **UID** of the card can only be read after a successful authentication with either the **PICC master key** or one of the application keys. Once this option is set, selecting the card will return a random **4-byte UID**, instead of the real **7-byte UID**.

Special care has to be taken when reading cards that have the **Random ID** already enabled. If you want to store the **DESFire UID** in the database or use it for key diversification, you need instruct CardExchange® Producer to perform an authentication and retrieve the **Real UID**. This can be done with the  button next to the **Random-ID** option. It will open the following dialog box and allows you to specify the **key** and **key value** to be used for **authentication**. This key should **not be diversified**, as **diversified** keys can only be calculated when the real **DESFire UID** is known.




When selecting the option **Do you want to change the master key?**, CardExchange® Producer will change the **PICC master key** after encoding all files and applications, but before changing the **PICC master-key** settings. The new **master key**, as well as the **key's crypto method**, will need to be specified. Without this option, only the current master key and its crypto methods need to be specified.

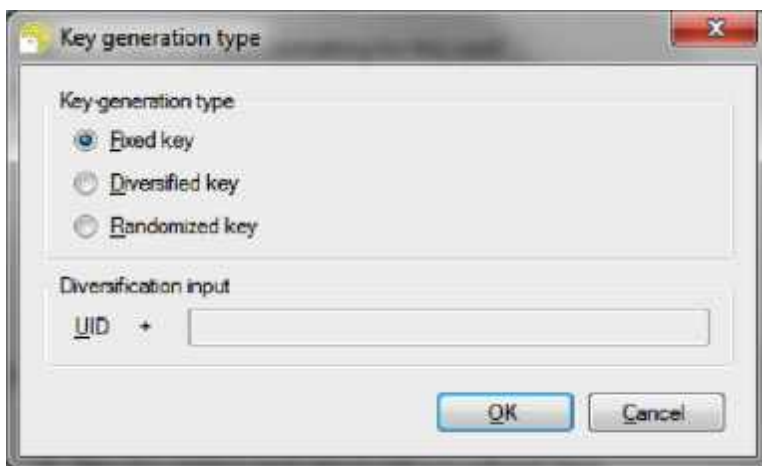
When selecting the option **Do you want to change the master-key settings?**, CardExchange® Producer will change the PICC master-key settings as specified, after optionally changing the master key. Both for changing the master key and the master-key settings, it is necessary that the original master-key settings allow for such a change.

Click **Next** to proceed with the creation of the **DESFire Definition** and go to [Step 3](#).

## 16.2.2.2.1 Specifying Key Values

Each **key value** is entered as a **16-byte hexadecimal string** with optional spaces between successive bytes, except when choosing the **3K3DES** (*three-key triple DES*) encryption method, in which case the key has **24 bytes**. The crypto methods **3K3DES** and **AES** are only available for **DESFire EV1**. Note that **AES** is the recommended crypto method, as it complies with the internationally recognized security standards. **3K3DES** is known to give technical problems with the **OmniKey** encoders and is **NOT** recommended.

By the default, the key specified in the key-value text boxes are the **DESFire keys** themselves. However, CardExchange® Producer offers the possibility to use **diversified** or **randomized keys**. Next to the **crypto-method** drop-down menu, a  button allows for choosing between these options.



**Diversified keys** are a protocol in which the actual DESFire keys are different on all cards, thus offering an extra security layer. The actual keys can be calculated by using a master key and a diversification input. The diversification input contains the card's UID, which ensures that the results of the calculations are different for every card. When diversified keys are enabled, CardExchange® Producer expects you to specify the diversification master key, rather than the DESFire key itself.

In case of diversified keys, it is necessary to specify the diversification input. The diversification input always starts with the DESFire UID and can be followed by any data the user desires (like the application AID and/or the key number). Note that key diversification has only been implemented for AES keys and follow the application note AN10922 published by NXP. In this document the byte 0x01 that precedes the diversification input is

not considered part of the diversification input, but it is important to realize that CardExchange® Producer does actually add this byte to construct the CMAC input parameter D.

When **randomized keys** are enabled, CardExchange® Producer will use a random key value rather than the one you typed. This option should only be used for new keys, as the result will never coincide with an existing key, and you should only use it if you are sure that you never want to use that key again. It is a way to lock the possibility to make certain changes to the card, in addition to the key settings.

Using the **MIFARE® SAM AV2** secure application module is another case in which you will not supply the real DESFire keys either. Instead, you will need to use the key-value box to supply encoded instructions about how to authenticate with the SAM. You have to specify the following information:

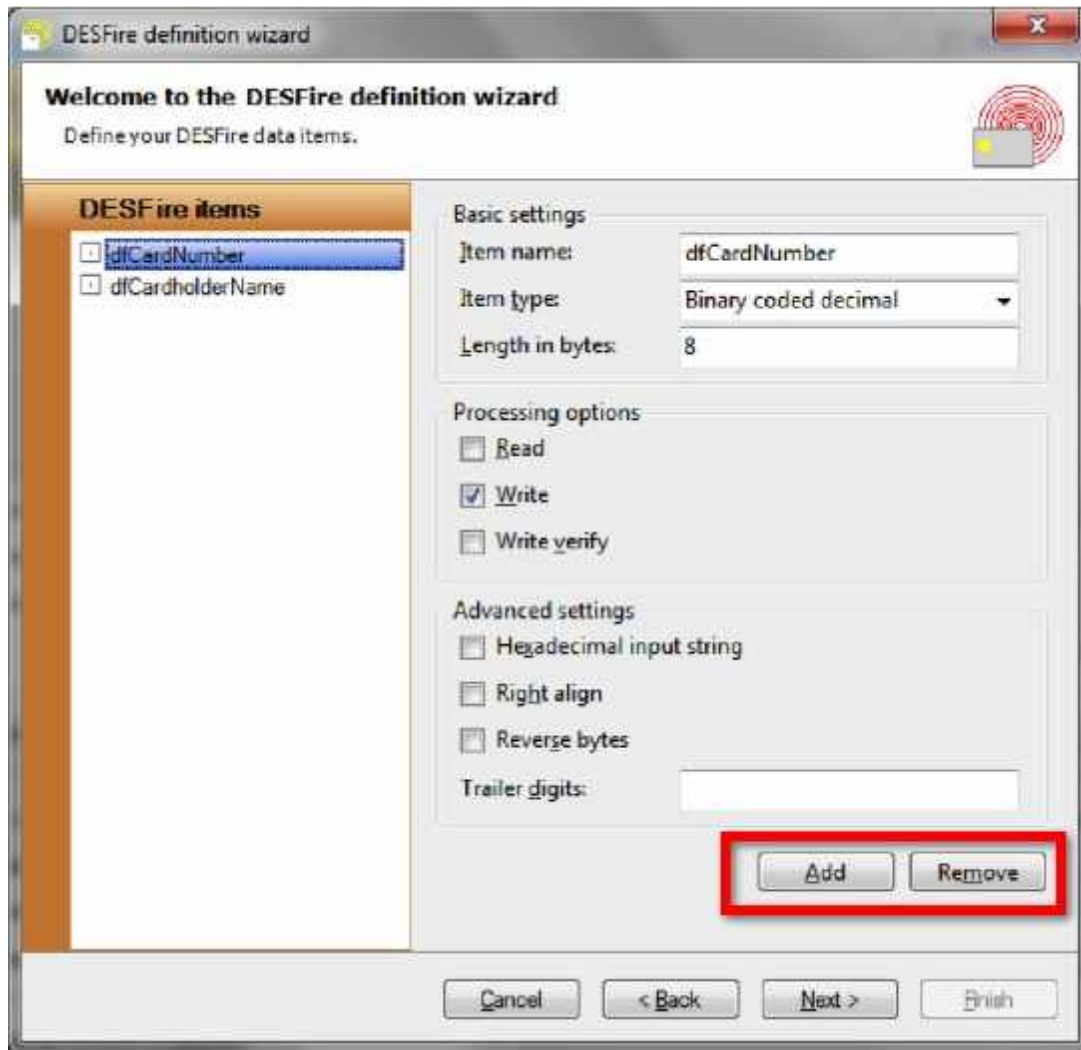
- Byte 0 contains either the SAM key number or the application key number.
- Byte 1 contains the key version.
- Byte 2 contains the authentication mode, which can have the following values (other options are not supported by the DESFire-definition wizard):
  - 0 when the key is not diversified and byte 0 contains the SAM key number.
  - 2 when the key is not diversified and byte 0 contains the application key number.

Key diversification can be used in combination with the SAM AV2 module. CardExchange® Producer will always use the MIFARE® SAM AV2 mode diversification and set the corresponding bits of the authentication mode automatically.

### 16.2.2.3 Step 3: Defining Data Items

All data transfers between DESFire files and CardExchange® Producer is done through DESFire items. A DESFire item is considered to be a meaningful piece of data that is readily available in the database (in case of write items) or can be printed or stored in the database without further transformations (in the case of read items). DESFire items can combine data of several DESFire files into a single value, whereas multiple DESFire items can be stored in a single DESFire file. DESFire items can convert data back and forth between binary and other representations of the data, like ASCII text, integer values, binary

coded decimals and hexadecimal strings. The possibility to define DESFire items makes the DESFire-definition wizard particularly flexible.



With the **Add** and **Remove** buttons DESFire items, indicated with the **red rectangle**, can be added and removed. There is no other limit with respect to the number of items you define than the amount of memory available on the **DESFire chip**.

Each item is characterized by an **Item Name**, which can be any text string that explains the meaning of the data.

The **Item Type** determines what data transformations are performed between the **binary data** in the **DESFire files** and the **External Data** mapped to the **DESFire items**. These are the available options, with an explanation of the data transformations in case the **DESFire item** is a write item:

**Text** The input data is *ABC becomes 41 42 43 00 00 00 00 ...*  
interpreted as ASCII  
encoded text and  
the ASCII values are  
stored in the  
DESFire file.

**Binary** The input data must  
be binary data and  
will be encoded as  
such in the DESFire  
file, without any  
data transformation.

**Hexadecimal** The input data is *412143 becomes 41 42 43 00 00 00 00 ...*  
interpreted as a  
hexadecimal string  
and can only  
contain the  
hexadecimal  
characters and  
spaces. The input  
data will be  
transformed to  
binary data byte per  
byte.

**Binary integer** The input data is an *414243 becomes 23 52 06 00 00 00 00 ...*  
eight-byte integer  
(or smaller) that will  
be encoded in a  
binary fashion with  
the least significant  
byte first.

**Binary coded** The input data in an *414243 becomes 41 42 43 00 00 00 00 ...*  
eight-byte integer



**decimal** (or smaller) that will be encoded as BCD with the most significant digit first.

**ASCII** The input data in an *414243* -> *becomes 34 31 34 32 34 33 00 ...*

**coded** eight-byte integer

**decimal** (or smaller) that will be encoded as ASCII text with the most significant digit first.

For all representations, the data is padded with **zero bytes** if the size of the data item is bigger than the amount of data presented. On the other hand, if more data is presented than what fits in the data item, the data is silently truncated. This will not cause any error message. In general, CardExchange® Producer is very flexible with respect to discrepancies between the presented data and the item type. For example, if you present binary data to a data item, the data will be encoded as such, no matter whether you selected the binary item type or not. On the other hand, if you present text data to one of the integer item types, it will try to convert that text to an integer. Exceptions will only be thrown if CardExchange® Producer does not succeed in doing a silent conversion.

The **size of the data item** is specified by means of the **length in bytes**. Be aware that integers are limited to eight bytes in size, so for any data that exceeds this size, the data representation should be **text**, **binary** or **hexadecimal**. If needed, an [External Plug In](#) can be used to transform database data to a representation that can be handled by the **DESFire wizard**.

The **Processing options** determine whether a **DESFire item** is a **read** or a **write** item. For **write** items, it is possible to perform a **write verify** to ensure that the data is really encoded onto the **DESFire chip**. It is possible that a single item is both a **read** and a **write** item. In that case the item is first read and then written. This makes only sense if a [External Plug In](#) performs some data manipulation in between the **read** and the **write** actions.

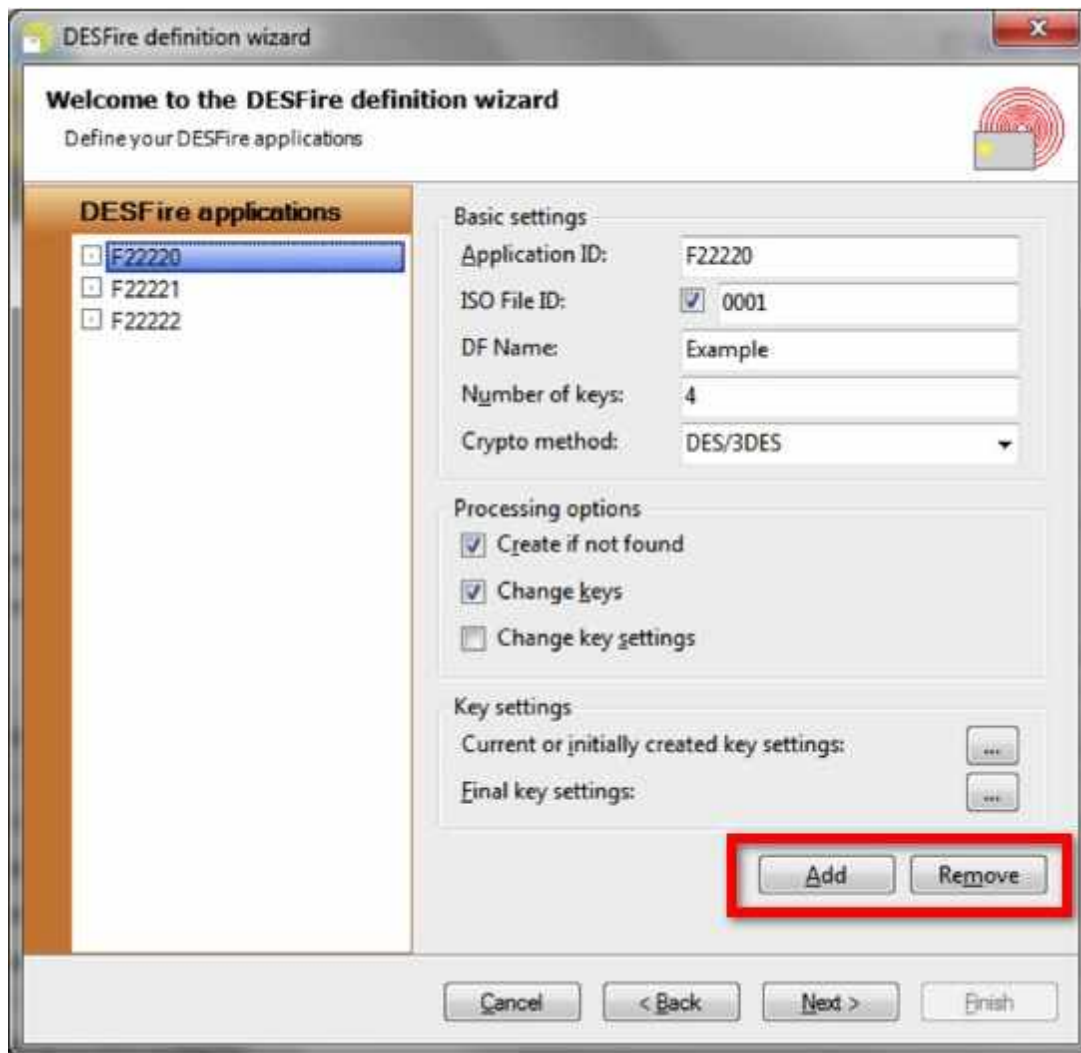
There are a number of **Advanced settings**, whose availability depends on the chosen item type.

- The option **Hexadecimal input strings** is only available for binary integers, binary coded decimals and ASCII coded decimals. If this option is selected, the input data will be considered as hexadecimal data instead of decimal data. So, if the presented data to a binary integer is for example 16, CardExchange® Producer will interpret this as the decimal value 22 and encode it as 16 00 00 00 ...
- **Right align** is available for all item types. When selected items will be preceded with zero bytes, rather than padded, to make the data fit in the item. For example, if the item size is 5, 'ABC' will be converted to 00 00 41 42 43.
- **Reverse bytes** reverses the order of all bytes in a data item. For example, if the item size is 5 and right align is not selected, 'ABC' will be converted to 00 00 43 42 42.

If the selected item type is a **binary** or **ASCII coded decimal**, the option **Trailer digits** specifies what **hexadecimal** digits should be encoded after the actual data. For example, if the number 414243 is presented to a **BCD**-item and the Trailer digits are set to 'FFF', CardExchange® Producer will encode **41 42 43 FF F0 00 ...** In practice, **binary** or **ASCII coded decimals** should either have a fixed length, be right aligned or have a non-decimal trailer digit.

Click **Next** to proceed with the creation of the **DESFire Definition** and go to [Step 4](#).

#### 16.2.2.4 Step 4: Define Your Applications



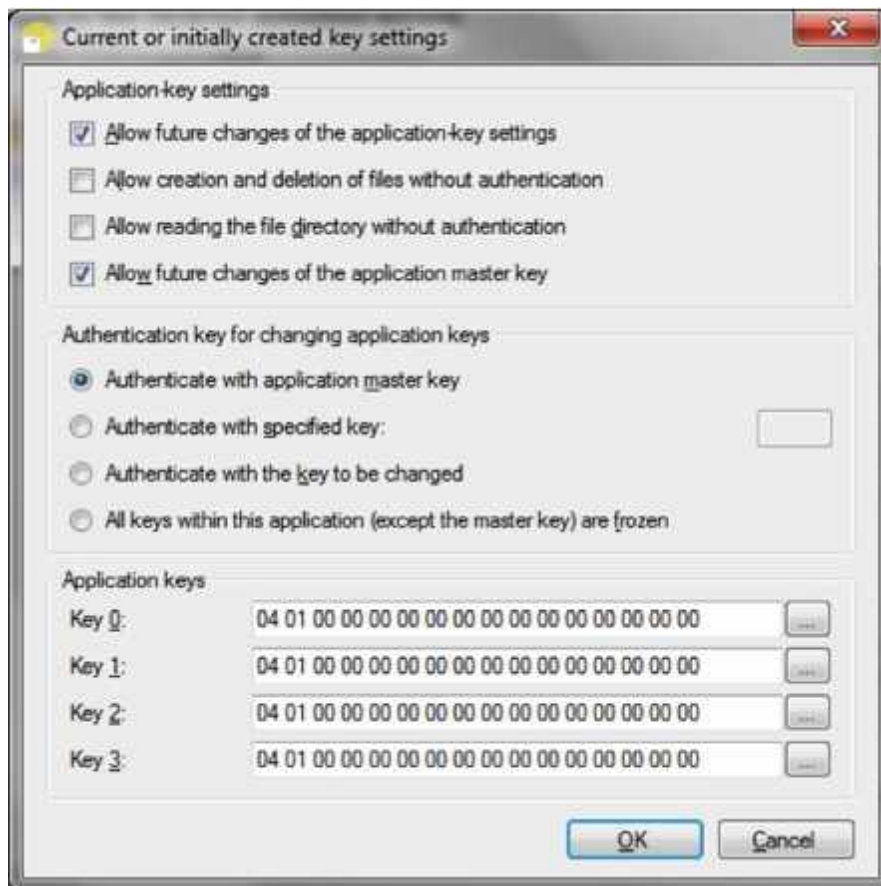
This page allows for defining which applications should be created or already exist on the DESFire card.

