ZebraDesigner

Version 3 User Guide

Product level: Professional. Rev-2025-5

P1108976-EN

ZEBRA

Information in this document is subject to change without notice. The software described in this document is furnished under a license agreement or nondisclosure agreement. The software may be used or copied only in accordance with the terms of those agreements.

For further information regarding legal and proprietary statements, please go to:

SOFTWARE: www.zebra.com/linkoslegal
COPYRIGHTS: www.zebra.com/copyright
WARRANTY: www.zebra.com/warranty
END USER LICENSE AGREEMENT: www.zebra.com/eula

Terms of Use

Proprietary Statement

This manual contains proprietary information of Zebra Technologies Corporation and its subsidiaries ("Zebra Technologies"). It is intended solely for the information and use of parties operating and maintaining the equipment described herein. Such proprietary information may not be used, reproduced, or disclosed to any other parties for any other purpose without the express written permission of Zebra Technologies.

Product Improvements

Continuous improvement of products is a policy of Zebra Technologies. All specifications and designs are subject to change without notice.

Liability Disclaimer

Zebra Technologies takes steps to ensure that its published Engineering specifications and manuals are correct; however, errors do occur. Zebra Technologies reserves the right to correct any such errors and disclaims liability resulting therefrom.

Limitation of Liability

In no event shall Zebra Technologies or anyone else involved in the creation, production, or delivery of the accompanying product (including hardware and software) be liable for any damages whatsoever (including, without limitation, consequential damages including loss of business profits, business interruption, or loss of business information) arising out of the use

of, the results of use of, or inability to use such product, even if Zebra Technologies has been advised of the possibility of such damages. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

Contents

1 Typographical Conventions

Text that appears in **bold** refers to menu names and buttons.

Text that appears in *italics* refers to options, confirming actions like *Read only*, and locations like *Folder*.

Text enclosed in <less-than and greater-than signs> refers to keys from desktop PC keyboards such as `<Enter>`.

Variables are enclosed in [brackets].

> NOTE: This is the style of a note.

EXAMPLE: This is the style of an example.

This is the style of a best practice.

WARNING: This is the style of a warning.

TIP: This is the style of a tip.

2 Activating ZebraDesigner

ZebraDesigner helps you design and print labels on Zebra printers from your computer. There are two editions to choose from:

- ZebraDesigner Essentials is free to use, and requires no activation. It offers basic label design features.
- ZebraDesigner Professional is free to use for 30 days, then requires purchase and activation. It offers advanced features to help you design more complex labels based on fixed or variable data and also includes database and RFID support.

2.1 Activating ZebraDesigner Online

Activate ZebraDesigner Professional to design and print labels using a full set of available features.
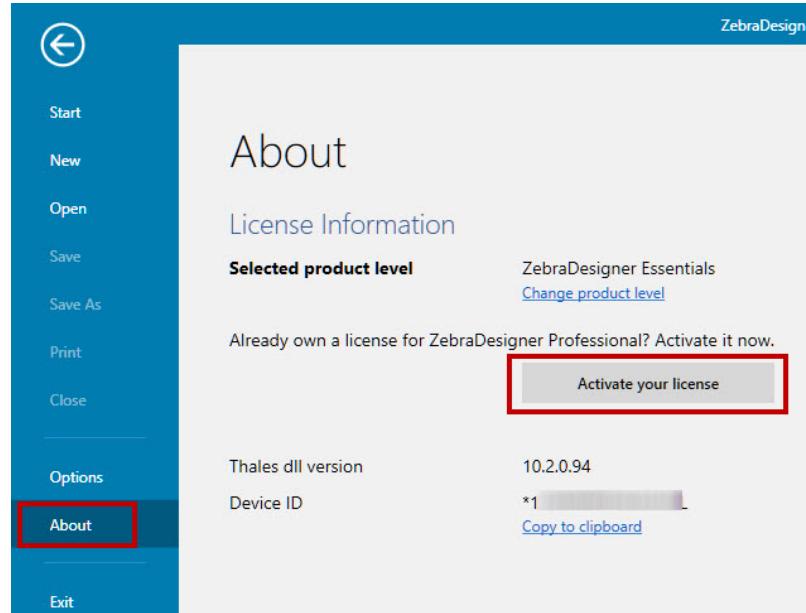
You need:

- ZebraDesigner installed on your computer.

- Your 32-digit **License Key**, available from your Zebra software distributor.

- Your 32-digit **Customer ID**, available from your Zebra software distributor.

- An active internet connection. To activate offline, read section "Activating ZebraDesigner Offline" on page 10.
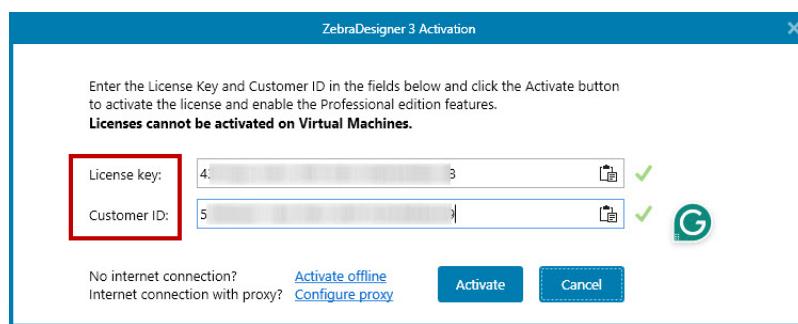
> NOTE: If you ugraded ZebraDesigner from previous version of ZebraDesigner Professional, the software prompts you to activate the license as soon as you open the upgraded version.

To activate ZebraDesigner Professional:

1. Open ZebraDesigner.
2. Go to **File > About > Activate your license.**

- The **ZebraDesigner Activation** window opens.

3. Paste in your 32-digit **License Key** and 32-digit **Customer ID**.

4. Click **Activate**.

Your ZebraDesigner Professional is activated and ready to use.

To deactivate your license, read section "Deactivating ZebraDesigner" on page 12.

To activate or deactivate your license using a proxy server, read section "Activating and Deactivating over a Proxy Server" on page 14.

2.2 Activating ZebraDesigner Offline

Activate ZebraDesigner Professional to design and print labels using a full set of available features.
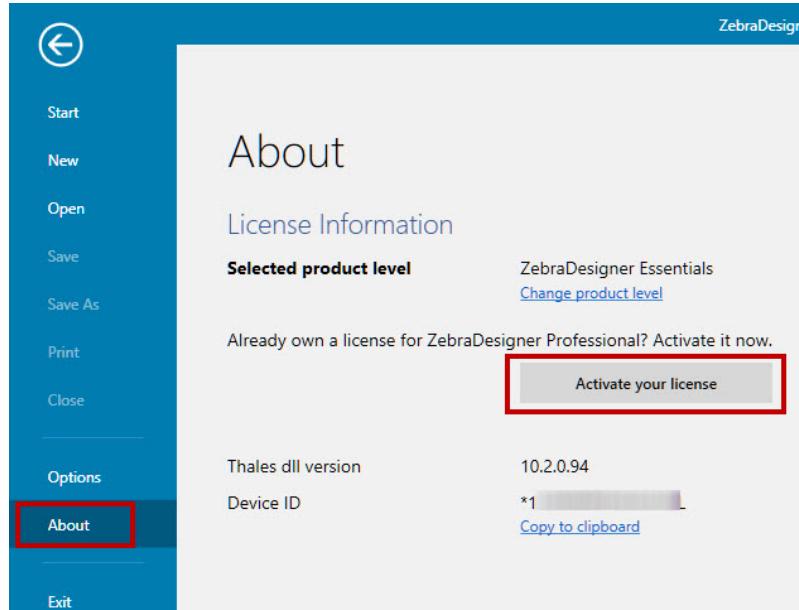
To activate ZebraDesigner Professional on computers without an internet connection, you need:
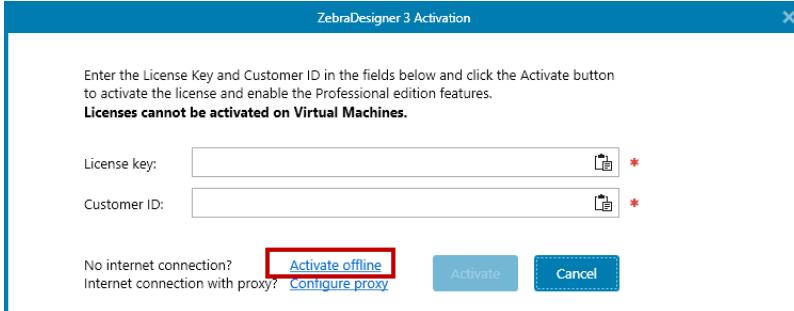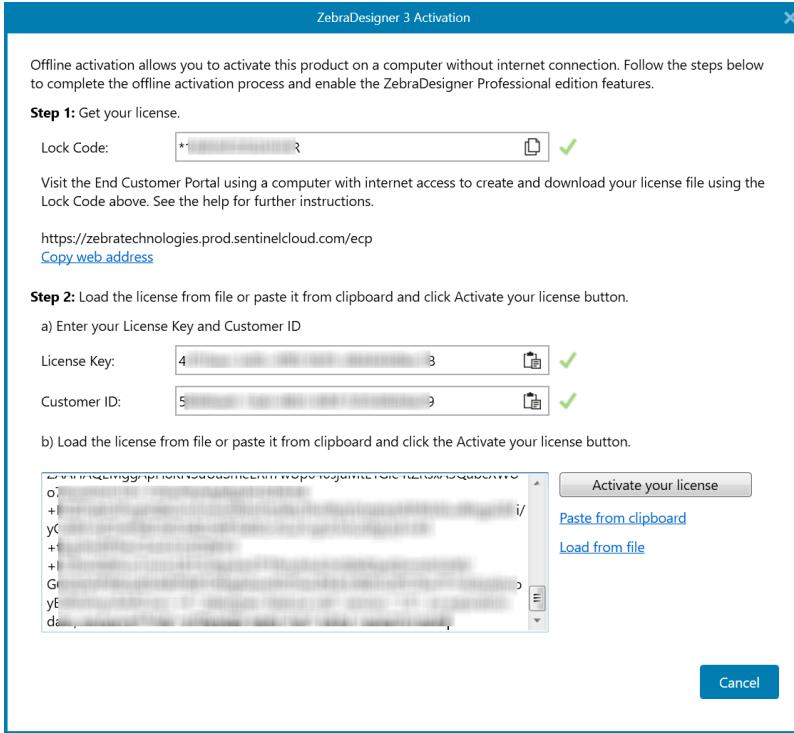
- ZebraDesigner installed on your computer.

- Your 32-digit **License Key**, available from your Zebra software distributor.

- Your 32-digit **Customer ID**, available from your Zebra software distributor.

- Another computer with an active internet connection.

> NOTE: If you ugraded ZebraDesigner from previous version of ZebraDesigner Professional, the software prompts you to activate the license as soon as you open the upgraded version.

To activate ZebraDesigner Professional:

1. Go to **File > About > Activate your license.**

- The **ZebraDesigner Activation** window opens.

2. Click **Activate offline**.

3. Follow the on-screen instructions:

4. Click **Activate your license**. Your ZebraDesignerProfessional is activated and ready to use.

To deactivate your license, read section "Deactivating ZebraDesigner" on the next page.
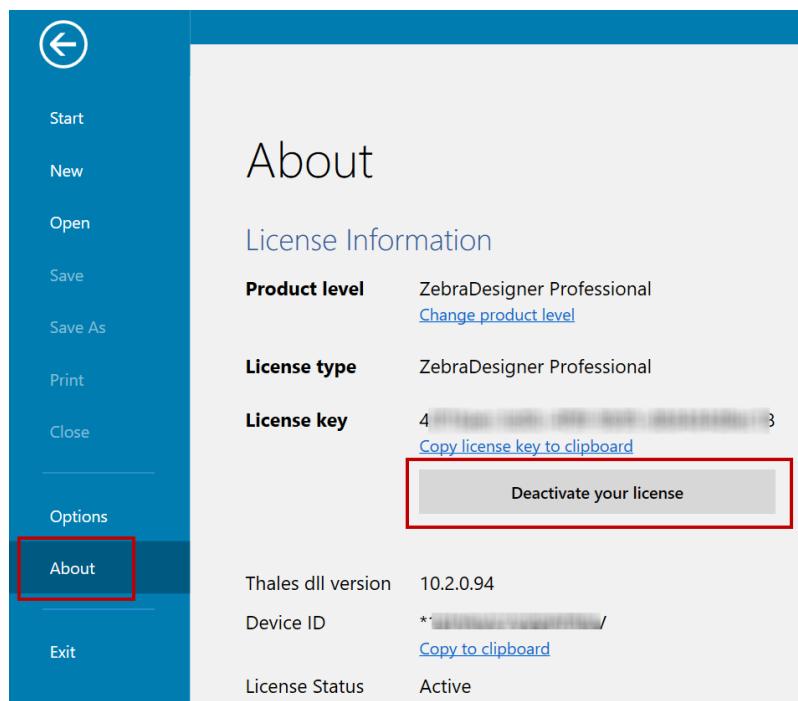
To activate or deactivate your license using proxy server, read section "Activating and Deactivating over a Proxy Server" on page 14.

2.3 Deactivating ZebraDesigner

Deactivate ZebraDesigner to move your license to another computer.
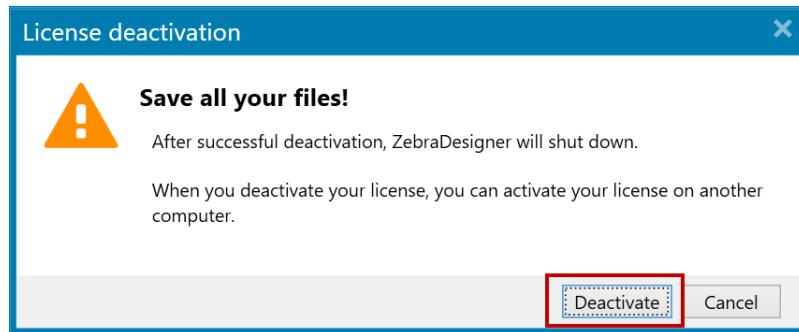
To deactivate ZebraDesigner on computers with an active internet connection:

1. Open ZebraDesigner.
2. Go to **File > About > Deactivate** your license.

- The ZebraDesigner Deactivation warning window opens.
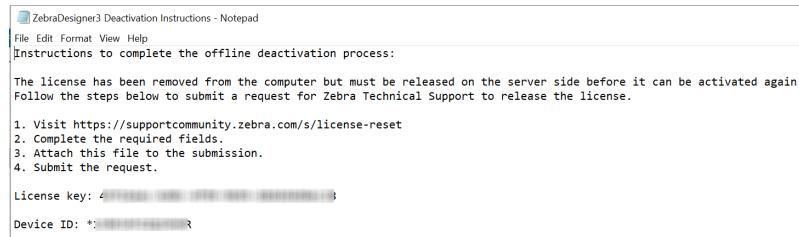
3. Click **Deactivate** to proceed.

ZebraDesigner closes. Your ZebraDesigner Professional is deactivated and ready to use on another computer.

To deactivate ZebraDesigner Professional on computers without an internet connection:

1. Open ZebraDesigner and go to **File > About > Deactivate your license**.
   - The ZebraDesigner Deactivation warning window opens.
2. Click **Deactivate** to proceed. Your computer tries to access the license server. Because there is no internet connection, continue offline.
3. Click **Deactivate offline**.
4. The ZebraDesigner Offline Deactivation window opens. Click **Deactivate License**.

5. Click **OK**.

6. Open the file `c:\Users\<your computer user name>\Documents\ZebraDesigner3 Deactivation Instructions.txt` and follow the instructions to complete the offline deactivation process.

Your ZebraDesigner Professional is now deactivated on the client side. It will be ready to use on another computer after Zebra completes the process on the server side.

To activate or deactivate your license using a proxy server, read section "Activating and Deactivating over a Proxy Server" on the next page

2.4 Activating and Deactivating over a Proxy Server
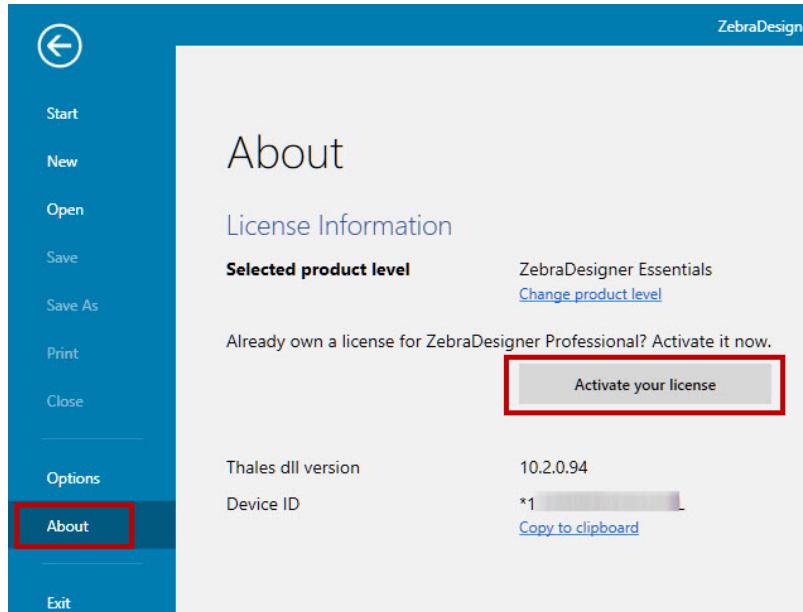
If your company's internet connection uses a proxy server, use this procedure to activate or deactivate ZebraDesigner.

2.4.1 Activating over a Proxy Server
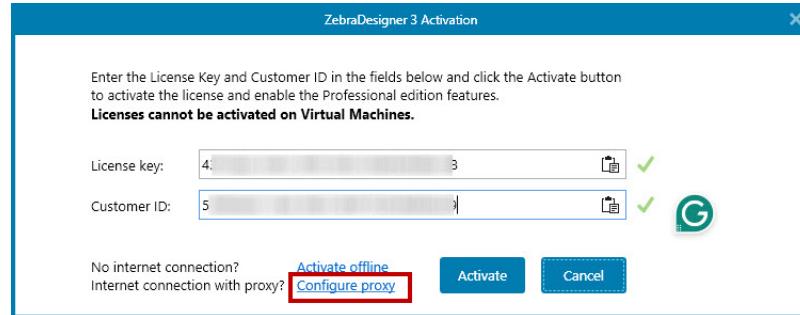
1. Open ZebraDesigner.

> NOTE: If you ugraded ZebraDesigner from previous version of ZebraDesigner Professional, the software prompts you to activate the license as soon as you open the upgraded version.
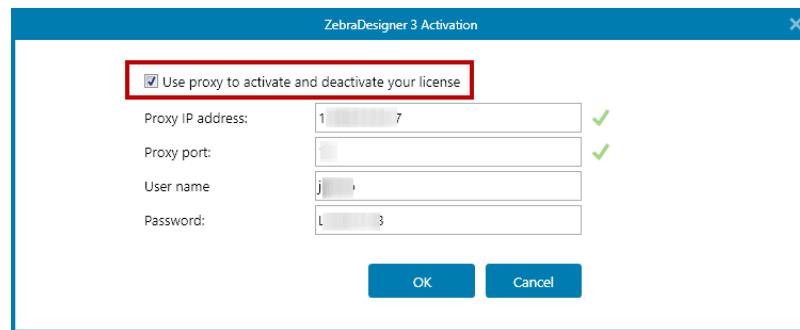
2. Go to **File > About** and click **Activate your license**.
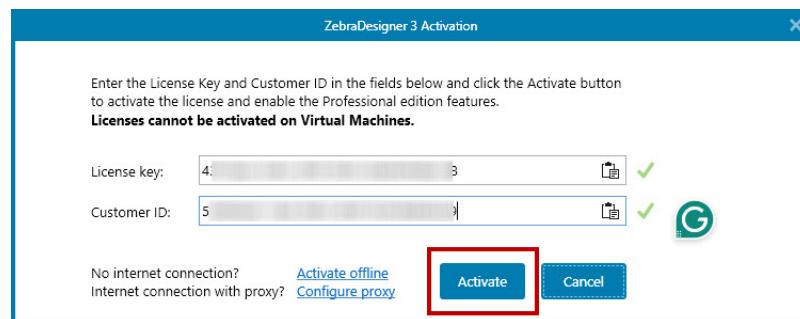
3. Paste in your 32-digit **License Key** and 32-digit **Customer ID**, then click **Configure proxy**.

4. The proxy configuration window opens. Configure your proxy connection and enable the option **Use proxy to activate and deactivate your license**. Click **OK**.
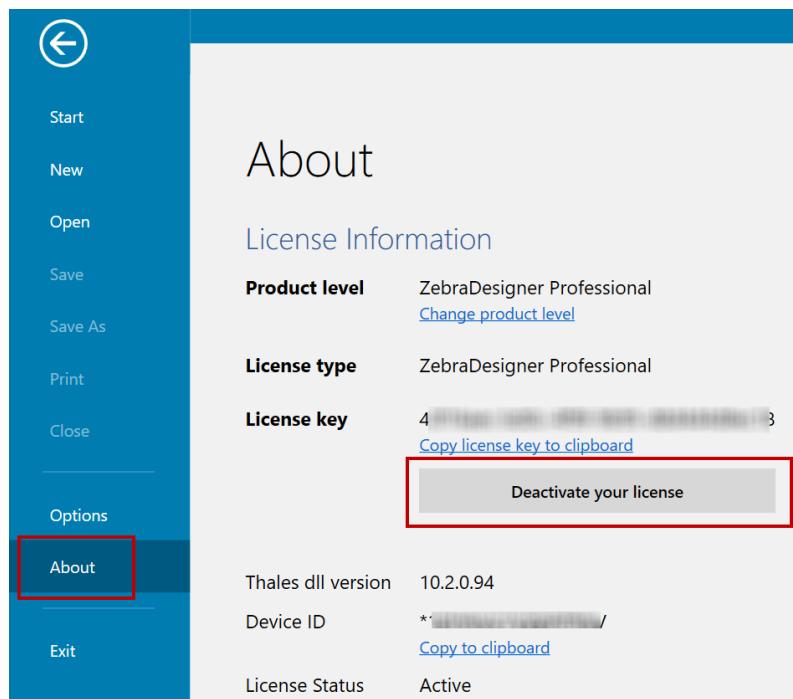
5. After connecting, the **ZebraDesigner Activation** window opens. Click **Activate**.
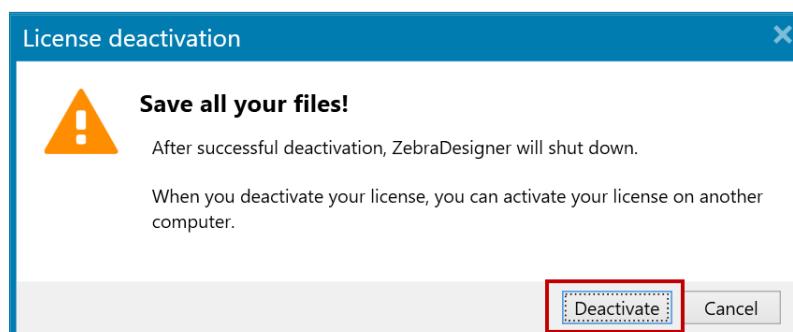
- ZebraDesigner is now activated and ready.
- If ZebraDesigner still cannot connect to the license server, you can activate offline.

2.4.2 Deactivating over a Proxy Server
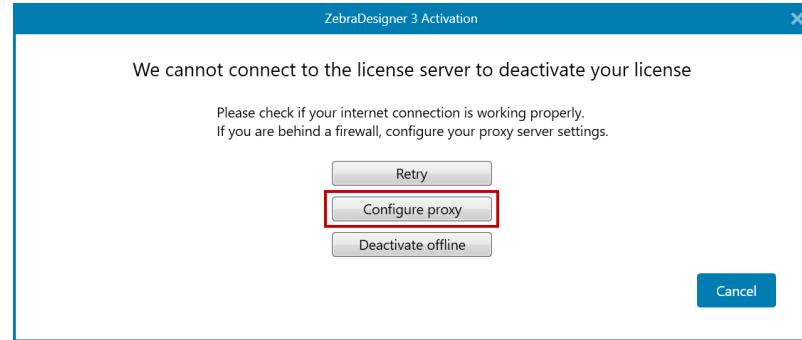
1. Go to **File > About** and click **Deactivate your license**.
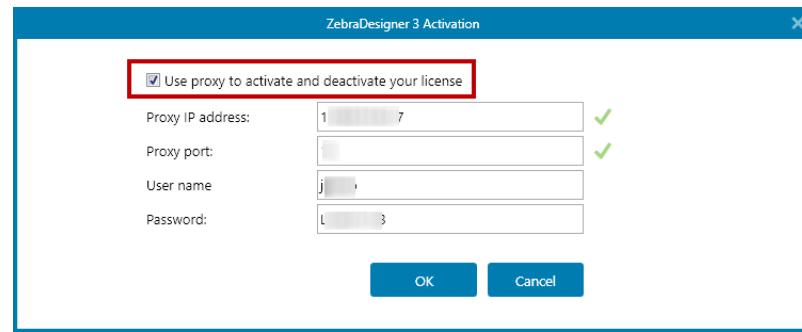
2. The **License deactivation** confirmation window appears. Click **Deactivate**.

- If your deactivation is successful, ZebraDesigner closes. You can use your license key on another computer immediately.
3. If ZebraDesigner cannot connect to the license server, the online deactivation error window opens. Click **Configure proxy**.

4. The proxy configuration window opens. Configure your proxy connection and click **OK**.

5. The online deactivation error window opens again. Click **Deactivate**.
6. If you are connected, the deactivation completes. ZebraDesigner closes.
   - You can immediately activate another copy of ZebraDesigner.
   - If ZebraDesigner still cannot connect to the license server, you can deactivate offline.

3 Introduction

3.1 Basic ZebraDesigner Concepts

This section describes the ZebraDesigner elements that enable you to efficiently design label templates.

Listed below are the essential ZebraDesigner concepts. Being familiar with them provides a perfect starting point for successful labeling projects.

- Label
- Object
- Design Surface

If you come across any other unfamiliar items while working with ZebraDesigner, refer to the Help tab.

3.1.1 Label

Label works as a template to add label objects and print using any kind of printing media.

Each object adds a different kind of content such as text, line, ellipse, barcode or rectangle to a label. The content is either fixed (manually entered by the user) or dynamic (defined using values from connected data sources).

After finishing with your label design, you can print the labels using any of your installed printers.

3.1.2 Object

Object is the basic building block for designing labels. To design a label means to select, add, and position the objects on the design surface.