DESFire Applications can be added and removed with the **Add** and **Remove** buttons indicated with the **red rectangle**. They are characterized by their **Application ID**, which is a six-digit (three-byte) hexadecimal string. For DESFire EV1 cards, it is possible to specify an **ISO file ID** (two hexadecimal digits) and a **DF name** (maximum sixteen characters text). The latter two properties are not used by CardExchange when reading applications, but they can be encoded to be compliant with ISO standards. Finally, you need to specify the **Number of keys** to be defined for this application and the **Cryptographic method** (DES-triple DES, three-key triple DES or AES).

With regard to the **DF Name**, there is a hidden option in case you want to use a DF name that does not consist of readable ASCII text. In that case, it is possible to specify the DF name with a hexadecimal string. To indicate that you are using this option, you should start the DF name with &H or 0x, followed by the hexadecimal string.

The **Processing options** allow for specifying whether an application should be created if it does not exist on the DESFire chip yet, **Create if not found**, which is normally checked for DESFire definitions with write items that operate on blank cards. When an application is created, all its keys are set to zero and it will be necessary to check **Change keys** in order to set the keys to the desired values. Normally, applications can be created with the desired final key settings, but sometimes, these key settings are too restrictive. In practice, you only need to use the option **Change key settings** if the application master key needs to be set to a non-zero value and you do not want to allow future changes of the application master key. In that case, you create the application allowing future changes of the master key, then change the master key, and then change the key settings to not allowing future changes of the master key.

The initial and final keys and key settings can be set by clicking the respective button with three dots. The **Current or initially created key settings** should contain zero keys for new applications and the actual keys for existing applications, as far as these are known and needed. When creating a new application, the initial key settings should be selected such, that the configured actions in the DESFire wizard can be executed. That means that you should not restrict future changes of the master key if you still need to change the master key. For existing applications, CardExchange® Producer will try to read the current key settings from the card and only use the selected ones if that fails or is not allowed.



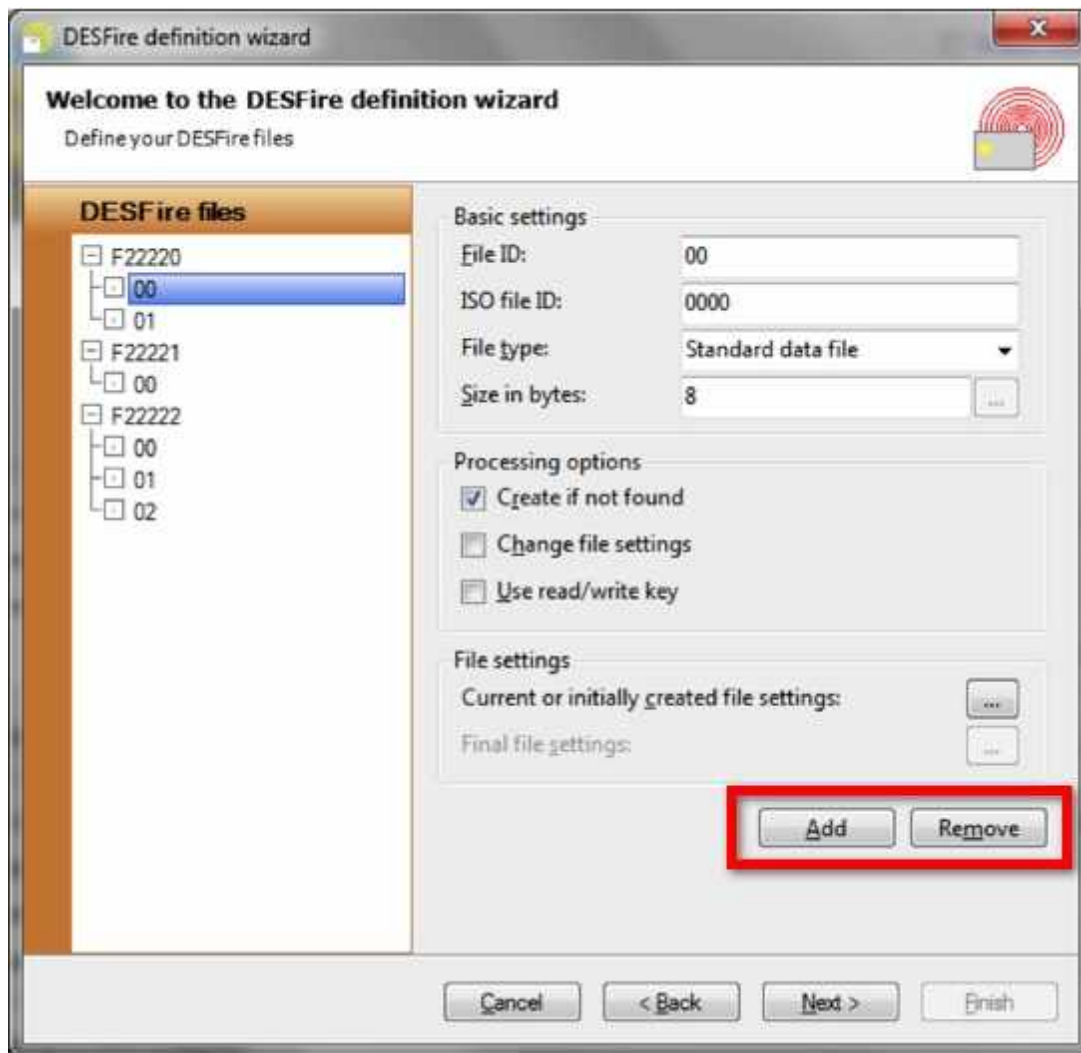
The **Final key settings** window is exactly the same, with the only difference that now you specify the desired keys and key settings after writing the application and changing the keys.

**Note:** *it is not common to create applications, change keys or change key settings, if a DESFire definition only contains read items.*

**Note:** *key values can be diversified, randomized or be read from a MIFARE® SAM AV2. This is configured in the same way as already described for the PICC master key, as can be seen the section **Specifying key values** above.*

Click **Next** to proceed with the creation of the **DESFire Definition** and go to [Step 5](#).

### 16.2.2.5 Step 5: Define Your Files




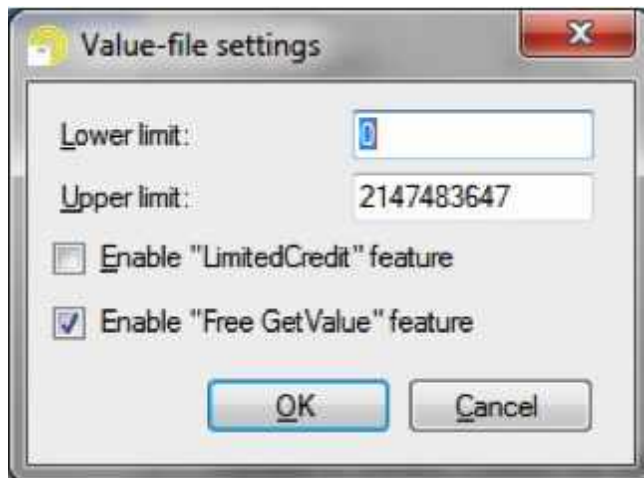
On this page of the wizard you will define for each application which file should be created, read and/or written. They can be added and removed with the **Add** and **Remove** buttons, as indicated with the **red rectangle**, and are characterized by a **File ID** (a one-byte hexadecimal value) and optionally an **ISO File ID** (a two-byte hexadecimal value, EV1 only).

CardExchange supports two file types:

- **Standard data files**, which contain an arbitrary amount of bytes in an arbitrary format, and
- **Value files**, which contain a four-byte integer value.

*Currently, value files are only supported for OmniKey encoders, but that might change in the future.*

The length of a standard data file must be specified (**Size in bytes**). The length of a **value file** is always four, but for a value file, other settings are configurable by clicking on the  button.



The most common application of a value file is the **MAD-3** standard, which requires that application **FFFFFF** file 01 is a value file that contains the value 3. The above screen shot reflect the settings that the MAD-3 file requires. Especially, the **Free GetValue** feature needs to be enabled for **MAD 3**.

An important difference between standard **data files** and **value files** is that it is possible to write data to existing standard **data files**. Any data you map to a value file will only be written if the file is created, and will be neglected if the file already exists on the **DESFire chip**.

There are three **Processing options**:

- **Create if not found** makes sure that the file is created if it does not exist yet, and is normally checked when writing data to newly created applications.
- **Change file setting** makes it possible to change the file settings after writing the data to it. For **value files**, this option will normally not be needed, as you cannot write data and you can create the file directly with the correct final file settings. For standard data files, it might be necessary to have the initial file settings less restrictive than the final file settings, for example if the final file settings forbid writing data to the file.

- The **DESFire** file settings allow for defining a read key, a write key and a read/write key, which might be the same key, but they can also be different. If the read/write key is different from the read or write key, CardExchange will use the read or write key by default for authentication. In rare cases, it might be possible that you need to write to or read from existing applications while only knowing the read/write key. In that case, select the option **Use read/write key** to ensure that CardExchange® Producer uses the read/write key.

In the **File settings** section, you can specify the **current or initially created file settings**. For new files, CardExchange® Producer will create the file with these settings. For existing files, CardExchange® Producer will try to read the file settings from the chip, but if that is not possible, it will assume that the specified current file settings apply.



Two file settings need to be defined: the **Communication mode** and the **Access mode**. The **Communication mode** is either **Plain**, **Maced** or **Enciphered** (do not use the option **Plain2**). Please, refer to the **DESFire** documentation for more information about this option. Effectively, Plain means that the data in the file is freely accessible, Maced means that the data is not encrypted, but that it is digitally signed and only accessible after a valid authentication. Enciphered means that the data is fully encrypted and that authentication with the correct key is required to decrypt the data.

The **Access mode** defines what functions the application keys have for this file. The first digit specifies the read key, the second digit the write key, the third digit the read/write key and the final digit the change-access-rights key. The digits can be either 0 to D to refer to one of the application keys, E to indicate that the action can be done without authentication (free access), and F to indicate that the action is forbidden (deny access). The button with the three dots allows for setting the access mode in a more intuitive way.

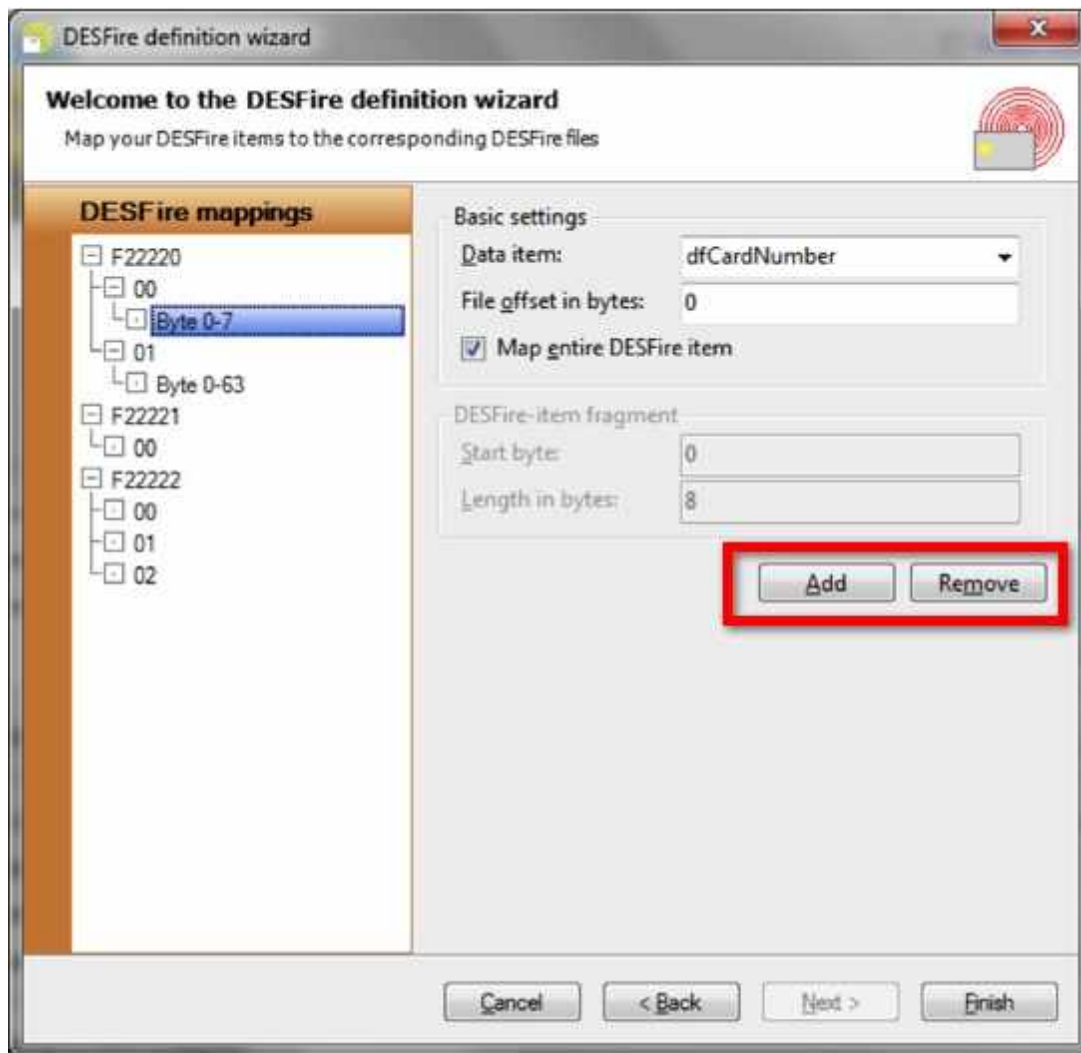




If you selected **Change file settings**, you also have to specify the **Final file settings**, which is done in the same way.

Click **Next** to proceed with the creation of the **DESFire Definition** and go to the last step of this wizard, [Step 6](#).

## 16.2.2.6 Step 6: Map Items to Files



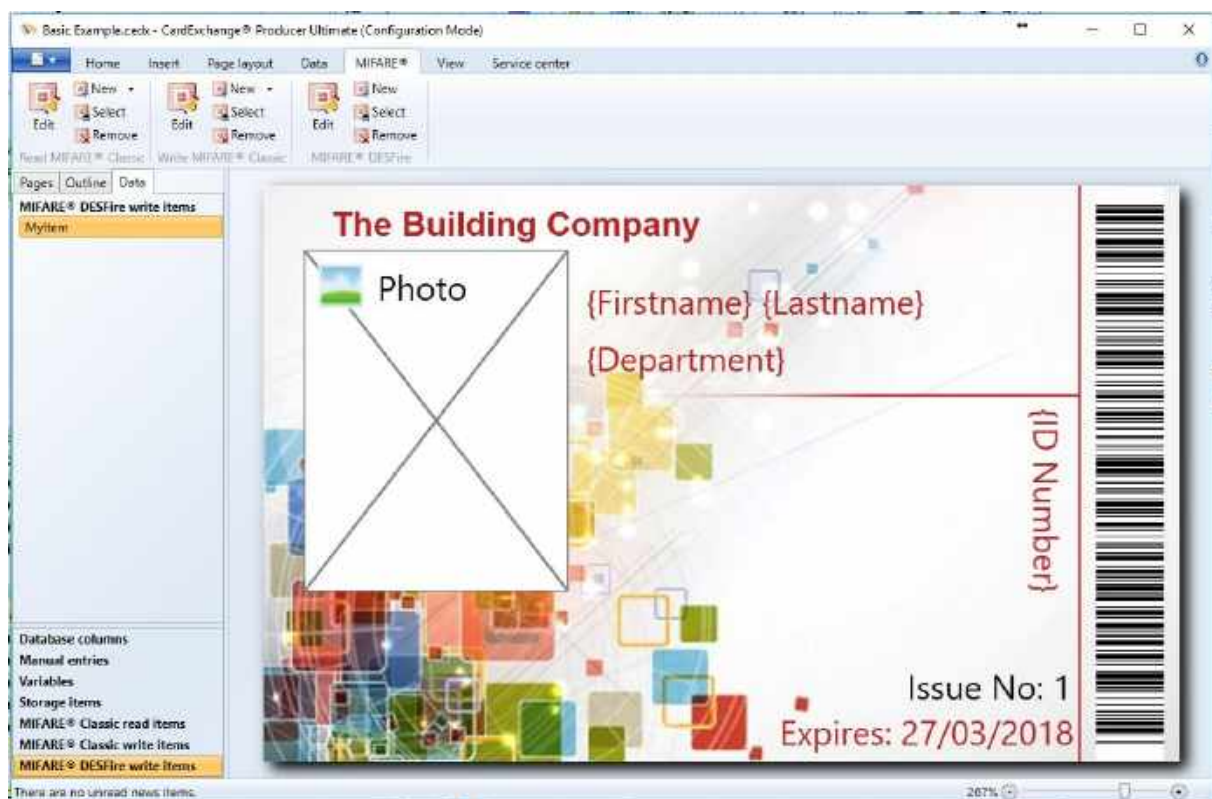
Now, your **DESFire items, applications** and **files** have been defined, the only thing that remains to be done is **mapping** the bytes of the **DESFire items** to the bytes of the **DESFire files** which is done at this last wizard page.

On the left-hand site, all **DESFire** files are listed. By selecting the **DESFire file** and clicking the **Add** or **Remove** button, indicated with the **red rectangle**, you can add file fragments to each file. For each file fragment, you select from which **Data item** it will contain data and with the **File offset in bytes** you indicate where in the file the file fragment starts. If you select **Map entire DESFire item**, the entire DESFire item will be mapped to the file, starting at the indicated offset position. On the contrary, you have to specify which part of the DESFire item needs to be mapped, by setting the **Start byte** and the **Length in bytes**.

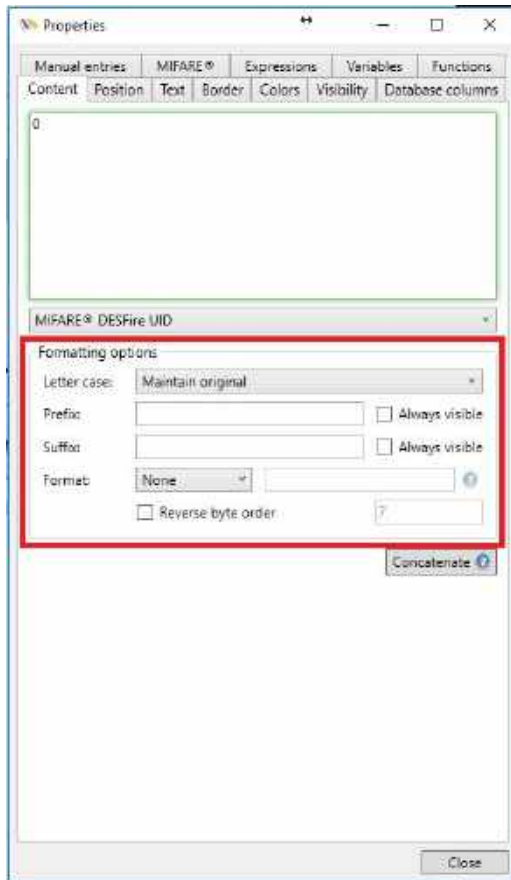
In many cases, you will want to map an entire DESFire item to an entire file. In that case, you add a single file fragment to the file, set the **File offset in bytes** to zero and select **Map entire DESFire item**, as in the above screen shot. The length of the DESFire file and item will need to be the same. The **DESFire definition** has now been configured.

When clicking on **Finish**, the wizard will prompt whether you **want to hide the keys**. If you click **yes, the keys will not be readable anymore the next time you open the wizard**. We recommend waiting with hiding the keys until after finishing the test phase, when you are sure that all keys are correct. Once the keys are hidden, they **CANNOT** be made visible anymore.

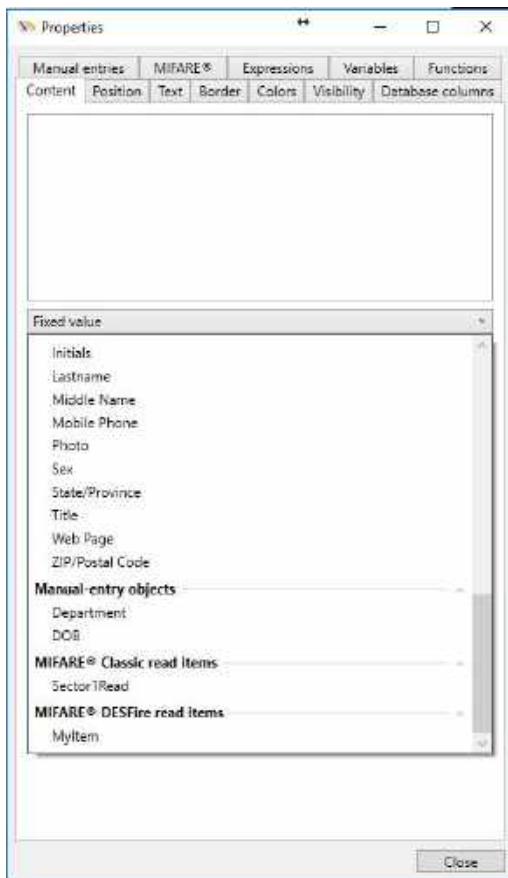
It is still necessary to map the data of the **DESFire Items** to **database fields, card objects, storage items**, etc. This can be done under the [data tab of the explorer menu](#) in the card designer and we refer you to the corresponding section for more information. Once your **DESFire definition** is configured, the **DESFire write Items** will be available in the data tab of the explorer menu, as shown below:



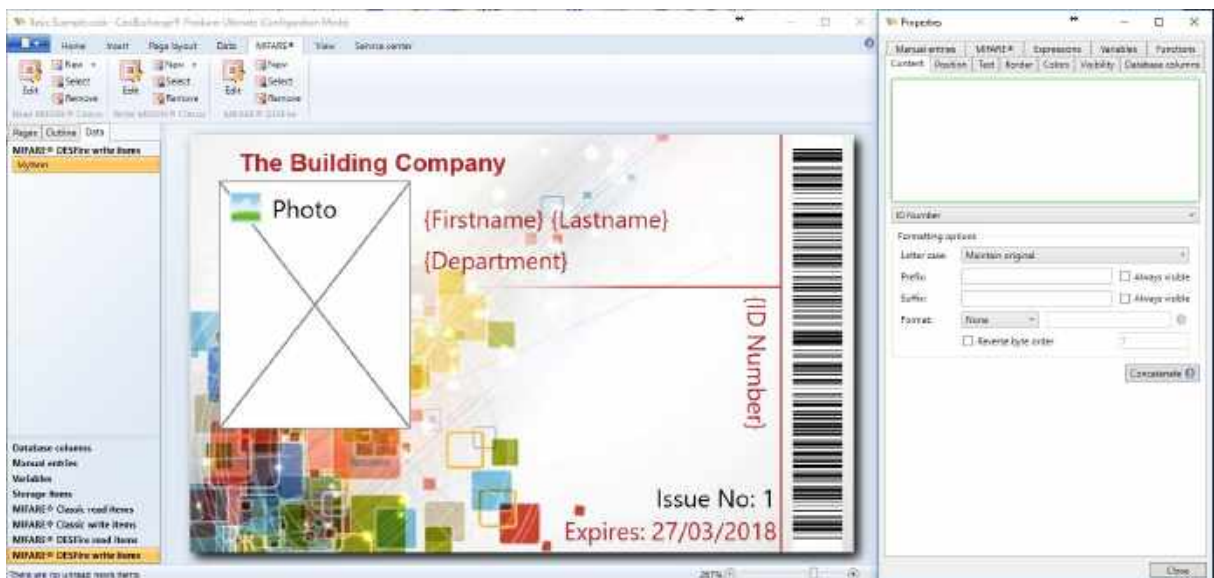
You can now choose the **MIFARE® DESFire UID** as a data source object from the drop down under the properties windows,



The UID can be formatted with a Reversed byte UID number. When selecting the MIFARE® DESFire UID from the drop down menu you will have access to some advanced Format options as indicated with the **red rectangle**. For the UID you can assign a minimum number of digits, you can set the UID to Hexadecimal, Reverse the byte order, and set it to Seven-byte UID.



If the **DESFire definition** contains any read items, it is possible to map those read items to a text object on the card or to a storage item.



When writing data to MIFARE® classic cards, the MIFARE® write items are available under the data tab.

Just select the desired write item and then choose the source for the encoding from the drop down in the properties window.

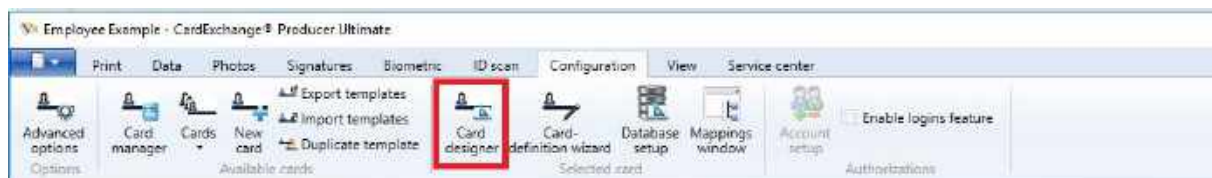
## 16.3 HID® Proximity

CardExchange® Producer supports inline reading of HID® Proximity Cards. What information should be read can be configured by means of the **HID® Proximity Wizard**, which will be the subject of this chapter. For a full understanding of the HID® Proximity Wizard, it is essential to have knowledge about the functionality of the HID® Proximity chip. Please, refer to the HID® Proximity documentation for more information

The HID definition created offers the possibility to read the following data:

- Card number
- Country code
- Facility code
- Number of bits
- Raw data
- State code

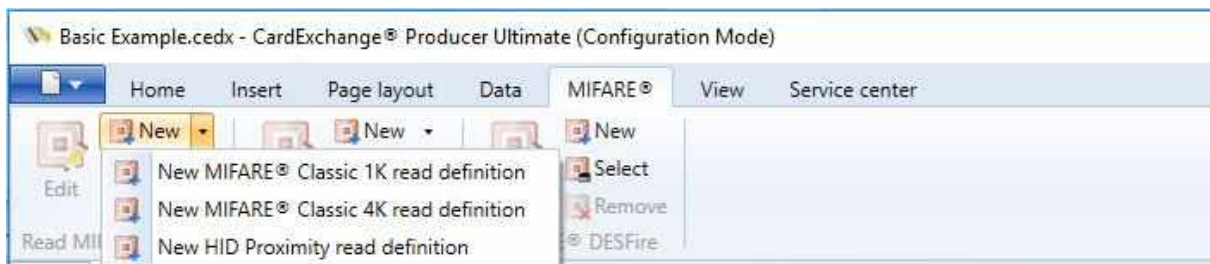
### 16.3.1 Create HID Encoding



To encode MIFARE® DESFire encoding we have to set the system up for this. Encoding is setup via the Designer so click on **Card designer** to start the Designer.

**It is important to know that we use the MIFARE® Classic definitions to create HID definitions files. Therefore the procedure looks similar in the beginning for HID as it is with Classic. The main difference is the fact that we cannot write to HID Proximity cards, only reading!**

Click on the small arrow next to new under Read Mifare® Classic section, then choose the option for New HID Proximity read definition.



### 16.3.1.1 Define General Settings

**Mifare definition wizard**

Welcome to the **Mifare definition wizard**  
Define general settings

**General settings**

Card Type: HIDProximity

Reader type: DigiOn24 Prox

Serial port: 1

Baud rate: 9600

PC/SC version: 2

Reader pin code: 0000000000000000

Refresh

Test

**MAD settings**

Check whether the MAD is already activated

Requirements: (none) ...

Activate the MAD

Multiapplication card

Read and update the MAD automatically

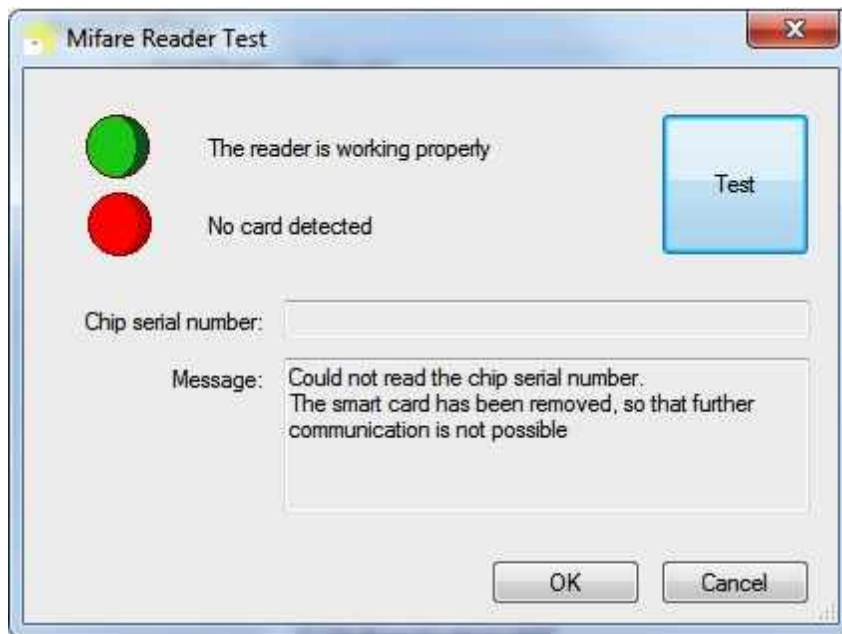
Cancel < Back Next > Finish

The **General settings** group box allows choosing the **reader type**, the serial port to which the reader is connected and the baud rate to be used. CardExchange® Producer does not support a lot of readers for encoding HID® Proximity. Currently we only support the **OmniKey** readers listed on our website.

<https://cardexchangesolutions.com/producer-encoders>

**PC/SC** readers are only available when installed on your system. If the reader is not available, please make sure it is installed properly. You can click on the **Refresh** button to reload the list with available readers. You are able to test if the connected reader is working and responding correctly. Click on the **Test** button to open the **MIFARE® Reader Test** window.

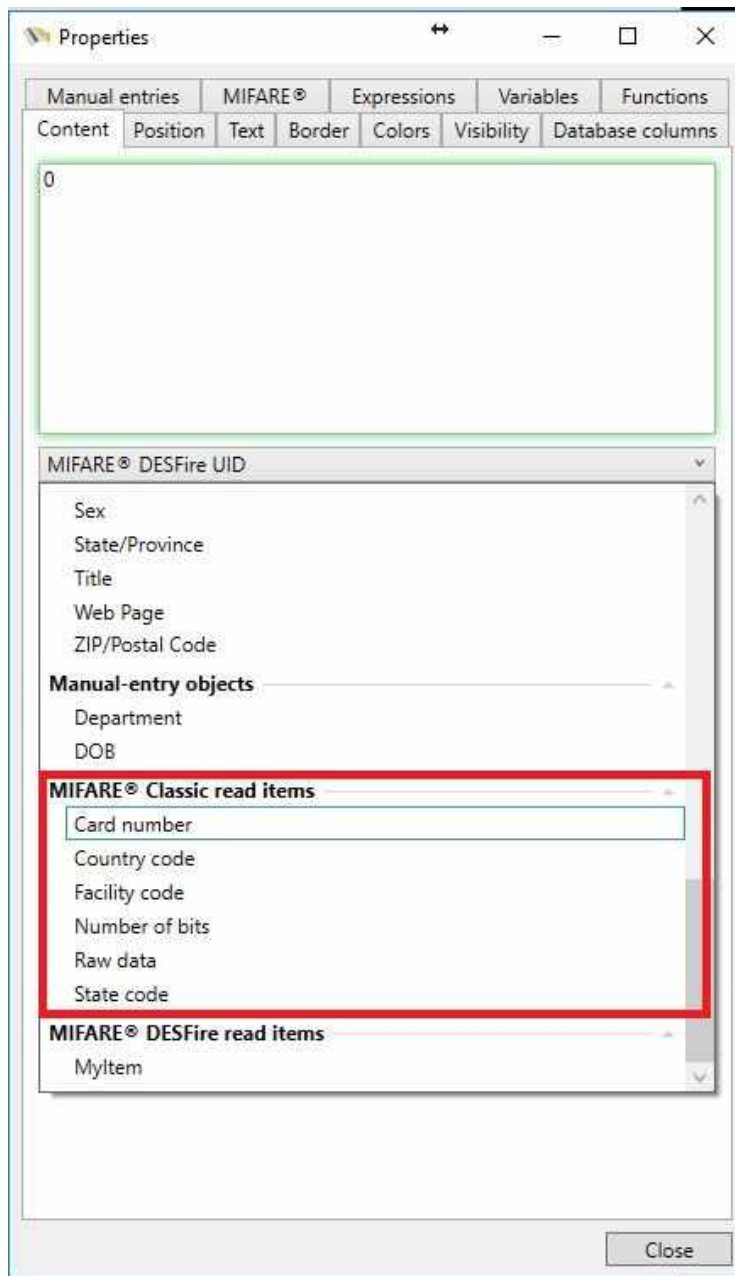




When pressing the **Test** button, CardExchange® Producer will try to connect with the reader and, if a card is present, it will try to read it. If the test succeed and the reader is working and a card is present on the reader, you will have two green lights.

When you have selected and tested the reader, you are done with the wizard and you can click Finish.

Compared to DESFire or Classic encoding, the HID definition does not contain any Data Items. The HID definition contains a set of items collected inside a MIFARE® item. Once your **HID Proximity definition** is configured, the **MIFARE Item** will be available as a Data source for objects such as text items or storage items, as indicated below with the **red rectangle**:

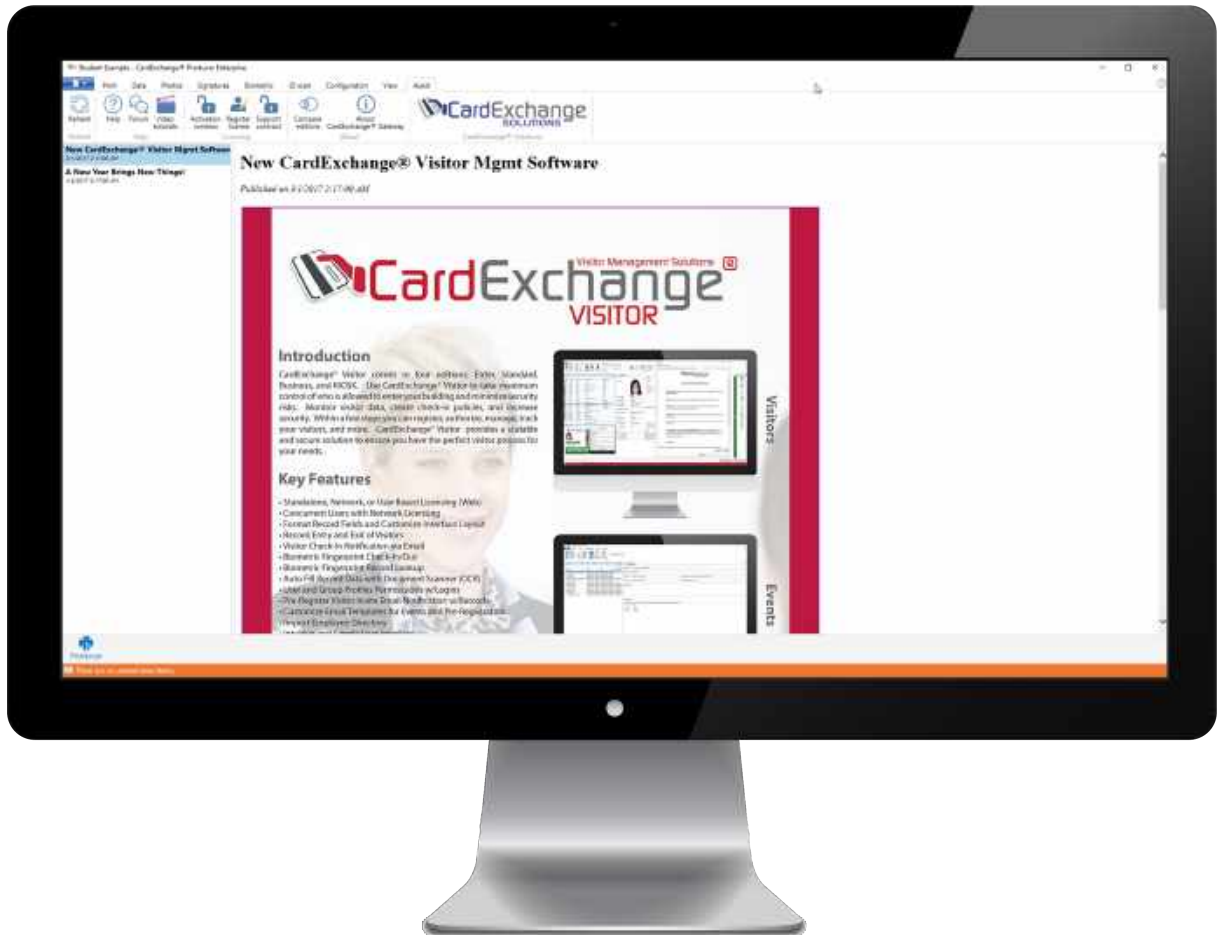


The HID definition created offers six different flavors to chose from:

- Card number
- Country code
- Facility code
- Number of bits

- Raw data
- State code

## 17 Assist



With the release of CardExchange® Producer we bring a unique innovation to your desktop by offering everything that you need to produce cards in a fast and secure way at hand.