> **EXAMPLE:** Each object performs a different role. Text object is in most cases used for single-line textual content that does not need to adapt its font size to the label design.

Barcode object adds a barcode whose type and content can be adapted to the needs of current document.

Label object types and their purpose are listed here.

3.1.3 Design Surface

Your design surface is a place to create, add, position, and interconnect label objects.

To help you design labels as simply and efficiently as possible, your design surface uses usability and functional principles from Microsoft Office.

> **TIP:** Use View tab to customize your design surface.

- Learn more about design surface elements here.
- Learn more about design surface editing actions here.
- Learn more about design surface visual aid elements here.

3.2 Keyboard and Mouse Support

To efficiently perform and complete the ZebraDesigner tasks, follow the guidelines related to the use of keyboard and mouse:

- How to efficiently use keyboard and mouse
- Keyboard shortcuts

3.2.1 Efficient Use of Keyboard and Mouse

Use the following list of tips to make your work with ZebraDesigner easier and more efficient.

1. **Select object anchoring point.** Press `<Ctrl>` key and click the object placeholders to quickly define the anchoring point.
2. **Label scrolling and zooming.** Use mouse wheel to scroll the label. Holding `<Ctrl>` when rotating the wheel, adjusts zoom factor. `<Shift>` scrolls label left or right.
3. **Set label or form properties.** Double-click the design surface to open the label properties dialog.
4. **Vertical or horizontal object moving.** Hold `<Shift>` while moving an object over the design surface. The object is moved in straight vertical and horizontal lines.
5. **Resize an object with arrow keys.** Holding `<Shift>` while pressing arrow keys resizes the object.
6. **Fine-tune the object position.** Hold `<Ctrl>` while pressing arrow keys.

7. **Open contextual menus.** Right-click the object or design surface to access the [label](#) or [design surface](#) contextual menus.
8. **Select multiple objects.** Hold `<Shift>` and click the objects to add them to the selected objects in a group.
9. **Quickly add an object with connected data source.** Click the object's shortcut handle in the [object toolbox.](#) A list of available data sources appears. Select a data source or add a new one, and click the design surface to add an object which already has a dynamic data source connected to it.

3.2.2 Keyboard Shortcuts

Use keyboard shortcuts to reduce the time needed to accomplish frequent tasks with ZebraDesigner. To complete these tasks, use a standard combination of keys.

> **TIP:** Keyboard shortcuts are just a faster and more convenient way of choosing commands. The command itself is executed in the same way as if it was run from the menu or toolbar.

Action	Press
Select all	Ctrl+A
Paste	Ctrl+V
Cut	Ctrl+X
Move up	↑
Move right	→
Move down	↓
Move left	←
Close	Alt+F4
Zoom to document	Ctrl+0
Bold	Ctrl+B
Copy	Ctrl+C
Italic	Ctrl+I
Zoom Out	Ctrl+minus sign on numeric keypad
Zoom In/Out	Ctrl+mouse scroll up/down
Open	Ctrl+O
Print	Ctrl+P
Zoom In	Ctrl+plus sign on numeric keypad
Save	Ctrl+S

Action	Press
Open blank label connected to default printer	Ctrl+Shift+N
Redo	Ctrl+Y
Undo	Ctrl+Z
Cancel	Esc
Move Focus	Tab or Shift+Tab
Format painter – copy object properties	Ctrl+Shift+C
Format painter – paste object properties	Ctrl+Shift+V
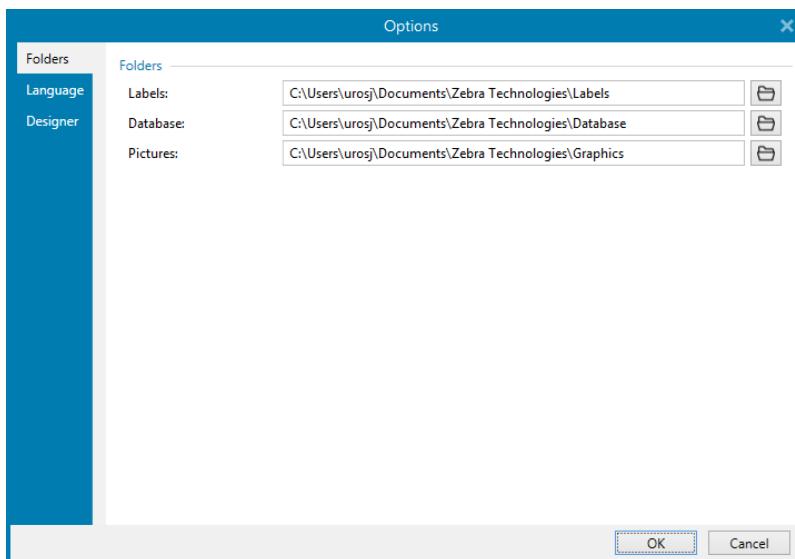
3.2.3 Mouse Wheel Support

Use mouse wheel to speed up design object zooming and design surface scrolling.

- Turning the wheel scrolls the label in a vertical direction.
- Holding <Shift> and turning the wheel scrolls the label left or right.
- Holding <Ctrl> and turning the wheel zooms the label in or out.

3.3 Options (Configuring the Program)

To customize the general program configuration of ZebraDesigner, open the **Options** dialog which is accessible from the **File** tab.

ZebraDesigner configuration options are grouped on the following tabs:

- **Folders:** allows you to set the default locations for storing the labels and picture files.
- **Language:** selects the user interface language. Select the preferred language from the listed options.
- **Designer:** enables you to configure opening behavior of ZebraDesigner.
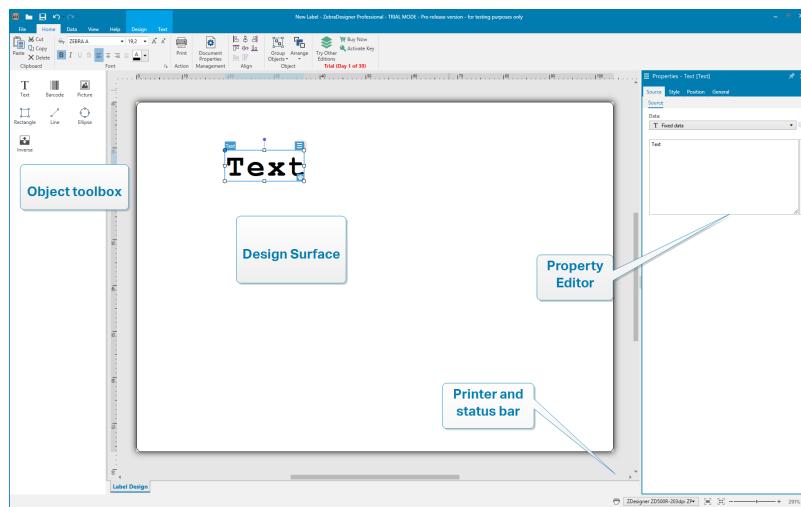
4 Workspace Overview

Your ZebraDesigner workspace provides a flexible and easy-to-use environment for simple label designing.

Your ZebraDesigner workspace follows widely used application interface guidelines and is equipped with tools and interface elements familiar to most users.

ZebraDesigner workspace includes the following:

- Landing page
- Object and Explorer Panels
- Printer and Status bar
- Tabs and Ribbons
- Design Surface

4.1 Landing Page

 Your landing page in ZebraDesigner is an introduction which opens after the application loads. The page includes the following:

- **New document area:** create new or open existing ZebraDesigner documents.
    - **Create a New Label:** create new label documents.
- **Recent Files:** lists recently used ZebraDesigner files.

TIP: Your landing page and its sections are different when you run licensedZebraDesigner editions or trial versions.

- **Learning resources:** access useful resources to help you create labels, and learn more about ZebraDesigner.
- **Printer Drivers:** access Zebra printer drivers. Drivers let you optimize your labels to print on specific printer models.
- **Software Information:** contains information about your installed copy of ZebraDesigner – license, license key, and installed version.

4.2 Object and Explorer Panels

Object and explorer panels are located at the left-most area of the ZebraDesigner window. They provide access to objects.

- **Object Toolbox:** Contains available objects. These objects are ready to be used on a label. Click the selected object and drag it to the design surface.
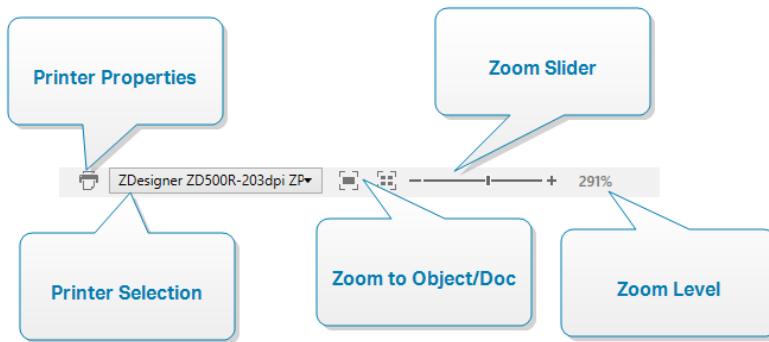
4.3 Printer and Status Bar

Printer and Status bar stretches over the bottom part of the ZebraDesigner window. The bar performs these roles:

- **Printer Selection** for the current print job. Select your preferred printer from the drop-down list of installed printers.

> **TIP:** When changing a printer, label and paper size adapt automatically to the dimensions defined by the printer driver.

- **Printer Properties:** Gives you direct access to the properties dialog of the selected printer driver.
- Design surface zooming.
- **Windows mode indication.** Windows mode is reported if advanced printer driver interface has been disabled in **Label Properties > Printer**.

4.4 Tabs and Ribbons

ZebraDesigner uses a standard Windows-based interface.

The ZebraDesigner's top section interface segments are described below.

4.4.1 Tabs

Tabs represent subsets of ZebraDesigner features. The tabs contain interrelated commands that are available to the user in an organized way – grouped, and labeled:

- **File** (background): opens the print form and document management panel.
- **Home:** offers commonly used commands such as copy/paste, print, and style commands.
- **Data:** offers data source related commands.
- **View:** gives you control over layout tools, zooming options and element markers visibility.

- **Contextual tabs:** appear after clicking an object. They allow you to define object-specific settings. The type of contextual tabs adapts to the selected object.
- **Help:** besides offering the access to F1 help, this tab leads you to multiple helpful resources that make your work with ZebraDesigner easier and more efficient.

4.4.2 Ribbon

Ribbon is a rectangular area that spreads across the top of an application window. Related commands are divided into ribbon groups. The ribbon changes along with the selected tabs and adapts to the currently used tools using the contextual tabs.

4.4.3 File Tab

File tab serves as document management panel. The following options are available:

- **Start:** takes you to the ZebraDesigner landing page.
- **New:** creates a new stand-alone label.
- **Open:** allows opening existing label.
- **Save:** saves the active label.
- **Save As:** allows saving the active label file by defining its name and location.
- **Print:** opens the printing form.
- **Store:** stores the current label as a template on the printer to be used in store/recall mode.
- **Close:** closes the current ZebraDesigner document.
- **Options:** opens the dialog for configuring the program defaults.
- **About:** provides license and software version information.
- **Exit:** closes the application.

4.4.3.1 Start

Start panel takes you to ZebraDesigner landing page. Use it to create or open documents, access recently opened files, preview files and learn more about ZebraDesigner.

4.4.3.2 New

New Label creates a new stand-alone label. New Label Setup Wizard opens after clicking this button.

New from Sample Templates creates a document based on a selection of industry-standard templates.

> **TIP:** There are two ways of opening new labels. You can open each additional document in a separate instance (window) of ZebraDesigner. An alternative way is to open documents within the already opened instance. To select the way that suits you better, go to **File > Options > [Designer](#)**.

4.4.3.3 Open

Open dialog allows opening existing label files.

Browse allows selecting the label on local or connected network drives.

Recent Files field lists the latest files that have been edited. Click any of them to open the file.

4.4.3.4 Save

Save panel saves the active label using the same file name that was used to open it.

> NOTE: If a file has been opened for the first time, **Save** directs you to the **Save as** on the **File** tab.

4.4.3.5 Save as

Save as allows saving the active label file by defining its name and location.

Recent folders field lists the folders that were recently used to save the label files.

4.4.3.6 Store/Recall Printing Mode

Store/Recall printing mode is a method for speeding up the printing process. It increases printer response by reducing the amount of data that needs to be sent during repetitive printing tasks.

With store/recall mode activated, ZebraDesigner does not need to resend the complete label data for each printout. Instead, default labels (templates) and internal printer elements (graphics, fonts) are stored in the printer memory, and ZebraDesigner only sends recall commands which render the stored label content during the printing process. Typically, a few bytes of data are sent to the printer as compared to a few kilobytes in the case of normal printing.

The action consists of two processes:

- **Store label.** During this process, ZebraDesigner creates a description of the label template formatted in the selected printer's command language. When done, ZebraDesigner sends the created command file to the printer memory and stores it.
- **Recall label.** A label stored in the printer memory is printed out immediately. Using the recall process, ZebraDesigner creates another command file to instruct the printer which label from its memory should be printed. The recall label command occupies a few bytes of data only. The actual amount of data depends on the current situation. For fixed labels without any variable contents, the recall command file only contains the recall label command. For variable labels that contain variable fields, the command file includes the values for these variables and the recall label command.

NOTE: Before activating this mode, make sure the appropriate printer driver is selected for the label printer. Not all label printers have the ability to use the store/recall printing mode.
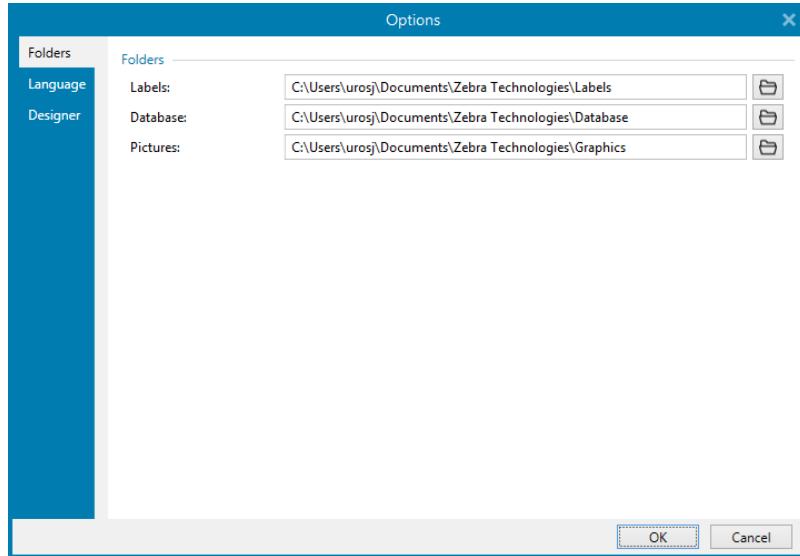
1. Click **File > Store**. Make sure the **Printer memory location** points to the correct memory location in the printer.

2. Insert or select values for variable objects that are not formatted as internal printer objects. These variables will be given the same value on each label. They will behave as objects with fixed values.
3. Click **Store to printer** to create the command file with label template description and to send it to the printer.
4. Insert values for prompted label variables. These variables are linked with internal printer objects on the label. For this reason, their values can be changed during each printing.
5. Click **Print** to send variable values and recall label command to the selected label printer.

4.4.3.7 Print

Print opens the print pane. In ZebraDesigner, print pane hosts a powerful [default printing form](#).

4.4.3.8 Options (Configuring the Program)

To customize the general program configuration of ZebraDesigner, open the **Options** dialog which is accessible from the **File** tab.

ZebraDesigner configuration options are grouped on the following tabs:

- **Folders:** allows you to set the default locations for storing the labels and picture files.
- **Language:** selects the user interface language. Select the preferred language from the listed options.
- **Designer:** enables you to configure opening behavior of ZebraDesigner.

4.4.3.8.1 Folders

When moving or sharing the documents you create in ZebraDesigner, the locations of related documents and files might become inaccessible. To prevent broken references, define the default search locations that instruct ZebraDesigner to search for the documents and files on alternative locations.

Use the **Folders** tab to define the default search locations for the documents and files that you work with in ZebraDesigner. These folders serve as the default search location if:

- ZebraDesigner cannot find labels on the specified locations. In this case, ZebraDesigner searches for them in the **Labels** folder.
- ZebraDesigner cannot find the connected database on the specified location. In this case, ZebraDesigner searches for the database in the **Database** folder.
- Picture object file paths in labels or solutions are incomplete or missing. In this case, ZebraDesigner searches for them in the **Picture** folder.

NOTE: Make sure read/write rights are granted to the account under which the ZebraDesigner is running.

> NOTE: When opening and saving your documents, ZebraDesigner remembers the last used location. The next time you open or save your documents, ZebraDesigner goes to the last used location.

4.4.3.8.2 Language

Language tab allows selecting the ZebraDesigner interface language. Select the appropriate language and click **OK**.

> NOTE: Restart is necessary to make the user interface appear in the selected language. Make sure you save your work before closing the program.

4.4.3.8.3 Designer

Designer tab enables you to configure opening behavior of ZebraDesigner.

Opening Mode group defines how your ZebraDesigner opens new documents.

- **Display each document in its own window:** If enabled, additionally opened documents appear in separate windows of ZebraDesigner. This applies to both – newly created and existing documents.

  If you decide to disable this option, additionally opened documents will appear within the currently active instance of ZebraDesigner.

Printer Settings Source group allows you to choose the source of printer settings.

- **Use printer settings from the printer driver:** Select this option if you prefer printing using the printer driver settings. This option allows you to standardize the printer settings in your working environment.
- **Use custom printer settings saved in the label:** Each label may have its own printer settings defined and saved by the user. Select this option to use custom settings for your labels while printing.

4.4.3.9 About

The **About** dialog page provides information about your Zebra product license, enables license purchasing (when in trial mode) and activation, provides software details, allows you to sign in to your Label Cloud account, and enables you to change the ZebraDesigner product level.

The **About** dialog page provides information about your Zebra product license, enables license purchasing (when in trial mode) and activation, provides software details, and enables you to change the ZebraDesigner product level.

- **Product level** tells you the product level you are currently running.
- **Change product level:** opens the product level selection dialog. When in trial mode, you can choose and evaluate all product levels. With an activated license, you can change your product level only to lower levels.
- **Trial mode duration:** information about the remaining days for product evaluation.
- **Purchase License:** button directs you to the Zebra online store.
- **Activate license:** button opens the ZebraDesigner license activation dialog. After activating the license, this button is renamed to Deactivate License – after clicking it and confirming the deactivation, your copy of ZebraDesigner is no longer activated.

> NOTE: These segments are no longer visible after purchasing and activating the product license.
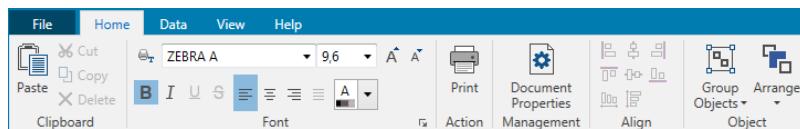
Product level changes take effect after you restart ZebraDesigner.

If ZebraDesigner has been installed with predefined product level (i.e., the level has been defined by the license key), product level selection is not required during first start.

- **License type:** is the type of license that you are using to run the ZebraDesigner.

Software information contains information about the installed copy of ZebraDesigner – license, license key, and installed version.

4.4.4 Home Tab

Home Tab provides access to frequently used commands and settings in the following ribbon groups:

- Clipboard: group temporarily stores the selected elements, objects or groups of objects.
- Font: group lets you define the font properties.
- Action: group contains the **Print** button which starts the printing procedure or runs a form.
- Management: group provides direct access to Document properties.

- The Align group options define relative horizontal and vertical positioning for the object content.
- Objects: group allows you to align, group or arrange label objects.

4.4.4.1 Clipboard

Clipboard group temporarily stores the selected elements, objects or groups of objects. Use the selected and stored objects to transfer them from one label to another.

> **TIP:** Copying and pasting of textual (plain text) and graphical (bitmaps) content between multiple applications is supported.

- **Paste:** pastes the clipboard contents on the design surface. Multiple reuse of a single clipboard item is allowed.
- **Cut:** removes the selected element(s) from the design surface and adds it to the clipboard to be pasted elsewhere. Note that the first element is selected by clicking it. When selecting additional elements, press and hold <Shift> key while clicking these elements.
- **Copy:** copies the selected content to the clipboard. Multiple objects can be copied at once – select them and click **Copy**.
- **Delete:** deletes the selected elements or objects. They are not stored in the clipboard.
- **Format painter:** copies the formatting properties from one object to another. This is how you multiply the style of your reference object.

> **EXAMPLE:** Use the format painter to copy font, font size, font color, alignment and spacing from your reference Text object to all other Text objects using a single action.

To copy the object style properties:

1. Click your reference object. This is the object you want to copy the properties from.
2. Click the format painter.
3. Click the target object. This object now has the same properties as your reference object.

When using the format painter for different objects, you are copying and pasting the object's properties from the **Style** tab. If there are matching **Style** properties between the objects, ZebraDesigner transfers these properties to the target object.

EXAMPLE: When multiplying the properties from a Rectangle object to Ellipse objects, all **Style** tab properties apply, except for the corner radius. This property is only applicable to the Ellipse object.

NOTE: You can also copy properties between the objects on different labels, different forms, or between objects on labels and forms.

4.4.4.2 Font
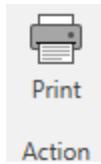
Font group defines font properties:

- **Show/hide printer fonts:** button allows you to exclusively display internal printer fonts on the list of available fonts. Graphical fonts are hidden in this case. After pressing this button again, all available fonts are visible on the list once more.
- **Font:** defines the font family to be used in a selected object.
- **Font Size:** defines the text size in an object. Select the desired point size from the dropdown selector or enter it manually.
- **Font Style:** defines the object text stylistic characteristics of text, such as bold or italic.
- **Alignment:** defines horizontal text positioning in an object: **Left**, **Center** or **Right**.
- **Justify:** makes a paragraph aligned along the left and right object margins.

TIP: When changing a font during the design process, ZebraDesigner remembers the last used font type and size.

4.4.4.3 Action

Action group creates a printing shortcut or starts the printing procedure.

Print button opens the ZebraDesigner **Print pane** as defined by the Default Printing Form.

4.4.4.4 Management

Management ribbon group provides direct access to:

- **Document Properties** opens current label properties.

4.4.4.5 Align

The **Align** group options define relative horizontal and vertical positioning for the object content:

- **Align Objects Left:** aligns objects with the left border of the first selected object or with the leftmost object.
- **Align Objects Center:** aligns objects with the horizontal center of the first selected object or with horizontal center of the largest object.
- **Align Objects Right:** aligns objects with the right border of the first selected object or with the rightmost object.
- **Distribute Horizontally:** distributes objects using equal horizontal spacing.
- **Align Objects Top:** aligns objects with the upper border of the first selected object or with the highest object.
- **Align Objects Middle:** aligns objects with the vertical center of the first selected object or with vertical center of the largest object.
- **Align Objects Bottom:** aligns objects with the bottom border of the first selected object or with the lowest object.
- **Distribute Vertically:** distributes objects using equal vertical spacing.

4.4.4.6 Object grouping and arranging

The **Objects** group helps you work with mutiple objects.
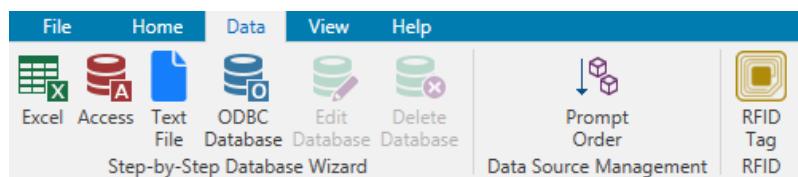
- **Group objects** unites the selected objects and makes them behave as a single object.
- **Ungroup objects:** separates the grouped objects.

Arrange positions the objects so that they appear either in front of or behind each other.

- **Send Backward:** sends the element back one level.
- **Send to Back:** sends the element behind all other elements on the label.
- **Bring Forward:** brings the element forward one level.
- **Send to Front:** sends the element in front of all other elements on the label.

Delete allows you to remove the selected individual or group objects from your label template.

4.4.5 Data Tab
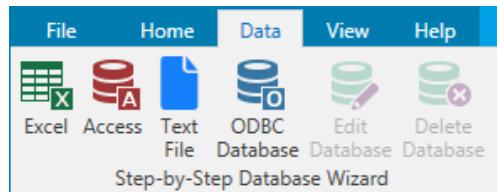
Data tab displays the ZebraDesigner ribbon with groups that enable you to instantly connect an object with commonly used data sources, or to define data connections in more detail:

- Step-by-Step Database Wizard ribbon group opens database wizard for typical database connection types.
- **Data Source Management** ribbon group gives direct access to Prompt Order dialog.
- **RFID** ribbon group gives direct acces to RFID Tag dialog.

4.4.5.1 Step-by-Step Database Wizard

Database wizard is a guided process that allows the user to configure a connection to a database and to select which tables and fields will be used.

Edit Database allows you to edit all existing connected databases using a wizard.

The wizard additionally allows you to sort, filter records, and to define how many label copies will be printed per database record.

4.4.5.2 Data Source Management

Data Source Management ribbon group provides access to:

- **Prompt Order:** dialog for defining the order of prompted variables on the print form.
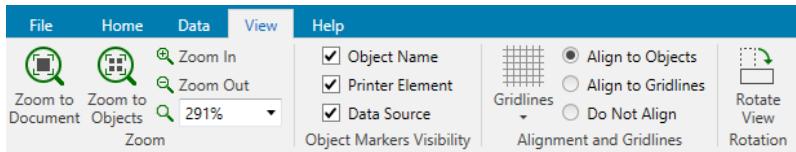
4.4.5.2.1 Variable Prompt Order Dialog

Variable Prompt order dialog defines the order in which the variable values are prompted at print time.

The dialog displays the entire range of currently defined variables.

To change the prompt order, select a variable from the list and change its position using drag and drop or **Move up** and **Move down** buttons. Repeat this step for each variable, whose prompting position needs to be changed.

4.4.6 View Tab

View Tab gives you control over document zooming, marker visibility, visual aids and design surface rotation. It makes the following ribbon groups available:

- Zoom: defines design surface zoom level and ZebraDesigner window zoom behavior.
- Object Markers Visibility: defines visibility settings for object properties.
- Alignment and Gridlines: sets object positioning behavior and defines properties for design surface gridlines.
- Rotation: rotates the design surface clockwise for 90 degrees per click.

4.4.6.1 Zoom

Zoom group defines the design surface zoom level.

- **Zoom to Document:** displays the entire label in the ZebraDesigner window.
- **Zoom to Objects:** displays all objects in the ZebraDesigner window.
- **Zoom In:** magnifies the design surface by a percentage of the currently defined zoom level.
- **Zoom Out:** decreases the design surface by a percentage of the currently defined zoom level.
- **Zoom percentage drop-down menu:** allows you to type in or select the exact zooming percentage for your current document.

4.4.6.2 Object Markers Visibility

Objects markers visibility group toggles the visibility for the following object properties:

- **Object Name:** displays the name of an object.
- **Printer Element:** indicates that the object will be printed using a printer built-in function. This options serves as an alternative to sending the object to printer as a graphic.
- **Data Source:** indicates that the object is connected to a dynamic data source.

4.4.6.3 Alignment and Gridline Guides

Alignment and Gridlines group sets object positioning behavior and defines properties for design surface gridlines.

- **Display gridline guides:** makes the design surface grid dots visible.
- **Grid Size X:** defines horizontal distance between the grid dots.
- **Grid Size Y:** defines vertical distance between the grid dots.
- **Grid Offset X:** defines the horizontal offset of the grid from the design surface center.
- **Grid Offset Y:** defines the vertical offset of the grid from the design surface center.
- **Align to Objects:** makes an object align with other objects on the design surface. When an object is aligned, a line which marks the object alignment appears.
- **Align to Gridlines:** aligns the selected objects with gridlines.
- **Do Not Align:** makes the object position independent of gridlines and position of other object(s).

4.4.6.4 Rotation

Rotate view button rotates the design surface clockwise. Horizontal and vertical rulers adapt to the current position of the design surface.

> **TIP:** Rotation type is defined by the printer driver. Certain drivers support complete 360 degrees rotation (90 degrees per click), while others allow 90 degrees rotation clockwise (portrait/landscape).

4.4.7 Contextual Tabs

Contextual tab is a hidden tab that becomes visible when a specific label object is selected on the design surface. Contextual tabs appear on the right side of the standard ZebraDesigner tab. The selection of displayed tabs depends on the object that you are currently editing.

4.4.7.1 Label-specific Contextual Tabs

When editing various label objects, the following contextual tabs appear depending on the selected object:

- Design tab
- Barcode tab

- [Shape tab](#)
- [Picture tab](#)
- [Text tab](#)

4.4.7.1.1 Design Contextual Tab

Design tab serves as a contextual tab that defines the layout and positioning of the selected label object.

The following groups of settings are available on the **Design** tab:

- [General:](#) defines object's visibility and printability on a label.
- [Positioning:](#) defines the object's position on the design surface.
- [Arrange:](#) positions the object relative to neighboring objects on a label.

General

General group defines the object's visibility and printability on a label.

- **Not printable:** when enabled, this option prevents the object from being printed on the label. The object remains visible on the label preview.
- **Visible:** when disabled, the object neither appears on the print preview nor on the printed label. The object is treated as if it does not exist.
- **Conditions:** group defines the object behavior during editing and printing.
- **Visibility settings:** define if the selected object is going to appear on the printed label or not.
- **Printing Optimization:** allows activating the use of printer elements (available with [rectangle](#), [barcode](#), [line](#), [ellipse](#) and [inverse](#) objects).

    - **Use printer element if supported:** speeds up the printing process.

        If enabled by the printer model, a share of label element processing is handled directly by the printer: internal fonts, shapes, barcodes, etc.

    - **Always print as graphics:** sends and prints the objects as graphic files.
- **Name:** allows you to enter object name and its description.

Positioning

Positioning group sets the object location and size on a label.

Position button opens:

- **X** and **Y:** coordinates set the exact position on the design surface.
- **Width** and **Height:** object dimensions.
- **Keep Aspect Ratio:** makes sure both object dimensions change proportionally while resizing.
- **Rotation angle:** rotates the object clockwise.

Anchoring Point button defines the spot where an object is pinned to the design surface. Variable size objects increase or decrease their size in the direction that is opposite to the chosen anchoring point.

Keep Aspect Ratio: makes sure the object is resized proportionally.

Lock prevents the selected object from being moved during the design process.

Arrange

Group objects: adds selected objects to a group.

- **Group objects:** unites the selected objects and makes them behave as a single object.
- **Ungroup objects** separates previously grouped objects.

Arrange: defines how objects are positioned in a group.

- **Bring forward:** moves the selected object up one layer.
- **Bring to front:** moves the selected object to the top of the object stack.
- **Send backward:** moves the selected object down one layer.
- **Send to back:** moves the selected object to the bottom of the object stack.

Align group allows setting the alignment and spacing for objects on the design surface. All objects can be aligned according to the neighboring object or according to the document border.

Horizontal alignment options are:

- **Left:** aligns the selected objects with the left edge of the leftmost object or with the left edge of the first selected object. If a single object is selected, it is placed on the label's left border.
- **Center Horizontally:** aligns the selected objects with the horizontal center of the largest selected object or with the horizontal center of the first selected object. If a single object is selected, it is placed in the horizontal center of a label.
- **Right:** aligns the selected objects with the right edge of the rightmost object or with the right edge of the first selected object. If a single object is selected, it is placed on the label's right border.
- **Distribute Horizontally:** equalizes horizontal spacing between the objects.

Vertical alignment options are:

- **Top:** aligns the selected objects with the top edge of the topmost object or with the top edge of the first selected object. If a single object is selected, it is placed on the label's top border.
- **Center Vertically:** aligns the selected objects with the vertical center of the largest selected object or with the vertical center of the first selected object. If a single object is selected, it is placed in the vertical center of a label.
- **Bottom:** aligns the selected objects with the bottom edge of the lowest object or with the bottom edge of the first selected object. If a single object is selected, it is placed on the label's bottom border.
- **Distribute Vertically:** equalizes vertical spacing between the objects.

4.4.7.1.2 Barcode Contextual Tab

Barcode tab serves as a contextual tab that defines the type, layout and positioning of [barcode](#) object.

The following groups of settings are available on the Barcode tab:

- [Barcode:](#) defines basic barcode symbol type and its dimensions.
- [Settings:](#) defines barcode details.
- [Arrange:](#) positions the object relative to neighboring objects on a label.

Barcode Tab

Barcode group allows you to choose the barcode type and to set the dimensions of your barcode symbol.

> NOTE: Settings in **Barcode** group depend on the selected barcode type.

- **Barcode Type:** defines the type of the barcode symbol to be used on a label.

By default, Code128 barcode type is selected. For more details about the available barcode types, see section [Barcode Types and Available Settings.](#)

- **DataBar Type:** if one of the DataBar barcode types is selected, **DataBar Type** defines its specific subtype to be used on the label.
- **X dimension:** width of the barcode's narrow bar in the selected **Unit of measurement**.

- **Height:** vertical dimension of your barcode in the selected **Unit of measurement**.
- **Ratio** defines the ratio between the barcode's narrow and wide bar widths.

  Each barcode type's range of permitted ratios is limited by the standard. ZebraDesigner only allows you to use valid ratios. By default, the ratio is set to 3. This means that the wide bar is 3 times the width of a narrow bar.

  > NOTE: The available ratios depend on the selected **X dimension**. If you are changing the X dimension, this also affects the selection of available ratios.

- **Row height** defines the height of a single data row in 2D barcodes. Row height is specified as a multiple over the **X dimension**.

Settings

Settings group allows you to configure barcode details.

Human Readable button defines the human readable content's layout.

- **No human readable:** makes the barcode appear without the human readable text.
- **Above barcode:** locates human readable text above the barcode.
- **Below barcode:** locates human readable text below the barcode.

Mask group sets the format of the input data before it is displayed on a label.

- **Content mask** sets the format of the input data before it is displayed on a label.
- **Mask character** is a character used in the mask that is replaced with actual data on the printed label.

E X A M P L E

A user needs to format a phone number to be more readable on the label. Data input is not formatted since it is read from a database.

If the input value read from a database is:

+38642805090

and the content mask is:

(****) **** - ****

the resulting output is:

(+386) 4280 - 5090

> If the data contains the asterisk "*" character, change the **Mask character**. The character should have a unique value that does not appear anywhere in the data.

Barcode Details differ according to the barcode standards. Define the options that are given with regard to the currently selected barcode type. Details for 1D and 2D barcodes are described in dedicated sections:

- [1D barcode details](#)
- [2D barcode details](#)

Check digit is derived from the preceding barcode digits and is placed as the final digit of a barcode.

Color: sets the barcode's line and human readable content color on the printed label.

Arrange

Group objects: adds selected objects to a group.

- **Group objects:** unites the selected objects and makes them behave as a single object.
- **Ungroup objects** separates previously grouped objects.

Arrange: defines how objects are positioned in a group.

- **Bring forward:** moves the selected object up one layer.
- **Bring to front:** moves the selected object to the top of the object stack.
- **Send backward:** moves the selected object down one layer.
- **Send to back:** moves the selected object to the bottom of the object stack.

Align group allows setting the alignment and spacing for objects on the design surface. All objects can be aligned according to the neighboring object or according to the document border.

Horizontal alignment options are:

- **Left:** aligns the selected objects with the left edge of the leftmost object or with the left edge of the first selected object. If a single object is selected, it is placed on the label's left border.
- **Center Horizontally:** aligns the selected objects with the horizontal center of the largest selected object or with the horizontal center of the first selected object. If a single object is selected, it is placed in the horizontal center of a label.
- **Right:** aligns the selected objects with the right edge of the rightmost object or with the right edge of the first selected object. If a single object is selected, it is placed on

the label's right border.
- **Distribute Horizontally:** equalizes horizontal spacing between the objects.

Vertical alignment options are:

- **Top:** aligns the selected objects with the top edge of the topmost object or with the top edge of the first selected object. If a single object is selected, it is placed on the label's top border.
- **Center Vertically:** aligns the selected objects with the vertical center of the largest selected object or with the vertical center of the first selected object. If a single object is selected, it is placed in the vertical center of a label.
- **Bottom:** aligns the selected objects with the bottom edge of the lowest object or with the bottom edge of the first selected object. If a single object is selected, it is placed on the label's bottom border.
- **Distribute Vertically:** equalizes vertical spacing between the objects.

4.4.7.1.3 Shape Contextual Tab

Shape tab serves as a contextual tab that defines the appearance of ellipse, rectangle and line objects.

The following groups of settings are available on the **Shape** tab:

- Outline: defines how the line of the selected shape should appear.
- Fill: group defines the shape's fill style and color.
- Arrange: positions the object relative to neighboring objects on a label.

Outline

Outline group defines how the line of the selected shape should appear.

Outline Style button options are:

- **None:** makes the object line invisible.
- **Solid:** makes the object line solid.
- **Dot:** makes the object line dotted.
- **Dash:** makes the object line dashed.
- **Clear:** makes parts of other objects underneath the line invisible.

Outline Color defines the color of the shape's line.

Thickness defines the object line's width.

Corner radius: makes the rectangle corners round. Higher values make the curve broader.

Fill

Fill group defines the shape's fill style and color.

Fill Style options are:

- **None:** makes the object completely transparent.
- **Clear:** makes other objects beneath the active one invisible.
- **Solid:** fills the object with solid color.
- **Right Diagonal:** fills the object with diagonal lines that ascend toward the right side.
- **Left Diagonal:** fills the object with diagonal lines that ascend toward the left side.
- **Vertical:** fills the object with vertical lines.
- **Horizontal:** fills the object with horizontal lines.
- **Cross:** fills the object with crossed lines.
- **Cross Diagonal:** fills the object with diagonally crossed lines.
- **25% of color:** sets fill color opacity to 25 %.
- **50% of color:** sets fill color opacity to 50 %
- **75% of color:** sets fill color opacity to 75 %.

Background Color defines the color of the shape's fill.

Arrange

Group objects: adds selected objects to a group.

- **Group objects:** unites the selected objects and makes them behave as a single object.
- **Ungroup objects** separates previously grouped objects.

Arrange: defines how objects are positioned in a group.

- **Bring forward:** moves the selected object up one layer.
- **Bring to front:** moves the selected object to the top of the object stack.
- **Send backward:** moves the selected object down one layer.
- **Send to back:** moves the selected object to the bottom of the object stack.

Align group allows setting the alignment and spacing for objects on the design surface. All objects can be aligned according to the neighboring object or according to the document border.

Horizontal alignment options are:

- **Left:** aligns the selected objects with the left edge of the leftmost object or with the left edge of the first selected object. If a single object is selected, it is placed on the

label's left border.

- **Center Horizontally:** aligns the selected objects with the horizontal center of the largest selected object or with the horizontal center of the first selected object. If a single object is selected, it is placed in the horizontal center of a label.
- **Right:** aligns the selected objects with the right edge of the rightmost object or with the right edge of the first selected object. If a single object is selected, it is placed on the label's right border.
- **Distribute Horizontally:** equalizes horizontal spacing between the objects.

Vertical alignment options are:

- **Top:** aligns the selected objects with the top edge of the topmost object or with the top edge of the first selected object. If a single object is selected, it is placed on the label's top border.
- **Center Vertically:** aligns the selected objects with the vertical center of the largest selected object or with the vertical center of the first selected object. If a single object is selected, it is placed in the vertical center of a label.
- **Bottom:** aligns the selected objects with the bottom edge of the lowest object or with the bottom edge of the first selected object. If a single object is selected, it is placed on the label's bottom border.
- **Distribute Vertically:** equalizes vertical spacing between the objects.

4.4.7.1.4 Picture Contextual Tab

Picture tab serves as a contextual tab that defines picture resizing options and object arranging.

The following groups of settings are available on the Picture tab:

- Resize: resizes the object relative to neighboring objects on a label.
- Arrange: positions the object relative to neighboring objects on a label.

Resize

Resize group defines if the picture adapts to the label size at print time or not.

Picture Fit button opens the picture sizing options.

- **Resize options:** define how the source file dimensions adapt to the size of object at print time.
  - **Keep original picture size:** disables resizing. The source file is displayed using the object with its original dimensions.
  - **Resize proportionally:** makes the source file resize proportionally. The aspect ratio of source file dimensions is preserved.
  - **Resize to the designed size:** resizes the picture horizontally and vertically to make it fit into the bounding box. Using this option will most likely make the picture distorted.
- **Original size:** displays the picture's **Width** and **Height** before resizing.
- **Revert to original picture size:** removes resizing actions.

Keep Aspect Ratio makes sure both object dimensions change proportionally while resizing.

Arrange

Group objects: adds selected objects to a group.

- **Group objects:** unites the selected objects and makes them behave as a single object.
- **Ungroup objects** separates previously grouped objects.

Arrange: defines how objects are positioned in a group.

- **Bring forward:** moves the selected object up one layer.
- **Bring to front:** moves the selected object to the top of the object stack.
- **Send backward:** moves the selected object down one layer.
- **Send to back:** moves the selected object to the bottom of the object stack.

Align group allows setting the alignment and spacing for objects on the design surface. All objects can be aligned according to the neighboring object or according to the document border.

Horizontal alignment options are:

- **Left:** aligns the selected objects with the left edge of the leftmost object or with the left edge of the first selected object. If a single object is selected, it is placed on the label's left border.
- **Center Horizontally:** aligns the selected objects with the horizontal center of the largest selected object or with the horizontal center of the first selected object. If a single object is selected, it is placed in the horizontal center of a label.
- **Right:** aligns the selected objects with the right edge of the rightmost object or with the right edge of the first selected object. If a single object is selected, it is placed on the label's right border.
- **Distribute Horizontally:** equalizes horizontal spacing between the objects.

Vertical alignment options are:

- **Top:** aligns the selected objects with the top edge of the topmost object or with the top edge of the first selected object. If a single object is selected, it is placed on the label's top border.
- **Center Vertically:** aligns the selected objects with the vertical center of the largest selected object or with the vertical center of the first selected object. If a single object is selected, it is placed in the vertical center of a label.
- **Bottom:** aligns the selected objects with the bottom edge of the lowest object or with the bottom edge of the first selected object. If a single object is selected, it is placed on the label's bottom border.
- **Distribute Vertically:** equalizes vertical spacing between the objects.

4.4.7.1.5 Text Contextual Tab

Text tab serves as a contextual tab that defines formatting of Textobject.

The following groups of settings are available on the Text tab:

- Format: lets you define the text format.
- Text Settings: lets you define the layout of any textual content that is added to label object.
- Arrange: positions the object relative to neighboring objects on a label.

Format

Format group lets you define the text format.

- **Show/hide printer fonts:** button turns visibility of printer fonts on the font list on/off.
- **Font:** allows specifying the typeface and its size. Fonts fall into two groups, OpenType fonts and Printer fonts.

  > NOTE: If the currently selected printer is a thermal printer, additional fonts will be visible on the list of available fonts. These are the **Printer fonts** identified by the printer icon in front of their names.

- The font may appear **Bold**, **Italic**, **Underlined** or as a **Strikethrough** text.
- Alignment buttons allow you to align the text to the left, center, right, or evenly.

- **Font color:** specifies font and underscore color.
- Increase/decrease font buttons allow you to gradually change the font size.
- **Scaling:** factor that defines how much the font is stretched from its original proportions.

> NOTE: If the stretch factor is set to 100 %, the font has a normal look. If factor is 200 %, it means that font is twice as wide as normal. If it is 50 %, the font is half as wide.

Text Settings

Text Setting group allows defining the layout of any textual content that is added to the object.

Character and Paragraph button opens line and character spacing options:

- **Line spacing:** distance between each line in a paragraph.
- **Character spacing:** distance between individual characters.

Effects button displays the available text effects:

- **Inverse:** inverts the colors of text and background.
- **RTL printing:** prints the text from right to left.

Most thermal printers automatically print Arabic and Hebrew text from right-to-left. Enable this option it if the operating system does not provide native RTL support.

Arrange

Group objects: adds selected objects to a group.

- **Group objects:** unites the selected objects and makes them behave as a single object.
- **Ungroup objects** separates previously grouped objects.

Arrange: defines how objects are positioned in a group.

- **Bring forward:** moves the selected object up one layer.
- **Bring to front:** moves the selected object to the top of the object stack.
- **Send backward:** moves the selected object down one layer.
- **Send to back:** moves the selected object to the bottom of the object stack.

Align group allows setting the alignment and spacing for objects on the design surface. All objects can be aligned according to the neighboring object or according to the document border.

Horizontal alignment options are:

- **Left:** aligns the selected objects with the left edge of the leftmost object or with the left edge of the first selected object. If a single object is selected, it is placed on the label's left border.
- **Center Horizontally:** aligns the selected objects with the horizontal center of the largest selected object or with the horizontal center of the first selected object. If a single object is selected, it is placed in the horizontal center of a label.
- **Right:** aligns the selected objects with the right edge of the rightmost object or with the right edge of the first selected object. If a single object is selected, it is placed on the label's right border.
- **Distribute Horizontally:** equalizes horizontal spacing between the objects.

Vertical alignment options are:

- **Top:** aligns the selected objects with the top edge of the topmost object or with the top edge of the first selected object. If a single object is selected, it is placed on the label's top border.
- **Center Vertically:** aligns the selected objects with the vertical center of the largest selected object or with the vertical center of the first selected object. If a single object is selected, it is placed in the vertical center of a label.
- **Bottom:** aligns the selected objects with the bottom edge of the lowest object or with the bottom edge of the first selected object. If a single object is selected, it is placed on the label's bottom border.
- **Distribute Vertically:** equalizes vertical spacing between the objects.

4.4.8 Help Tab

Help tab provides direct access to various resources that help you design and use labels quickly and efficiently.

Help ribbon group includes buttons with links to the following resources.

- **Help:** ZebraDesigner online help.
- **Training Videos:** Zebra collection of training videos.
- **Knowledge Base:** online library of articles that describe many technical solutions, tips, and solved issues for labels.
- **Sample Files:** access to the collection of sample label files. Use them to become familiar with ZebraDesigner and to explore software capabilities.
- **Technical Support:** connects you with Zebra technical support department.

Product ribbon group includes links to:

- Software **About** page
- Zebra Home Page: https://www.zebra.com

4.4.9 RFID Tag

The **RFID Tag dialog** allows you to select the appropriate RFID tag type, to define its content, and to configure which type of data is going to be encoded on the tag.

> NOTE: RFID functionality is available with installed Zebra printer driver.

RFID Tag dialog allows you to configure how the tag content is encoded in a tag:

- Select the RFID tag type.
- Configure various tag settings related to its structure and programming.
- Set the RFID security parameters.
- Insert and configure data fields.

4.4.9.1 Tag

The **Tag** panel of the **RFID Tag dialog** allows you to select which tag type is going to carry the encoded data and how the data should be written to the tag.

Tag group includes the tag type selection.

- **Tag type** dropdown list offers the selection of available RFID tag types. The selection of tag types is automatically defined by the printer driver.

Select the printer (and the corresponding driver) for the label with RFID tag in the status bar.

Usage group defines the **RFID Tag** data sources and how the data is written to the tag.

- **RFID write enabled:** Enables or disables data writing to the RFID tag.

TIP: Disabled writing might be useful during the label designing process or during specific workflow phases.

The encodable RFID data fields are added to the Dynamic Data explorer under **RFID Tag.**

D A T A   F I E L D   P O S S I B I L I T I E S

- **EPC:** Data field with Electronic Product Code

- **User Data:** Data field with the content to be encoded on the RFID tag

- **TID:** Data field with unique ID of the RFID tag

- **GID Code:** General identifier code for RFID tags

- **CID Code:** Card identification number

TIP: Drag the appropriate data field and place it on the label in form of a Text, Text Box, or Barcode object (defined by the driver).

4.4.9.2 Content

The **Content** panel of the **RFID Tag dialog** allows you to define the content of an RFID tag. To encode the data in an RFID tag, complete the following steps.

Step 1: Select Data Fields

Data Fields group allows you to select the data fields. These fields are going to contain the encoded data of the RFID tag.

NOTE: The selection of available Data Fields with corresponding settings depends on the selected **Tag type**.

D A T A   F I E L D   E X A M P L E S

- **TID:** unique ID of the RFID tag

- **EPC:** syntax for unique identifiers assigned to objects, unit loads, locations, or other entities that are included in business operations

- **User Data:** payload data to be written in the RFID tag

- **RFID Tag Memory:** the only data field available for non-Gen2 RFID tags

Step 2: Select Data Type

Data type defines the method for entering the **Data field** content. The availability of data types depends on the selected **Data field**.

- **Memory block:** the table allows you to enter the data into individual RFID tag memory blocks. Each table row represents a single block of the selected **Tag type**.

Memory block structure and properties of individual blocks depend on the selected **Tag type**.

Data type can be defined for each block individually:

- **Electronic Product Code (EPC):** added fields allow you to enter the RFID data according to the EPC standard.
- **ASCII string:** RFID data to be entered as a string of ASCII characters.
- **HEX encoded string:** RFID data to be entered as a string of hexadecimal pairs.
- **Numeric:** RFID data to be entered as a string of digits.

Encoding type allow you to select the data encoding format that corresponds to your current **Data type**.

Step 3: Insert Value

Insert the value to be encoded in the RFID tag according to the selected **Data type**.

4.4.9.3 Security

Security tab of the **RFID Tag dialog** allows you to configure the RFID tag security settings. These settings allow or deny access to RFID data writing or editing.

Security settings depend on the selected printer. There are three major configuration types.

4.4.9.3.1 Multiple Memory Fields

Access Protection group sets a password that must be entered before editing or writing the RFID data.

Data type defines the method for entering the **Password**.
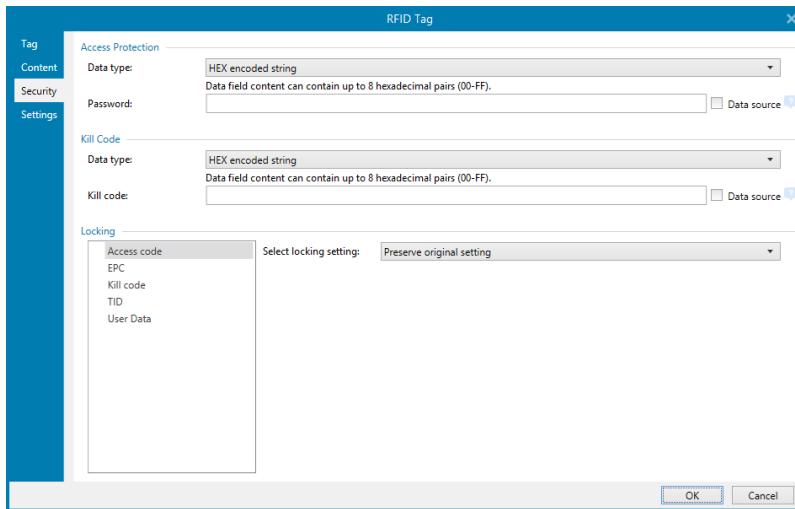
- **ASCII string: Password** should be entered as a string of ASCII characters.
- **HEX encoded string: Password** should be entered as a string of hexadecimal pairs.
- **Numeric: Password** should be entered as a string of digits.

Kill code defines the code that disables the RFID tag permanently and irreversibly.

> **TIP:** Once the kill code is activated, the data can neither be retrieved from nor written to the tag.

Data type defines the method for entering the **Kill code** characters.

- **ASCII string: Kill code** should be entered as a string of ASCII characters.
- **HEX encoded string: Kill code** should be entered as a string of hexadecimal pairs.
- **Numeric: Kill code** should be entered as a string of digits.

4.4.9.3.2 Multiple Memory Fields With Block Locking

Additional settings from **Multiple Memory Fields** allow the user to set the locking for individual blocks within RFID tag memory fields.
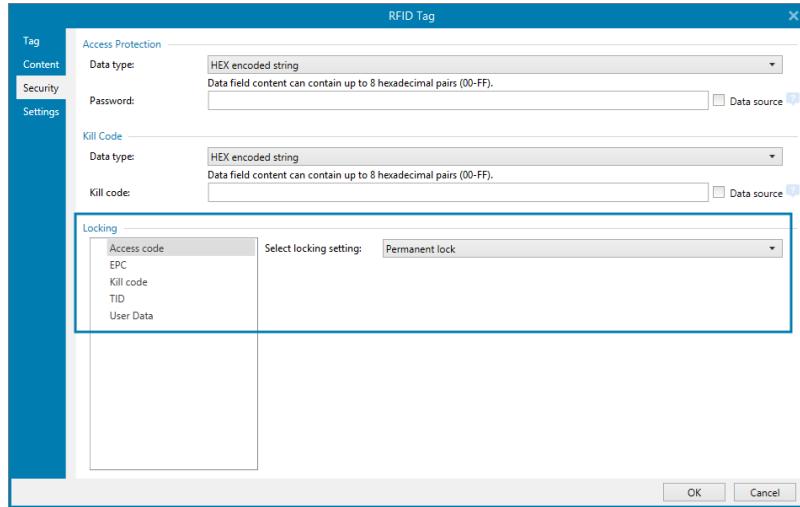
Locking group includes an overview of the memory fields that are included in the RFID tag. Each memory field can be locked individually.