Help, Forum, Videos, etc., it is all available in this section of your CardExchange® Producer product. When you enter the Assist section by selecting the corresponding tab, you will directly see an Outlook style interface showing on the left the available news items and on the right the content of this news item.

CardExchange® Producer uses this section to keep you informed about new updates and release plans so you will always be able to run the latest version. But also the reseller who has sold the product to you will keep you informed about his latest and greatest.

Take a look at the separate subjects in this section of the Help file and see how this is going to benefit you!

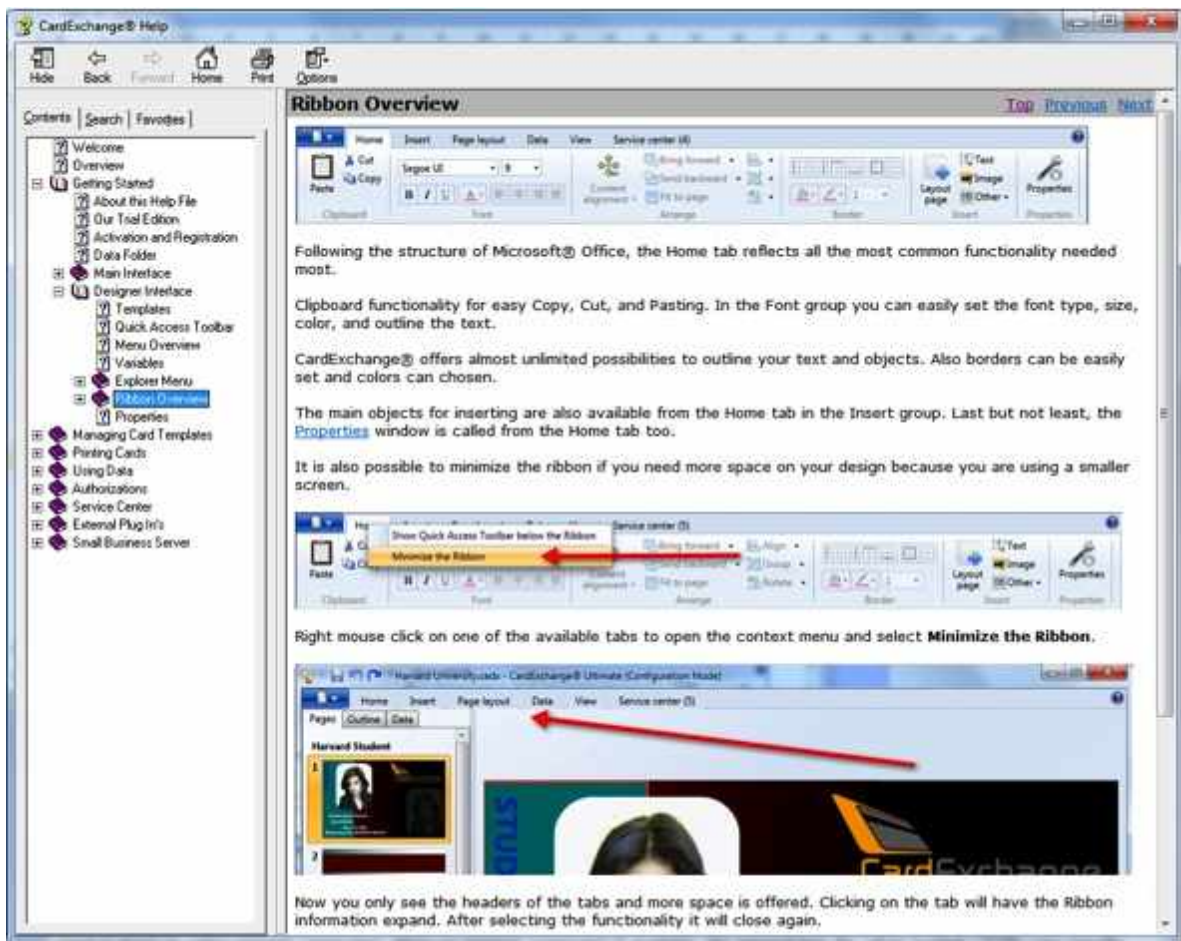
## 17.1 Help



Have access to online help file directly by clicking on the Help button indicated with the red rectangle.

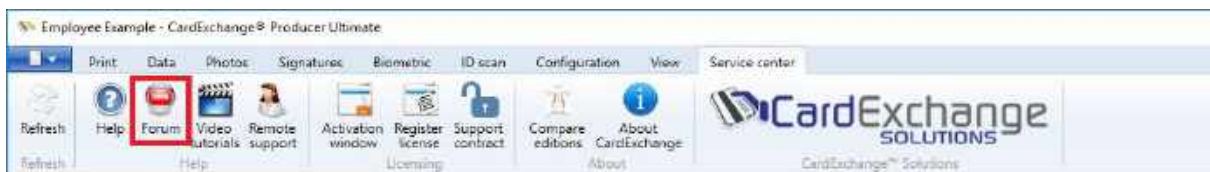


Our online Help files are always up to date and contain always examples with each available functionality. On the left side you see all the available and selectable subjects, and on the right the content of the selected subject. Of course you need to have an online internet connection. When no internet connection is available, the internal Help file will be loaded:



We always strive to have the internal Help file updated to with the latest release but unfortunately we cannot guarantee this.

## 17.2 Forum



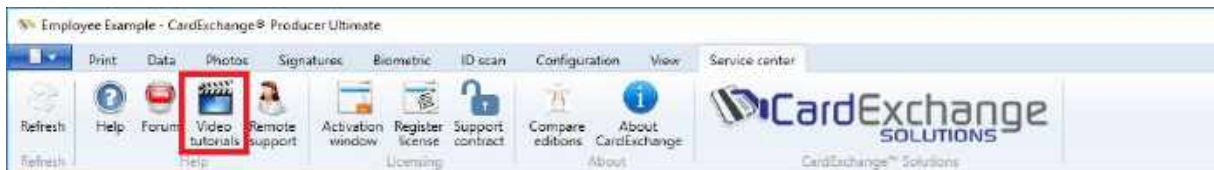
Unique for our industry is our end-user forum. On this forum you can find information from and by other users of CardExchange® Producer.



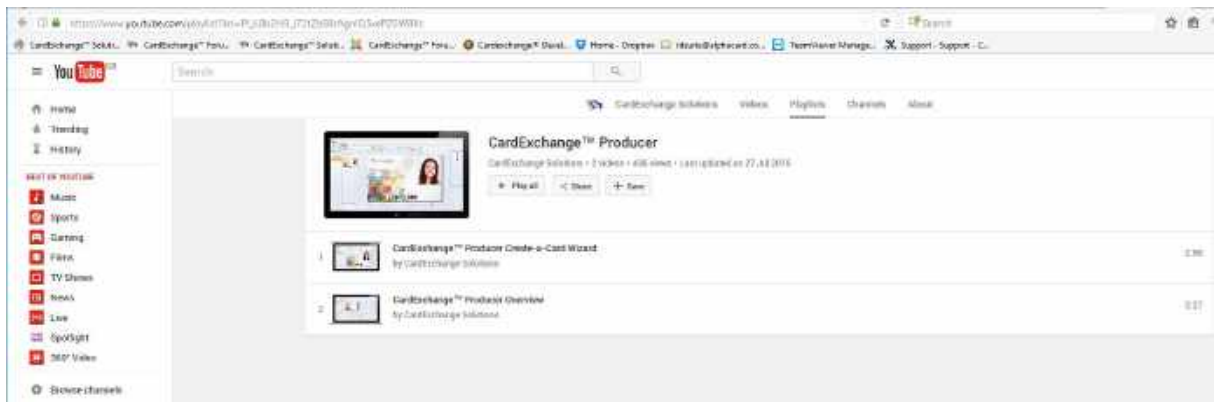
Take a look at all the recent topics and search for solutions you need. Is your solution not available, just register yourself and post it on the forum. Besides other high level users of CardExchange® Producer, our support are directly answering forum questions.

Are you looking for answers and solutions? This is the place to be. Don't forget, by posting your questions you are not only helping yourself, you are also helping other users of CardExchange® Producer!

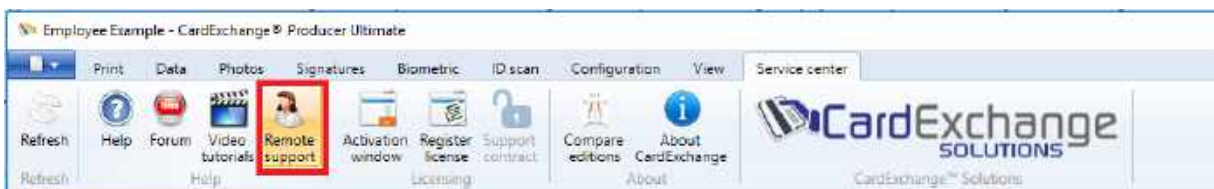
## 17.3 Video Tutorials



Sometimes it is handy to see how things are done instead of reading text or other information. Therefore CardExchange® Producer offers a large selection of How-To Videos on our YouTube channel.

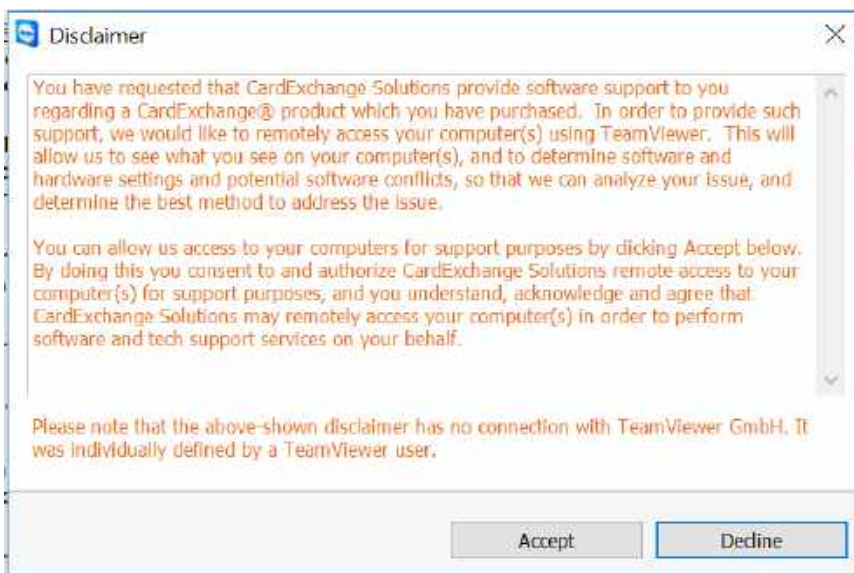


## 17.4 Remote Support



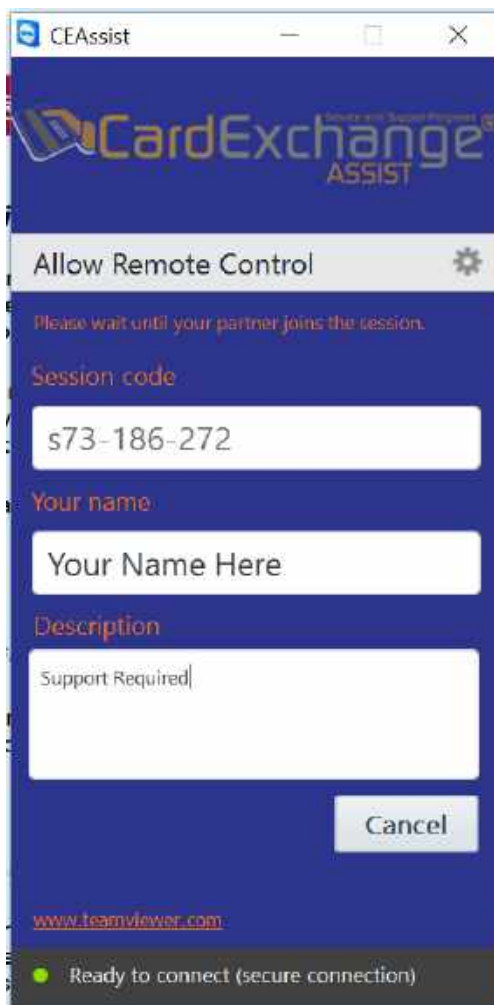
For customers with an active CardExchange® Assist Premium software support plan, we offer the possibility to directly launch a remote support session with us from the Assist tab.

You will need to contact our support department first to arrange this with an available technical support representative.



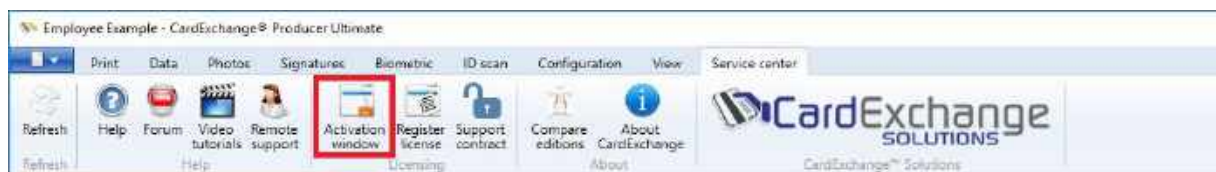


After clicking the remote support button, the disclaimer will be displayed. If happy you can click on accept.



You can then specify your name and a description for the remote session if desired. Once the technical support representative is ready they will initiate the connection automatically.

## 17.5 Upgrade Your License



In the section [Activation and Registration](#) we have explained how you activate your new CardExchange® Producer license. When you decided that you want to upgrade to a higher

edition, and you have ordered the upgrade, you have probably received a new serial number and activation code via email from your reseller.

To get to the higher edition, you will have to activate the new license first. To activate your upgrade, click in the **Activation Window** button indicated with the red rectangle and the **CardExchange® Producer License Activation Wizard** will start.

CardExchange® License Activation Wizard

Welcome to the CardExchange® License Activation Wizard. In this wizard you will be able to activate and register your CardExchange® license. By registering your license you make sure that you are being informed about updates and new releases.

Please provide your serial number and activation code in the fields below. If you have received an activation file (\*.AUT) or an activated license file (\*.LIC), click on the advanced button and select your file.

Serial number:  
38187

Activation code:  
2334D-53535-66AD6-1626F-33322-989FA-FB12

Machine ID:  
10-40794

Advanced >>

**IMPORTANT!** Your license can only be activated on a single computer. Do not activate your license on a computer that is only used for testing. The demo version offers all CardExchange® functionality free for 42 days.

Cancel < Back Activate Finish

Enter the **serial number** and **activation code** into the text boxes and click on **Activate** to start the process.

CardExchange® License Activation Wizard

It is recommended that you register your CardExchange® license. By registering your license you make sure that you will be informed about new functionality and upcoming releases.

Yes, I want to register my CardExchange® license

Company name: CardExchange Solutions

Contact person: Mr CardExchange

E-mail address: ce@cardexchangesolutions.com

Address: 9 West CardExchange Road

ZIP code: 95585

City: CardExchange

Country: CardExchange

Phone number: 952 5488 1251

Fax number (optional):

Printer brand: Other

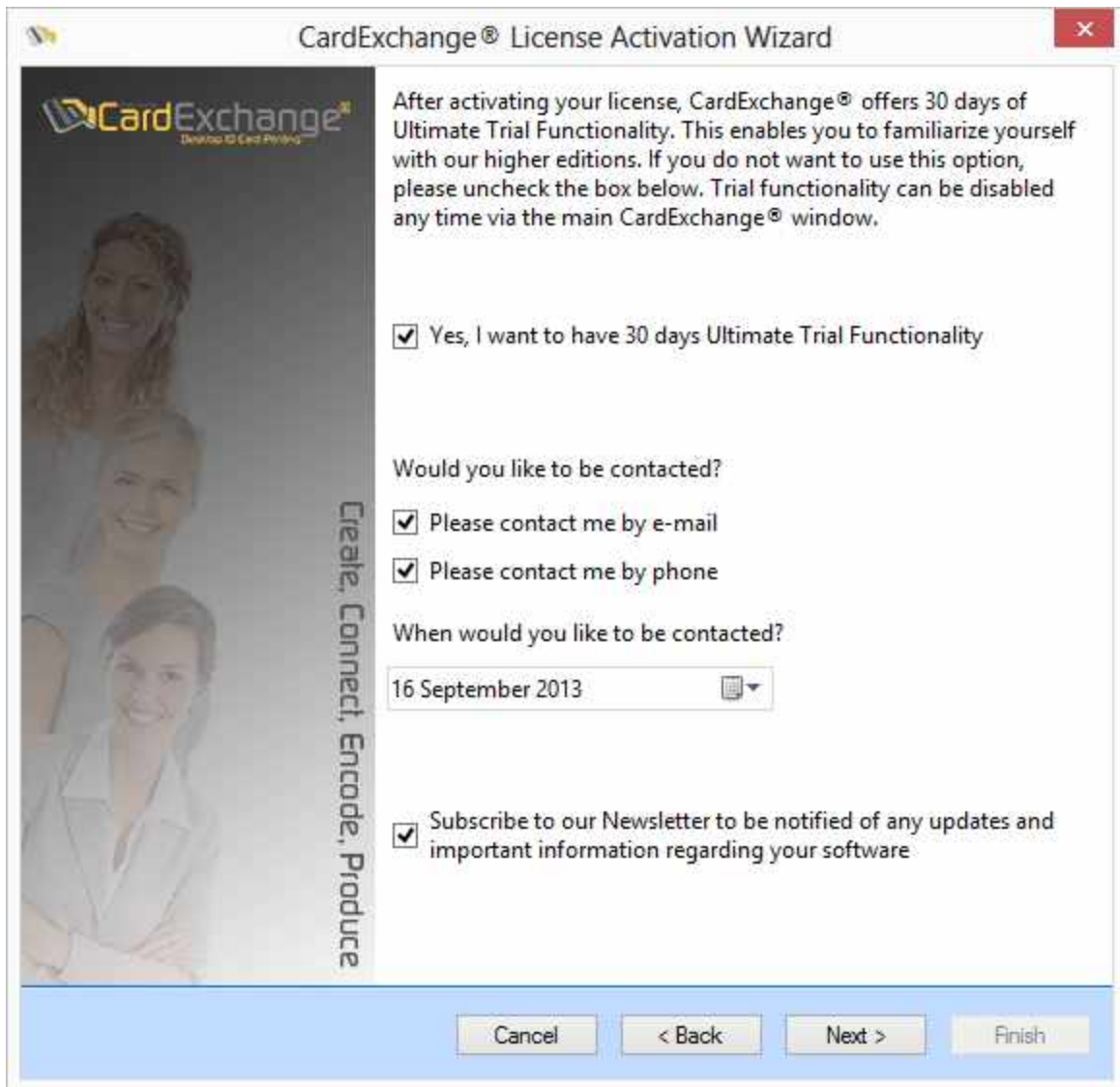
Company type: Other

Preferred language: English

Alias for forum: Mr CardExchange

Cancel < Back Next > Finish

If needed you can make changes to your previous registration information, if not, click **Next** to proceed.



The screenshot shows the 'CardExchange® License Activation Wizard' window. On the left is a vertical banner with the CardExchange logo and the text 'Create, Connect, Encode, Produce' next to three smiling women. The main area contains the following text and options:

After activating your license, CardExchange® offers 30 days of Ultimate Trial Functionality. This enables you to familiarize yourself with our higher editions. If you do not want to use this option, please uncheck the box below. Trial functionality can be disabled any time via the main CardExchange® window.

- Yes, I want to have 30 days Ultimate Trial Functionality

Would you like to be contacted?

- Please contact me by e-mail
- Please contact me by phone

When would you like to be contacted?

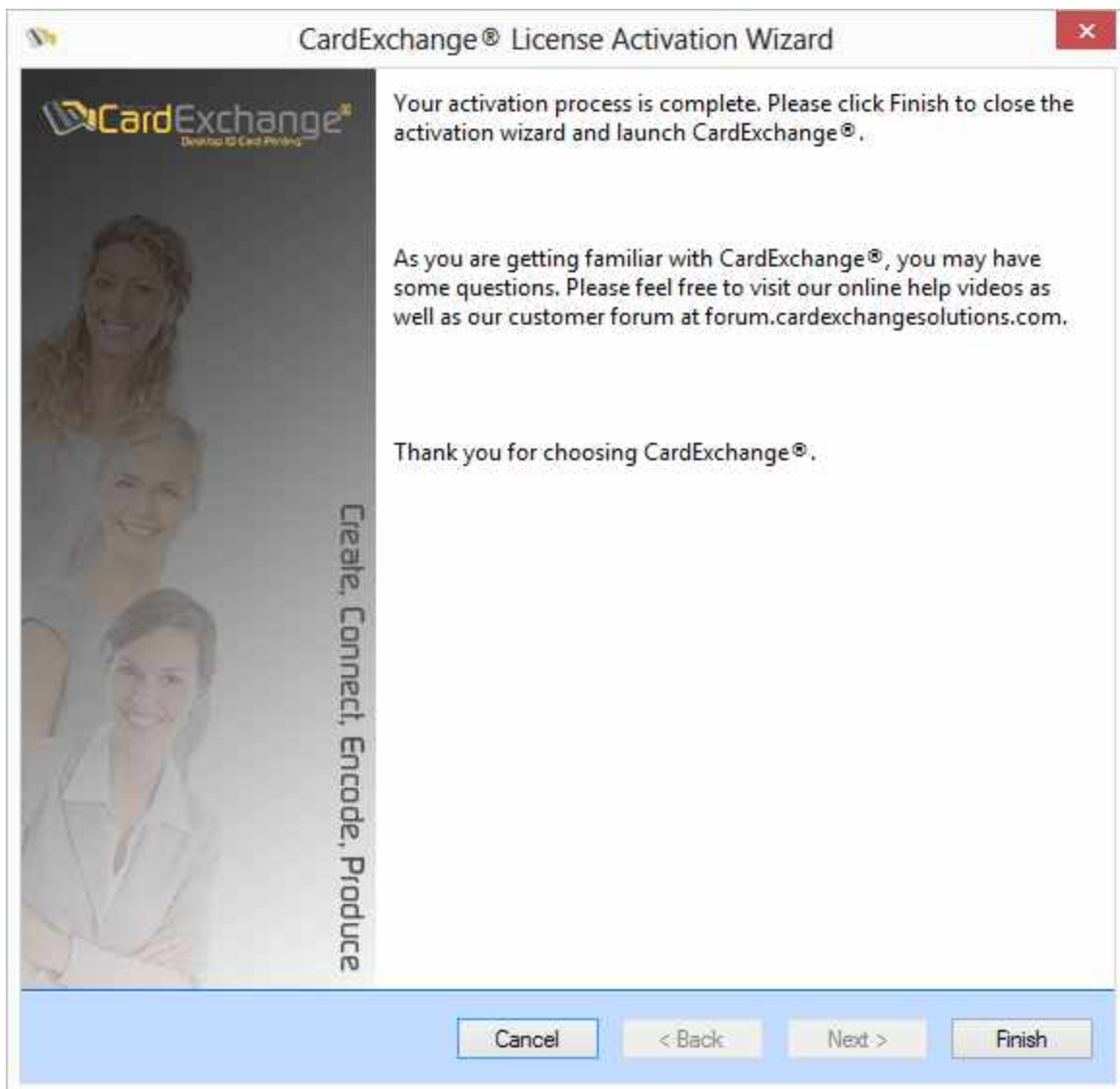
16 September 2013

- Subscribe to our Newsletter to be notified of any updates and important information regarding your software

At the bottom are four buttons: Cancel, < Back, Next >, and Finish.

If you would like to be contacted, just select how and when, and your reseller will contact you on the preferred date selected. You can also change your subscription to our newsletter.

Click **Next** to proceed to the Final page of the **activation** process.

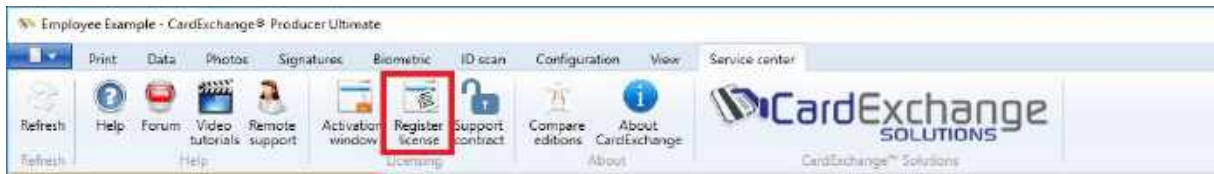


When you click on **Finish**, the dialog below will pop up:



Click on **OK** to confirm and restart CardExchange® Producer.

## 17.6 Update Your Registration Info



When you have registered your software, you can always update your registration information. Click on the Register License button indicated with the **red arrow** and **CardExchange® Producer License Activation Wizard** will start.

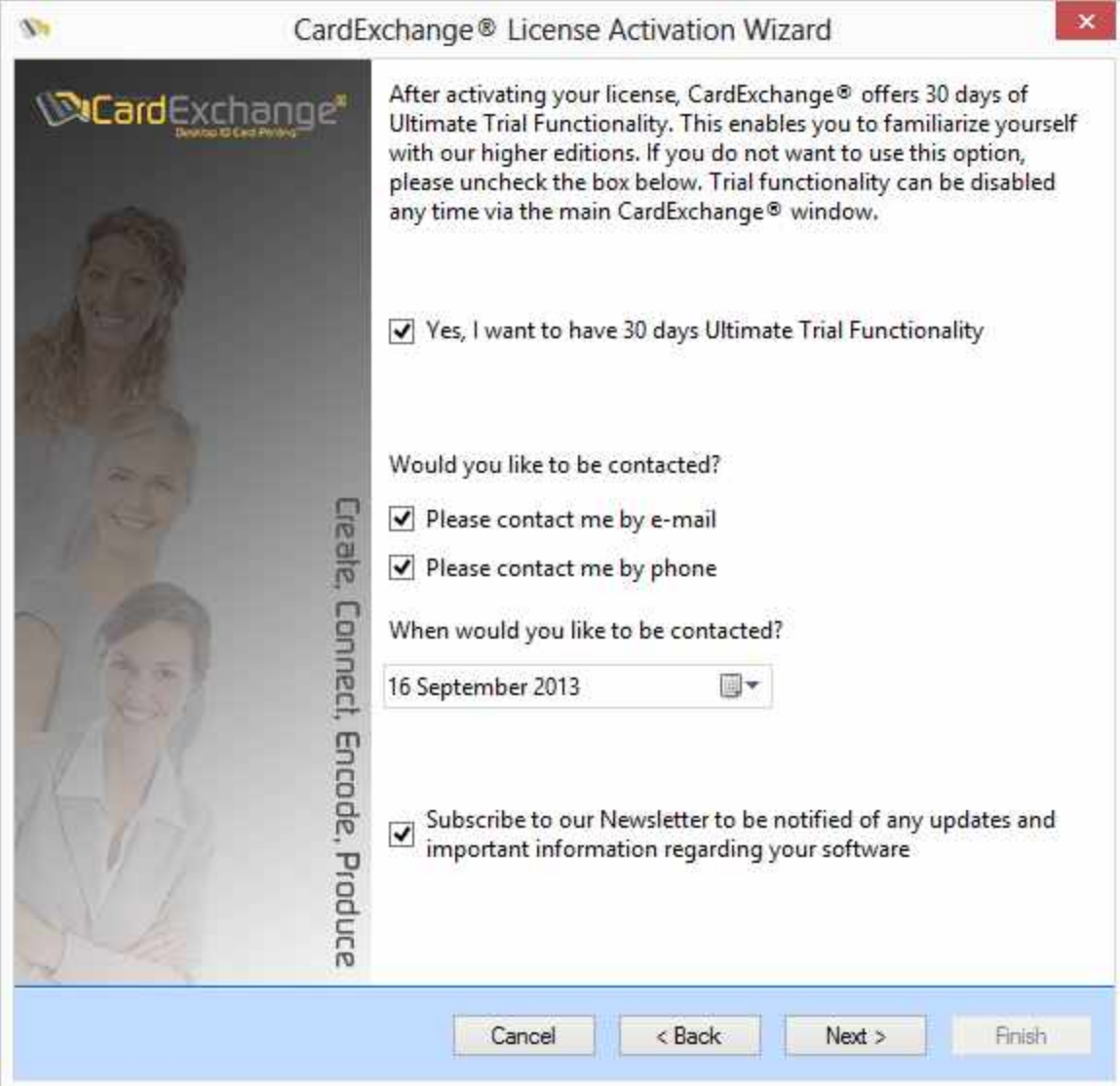
 A screenshot of the "CardExchange® License Activation Wizard" dialog box. The window title is "CardExchange® License Activation Wizard". On the left side, there is a vertical banner with the CardExchange logo and the text "Create, Connect, Encode, Produce" next to a photo of three smiling women. The main area contains the following text: "It is recommended that you register your CardExchange® license. By registering your license you make sure that you will be informed about new functionality and upcoming releases." Below this is a checked checkbox: "Yes, I want to register my CardExchange® license". A form with the following fields is displayed:
 

Company name:	CardExchange Solutions
Contact person:	Mr CardExchange
E-mail address:	ce@cardexchangesolutions.com
Address:	9 West CardExchange Road
ZIP code:	95585
City:	CardExchange
Country:	CardExchange
Phone number:	952 5488 1251
Fax number (optional):	
Printer brand:	Other ▼
Company type:	Other ▼
Preferred language:	English ▼
Alias for forum:	Mr CardExchange

 At the bottom of the dialog box are four buttons: "Cancel", "< Back", "Next >", and "Finish".

The registration process is a part of the activation process and therefore the same process is used. It does not effect your license information, only your registration information.

Now change the information you want to change and proceed to the Next page when done.



The screenshot shows a Windows-style dialog box titled "CardExchange® License Activation Wizard". On the left side, there is a vertical banner with the CardExchange logo and the text "Create, Connect, Encode, Produce" next to a photograph of three smiling women. The main area of the dialog contains the following text and options:

After activating your license, CardExchange® offers 30 days of Ultimate Trial Functionality. This enables you to familiarize yourself with our higher editions. If you do not want to use this option, please uncheck the box below. Trial functionality can be disabled any time via the main CardExchange® window.

Yes, I want to have 30 days Ultimate Trial Functionality

Would you like to be contacted?

Please contact me by e-mail

Please contact me by phone

When would you like to be contacted?

16 September 2013

Subscribe to our Newsletter to be notified of any updates and important information regarding your software

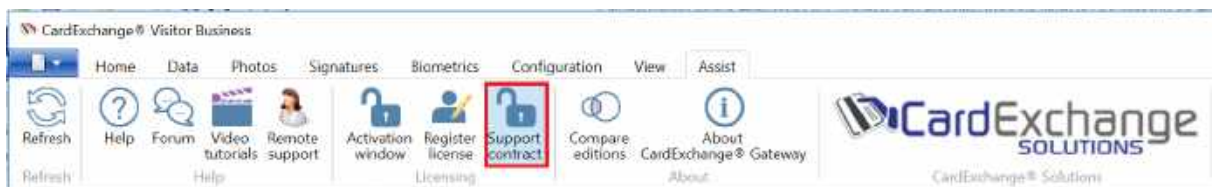
At the bottom of the dialog, there are four buttons: "Cancel", "< Back", "Next >", and "Finish".

If you would like to be contacted, just select how and when, and your reseller will contact you on the preferred date selected. You can also change your subscription to our newsletter.

Click **Next** to proceed to the Final page of the **Registration** process.

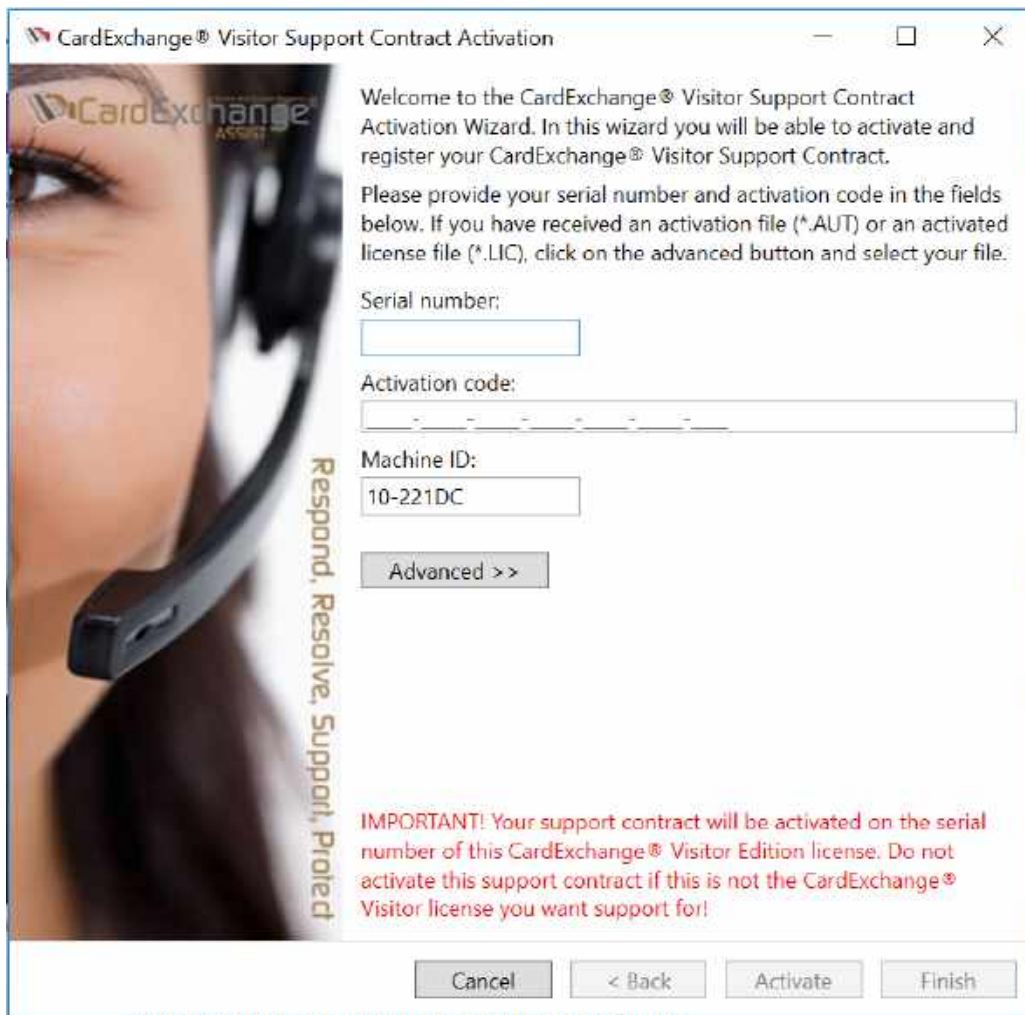


## 17.7 Support Contract



If you have purchased a CardExchange® Assist Premium support contract, you can activate it by clicking the Support contract button under the Assist tab.





The screenshot shows a software window titled "CardExchange® Visitor Support Contract Activation". The window contains a welcome message, instructions, and input fields for "Serial number:", "Activation code:", and "Machine ID:". The "Machine ID" field is pre-filled with "10-221DC". There is an "Advanced >>" button and a red warning message at the bottom. The window also features a sidebar with a woman's face and a headset, and a vertical text label "Respond, Resolve, Support, Protect".

CardExchange® Visitor Support Contract Activation

Welcome to the CardExchange® Visitor Support Contract Activation Wizard. In this wizard you will be able to activate and register your CardExchange® Visitor Support Contract.

Please provide your serial number and activation code in the fields below. If you have received an activation file (\*.AUT) or an activated license file (\*.LIC), click on the advanced button and select your file.