Select locking settings allows you to define how the blocks are locked.

- **Preserve original setting:** original locking setting cannot be retrieved, but the default option assumes that the tag setting should remain unchanged.
- **Lock:** block is locked and further changes are prevented.
- **Unlock:** block is unlocked and editable.
- **Relock:** RFID tag is unlocked for the changes to be applied. When done, the tag is relocked immediately.
- **Permanent lock, unlock or relock:** makes the above described settings permanent. These settings cannot be undone.

Blocks for locking: defines the individual blocks or range(s) of blocks to be locked.

TIP: Individually locked blocks are defined with an index and separated by a comma (with or without inserting the space between). Ranges of blocks are defined with a dash.

4.4.9.4 Settings

Settings tab of the **RFID Tag dialog** allows you to configure various tag settings related to its structure and programming.

All available settings are listed in a table under the **Settings** group:

- **Read power:** sets radio power level to read the information from an RFID tag.
- **Write power:** set radio power level to write the information to an RFID tag.
- **Antenna element selection:** defines which antenna element from the printer's antenna array writes and reads the RFID tag content.
- **Maximum tags to stop:** specifies how many tags are allowed to be programmed inadequately before the printing of labels stops. The option can be used as a precautionary measure because it prevents endless consumption of labels. When the programming of the RFID tag fails, usually the word "VOID" is printed on the label.

> NOTE: The selection of available settings depends on the current **Tag type**.

4.4.9.5 RFID Read and Print

This section describes how to define which data fields from the RFID tag should be read and printed on the label using the internal printer elements.

To configure the data field properties and to make the RFID encoded data on the label, drag it to design surface. After adding it to design surface, the data field appears as a normal Text label object with the following additional properties.

Data format defines the format in which the RFID data field content is written in the label object and printed.

> NOTE: Available data formats and number of permitted characters are defined by the printer driver and selected tag type.

- **HEX encoded string:** data field content is a string of hexadecimal pairs.
- **ASCII string:** data field content is a string of ASCII characters.
- **Numeric:** data field content is a string of numbers.

> NOTE: You must select a printer's native font (those stored internally on the printer) to print. All other fonts will result in an error.

Preview presents the data field content as it would appear using the selected **Data format**. Preview field does not include the actual encoded data. Enter the characters manually. By default, the object contains as many question marks, as given by the length of the RFID data field.

> TIP: The role of **Preview** field is to fill the object with dummy content during the label design process and to give an impression of its layout on the printed label. The object on the actual printed label displays the content which was read from the RFID tag.

Data Extraction group defines which part(s) of data field content should be read from the RFID tag and printed on the label.

> TIP: By default, the entire range of encoded data is read from the RFID tag.

- **Select bytes:** specifies which bytes of the encoded RFID tag data should appear in the label object.
    - **Starting byte:** the number of the byte in an encoded string which starts the selection.
    - **Length in bytes:** number of selected bytes which should be extracted from the encoded data.
- **Select blocks:** specifies which blocks of the encoded RFID tag data should appear in the label object.
    - **Starting block:** the number of the block in an encoded string which starts the selection.
    - **Number of blocks:** number of selected blocks which should be extracted from the encoded data.

4.5 Design Surface

Your design surface is a place to create, add, position, and interconnect label objects.

To help you design labels as simply and efficiently as possible, your design surface uses usability and functional principles from Microsoft Office.
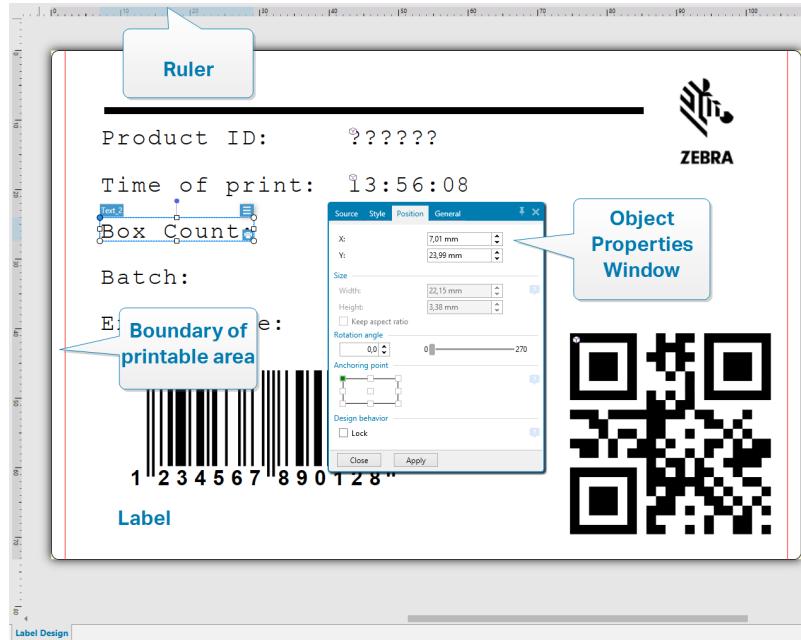
TIP: Use View tab to customize your design surface.

- Learn more about design surface elements here.
- Learn more about design surface editing actions here.
- Learn more about design surface visual aid elements here.

4.5.1 Design Surface Elements

Design surface consists of the following elements:

- **Ruler:** Design surface is equipped with horizontal and vertical ruler. Use it to line up the objects or to properly position the label and its content. Change the unit measurements displayed on the ruler in Label properties.
- **Paper:** Yellow area of the design surface displays the current size of paper. The information about supported paper format is acquired from the printer driver, but you also have the option to define custom format. Manual paper size has to be defined when printing on regular office sheets of paper. See Paper section for more details.
- **Label:** White area represents the area for label designing. Red line displays limit of the currently printable area.
- **Object Properties Window:** Defines the selected label object's properties. Double-click an object to open the dialog.

4.5.2 Design Surface Editing Actions

Below listed are the most relevant common actions for editing the objects on design surface:

- **Object arranging:** allows the objects to be placed in front of or behind other objects in a group. Arranging options are described here.
- **Objects aligning:** allows the objects to be aligned among each other. Aligning options are described here.
- **Zooming:** enables the entire design surface to be zoomed in or out. Zooming options are described here.
- **Scrolling:** enables sliding the design surface up and down.
- **Selecting:** enables the objects on design surface to be selected for editing individually or in a group. Group selection allows any actions to be applied to multiple objects simultaneously.
- **Rotating:** enables object rotation.

4.5.3 Visual Aid Elements

Listed below are the visual aid elements that enable you to work with ZebraDesigner.

- **Gridlines** serve as a visual aid during the design process. They can be either visible or hidden. Their density is customizable. Gridline options are available in the Alignment and Gridlines ribbon group.
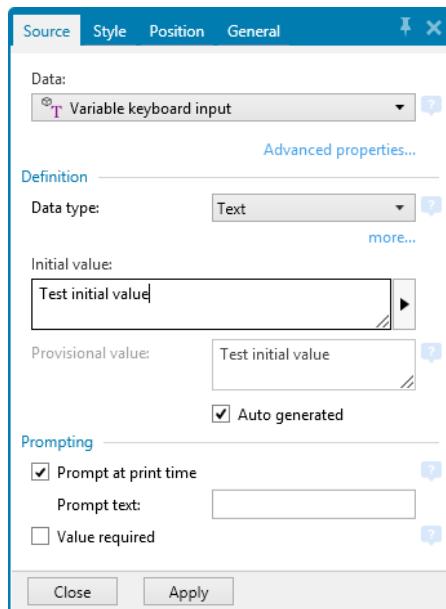
- **Snaplines** are non-visible alignment lines that help the user align the objects during the design process. Snap options are available in ZebraDesigner's [Align ribbon group](#).
- **Ruler** shows the available design area for label (white colored field) and file page (gray colored field).
- **Resize handles** appear on the selected (active) objects. They enable you to resize the object dimensions. X and Y dimensions can be resized simultaneously or separately.
- **Margins** are the amount of fixed space between the edge of an object and the edge of a label.

4.5.4 Object Properties Window

When designing a label object, double-click an object to set its properties.

Double-click opens the object properties window. Available object properties window options adapt to each selected object and its properties.

- Available label objects and their properties are listed and described in detail [here](#).

After pressing F4, object properties dialog becomes pinned as object properties editor on the right side of the design surface.

4.6 Document Properties and Management Dialogs

ZebraDesigner offers multiple dialogs that help you configure and manage the active document and connected data sources. Read the following topics for detailed instruction:
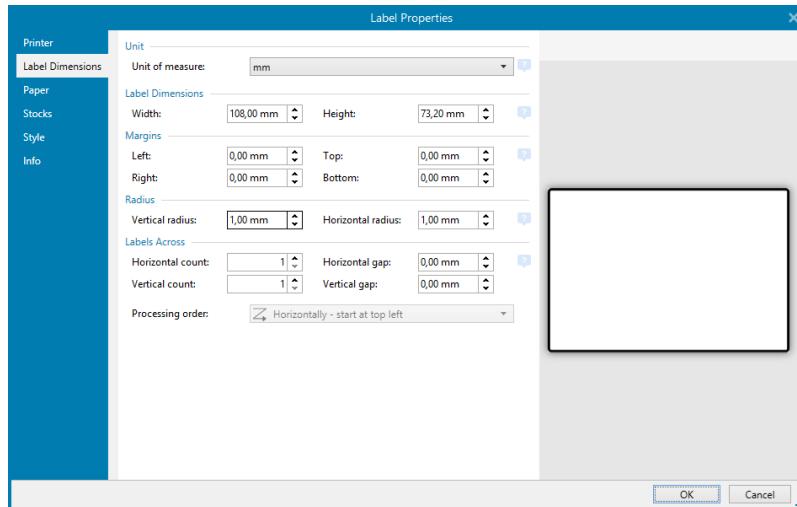
- Label Properties

4.6.1 Label Properties

Label Properties editor selects the printer, sets label dimensions, and defines the printing paper properties.

The label properties settings are listed below and appear as dialog tabs:

Label Property	Description
Printer	Selects the preferred printer.
Label Dimensions	Defines the **Unit of measure** and label dimensions.
Paper	Defines the printing paper properties.
Stocks	Selects the stock type.
Style	Defines the label style parameters.
Info	Inserts the label description.

TIP: To open the **Label Properties Editor**, double-click the design surface.

4.7 Context Menus

In ZebraDesigner, right-click displays various context menus that contain commonly used commands. The availability of commands depends on the selected items – design surface or object.

4.7.1 Design Surface Context Menu

When right-clicking the design surface, a context menu appears. The context menu includes commonly used commands:

- **Document Properties:** opens the dialog.
- **Paste:**pastes clipboard contents on the design surface. Multiple reuse of a single clipboard item is allowed.
- **Cut:** removes the selected element(s) from the design surface and adds it to the clipboard to be pasted elsewhere.
- **Copy:** copies the selected object to the clipboard.
- **Select all:** selects all objects on the design surface.
- **Alignment and Gridlines:** allows you to define how the objects take their positions on the design surface.
    - **Align to objects:** makes the object on the design surface align with other objects. When two objects are aligned, a leading line appears linking the edges of the two aligned objects.
    - **Align to grid:** makes the object on the design surface align with gridlines. When moving the object, it always snaps to the gridline.
    - **Do not align:** allows you to move the objects freely.
    - **Display gridline guides:** makes the gridlines visible.
- **Objects markers visibility:** toggles visibility for the object properties. Markers become visible when moving the mouse pointer over the object.
    - **Object name:** marker shows the name of an object.
    - **Internal element:** marker shows if the selected object belongs to the internal printer elements.
    - **Counter:** marker shows that the connected variable is Counter.
    - **Locked object:** marker shows that an object's position is locked.
- **Zoom:** defines zooming behavior.
    - **Zoom to Document:** shows the entire label in the ZebraDesigner window.
    - **Zoom to Objects:** shows all objects in the ZebraDesigner window.

4.7.2 Object Context Menu

When right-clicking an object, a context menu appears. The context menu includes the following commands:

- **Properties:** opens object properties dialog.
- **Copy:** copies the selected content to the clipboard.
- **Cut:** removes the selected element from the design surface and adds it to the clipboard to be pasted elsewhere.
- **Delete:** removes the selected object from the design surface.
- **Lock/Unlock:** prevents the selected object from being moved or re-enables moving.
- **Arrange:** positions the objects so that they appear either in front of or behind each other.
    - **Send Backward:** sends the element back for one level.
    - **Send to Back:** sends the element behind all other elements on the label.
    - **Bring Forward:** brings the element forward for one level.
    - **Bring to Front:** sends the element in front of all other elements on the label.

4.7.3 Group Context Menu

When right-clicking a group of objects, a context menu appears. The context menu includes the following commands:

- **Properties:** opens common group properties dialog.
- **Copy:** copies the selected content to the clipboard.
- **Cut:** removes the selected group from the design surface and adds it to the clipboard to be pasted elsewhere.
- **Delete:** deletes the selected object(s) from the design surface.
- **Lock/Unlock:** prevents the selected group from being moved or re-enables moving.
- **Group objects:** unites the selected objects and makes them behave as a single object.
- **Ungroup objects:** separates previously grouped objects.
- **Arrange** group defines how the group position according to other objects or groups.
    - **Send Backward:** moves the selected group down one level.
    - **Send to Back:** moves the selected group to the bottom of the object stack.
    - **Bring Forward:** moves the selected group up one level.
    - **Bring to Front:** moves the selected group to the top of the object stack.

- **Align** group allows setting the alignment and spacing for objects on the design surface. All objects can be aligned according to the neighboring object or according to the document border.

Horizontal alignment options are:
- **Left:** aligns the selected objects with the left edge of the leftmost object or with the left edge of the first selected object. If a single object is selected, it is placed on the label's left border.
- **Center Horizontally:** aligns the selected objects with the horizontal center of the largest selected object or with the horizontal center of the first selected object. If a single object is selected, it is placed in the horizontal center of a label.
- **Right:** aligns the selected objects with the right edge of the rightmost object or with the right edge of the first selected object. If a single object is selected, it is placed on the label's right border.
- **Distribute Horizontally:** equalizes horizontal spacing between the objects.

Vertical alignment options are:
- **Top:** aligns the selected objects with the top edge of the topmost object or with the top edge of the first selected object. If a single object is selected, it is placed on the label's top border.
- **Center Vertically:** aligns the selected objects with the vertical center of the largest selected object or with the vertical center of the first selected object. If a single object is selected, it is placed in the vertical center of a label.
- **Bottom:** aligns the selected objects with the bottom edge of the lowest object or with the bottom edge of the first selected object. If a single object is selected, it is placed on the label's bottom border.
- **Distribute Vertically:** equalizes vertical spacing between the objects.

5 Label

Label works as a template to add [label objects](#) and print using any kind of printing media.

Each object adds a different kind of content such as text, line, ellipse, barcode or rectangle to a label. The content is either fixed (manually entered by the user) or dynamic (defined using values from connected data sources).

After finishing with your label design, you can print the labels using any of your installed printers.

5.1 New Label Setup Wizard

Label Setup Wizard guides you through the process of creating a new label. The wizard consists of four configuration steps and a summary:

- [Step 1: Select the Printer](#)
- [Step 2: Set the Page Size](#)
- [Step 3: Select the Label Layout](#)
- [Step 4: Specify the Label Dimensions](#)
- [Step 5: Summary](#)

After finishing these steps, the label is ready for editing and printing.

> NOTE: To quit Label Setup Wizard during any step, press `<Escape>`. The new label properties are set to default.

5.1.1 Step 1: Select the Printer

This step selects the printer to be used for printing the newly created label. It also provides direct access to printer driver properties.

1. Select the printer from the dropdown list.

2. Label setup wizard remembers the last selected printer. When creating another new label, the wizard will automatically select the printer that you selected for your last created label. If this printer is currently missing, your default printer is selected.

5.1.2 Step 2: Set the Page Size

This step defines how the page size is selected. When using a thermal printer, it is recommended to set the size automatically. Manual selection proves to be useful if you know the exact stock code or label format.

> NOTE: When changing the printer, the Page Size settings always go to default (automatic).

1. Select print media.

    - **Print on a roll of labels** option prints on the installed roll of labels. Page size for thermal printers is detected automatically.

        > NOTE: If a thermal printer is selected in the preceding **Select the Printer** wizard step, this option is enabled by default.

    - **Print on a sheet of paper** option prints labels on sheets of paper. It lets you manually define the label page size to fit the printer.

        With this option selected, additional settings appear:

        - **Unit of measure:** defines the unit of measure to be used while designing the label.
        - **Paper:** defines the label page **Width** and **Height**.

        > NOTE: If a regular home/office printer is selected in the preceding **Select Printer** wizard step, Page size is enabled by default.

2. Select stock.

    Load settings from a predefined stock option sets the page to be defined by the selected stock type.

    With this option selected, additional settings appear:

    - **Stock:** defines which stock type should be used when designing and printing the newly created label. Stock types are usually associated with printer vendors or stationery suppliers. Select the exact stock from the dropdown menu.

    If the selected stock is not compatible with printer, a warning appears. Label designing and printing is disabled.

    - **Stock information:** displays the selected stock's properties.

5.1.3 Step 3: Select the Label Layout

This step defines the label orientation and rotation on a printer:

- **Orientation:** sets the new label layout as **Portrait** or **Landscape**.
- **Rotated:** rotates the **Printer Layout** of a label by 180 degrees, if the selected printer supports it.
- **Preview field:** displays the label layout according to the currently set properties.

5.1.4 Step 4: Specify the Label Dimensions

This step defines the dimensions of the newly created label, its margins, measurement unit, and labels across positioning settings:

- **Unit of measure:** defines the unit to be used while designing the label.
- **Label Dimensions:** define the new label's **Width** and **Height**.
- **Margins:** define the distance between the edge of the printing surface and the edge of the label (left/right, top/bottom).
- **Labels Across:** defines the number of labels to be printed on a single label sheet.
  - **Horizontal count:** number of labels in a row.
  - **Vertical count:** number of labels in a column.
  - **Horizontal gap:** sets horizontal distance between the labels on a sheet.
  - **Vertical gap:** sets vertical distance between the labels on a sheet.
- **Processing order:** defines the direction in which the labels are printed. Set the starting corner where the printing starts and define the horizontal and vertical direction of label positioning.

5.1.5 Step 5: Summary

This step summarizes the new label properties as defined using the **Label Setup Wizard**.

Before clicking **Finish** to enter the label editing and printing phases, check the displayed settings:
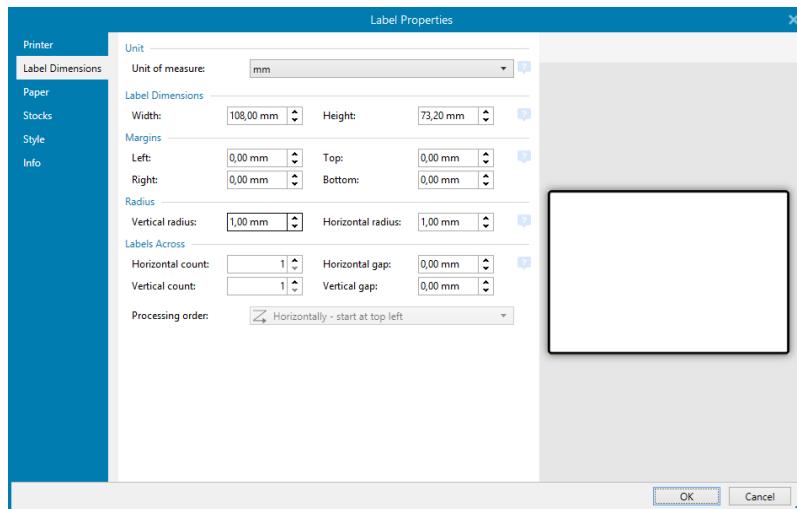
- **Printer:** selected printer for label printing.
- **Label dimensions:** dimensions of newly created label.
- **Paper dimensions:** dimensions of printable paper.

5.2 Label Properties

Label Properties editor selects the printer, sets label dimensions, and defines the printing paper properties.

The label properties settings are listed below and appear as dialog tabs:

Label Property	Description
Printer	Selects the preferred printer.
Label Dimensions	Defines the **Unit of measure** and label dimensions.
Paper	Defines the printing paper properties.
Stocks	Selects the stock type.
Style	Defines the label style parameters.
Info	Inserts the label description.

> **TIP:** To open the **Label Properties Editor**, double-click the design surface.

5.2.1 Printer

Printer tab lets you define the printer to print the labels on, and to set printing behavior.

Printer dropdown menu lets you select a printer from the currently available printers.

> **TIP:** To set the printer settings, select a printer and click **Printer properties**. This button gives direct access to the selected printer's driver and its settings.

5.2.2 Label Dimensions

Label Dimensions tab specifies label dimensions and defines whether its size should adapt to the changing size of the objects or not.

Unit of measure defines the unit to be used while designing the label. There are four available units: cm, in, mm, and dot.

Label Dimensions group defines the label's **Width** and **Height**. Label dimension settings become active if manual label dimensions are enabled.

When manually inserting the unit of measure, this also changes the currently defined **Unit**.

Margins group sets the distance between the edge of the printing surface and the edge of the label (left/right, top/bottom).

Radius group enables you to make the label corners rounded.

- **Vertical radius:** adjusts corner roundness value in vertical direction.
- **Horizontal radius:** adjusts corner roundness value in horizontal direction.

Labels Across defines the number of labels to be printed on a single label sheet.

- **Horizontal count:** number of labels in a row.
- **Vertical count:** number of labels in a column.
- **Horizontal gap:** horizontal distance between labels on a sheet.
- **Vertical gap:** vertical distance between labels on a sheet.
- **Processing order:** defines the direction in which labels are printed. Set the starting corner in which printing starts, and the horizontal/ vertical directions of label positioning.

5.2.3 Paper

Paper tab sets printing paper properties.

Unit selects the **Unit of measure** to be used in a label.

Paper Type group defines paper dimensioning type – automatic or manual.

- **Automatically set page size based on the label dimensions (labels on a roll):** page size is defined by the printer driver.
- **Manually set page size (sheets of paper):** page size is set manually.

If the page size is defined manually, additional options appear:

- **Paper:** selection of standard paper formats.
- **Width** and **Height:** custom paper dimensions.

Orientation group sets the new label layout as **Portrait** or **Landscape**.

- **Rotated: Printer Layout** is rotated by 180 degrees.

**Preview** displays current label screen and print layouts.

5.2.4 Stocks
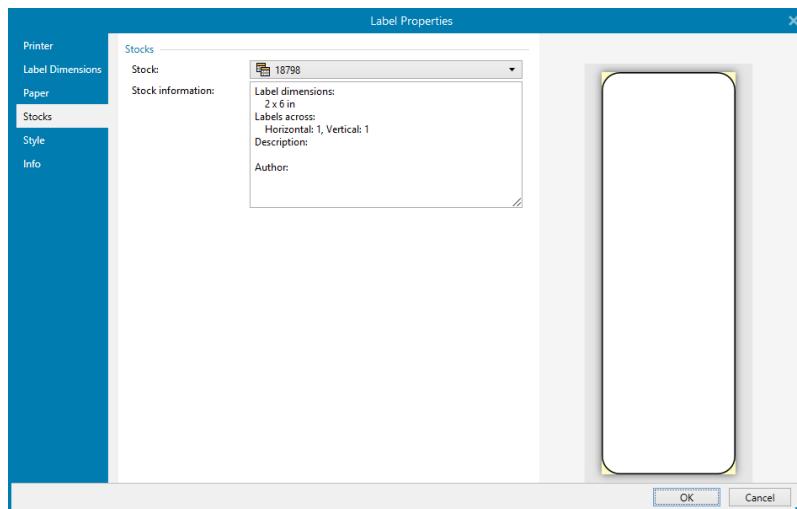
Label stocks are a time-saving alternative to designing labels from scratch. Use stock templates when designing labels for a specific printer type and when optimizing the label designing process.

Stocks group defines which stock type should be used when designing and printing a label. Stock types are usually associated with printer vendors or stationery suppliers.

> NOTE: Here defined stock properties override the manually set label properties.

Stock defines the exact stock to be used for label designing and printing. Stocks are sorted by vendors and media formats. Expand stock provider and select a specific stock type.

> TIP: Use **Search...** to easily find the requested stock. Partial search is available – enter a sequence of characters and all stocks which contain that sequence will be listed. If the selected stock is not compatible with the selected printer, a warning appears. Previously selected stock becomes active again (if it was defined) allowing the printing to continue.

> NOTE: If the selected stock is not compatible with the selected printer, a warning appears. Previously selected stock becomes active again (if it was defined) allowing the printing to continue.

Stock information displays the selected stock's properties:

- **[Label dimensions](#)**
- **[Labels across](#)**
- **[Description](#)**
- **Author**

5.2.5 Style

Style tab is used for defining label style properties.

Background color: sets the color of label background.

Background picture: sets the label background picture.

- **Picture file name:** defines the image file to be used as background picture.
- **Embed picture in a document:** saves picture into the label file.
- **Save embedded picture to file:** the embedded label picture is saved to a separate file.
- **Remove embedded picture:** embedded picture is removed from the label file.
- **Picture position:** sets picture position on the label.
    - **Center:** centers the picture on the label with its original dimensions. A picture larger than the label will display only the central part leaving the rest out of view.
    - **Fit:** resizes the picture to fill the label while keeping the original aspect ratio.
    - **Stretch:** stretches picture to make it fill the entire label.

        > NOTE: This option ignores the original aspect ratio of the picture. The picture might appear distorted on the label.

- **Rotation:** allows you to rotate the background picture in steps of 90 degrees.
- **Print background picture:** background picture is printed.
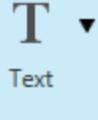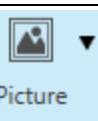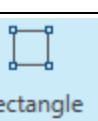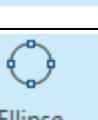
5.2.6 Info

Info tab includes a **Description** that serves as a hint or as a guide for the user that is going to work with the label.

Define label **Description** by entering text into the field.

5.3 Label Objects

After setting the [label properties](#), it's time to start adding content to the label. Label objects are basic design items that are used for adding and editing various content types. Each object has its own function as described in the table below.

Label Object	Icon	Description
Text	T ▼ Text	Container for textual content. It adapts its dimensions to fit the amount of entered characters. When typing, text object grows horizontally and/or vertically.
Barcode	▼ Barcode	Object for adding and editing various types of barcodes on a label.
Picture	▼ Picture	Object for adding graphic content to a label.
Rectangle	Rectangle	Object for creating rectangular shapes on a label.
Line	Line	Object for creating lines on a label.
Ellipse	Ellipse	Object for creating circular shapes on a label.
Inverse	Inverse	Object for inverting the color of the underlying object.