Serial number:

Activation code:

Machine ID:

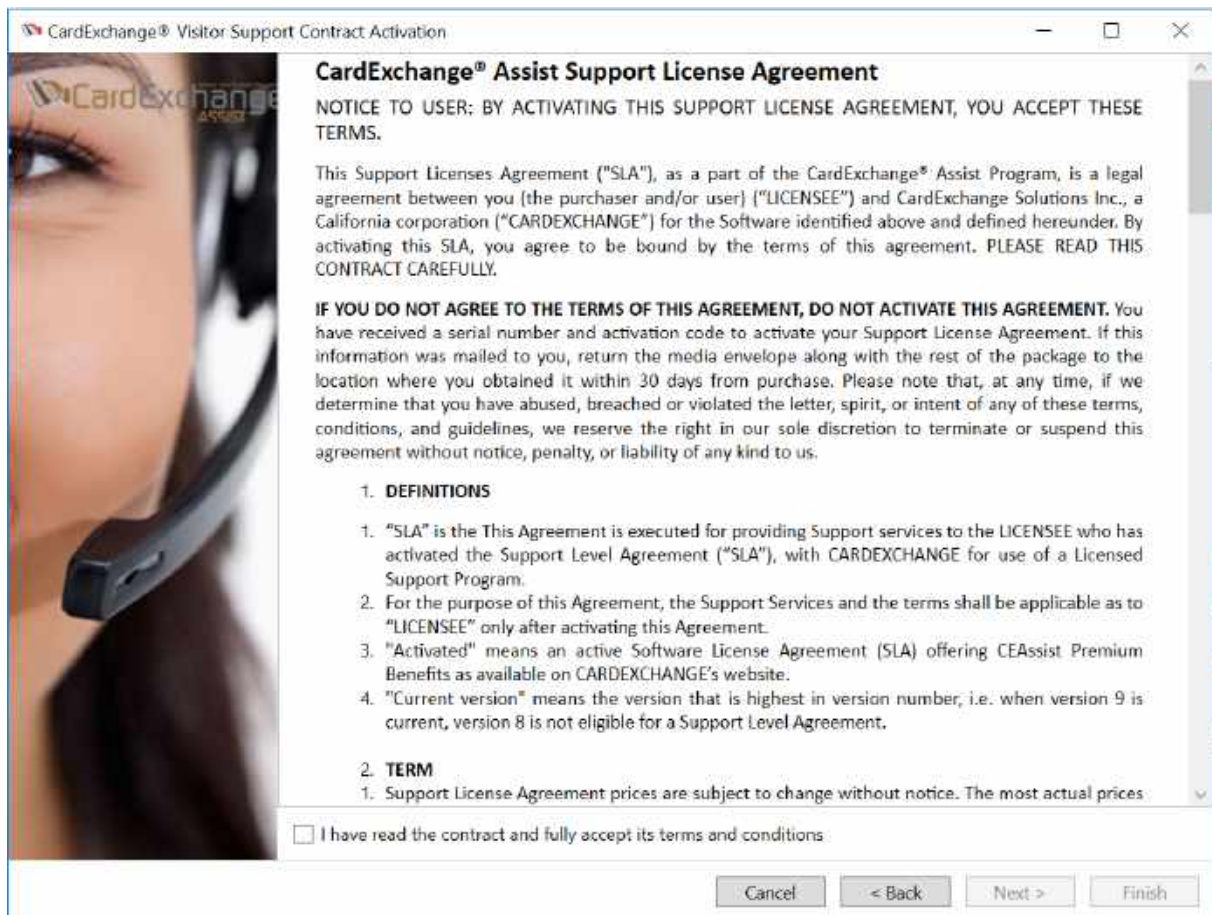
[Advanced >>](#)

**IMPORTANT!** Your support contract will be activated on the serial number of this CardExchange® Visitor Edition license. Do not activate this support contract if this is not the CardExchange® Visitor license you want support for!

[Cancel](#) [< Back](#) [Activate](#) [Finish](#)

Respond, Resolve, Support, Protect

You will be prompted to enter your serial number and activation code that you received when purchasing the support plan.



Clicking on Activate will display the license agreement.  
A copy of the terms can be found [here](#).

CardExchange® Visitor Support Contract Activation

It is recommended that you register your CardExchange® Gateway license. By registering your license you make sure that you will be informed about new functionality and upcoming releases.

Yes, I want to register my CardExchange® Gateway license

Company name: CardExchange Solutions

Contact person: Craig Bechelli

Email address: support@cardexchangesolutions.com

Address: 201 Sand Creek Road, Suite H

City: Brentwood

State (optional):

ZIP code: CA 94513

Country: US

Phone number: +1(925) 529-4999

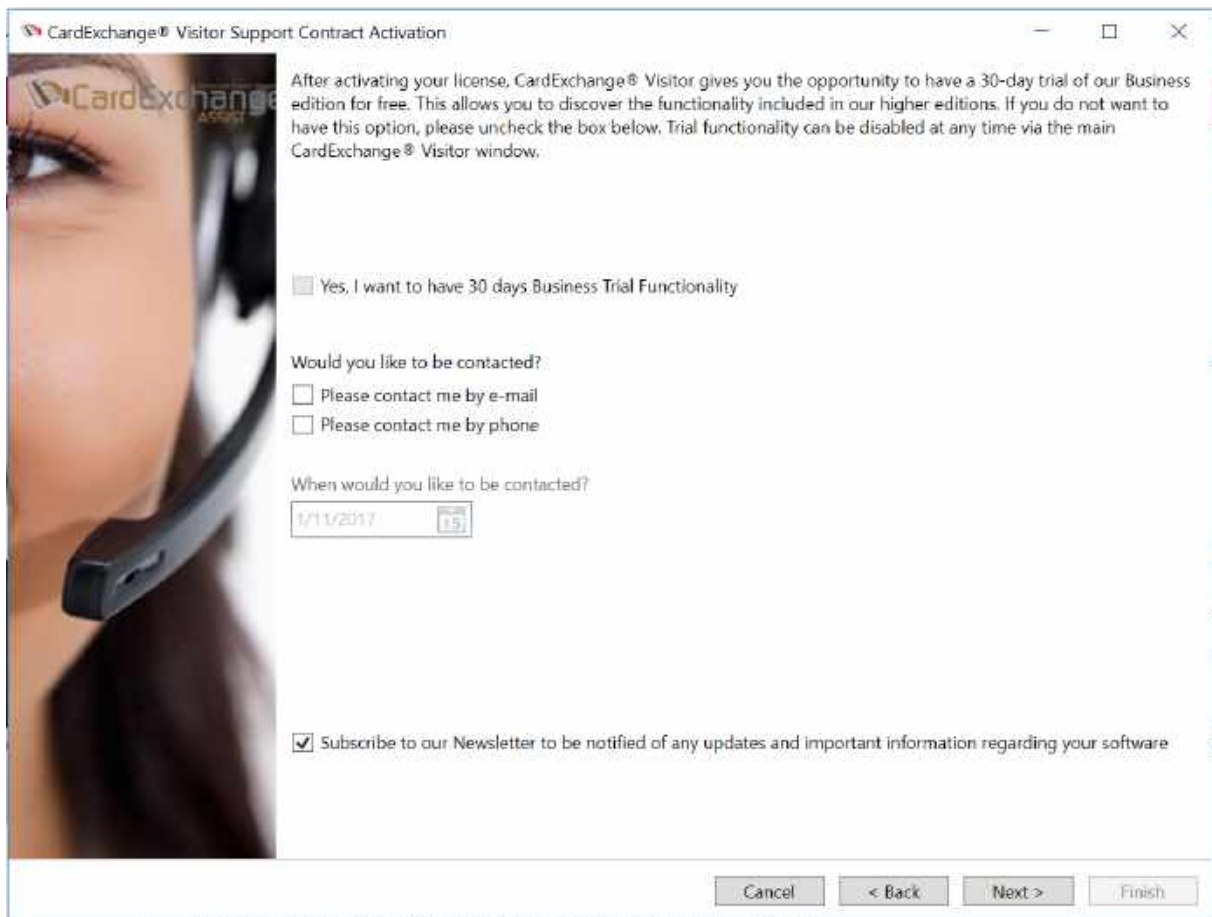
Printer brand: Other

Company type: Other

Alias for forum: Craig Bechelli

Cancel < Back Next > Finish

Once you have checked the box to agree the terms and conditions you will be prompted to register (Registration is mandatory for software support plans). If you have already registered your CardExchange® Producer license then the current registration details will be displayed.



CardExchange® Visitor Support Contract Activation

After activating your license, CardExchange® Visitor gives you the opportunity to have a 30-day trial of our Business edition for free. This allows you to discover the functionality included in our higher editions. If you do not want to have this option, please uncheck the box below. Trial functionality can be disabled at any time via the main CardExchange® Visitor window.

Yes, I want to have 30 days Business Trial Functionality

Would you like to be contacted?

Please contact me by e-mail

Please contact me by phone

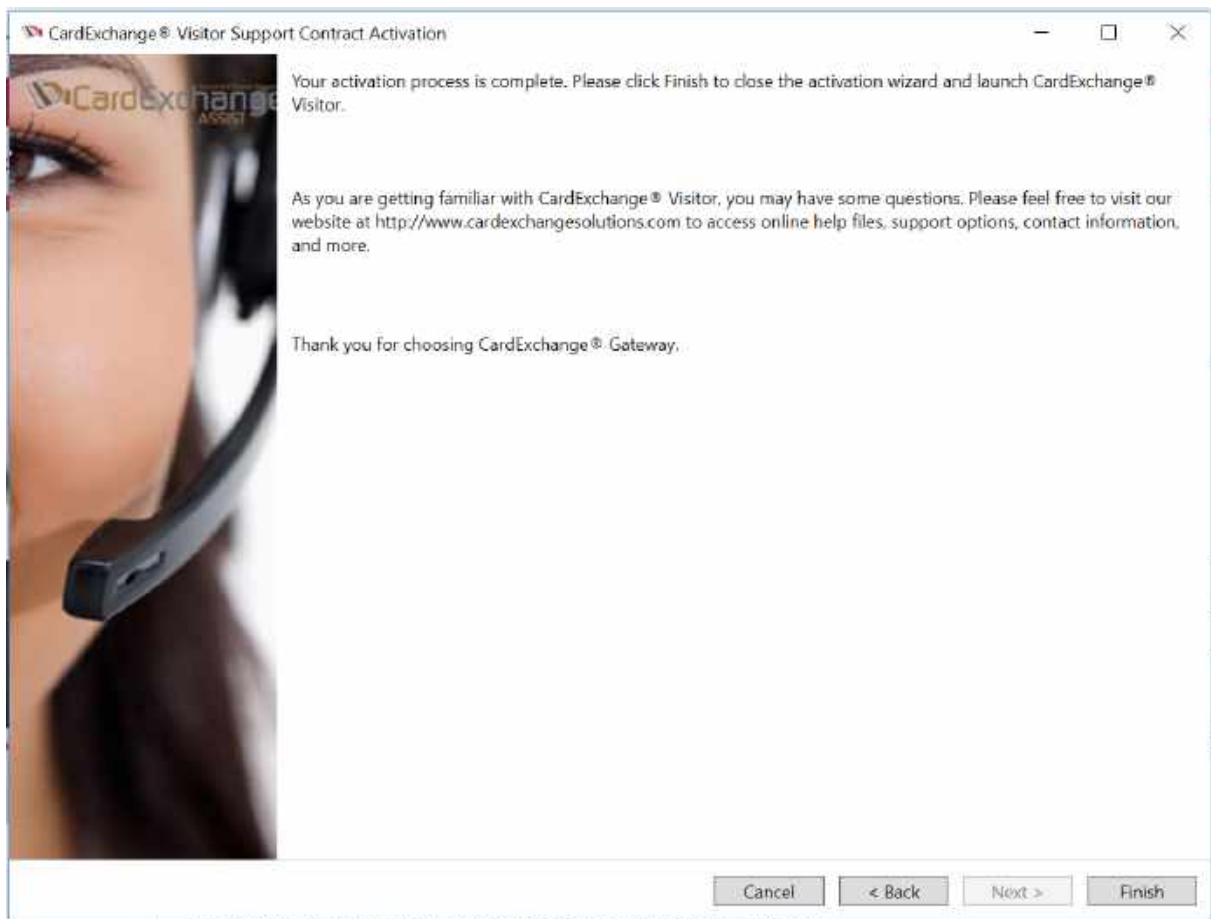
When would you like to be contacted?

1/11/2017

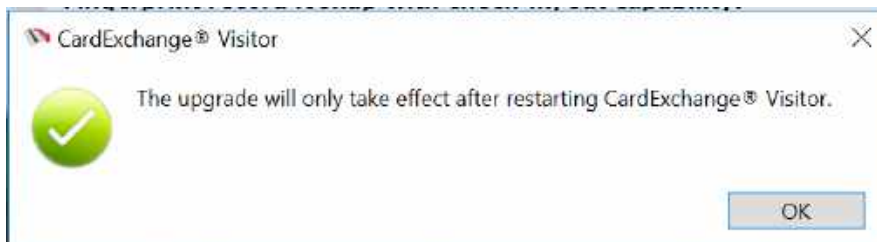
Subscribe to our Newsletter to be notified of any updates and important information regarding your software

Cancel < Back Next > Finish

Clicking on next will allow you to subscribe or unsubscribe from our newsletter.



You then just need to click finish to complete the activation.



### 17.7.1 Support License Agreement

#### **CardExchange® Assist Support License Agreement**

NOTICE TO USER: BY ACTIVATING THIS SUPPORT LICENSE AGREEMENT, YOU ACCEPT THESE TERMS.

This Support Licenses Agreement ("SLA"), as a part of the CardExchange® Assist Program, is a legal agreement between you (the purchaser and/or user) ("LICENSEE") and CardExchange Solutions Inc., a California corporation ("CARDEXCHANGE") for the

Software identified above and defined hereunder. By activating this SLA, you agree to be bound by the terms of this agreement. PLEASE READ THIS CONTRACT CAREFULLY.

**IF YOU DO NOT AGREE TO THE TERMS OF THIS AGREEMENT, DO NOT  
ACTIVATE THIS AGREEMENT.**

You have received a serial number and activation code to activate your Support License Agreement. If this information was mailed to you, return the media envelope along with the rest of the package to the location where you obtained it within 30 days from purchase. Please note that, at any time, if we determine that you have abused, breached or violated the letter, spirit, or intent of any of these terms, conditions, and guidelines, we reserve the right in our sole discretion to terminate or suspend this agreement without notice, penalty, or liability of any kind to us.

**1. DEFINITIONS**

1. "SLA" is the This Agreement is executed for providing Support services to the LICENSEE who has activated the Support Level Agreement ("SLA"), with CARDEXCHANGE for use of a Licensed Support Program.
2. For the purpose of this Agreement, the Support Services and the terms shall be applicable as to "LICENSEE" only after activating this Agreement.
3. "Activated" means an active Software License Agreement (SLA) offering CEAssist Premium Benefits as available on CARDEXCHANGE's website.
4. "Current version" means the version that is highest in version number, i.e. when version 9 is current, version 8 is not eligible for a Support Level Agreement.

**2. TERM**

1. Support License Agreement prices are subject to change without notice. The most actual prices are always available in CARDEXCHANGE's web store.
2. This Support Level Agreement does not include installation or configuration support.
3. Support Level Agreements (SLA) are only available for current versions of CARDEXCHANGE's software products and custom services.
4. Support Level Agreements (SLA) are exclusively activated on the CardExchange® Product and Edition. This SLA cannot be transferred to another product serial number after activation.
5. The term of this Agreement shall commence on the date of activation and shall remain in force for one (1) year. This Agreement will NOT automatically be renewed! 30 days before the expiration of this agreement, the LICENSEE will be notified of renewal options. LICENSEE renewal of this agreement before expiration this agreement expires, offers a discount of 10% on the annual fee.

6. When this Support Level Agreements (SLA) is renewed before the Anniversary date, the renewed agreement will be in force for one (1) year plus the remaining time left of the moment of renewal until the Anniversary date.
7. In the event that LICENSEE fails to renew the Annual Support Level Agreement fee on or before the Anniversary Date, this Agreement shall be deemed automatically terminated.

### **3. SUPPORT SERVICES**

1. EXCHANGE will provide LICENSEE with support services as described in our Premium feature overview within business hours on Monday through Friday between 7am and 8pm US Eastern Time, except on holidays.
2. The support services under this SLA do not include any customizations, modifications. It also does not include configuration and installation of the software other than configuration to make the software work as indicated by the software manual. EXCHANGE offers separate installation packages pricing as well paid professional services.

### **4. RESPONSIBILITIES AND LIMITED WARRANTY**

1. The LICENSEE will conduct in a courteous and professional manner with CARDEXCHANGE.
2. The LICENSEE will use the provided tools provided by CARDEXCHANGE to maximize efficiency of this Agreement.
3. The LICENSEE will use the channels for communication provided by CARDEXCHANGE like support phone numbers, ticketing system, email addresses, etc.
4. The LICENSEE will provide accurate information about the company and contact person during the activation process of the SLA.
5. The LICENSEE will update the contact information when changes in the organization or contact person changes.
6. CARDEXCHANGE warrants that the Support Services will be provided in conformance with the terms of this Agreement and CARDEXCHANGE does not make any other warranties, whether expressed or implied, whether regarding the performance of the Licensed Program or the services provided under this Agreement.
7. LICENSEE agrees that CARDEXCHANGE has not warranted recovering any data or other information contained in the Designated System. CARDEXCHANGE shall not be liable for any loss of profits, loss of use, business interruption, loss of data, cost of cover or any indirect, special, incidental, exemplary, punitive or consequential damages of any kind in connection with or arising out of the furnishing, performance or Use of the Licensed Program or services performed hereunder, whether alleged as a breach of contract or tort conduct, including negligence even if advised of

the possibility of such damages. Subject to the foregoing and notwithstanding anything to the contrary elsewhere contained, in no event shall the maximum aggregate liability of CARDEXCHANGE in connection with this Agreement exceed the Software Level Agreement fee paid by the LICENSEE in the six (6) months preceding the claim.

8. Neither party shall be in default or otherwise liable for any delay in or failure of its performance under this Agreement if such delay or failure arises by any reasons beyond its reasonable control, including any act of God, any acts of the common enemy, the elements, earthquakes, floods, fires, epidemics, riots, failures or delay in transportation or communications or utilities, or any act or failure to act by the other party or such other party's officers, employees, agents or contractors; provided, however, that lack of funds shall not be deemed to be a reason beyond a party's reasonable control.

## **5. WARRANTY DISCLAIMER**

1. CARDEXCHANGE AND ITS SUPPLIERS DISCLAIM ALL WARRANTIES, WHETHER EXPRESS, IMPLIED, OR OTHERWISE, INCLUDING WITHOUT LIMITATION THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT.
2. OUR SOFTWARE IS PROVIDED ON AN "AS IS" BASIS. YOU ASSUME THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE SOFTWARE. SHOULD THE SOFTWARE PROVE DEFECTIVE, YOU ASSUME THE ENTIRE RISK OR COST ASSOCIATED WITH SUCH DEFECT AND ANY SERVICE AND REPAIR.  
CARDEXCHANGE AND ITS LICENSORS DO NOT WARRANT THAT THE SOFTWARE IS FLAWLESS OR WILL OPERATE WITHOUT INTERRUPTION. THE SOFTWARE IS NOT DESIGNED, INTENDED, OR LICENSED FOR USE IN HAZARDOUS ENVIRONMENTS REQUIRING FAIL-SAFE CONTROLS. CARDEXCHANGE SPECIFICALLY DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY OF FITNESS FOR SUCH PURPOSES.

## **6. LIMITATION AND RELEASE OF LIABILITY**

1. In no event shall CARDEXCHANGE, its licensors, or its suppliers be liable to you for any consequential, special, incidental, or indirect damages of any kind arising out of the delivery, performance, or Use of the software, even if CARDEXCHANGE or its licensors have been advised of the possibility of such damages. You agree that the liability of CARDEXCHANGE and its licensors for any claim, whether in contract, tort, or any other theory of liability will not exceed the amount of the license fee paid by you.