5.3.1 Text

Text object is a container for textual content which adapts its dimensions to fit the amount of inserted characters. When typing, text object grows horizontally and/or vertically.

5.3.1.1 Source

Connected data source defines the content source of the selected object.

- **Fixed data:** manually entered fixed text.
- Variable keyboard input: type of variable that enables the content of a prompted field to be different for every print job.
- Current date: displays current date value on the label.
- Counter: displays counter value on the label.
- Functions: input data transformation tools.
- Databases: database values which are used as object content.

Content field allows you to type the object content.

5.3.1.2 Style

Font color sets text font and underline color.

Font selects the typeface. Fonts are divided into two groups: OpenType fonts and Printer fonts.

> NOTE: If the currently selected printer is a thermal printer, additional fonts become available. These are the internal **Printer fonts** that are installed on the printer. Printer fonts are identified by the printer icon in front of their names.

The font may appear **Bold**, **Italic**, **Underlined** or as a **Strikethrough** text.

Font Scaling sets the font stretch factor. If the factor is set to 100 %, font appears in normal scale. If the factor is set to 200 %, font appears twice as wide. If set to 50 %, font width is shrunk to half its size.

Alignment defines horizontal positioning of the entered content.

- **Left:** text aligned with the left object border.
- **Center:** text positioned in the center of the object.
- **Right:** text aligned with the right object border.
- **Justified:** distributes text evenly along both sides.

Spacing sets the space between text characters and lines.

- **Line spacing:** space between each line in a paragraph.
- **Character spacing:** space between individual characters.

5.3.1.3 Effects

Inverse: inverted text and object background colors.

RTL printing: right to left text printing.

Most thermal printers print right-to-left scripts automatically. This option becomes useful if the operating system does not provide native RTL support.

5.3.1.4 Position

Position tab defines object positioning and its position-related behavior.

Position group defines the object's position.

- **X** and **Y:** anchoring point coordinates.

Size group gives information about the object's dimensions.

- **Width** and **Height:** horizontal and vertical object dimension.
- **Keep aspect ratio:** simultaneous changing of object dimensions while scaling.

In Text object, the size of text is determined by the font size. Object dimensions and aspect ratio cannot be changed manually and only serve as information about its current size.

> NOTE: If the measurement unit is changed in <u>label properties</u>, the value transforms automatically.

Rotation angle is the object angle according to the design surface.

There are multiple ways to set the object's angle: enter the angle manually , drag the slider or

click and drag the   icon on the selected object. Rotation angle and slider rotates the

object around its anchoring point. The   icon rotates the object around its central point.

Anchoring point is the spot where an object is pinned to design surface. Variable size objects increase or decrease their size in the direction that is opposite to the chosen anchoring point.

Lock prevents the object from being moved during the design process, select under the **Design behavior** group.

5.3.1.5 General

General tab identifies the object and sets its status.

Name sets a unique object ID.

> NOTE: Avoid using spaces or special characters in object names.

Descriptionallows adding notes and annotations for an object. It provides help during the label design process.

Status group defines object visibility on print preview and on printed labels.

- **Not printable:** prevents the object from being printed.
- **Visible:** if the checkbox is not selected, the object neither appears on the print preview nor on the printed label. The object is treated as if it does not exist.

Option	Print Preview	Printout
Not printable (selected)	YES	NO
Visible (cleared)	NO	NO

5.3.2 Barcode

Barcode object is used for adding various types of barcodes with encoded data to a label.

Details on barcode properties, types, and data encoding methods are available in the dedicated [Barcode section](#).

5.3.3 Picture

Use **Picture** object to add graphic content on a label. The following file formats are supported:

- Portable Network Graphic (*.png)
- PDF (*.pdf)
- Adobe Photoshop (*.psd)
- Scalable Vector graphics (*.svg)
- Paintbrush (*.pcx)
- JPEG bitmaps (*.jpg, *.jpeg, *.jpe)
- TIFF bitmaps (*.tif, *.tiff)
- Enhanced Windows Metafile (*.emf)
- Windows Metafile (*.wmf)
- Windows bitmap (*.bmp)

5.3.3.1 Source

Connected data source defines the content source of the selected object.

- **Fixed data:** manually entered fixed text.
- [Variable keyboard input:](#) type of variable that enables the content of a prompted field to be different for every print job.

- Current date: displays current date value on the label.
- Current time: displays current time value on the label.
- Counter: displays counter value on the label.
- Functions: input data transformation tools.
- Databases: database values which are used as object content.

Content field is used for entering the object content.

To (re)define the Picture object **Content**, click **Browse** and locate the file to be displayed on the label.

Embed picture in a document stores the picture in the label file. Link to the original picture file is discarded.

> **TIP:** Picture embedding makes the label file more portable as the user does not have to include the picture file when sharing the label.

Save embedded picture to file: the embedded label picture is saved as a separate file.

5.3.3.2 Style

Dithering group allows you to select the most appropriate dithering method to print pictures on labels in black and white.

> **TIP:** When printing pictures in black and white, dithering creates the illusion of multiple colors and shades by varying the pattern of black dots.

Dithering type selects the dithering method:

- **Printer driver default:** no dithering method is selected for the picture object. When printing in black and white, printer driver uses its own dithering method.

If no dithering is set for the picture object, the algorithm can also be selected using the printer properties dialog. The selected dithering algorithm for an object in ZebraDesigner overrides the algorithm selected using printer properties dialog. See Changing dithering options for more detailed information.

- **Ordered:** achieves dithering by applying a threshold map (matrix with cells) on the pixels displayed. If the value of the pixel (scaled into the 0-9 range) is less than the number in the corresponding cell of the matrix, the algorithm plots the pixel black, otherwise, it plots it white.
- **Threshold:** sets a threshold to which every pixel is compared. If the original pixel value is higher than the threshold, it renders white. The lower the threshold value, the higher the share of pixels turned to white.

- **Floyd Steinberg:** achieves dithering using error dispersion. This algorithm generates the closest result to the original, but represents the slowest option.

5.3.3.3 Position

Position tab defines object positioning and its position-related behavior.

Position group defines the object's position.

- **X** and **Y:** anchoring point coordinates.

Size group sets the object's dimensions:

- **Width** and **Height:** horizontal and vertical object dimension.
- **Keep aspect ratio:** simultaneous changing of object dimensions while scaling.

> NOTE: If the measurement unit is changed in <u>label properties</u>, the value transforms automatically.

Rotation angle is the object angle according to the design surface.

> TIP: There are multiple ways to set the object's angle: enter the angle manually, drag the slider or click and drag the [icon] icon on the selected object. Rotation angle and slider rotates the object around its anchoring point. The [icon] icon rotates the object around its central point.

Anchoring point is the spot where an object is pinned to design surface. Variable size objects increase or decrease their size in the direction that is opposite to the chosen anchoring point.

Lock prevents the object from being moved during the design process.

> NOTE: If the measurement unit is changed, the value converts automatically.

Graphic Resizing tab is available if the picture object is connected to a variable. These settings define how the Picture object adapts its size to the source file at print time.

- **Keep original picture size:** disabled picture resizing. Picture size remains unchanged.
- **Resize proportionally:** proportional picture resizing. Aspect ratio of picture dimension remains fixed.
- **Resize to the designed size:** horizontal and vertical picture resizing to make it fit into the bounding box. This option will most likely make the picture distorted.

Original size displays the picture's **Width** and **Height** before resizing. **Revert to original picture size** cancels the resizing actions.

5.3.3.4 General

General tab identifies the object and sets its status.

Name sets a unique object ID.

> NOTE: Avoid using spaces or special characters in object names.

Description allows adding notes and annotations for an object. It provides help during the label design process.

Status group defines object visibility on print preview and on printed labels.

- **Not printable:** prevents the object from being printed.
- **Visible:** if the checkbox is not selected, the object neither appears on the print preview nor on the printed label. The object is treated as if it does not exist.

Option	Print Preview	Printout
Not printable (selected)	YES	NO
Visible (cleared)	NO	NO

5.3.4 Rectangle

Rectangle object creates a rectangular frame on a label.

5.3.4.1 Style

Outline group defines line settings:

- **Thickness:** object line thickness.
- **Outline style:** object line style.
    - **Solid:** solid line.
    - **Dot:** dotted line.
    - **Dash:** dashed line.
    - **Erase:** parts of neighboring objects become invisible underneath this object.
- **Outline color:** color of the line.

- **Corner radius:** makes the rectangle corners round. Higher values make the curve broader.

Fill group defines the object fill settings and color.

- **Fill style:** object fill properties definition:
    - **None:** completely transparent object.
    - **Erase:** makes objects beneath the active one hidden.
    - **Solid:** fills the object with solid color.
    - **Right Diagonal:** fills the object with diagonal lines that ascend toward the right side.
    - **Left Diagonal:** fills the object with diagonal lines that ascend toward the left side.
    - **Vertical:** fills the object with vertical lines.
    - **Horizontal:** fills the object with horizontal lines.
    - **Cross:** fills the object with crossed lines.
    - **Cross Diagonal:** fills the object with diagonally crossed lines.
    - **25% of color:** fill color opacity 25 %.
    - **50% of color:** fill color opacity 50 %.
    - **75% of color:** fill color opacity 75 %.
- **Background color:** object fill color definition.

> NOTE: The system does not allow the **Outline style** and **Fill style** to be set to **None** at the same time.

> TIP: Shape objects (Rectangle, Line and Ellipse) in ZebraDesigner remember the last used setting. Each time you add one of these objects to the label, it has the same outline and fill settings as the previously added shape object.

5.3.4.2 Position

Position tab defines object positioning and its position-related behavior.

Position group defines the object's position.

- **X** and **Y:** anchoring point coordinates.

Size group sets the object's dimensions:

- **Width** and **Height:** horizontal and vertical object dimension.
- **Keep aspect ratio:** simultaneous changing of object dimensions while scaling.

> NOTE: If the measurement unit is changed in label properties, the value transforms automatically.

Rotation angle is the object angle according to the design surface.

TIP: There are multiple ways to set the object's angle: enter the angle manually, drag the slider or click and drag the [icon] icon on the selected object. Rotation angle and slider rotates the object around its anchoring point. The [icon] icon rotates the object around its central point.

Anchoring point is the spot where an object is pinned to design surface. Variable size objects increase or decrease their size in the direction that is opposite to the chosen anchoring point.

Lock prevents the object from being moved during the design process.

5.3.4.3 General

General tab identifies the object and sets its status.

Name sets a unique object ID.

NOTE: Avoid using spaces or special characters in object names.

Descriptionallows adding notes and annotations for an object. It provides help during the label design process.

Status group defines object visibility on print preview and on printed labels.

- **Not printable:** prevents the object from being printed.
- **Visible:** if the checkbox is not selected, the object neither appears on the print preview nor on the printed label. The object is treated as if it does not exist.

Option	Print Preview	Printout
Not printable (selected)	YES	NO
Visible (cleared)	NO	NO

Printing optimization group allows activating the use of internal printer elements.

TIP: If supported by the selected printer model, a share of label element processing is handled directly by the printer (e.g., internal fonts, shapes, barcodes). This speeds up the printing process also due to significantly reduced data traffic.

- **Use printer element if supported:** prints labels using internal printer elements if the printer allows it. If a selected printer does not support internal printer elements, the element is sent as a graphic file.

- **Always use printer element:** prints labels using printer elements only. If a selected printer does not support internal printer elements, an error message with explanation is displayed.

- **Always print as graphics:** sends and prints the objects as graphic files.

5.3.5 Line

Line object creates a line on a label.

5.3.5.1 Style

Outline group defines line settings:

- **Thickness:** object line thickness.
- **Outline style:** object line style.
    - **Solid:** solid line.
    - **Dot:** dotted line.
    - **Dash:** dashed line.
    - **Erase:** parts of neighboring objects become invisible underneath this object.
- **Outline color:** color of the line.

TIP: Shape objects ([Rectangle](#), [Line](#) and [Ellipse](#)) in ZebraDesigner remember the last used setting. Each time you add one of these objects to the label, it has the same outline and fill settings as the previously added shape object.

5.3.5.2 Position

Position tab defines object positioning and its position-related behavior.

Position group defines the object's position.

- **X** and **Y:** anchoring point coordinates.
- **Length:** sets the line length.

If the measurement unit is changed in [label properties](#), the value transforms automatically.

Rotation angle is the object angle according to the design surface.

TIP: There are multiple ways to set the object's angle: enter the angle manually, drag the slider or click and drag the

icon on the selected object. Rotation angle and slider rotates the object around its

anchoring point. The icon rotates the object around its central point.

Lock prevents the object from being moved during the design process.

5.3.5.3 General

General tab identifies the object and sets its status.

Name sets a unique object ID.

> NOTE: Avoid using spaces or special characters in object names.

Descriptionallows adding notes and annotations for an object. It provides help during the label design process.

Status group defines object visibility on print preview and on printed labels.

- **Not printable:** prevents the object from being printed.
- **Visible:** if the checkbox is not selected, the object neither appears on the print preview nor on the printed label. The object is treated as if it does not exist.

Option	Print Preview	Printout
Not printable (selected)	YES	NO
Visible (cleared)	NO	NO

Printing optimization group allows activating the use of internal printer elements.

> TIP: If supported by the selected printer model, a share of label element processing is handled directly by the printer (e.g., internal fonts, shapes, barcodes). This speeds up the printing process also due to significantly reduced data traffic.

- **Use printer element if supported:** prints labels using internal printer elements if the printer allows it. If a selected printer does not support internal printer elements, the element is sent as a graphic file.

- **Always use printer element:** prints labels using printer elements only. If a selected printer does not support internal printer elements, an error message with explanation is displayed.

- **Always print as graphics:** sends and prints the objects as graphic files.

5.3.6 Ellipse

Ellipse object creates a circular object on a label.

5.3.6.1 Style

Outline group defines line settings:

- **Thickness:** object line thickness.
- **Outline style:** object line style.
    - **Solid:** solid line.
    - **Dot:** dotted line.
    - **Dash:** dashed line.
    - **Erase:** parts of neighboring objects become invisible underneath this object.
- **Outline color:** color of the line.

Fill group defines the object fill settings and color.

- **Fill style:** object fill properties definition:
    - **None:** completely transparent object.
    - **Erase:** makes objects beneath the active one hidden.
    - **Solid:** fills the object with solid color.
    - **Right Diagonal:** fills the object with diagonal lines that ascend toward the right side.
    - **Left Diagonal:** fills the object with diagonal lines that ascend toward the left side.
    - **Vertical:** fills the object with vertical lines.
    - **Horizontal:** fills the object with horizontal lines.
    - **Cross:** fills the object with crossed lines.
    - **Cross Diagonal:** fills the object with diagonally crossed lines.
    - **25% of color:** fill color opacity 25 %.
    - **50% of color:** fill color opacity 50 %.
    - **75% of color:** fill color opacity 75 %.
- **Background color:** object fill color definition.

> NOTE: The system does not allow the **Outline style** and **Fill style** to be set to **None** at the same time.

> TIP: Shape objects (Rectangle, Line and Ellipse) in ZebraDesigner remember the last used setting. Each time you add one of these objects to the label, it has the same outline and fill settings as the previously added shape object.

5.3.6.2 Position

Position tab defines object positioning and its position-related behavior.

Position group defines the object's position.

- **X** and **Y:** anchoring point coordinates.

Size group sets the object's dimensions:

- **Width** and **Height:** horizontal and vertical object dimension.
- **Keep aspect ratio:** simultaneous changing of object dimensions while scaling.

NOTE: If the measurement unit is changed in label properties, the value transforms automatically.

Rotation angle is the object angle according to the design surface.

TIP: There are multiple ways to set the object's angle: enter the angle manually, drag the

slider or click and drag the ▐ icon on the selected object. Rotation angle and slider

rotates the object around its anchoring point. The ▐ icon rotates the object around its central point.

Anchoring point is the spot where an object is pinned to design surface. Variable size objects increase or decrease their size in the direction that is opposite to the chosen anchoring point.

Lock prevents the object from being moved during the design process.

NOTE: If the measurement unit is changed, the value transforms automatically.

5.3.6.3 General

General tab identifies the object and sets its status.

Name sets a unique object ID.

NOTE: Avoid using spaces or special characters in object names.

Descriptionallows adding notes and annotations for an object. It provides help during the label design process.

Status group defines object visibility on print preview and on printed labels.

- **Not printable:** prevents the object from being printed.
- **Visible:** if the checkbox is not selected, the object neither appears on the print preview nor on the printed label. The object is treated as if it does not exist.

Option	Print Preview	Printout
Not printable (selected)	YES	NO
Visible (cleared)	NO	NO

Printing optimization group allows activating the use of internal printer elements.

> **TIP:** If supported by the selected printer model, a share of label element processing is handled directly by the printer (e.g., internal fonts, shapes, barcodes). This speeds up the printing process also due to significantly reduced data traffic.

- **Use printer element if supported:** prints labels using internal printer elements if the printer allows it. If a selected printer does not support internal printer elements, the element is sent as a graphic file.

- **Always use printer element:** prints labels using printer elements only. If a selected printer does not support internal printer elements, an error message with explanation is displayed.

- **Always print as graphics:** sends and prints the objects as graphic files.

5.3.7 Inverse

5.3.7.1 About

Inverse object inverts the underlying object's color.

Inverted color field

5.3.7.2 Position

Position tab defines object positioning and its position-related behavior.

Position group defines the object's position.

- **X** and **Y:** anchoring point coordinates.

Size group sets the object's dimensions:

- **Width** and **Height:** horizontal and vertical object dimension.
- **Keep aspect ratio:** simultaneous changing of object dimensions while scaling.

> NOTE: If the measurement unit is changed in label properties, the value transforms automatically.

Rotation angle is the object angle according to the design surface.

> **TIP:** There are multiple ways to set the object's angle: enter the angle manually, drag the
>
> slider or click and drag the [icon] icon on the selected object. Rotation angle and slider
>
> rotates the object around its anchoring point. The [icon] icon rotates the object around its central point.

Anchoring point is the spot where an object is pinned to design surface. Variable size objects increase or decrease their size in the direction that is opposite to the chosen anchoring point.

Lock prevents the object from being moved during the design process.

> NOTE: If the measurement unit is changed, the value transforms automatically.

5.3.7.3 General

General tab identifies the object and sets its status.

Name sets a unique object ID.

> NOTE: Avoid using spaces or special characters in object names.

Descriptionallows adding notes and annotations for an object. It provides help during the label design process.

Status group defines object visibility on print preview and on printed labels.

- **Not printable:** prevents the object from being printed.
- **Visible:** if the checkbox is not selected, the object neither appears on the print preview nor on the printed label. The object is treated as if it does not exist.

Option	Print Preview	Printout
Not printable (selected)	YES	NO
Visible (cleared)	NO	NO

Printing optimization group allows activating the use of internal printer elements.

> **TIP:** If supported by the selected printer model, a share of label element processing is handled directly by the printer (e.g., internal fonts, shapes, barcodes). This speeds up the printing process also due to significantly reduced data traffic.

- **Use printer element if supported:** prints labels using internal printer elements if the printer allows it. If a selected printer does not support internal printer elements, the element is sent as a graphic file.

- **Always use printer element:** prints labels using printer elements only. If a selected printer does not support internal printer elements, an error message with explanation is displayed.

- **Always print as graphics:** sends and prints the objects as graphic files.

5.4 Working with Objects

This section describes how to work with [objects](#) and blend them with the design of a [label](#).

Object is a basic building block of any label. Each object is dedicated to a specific type of content. See the related topics for style and content related object properties.

These are the common actions for multiple object types:

- [Adding an object:](#) adds an object to the design surface.
- [Grouping:](#) makes multiple object behave as a single object.
- [Rotating:](#) changes the angle of a selected object.
- [Aligning:](#) make the object positions.

5.4.1 Adding Objects

There are multiple methods to add an object to a label. Use the most convenient one:

- **Click and Click:** click the object in the object toolbox. Mouse cursor transforms. Click on the design surface – the selected object appears where clicked.
- **Click and Drag:** click the object in object toolbox. Mouse cursor transforms. Click on the design surface and drag to define the size of the added object.
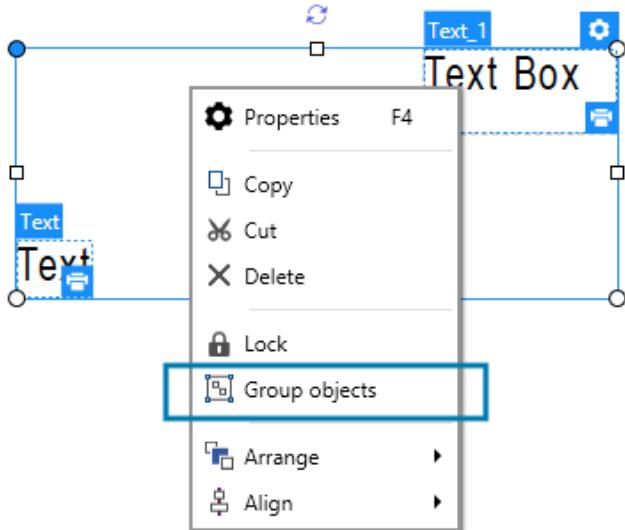
[Text](#) object's size cannot be defined using this method – its size is defined dynamically.

- **Drag and Drop:** click the object in the object toolbox and drag it to the design surface. The selected object appears where the mouse button is released.
- **Copy and Paste:** graphical and textual content can be pasted directly to the design surface. The following rules apply when copying items and pasting them directly to a label:
    - Graphical content from clipboard is pasted as embedded [Picture](#) object.
    - Single line text is pasted as [Text](#) object.

5.4.2 Grouping

To make multiple objects on a label behave as a single object, add them to a group. To group objects:

- Surround the objects you wish to group using mouse. A rectangle appears marking the selected objects. Right-click and select **Group objects** to create a group of objects.
- Hold `<Shift>` key and click the objects you wish to group. This selects multiple objects – right-click and select **Group objects** to create a group of objects.

5.4.3 Rotating

There are two ways to set the angle of an object:

- Enter the angle manually in degrees or drag the slider. The object rotates around its anchoring point. Rotation commands are accessible in two ways:

    - Click **Position** in the [Positioning group](#) of the Design tab.

    - Go to **Object properties -> Position -> Rotation angle**.

- Click and drag the ⌐ icon next to the selected object. The ⌐ icon rotates the object around its central point.

Anchoring point is the spot where an object is pinned to the design surface. Variable size objects increase or decrease their size in the direction that is opposite to the chosen anchoring point.

6 Barcode

ZebraDesigner supports a wide variety of 1D and 2D barcode types to be printed on labels. Each barcode type is configurable according to specific standards.

> **TIP:** When encoding the barcode content, make sure the used characters, length, and identifiers comply with the barcode standard guidelines.

The following barcode types are available in ZebraDesigner:

- 1D and 2D Barcodes
- GS1 DataBar Barcode Subtypes

In ZebraDesigner, barcodes are added to a label using the barcode object. To properly encode the data and to set the barcode object properties, read the sections below. Each of these sections describes barcode object properties. To start editing them, double-click the object to open the Object Properties Window.

6.1 Source

Connected data source defines the content source of the selected object.

- **Fixed data:** manually entered fixed text.
- Variable keyboard input: type of variable that enables the content of a prompted field to be different for every print job.
- Current date: displays current date value on the label.
- Counter: displays counter value on the label.
- Functions: input data transformation tools.
- Databases: database values which are used as object content.

Content field allows you to type the object content.

6.2 Barcode

Barcode Type defines the specific barcode type which should be used to encode the data.

- **X dimension:** width of the narrowest bar in the barcode.
- **Height:** barcode's vertical dimension.
- **Ratio** defines the ratio between the barcode's narrow and wide bar widths.

  Each barcode type's range of permitted ratios is limited by the standard. ZebraDesigner only allows you to use valid ratios. By default, the ratio is set to 3. This means that the wide bar is 3 times the width of a narrow bar.

  > **NOTE:** The available ratios depend on the selected **X dimension**. If you are changing the X dimension, this also affects the selection of available ratios.

- **Row height** defines the height of a single data row in 2D barcodes. Row height is specified as a multiple over the **X dimension**. For example, "3x" means that the row is 3 times the **X dimension**.

Actual properties based on selected printer displays the X dimension as it would appear printed on a label using the currently selected printer.

Color defines the color of the barcode.

6.3 Check Digit

Check digit is used by any scanning system to verify that the number scanned from a barcode is read correctly.

Include check digit determines if check digit is included in a barcode or not.

- **Auto-generate check digit:** automatic check digit calculation.

If the data already includes invalid check digit, ZebraDesigner replaces it with a proper value.

- **Verify the provided check digit:** verification of the manually provided check digit. An error message appears if the check digitis incorrect.
- **Display check digit in human readable:** check digit included in the human readable barcode text.

6.4 Human Readable

Human Readable text displays readable barcode data content located below or above the barcode. Its role is to provide backup in case the barcode is damaged or of poor quality.

> NOTE: **Human Readable** tab is visible with supported barcode types.

- **No human readable:** barcode is rendered without human readable text.
- **Above barcode:** human readable text is located above the barcode.
- **Below barcode:** human readable text is located below the barcode.

Style group allows you to set custom properties for human readable text.

> NOTE: If you decide to customize human readable text, barcode can no longer be used as internal printer element. It is sent to printer and printed as a graphic element.

- **Custom Font:** enables font and font size selection. Internal printer fonts cannot be used as custom human readable font.
- **Auto font scaling:** If enabled (default setting), human readable text grows or shrinks proportionally along with the changing size of the barcode. To set a custom size for human readable text, disable this option and select the appropriate font size.
- **Bold:** makes human readable text appear bold.
- **Italic:** makes human readable text appear italic.

6.5 Bearer Bar

Bearer bar is a border that surrounds the barcode. Its purpose is to protect the barcode image and to enhance reading reliability.

- **Fixed thickness:** automatically defined bearer bar width.
- **Variable thickness:** user-defined bearer bar width.
- **Thickness multiplier:** bearer bar width factor.
- **Show vertical bar:** vertical bearer bars displayed or hidden.

6.6 Details

Details differ according to the barcode standards. Define the options that are given with regard to the currently selected barcode type. Details for 1D and 2D barcodes are described in dedicated sections:

- 1D barcode details
- 2D barcode details

6.7 Position

Position tab defines object positioning and its position-related behavior.

Position group defines the object's position.

- **X** and **Y:** anchoring point coordinates.