## **7. EXCLUSION OF ALL DAMAGES**

### **8.**

TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, IN NO EVENT SHALL CARDEXCHANGE, ITS LICENSORS, OR ITS SUPPLIERS BE LIABLE FOR ANY



CONSEQUENTIAL, INCIDENTAL, DIRECT, INDIRECT, SPECIAL, PUNITIVE, OR OTHER DAMAGES WHATSOEVER (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR ANY INJURY TO PERSON OR PROPERTY, DAMAGES FOR LOSS OF BUSINESS INTERRUPTION, PROFITS, LOSS OF BUSINESS DATA, FOR NEGLIGENCE, OR FOR ANY OTHER LOSS WHATSOEVER) ARISING OUT OF OR IN ANY WAY RELATED TO THE USE OF OR INABILITY TO USE THE SOFTWARE, WHETHER BASED IN CONTRACT, TORT, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE, EVEN IF CARDEXCHANGE, ITS LICENSORS, OR ANY SUPPLIER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THIS EXCLUSION OF DAMAGES SHALL BE EFFECTIVE EVEN IF ANY REMEDY FAILS OF ITS ESSENTIAL PURPOSE.

## **9. ASSIGNMENT AND AMENDMENT**

LICENSEE may assign its obligations under this Agreement to a third party individual or entity subject to the prior written consent of CARDEXCHANGE. No amendment to this Agreement shall be valid unless the same is in writing and signed by both parties. Both parties agree that they are not bound to any oral representations and warranties made concerning the services under this Agreement.

## **10. APPLICABLE LAW AND DISPUTES**

1. This SLA, and any further agreements resulting therefrom, including any question regarding the existence, validity, or termination thereof, shall exclusively be governed by and construed in accordance with California law without regard to any choice of law rules thereunder.
2. All disputes arising in connection with this agreement, or any further agreements resulting therefrom, including any question regarding the existence, validity or termination thereof, shall be submitted to the exclusive jurisdiction of the Contra Costa County, California, courts. The parties further agree that this Agreement was entered into in Contra Costa County, and is to be performed in Contra Costa County.

## **11. PRIVACY POLICY**

### **1. USE OF DATA**

When you download, use, or activate our Software or Support License Agreement (SLA), browse our website, or participate in our online forums, your IP address, the time and duration of your visit and use, the web browser you are using, the pages you view, and other information like how you are using the software, are sent to our servers.

This information can be used to compile statistical reports about how you use our products and our website in order to improve our products, services, and support. If you choose to register for our forums, a valid email address is required. Our forums are moderated, and we reserve the right to remove anything we deem inappropriate and to restrict or delete any user account being used inappropriately.

## 2. FRAUD/PIRACY

We aim to keep your information safe. Credit card fraud, identity theft, and software piracy will not be tolerated. We may release any information necessary to comply with the law, protect our software licenses, and foremost to protect our valued customers. We will also work with law enforcement and fraud/credit agencies to ensure the safety of your information.

Should you have any questions concerning this SLA please contact us via:

**Email:** [sla@cardexchangesolutions.com](mailto:sla@cardexchangesolutions.com)

**Web:** <http://cardexchangesolutions.com/sla>

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## 17.8 About



Sometimes when you need support you will be asked which edition and version you are running of CardExchange® Producer. All this type of information can be found in the **About CardExchange® Producer** section. Just click on the button indicated with the red rectangle, and the window below will be presented:



In this window you can find the **edition** and **version** you are running. This can be important to see if you are running the latest version with regards to solved bugs.

You also can see your **serial number** which enables us or your reseller to request your **activation code**, if needed. It also contains the **Client code** of your license. The **Client code** indicated who has supplied your license. Last but not least, it shows the **Machine ID**, the digital fingerprint of your computer for your CardExchange® Producer license.



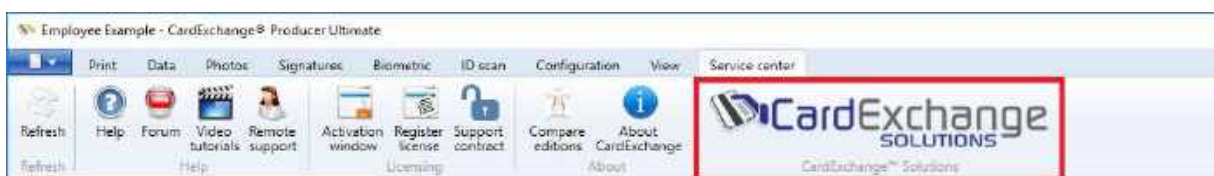
When you are running a GO Edition for example, and you would like to know what type of functionality is offered in other editions of CardExchange® Producer. Just click on the **Compare editions** button indicated with the red rectangle and it will bring you to the **Compare editions** section on our website:

 A screenshot of the CardExchange Producer website's 'COMPARE EDITIONS' page. The page title is 'COMPARE EDITIONS' and the subtitle is 'COMPARE CARDEXCHANGE PRODUCER EDITIONS'. Below the title is a comparison table with columns for 'All', 'Provision', 'Provision', 'Mobile', 'GO Functional', 'All Update', 'All Update', and 'Support/Tr'. The table lists various features and their availability across different editions.
 

	All	Provision	Provision	Mobile	GO Functional	All Update	All Update	Support/Tr
<b>Usable and Network Features</b>								
Local access via Internet	✓	✓	✓	✓	✗	✗	✗	✗
Online Network Licensing	✗	✗	✗	✗	✓	✓	✓	✓
Central Data Management	✗	✗	✗	✗	✓	✓	✓	✓
Add Additional Card Licenses	✗	✗	✗	✗	✓	✓	✓	✓
<b>Application Features</b>								
Without Card Issue	GO GO	GO GO	GO GO	GO GO	GO GO	GO GO	GO GO	GO GO
Add Card Templates	✓	✓	✓	✓	✓	✓	✓	✓
Template Migration Tool	✓	✓	✓	✓	✓	✓	✓	✓
Provision Migration Tool	✓	✓	✓	✓	✓	✓	✓	✓
Card Template Migration	✓	✓	✓	✓	✓	✓	✓	✓
Open an Open Card Storage Wizard	✓	✓	✓	✓	✓	✓	✓	✓
Time Integration Printing Options	✓	✓	✓	✓	✓	✓	✓	✓
Combined Approval Tools	✓	✓	✓	✓	✓	✓	✓	✓
Mobile Device Features	✓	✓	✓	✓	✓	✓	✓	✓
Shooting Images	✓	✓	✓	✓	✓	✓	✓	✓
Image Quality Monitoring	✓	✓	✓	✓	✓	✓	✓	✓
Barcode Print in QR Format	✓	✓	✓	✓	✓	✓	✓	✓
QR Barcode	✓	✓	✓	✓	✓	✓	✓	✓

Here you can see all the offered functionality available for each separate edition.

## 17.9 Contact Information



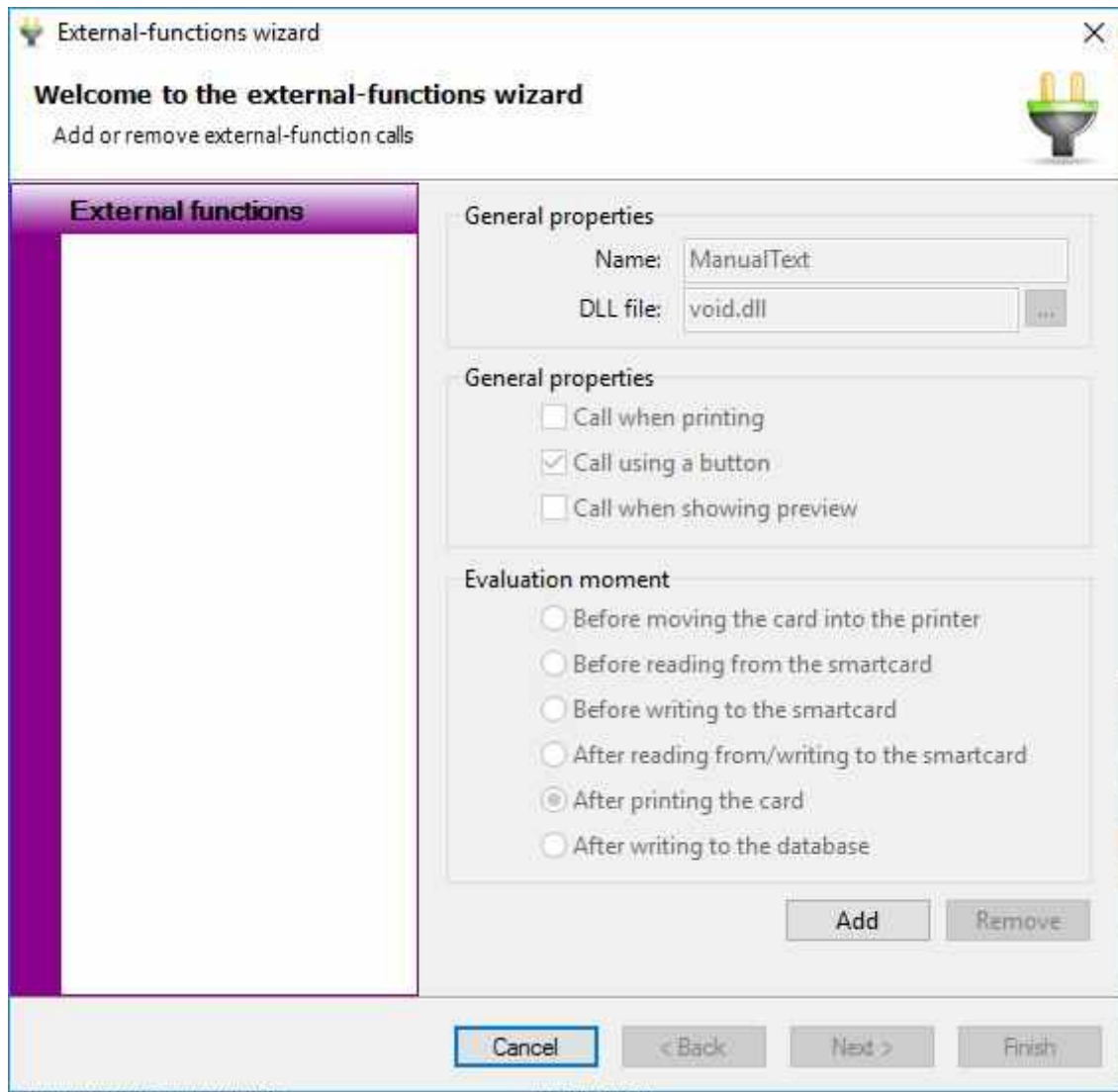
All CardExchange® Producer Resellers and Distributors have a long history in the ID Card Printing market and can advise and help you to make the right choices. But unfortunately it is not always known for the user of our software who supplied the software and were to go to for support.

At the section indicated with the red rectangle you always find one button indicated that contains the Company Logo of the CardExchange® Producer partner that supplied you the software and if you click on the button, it will directly bring you to their home page so you can find all their contact information.

When applicable, in the same section you can find a second button next to this that will take you directly to the web shop of our partner so you can buy upgrades, supplies, etc.

Together with all the other functionality offered in our Assist section, we strive to offer **high quality** with **high service** without limitations.

## 18 External Plug In's



External Plug-Ins is CardExchange® Producer most powerful and flexible custom functionality offered! An External Plug-In is basically a wrapper that can contain any possible functionality you can imagine. Most common is the embedding of third party SDK's. For example, want to embed a specific bio-metric fingerprint scanner, or a driver-license scanner, etc., we can simply embed the functionality of the readers into an External Plug-In and make the functionality available inside CardExchange® Producer. External Plug-Ins are developed by CardExchange Solutions and have quick turnarounds with low cost and offer unlimited possibilities to get into project business without spending thousands and thousands in customization.

How does it work?

When you have specific need for, for example, a finger print scanner, first contact your CardExchange® Producer Reseller. Inform them about what reader you want to use, if there is an SDK available, what you want to accomplish, for example, do you want to store the finger print image but also the template, etc.

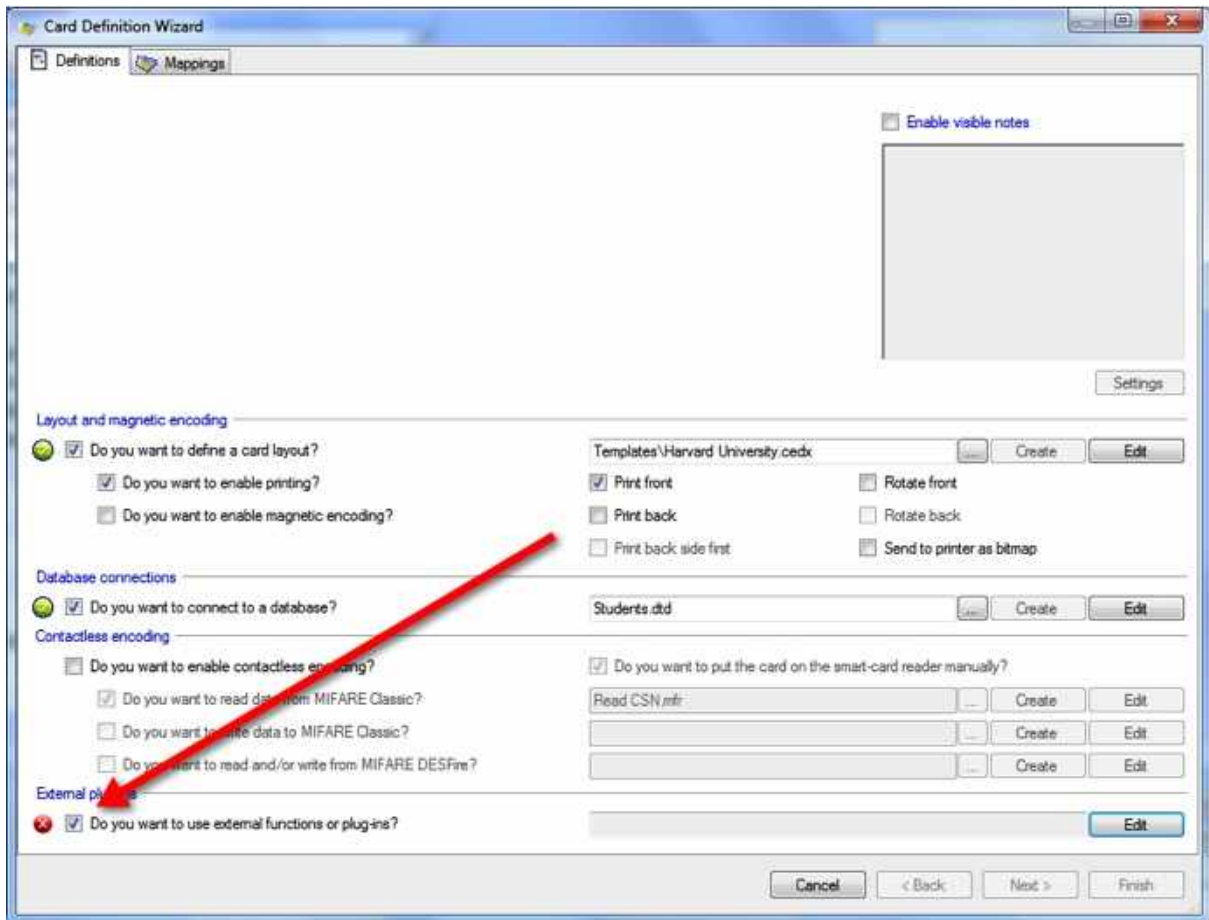
The reseller will contact CardExchange Solutions for a quote and will get back to you with a price and time frame. When you decide to proceed with the External Plug-In, in most cases you will have to make a reader and the SDK available for CardExchange solutions and ship this to us or have your reseller ship it to us. Don't know your reseller? Please take a look in the [Service Center](#) and see who your reseller is to contact.

## 18.1 Configure External Plug Ins

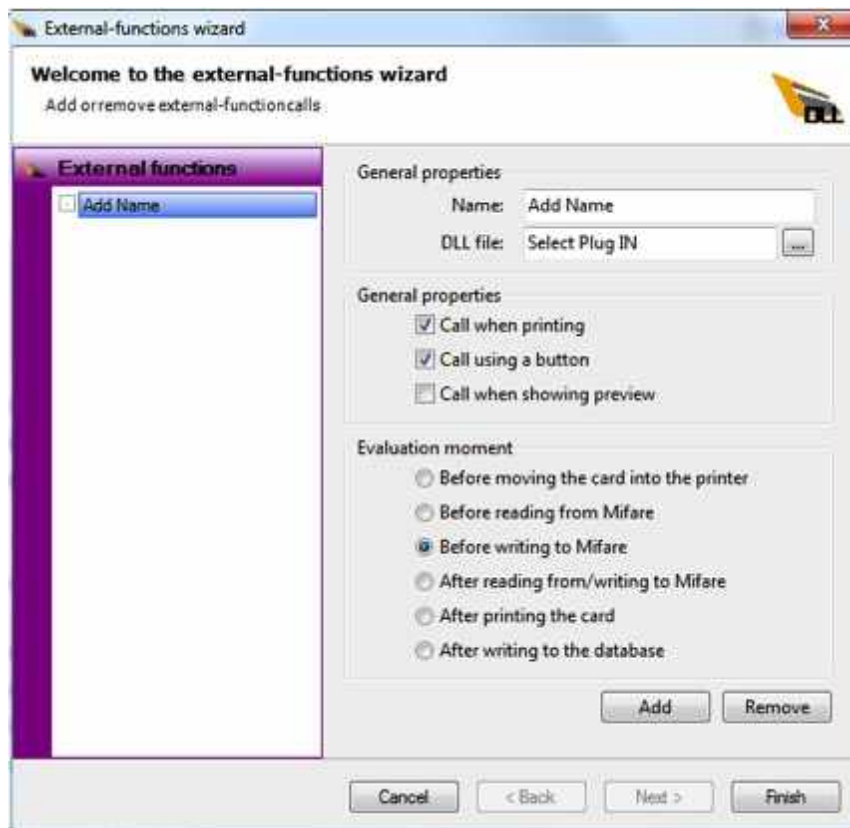
When you have ordered and received a External Plug-In you will have to configure CardExchange® Producer to be able to use this Plug-In. To get access to the Plug-In functionality, you will first have to access the Card Definition Wizard.



To call the Card Definition Wizard you have to click on the Edit card definition button in the [Configuration](#) tab. If you do not see this button, please change the configuration settings as described in the [Advanced Options](#) section of this Help file.



When the Edit card definition button is pressed, the Card definition wizards opens and you need to select "Do you want to use external functions or plug-ins?" and click on Edit to start the wizard.



### General Properties

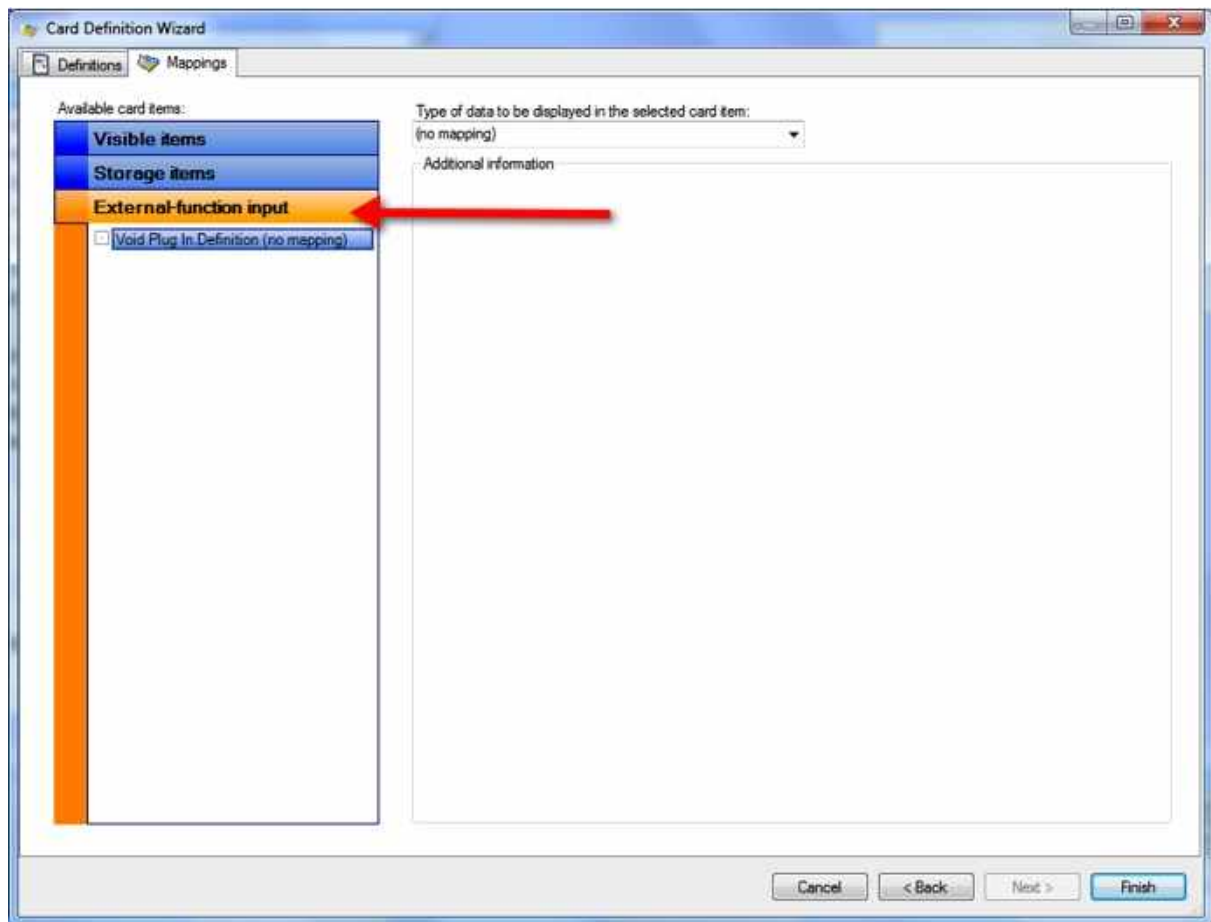
- **Name** - Enter a name for the External Plug-In, for example Fingerprint Scan
- **DLL File** - Browse and select the External Plug-In file you received
- **Call when printing** - Select if the plug-in needs to be called during the print process
- **Call using a button** - Select if the plug-in needs to be made available via an button in the Main Interface
- **Call when showing preview** - Select if the plug-in needs to be executed every time the preview is reloaded

### Evaluation moment

Check one of the available evaluation moments. For example, if you have an external plug-in that calculates a special value based on the CSN of a MIFARE® Classic 1K card you use before writing to MIFARE® so the calculated value is available for storage or printing in the template.

Click on Finish to store the settings.





Click on Next in the Card Definition Wizard and select the External-function input tab and connect it to the preferred mapping.

**IMPORTANT!** External Plug-Ins can have input as well output functionality!

## 18.2 Void Plug Ins

### Void plug-ins

The CardExchange® Producer external plug-in framework has a hidden feature, which is the possibility to define a void plug-in. Void plug-ins offer two possibilities that are otherwise not possible: controlling when a .NET Function is executed and using a single manual entry for multiple card items.

### Description

A void plug-in is created by defining a plug-in that does not reference a real plug-in DLL. If CardExchange® Producer detects that no real plug-in is selected, it creates an internal plug-in with one input parameter, called "Definition", and one output parameter, called "Result". When executed, the plug-in copies the value of the input parameter to the output parameter.

By mapping a .NET function to the Definition parameter of a void plug-in, it is possible to combine the advantages of .NET Functions with the advantages of plug-ins, that is, you can develop your own .NET functions and you can still control when the function is executed by using the settings in the plug-in wizard.

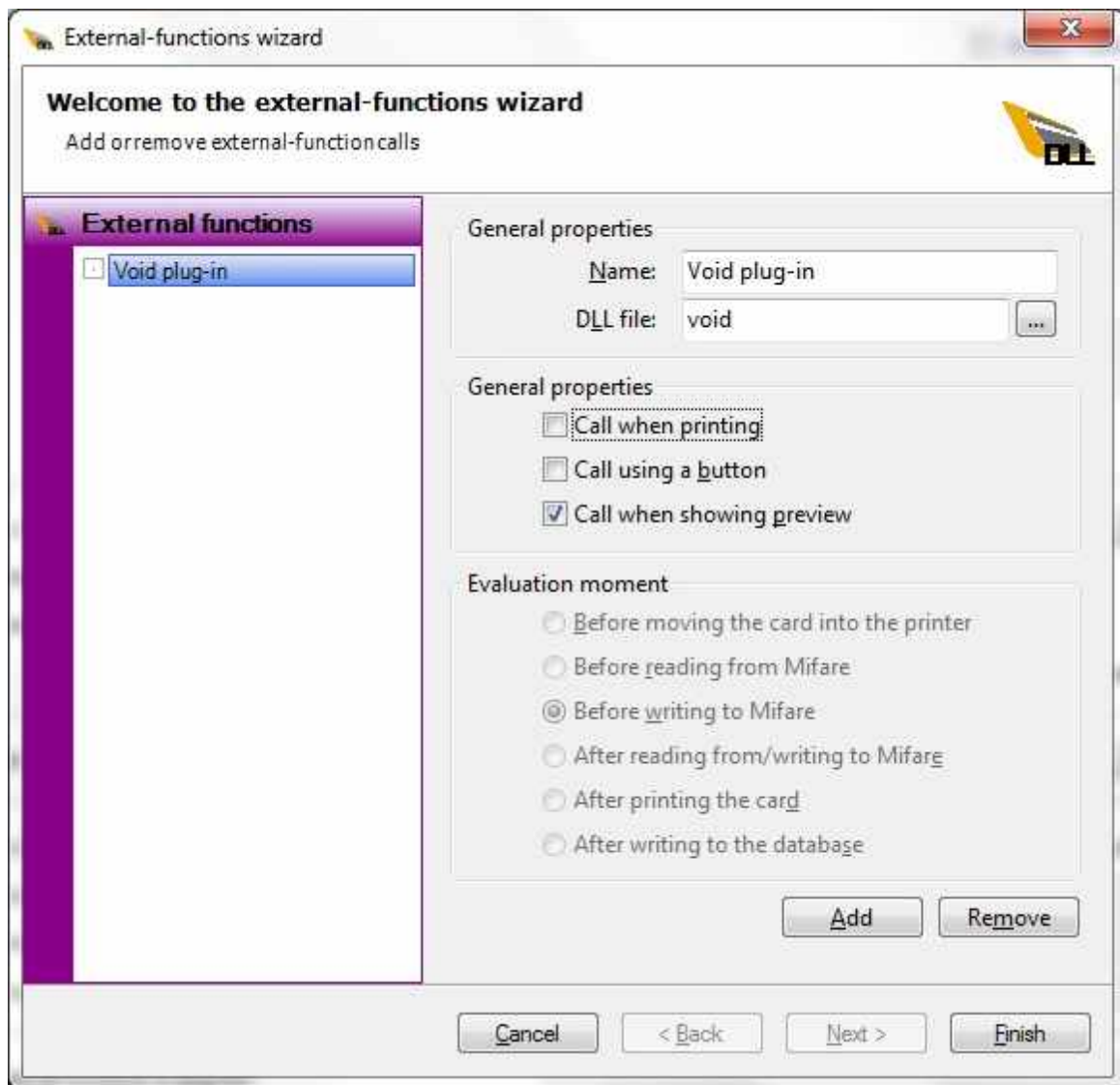
By mapping the Definition parameter to a manual entry, you can use the result of a single manual entry in multiple mappings. That makes it possible to have a single manual entry whose value is both printed on the card and stored in the database.

For manual entries, you will often want the void plug-in to be executed whenever you call a preview. However, when the void plug-in is used in combination with a .NET function, you will often prefer to execute it during the print process only, or when clicking a button.

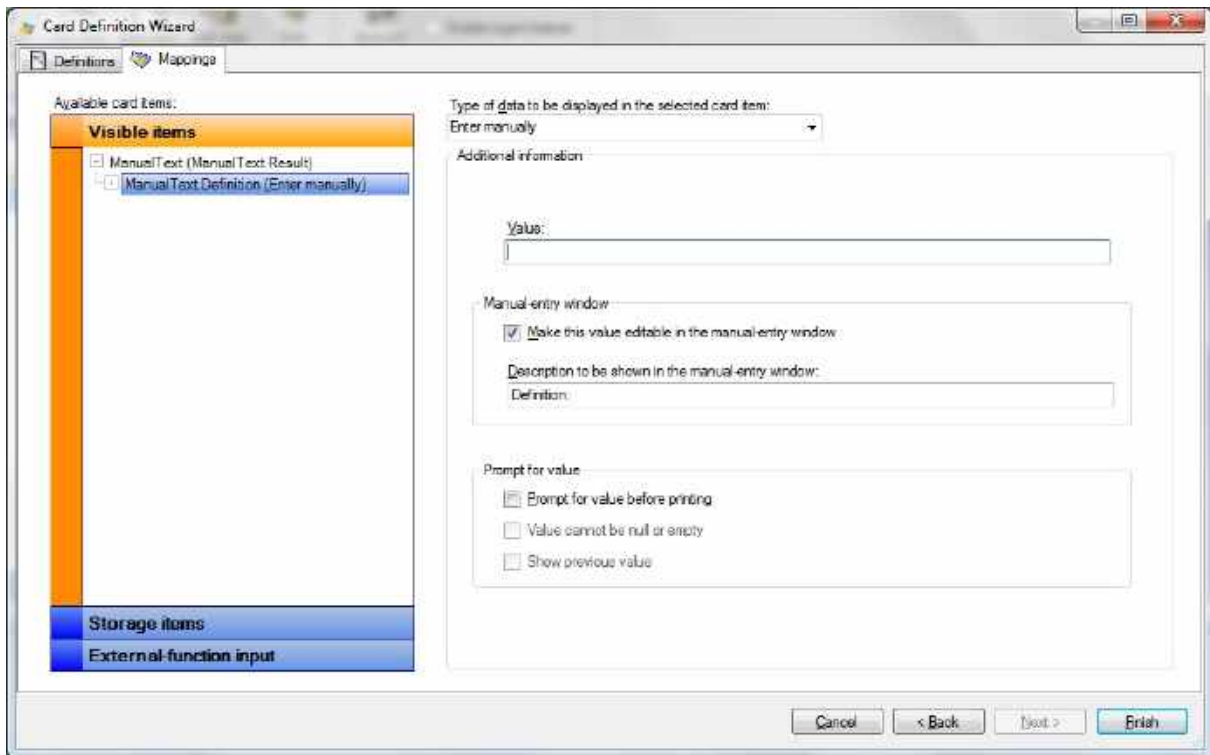
### **Example**

To illustrate how void plug-ins work, we will create a card definition with a single manual entry that is both printed on the card and stored in the database.

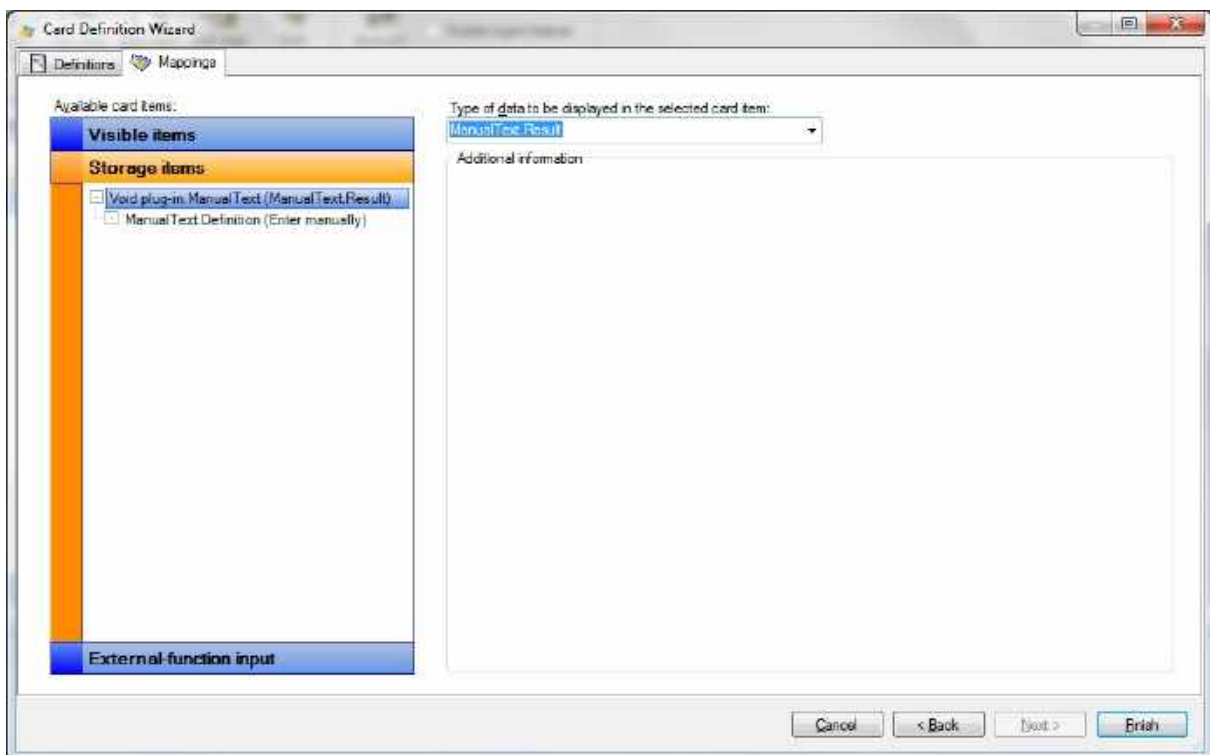
1. To start, add a new card definition that consists of a card layout with a data text object called "ManualText" and a data definition with a storage item called "ManualText".
2. Select "Do you want to use external functions or plug-ins" in the card-definition wizard and click the Edit button to configure the plug-in.
3. Add a plug-in called "ManualText" and type "void" in the DLL-file field. Then click Finish.



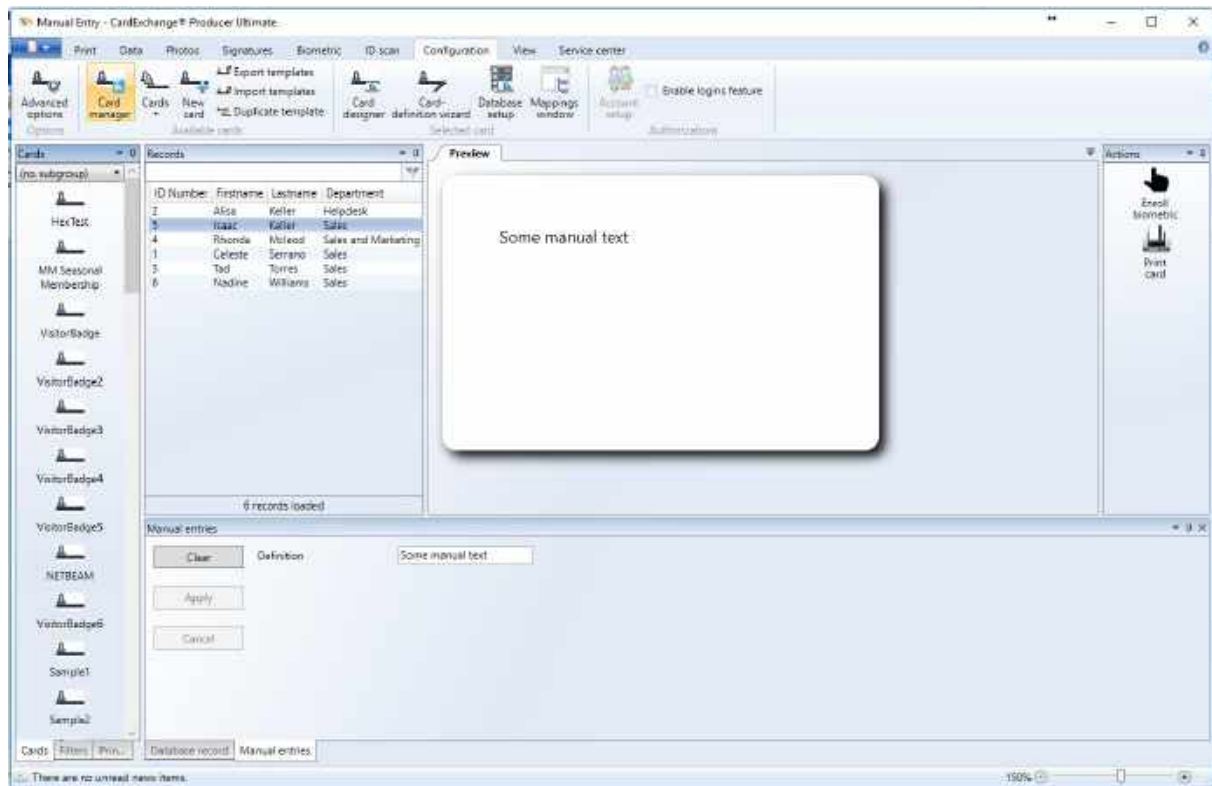
4. Click Next to go to the mappings window and map the visible item called "ManualText" to the plug-in output "ManualText.Result". Then map the plug-in input "ManualText.Definition" to "Enter manually".



5. Select the Storage items tab and map the storage item "ManualText" to the external function output.



6. Click Finish to close the card-definition wizard and open the manual-entry window. You will see, that there is a single manual entry.



7. Print the card. You will now see that the manual entry is stored in the database.