Size group sets the object's dimensions:

- **Width** and **Height:** horizontal and vertical object dimension.
- **Keep aspect ratio:** simultaneous changing of object dimensions while scaling.

> NOTE: If the measurement unit is changed in label properties, the value transforms automatically.

Rotation angle is the object angle according to the design surface.

> TIP: There are multiple ways to set the object's angle: enter the angle manually, drag the
>
> slider or click and drag the [icon] icon on the selected object. Rotation angle and slider
>
> rotates the object around its anchoring point. The [icon] icon rotates the object around its central point.

Anchoring point is the spot where an object is pinned to design surface. Variable size objects increase or decrease their size in the direction that is opposite to the chosen anchoring point.

Lock prevents the object from being moved during the design process.

NOTE: If the measurement unit is changed in [label properties](#), the value transforms automatically.

6.8 General

General tab identifies the object and sets its status.

Name sets a unique object ID.

NOTE: Avoid using spaces or special characters in object names.

Descriptionallows adding notes and annotations for an object. It provides help during the label design process.

Status group defines object visibility on print preview and on printed labels.

- **Not printable:** prevents the object from being printed.
- **Visible:** if the checkbox is not selected, the object neither appears on the print preview nor on the printed label. The object is treated as if it does not exist.

Option	Print Preview	Printout
Not printable (selected)	YES	NO
Visible (cleared)	NO	NO

Printing optimization group allows activating the use of internal printer elements.

TIP: If supported by the selected printer model, a share of label element processing is handled directly by the printer (e.g., internal fonts, shapes, barcodes). This speeds up the printing process also due to significantly reduced data traffic.

- **Use printer element if supported:** prints labels using internal printer elements if the printer allows it. If a selected printer does not support internal printer elements, the element is sent as a graphic file.

- **Always use printer element:** prints labels using printer elements only. If a selected printer does not support internal printer elements, an error message with explanation is displayed.

- **Always print as graphics:** sends and prints the objects as graphic files.

6.9 Available Barcodes and Their Settings

Barcode	Example	Info	Available Settings
Anker		Variation of Plessey Code. Used for point of sale systems prior to the advent of EAN code.	Basic Barcode Settings Human Readable Details tab: Include quiet zones Space correction
Bookland		Type of EAN barcode used exclusively for books.	Basic Barcode Settings Human Readable Details tab: Include quiet zones Space correction
Codabar		A self-checking and binary level linear barcode symbology with no check sum digit appended. Widely used in libraries and package delivery systems.	Basic Barcode Settings Human Readable Details tab: Include quiet zones
Code93		43 characters allowed. ASCII character set supported by using combinations of 2 characters.	Basic Barcode Settings Human Readable

Barcode	Example	Info	Available Settings
			Details tab: Include quiet zones Space correction
Code128	12345	Double density data encoding, ASCII character set supported.	Basic Barcode Settings Human Readable Details tab: Include quiet zones Space correction
Code128-A	12345	ASCII characters 00 to 95 (0-9, A-Z, and control codes), special characters, and FNC 1-4 supported.	Basic Barcode Settings Human Readable Details tab: Include quiet zones Space correction
Code128-B	12345	ASCII characters 32 to 127 (0-9, A-Z, a-z), special characters, and FNC 1-4 supported.	Basic Barcode Settings Human Readable Details tab: Include quiet zones Space correction
Code128C	123456	00-99 (encodes each two digits with one code) and FNC1.	Basic Barcode Settings Human Readable Details tab:

Barcode	Example	Info	Available Settings
			[Include quiet zones](#) [Space correction](#)
Code-32	**123456788**	Code-32 has to be used all over Italy for the encoding of pharmaceutical products.	[Basic Barcode Settings](#) [Human Readable](#) Details tab: [Include quiet zones](#) [Inter character gap](#) [Space correction](#)
Code-39	*12345*	Fully alphanumeric barcode for use with data-entry systems.	[Basic Barcode Settings](#) Check Digit [Human Readable](#) Details tab: [Include quiet zones](#) [Inter character gap](#) [Space correction](#)
Code-39 full ASCII	*12345*	28 ASCII character set including asterisks supported.	[Basic Barcode Settings](#) Check Digit [Human Readable](#) Details tab: [Include quiet zones](#)

Barcode	Example	Info	Available Settings
			Inter character gap Space correction
Code-39 Tri Optic	12345	Computer tape cartridge marking.	Basic Barcode Settings Check Digit Human Readable Details tab: Include quiet zones Inter character gap Space correction
Dun-14	(01)12345678901231	Numbering system for shipping containers that uses other barcode types.	Basic Barcode Settings Check Digit Human Readable Details tab: Include quiet zones Inter character gap Space correction
Ean-13	1 234567 890128	European Article Number, used for global retail.	Basic Barcode Settings Check Digit Human Readable Details tab: Include quiet

Barcode	Example	Info	Available Settings
			zones
			Descender bar
			Include EAN white space
			Space correction
Ean-13 + 2		Often used on newspapers and magazines.	Basic Barcode Settings
			Check Digit
			Human Readable Details tab:
			Include quiet zones
			Descender bar
			Include EAN white space
Ean-13 + 5		For books in English language: the first digit of the EAN-5 is the currency indicator. The four following digits represent the price multiplied by 100.	Basic Barcode Settings
			Check Digit
			Human Readable Details tab:
			Include quiet zones
			Descender bar
			Include EAN white space
Ean-14		Traded goods.	Basic Barcode Settings
			Check Digit
			Human Readable

Barcode	Example	Info	Available Settings
			Details tab: Include quiet zones Space correction
Ean-8	 1 2 3 4 5 6 7 0	Small package marking where an EAN-13 bar-code would be too large.	Basic Barcode Settings Check Digit Human Readable Details tab: Include quiet zones Descender bar Include EAN white space Space correction
Ean-8 + 2	 1 2 3 4 5 6 7 0 9 0	Only used if the article is too small for an EAN-13 code.	Basic Barcode Settings Check Digit Human Readable Details tab: Include quiet zones Descender bar Include EAN white space
Ean-8 + 5	 1 2 3 4 5 6 7 0 8 9 0 1 2	Only used if the article is too small for an EAN-13 code.	Basic Barcode Settings Check Digit Human Readable

Barcode	Example	Info	Available Settings
			Details tab: Include quiet zones Descender bar Include EAN white space
GS1-128	(13)121212(15)121217	A variant of Code 128 - it automatically inserts a FNC1 character after the initial character.	Basic Barcode Settings Human Readable Details tab: Include quiet zones Space correction
Interleaved 2 of 5	12345670	Used on 135 film, for ITF-14 barcodes, and on packaging.	Basic Barcode Settings Check Digit Human Readable Details tab: Include quiet zones Space correction
ITF 14	1 23 45678 90123 1	Higher level packaging. GTIN included.	Basic Barcode Settings Check Digit Human Readable Bearer Bar Details tab: Space correction

Barcode	Example	Info	Available Settings
ITF 16	12345 67890 12345 2	Higher level packaging. GTIN included.	Basic Barcode Settings Check Digit Human Readable Bearer Bar Details tab: Space correction
MSI	123456789012	Used primarily for inventory control, marking storage containers and shelves in warehouse environments.	Basic Barcode Settings Check Digit Human Readable Details tab: Include quiet zones Space correction
SSCC		Identification in logistics. The code includes an extension digit, a GS1 company prefix, a serial reference, and a check digit.	Basic Barcode Settings Human Readable Details tab: Include quiet zones Space correction
Plessey	123456789012	One of the first barcode symbologies. Still used in libraries and for shelf tags in retail stores.	Basic Barcode Settings Check Digit Human Readable Details tab: Include quiet zones
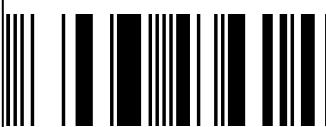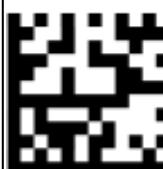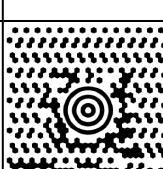
Barcode	Example	Info	Available Settings
			Space correction
SSCC-18	(00)123456789012345675	Identification in logistics. The code includes an extension digit, a GS1 company prefix, a serial reference, and a check digit.	Basic Barcode Settings Check Digit Human Readable Details tab: Include quiet zones Space correction
Upc Case Code	(01)12345678901231	Used for cartons, cases, or pallets that contain products with UPC or EAN product iden-tification number.	Basic Barcode Settings Check Digit Human Readable Details tab: Include quiet zones Space correction
Upc-A	1 23456 78901 2	Product identifying at retail checkout. GTIN included.	Basic Barcode Settings Check Digit Human Readable Details tab: Include quiet zones Descender bar Space correction
Upc-A + 2	1 23456 78901 2 34	Product identifying at retail checkout. GTIN included. Used with magazines and peri-	Basic Barcode Settings Check Digit

Barcode	Example	Info	Available Settings
		odicals.	Human Readable Details tab: Include quiet zones Descender bar
Upc-A + 5		Product identifying at retail checkout. GTIN included. Used for book pricing.	Basic Barcode Settings Check Digit Human Readable Details tab: Include quiet zones Descender bar
Upc-E		Product identifying at retail checkout. GTIN (compressed) included. Adapted for smaller packages.	Basic Barcode Settings Check Digit Human Readable Details tab: Include quiet zones Descender bar Space correction Symbology
Upc-E + 2		Product identifying at retail checkout. GTIN (compressed) included. Adapted for smaller packages.	Basic Barcode Settings Check Digit Human Readable Details tab: Include quiet

Barcode	Example	Info	Available Settings
			zones Descender bar
Upc-E + 5	0 123 456 5 67890	Product identifying at retail checkout. GTIN (compressed) included. Adapted for smaller packages.	Basic Barcode Settings Check Digit Human Readable Details tab: Include quiet zones Descender bar
USPS Intelligent Mail Barcode		Tracking and sorting of letters and flat packages in the United States.	USPS Intelligent Mail Barcode Content Details tab: Include quiet zones

6.9.1 2D Barcodes

Barcode	Example	Info	Available Settings
Aztec		High capacity, symbol size adjusts automatically depending on the amount of input data.	Basic Barcode Settings Details tab: Code page Data layer Error correction level
Data Matrix		High capacity, optimal for small packages.	Basic Barcode Settings Details tab: Format Encoding
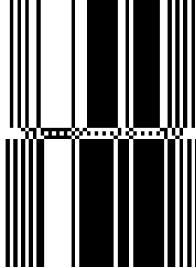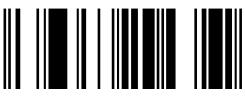
Barcode	Example	Info	Available Settings
			Code page
GS1 DataBar		Marking products that cross POS applications. GS1 identification (AIs) included.	Available settings change according to the selected GS1 DataBar type.
GS1 Datamatrix		Added GS1 Application Identifiers and ASC MH10 Data Identifiers and maintenance.	Basic Barcode Settings Details tab: Format Encoding Code page
GS1 QR Code		Added GS1 Application Identifiers and ASC MH10 Data Identifiers and maintenance.	Basic Barcode Settings Details tab: Symbol version Error correction level Encoding Code page
MaxiCode		Used by UPS on shipping labels for world-wide addressing and package sortation.	MaxiCode Content Basic Barcode Settings
Micro QR		Reduced size and capacity of a normal QR code. Optimal when the barcode size needs to be minimized.	Basic Barcode Settings Details tab: Symbol version Error correction level Encoding Code page
MicroPDF		Compact version of PDF-417.	Basic Barcode Settings Details tab:

Barcode	Example	Info	Available Settings
			Code page Compaction mode Version
PDF-417		Commonly used in transport, inventory management, etc. The code is both self-checking and bi-directionally decodable.	Basic Barcode Settings Details tab: Code page Compaction mode Error correction level Columns Rows Truncated
QR		A matrix barcode readable by QR scanners and smartphones. Adaptable size to the amount of encoded data.	Basic Barcode Settings Details tab: Symbol version Error correction level Encoding Code page

6.10 GS1 DataBar Subtypes
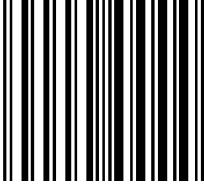
6.10.1 Linear Symbol Types
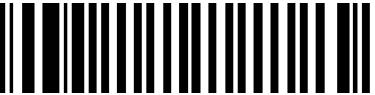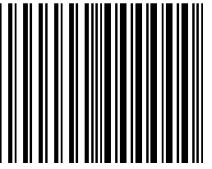
GS1 DataBar Subtype	Example	Info
Omnidirectional		Omnidirectional scanning, up to 20 trillion encodable values.
Stacked		Stacked truncated symbol for omnidirectional

GS1 DataBar Subtype	Example	Info
		scanning with reduced symbol length.
Stacked Omnidirectional		Full height symbol stacked in two rows separated by a delimiter.
Truncated		Height reduced to 13 times the X dimension. For handheld scanners.
Expanded		Omnidirectional scanning, variable content length.
Expanded Stacked		Omnidirectional scanning, variable content length, reduced length due to stacking (2 to 11 rows)."GS1 DataBar Properties" on page 112.
Limited		Limited range of values. For handheld scanners.

6.10.2 Composite Symbol Types

GS1 DataBar Subtype	Example	Info
Omnidirectional		A linear symbology that supports omni-directional scanning of packages. It encodes 14 digits of numerical data used to identify GTIN for scanning in the supply chain.

GS1 DataBar Subtype	Example	Info
Stacked		Stacked truncated symbol for omni-directional scanning with reduced symbol length.
Truncated		Intended for very small items in health-care, not intended for POS scanners.
Expanded		Omnidirectional scanning, variable content length. Used for variable-measure food, coupons.
Expanded Stacked		Omnidirectional scanning, variable content length, reduced length due to stacking (2 to 11 rows). See section "GS1 DataBar Properties" on page 112
Limited		Limited range of values. For handheld scanners.
EAN-8		A smaller and shortened version of the EAN code.
EAN-13		EAN codes require 13 digits (12 if the check digit is calculated automatically).

GS1 DataBar Subtype	Example	Info
EAN.UCC 128 & CC-A		GS1-128 linear bar-code linked to a 2D barcode called CC-A.
EAN.UCC 128 & CC-C		GS1-128 linear bar-code linked to a 2D barcode called CC-C.
UPC-A		The linear component encodes the item's primary identification. The adjacent 2D Composite Component encodes supplementary data, such as a batch number and expiration date.
UPC-E		PC-E compresses a normal UPC-A code into a six digit code by "suppressing" the number system digit, trailing zeros in the manufacturers code and leading zeros in the product number.

6.11 1D Barcode Details

Details tab settings vary along with the specific barcode standards.

> **TIP:** Keep in mind the currently selected barcode type as you define the available barcode settings.

ZebraDesigner allows setting the following 1D barcode details:

- **Include quiet zones:** blank space around the printed barcode. Quiet zone ensures the highest level of scanning reliability.

> NOTE: This option ensures optimum readability in case a neighboring object on a label is located right next to the barcode.

- **Inter character gap:** distance between the last bar of a character and the first bar of the next character in a barcode.
- **Descender bars:** makes the bars at the beginning, in the middle, and at the end of certain barcode types (EAN and UPC) longer.
- **Include EAN white space:** inserts a special character ($<$ or $>$) to indicate the EAN barcode width.
- **Space correction:** adds white pixels to increase the gap width between the bars.

   Symbology: UPC barcode **Number system**:
   - 0, 1 , 6, 7 and 8 are for regular UPC codes.
   - 2 is for random weight items, e.g., meat, marked in-store.
   - 3 is for National Drug Code and National Health related Items.
   - 4 is for in-store marking of non-food items.
   - 5 and 9 are for coupon use.

6.12 2D Barcode Details

2D barcodes enable multiple type-specific settings under the **Details** tab. When defining these settings manually, the dropdown lists offer specific standard-compliant options.

> **TIP:** ZebraDesigner defines the **Details** tab settings automatically if the user chooses not to manually define them.

6.12.1 Code Page

Code page defines how the mapping of code characters with scanned characters is done. To display the scanned data accurately, the correct code page must be selected. If none of the code pages is selected by the user, ZebraDesigner uses system character encoding.

6.12.2 Columns

Columns are basic vertical elements of a PDF 417 barcode. A maximum of 30 columns may be included in a single PDF 417 symbol.

6.12.3 Compaction Mode

Compaction mode compacts a number of data characters into codewords. The decoding algorithm uses the individual codewords to place them into a meaningful matrix.

- **Binary:** all 256 ASCII values (up to 1100 bytes) are allowed.
- **Text:** all printable ASCII characters 32–126 and ASCII 9, 10 and 13 (up to 1800 characters) are allowed.
- **Numeric:** encoding of numeric data (up to 2700 digits).

6.12.4 Data Layer

Data layer defines the number of data layers that encode data in an Aztec barcode. The number of data layers correlates directly with the barcode data capacity. If the value exceeds the data capacity provided by the selected Data layer, an error returns. One to four data layers are allowed.

6.12.5 Encoding

Encoding defines character encoding scheme for the selected barcode.

> NOTE: If you select the GS1 Datamatrix barcode, ZebraDesigner automatically sets the encoding scheme to ASCII. This makes sure the GS1 Datamatrix barcodes on your labels are GS1-compliant.

6.12.6 Error Correction Level

Error correction level defines the symbol security level. It adds a series of error correction codewords to the encoded data. These codewords enable the printed symbol to withstand damage without data loss. The higher the security level, the greater the number of data layers required to contain the symbol – and hence, its overall size. If none of the Error correction levels is selected, ZebraDesigner defines it automatically.

6.12.7 Format

Format defines the symbol size and its capacity using the number of column and row elements.

If using Data Matrix barcode on your labels, DMRE (Data Matrix Rectangular Extension) allows you to use multiple rectangular formats. These additional rectangular sizes increase data encoding capacity of the barcode.

> NOTE: For printers without internal DMRE support, enable **Always print as graphics** under **General** properties to print the Data Matrix barcode successfully.

6.12.8 Rows

Rows – PDF-417 barcode symbol is made of stacks of vertically aligned rows. Such barcode adapts its size to the amount of the encoded data and may contain from 3 to 90 rows.

6.12.9 Symbol Version

Symbol version defines the symbol data capacity. As the amount of data increases, additional modules are required to build a QR code. This makes the symbol larger on the printed label.

6.12.10 Truncated

Truncated reduces the PDF-417 barcode size by removing a single codeword and a stop bar from each symbol row.

6.12.11 Version

Version defines the symbol size based on the number of columns. One-, two-, three-, and four-column versions of Micro PDF417 barcode are available.

6.13 GS1 DataBar Specifics

In addition to the common barcode properties, the specifics described below are available for GS1 DataBar.

6.13.1 GS1 DataBar Source

General group specifies how the databar content is going to be formatted before encoding.

- **Structured data** sets the standard GS1 system data structure as a model for inserting the barcode data. Composite GS1 barcodes represent structured data in the composite part of the code.
- **Unstructured data** allows inserting the data without a model – only character type and number must comply with the selected barcode type.

Data

- **Linear data** is the part of the data that is encoded in the linear part of the barcode. The data is either manually inserted or defined by a predefined **Data source**.
- **Composite data** is the part of the data that is encoded in the composite part of the barcode. This part of data is always structured and follows one of the standard system data structures as defined by the GS1. The data is either manually inserted or defined by a predefined **Data source**.

6.13.2 GS1 DataBar Properties

GS1 DataBar Expanded Stacked subtype encodes the data in the form of symbol segments sequence. Symbol width is defined by the number of symbol segments in each stacked row. Symbol height is defined by the number of stacked rows and their height.

- **Segments per Row** defines the number of segments for each row of a symbol. Up to 22 segments are allowed per symbol.

6.14 Maxicode Barcode Content

Symbology Definition defines the barcode mode of operation (data structuring type).

ZebraDesigner supports the following modes:

- **Mode 2:** US carriers with postal codes up to 9 digits in length.
    - **Postal Code:** US Zip Codes using a single field with 5 or 9 digits, or two fields with 4 or 5 digits.
- **Mode 3:** international carrier with alpha-numeric postal codes with up to 6 digits.

There are two additional options under **Symbology Definition**:

- **Structured data:** automatically selected **Mode 2** or **Mode 3** modes based on the entered data.
- **Unstructured data:** barcode mode of operation is set to **Mode 4**.

This mode encodes general data for purposes other than shipping industry (e.g., purchase order number, customer reference, invoice number).

Data Contents

Field	Description
SHIP TO Postal Code	Mandatory. 5 or 9 alphanumeric characters. Alpha characters must be uppercase.
4 Digit Extension (enabled with Postal code field: Two Fields (5	Mandatory. 4 numeric digits defining micro location.

and 4 digits) type).	
SHIP TO ISO Country Code (Mode 3 only)	Mandatory. 3 numeric digits.
Class of Service	Mandatory. 3 numeric digits, a comma must be included to mark the end of field.
Transportation Data	Mandatory. The 5 characters, including the GS code.
Tracking number	Mandatory. 10 or 11 alphanumeric characters. Alpha characters must be upper case.
UPS SCAC	Mandatory. 4 characters followed by the GS code.
Julian Day of Puckup	Mandatory. 3 numeric digits.
Shipment ID Number	Optional. 0-30 alphanumeric characters. Alpha characters must be upper case. GS code must always be sent even if no data is specified.
Package in Shipment	Mandatory. 1-3 numeric digits for package number. 1-3 numeric digits for number of shipped items. Forward slash must separate these two numbers.
Package in Weight	Mandatory. 1-3 numeric digits.
Address Validation	Mandatory. Single character "Y" or "N". Upper case characters.
SHIP TO Address	Optional. 0-35 alphanumeric characters. Alpha characters in upper case. GS code must always be sent even if no data is specified.
SHIP TO City	Mandatory. 1-20 alphanumeric characters. Alpha characters must be upper case.
SHIP TO State	Mandatory. 2 alpha characters. Both characters must be upper case. RS code marks the end of this field and the end of the secondary message data.

6.15 USPS Intelligent Mail Barcode Content

Data Contents group defines the input mode for the encoded data.

Input mode defines the structure of the encoded data.

- **Structured data:** to ensure proper intelligent mail tracking, a string of numbers must be obtained. This string is referred to as the DataToEncode. The DataToEncode

consists of the **Intelligent Mail Data Fields**.

- **Unstructured data:** encoded data follows no predefined structure.

Intelligent Mail Data Fields group allows you to encode the barcode data in accordance with the standard.

Field	Description
Barcode Identifier	Specific two-digit identifier assigned by the Postal Service.
Service Type Identifier	Three-digit identifier defines the mail piece as full-service or basic (Non-automation) and is also used to determine the disposition of undeliverable-as-addressed (UAA) mail and the form of address correction that a mailer desires.
Mailer Identifier	Unique 6-or 9-digit number that identifies a business entity or customer.
Serial Number	A serial or sequence number which enables unique identification and tracking. Depending on the specific barcode construct, this field can vary in length from 5-10 digits.
Delivery Point ZIP Code	Routes the mail to its final delivery point (length variations: none, 5, 9, or 11 digits).

7 Printing

When a label is ready to be printed, ZebraDesigner helps you print it using a print dialog. It allows you to:
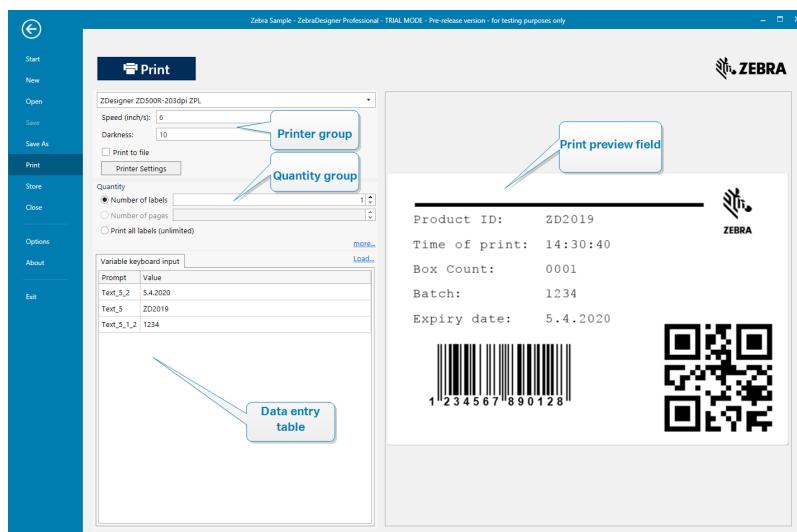
- Preview the label during the design process.
- Insert values for variable keyboard input.
- Define printer settings.
- Control print quantity.
- Define additional quantity settings.

To open the print dialog, click the **Print** button in the Action group of the Home tab ribbon or press Ctrl+P.

Step-by-step printing procedure is described here.

7.1 Print Pane (Default Printing Form)

File (background) tab opens the default printing form. In ZebraDesigner, it serves as the primary print dialog.

Print button starts the [printing procedure](#). It sends the print job to the selected printer.

Printer group of settings includes:

- **Print button:** starts the print label action.
- **Printer selection combo box:** lists the installed printers.
- **Printer settings combo boxes:** define printing speed and darkness. The selectable values are provided by the selected printer driver.
    - **Speed:** speed of printing. Available options are defined by the active printer driver.
    - **Darkness:** sets the intensity of printing. Available options are defined by the active printer driver.
- **Print to file checkbox:** redirects the printing to a file.
- **Printer Settings button:** opens properties printer driver dialog for the currently selected printer.

Quantity group of settings includes:

- **Print quantity object:** defines the number of labels to be printed.
    - **Number of labels:** number of printed labels.
    - **Number of pages:** number of printed pages with labels.
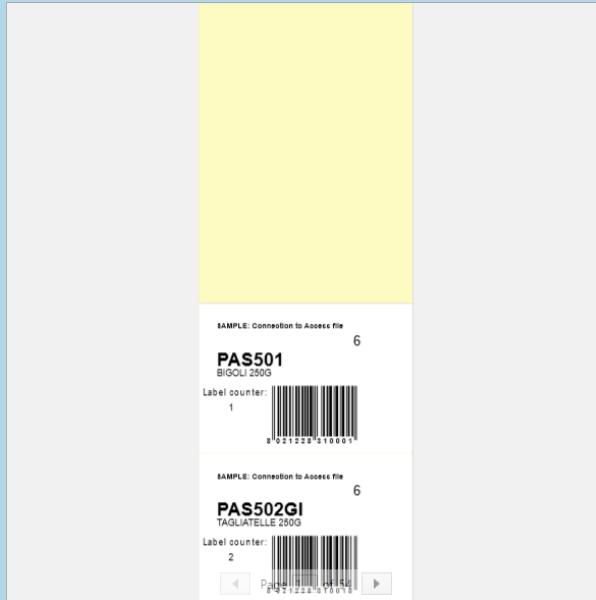
    > NOTE: **Number of pages** option becomes active if more than 1 label per page is set under [label properties > label dimensions.](#)

    - **Print all labels (unlimited):** prints all labels as defined by the label design. More details about this option are available [here](#).

more... link opens the **Additional Quantity Settings** window.
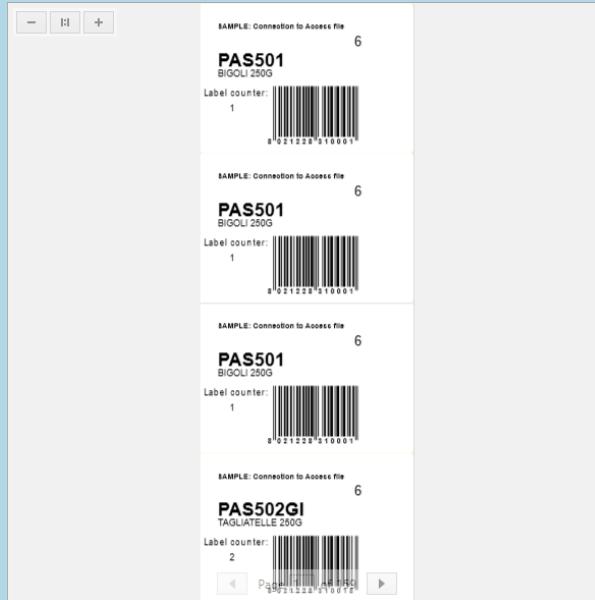
- **Number of labels skipped on first page:** defines how many labels should be left unprinted on the first page.

> **EXAMPLE:** A single page includes five labels. **Number of labels skipped on first page** is set to three. Two labels are printed on the first page.
>
>

- **Identical copies per label:** number of identical label copies to be printed.

> **EXAMPLE:** A single page includes five labels. **Identical copies per label** is set to three. There are three copies of each label printed.
>
>

- **Number of label sets:** defines the number of print jobs to be sent to the printer.

> **EXAMPLE:** A set of printed labels contains three labels: A, B and C.
> Number of labels:
> **Identical copies per label:** 2.
> **Number of label sets:** 3.
> **Print result:** [A, A; B, B; C, C] [A, A; B, B; C, C] [A, A; B, B; C, C]

Load... allows you to locate and load the predefined variable values for your printed labels. You can include these predefined values in dedicated files with ".defaults" or ".values" extensions and store them on your computer or an accessible network location.

The two supported formats for ".defaults" or ".values" are:

- XML:

```
<variables>

<variable name="var1">variable1</variable>

<variable name="var2">variable2</variable>

</variables>
```

- name-value:

```
var1=variable1

var2=variable2
```

Variable keyboard input field (data entry table) allows inserting prompted variable values at print time.

Print preview field displays the current label design and content.

7.2 Printing Procedure

Use the following steps to successfully print a label using the ZebraDesigner.

Step 1: Create

Create a new or edit an existing label.

Step 2: Preview

Label preview field is a part of default ZebraDesigner Print dialog. To make the print form appear on screen, select one of the following options:

- Go to Home tab > Action group and click **Print**.
- Press **Ctrl+P**.

Label preview field displays current label design.

Step 3: Select printer

Choose the preferred printer from the **Printer** tab dropdown menu. All currently available printers are listed. More details on defining the printer are available here.

During this step, printing speed and darkness can be set as well. These two parameters depend on the selected printer's driver.

Step 4: Set print quantity

Number of labels sets the number of printed labels.

Number of pages sets the number of printed pages. This option becomes active if the labels are positioned across at least two pages.

Print all labels (unlimited) prints all labels as defined by the label design. More details about this option are available in "Printing of Unlimited Data" on page 155.

Click **more...** to open the Additional Quantity Settings dialog.

- **Identical copies per label** defines the number of identical label copies in a print job.
- **Number of label sets** defines how many times the entire label printing process should repeat.

Step 5. Start Printing

Click the **Print** button.

7.3 Optimize Printing Speed

There are many factors that affect the speed of label printing in ZebraDesigner. Follow the guidelines below to dramatically increase the speed of printing.

> NOTE: When implementing the following guidelines, ensure they are supported by the selected printer.

- If the selected printer supports parallel and serial port, use the parallel port. When the computer sends the data to printer over parallel port, it is much faster than over serial port.
- When designing a label, use internal printer fonts instead of Windows true-type fonts. True-type fonts are sent to the printer as graphics. This vastly increases the size of data sent to printer (couple of kilobytes). With internal printer fonts, only the text is sent to printer (couple of bytes).

- Avoid using graphics on labels.

- When using barcodes, ensure the barcodes are used as internal printer elements.
- When using counters, the printer internally increments the numbers if the internal printer fonts are used. This means, that the printer only needs to receive the first object number. The printer later increments this number while printing additional labels. This option also reduces the amount of data transferred between computer and printer.

With internal printer counter, the printing speed difference becomes noticeable with high quantity of labels.

- Set the printing speed to a higher value. Increasing the printing speed usually affects the quality of printing. The higher the speed, the lower the quality. Find an acceptable compromise.

- Don't print excessive amount of data on labels. If the speed of printing is an important factor, consider using preprinted labels, and only print the data, that changes with each label.

7.4 Changing Common Printer Settings
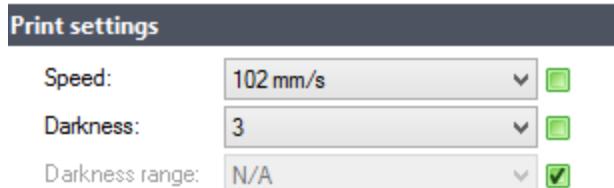
When designing a label, you also define which printer should be used for printing it. Each label file stores its own printer settings for the selected printer driver.

Changes made in the printer settings dialog box are saved to the label and will be used in future print actions.

> NOTE: Ensure that **Use custom printer settings saved in the label option** is enabled in **Label properties > Printer**. If not, default printer settings are going to be used.

Complete the following steps to change and save common printer settings for a label:

1. Open the label properties dialog.
2. Click **Printer properties** button on **Printer** tab. The dialog window with printer driver settings opens.
3. Open the **Printer Options** tab.
4. Adjust the **Speed** and **Darkness** settings.

These settings depend on the selected printer.
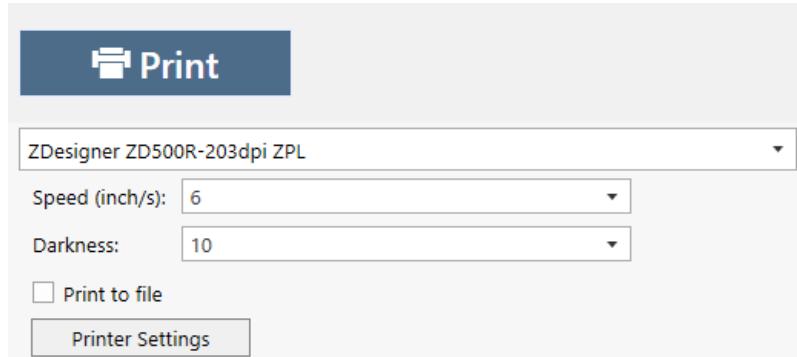
5. Click **OK**.
6. Save the label.

> NOTE: Any changes in the printer settings dialog box will be saved to the label and applied to future print actions.

Changes in label printing speed and darkness can also be done at print time. These settings are only valid while the file remains open. After reopening the file, the settings are reset to those defined in **Printer properties** dialog.

Complete the following steps:

1. Open [Print dialog](#).
2. Click **Print**.
3. Adjust **Speed** and **Darkness** values under **Printer** group.
4. Save the label.

> NOTE: Changes to the settings in the **Printer** tab will not be saved in the label but used only at print time.

7.5 Changing Dithering Options
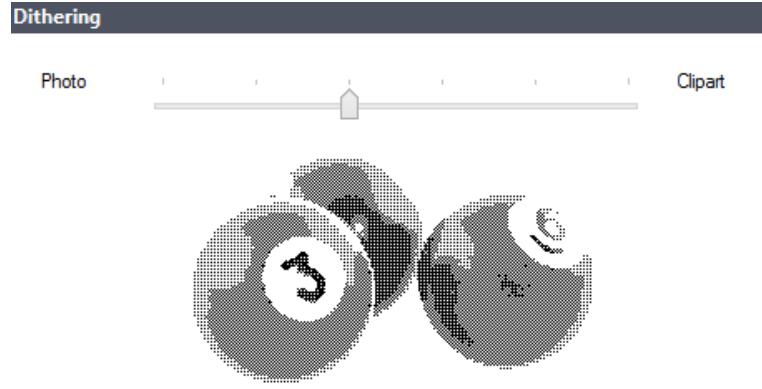
> NOTE: This option is applicable only if a Zebra printer driver is used for label printing.

Dithering is a process of converting color or gray scale pictures to black and white pictures that can be printed on thermal printers. Thermal printers normally cannot print color images and can either print a dot on the label or leave the area blank. There are no intermediate shades of gray.

During the dithering process, all colors and shades of gray in the picture are converted to black and white dots, creating an illusion of new colors and shades by varying the pattern of dots. Different shades of gray are produced by varying the patterns of black and white dots. There are no gray dots at all. In printing, dithering is usually called half-toning, and shades of gray are called halftones.

To change the dithering settings, do the following:

1. Open [label properties](#) dialog.
2. Click **Printer properties** button on **Printer** tab. The dialog window with printer driver settings opens.
3. Open **Graphic Options** tab and use **Photo** slider to select the preferred dithering type.

> NOTE: These settings depend on the selected printer.

4. Change the dithering type option to suit your needs. Look at the preview on the right side how you can expect the selected type to be applied on the label.
5. Click **OK**.
6. Save the label.

8 Dynamic Data Sources

Dynamic data sources form an essential part of working with the ZebraDesigner. They enable the use of label objects that dynamically change their content with each printed label, if necessary.

> **EXAMPLE:** Typical dynamic content that are automatically updated are counters, serial numbers, date, time, weight, and article images.

To display and print the dynamic object content properly, ZebraDesigner uses the following dynamic data types:

- Variable keyboard input: content of an object is defined before each printing.
- Current Date: current date taken as a variable value.
- Current Time: current time taken as a variable value.
- Counter: type of variable whose value increments or decrements along with the changing value of system or printer counter.
- Link to another object: content of an object is defined by the content of another (linked) object on a label.
- Functions: transform the dynamic data source values. Functions define the output format to adapt the input–output conversion to specific requirements.
- Databases: retrieve and display the database record.

8.1 Variables
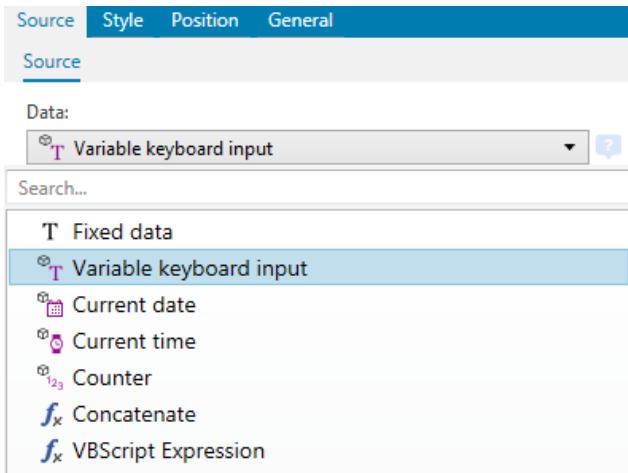
Variables act as containers for storing and passing data between objects, scripts, external applications, printers, and user inputs. Use variables to print labels where data changes on each label (e.g., counters, serial numbers, date, time, weight, and product images).

To create labels with changing data, use ZebraDesigner to easily format your labels using variable data.

ZebraDesigner includes multiple types of variables:

- Variable Keyboard Input: changes the content of prompted fields for each print job. You define its value right before you print.

- Current Date: displays current date as a variable value.
- Current Time: displays current time as a variable value.
- Counter: changes value incrementally or decrementally with each label you print.
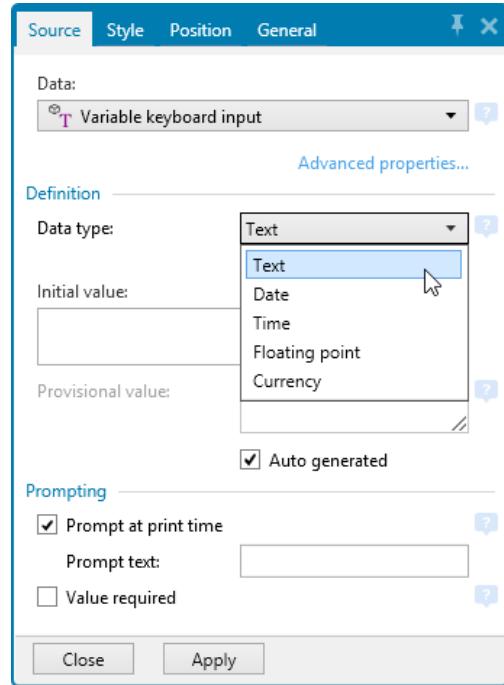
8.1.1 Variable Keyboard Input

Variable Keyboard Input is a type of variable that enables the content of a prompted field to be different for every print job. Its value is defined before each printing.

8.1.1.1 General

Definition group of settings defines which input data types are valid for a variable.

- **Data type** defines what type of data is stored in a variable.
    - Text: keyboard input that contains text.
    - Date: keyboard input that contains date values.
    - Time: keyboard input that contains time values.
    - Floating point: representation of real numbers in a variable.
    - Currency:variables that contain monetary values.
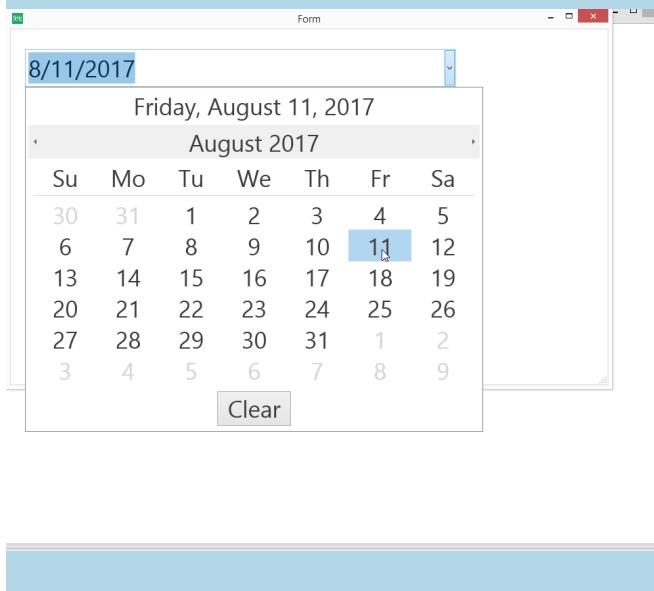
- **Initial value:** starting value that is assigned to a variable keyboard input when created. It is defined using one of the following methods:

  - Manually entering a fixed value.

    TIP: If you enter period (".") as the initial value for a variable with selected **Date** or **Time** data type, it displays current date or time.

    EXAMPLE: Edit field on a form is connected to a variable with **Date** selected as Data type. If period is selected as **Initial value**, the Edit field displays current date when the form is run. Dropdown button opens Date picker with

preselected current date.

- Using a special character:
    - Special characters can be entered manually using the less than/greater than signs, e.g., <CR>, <LF> ...
    - Special characters can be selected from the dropdown list.

Make sure the inserted initial value meets the criteria defined with **Output Rules** for each data type.

Prompting group of settings defines the print time behavior of a data source. Read more about prompting here.

8.1.1.2 Text

Text data type is used for variables that store textual content. As a result, only textual input is allowed as the variable input data type.

8.1.1.2.1 Input Rules

Data group defines permitted data properties.

- **Limit length:** maximum length of variable value.
- **Fixed length:**variable must contain the exact number of characters as defined in the **Limit length**.

Check range group allows you to enter minimum and maximum permitted value of the variable. Setting the limits is optional.

- **Minimum value:** the lowest permitted variable value.
- **Maximum value:** the highest permitted variable value.

If enabled, minimum and maximum values must not be left empty.

8.1.1.2.2 Output Rules

Prefix and Suffix are characters that are added to a variable value.

- **Prefix:** text placed in front of the variable value.
- **Suffix:** text placed behind the variable value.

8.1.1.3 Date

Date data type stores date-related values in the selected variable. Date field displays the date value using various date formats. The date value format can be either selected from the preloaded formats, or customized to meet the specific local, regulatory or industry related requirements.

8.1.1.3.1 Input Rules

Input Formatting group defines the allowed date format and displays a preview.

- **Input format:** allowed date input format.
- **Sample value:** displays the preview according to the selected input format.

> NOTE: ZebraDesigner supports a range of preloaded or customized date formats.

Check range group allows you to enter minimum and maximum permitted value of the variable. Setting the limits is optional.

- **Minimum value:** the lowest permitted variable value.
- **Maximum value:** the highest permitted variable value.

> NOTE: If enabled, minimum and maximum values must not be left empty.

8.1.1.3.2 Output Rules

Output formatting sets the output date format.

- **Output format:** format in which the date is displayed.
- **Output language:** language selection and regional formatting for days and months.

> **Output Language** becomes relevant when the dates that include months or dates are written in words. In some cases, data calculations may be affected as well. For example, in US, a new week begins on Sunday whereas in EU and other countries, a new week begins on Monday.

- **Sample value:** date preview according to the selected input format.

Prefix and Suffix group defines characters that are added to a variable value.

- **Prefix:** text placed in front of the variable value.
- **Suffix:** text placed behind the variable value.

> **TIP:** **Input rules** help the user when inserting the variable data. They act as a filter that defines the type, length, and other input data properties.
> **Output rules** set the final variable formatting – they define how the variable value is going to be presented in an object.

8.1.1.4 Time

Time data type stores time values in a variable. Time field displays the date value using various time formats. The time value format can be either selected from the preloaded formats, or customized to meet the specific local, regulatory or industry related requirements.

8.1.1.4.1 Input Rules

Input Formatting defines the allowed time format and displays a preview.

- **Input format:** allowed time input format.
- **Sample value:** variable preview according to the selected input format.

> NOTE: ZebraDesigner supports a range of preloaded or customized time formats.

Check range group allows you to enter minimum and maximum permitted value of the variable. Setting the limits is optional.

- **Minimum value:** the lowest permitted variable value.
- **Maximum value:** the highest permitted variable value.

If enabled, minimum and maximum values must not be left empty.

8.1.1.4.2 Output Rules

Output formatting defines the output time format.

- **Output format:** format in which the time is displayed.
- **Sample value:** time preview according to the selected input format.

Prefix and Suffix group defines characters that are added to a variable value.

- **Prefix:** text placed in front of the variable value.
- **Suffix:** text placed behind the variable value.

> **TIP:** **Input rules** help the user when inserting the variable data. They act as a filter that defines the type, length, and other input data properties.
> **Output rules** set the final variable formatting – they define how the variable value is going to be presented in an object.

8.1.1.5 Floating Point

Floating Point data type specifies the representation settings for numeric values that are stored in a variable. This **Data type** is used to set the digit grouping points (separators) according to the regional specifics, and to place the decimal delimiters at the right places.

8.1.1.5.1 Input Rules

Input formatting specifies the allowed input number format.

- **Decimal delimiter:** specifies the character that separates the integer part from the fractional part of a number written in decimal form.
- **Decimal places:** the number of decimal places to be included in the number.
- **Use 1000 separator:** separator places the thousands into groups.
    - **Separator:** a character that is used as thousands separator.
- **Sample value:** displays a preview of the current number input format.
- **Limit variable length:** enables limiting the number of digits to be defined for a variable.
    - **Length (characters):** allowed number digits in a variable.

Check range defines the minimum and maximum number values. Defining the minimum and maximum limits is optional:

- **Minimum value:** the lowest allowed input number.

If already defined, the initial value is taken as the minimum value.

- **Maximum value:** defines the highest allowed input number.

8.1.1.5.2 Output Rules

Output formatting group specifies the preferred output number format.

- **Decimal delimiter:** the character that separates the integer part from the fractional part of a number written in decimal form.
- **Decimal places:** the number of decimal places to be included in the number.
    - **Auto:** decimal places are defined by local system settings.
- **Use 1000 separator:** enabled use of a separator that places the thousands into groups.
    - **Separator:** a character that is used as thousands separator.
    - **Sample value** displays a preview of the current output format.

Prefix and Suffix are characters that are added to a variable value.

- **Prefix:** text placed in front of the variable value.
- **Suffix:** text placed behind the variable value.

> **TIP: Input rules** help the user when inserting the variable data. They act as a filter that defines the type, length, and other input data properties.
> **Output rules** set the final variable formatting – they define how the variable value is going to be presented in an object.

8.1.1.6 Currency

Currency data type is used for variables that store numerical values of monetary amounts. Define currencies for various regions and set their properties.

8.1.1.6.1 Input Rules

- **Input formatting** group specifies the allowed input currency format.
- **Decimal delimiter** is the character that separates the integer part from the fractional part of value written in decimal form.
- **Decimal places** is the number of decimal places that is allowed to be included in the value.
- **Use 1000 separator** enables using a separator that places the thousands into groups.
    - **Separator:** character that is used as 1000 separator.
- **Currency symbol** is a graphic symbol that represents a currency.
    - **Placement:** position of the currency symbol.
- **Sample value** displays a preview of the currency input format.
- **Limit length** enables limiting the number of digits to be defined in a variable.
    - **Length (characters):** allowed number of digits in a variable.

Check range defines the minimum and maximum values expressed in currency. Defining the minimum and maximum limits is optional.

- **Minimum value:** the lowest allowed input currency value.

If already defined, the initial value is taken as the minimum value.

- **Maximum value:** the highest allowed input currency value.

8.1.1.6.2 Output Rules

Output formatting specifies the preferred output currency format.

- **Decimal delimiter:** character that separates the integer part from the fractional part of a value written in decimal form.
- **Decimal places:** number of decimal places to be included in the value.
- **Use 1000 separator:** separator that places the thousands into groups.
    - **Separator:** character that is used as 1000 separator.
- **Currency symbol** is a graphic symbol that represents a currency.
- **Placement** defines the currency symbol's position. Select it from the dropdown list.
- **Sample value** displays a preview of the currency input format.

Prefix and Suffix are characters that are added to a variable value.

- **Prefix:** text placed in front of the variable value.
- **Suffix:** text placed behind the variable value.

> **TIP: Input rules** help the user when inserting the variable data. They act as a filter that defines the type, length, and other input data properties.
> **Output rules** set the final variable formatting – they define how the variable value is going to be presented in an object.

8.1.2 Current Date

Current Date is a type of variable that displays the current date value. The value is obtained from system or printer clock.

8.1.2.1 General Tab

Definition group sets output formatting and displays its preview.

- **Output format:** format in which the date is displayed. Available date formats are listed here.

The selected clock source option (see below) defines the range of allowed date **Formats**. Printer clock option only allows the use of printer supported date formats. An error returns if a non-valid format is used. Computer (system) clock option allows <u>a range of preloaded or customized date formats</u>.

- **Output language:** language selection and regional formatting for days and months.

> **EXAMPLE: Output Language** becomes relevant when the dates that include months or dates are written in words. In some cases, data calculations may be affected as well. For example, in US, a new week begins on Sunday whereas in EU a new week begins on Monday.

- **Output preview:** displays the printed current date. The range of used characters adapts to the selected **Output language** and printer.

Date offset group enables adding a certain number of days, months or years to the current date. The offset date is displayed in the object instead of the present date.

- **Days:** date offset in days.
- **Months:** date offset in months.
- **Years:** date offset in years.

Printer Clock group defines which clock should be used as the date value source.

- **Always use computer clock:** computer (system) clock set as the exclusive **Current Date** value source.
- **Always use printer clock:** printer clock set as the exclusive **Current Date** value source. An error is returned if the printer clock is unavailable.
- **Use printer clock if supported:** printer clock set as the preferred **Current Date** value source. If the printer clock is not supported, the computer (system) clock value is used instead.

8.1.2.2 Output Rules

Prefix and Suffix values may be added to a variable value if required.

- **Prefix:** text placed in front of the variable value.
- **Suffix:** text placed behind the variable value.

8.1.2.3 Date Formats

ZebraDesigner enables flexible use of date fields. When defining the formats, the following notations are used:

Notation	Description

d	The number of the day in a month. Occupies one or two characters.
dd	The number of the day in a month. Always occupies two characters – leading zeros are added if necessary.
M	M is the number of month. Occupies one or two characters.
MM	MM is the number of month. Always occupies two characters.
yy or yyyy	The year represented with 2 or 4 digit numbers.
ddd	The abbreviated name of the day of the week.
dddd	The full name of the day of the week.
MMM	The abbreviated name of the month.
MMMM	The full name of the month.
J	The number of days since January 1. Occupies from one to three characters.
JJJ	The number of days since January 1. Always occupies three characters.
W	The week number in current year. Occupies one or two characters.
WW	The week number in current year. Always occupies two characters.
N	The weekday number. The value range takes 1–7 characters, where 1 represents Monday and 7 represents Sunday.
Custom text	Any sequence of characters is displayed unchanged. Insert dots, commas, and other characters to present the date as required.

8.1.2.3.1 Date Format Examples

Format	Printed Date (English)
d.M.yyyy	10.3.2016
dd/MM/yy	10/03/16
dddd, d.MMMM yyyy	Thursday, 10.March 2016
JJJWWyyyy	069102005
textd/M/yyyytext	text10/3/2016text

8.1.3 Current Time

Current Time is a type of variable that displays the current time value. The value is obtained from system or printer clock.

8.1.3.1 General Tab

About group of settings identifies the variable and defines time output format and language.

- **Name:** unique variable name. This name is used as a variable reference during its use.
- **Description:** is a field that allows adding additional information and suggestions.

Definition group sets output formatting and displays its preview.

- **Output format:** format in which the time is displayed. Available time formats are listed here.

The selected clock source option defines the range of supported time **Formats**. Printer clock option only allows the use of printer supported time formats. An error returns if a non-valid format is used. Computer (system) clock option allows a range of preloaded and customized time formats.

- **Output preview** displays the printed current time format.

Time offset enables adding or subtracting a certain number of seconds, minutes or hours from the current time.

- **Seconds:** time offset in seconds.
- **Minutes:** time offset in minutes.
- **Hours:** time offset in hours.

Printer Clock group defines which clock should be used as the time value source.

- **Use printer clock if supported:** printer clock set as the preferred current time value source. If the printer clock is not supported, the system clock value is used instead.
- **Always use printer clock:** printer clock set as the exclusive **Current Time** value source. An errorreturns if the printer clock is unavailable.
- **Always use computer clock** computer (system) clock set as the exclusive **Current Time** value source.

8.1.3.2 Output Rules

Prefix and Suffix values may be added to a variable value if required.

- **Prefix:** text placed in front of the variable value.
- **Suffix:** text placed behind the variable value.

8.1.3.3 Time Formats

ZebraDesigner enables flexible use of time fields. Select a predefined time format or create a customized one. When defining the formats, the following notations are used.

Notation	Description
h	Hours in 12-hour format. AM/PM is added, if selected. Occupies one or two characters.
hh	Hours in 12-hour format. AM/PM is added if selected. Always occupies two characters. Leading zeros are added, if necessary.
H	Hours in 24-hour format. Occupies one or two characters.
HH	Hours in 24-hour format. Always occupies two characters.
mm	Used for minutes.
ss	Used for seconds.

8.1.3.3.1 Time Format Examples

Format	Printed Date
h:mm {AM/PM}	8:25PM
H:mm	20:25
hh:mm:ss	08:25:36

8.1.4 Counter

Counter is a type of variable whose value increments or decrements along with the changing value of system or printer counter.

Thermal printers are usually equipped with an internal incremental counter. This is a dedicated counter that counts the printed labels internally. The printer only receives the first value and automatically increases or decreases it on the subsequent labels. This option reduces the amount of data transferred between computer and printer as only initial value is sent to the printer. Internal counter speeds up the label production significantly.

8.1.4.1 General Tab

About group of settings identifies the variable and defines serialization details.

- **Name:** unique variable name. This name is used as variable reference.
- **Description:**is a field that allows adding additional information and suggestions.

Definition group of settings defines the counter behavior.

- **Counter type:** counter value increasing or decreasing.
    - **Incremental:** value increases along with the printed labels.
    - **Decremental:** variable value decreases along with the printed labels.
- **Step:** amount of units that represent the next state of counter value.
- **Repetition:** number of repetitions for each counter value.
- **Initial value:** value that is used when the counter starts.
- **Preview:** displays the counter value sequence as defined by the current **Step**, **Repetition** and **Initial value**.

> **EXAMPLE:** Counter Step = 3, Repetition = 3 and Initial value = 1 are: 1, 1, 1, 4, 4, 4, 7, 7, 7, 10, 10, 10, 13, 13, 13, ...

Prompting group of settings defines the print time behavior of a data source. Read more about prompting [here](#).

Dynamic value group defines how the last used dynamic value of a variable is handled.

- **Remember the last used value (dynamic value):** ZebraDesigner stores the last used value of a variable. The last used value is stored in an external text file at the same location as the label file. Files that store the last used values have the same filename as the label, followed by .dvv extension.

When sharing labels with dynamic values, make sure not to share only label files (.nlbl), but also files that store last used dynamic values (.dvv).

Label must be saved before enabling this option.

> **EXAMPLE:** The last used value is useful when the continuation of numbering from the last printed label is required (e.g., serial number). Counter's last value is stored and the numbering is continued from this point at next use.

Printer Counter defines which counter should be used as counter variable value source.

- **Use printer counter if supported:** printer counter is set as the counter of choice if supported by the active printer. If the printer counter is not supported, system counter is used instead.
- **Always use printer counter:** printer counter set as the exclusive counter value source. If the printer counter value is not available, the default (system counter) value is used.

An error is reported if the selected printer has no support for internal printer counter. Printing cannot continue.

- **Always use computer counter:** computer counter set as the only counter value source.

> **TIP:** **Input rules** help the user when inserting the variable data. They act as a filter that defines the type, length, and other input data properties.
> **Output rules** set the final variable formatting – they define how the variable value is going to be presented in an object.

To use internal printer counter, follow these rules:

- The variable's maximum length is limited by the printer. The value should be included in the printer user guide.

> **TIP:** If the exact maximum variable length value is not available, Zebra recommends making a few test prints for determining the value.

- Set variable length to fixed.
- Set variable format to numeric.
- Text object that is linked to the variable must be formatted using an internal printer font.
- Enable **Always use printer counter** option.
- Ensure the Internal Element icon is visible next to the counter text.
- Ensure an internal printer font is used for the counter text.

8.1.4.2 Input Rules

Data defines the counter input criteria.

- **Limit length:** maximum length of a variable value.
    - **Length (characters):** specifies the exact number of characters permitted.
- **Fixed length:** variable must contain the exact number of characters as defined in the **Limit variable length**.

Check range group defines minimum and maximum counter values.

- **Minimum value:** minimum counter value.
- **Maximum value:** maximum counter value.

Rollover settings group defines the condition at which the counter automatically resets its value to default.

- **Using min/max:** minimum and maximum counter values activates the rollover.
- **When the selected data source changes:** data source value change activate the rollover.
- **When date or time changes:** date or time value change activates the rollover.

Date/time change is defined by computer clock.

8.1.4.3 Output Rules

Prefix and Suffix are characters that are added to a variable value.

- **Prefix:** text placed in front of the variable value.
- **Suffix:** text placed behind the variable value.

8.1.5 Prompting

When designing labels with connected dynamic data sources, a value has to be assigned to them before printing. Prompted variables have their values manually assigned at print time. The user is asked for the value of every variable before each print job.

Prompting group asks the user for manual data input – this is done after the print dialog opens.

- **Prompt at print time:** enabled or disabled prompting form variable value.

If a dynamic data source is included in the **Initial value**, prompting becomes disabled.

- **Prompt text:** contains text that prompts the user for value input. This text serves as an instruction on what kind of values should be entered before printing.
- **Value required:** variable value status – mandatory or optional. If the prompt text is left empty if the value is set as mandatory, printing cannot start. An error message appears.

8.2 Link to Another Object

Link to other object makes the content of a label object (re)appear in another object on the same label.

To fill an object with linked content, open the label object properties and click **Link to other object** on the **Source** tab of the dialog.

Label objects that can be linked to the selected object are listed as a possible Data source. Select the appropriate object and link to it.

8.3 Functions

The purpose of functions is to manipulate the data that is assigned to label objects. Functions process the existing data source values and store the result in function-generated data sources.

Each function can be directly connected to an object and used as a part of another function.

ZebraDesigner includes the following function types:

- **Concatenate:** merges two or more data source values into a single value.
- **VBScript Expression:** is a simplified version of VBScript function.

8.3.1 Concatenate

Concatenate function merges two or more data source values into a single value.

About group identifies the function.

- **Name:** function ID, initially defined by the function type.
- **Description:** function's purpose and role as defined by the user.

Input data source group defines the existing or newly added input data source (variable, function or database record) or fixed text that will be used in the function.

Output Options group defines the output value format.

Delimiter is a character that is inserted between the concatenated values. The delimiting character can be entered manually or selected from one of the additional options:

- **New Line (CR/LF):** new line character.
- **Insert special character:** special character is entered.

  NOTE: Delimiter is an optional value. With no delimiter defined, the concatenated values are merged without a delimiting space or character.

- **Ignore empty values:** ignores empty data source values. These values are excluded from concatenation.

  TIP: This option is useful if you want to avoid duplicated delimiters if empty values appear.

EXAMPLE:
Data source value 1: A, B, C, D

Data source value 2: <empty>
Data source value 3: E, F, G
Delimiter: ,
Concatenated value with vs. without Ignore empty values: A, B, C, D, E, F, G vs. A, B, C, D,, E, F, G

NOTE: **Ignore empty values** option is effective only after executing a print command. When storing a label in store/recall printing mode or when exporting a label, the empty values are not ignored. Delimiters appear duplicated.

8.3.2 VBScript Expression

VBScript Expression is a simplified online version of VBScript function. This ZebraDesigner function allows you to:

- manipulate existing variables
- extract sub-strings
- perform quick calculations

VBScript Expression reduces the need to write dedicated VBScripts. Instead of writing an entire script, insert a single-line expression in the edit field that is validated at print time.

VBScript Expression

- **Insert data source:** inserts an existing or a newly created data source into the expression.
- **Verify:** validation of the entered script syntax.

8.4 Databases

Databases can be used as dynamic data source for label objects. To make the database content accessible and retrievable from the selected object, the database connection must be properly established and configured.

The most time efficient and user friendly way of adding a database to your label data sources is to use the Step-by-Step Database Wizard.

ZebraDesigner supports a wide selection of database types. The supported database types are listed here.
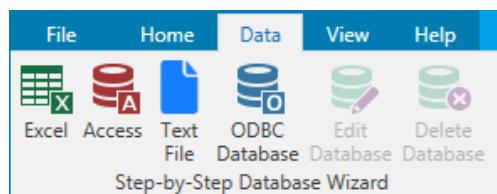
8.4.1 Supported Database Types

ZebraDesigner supports multiple types of databases:

- Microsoft Excel
- Microsoft Access
- Text File databases
- ODBC data source

8.4.2 Step-by-Step Database Wizard

Database wizard is a guided process that allows the user to configure a connection to a database and to select which tables and fields will be used.

Edit Database allows you to edit all existing connected databases using a wizard.

The wizard additionally allows you to sort, filter records, and to define how many label copies will be printed per database record.

8.4.2.1 Adding a Database

To add a database using the **Database Wizard**, click the preferred database button in **ZebraDesigner Data tab ribbon > Step-by-step Database Wizard** group.

Listed below are the available wizard options. To successfully add a database, follow the steps for each database type:

- Adding an Excel database
- Adding an Access database
- Adding a Text File database
- Adding an ODBC data source

8.4.2.2 Database Wizard for Excel Files

This section describes how to connect Excel database to an object using the ZebraDesigner Step-by-Step Database Wizard.

Step 1: Connection Settings

This step defines the database connection parameters.

NOTE: The available parameters depend on the selected database type.

File name defines the database file location.

Advanced Setup opens the system configuration dialog. *Data Link Properties* window allows you to set the connection properties. **Data Link Properties** is a Windows system dialog – read more about its properties here.

Test Connection button starts a connection testing procedure. It checks if ZebraDesigner can successfully connect to the database.

Click **Next**.

Step 2: Tables and Fields

This step defines which database table and which fields of this table should be used as dynamic data source.

Tables group allows you to select which tables of the connected database should be used as data source.

- **Available tables:** available tables in the selected database.
- **Selected tables:** tables that are used as data source.

Click **Add >** or **< Remove** buttons to add or remove the tables from the **Selected fields**.

NOTE: When editing an existing database, a table cannot be removed if used in a script, function, action, or connected to a label object.

Click **Next**.

Step 3: Label Copies Per Record

This step specifies the number of label copies to be printed for each database record.

Fixed number of printed labels lets you insert the number of copies manually.

Dynamically defined number of printed labels sets the number dynamically using a data source value.

EXAMPLE: The number of printed labels is defined in the database field of the record that is printed.

Use the same record for entire print job prints out the single selected record on the entire range of labels in a print job.

Click **Next** to proceed or **Finish** to continue working with the object.

Step 4: Create Objects

This step lets you decide whether new Text objects that display the content retrieved from database fields should be added to a label or not.

Create Objects step is visible when:

- Starting the database wizard from ZebraDesigner **Data** tab ribbon and adding a new database by clicking the database button.

Create Objects step for label designing:

- **Create a label text object for each field:** adds a Text object that contains database field content.
- **Do not create any label objects:** skips adding new objects.

> NOTE: The number of added objects depends on the number of fields in the database.

Click **Next**.

Step 5: Data Preview and Other Table Settings

This step gives a preview of the data retrieved from the database. It also offers additional table settings such as filtering and sorting.

Data tab displays a preview of data retrieved from the database file. You can use search controls at the top of the preview section to find a specific record.

> NOTE: Data preview shows up to 1000 rows.

Filter tab filters out the database file records. It allows you to define filtering conditions to be used when retrieving the data.

- **Add condition:** specifies single line condition(s) that filters out the content that meets the set criteria.
- **Add group:** specifies group(s) of conditions that filter out the content that meets the set criteria.

Sorting tab allows you to sort the retrieved data. Sorting is done for all of the fields that are added to the sorting list. Each field can be in ascending or descending order.

SQL tab offers a preview of the generated SQL statements.

Click **Finish**. The database is ready to be used as label object data source.

8.4.2.3 Database Wizard for Access Database

This section describes how to connect Access database to an object using the ZebraDesigner Step-by-Step Database Wizard.

Step 1: Connection Settings

This step defines the Access database file connection details.

File name selects the database file.

Authentication requires **User name** and **Password** for password protected Access database files.

Advanced Setup opens the system configuration dialog. *Data Link Properties* window allows you to set the connection properties. **Data Link Properties** is a Windows system dialog – read more about its properties [here](#).

Test Connection button starts a connection testing procedure. It checks if ZebraDesigner can successfully connect to the database.

Click **Next**.

Step 2: Tables and Fields

Tables group allows you to select which tables of the connected database should be used as data source.

- **Available tables:** available tables in the selected database.
- **Selected tables:** tables that are used as data source.

Click **Add >** or **< Remove** buttons to add or remove the tables from the **Selected fields**.

> NOTE: When editing an existing database, a table cannot be removed if used in a script, function, action, or connected to a label object.

Step 3: Label Copies Per Record

This step specifies the number of label copies to be printed for each database record.

Fixed number of printed labels lets you insert the number of copies manually.

Dynamically defined number of printed labels sets the number dynamically using a data source value.

> **EXAMPLE:** The number of printed labels is defined in the database field of the record that is printed.

Use the same record for entire print job prints out the single selected record on the entire range of labels in a print job.

Click **Next** to proceed or **Finish** to continue working with the object.

Step 4: Create Objects

This step lets you decide whether new Text objects that display the content retrieved from database fields should be added to a label or not.

Create Objects step is visible when:

- Starting the database wizard from ZebraDesigner **Data** tab ribbon and adding a new database by clicking the database button.

Create Objects step for label designing:

- **Create a label text object for each field:** adds a Text object that contains database field content.
- **Do not create any label objects:** skips adding new objects.

> NOTE: The number of added objects depends on the number of fields in the database.

Click **Next**.

Step 5: Data Preview and Other Table Settings

This step gives a preview of the data retrieved from the database. It also offers additional table settings such as filtering and sorting.

Data tab displays a preview of data retrieved from the database file. You can use search controls at the top of the preview section to find a specific record.

> NOTE: Data preview shows up to 1000 rows.

Filter tab filters out the database file records. It allows you to define filtering conditions to be used when retrieving the data.

- **Add condition:** specifies single line condition(s) that filters out the content that meets the set criteria.
- **Add group:** specifies group(s) of conditions that filter out the content that meets the set criteria.

Sorting tab allows you to sort the retrieved data. Sorting is done for all of the fields that are added to the sorting list. Each field can be in ascending or descending order.

SQL tab offers a preview of the generated SQL statements.

Click **Finish**. The database is ready to be used as label or form object data source.

8.4.2.4 Database Wizard for Text Files

This section describes how to use a text file as data source in label or form objects. A text file is connected to an object using the ZebraDesigner Step-by-Step Database Wizard.

Step 0: Text File Structure Wizard

Text File Structure Wizard window opens if a structure for a text file you are connecting hasn't been defined previously.

The steps for completing the **Text File Structure Wizard** are described in a dedicated section.

> NOTE: After finishing this procedure, a text definition .sch file with the same name as the text database file and is created in the same folder. Next time the wizard is used on the same file, this procedure is no longer required.

Step 1: Connection Settings

This step defines the text file path.

File name defines the location of the Text file to be used. Enter the location manually or click **Browse** to locate it in the system.

Test Connection button starts a connection testing procedure. It checks if ZebraDesigner can successfully connect to the database.

Click **Next**.

Step 2: Tables and Fields

Tables group allows you to select which tables of the connected database should be used as data source.

- **Available tables:** available tables in the selected database.
- **Selected tables:** tables that are used as data source.

Click **Add >** or **< Remove** buttons to add or remove the tables from the **Selected fields**.

> NOTE: When editing an existing database, a table cannot be removed if used in a script, function, action, or connected to a label object.

> NOTE: Table selection is not available when adding a text file as a database. The entire text file is treated as a single database table.

Step 3: Label Copies Per Record

This step specifies the number of label copies to be printed for each database record.

Fixed number of printed labels lets you insert the number of copies manually.

Dynamically defined number of printed labels sets the number dynamically using a data source value.

> **EXAMPLE:** The number of printed labels is defined in the database field of the record that is printed.

Use the same record for entire print job prints out the single selected record on the entire range of labels in a print job.

Click **Next** to proceed or **Finish** to continue working with the object.

Step 4: Create Objects

This step lets you decide whether new Text objects that display the content retrieved from database fields should be added to a label or not.

Create Objects step is visible when:

- Starting the database wizard from ZebraDesigner **Data** tab ribbon and adding a new database by clicking the database button.

Create Objects step for label designing:

- **Create a label text object for each field:** adds a <u>Text</u> object that contains database field content.
- **Do not create any label objects:** skips adding new objects.

> NOTE: The number of added objects depends on the number of fields in the database.

Click **Next**.

Step 5: Data Preview and Other Table Settings

This step gives a preview of the data retrieved from the database. It also offers additional table settings such as filtering and sorting.

Data tab displays a preview of data retrieved from the database file. You can use search controls at the top of the preview section to find a specific record.

> NOTE: Data preview shows up to 1000 rows.

Fields tab displays available and selected database fields. The settings configured in "Step 3: Label Copies Per Record" on the previous page can be redone on this tab.

Click **Finish**. The database is ready to be used as label object data source.

8.4.2.5 Database Wizard for ODBC Data Sources

This section describes how to work with ZebraDesigner Step-by-Step Database Wizard when adding an ODBC data source.

The Microsoft® ODBC Data Source Administrator manages database drivers and data sources. This application is located in the Windows Control Panel under Administrative Tools.

For information about detailed ODBC Administrator procedures, open the ODBC Data Source Administrator dialog box and click Help.

Step 1: Connection information

This step defines the database connection details.

Connection Information group defines the type of database that is going to be used with ODBC connection.

- **Data Source:** defines the database to retrieve the data from. Databases that are listed in the dropdown list are managed using the **ODBC Administrator**.
- **Driver:** displays the database driver according to the selected data source.

Authentication group includes user name and password fields for the ODBC connection. User authentication is necessary in certain cases – e.g., if SQL authentication is required when connecting to an SQL server.

- **User name:** enter the correct user name to access the ODBC database.
- **Password:** enter the correct password to access the ODBC database.

> NOTE: Username and password are always shown. Their use depends on the database administration policy.

ODBC Administrator button opens the system ODBC administration dialog. See more details about the dialog here.

Test Connection button starts a connection testing procedure. It checks if ZebraDesigner can successfully connect to the database.

Step 2: Tables and Fields

Tables group allows you to select which tables of the connected database should be used as data source.

- **Available tables:** available tables in the selected database.
- **Selected tables:** tables that are used as data source.

Click **Add >** or **< Remove** buttons to add or remove the tables from the **Selected fields**.

> NOTE: When editing an existing database, a table cannot be removed if used in a script, function, action, or connected to a label object.

Step 3: Label Copies Per Record

This step specifies the number of label copies to be printed for each database record.

Fixed number of printed labels lets you insert the number of copies manually.

Dynamically defined number of printed labels sets the number dynamically using a data source value.

> **EXAMPLE:** The number of printed labels is defined in the database field of the record that is printed.

Use the same record for entire print job prints out the single selected record on the entire range of labels in a print job.

Click **Next** to proceed or **Finish** to continue working with the object.

Step 4: Create Objects

This step lets you decide whether new Text objects that display the content retrieved from database fields should be added to a label or not.

Create Objects step is visible when:

- Starting the database wizard from ZebraDesigner **Data** tab ribbon and adding a new database by clicking the database button.

Create Objects step for label designing:

- **Create a label text object for each field:** adds a [Text] object that contains database field content.

- **Do not create any label objects:** skips adding new objects.

> NOTE: The number of added objects depends on the number of fields in the database.

Click **Next**.

Step 5: Data Preview and Other Table Settings

This step gives a preview of the data retrieved from the database. It also offers additional table settings such as filtering and sorting.

Data tab displays a preview of data retrieved from the database file. You can use search controls at the top of the preview section to find a specific record.

> NOTE: Data preview shows up to 1000 rows.

Filter tab filters out the database file records. It allows you to define filtering conditions to be used when retrieving the data.

- **Add condition:** specifies single line condition(s) that filters out the content that meets the set criteria.
- **Add group:** specifies group(s) of conditions that filter out the content that meets the set criteria.

Sorting tab allows you to sort the retrieved data. Sorting is done for all of the fields that are added to the sorting list. Each field can be in ascending or descending order.

SQL tab offers a preview of the generated SQL statements.

Click **Finish**. The database is ready to be used as a label object data source.

8.5 Special Character Shortcuts

ZebraDesigner includes several predefined control characters – select them from the dropdown menu in any dialog when text input is enabled. An arrow button on the right side of the edit field lists the shortcuts.

> **EXAMPLE:** FNC1 character can simply be encoded as <FNC1>.

If specific special character is not available on the list of shortcuts, see sections "Insert Characters with <Alt>+<ASCII_code>" on page 154 and 154.

ASCII code	Abbreviation used in the application	Description of the character
1	SOH	Start of Heading
2	STX	Start of Text
3	ETX	End of Text
4	EOT	End of Transmission
23	ETB	End Transmission Block
25	EM	End of Medium
5	ENQ	Enquiry
6	ACK	Acknowledgment
7	BEL	Bell
8	BS	Back Space
9	HT	Horizontal Tab
11	VT	Vertical Tab
13	CR	Carriage Return
10	LF	Line Feed
12	FF	Form Feed
14	SO	Shift Out
15	SI	Shift In
16	DLE	Data Link Escape
17	DC1	XON - Device Control 1
18	DC2	Device Control 2
19	DC3	XOFF - Device Control 3
20	DC4	Device Control 4
28	FS	File Separator
29	GS	Group Separator
30	RS	Record Separator
31	US	Unit Separator
21	NAK	Negative Acknowledgment
22	SYN	Synchronous Idle
24	CAN	Cancel
26	SUB	Substitute
27	ESC	Escape

188	FNC	Function Code 1
189	FNC	Function Code 2
190	FNC	Function Code 3
191	FNC	Function Code 4

9 How To

9.1 Insert Characters with <#hex_code> Syntax

Another method of entering special characters is using the syntax <#hex_code>. The hex_code stands for a two-character mark in hexadecimal numerical system. The appropriate values go from 0 (decimal 0) to FF (decimal 255).

EXAMPLE: <#BC> (decimal 188) would be the same as <FNC1>, as they both would encode the character with ASCII code 0188.

9.2 Insert Characters with <Alt>+<ASCII_code>

This method is valid only for characters that are above ASCII code 32. A typical example would be FNC codes that are used to encode GS1-128 barcode data. Labeling software encodes this type of barcode according to standards – normally, you would not have to change anything. However, sometimes it becomes necessary to manually add such character, to label data.

To include Function Codes, enter the appropriate character for a Function Code. ASCII codes of Function Codes are as follows:

FNC1	0188
FNC2	0189
FNC3	0190
FNC4	0191

To enter a character for FNC1, press and hold the `<Alt>` key and type in digits 0188 on the numeric keyboard. Note the leading zero is mandatory. Release the `<Alt>` and the FNC1 character appears.

9.3 Printing of Unlimited Data

When printing labels with **All (unlimited quantity)** option selected, the labels are printed in various quantities, depending on the label content.

All (unlimited quantity) option sets the printing quantity in two ways.

9.3.1 Label with Connected Database or Counter

With **All (unlimited quantity)** option selected, the number of printed labels is not limited up front. It is determined by one of the following properties:

- Number of database records to be printed.
- Quantity set by the counters used on the label.

> **TIP:** **All (unlimited quantity)** option is useful when printing labels connected to a database. The number of labels to be printed for such labels is usually not known in advance. After selecting this option, all relevant records from the connected database are printed.

> **NOTE:** With multiple databases or counters for print quantity, the one with the lowest value actually determines the number of printed labels.

> **EXAMPLE:**
> Counter value: 90
> Number of database values: 100
> **Number of printed labels under All (unlimited quantity): 90**

9.3.2 Label without connected Database or Counter

If a label does not use database or counter objects, a maximum supported number of identical label copies is printed. In such case, the printing continues until:

- Printer is switched off.
- Printer receives a command to clear its memory buffer.

NOTE: When printing identical label copies, use a Zebra printer driver to print the labels. The driver is aware of printer's quantity limitations and prints the exact supported number of labels.

NOTE: If you select **All (unlimited quantity)**, and the maximum supported print quantity is 32000, the printer will print all of them.

9.4 Using the Internal Printer Counter

Almost all thermal printers support an internal increment counter functionality. This is a special printer counter that counts labels internally. The printer only receives the first value of the counter and automatically increments the counter by 1 on the subsequent labels.
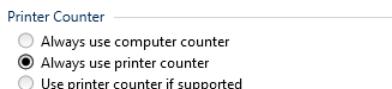
TIP: Internal counters reduce the amount of data transferred between computer and printer as only the start value is sent to printer. This speeds up the label production significantly.

To use counter as internal printer element, pay attention to the following settings:

- The variable's maximum length is limited by you printer. You should find this value in your printer's Owner Manuals. If you can not find this value, experiment.
- The variable length has to be set by enabling the **Limit length** option (go to **Counter properties > Input rules**).
- Set allowed characters to **Numeric**.
- The Text object linked to the variable must be formatted as internal printer font (make sure the **Show printer fonts only** option is enabled.

- Enable the option **Always use printer counter** in the **Source** tab. This option is available only if the counter variable has been set up properly.

- A symbol for internal printer must appear in the bottom right corner of the Text object

which contains the counter value.

10 Glossary

A

AI
Application Identifier

ANSI
American National Standards Institute

B

BOM
Bite Order Mark

C

CIJ
Continuous Inkjet

CSV
Comma Separated Values

D

DDL
Data Definition Language

DI
Data Identifier

DMRE
Data Matrix Rectangular Extension

E

EAS
Electronic Article Surveillance

F

FNC
Barcode extension character

G

GTIN
Global Trade Item Number

H

HIBC
Health Industry Bar Code

N

NDEF
NFC Data Exchange Format

NFC
Near Field Communication

O

ODBC
Microsoft Open Database Connectivity

OLE
Object Linking and Embedding

P

PJM
Phase Jitter Modulation

R

RF
Radio Frequency

RPC
Remote Procedure Call

RTF
Rich Text Format

S

SCAC
Standard Carrier Alpha Code

T

TID
Transponder ID

U

UNC
Universal Naming Convention

UPC
Universal Product Code

W

WSDL
Web Services Description Language

ZEBRA

www.zebra.com